Donner Summit Public Utility District and Soda Springs Mountain Resort

Engineering Report for the Production, Distribution, and Use of Recycled Water

Prepared for:
Boreal Ridge Corporation (BRC), dba Soda Springs Mountain Resort (SSMR)

Prepared by:
Stantec Consulting Services Inc.

July 22, 2015

Sign-off Sheet

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Robert Emerick, Ph.D., P.E.

Reviewed by _____
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Steven L. Beck, P.E.

Stantec

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1.0 INTRODUCTION

The Donner Summit Public Utility District (DSPUD) (Producer and Distributor) will provide recycled water that is produced by their new membrane bioreactor/UV disinfection based Wastewater Treatment Plant (WWTP). The wastewater will meet the "disinfected tertiary recycled water" standards as defined in the State of California Recycling Criteria, rendering it suitable for unrestricted reuse. Soda Springs Mountain Resort (SSMR) will receive, transport, and use the recycled water for snow making purposes for use in maintaining winter recreation at the resort.

Use of recycled water requires preparation of a Production, Distribution, and Use Report associated with the recycled water operation. The purpose of this report is to "describe the manner by which a project will comply with the Water Recycling Criteria" and "…contain(s) sufficient information to assure that the regulatory agencies that the degree and reliability of treatment is commensurate with the requirements for the proposed use, and that the distribution and use of the recycled water will not create a health hazard or nuisance." This report contains this required information and is consistent with previous discussions with Regional and State Board staff.

The State of California has issued a guidance document describing the needs associated with preparation of this report. The guidance document, entitled "Guidelines for the Preparation of an Engineering Report for the Production, Distribution, and Use of Recycled Water" is provided in Appendix A. This document has been prepared such that the information in this report is presented according to the numerical system described by that document.

2.0 RECYCLED WATER PROJECT

2.1 GENERAL

Due to the ongoing and persisting drought, SSMR desires to transition to use of recycled water produced at the Donner Summit Wastewater Treatment Plant in lieu of making sole use of surface water supplies for snowmaking. The regular variations in snow fall patterns annually have already resulted in the routine need to make snow to assure suitable operation during the ski season. Snow-making is not new to the resort. However, the current sustained drought, combined with the effects of climate change, require the resort to develop an alternative water supply. The recycled water produced by the Donner Summit Wastewater Treatment Plant (WWTP) is the most reliable source of water currently available. It is anticipated that lack of this alternative recycled water supply for snowmaking during the 2015/2016 calendar year (beginning in November) could result in non-operation until drought conditions are eliminated (a significant financial blow to both the ski resort and local tourism).

The wastewater treatment plant producing the recycled water was designed by Stantec. The Engineer of Record is Steven Beck (Civil Engineer License Number 43799) and was specifically designed to be fully compliant with both a surface water discharge to the South Yuba River and for the production of "disinfected tertiary recycled water" suitable for unrestricted reuse (applicable to snowmaking). Contact information for the Engineer of Record is:

Stantec Consulting Services Inc.
Steven L . Beck (Civil Engineer of Record)
Civil Engineering License Number 43799
3845 Atherton Road
Rocklin, CA 95765

Contact information for SSMR (User) and Donner Summit Public Utility District (Production and Distribution) is provided in Section 2.3.

Boreal Ridge Corp (the company operating SSMR) and Donner Summit Public Utility District have entered into a legal agreement outlining authorities and responsibilities between the agencies with respect to treatment, distribution, and use of the recycled water. This Legal Agreement is provided in Appendix B.

2.2 RULES AND REGULATIONS

The uses of recycled water for which this report has been prepared are limited in scope to snow making. This report will be amended to allow for additional uses into the future. At present, the water will only be used by SSMR personnel and the only codified rules and regulations are (1) the Agreement between BRC and Donner Summit Public Utility District (Appendix B) and (2) the Water Recycling Criteria described by adopted Order No. CA0081621 (Appendix C). The rules and regulations are limited in accordance with the scope of uses described.

The National Pollutant Elimination Discharge Permit pertaining to the WWTP has allowed for snowmaking at the SSMR site for over 10 years and was recently re-adopted in 2015. Although the permit has allowed for snowmaking, the actual act of making snow with recycled water has not been undertaken to date due to lack of pipelines and infrastructure at the resort. This pipeline is now ready to be installed and can be functional for snowmaking to commence upon suitable weather this fall. The permit requires approval of the State Water Resources Control Board and the Executive Officer before the snowmaking operation can proceed.

Distribution will occur on the WWTP site and will be limited to the pipeline servicing the SSMR. The pipeline is designated for non-potable use only, is purple in conformance with Title 22 requirements, and is clearly identified with warning signs. Control of recycled water will be via means of a main valve on the WWTP effluent storage tank. Placement of compliant recycled water into the storage tank is possible only by DSPUD personnel. SSMR is able to draw recycled water from the tank via their SCADA control system for snowmaking needs.

2.3 PRODUCER-DISTRIBUTOR-USER

For purposes of this Engineering Report, The DSPUD will serve as both the Producer and the Distributor. SSMR (operated by BRC) will be the User. Contact Information for each entity is as follows:

Producer and Distributor:

Donner Summit Public Utility District
Attn: Tom Skjelstad
53823 Sherritt Lane
P.O. Box 610
Soda Springs, CA 95728

User:

Soda Springs Mountain Resort
Attn: Amy Ohran
P.O. Box 39
Truckee, CA 96160

2.4 RAW WASTEWATER

The raw wastewater is strictly municipal in origin, with no industrial contributions. The treated wastewater has been fully characterized for surface water discharge to the South Yuba River as is summarized in the Report of Waste Discharge that was submitted for issuance of Order No. CA0081621. A summary of the chemical quality of the recycled water is provided in Appendix D. As described by Order No. CA0081621, the melting snowmelt poses no threat to surface water quality and does not require additional regulation owing to the high level of treatment.

2.5 TREATMENT PROCESSES

The WWTP is based on use of a membrane bioreactor for activated sludge biological treatment and UV disinfection. All processes have suitable redundancy to assure operating with a component out of service. All design requirements associated with producing disinfected tertiary recycled water, including redundancy, alarms, monitoring, and control have been included as part of the new facility design. Additionally, the facility makes use of storage and also holds a discharge permit to the South Yuba River. The South Yuba River is of exceptionally high quality and the effluent is regulated to assure no adverse impact to the South Yuba River (Appendix C).

A schematic of the Donner Summit WWTP is provided in Appendix E. A summary of the loading rates for all facilities is also provided in Appendix E.

Filtration is via submerged membrane filters. Effluent turbidity will be less than 0.2 NTU, in conformance with both the discharge permit and Title 22 recycling criteria for unrestricted reuse.

The only chemicals used in the process are (1) lime for alkalinity control to maintain the nitrification/denitrification activated sludge process, (2) Chem-C as a supplemental carbon source, and (3) ammonia as a supplemental ammonia source. The addition of Chem-C and ammonia is required because, during summer months, there is insufficient ammonia and carbon available to develop the populations of nitrifying and denitrifying organisms necessary for proper wastewater treatment during holiday weekends. By building the organism populations in advance, adequate populations of critical microorganisms are assured.

Chlorine is not used as part of routine operation of the facility. The facility makes use of UV light for disinfection. The UV disinfection facility has been tested and shown to produce the required UV dose (i.e., 80 mJ/cm^2). The results of the UV disinfection testing is provided in Appendix F.

The WWTP has an electronic Operations and Maintenance Manual that cover all of the treatment facilities. Insofar at the WWTP is new as of 2015, there are manuals covering all of the individual pieces of equipment.

2.6 PLANT RELIABILITY FEATURES

2.6.1 Storage

There is a 1.56 Mgal open-top steel tank at the DSPUD wastewater treatment plant that can be used for three purposes; emergency storage, irrigation operational storage, and snowmaking storage. The emergency storage function is used primarily in the wet season to store any effluent that might not meet the standards for river discharge. In this mode, the non-compliant effluent can be returned through the wastewater treatment plant for retreatment and subsequent discharge. The irrigation operational storage function is used in the dry season. When the effluent is used for irrigation, effluent is stored in the tank between operating cycles of the irrigation system. Additionally, at the beginning of the dry season, the tank can be filled to allow cessation of river discharge several days before the beginning of irrigation operations. Lastly, water can be placed in the storage tank to facilitate snowmaking. In this mode, SSMR alerts DSPUD staff of the needs for snowmaking. DSPUD staff purposely partially fill the tank with compliant disinfected tertiary recycled water and alerts SSMR staff of water availability. SSMR staff can then draw the water via the SCADA control system. The SCADA control system alerts DSPUD staff of all water deliveries to SSMR.

The existing tank can provide for approximately two days of emergency storage with winter peak flows.

There is also a 0.2 Mgal equalization tank No. 1 and a 0.7 Mgal equalization tank No. 2, both of which contain aerators and mixers. Thus, the flow can be stopped to the entire treatment plant while using this additional 0.9 Mgal of equalization storage.

Storage is activated whenever out of spec water is observed via continuous monitoring of turbidity and UV Dose. If non-compliant water is placed in the storage tank, the SCADA system issues alarms and water can only be diverted back to through the WWTP for retreatment. Water cannot be distributed to SSMR until the tank is completely emptied.

Insofar as the membranes have a pore size smaller than the size of total coliform bacteria, very few to no total coliform (and other bacteria) will pass through the membrane. The UV dose is intended to inactivate suitable virus to render the recycled water essentially pathogen free.

Alarms are recorded by the plant SCADA system and alert operations personnel to problems immediately. The treatment plant is staffed 8-hours per day, with on-call the remaining 16 off-hours. The Chief Plant Operator (Jim King) is notified immediately of all alarms through the plant SCADA system.

2.6.2 Alternative Disposal

Snow-making is not a requirement for disposal of the effluent from the Donner Summit WWTP. The facility holds a NPDES permit that allows for discharge to the South Yuba River (Appendix C). In the event water is not used for snow-making purposes, water can be discharged lawfully to the South Yuba River.

2.6.3 Emergency Generator

The facility makes use of two diesel powered standby generators, each with 600 kW output. These facilities are sufficient to power the WWTP during power outage conditions.

2.6.4 Alarms

The facility is fully alarmed to alert operations personnel of any non-functional or out-of-specification water.

2.6.5 Distribution

Recycled water will be supplied to the User through the use of irrigation pumps located downstream from the emergency storage tank. No water can be distributed to the SSMR without DSPUD personnel placing compliant water in the storage tank for use by SSMR personnel.

2.6.6 Heating

In the event the wastewater is too cold to permit biological treatment, the WWTP makes use of propane powered heaters to warm the water facilitate biological treatment.

2.7 SUPPLEMENTAL WATER SUPPLY

Currently, the resort has made use of potable water from a DSPUD fire hydrant for snow-making purposes. Access to this potable water is controlled by DSPUD and will no longer be permitted once recycled water is used for snowmaking purposes. Once this project is approved and commences, there will not be a supplemental water supply at SSMR for snowmaking purposes. At Boreal Mountain Resort (5 miles NE) BRC also uses untreated surface water for snowmaking purposes. This untreated surface water contains background pathogens at concentrations higher than would be expected of "disinfected tertiary recycled water," which is essentially pathogen-free. The physical distance between the two resorts prevents any cross connection between the untreated water and the treated recycled water systems. The controlled access to potable water at SSMR prevents cross connection between potable water and the treated recycled water system. The distinctly unique non domestic equipment used for snowmaking (2" camlock hose) prevents any accidental cross connection to domestic hose bibs in the potable water system at SSMR.

2.8 MONITORING AND REPORTING

The Monitoring and Reporting Program for the WWTP, including the snow-making operation, is described in full by Order No. CA0081621(Appendix C). All analyses are performed by laboratories approved by the State Department of Health Services.

2.9 CONTINGENCY PLAN

Section 60323(c) of the Water Recycling Criteria requires that the engineering report contain a contingency plan designed to prevent inadequately treated wastewater from being delivered to the user. Below are the questions and answers required of the contingency plan:

1. List the conditions which would require an immediate diversion to take place.

    a. An immediate diversion (i.e., water will not be delivered to the SSMR) if the measured turbidity exceeds 0.2 NTU at any time, the UV transmittance drops below 65%, or the applied UV dose drops below 80 mJ/cm^2 at any time. During these periods, water will be diverted to either storage or to the outfall in the South Yuba River until compliance resumes. Averaging periods associated with the discharge to the South Yuba River allow for lawful discharges even when water may not be suitable for snowmaking needs.

2. Describe the diversion procedures.

    a. A schematic of the treatment process is provided in Appendix E.

    b. The effluent pipeline is valved to either direct water to the Emergency Storage and Irrigation Supply Tank, which is used to provide water to the SSMR, or to the South

Yuba River. Only water that is compliant with the turbidity, transmittance, and UV dose specifications can be directed to snow-making uses. If the storage tank receives non-compliant water during emergency conditions, the SCADA alarms prevent the water from being distributed, and only allow for retreatment through the WWTP until the tank is fully emptied.

c. Recycled water must pass through the Emergency Storage and Irrigation Supply Tank using irrigation pumps that deliver water to the SSMR. The pumps can only be operated by Donner Summit Personnel and non-compliant alarms automatically preclude operation of the pumps. Non-compliant recycled water, should it reach the emergency storage and irrigation supply tank, will be returned via manual operation to the Equalization Storage tanks for retreatment through the WWTP.

3. Provide a description of the diversion area including capacity, holding time, and return capabilities.

   a. The primary means of diversion is to the South Yuba River. A copy of the discharge permit and its associated requirements is provided in Appendix C. The discharge permit can accommodate the entire discharge flow for infinite duration during the snow-making season (e.g., November through June).

4. A description of plans for activation of supplemental supplies (if applicable):

   a. Snowmaking is an operation that is contingent upon adequate atmospheric conditions to render snowmaking possible. Thus, human judgement is always present as to whether snow should be made at any time. There is no requirement to make snow at all times.

   b. SSMR purchases potable water (when available) from DSPUD for making snow. This water has always been available prior to the current drought. If recycled water is approved but not available, no snowmaking will occur. Currently, the ski resort is simply closed once inadequate snow is available.

5. What is the plan for the disposal or treatment of any inadequately treated effluent.

   a. Snowmaking is not a required disposal method. The primary means of disposal is via discharge to the South Yuba River via a NPDES permit (Appendix C) during the snowmaking season (Winter). Snowmaking only occurs as needed. Effluent that is non-compliant with the discharge permit will incur mandatory minimum penalties with regards to violation of effluent limitations and potentially discretionary penalties for violations of other permit requirements. The facility has been designed using Industry the standard of care for surface water discharges.

6. Provide a description of fail-safe features in the event of a power failure.

    a. The WWTP makes use of diesel powered emergency generators to assure proper functioning of the WWTP. Water cannot pass through the membranes without pumping and cannot be diverted to the Ski Area without power. Thus, it is impossible to provide recycled water in the event of loss of power and concurrent diesel generator failure.

7. Provide a plan (including methods) for notifying the recycled water users(s), the regional board, the state and local health departments, and other agencies as appropriate, of any treatment failures that could result in the delivery of inadequately treated recycled water to the use area.

    a. As stated above, it is impossible to send inadequately treated recycled water to the use area. If an unlawful event resulted in such a discharge, the Chief Plant Operator (Jim King) and/or the General Manager (Tom Skjelstad) would personally call each agency and the user and report the incident.

3.0 TRANSMISSION AND DISTRIBUTION SYSTEMS

A map illustrating the location of the transmission facilities and the distribution system layout is provided in Appendix G. The schematic includes the ownership and location of all potable water lines, recycled water lines, and sewer lines within the recycled water service area and use area.

4.0 USE AREAS

A map illustrating the snowmaking use area is provided in Appendix H. The map contains

- The specific area of use
- Areas of public access
- Surrounding land uses
- The location of recycled water use signage

There are no wells within 1,000 feet of the use areas. As shown in the figure provided in Appendix H, there is a buffer zone between the snowmaking use area and residential homes to prevent mists from leaving the use area.

The resort is completely accessible to the public, provided the public purchases lift tickets to access the ski lifts. The winter activities at the resort are not operated during closed hours when actual snowmaking takes place, so it is not possible for the public to be present in areas of active snowmaking. The land use applicable to the use area is hiking during the non-ski periods of the year and snow-skiing during the ski periods of the year (exclusively). The only type of reuse proposed is snow-making.

The party responsible for the distribution and use of the recycled water at the SSMR site is:

Distribution – DSPUD
Use – Boreal Ridge Corp

Other governmental agencies that have regulatory jurisdiction over the reuse site includes

County of Nevada, CA

There are no use-area containment measures. Snowmaking will occur throughout the identified area. The Regional Board has determined that melting snow does not have a potential to adversely affect water quality and has specifically stated in Order No. CA0081621 that melted snow containing recycled water does not require additional regulation or permitting. No other water source will be used for Snowmaking

4.1 IRRIGATION

The Donner Summit WWTP practices land irrigation during the summer months on the ski slope area for erosion control. This is part of a disposal project, also regulated by Order No. CA0081621, and is not considered recycling because no marketable crop is being produced. The above ground components of the irrigation system are portable, and are completely removed prior to the ski season. There is no recycled water irrigation operation as part of this project.

4.2 IMPOUNDMENTS

No impoundments are included as part of this project. Snow is allowed to melt and drain into the South Yuba River naturally. The regional board has determined that this melting snow does not constitute a threat to water quality and does not require additional regulation or permitting (Appendix C).

4.3 COOLING

Not applicable to this project.

4.4 GROUNDWATER RECHARGE

Not applicable to this project.

4.5 DUAL PLUMBED USE AREAS

Not applicable to this project.

4.6 OTHER INDUSTRIAL USES

Not applicable to this project.

4.7 USE AREA DESIGN

It is not possible for the recycled water (snow) to impact the potable water distribution system. There are no connections to the potable water system.

4.8 USE AREA INSPECTIONS AND MONITORING

The Monitoring and Reporting program is provided in Order No. CA0081621 (Appendix C).

4.9 EMPLOYEE TRAINING

The Employee Training program, including the written information provided to the public and employees, is provided in Appendix I.

APPENDICES

Appendix A GUIDELINES FOR THE PREPARATION OF AN ENGINEERING REPORT FOR THE PRODUCTION, DISTRIBUTION, AND USE OF RECYCLED WATER

DEPARTMENT OF HEALTH SERVICES
DIVISION OF DRINKING WATER AND ENVIRONMENTAL MANAGEMENT
DRINKING WATER PROGRAM
RECYCLED WATER UNIT

GUIDELINES FOR THE PREPARATION OF AN ENGINEERING REPORT FOR THE PRODUCTION, DISTRIBUTION AND USE OF RECYCLED WATER

March 2001
(Replaces September 1997 Version)

1.0 INTRODUCTION

The current State of California Water Recycling Criteria (adopted in December 2000) require the submission of an engineering report to the California Regional Water Quality Control Board (RWQCB) and the Department of Health Services (DHS) before recycled water projects are implemented. These reports must also be amended prior to any modification to existing projects. The purpose of an engineering report is to describe the manner by which a project will comply with the Water Recycling Criteria. The Water Recycling Criteria are contained in Sections 60301 through 60355, inclusive, of the California Code of Regulations, Title 22. The Criteria prescribe:

* Recycled water quality and wastewater treatment requirements for the various types of allowed uses,

* Use area requirements pertaining to the actual location of use of the recycled water (including dual plumbed facilities), and

* Reliability features required in the treatment facilities to ensure safe performance.

Section 60323 of the Water Recycling Criteria specifies that the engineering report be prepared by a properly qualified engineer, registered in California and experienced in the field of wastewater treatment.

Recycled water projects vary in complexity. Therefore, reports will vary in content, and the detail presented will depend on the scope of the proposed project and the number and nature of the agencies involved in the production, distribution, and use of the recycled water. The report should contain sufficient information

to assure the regulatory agencies that the degree and reliability of treatment is commensurate with the requirements for the proposed use, and that the distribution and use of the recycled water will not create a health hazard or nuisance.

The intent of these guidelines is to provide a framework to assist in developing a comprehensive report which addresses all necessary elements of a proposed or modified project. Such a report is necessary to allow for the required regulatory review and approval of a recycled water project.

References which may assist in addressing various project elements include:

- State of California Water Recycling Criteria (December 2000)
- State of California Regulations Relating to Cross-Connections
- California Waterworks Standards
- California Water Code
- Guidelines for the Distribution of Non-potable Water, (California-Nevada Section-AWWA, 1992)
- Guidelines For The On-Site Retrofit of Facilities Using Disinfected Tertiary Recycled Water (California-Nevada Section-AWWA, 1997)
- Manual of Cross-Connection Control/Procedures and Practices (DOHS)
- Ultraviolet Disinfection – Guidelines for Drinking Water and Water Reuse (NWRI/AWWARF, December 2000)

2.0 RECYCLED WATER PROJECT

The following sections discuss the type of information that should be presented and described in the engineering report. Some sections may be applicable only to certain types of uses.

2.1 General

The report shall identify all agencies or entities that will be involved in the design, treatment, distribution, construction, operation and maintenance of the recycled facilities, including a description of any legal arrangements outlining authorities and responsibilities between the

agencies with respect to treatment, distribution and use of recycled water. In areas where more than one agency/entity is involved in the reuse project, a description of arrangements for coordinating all reuse-related activities (e.g. line construction/repairs) shall be provided. An organizational chart may be useful.

2.2 Rules and Regulations

The procedures, restrictions, and other requirements that will be imposed by the distributor and/or user should be described. In multiple projects covered under a Master Permit issued by the Regional Boards where the reuse oversight responsibility is delegated to the distributor and/or user, the requirements and restrictions should be codified into a set of enforceable rules and regulations. The rules and regulations should include a compliance program to be used to protect the public health and prevent cross connections. Describe in the report the adoption of enforceable rules and regulations that cover all of the design and construction, operation and maintenance of the distribution systems and use areas, as well as use area control measures. Provide a description of the organization of the agency or agencies who has the authority to implement and enforce the rules and regulations, and the responsibilities of pertinent personnel involved in the reuse program. Reference to any ordinances, rules of service, contractual arrangements, etc. should be provided.

2.3 Producer – Distributor - User

The producer is the public or private entity that will treat and/or distribute the recycled water used in the project. Where more than one entity is involved in the treatment or distribution of the recycled water, the roles and responsibilities of each entity (i.e. producer, distributor, user) should be described.

2.4 Raw Wastewater

Describe the chemical quality, including ranges with median and 95th percentile values;

Describe the source of the wastewater to be used and the proportion and types of industrial waste, and

Describe all source control programs.

2.5 Treatment Processes

Provide a schematic of the treatment train;

Describe the treatment processes including loading rates and contact times;

All filtration design criteria should be provided (filtration and backwash rates, filter depth and media specifications, etc.). The expected turbidities of the filter influent (prior to the addition of chemicals) and the filter effluent should be stated;

State the chemicals that will be used, the method of mixing, the degree of mixing, the point of application, and the dosages. Also describe the chemical storage and handling facilities, and

Describe the operation and maintenance manuals available.

2.6 Plant Reliability Features

The plant reliability features proposed to comply with Sections 60333 - 60355 of the Water Recycling Criteria should be described in detail. The discussion of each reliability feature should state under what conditions it will be actuated. When alarms are used to indicate system failure, the report should state where the alarm will be received, how the location is staffed, and who will be notified. The report should also state the hours that the plant will be staffed.

2.7 Supplemental Water Supply

The report should describe all supplemental water supplies. The description should include:

* Purpose

* Source

* Quality

* Quantity available

* Cross-connection control and backflow prevention measures

2.8 Monitoring and Reporting

The report should describe the planned monitoring and reporting program, including all monitoring required by the Water Recycling Criteria, and include the frequency and location of sampling. Where continuous analysis and recording equipment is used, the method and frequency of calibration

should be stated. All analyses shall be performed by a laboratory approved by the State Department of Health Services.

2.9 Contingency Plan

Section 60323 (c) of the Water Recycling Criteria requires that the engineering report contain a contingency plan designed to prevent inadequately treated wastewater from being delivered to the user. The contingency plan should include:

* A list of conditions which would require an immediate diversion to take place;

* A description of the diversion procedures;

* A description of the diversion area including capacity, holding time and return capabilities;

* A description of plans for activation of supplemental supplies (if applicable);

* A plan for the disposal or treatment of any inadequately treated effluent;

* A description of fail safe features in the event of a power failure, and

  A plan (including methods) for notifying the recycled water user(s), the regional board, the state and local health departments, and other agencies as appropriate, of any treatment failures that could result in the delivery of inadequately treated recycled water to the use area.

3.0 TRANSMISSION AND DISTRIBUTION SYSTEMS

Maps and/or plans showing the location of the transmission facilities and the distribution system layout should be provided. The plans should include the ownership and location of all potable water lines, recycled water lines and sewer lines within the recycled water service area and use area(s).

4.0 USE AREAS

The description of each use area should include:

* The type of land uses;

* The specific type of reuse proposed;

* The party(s) responsible for the distribution and use of the recycled water at the site;

* Identification of other governmental entities which may have regulatory jurisdiction over the re-use site such as the US Department of Agriculture, State Department of Health Services, Food and Drug Branch, the State Department of Health Services, Licensing and Certification Section, etc. These agencies should also be provided with a copy of the Title 22 Engineering Report for review and comment.

* Use area containment measures;

* A map showing:

  -Specific areas of use

  -Areas of public access

  -Surrounding land uses

  -The location and construction details of wells in or within 1000 feet of the use area

  -Location and type of signage

* The degree of potential access by employees or the public;

* For use areas where both potable and recycled water lines exist, a description of the cross-connection control procedures which will be used.

In addition to the general information described above, the following should be provided for the following specific proposed uses:

4.1 Irrigation

-Detailed plans showing all piping networks within the use area including recycled, potable, sewage and others as applicable.

-Description of what will be irrigated (e.g. landscape, specific food crop, etc.);

-Method of irrigation (e.g. spray, flood, or drip);

-The location of domestic water supply facilities in or adjacent to the use area;

-Site containment measures;

-Measures to be taken to minimize ponding;

-The direction of drainage and a description of the area to which the drainage will flow;

-A map and/or description of how the setback distances of Section 60310 will be maintained;

-Protection measures of drinking water fountains and designated outdoor eating areas, if applicable;

-Location and wording of public warning signs,

-The proposed irrigation schedule (if public access is included), and

-Measures to be taken to exclude or minimize public contact.

4.2 Impoundments

-The type of use or activity to be allowed on the impoundment;

-Description of the degree of public access;

-The conditions under which the impoundment can be expected to overflow and the expected frequency, and

-The direction of drainage and a description of the area to which the drainage will flow.

4.3 Cooling

-Type of cooling system (e.g. cooling tower, spray, condenser, etc.);

-Type of biocide to be used, if applicable;

-Type of drift eliminator to be used, if applicable, and

-Potential for employee or public exposure, and mitigative measures to be employed.

4.4 Groundwater Recharge

An assessment of potential impacts the proposal will have on underlying groundwater aquifers. The appropriate information

shall be determined through consultation with the Department on a case by case basis.

4.5 Dual Plumbed Use Areas

In accordance with Sections 60313 through 60316 of the Water Recycling Criteria.

4.6 Other Industrial Uses

The appropriate information shall be determined on a case by case basis.

4.7 Use Area Design

The report should discuss how domestic water distribution system shall be protected from the recycled water in accordance with the Regulations Relating to Cross-Connections and the California Waterworks Standards, and how the facilities will be designed to minimize the chance of recycled water leaving the designated use area. Any proposed deviation from the Water Recycling Criteria and necessity therefore, should be discussed in the report.

4.8 Use Area Inspections and Monitoring

The report should describe the use area inspection program. It should identify the locations at the use area where problems are most likely to occur (e.g. ponding, runoff, overspray, cross-connections, etc.) and the personnel in charge of the monitoring and reporting of use area problems.

4.9 Employee Training

The report should describe the training which use area employees will receive to ensure compliance with the Recycled Water Criteria, and identify the entity that will provide the training and its' frequency. The report should also identify any written manuals of practice to be made available to employees.

Appendix B LEGAL AGREEMENT BETWEEN BRC AND DONNER SUMMIT PUBLIC UTILITY DISTRICT

AGREEMENT TO PURCHASE RECYCLED WATER

This Agreement is made and entered into this 17th day of July, 2015 (the "Effective Date"), by and between the **Donner Summit Public Utility District** ("DISTRICT"), and **Boreal Ridge Corporation** ("BUYER");

WHEREAS, BUYER is a proposed recycled water customer of the DISTRICT, and BUYER desires to purchase recycled water for purposes where potable water quality is not required by DISTRICT, State, or Federal Regulations; and

WHEREAS, the DISTRICT owns and operates a treatment and delivery system which shall be capable of delivering to BUYER recycled water meeting the quality standards set forth below; and

WHEREAS, an existing public recycled water pipeline is located adjacent to or on the BUYER'S property described below as the Place of Use, or BUYER desires to haul recycled water per all applicable regulations to BUYER'S property described below as the Place of Use; and

WHEREAS, BUYER intends to construct, operate and maintain a private recycled water system on BUYER'S property described below as the Place of Use.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the DISTRICT hereby agrees to sell and BUYER hereby agrees to purchase recycled water from the DISTRICT, subject to the following terms and conditions:

1. **Place of Use**. Recycled water delivered under this Agreement shall be stored and used only on the following attached described property ("the Property"), for the following described Intended Use: winter snowmaking.

2. **Quality Standards**. The recycled water delivered to the Property shall be suitable for BUYER'S Intended Use, and of a quality that is equal to or better than all applicable State and Federal standards for the BUYER'S Intended Use.

3. **Point of Delivery**. The DISTRICT shall deliver recycled water under this Agreement to the Point of Delivery, which is a location at or near the property line of the Property, or a location identified as an official self-loading station for the sole purpose of hauling recycled water, which shall be designated by the DISTRICT for acceptance and measuring of the recycled water by BUYER. The DISTRICT shall own and maintain a meter, valves, and other appurtenances necessary to meter recycled water.

4. **Commodity Rate**. The rate to be paid by BUYER for recycled water delivered by the DISTRICT under this Agreement shall be the standard rate that is applicable to that class of water and that class of user in effect at the time, date, and place of delivery, as set forth by DISTRICT Ordinance. Nothing herein shall excuse BUYER from payment of service or other charges as are applicable to the time, place, or manner of service and delivery.

5. **Costs to BUYER.** Any costs arising out of the use of recycled water by BUYER and from the construction, maintenance, or operation of the recycled water delivery system on the Property shall be the sole responsibility of BUYER.

6. **Compliance with Regulations.** BUYER and DISTRICT agree, at each party's sole cost and responsibility, to comply with all applicable Federal, State and local laws, regulations and standards, as now exist, and are later lawfully enacted relating to the delivery and use of recycled water pursuant to the relevant National Pollutant Discharge Elimination System ("NPDES") Permit.

   BUYER acknowledges that pursuant to DISTRICT Ordinance 92-2, it shall be unlawful to permit any coupling, pipe, fitting, or tank not dedicated for potable water use to come into contact with public water facility dispensing hoses. Any person violating the provisions hereof shall be guilty of a misdemeanor and incur a penalty in the sum of one hundred-fifty dollars ($150.00).

7. **Commencement of Service.** Service shall commence on the day, of the year in which this Agreement is executed and approved as identified below. In no event shall such service begin prior to the DISTRICT'S inspection of BUYER'S on-sight recycled water storage and use system in order to verify compliance with all applicable requirements for the storage and use of recycled water.

8. **Duration and Termination of Service.** This initial term ("Initial Term") for this Agreement is five (5) years from the Effective Date. After the Initial Term expires, the Agreement shall automatically renew every year from the date of this Agreement. Either Party to this Agreement may terminate this Agreement before its expiration date with or without cause by giving the other Party at least thirty (30) days written notice. Any such renewal of this Agreement shall be subject to any changes in its terms and conditions deemed necessary and mutually agreed to by the Parties.

9. **Insurance and Indemnification.**

   (1) <u>BUYER'S Works and Facilities</u>. BUYER, at its own expense, shall keep BUYER'S works, facilities, buildings, and equipment insured in such amounts as BUYER deems appropriate.

   (2) <u>Public Liability Insurance</u>. During the term of this Agreement and any extensions thereof, BUYER shall, at its expense, obtain and maintain for the benefit of BUYER and DISTRICT, broad form general liability insurance and commercial auto insurance policy, insuring against claims and liability for personal injury, death or property damage, arising out of BUYER'S use or occupancy of the leasehold land and property or the activities and works of

BUYER hereunder. The amount of such insurance shall be not less than $3,000,000.00.

(3) Indemnity. BUYER shall indemnify DISTRICT against (i) liability or claims of liability for damage or injury to persons or property arising out of or due to any work, activity, use or occupancy of BUYER or BUYER'S agents, servants, employees or contractors hereunder and (ii) BUYER's material breach of this Agreement. DISTRICT shall indemnify BUYER against (i) damage or injury to BUYER's equipment arising out of or due to any work, activity, or use of DISTRICT or DISTRICT's agents, servants, employees or contractors ; (ii) DISTRICT's material breach of this Agreement; (iii) injury to, including death of, persons (whether they be third persons or employees of any of the parties hereto) or any loss of or damage to property in any manner arising from the negligence or willful misconduct of DISTRICT, its employees, and agents in the course of delivering recycled water to BUYER; and (iv) any failure by DISTRICT to maintain the quality of the recycled water delivered to BUYER.

10. **Potential Disruption of Service**. BUYER hereby agrees and accepts the possibility that the DISTRICT may be required to disrupt recycled water service to the Property due to emergency conditions, peak demands, or planned system maintenance. BUYER shall be responsible for any damage that may be caused to BUYER-owned facilities by such disruptions. In the event of any unforeseen emergency relating to the public recycled water delivery system, the DISTRICT may terminate delivery of recycled water to the Property without prior notice to BUYER. Whenever the DISTRICT provides BUYER with notice of an emergency, BUYER agrees to alter BUYER'S recycled water usage in accordance with the DISTRICT'S request. If DISTRICT must completely cease recycled water usage or reduce the volume of recycled water used on the Property, to accommodate peak demand periods or planned maintenance of the public recycled water delivery system, the DISTRICT shall provide BUYER with at least twenty-four (24) hour notice of a change in service. Upon receiving such notice, BUYER shall alter BUYER'S recycled water usage in accordance with the DISTRICT'S request.

11. **Resale of Recycled Water**. BUYER shall not, without the express written permission of the DISTRICT and the California Department of Public Health (CDPH), deliver, use, or resell to off-site locations or to any person or legal entity, any of the recycled water delivered to the Property under this Agreement. Any such off-site delivery, use, or resale of recycled water purchased by BUYER under this Agreement shall be made pursuant to a written resale agreement. Said resale agreement shall be approved in advance and in writing by the CDPH and by the DISTRICT. Said resale agreement shall incorporate this Agreement by reference, and shall expressly obligate the resale purchaser/user of recycled water to all of the terms and conditions set forth and referenced herein.

12. **Inspection**. BUYER acknowledges and agrees that, in order to verify compliance with this Agreement and with all applicable laws and regulations,

the DISTRICT, State, County or other agency with jurisdiction may inspect the Property being served recycled water at all reasonable times.

13. **Attorney Fees.** In the event of any litigation to enforce or interpret the provisions of this Agreement, the prevailing party in such litigation shall be entitled to reasonable attorney's fees as fixed by the court.

14. **Successors and Assigns.** All leases, sales and other conveyances or transfers of ownership or control of the Property during the effective term of this Agreement shall be made in writing and shall be made expressly subject to this Agreement. All such conveyances or transfers of ownership or control of the Property shall expressly incorporate this Agreement by reference, and shall make all successors and assigns expressly subject hereto.

15. **Entire Agreement.** Unless expressly stated otherwise, this Agreement constitutes the entire Agreement between the Parties. This Agreement supercedes and cancels all prior agreements relating to this subject, whether written or oral, unless expressly stated in this Agreement.

APPROVED and EXECUTED this 17th day of July, 2015.

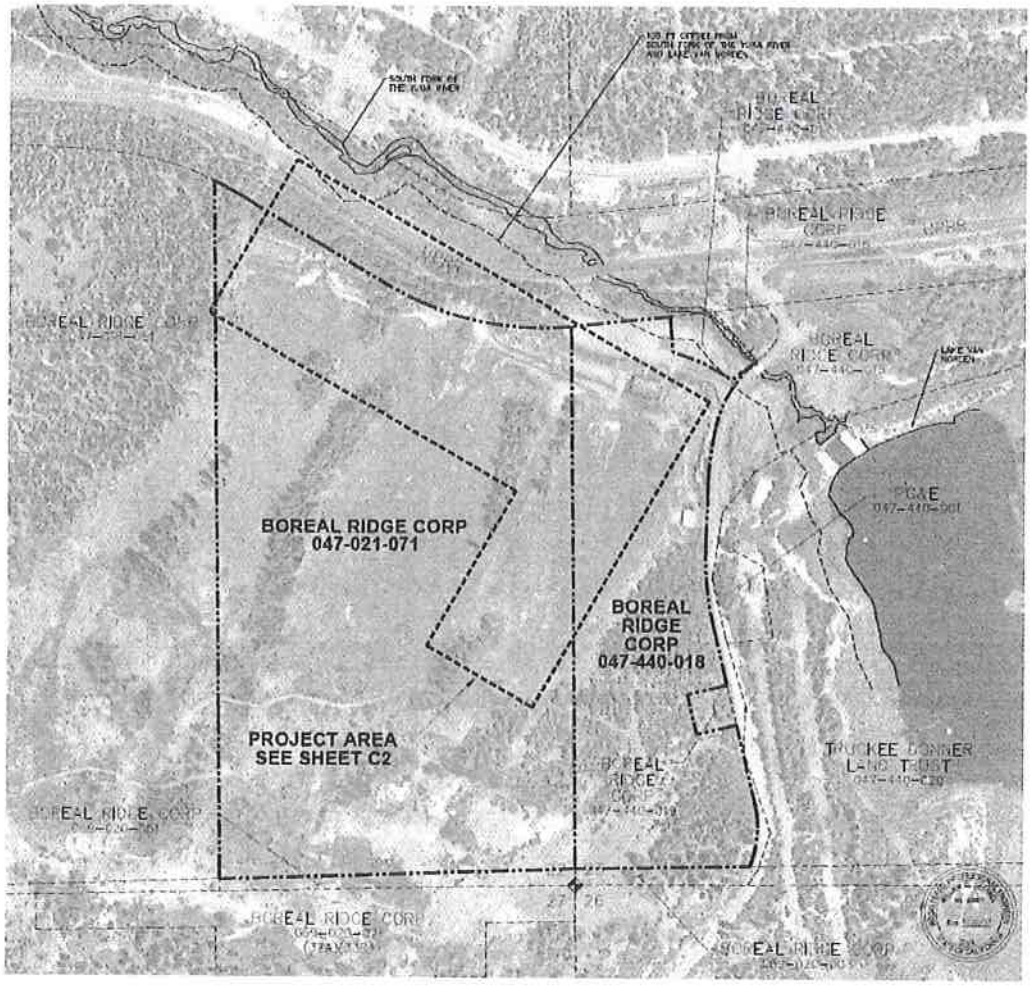
ATTEST:

Amy Ohran
President/General Manager
Boreal Ridge Corporation

Donner Summit Public Utility District
General Manager or Designated
Representative

The Property

Soda Springs Ski Resort
10244 and 12060 Soda Springs Road
Nevada County APN 047-021-071 and 047-440-018



Appendix C DONNER SUMMIT NPDES PERMIT

Covers both Discharge to the South Yuba River and Water Recycling for Snowmaking.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • Fax (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER R5-2015-0068
NPDES NO. CA0081621

WASTE DISCHARGE REQUIREMENTS FOR THE DONNER SUMMIT PUBLIC UTILITY DISTRICT WASTEWATER TREATMENT PLANT NEVADA COUNTY

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger	Donner Summit Public Utility District
Name of Facility	Wastewater Treatment Plant
Facility Address	53823 Sherritt Lane
	Soda Springs, CA 95728
	Nevada County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	39º 20' 04" N	120º 24' 09" W	South Yuba River

Table 3. Administrative Information

This Order was adopted on:	**4 June 2015**
This Order shall become effective on:	**1 August 2015**
This Order shall expire on:	**1 August 2020**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**3 February 2020**
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	**Minor**

I, Pamela C. Creedon, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **4 June 2015**.

Original Signed By

PAMELA C. CREEDON, Executive Officer

CONTENTS

TABLES

ATTACHMENTS

I. FACILITY INFORMATION

Information describing the Donner Summit Public Utility District, Wastewater Treatment Plant (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Central Valley Water Board), finds:

A. Legal Authorities. This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. Background and Rationale for Requirements. The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, and V.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

D. Monitoring and Reporting. 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

The Discharger owns and operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

E. Notification of Interested Parties. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

F. Consideration of Public Comment. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2009-0034 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.

B. Discharge of wastewater to the South Yuba River from Discharge Point 001 from 1 August to 30 September is prohibited.

C. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

D. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

E. The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

The discharge of effluent to the South Yuba River shall occur only during the months of October through July. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program, Attachment E:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 4:

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	--	--
	lbs/day[1]	43	65	130	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day[1]	43	65	130	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	1.8	--	3.1	--	--
Lead, Total Recoverable	µg/L	0.33	--	0.66	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	49	110	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	2.0	4.3	--	--	--
	lbs/day[1]	8.7	19	--	--	--
Manganese, Total Recoverable	µg/L	120	350	--	--	--
Nitrate plus Nitrite, Total (as N)	mg/L	10	25	--	--	--

[1] Based on a design average dry weather flow of 0.52 million gallons per day (MGD).

b. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

d. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
ii. 23 MPN/100 mL, more than once in any 30-day period;
iii. 240 MPN/100 mL, at any time.

f. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 0.52 MGD.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications

1. The monthly average discharge flow shall not exceed 0.52 MGD.
2. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), is prohibited.
3. The discharge or runoff of effluent from the spray irrigation to surface water drainage courses is prohibited.
4. Discharge to land shall not be performed during rainfall, when measureable snow is on the ground, or when the ground is saturated.
5. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
6. There shall be no standing water in the disposal area 24 hours after wastewater is applied.
7. Hydraulic loading of wastewater shall be at reasonable rates to prevent off-site runoff.
8. Public contact with effluent shall be precluded through such means as fences, signs, or other acceptable alternatives.
9. The Discharger shall manage land discharge facilities to prevent breeding of mosquitoes. More specifically for:
    a. Irrigation Areas
        i. All applied irrigation water must infiltrate completely within 24 hours.
        ii. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
        iii. Low-pressure and un-pressurized pipelines and ditches, which are accessible to mosquitoes, shall not be used to store reclaimed water.
    b. Ponds
        i. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
        ii. Weeds shall be minimized.
        iii. Dead algae, vegetation, and debris shall not accumulate on the water surface.
        iv. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
10. Discharges to the spray irrigation fields shall be managed to minimize erosion. Runoff from the disposal area must be captured and returned to the treatment facilities or spray fields.
11. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation used for effluent disposal.
12. A 100-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during irrigation used for effluent disposal.
13. A 50-foot buffer zone shall be maintained between effluent disposal areas and all property boundaries.

C. Recycling Specifications –Snowmaking

If the Discharger obtains regulatory coverage for snowmaking as a recycled water use under the State Water Resources Control Board Order WQ 2014-0090-DWQ – Corrected, General Waste Discharge Requirements for Recycled Water Use (WQO), the following specifications will be superseded. If the Discharger does not obtain regulatory coverage under the WQO, the recycling use for snowmaking will meet the specifications below:

1. Use of reclaimed wastewater is restricted to snowmaking at Soda Spring Ski Area. Prior to commencing with the snowmaking operation using reclaimed water, the Discharger will be required to have, in writing, the approval of the Division of Drinking Water (DDW). As part of the approval process the Discharger will be required to prepare a Title 22 Engineering Report for the Production, Distribution, and Reuse of Recycled Water. The Discharger is prohibited from using reclaimed water for snowmaking until it has first submitted DDW's written approval to the Central Valley Water Board and has received written approval from the Executive Officer that it may commence the use of reclaimed water for snowmaking.
2. Recycled water used for artificial snow making for commercial outdoor use shall be disinfected tertiary recycled water (Title 22, section 60307).
3. Disinfected tertiary recycled water (Title 22, section 60301.230) shall be filtered wastewater that has been disinfected by a disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration. The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.
4. Filtered wastewater (Title 22, section 60302.320(b)) means an oxidized wastewater that has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period and does not exceed 0.5 NTU at any time.
5. Neither the treatment nor the use of reclaimed water shall cause a pollution or nuisance as defined by Section 13050 of the Water Code.
6. The use of reclaimed water shall not cause degradation of groundwater or any water supply.
7. Reclaimed water shall be managed in conformance with the regulations contained in Title 22, Division 4, Chapter 3, CCR.
8. All reclamation equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities. All reclamation distribution system piping shall be purple or adequately wrapped with purple tape.
9. Perimeter warning signs indicating that reclaimed water is in use shall be posted as prescribed in the Title 22 Engineers Report that is subject to approval by the Board and the DDW.

10. Reclaimed water shall not be allowed to escape from the authorized use areas by airborne spray or by surface flow except in minor amounts such as associated with good irrigation or snowmaking practices.

11. Disinfected tertiary recycled water for snowmaking does not pose a public health threat, therefore, it is unnecessary to regulate snowmelt runoff.

12. There shall be at least a ten-foot horizontal and one foot vertical separation at crossing between all pipelines transporting reclaimed water and those transporting domestic supply, with the domestic supply above the reclaimed water pipeline, unless approved by the DDW. All construction standards for the reclaimed water system shall be submitted to DDW as part of the Title 22 Engineers Report for Reclaimed Water System. The Discharge shall not commence use of reclaimed water until DDW has approved the Title 22 Engineers Report for the reclamation system construction and operation.

13. There shall be no cross-connection between potable water supply and piping containing reclaimed water. Supplementing reclaimed water with potable shall not be allowed except through an air-gap separation, or if approved by the DDW, a reduced pressure principle backflow device.

14. The reclaimed water piping system shall not include any hose bibs, except at the treatment plant, on hose bibs with appropriate signage.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in the South Yuba River:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;

   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer;

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 C.F.R. 131.12.);

   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

   f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter; nor

   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

   b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial.

15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. **Turbidity:**

   a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

   b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater. The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.

2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

   a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

   b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

      i. violation of any term or condition contained in this Order;

      ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

      iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

      iv. a material change in the character, location, or volume of discharge.

      The causes for modification include:

      i. *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

      ii. *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

      iii. *Change in sludge use or disposal practice.* Under 40 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

   The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

   i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

   ii. Controls any pollutant limited in the Order.

   The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

i. Safeguard to electric power failure:

   i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

   ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The

adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and

Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent 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. (Water Code section 1211).

o. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

p. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

q. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

r. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being

taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and an effluent concentration or mass limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the need for a mercury offset program for the Discharger.

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **Ultraviolet Light (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute (NWRI) and American Water Works Association

Research Foundation (AWWARF) titled, "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*." If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications.

g. **Mixing Zone**. If the Discharger decides to pursue future Central Valley Water Board approval of dilution for its surface water discharge, the Discharger must conduct and submit a mixing zone study that identifies the mixing zone boundaries based on receiving water flow data collected in the vicinity of the discharge location. This Order may be reopened to add or modify effluent limitations, requirements and provisions based on new and approved mixing zone information.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation Requirements.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan, or conduct a Toxicity Evaluation Study approved by the Executive Officer, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. If toxicity occurs, the Discharger may conduct a Toxicity Evaluation Study, individually or as part of a coordinated group effort with other dischargers, that evaluates low level and intermittent toxicity in effluent disinfected by a UV disinfection system. Information on approved toxicity evaluation studies conducted within the Central Valley Region are provided in the Fact Sheet. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation, or Toxicity Evaluation Study.

i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications or conduct a Toxicity Evaluation Study approved by the Executive Officer. If the Discharger pursues conducting accelerated monitoring, then the Discharger shall initiate a TRE or a Toxicity Evaluation Study to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is >1TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of

the exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE or a Toxicity Evaluation Study to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan or a Toxicity Evaluation Study workplan to the Central Valley Water Board. The TRE Action Plan shall, at minimum, include:

(1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

b. **Stream Diffuser and Mixing Zone Study**. If the Discharger decides to pursue future Central Valley Water Board approval for dilution for its surface water discharge, the Discharger must develop and submit a project Work Plan for collecting receiving water flow monitoring and conducting a mixing zone study.

i. **Stream Diffuser and Mixing Zone Study Work Plan.** If the Discharger decides to pursue future Central Valley Water Board approval of dilution for its surface water discharge, the Discharger shall submit to the Central Valley Water Board a Work Plan for approval by the Executive Officer. The Work Plan shall outline the schedule for monitoring receiving water flows and conducting a mixing zone study.

ii. In accordance with the approved Work Plan schedule, the Discharger shall submit to the Central Valley Water Board a mixing zone study that provides technical details of the mixing of the effluent with the receiving water and provides proposed mixing zone boundaries.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to address sources of salinity from the Facility. The Discharger shall provide annual reports discussing the effectiveness of implementing the salinity evaluation and minimization plan, and changes in the salinity in the effluent discharge if it is increasing. The salinity evaluation and minimization plan shall be reviewed and updated as necessary as part of the report of waste discharge. If the plan is updated, it shall be submitted with the report of waste discharge **180 days prior to the Order expiration date**. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

4. Construction, Operation and Maintenance Specifications

a. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed:

i. 0.2 NTU more than 5 percent of the time within a 24-hour period;

ii. 0.5 NTU at any time.

b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:

i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 80 millijoules per square centimeter (mJ/cm^2).

ii. **UV Transmittance**. The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at Monitoring Location UVS-001 shall not fall below 65 percent.

iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.

v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

5. Special Provisions for Municipal Facilities (POTW's Only)

a. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503.

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

ii. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 C.F.R. part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 C.F.R. part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 C.F.R. part 503 whether or not they have been incorporated into this Order.

iii. The Discharger shall comply with Section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.

iv. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.

v. **Within 180 days of the permit effective date,** the Discharger shall submit a biosolids use or disposal plan to the Central Valley Water Board. The plan shall describe at a minimum:

(a) Sources and amounts of biosolids generated annually.

(b) Location(s) of on-site storage and description of the containment area.

(c) Plans for ultimate disposal. For landfill disposal, include the present classification of the landfill; and the name and location of the landfill.

v. The Discharger shall maintain a biosolids use or disposal plan that describes at minimum:

(a) Sources and amounts of biosolids generated annually.

(b) Location(s) of on-site storage and description of the containment area.

(c) Plans for ultimate disposal. For landfill disposal, include the present classification of the landfill; and the name and location of the landfill.

b. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, Statewide General WDR's for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDR's. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

c. **Anaerobically Digestible Material.** If the Discharger proposes to receive hauled-in anaerobically digestible material for injection into an anaerobic digester for co-digestion, the Discharger shall notify the Central Valley Water Board and develop and implement standard operating procedures (SOP's) for this activity prior to initiation of the hauling. The SOP's shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the SOP's shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material, vector control, odor control, operation and maintenance, and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall provide training to its staff on the SOP's and shall maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition, location, and quantity of accumulated pre-digestion-segregated solid waste hauled off-site.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the State Water Board, Division of Drinking Water (DDW) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A.1.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.f). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on adding the total daily flow during July, August, and September and dividing by 92.

C. Total Coliform Organisms Effluent Limitations (Section IV.A.1.e). When discharging to the South Yuba River, for each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the

last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

D. Mass Effluent Limitations. The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

Mass (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor)

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

E. Priority Pollutant Effluent Limitations. Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
    a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
    b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
    a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
    b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall <u>not</u> be deemed out of compliance.

F. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.d), Compliance with the accelerated monitoring and TRE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of

measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

Satellite Collection System
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

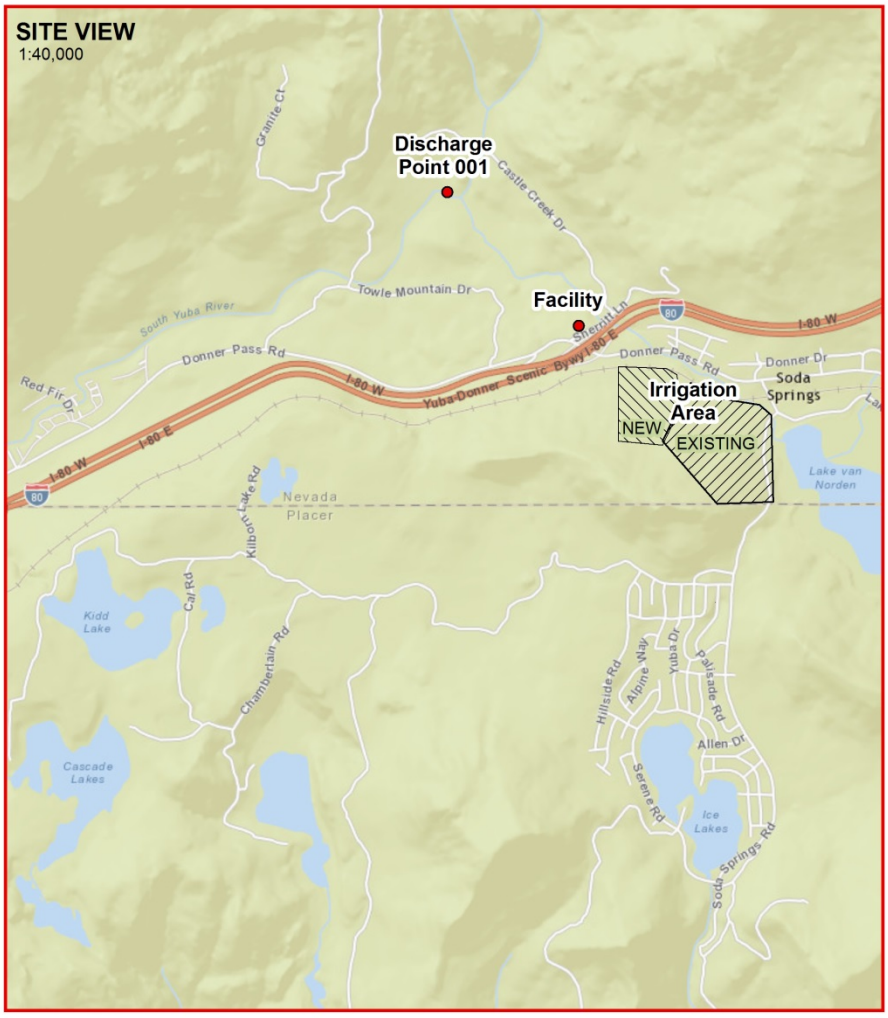
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

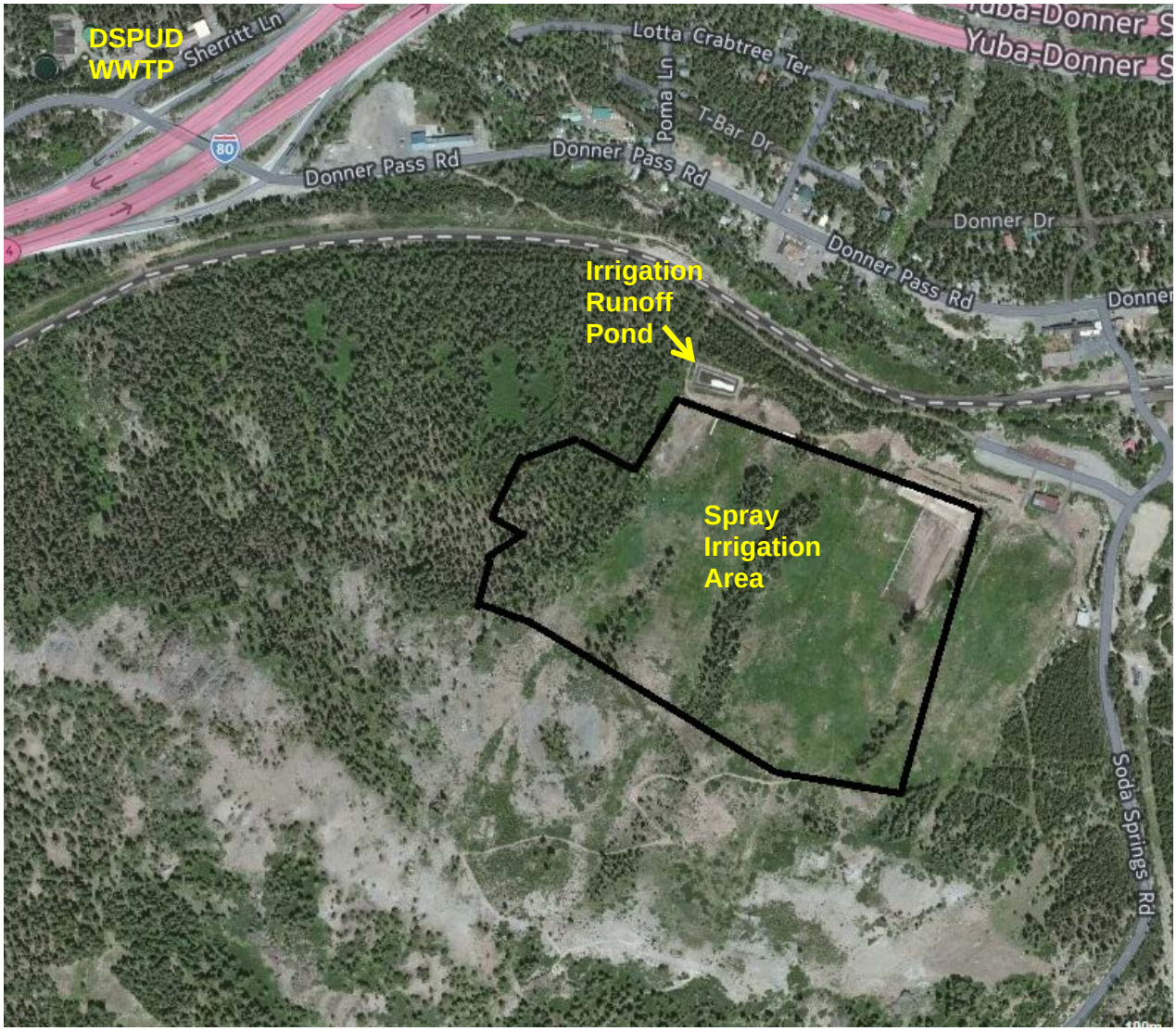
Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B1 – LOCATION MAP

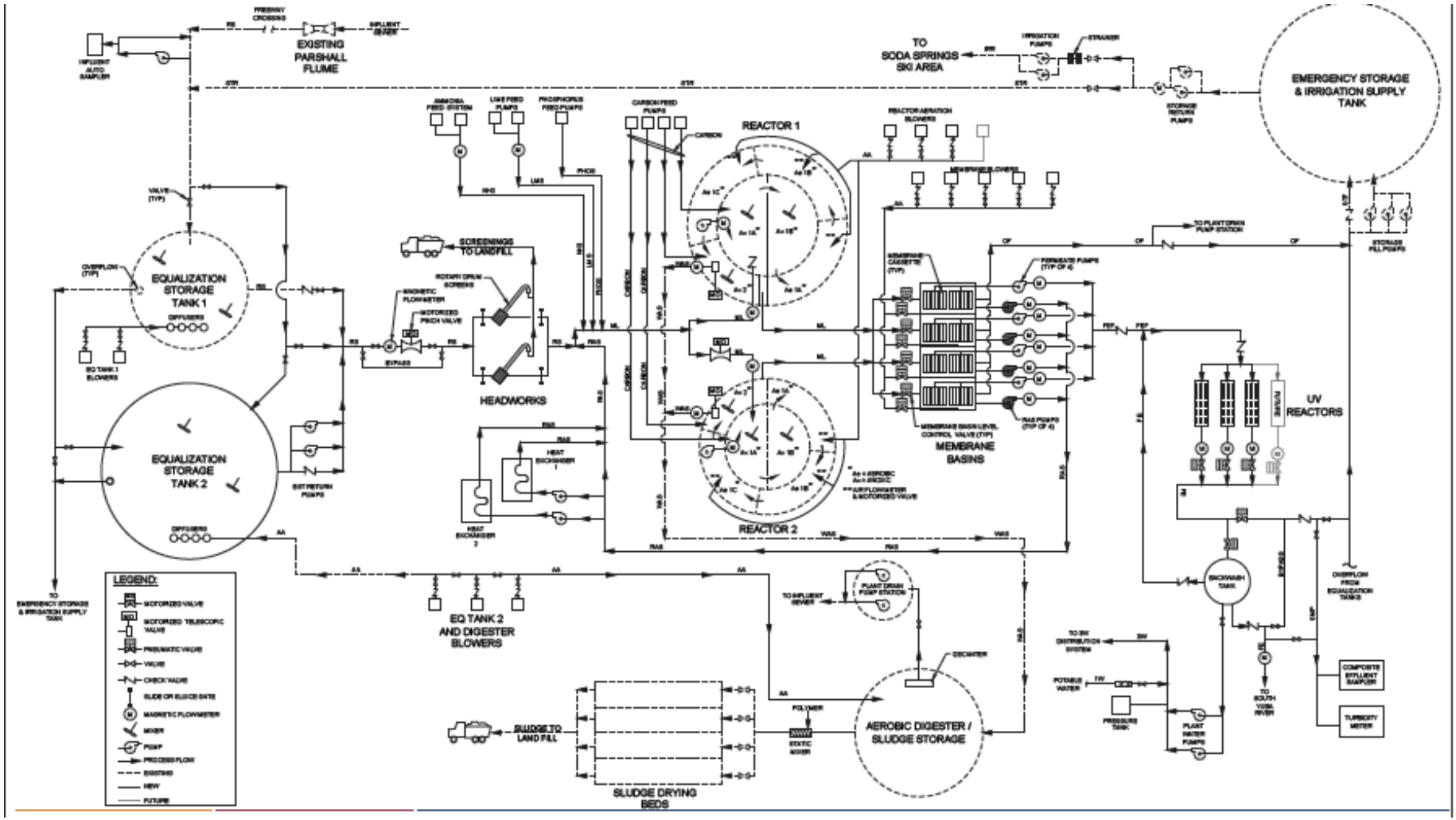
Donner Summit Public Utility District Wastewater Treatment Plant



ATTACHMENT B2 – IRRIGATION AREA MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, § 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, § 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions
   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
   c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants. (40 C.F.R. § 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State

Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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 complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
    a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
    b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Central Valley Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board**,** State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTW's)

All POTW's shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Contents

Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

F. Laboratories analyzing monitoring samples shall be certified by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

G. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

H. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of Facility influent can be obtained, prior to any additives, treatment processes, and plant return flows.
001	EFF-001	A location where a representative sample of the Facility effluent can be obtained prior to discharge to the receiving water. Latitude: 39° 20' 04" N Longitude: 120° 24' 09" W
--	RSW-001	In the South Yuba River, 50 feet upstream from Discharge Point 001.
--	RSW-002	In the South Yuba River, 500 feet downstream from Discharge Point 001.
--	LND-001	A location where a representative sample of treated effluent can be obtained before land application.
--	REC-001	A location where a representative sample of treated effluent can be obtained before reclamation.
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	FIL-001	Monitoring of the filter effluent to be measured immediately downstream of the filters prior to the ultraviolet light (UV) disinfection system.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately upstream of the UV disinfection system.
--	UVS-002	A location where a representative sample of wastewater can be collected immediately downstream of the UV disinfection system.

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand(5-day @	mg/L	24-hr Composite[1]	2/Week	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
20°C)				
Total Suspended Solids	mg/L	24-hr Composite[1]	2/Month	[2]

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 as follows when discharging to Discharge Point 001. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20° C)	mg/L	24-hr Composite[1]	2/Week	[2]
	lbs/day	Calculate	2/Week	--
pH	standard units	Grab	1/Day[3,4]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	2/Week	[2]
	lbs/day	Calculate	2/Week	--
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month[5]	[2,6]
Priority Pollutants and Other Constituents of Concern	See Section IX.C	See Section IX.C	See Section IX.C	[2,6]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Month[5]	[2,7]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,8]	[2]
	lbs/day	Calculate	1/Week	--
Chlorine, Total Residual	mg/L	Grab	1/Day[9]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[10]	[2]
Manganese, Total Recoverable	µg/L	Grab	1/Month[5]	--
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Week[11]	[2]
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week[11]	[2]
Nitrate Plus Nitrite (as N)	mg/L	Calculate	1/Week	--
Temperature	°F	Grab	1/Day[3,4]	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] pH and temperature shall be recorded at the time of ammonia sample collection.
[4] A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
[5] If concentrations of the pollutant do not exceed the applicable criteria during the first 12 months of sampling following the effective date of this Order, the Discharger may discontinue monitoring upon Executive Officer approval.
[6] For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, Table E-9).
[7] Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's *Ambient Water Quality Criteria for Aluminum* document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
[8] Concurrent with whole effluent toxicity monitoring.
[9] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. Total chlorine residual monitoring is only required when chlorine or chlorine-containing products are used in the treatment process. When chlorine or chlorine-containing products are not in use in the treatment process, the Discharger shall so state in the monthly self-monitoring report.
[10] Hardness samples shall be collected concurrently with metals samples.
[11] Monitoring for nitrite and nitrate shall be conducted concurrently.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform annual acute toxicity testing, to be conducted at least 5 months apart from chronic toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The

Discharger is not required to conduct this chronic toxicity testing when the Facility is engaged in a TIE/TRE, or Toxicity Evaluation Study. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency –* The Discharger shall annual perform three species chronic toxicity testing, to be conducted at least 5 months apart from acute toxicity testing.

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);

   b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

   c. The green alga, *Selenastrum capricornutum* (growth test).

5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.

6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions[1] (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

[1] Receiving water control or laboratory water control may be used as the diluent.

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

C. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the monthly self-monitoring report, and shall contain, at minimum:

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.

   b. The statistical methods used to calculate endpoints;

   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

   d. The dates of sample collection and initiation of each toxicity test; and

   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE or Toxicity Evaluation Study Reporting.** Reports for TRE's or Toxicity Evaluation Studies shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:

   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location LND-001

1. The Discharger shall monitor the discharge to the land application area at Monitoring Location LND-001 as follows:

Table E-5. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20° C)	mg/L	24-hr Composite[1]	1/Month	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Month	[2]
Non-Conventional Pollutants				
Total Coliform Organisms	MPN/ 100 mL	Grab	1/Month	[2]

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for the constituents listed above having sampling frequencies of weekly or more frequent, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

VII. RECYCLING MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor discharge to the reclamation area at Monitoring Location REC-001 as follows:

Table E-6. Recycling Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Non-Conventional Pollutants				
Total Coliform Organisms	MPN/ 100 mL	Grab	Daily	[1]
Turbidity	NTU	Meter	Continuous	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for the constituents listed above having sampling frequencies of weekly or more frequent, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor South Yuba River at Monitoring Locations RSW-001 and RSW-002, when discharges at Discharge Point 001 occur, as follows:

Table E-7. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week	[2]
Priority Pollutants				
Priority Pollutants and Other Constituents of Concern	See Section IX.C	See Section IX.C	See Section IX.C[3]	[2,4]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[2]
Dissolved Oxygen	mg/L	Grab	1/Week	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Week	[2]
Temperature	°F	Grab	1/Week	[2]
Turbidity	NTU	Grab	1/Week	[2]

[1] If Monitoring Locations RSW-001 and/or RSW-002 are inaccessible due to unsafe conditions, monitoring is not required. If monitoring is not conducted due to unsafe conditions, the Discharger shall so state in the SMR.

[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

[3] Monitoring for priority pollutants and other constituents of concern shall be conducted at Monitoring Location RSW-001 only.

[4] For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, Table E-9).

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

   a. Floating or suspended matter;
   b. Discoloration;
   c. Bottom deposits;
   d. Aquatic life;
   e. Visible films, sheens, or coatings;
   f. Fungi, slimes, or objectionable growths; and
   g. Potential nuisance conditions.

   Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. **Monitoring Location BIO-001**

   a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.

b. Biosolids monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical methods (EPA publication SW-846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

c. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

B. Filtration System and Ultraviolet Light (UV) Disinfection System

1. Monitoring Locations FIL-001, UVS-001, and UVS-002

a. The Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Locations UVS-001 and UVS-002 as follows:

Table E-8. Filtration System and UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	MGD	Meter	UVS-001	Continuous[1]
Turbidity	NTU	Meter	FIL-001	Continuous[1,2]
Number of UV banks in operation	Number	Observation	N/A	Continuous[1]
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous[1]
UV Dose[3]	mJ/cm^2	Calculated	N/A	Continuous[1]
Total Coliform Organisms	MPN/100 mL	Grab	UVS-002	2/Week

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

[2] Report daily average and maximum turbidity.

[3] Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.

C. Effluent and Receiving Water Characterization

1. **Quarterly Monitoring.** Quarterly samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-9, below. Quarterly monitoring shall be conducted during 2018 (four consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board with the monthly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

2. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

3. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-9, below.

Table E-9. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2- Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
Parachlorometa cresol	µg/L	Grab	--
Tetrachloroethene	µg/L	Grab	0.5
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	--
Trichlorofluoromethane	µg/L	Grab	--
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1-dichloroethane	µg/L	Grab	0.5
1,1-dichloroethylene	µg/L	Grab	0.5
1,2-dichloropropane	µg/L	Grab	0.5
1,3-dichloropropylene	µg/L	Grab	0.5
1,1,2,2-tetrachloroethane	µg/L	Grab	0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	0.5
1,2,4-trichlorobenzene	µg/L	Grab	1
1,2-dichoroethane	µg/L	Grab	0.5
1,2-dichlorobenzene	µg/L	Grab	0.5
1,3-dichlorobenzene	µg/L	Grab	0.5
1,4-dichlorobenzene	µg/L	Grab	0.5
Styrene	µg/L	Grab	--
Xylenes	µg/L	Grab	--
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate[4]	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum[2]	µg/L	24-hr Composite[3]	--
Antimony	µg/L	24-hr Composite[3]	5
Arsenic	µg/L	24-hr Composite[3]	10
Asbestos	µg/L	24-hr Composite[3]	--
Barium	µg/L	24-hr Composite[3]	--
Beryllium	µg/L	24-hr Composite[3]	2
Cadmium	µg/L	24-hr Composite[3]	0.5
Chromium (III)	µg/L	24-hr Composite[3]	50
Chromium (VI)	µg/L	24-hr Composite[3]	5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Copper[2]	µg/L	24-hr Composite[3]	0.5
Cyanide	µg/L	24-hr Composite[3]	5
Fluoride	µg/L	24-hr Composite[3]	--
Iron	µg/L	24-hr Composite[3]	--
Lead	µg/L	24-hr Composite[3]	0.5
Mercury	µg/L	Grab	0.5
Manganese[2]	µg/L	24-hr Composite[3]	--
Molybdenum	µg/L	24-hr Composite[3]	--
Nickel	µg/L	24-hr Composite[3]	1
Selenium	µg/L	24-hr Composite[3]	5
Silver	µg/L	24-hr Composite[3]	0.25
Thallium	µg/L	24-hr Composite[3]	1
Tributyltin	µg/L	24-hr Composite[3]	--
Zinc	µg/L	24-hr Composite[3]	20
4,4'-DDD	µg/L	24-hr Composite[3]	0.05
4,4'-DDE	µg/L	24-hr Composite[3]	0.05
4,4'-DDT	µg/L	24-hr Composite[3]	0.01
alpha-Endosulfan	µg/L	24-hr Composite[3]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[3]	0.01
Alachlor	µg/L	24-hr Composite[3]	--
Aldrin	µg/L	24-hr Composite[3]	0.005
beta-Endosulfan	µg/L	24-hr Composite[3]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[3]	0.005
Chlordane	µg/L	24-hr Composite[3]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[3]	0.005
Dieldrin	µg/L	24-hr Composite[3]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[3]	0.01
Endrin	µg/L	24-hr Composite[3]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[3]	0.01
Heptachlor	µg/L	24-hr Composite[3]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[3]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[3]	0.5
PCB-1016	µg/L	24-hr Composite[3]	0.5
PCB-1221	µg/L	24-hr Composite[3]	0.5
PCB-1232	µg/L	24-hr Composite[3]	0.5
PCB-1242	µg/L	24-hr Composite[3]	0.5
PCB-1248	µg/L	24-hr Composite[3]	0.5
PCB-1254	µg/L	24-hr Composite[3]	0.5
PCB-1260	µg/L	24-hr Composite[3]	0.5
Toxaphene	µg/L	24-hr Composite[3]	--
Atrazine	µg/L	24-hr Composite[3]	--
Bentazon	µg/L	24-hr Composite[3]	--
Carbofuran	µg/L	24-hr Composite[3]	--
2,4-D	µg/L	24-hr Composite[3]	--
Dalapon	µg/L	24-hr Composite[3]	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	24-hr Composite[3]	--
Di(2-ethylhexyl)adipate	µg/L	24-hr Composite[3]	--
Dinoseb	µg/L	24-hr Composite[3]	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Diquat	µg/L	24-hr Composite[3]	--
Endothal	µg/L	24-hr Composite[3]	--
Ethylene Dibromide	µg/L	24-hr Composite[3]	--
Methoxychlor	µg/L	24-hr Composite[3]	--
Molinate (Ordram)	µg/L	24-hr Composite[3]	--
Oxamyl	µg/L	24-hr Composite[3]	--
Picloram	µg/L	24-hr Composite[3]	--
Simazine (Princep)	µg/L	24-hr Composite[3]	--
Thiobencarb	µg/L	24-hr Composite[3]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[3]	--
2,4,5-TP (Silvex)	µg/L	24-hr Composite[3]	--
Diazinon	µg/L	24-hr Composite[3]	--
Chlorpyrifos	µg/L	24-hr Composite[3]	--
Ammonia (as N)[2]	mg/L	24-hr Composite[3]	--
Boron	µg/L	24-hr Composite[3]	--
Chloride	mg/L	24-hr Composite[3]	--
Flow	MGD	Meter	--
Hardness (as $CaCO_3$)[2]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite[3]	--
Mercury, Methyl	ng/L	Grab	--
Nitrate (as N)[2]	mg/L	24-hr Composite[3]	--
Nitrite (as N)[2]	mg/L	24-hr Composite[3]	--
pH	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[3]	--
Specific conductance (EC)[2]	µmhos/cm	24-hr Composite[3]	--
Sulfate	mg/L	24-hr Composite[3]	--
Sulfide (as S)	mg/L	24-hr Composite[3]	--
Sulfite (as SO_3)	mg/L	24-hr Composite[3]	--
Temperature[2]	^oC	Grab	--
Total Dissolved Solids (TDS)[2]	mg/L	24-hr Composite[3]	--

[1] The reporting levels required in this table for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

[2] The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

[3] 24-hour flow proportional composite.

[4] In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting

the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
2/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
5/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
2/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current laboratory's Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. The Discharger shall submit SMR's in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDR's; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.

7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:

   a. **Mass Loading Limitations**. For BOD_5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMR's. The mass loading shall be calculated as follows:

      Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34

      When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

   b. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMR's. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.

   c. **Total Coliform Organisms Effluent Limitations**. The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.C of the Limitations and Discharge Requirements.

   d. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95^{th} percentile dissolved oxygen concentration.

   e. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements.

   f. **Temperature Receiving Water Limitations**. The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's) – Not Applicable

D. Other Reports

1. **Special Study Reports and Progress Reports**. As specified in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements.

Table E-11. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Salinity Evaluation and Minimization Plan, Annual Reports (Special Provision VI.C.3.a)	**30 January,** annually
Salinity Evaluation and Minimization Plan, Updated Plan (only submit if applicable - Special Provision VI.C.3.a)	**3 February 2020**

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions –

VI.C. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-5, E-6, E-7, and E-8). In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in Section IX.C, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-9. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-9 provides required maximum reporting levels in accordance with the SIP.

4. **Annual Operations Report.** By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

   a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

   b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

   c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

Contents

Tables

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.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A290105001
CIWQS Facility Place ID	220548
Discharger	Donner Summit Public Utility District
Name of Facility	Wastewater Treatment Plant
Facility Address	53823 Sherritt Lane
	Soda Springs, CA 95728
	Nevada County
Facility Contact, Title and Phone	Thomas Skjelstad, General Manager, (530) 426-3456
Authorized Person to Sign and Submit Reports	Thomas Skjelstad, General Manager, (530) 426-3456
Mailing Address	P.O. Box 610, Soda Springs, CA 95728
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Recycling Requirements	Producer
Facility Permitted Flow	0.52 million gallons per day (MGD), average dry weather flow
Facility Design Flow	0.52 MGD, average dry weather flow
Watershed	Upper Yuba
Receiving Water	South Yuba River
Receiving Water Type	Inland surface water

A. Donner Summit Public Utility District (hereinafter Discharger) is the owner and operator of the Donner Summit Public Utility District Wastewater Treatment Plant (hereinafter Facility), a POTW.

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 wastewater to South Yuba River, a water of the United States, within the Upper Yuba watershed. The Discharger was previously regulated by Order R5-2009-0034 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081621 adopted on 24 April 2009 and expired on 1 April 2014. Attachment B provides a map of the location of 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 waste discharge requirements (WDR's) and NPDES permit on 3 October 2013. The application was deemed complete on 4 November 2014.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the Donner Summit Public Utility District, the Norden and Soda Springs areas, the Sugar Bowl and Soda Springs Ski Resorts, the Serene Lakes subdivision, Sierra Lakes County Water District, and CalTrans rest areas and serves a population of approximately 2,000. However, due to the ski resorts and other seasonal tourism, the daily flows to the Facility can fluctuate greatly. The design average dry weather flow capacity of the Facility is 0.52 MGD.

Disinfected tertiary treated municipal wastewater is used to spray irrigate a portion of the Soda Springs Ski Area. The Discharger has a 30-year lease agreement (signed in 2008) with the landowner, Boreal Ski Corporation. The lease encompasses 125 total acres, of which approximately 53 acres are used for irrigation.

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system at the Facility consists of influent flow equalization, preliminary treatment, conventional activated sludge process, lime addition equipment to control pH and reduce salinity, biological treatment with membrane bioreactors plus filtration, and ultraviolet light (UV) disinfection.

Biosolids treatment consists of two aerobic digesters and sludge drying beds. Sludge disposal is to a landfill.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 22, T17N, R14E, MDB&M, as shown in Attachment B, a part of this Order.
2. Disinfected tertiary treated municipal wastewater is either discharged at Discharge Point 001 to South Yuba River, a water of the United States, at a point 39° 20' 04" N latitude and 120° 24' 09" W longitude, or discharged to a portion of the Soda Springs Ski Area by spray irrigation, as shown in Attachment B.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order R5-2009-0034 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2009-0034 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (July 2011 – June 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	6.4	8.0	13
	lbs/day[1]	43	65	130	11	13	19
	% Removal	85	--	--	64[2]	--	--
Total Suspended Solids	mg/L	10	15	30	5.4	11.5	21
	lbs/day[1]	43	65	130	9.5	16	39
	% Removal	85	--	--	86[2]	--	--
pH	standard units	--	--	6.5 – 8.0	--	--	6.5 – 7.6
Aldrin	µg/L	--	--	ND[4]	--	--	0.003[3]
Alpha-BHC	µg/L	--	--	ND[4]	--	--	ND[4]
Copper, Total Recoverable	µg/L	1.5	--	3.1	10.2	--	10.2
Cyanide, Total (as N)	µg/L	4.3	--	8.5	12	--	12[3]
Dichlorobromomethane	µg/L	0.56	--	1.2	2.3	--	2.3[3]
Silver, Total Recoverable	µg/L	--	--	0.23[5]	--	--	0.4[3]
Zinc, Total Recoverable	µg/L	15	--	30	37.7	--	37.7[3]
Aluminum, Total Recoverable	mg/L	71	--	143	1,970	--	1,970
Ammonia Nitrogen, Total (as N)	mg/L	2.1	--	5.6	8.03	--	55
Electrical Conductivity @ 25°C	µmhos/cm	700[6]	--	--	472[7]	--	--
Manganese, Total Recoverable	µg/L	50[8]	--	--	181[7]	--	--
Nitrate, Total (as N)	mg/L	10	--	--	13	--	--
	lbs/day[1]	43	--	--	11	--	--
Total Coliform Organisms	MPN/ 100 mL	--	2.2[9]	23[10]/240[5]	--	--	1,600
Total Residual Chlorine	mg/L	--	0.011[11]	0.019[12]	--	--	ND[4]
Acute Toxicity	% Survival	--	--	70[13]/90[14]	--	--	95[15]
Average Dry Weather Flow	MGD	--	--	0.52	--	--	0.848
Chronic Toxicity	TUc	--	--	[16]	--	--	2[17]

Parameter	Units	Effluent Limitation			Monitoring Data (July 2011 – June 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

[1] Based on an average dry weather flow of 0.52 MGD.
[2] Represents the minimum observed percent removal.
[3] See section IV.C.3.a of this Fact Sheet for a discussion of the result.
[4] ND indicates non-detect.
[5] Applied as an instantaneous maximum effluent limitation.
[6] The annual average electrical conductivity in the effluent shall not exceed the electrical conductivity level in the water supply plus 500 µmhos/cm, or 700 µmhos/cm, whichever is less, on a calendar year basis.
[7] Represents the maximum observed calendar year annual average concentration.
[8] Applied as an annual average effluent limitation.
[9] Applied as a 7-day median effluent limitation.
[10] Not to be exceeded more than once in any 30-day period.
[11] Applied as a 4-day average effluent limitation.
[12] Applied as a 1-hour average effluent limitation.
[13] Minimum for any one bioassay.
[14] Median for any three consecutive bioassays.
[15] Represents the minimum observed percent survival.
[16] There shall be no chronic toxicity in the effluent discharge.
[17] Represents the maximum observed value.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2012-0552 on 11 July 2012 which proposed to assess a civil liability of $64,000 against the Discharger for effluent violations of ammonia, nitrate, pH, total coliform organisms, and silver that occurred between 30 June 2007 and 30 December 2010. The ACL was settled by payment and the completion of a compliance project.

2. The Central Valley Water Board issued ACL Complaint No. R5-2014-0577 on 6 November 2014 which proposed to assess a civil liability of $9,000 against the Discharger for effluent violations of ammonia and manganese that occurred between 31 December 2013 and 21 January 2014. The ACL was settled by payment and through the completion of a compliance project.

E. Planned Changes

The Discharger is planning to reclaim treated wastewater for snowmaking purposes at the Soda Springs Ski Area.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.

   a. **Basin Plan.** The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the Yuba River from its sources to Englebright Reservoir, which includes South Yuba River, are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	South Yuba River	Existing: Municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); hydropower generation (POW); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); cold freshwater habitat (COLD); cold spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD).
--	Groundwater	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes

implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("*Statement of Policy with Respect to Maintaining High Quality of Waters in California*"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective"*.

   The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to Water Code section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

9. **Storm Water Requirements.** U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The State Water Board does not require wastewater treatment facilities with design flows less than 1 MGD to obtain coverage under the Industrial Storm water General Order. Therefore, this Order does not regulate storm water.

D. Impaired Water Bodies on CWA 303(d) List

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 U.S. EPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." ThThe South Yuba River (sources to Englebright Reservoir) is not listed as an impaired waterbody on the 2010 303(d) list.

2. **Total Maximum Daily Loads (TMDL's).** U.S. EPA requires the Central Valley Water Board to develop TMDL's for each 303(d) listed pollutant and water body combination. No TMDL's have been adopted for the receiving water.

E. Other Plans, Polices and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

   a. The waste consists primarily of domestic sewage and treated effluent;

   b. The waste discharge requirements are consistent with water quality objectives; and

   c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal regulations, 40 C.F.R. section 122.44(d)(1)(vi), further provide that "*[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits*."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*," that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "*Policy for Application of Water Quality Objectives*")(40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00). The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCL's)*" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL's. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing

of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (Discharge to the South Yuba River from 1 August through 30 September is prohibited).** This prohibition is retained from Order R5-2009-0034.

3. **Prohibition III.C (No bypasses or overflow of untreated wastewater, except under the conditions at C.F.R. section122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

4. **Prohibition III.D (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

5. **Prohibition III.E (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

Regulations promulgated in 40 C.F.R. section 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTW's [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the U.S. EPA Administrator.

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations at 40 C.F.R. part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. A daily maximum effluent limitation for BOD_5 and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month. This Order requires WQBEL's that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. part 133 (See section IV.C.3.b.vii of the Fact Sheet for a discussion on Pathogens which includes WQBEL's for BOD_5 and TSS.)

b. **Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design average dry weather flow of 0.52 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 0.52 MGD.

c. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 also require that pH be maintained between 6.0 and 9.0 standard units. This Order, however, requires more stringent WQBEL's for pH to comply with the Basin Plan's water quality objectives for pH.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	0.52[1]	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-Day @ 20°C)[2]	mg/L	30	45	--	--	--
	lbs/day[3]	130	195	--	--	--
pH[2]	standard units	--	--	--	6.0	9.0
Total Suspended Solids[2]	mg/L	30	45	--	--	--
	lbs/day[3]	130	195	--	--	--

1 The average dry weather flow shall not exceed 0.52 MGD.
2 Note that more stringent WQBEL's for BOD_5, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.b of this Fact Sheet).
2 Based on an average dry weather flow of 0.52 MGD.

C. Water Quality-Based Effluent Limitations (WQBEL's)

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality

standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section IV.C.3.b.vii of this Fact Sheet.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBEL's must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBEL's when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from

July 2011 through June 2014, which includes effluent and ambient background data submitted in SMR's and the ROWD. The Discharger completed upgrades to the Facility in December 2014 to provide nitrification/denitrification, membrane filtration, and UV disinfection. Therefore, monitoring conducted prior to December 2014 is not representative of the effluent quality from the upgraded Facility, but was used for the analysis in the absence of monitoring data from the upgraded Facility.

c. **Assimilative Capacity/Mixing Zone.** The Central Valley Water Board's Basin Plan allows mixing zones provided the Discharger has demonstrated that the mixing zone will not adversely impact beneficial uses. The Basin Plan further requires that in determining the size of a mixing zone, the Central Valley Water Board will consider the applicable procedures in U.S. EPA's Water Quality Standards Handbook and the *Technical Support Document for Water Quality Based Toxics Control* (TSD). It is the Central Valley Water Board's discretion whether to allow a mixing zone. The SIP, in part, states that mixing zones shall not:

i. Compromise the integrity of the entire water body.

ii. Cause acutely toxic conditions to aquatic life passing through the mixing zone.

iii. Restrict passage of aquatic life.

iv. Adversely impact biologically sensitive or critical habitats, including but not limited to, habitat of species listed under Federal or State endangered species laws.

v. Dominate the receiving water body.

vi. Overlap a mixing zone from a different outfall.

U.S. EPA's Water Quality Standards Handbook states that states may, at their discretion, allow mixing zones. The Water Quality Standards Handbook recommends that mixing zones be defined on a case-by-case basis after it has been determined that the assimilative capacity of the receiving stream can safely accommodate the discharge. This assessment should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving stream; the life history of and behavior of organisms in the receiving stream; and the desired uses of the waters. Mixing zones should not be allowed where they may endanger critical areas (e.g., drinking water supplies, recreational areas, breeding grounds and areas with sensitive biota). U.S. EPA's TSD states, in part in Section 4.3.1, that mixing zones should not be permitted where they may endanger critical areas.

The Basin Plan, the SIP and U.S. EPA's TSD state that allowance of a mixing zone is discretional on the part of the Regional Board. Mixing zones will be limited to the amount of assimilative capacity necessary to comply with discharge limitations. There are no water intakes downstream of the discharge point within a distance that could be impacted by the proposed mixing zone.

The Discharger conducted a dilution study and submitted the results in their March 2007 ROWD. According to the report, the Discharger's existing side stream rock diffuser is not expected to create a completely mixed effluent discharge condition. The Discharger is not granted dilution credits for constituents with WQBEL's based on aquatic life criteria.

For constituents with WQBEL's based on human health criteria, the Discharger proposed a harmonic mean dilution credit of 24.5 to determine effluent limitations.

Flow estimates were obtained from the United States Geological Services (USGS) stream gauge station in Cisco, CA (station number 11414000), located approximately 10 miles downstream of the discharge location. Flow data was determined for South Yuba River at the location of surface water discharge by multiplying all flow values by 0.4054, which is the ratio of the Donner Summit Public Utility District watershed area and the Cisco watershed area. The SIP, however, requires that a mixing zone study be submitted prior to any dilution credits being applied to any CTR constituents.

The Discharger has not submitted a mixing zone study and, therefore, the Central Valley Water Board cannot grant dilution credits for any CTR constituents. This Order contains a reopener provision allowing the Central Valley Water Board to consider granting dilution and modifying the final effluent limitations based on an approved mixing zone study. The worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero dilution/assimilative capacity within the receiving water is that the discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.

If the Discharger decides to pursue dilution, this Order requires the Discharger to implement receiving water flow monitoring in the vicinity of the discharge prior to conducting a mixing zone study.

d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1] and the CTR[2]. The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 C.F.R. § 131.38(c)(4)) The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones.[3] Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10).[4] The CTR also requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria

[1] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used.

[3] 40 C.F.R. 131.38 § (c)(4)(ii)

[4] 40 C.F.R. 131.38 § (c)(4)(iii) Table 4

apply throughout the water body including at the point of discharge.[1] The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions.

The State Water Board provided direction regarding the selection of hardness in two precedential water quality orders; WQO 2008-0008 for the City of Davis Wastewater Treatment Plant and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant. The State Water Board recognized that the SIP and the CTR do not discuss the manner in which hardness is to be ascertained, thus regional water boards have considerable discretion in determining ambient hardness. (Davis Order, p.10). The State Water Board explained that it is necessary that, "*The [hardness] value selected should provide protection for all times of discharge under varying hardness conditions*." (Yuba City Order, p. 8). The Davis Order also provides that, "*Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions*." (Davis Order, p. 11).

The equation describing the total recoverable regulatory criterion, as established in the CTR[2], is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \quad \text{(Equation 1)}$$

Where:

H = ambient hardness (as $CaCO_3$)[3]

WER = water-effect ratio

m, b = metal- and criterion-specific constants

The upstream receiving water hardness varied from <5 mg/L to 44 mg/L, based on 226 samples from July 2011 to June 2014. Downstream receiving water hardness varied from 8 mg/L to 74 mg/L, based on 65 samples from July 2011 to June 2014. The effluent hardness varied from 48 mg/L to 224 mg/L, based on 60 samples from July 2011 to June 2014. For calculating the CTR criteria the downstream ambient hardness has been used. The SIP, CTR, and State Water Board do not require use of the minimum observed ambient hardness in the CTR equations. The hardness used must be consistent with design conditions and protective of water quality criteria under all flow conditions. The South Yuba River is not effluent dominated during periods when discharges occur. Therefore, the median downstream hardness of 20 mg/L, which represents typical conditions in the receiving water, was used to calculate CTR criteria that are fully protective of aquatic life under all flow conditions for all of the CTR metals.

The Facility discharges both hardness and metals, which must be considered in the downstream ambient receiving water to ensure the criteria are protective under all flow conditions. The tables below examine how the downstream ambient conditions change with varying mixtures of effluent and upstream receiving water. The calculations determine whether or not toxicity could result from one or more metals using the selected design ambient hardness to calculate the CTR criteria.

[1] 40 C.F.R. 131.38 § (c)(2)(i)
[2] 40 C.F.R. § 131.38(b)(2).
[3] For this discussion all hardness values are measured as $CaCO_3$.

A simple mass balance (Equation 2) is used to model the ambient concentrations of hardness and metals in the receiving water downstream of the discharge for all possible mixtures of effluent and upstream receiving water under all flow conditions.

$C_{downstream} = C_{upstream} \times (1\text{-}MIX) + C_{effluent} \times (MIX)$ (Equation 2)[1]

Where:

$C_{downstream}$ = Downstream receiving water concentration

$C_{upstream}$ = Upstream receiving water concentration

$C_{effluent}$ = Effluent concentration

MIX = Fraction of effluent in downstream ambient receiving water

For each of several downstream ambient mixtures of upstream receiving water and effluent, the potential for toxicity is examined. The hardness of the mixture is calculated, and the resultant water quality criterion is calculated from the CTR equation. The metals concentration is also calculated for the mixture of upstream receiving water and effluent. If the metals concentration complies with the CTR criterion for that mixture, the ambient mixture is not toxic, and "Yes" is indicated in the far right column. If the metals concentration exceeds the CTR criterion for that mixture, the ambient concentration is toxic, and "No" is indicated in the far right column. The results of these evaluations are summarized in Table F-13.

For this evaluation the following conservative assumptions have been made:

- Upstream receiving water at the median observed upstream receiving water hardness (i.e., 20 mg/L).
- No assimilative capacity for each metal in the upstream receiving water (i.e., metals concentration equal to CTR criteria calculated using a hardness of 20 mg/L).
- Effluent hardness at the lowest observed effluent hardness of 48 mg/L.

The following tables (F-5 through F-12) demonstrate that the selected design ambient hardness used to calculate the CTR criteria result in protective criteria for all flow conditions (i.e., the mixed downstream ambient metals concentrations do not exceed the CTR criteria). Table F-13 summarizes the design ambient hardness for each metal.

[1] U.S. EPA NPDES Permit Writers' Manual, September 2010 (EPA-833-K-10-001).

Table F-5. Copper Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Copper Concentration				0.72 µg/L[1]	
Copper Chronic Criterion[2]				2.4 µg/L	
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Copper[5] (µg/L)	
High Flow	1%	5.4	0.77	0.74	Yes
	5%	7.2	0.98	0.80	Yes
	15%	11	1.5	0.97	Yes
	25%	16	1.9	1.1	Yes
	50%	27	2.9	1.5	Yes
Low Flow	75%	37	4.0	2.0	Yes
	100%	48	5.0	2.4	Yes

Table F-6. Chromium III Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Chromium III Concentration				18 µg/L[1]	
Chromium III Chronic Criterion[2]				55 µg/L	
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Chromium III[5] (µg/L)	
High Flow	1%	5.4	19	18	Yes
	5%	7.2	24	20	Yes
	15%	11	35	23	Yes
	25%	16	46	27	Yes
	50%	27	70	37	Yes
Low Flow	75%	37	92	46	Yes
	100%	48	110	55	Yes

Table F-7. Cadmium (Chronic) Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration				0.23 µg/L[1]	
Cadmium Chronic Criterion[2]				0.70 µg/L	
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Cadmium[5] (µg/L)	
High Flow	1%	5.4	0.25	0.24	Yes
	5%	7.2	0.31	0.26	Yes
	15%	11	0.45	0.30	Yes
	25%	16	0.58	0.35	Yes
	50%	27	0.87	0.47	Yes
Low Flow	75%	37	1.1	0.58	Yes
	100%	48	1.4	0.70	Yes

Table F-8. Cadmium (Acute) Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration					0.15 µg/L[1]
				Cadmium Acute Criterion[2]	0.74 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Cadmium[5] (µg/L)	
High Flow	1%	5.4	0.17	0.16	Yes
	5%	7.2	0.23	0.18	Yes
	15%	12	0.39	0.24	Yes
	25%	16	0.56	0.30	Yes
	50%	27	1.01	0.44	Yes
Low Flow	75%	37	1.5	0.59	Yes
	100%	48	2.0	0.74	Yes

Table F-9. Lead Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Lead Concentration					0.070 µg/L[1]
				Lead Chronic Criterion[2]	0.41 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Lead[5] (µg/L)	
High Flow	1%	5.4	0.078	0.074	Yes
	5%	7.2	0.11	0.087	Yes
	15%	12	0.20	0.12	Yes
	25%	16	0.30	0.16	Yes
	50%	27	0.59	0.24	Yes
Low Flow	75%	37	0.91	0.33	Yes
	100%	48	1.3	0.41	Yes

Table F-10. Nickel Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Nickel Concentration					4.1 µg/L[1]
				Nickel Chronic Criterion[2]	13 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Nickel[5] (µg/L)	
High Flow	1%	5.4	4.4	4.2	Yes
	5%	7.2	5.6	4.6	Yes
	15%	11	8.3	5.5	Yes
	25%	16	11	6.4	Yes
	50%	27	17	8.8	Yes
Low Flow	75%	37	23	11	Yes
	100%	48	28	13	Yes

Table F-11. Silver (Acute) Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Silver Concentration					0.023 µg/L[1]
Silver Acute Criterion[2]					0.25 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Silver[5] (µg/L)	
High Flow	1%	5.4	0.027	0.026	Yes
	5%	7.2	0.043	0.035	Yes
	15%	12	0.098	0.058	Yes
	25%	16	0.17	0.081	Yes
	50%	27	0.41	0.14	Yes
Low Flow	75%	37	0.74	0.20	Yes
	100%	48	1.1	0.26	Yes

Table F-12. Zinc Evaluation (Design Ambient Hardness = 20 mg/L)

Assumed Upstream Receiving Water Zinc Concentration					9.5 µg/L[1]
Zinc Chronic Criterion[2]					31 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Zinc[5] (µg/L)	
High Flow	1%	5.4	10	9.7	Yes
	5%	7.2	13	11	Yes
	15%	11	19	13	Yes
	25%	16	25	15	Yes
	50%	27	39	20	Yes
Low Flow	75%	37	52	25	Yes
	100%	48	64	31	Yes

Footnotes for CTR Hardness-dependent Metals Tables (F-5 through F-12)

1 Highest assumed downstream receiving water metals concentration calculated using CTR equation (Equation 1) for chronic/ acute criterion at a hardness of 5 mg/L.

2 CTR Criteria calculated using CTR equation (Equation 1) for chronic/acute criterion at the design ambient hardness for the particular metal (see Table F-13).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable mixture using Equation 2.

4 Mixed downstream ambient criteria are the chronic/acute criteria calculated using the CTR equation (Equation 1) at the mixed hardness.

5 Mixed downstream ambient metals concentration is the mixture of the receiving water and effluent metals concentrations at the applicable mixture using Equation 2.

6 The mixture percentage represents the fraction of effluent in the downstream ambient receiving water. The mixture ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

The applicable design ambient hardness and CTR criteria for the hardness-dependent metals for which toxicity in ambient waters does not occur are as follows in Table F-13.

Table F-13. Summary of Design Ambient Hardness and CTR Criteria for Hardness-dependent Metals

CTR Metals	Design Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable)[1]	
		acute	chronic
Copper	20	3.1	2.4
Chromium III	20	470	55
Cadmium	20	0.74	0.70
Lead	20	11	0.41
Nickel	20	120	13
Silver	20	0.25	--
Zinc	20	31	31

[1] Metal criteria rounded to two significant figures in accordance with the CTR.

3. Determining the Need for WQBEL's

a. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential (i.e., constituents were not detected in the effluent or receiving water); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. **Chlorine Residual**

(a) **WQO.** U.S. EPA developed National Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective. Order R5-2009-0034 included effluent limitations for chlorine residual based on the NAWQC due to the Discharger's use of chlorine for disinfection.

(b) **RPA Results.** The Discharger converted from chlorine disinfection to UV disinfection in December 2014. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective and the effluent limitations for chlorine residual have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

The Discharger periodically uses chlorine for cleaning and maintenance. Therefore, this Order includes monitoring requirements for chlorine when in use in the Facility.

ii. **Cyanide**

(a) **WQO.** The CTR includes maximum 1-hour average and 4-day average criteria of 22 µg/L and 5.2 µg/L, respectively, for the protection of

freshwater aquatic life for cyanide. Order R5-2009-0034 included effluent limitations for cyanide based on the CTR criteria.

(b) **RPA Results.** The MEC for cyanide was 12 µg/L, based on 33 samples collected between July 2011 and June 2014. Cyanide was not detected in the upstream receiving water based on two samples collected between July 2011 and June 2014. The laboratory report for the result of 12 µg/L obtained on 6 January 2014 does not indicate any quality control issues, however, sodium hydroxide was used to preserve cyanide samples and has been shown to cause false positives by other dischargers. SIP section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. Therefore, in accordance with section 1.2 of the SIP, the Central Valley Water Board has determined that the effluent result of 12 µg/L collected on 6 January 2014 is not representative of the discharge from the Facility. Excluding the 6 January 2014 result, the MEC for cyanide was 2 µg/L. Additionally, the Discharger recently completed Facility upgrades, including conversion from chlorine disinfection to UV disinfection, and the the Facility serves a small population without any industrial dischargers; thus, cyanide is not expected to be present in the effluent at concentrations exceeding the applicable criteria. Therefore, cyanide in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 5.2 µg/L and effluent limitations have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Dichlorobromomethane.**

(a) **WQO**. The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health for waters where both water and organisms are consumed. Order R5-2009-0034 included effluent limitations for dichlorobromomethane based on the CTR criteria.

(b) **RPA Results**. The MEC for dichlorobromomethane was 2.3 µg/L based on 30 samples collected between July 2011 and June 2014. Dichlorobromomethane was not detected in the upstream receiving water based on one sample collected between July 2011 and June 2014. Dichlorobromomethane is a common byproduct of chlorine disinfection. The Discharger completed upgrades to the Facility in December 2014 to replace chlorine disinfection with UV disinfection. Based on the discontinuation of chlorine disinfection, the Central Valley Water Board finds that dichlorobromomethane in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria and effluent limitations have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Persistent Chlorinated Hydrocarbon Pesticides**

(a) **WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges

shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene. Order R5-2009-0034 contained effluent limitations for aldrin and alpha-BHC based on the Basin Plan objective.

(b) **RPA Results.** Alpha-BHC was not detected in the effluent based on 31 samples collected between July 2011 and June 2014. Aldrin was detected but not quantified in the effluent at an estimated concentration of 0.003 µg/L on 6 June 2013. However, the laboratory sheet for the 6 June 2013 sample result indicated that aldrin was also detected in the laboratory blank. SIP section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. Therefore, in accordance with section 1.2 of the SIP, the Central Valley Water Board has determined that the effluent result of 0.003 µg/L collected on 6 June 2013 is not representative of the discharge from the Facility. Excluding the 6 June 2013 result, aldrin was not detected in the remaining 30 samples collected between July 2011 and June 2014. Therefore, alpha-BHC and aldrin in the discharge do not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective, and effluent limitations have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate

Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

Table F-14. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Secondary MCL[2]	U.S. EPA NAWQC	Effluent	
				Average[3]	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	N/A	472	797
TDS (mg/L)	Varies	500, 1000, 1500	N/A	238	460
Sulfate (mg/L)	Varies	250, 500, 600	N/A	19.8	19.8
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	27.6	27.6

[1] Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

[2] The Secondary MCL's are stated as a recommended level, upper level, and a short-term maximum level.

[3] Maximum calendar annual average.

(1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(2) **Electrical Conductivity.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. Order R5-2009-0034 included an effluent limitation for electrical conductivity that the annual average electrical conductivity level in the effluent shall not exceed the electrical conductivity level in the water supply plus 500 µmhos/cm, or 700 µmhos/cm, whichever is less, on a calendar year basis.

(3) **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) **Total Dissolved Solids.** The Secondary MCL for total dissolved solids is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) **RPA Results**

(1) **Chloride.** Chloride concentrations in the effluent ranged from 9.3 mg/L to 27.6 mg/L, with a maximum annual average of 27.6 mg/L based on three samples collected between July 2011 and June 2014. These levels do not exceed the Secondary MCL. Background concentrations in the South Yuba River ranged from 2.3 mg/L to

3.5 mg/L, with a maximum annual average of 3.5 mg/L, for two samples collected by the Discharger between July 2011 and June 2014.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows a maximum annual average effluent electrical conductivity of 472 µmhos/cm, with a range from 146 µmhos/cm to 797 µmhos/cm based on 172 samples collected between July 2011 and June 2014. These levels do not exceed the Secondary MCL. The maximum annual average background receiving water electrical conductivity was 74 µmhos/cm based on 198 samples collected between July 2011 and June 2014.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 7.6 mg/L to 19.8 mg/L, with a maximum annual average concentration of 19.8 mg/L based on three samples collected between July 2011 and June 2014. These levels do not exceed the Secondary MCL. Background concentrations in the South Yuba River ranged from not detected to 1.6 mg/L based on two samples collected between July 2011 and June 2014.

(4) **Total Dissolved Solids.** The maximum annual average total dissolved solids effluent concentration was 238 mg/L with concentrations ranging from124 mg/L to 460 mg/L based on 21 samples collected between July 2011 and June 2014. These levels do not exceed the Secondary MCL. The background receiving water total dissolved solids ranged from 14 mg/L to 104 mg/L, with a maximum annual average concentration of 104 mg/L based on three samples collected between July 2011 and June 2014.

(c) **WQBEL's.** Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity and the effluent limitation for electrical conductivity has not been retained in this Order. Removal of this effluent limitation is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet). In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to continue to implement a salinity evaluation and minimization plan.

vi. **Silver**

(a) **WQO**. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for silver. These criteria for silver are presented in dissolved concentrations as 1-hour acute criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used to calculate the criteria. As discussed in section IV.C.2.e of this Fact Sheet, the applicable acute criterion for silver is 0.25 µg/L. Order R5-2009-0034 included effluent limitations for silver based on the CTR criterion.

(b) **RPA Results**. The MEC for silver was 0.4 µg/L based on 30 samples collected between July 2011 and June 2014. Silver was not detected in the upstream receiving water in two samples collected between July 2011 and June 2014. The effluent concentration of silver was only detected

once (the MEC of 0.4 µg/L) and was detected but not quantified in one sample at an estimated concentration of 0.15 µg/L. Silver was not detected in the remaining 28 effluent samples. The Discharger completed Facility upgrades in December 2014, including the addition of membrane filtration, that will further reduce concentrations of silver in the effluent. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of the CTR criterion and the effluent limitation for silver has not been retained in this Order. Removal of this effluent limitation is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

vii. **Zinc**

(a) **WQO**. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used to calculate the criteria. As discussed in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for zinc are 31 µg/L. Order R5-2009-0034 included effluent limitations for zinc based on the CTR criteria.

(b) **RPA Results**. The MEC for zinc was 37.7 µg/L based on 30 samples collected between July 2011 and June 2014. The maximum observed upstream receiving water concentration for zinc was 13.3 µg/L based on two samples collected between July 2011 and June 2014. The effluent concentration of zinc has not exceeded 18.6 µg/L since 5 March 2012. The Discharger completed Facility upgrades in December 2014, including the addition of membrane filtration, that will further reduce concentrations of zinc in the effluent. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria and the effluent limitations for zinc have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

b. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, BOD_5, copper, lead, manganese, nitrate plus nitrite, pH, total coliform organisms, and TSS. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Aluminum**

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic

life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills.

(a) **WQO.** The State Water Board, Division of Drinking Water (DDW) has established Secondary MCL's to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCL's on an annual average basis.

The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' *Policy for Application of Water Quality Objectives* requires the Central Valley Water Board to consider, "*on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective*." Relevant information includes, but is not limited to (1) U.S. EPA NAWQC and subsequent Correction, (2) site-specific conditions of the South Yuba River, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p.IV.17.00; see also, 40 C.F.R. 122.44(d)(vi).)

U.S. EPA NAWQC. U.S. EPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. U.S. EPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon the following two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 6.5) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58% mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98% mortality at aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is U.S. EPA's basis for the 87 µg/L chronic criterion. The varied results draw into question this study and the applicability of the NAWQC chronic criterion of 87 µg/L.

(2) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation

started upon hatching of eyed eggs of brook trout, and their weight and length were measure after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for U.S. EPA's chronic criteria. Though this test study shows chronic toxic effects of 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. U.S. EPA advises that a water effects ratio may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms when the pH and hardness conditions of the receiving water are not similar to that of the test conditions.[1] Effluent and South Yuba River monitoring data indicate that the pH and hardness values are similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below. The pH of the South Yuba River, the receiving water, ranged from 5.4 to 9.2 with a median of 7.1 based on 226 monitoring results obtained between 5 July 2011 and 16 June 2014. These water conditions typically are circumneutral pH where aluminum is predominately in the form of $Al(OH)_3$ and non-toxic to aquatic life. The hardness of the South Yuba River ranged from not detected to 44 mg/L, based on 235 samples from 5 July 2011 to 16 June 2014.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Effluent	Receiving Water
pH	standard units	6.0 – 6.5	6.5 – 7.8	5.4 – 9.2
Hardness, Total (as $CaCO_3$)	mg/L	12	48 – 224	ND – 44
Aluminum, Total Recoverable	µg/L	87.2 - 390	ND – 1,970	47 – 85.1

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of the South Yuba River are similar to those at the City of Auburn discharge, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for the South Yuba River. As shown in the following table, all EC_{50}[2] toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters is less toxic (or less reactive) to aquatic species then demonstrated in the toxicity tests that U.S. EPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests U.S. EPA used to establish the chronic criterion, indicates

[1] "*The value of 87 micro-g/L is based on a toxicity test with striped bass in water with pH = 6.5-6.6 and hardness < 10 mg/L. Data in [a 1994 Study] indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.*" U.S. EPA 1999 NAWQC Correction, Footnote L

[2] The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{50} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms. The EC_{50} is used in toxicity testing to determine the appropriate chronic criterion.

that 87 µg/L may be overly stringent but may be applicable to the South Yuba River.

Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
***Oncorhynchus mykiss* (rainbow trout)**					
Manteca	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	Surface Water	16	>16500	7.44	N/C
Modesto	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
***Ceriodaphnia dubia* (water flea)**					
Auburn	Effluent	99	>5270	7.44	>19.3
	Surface Water	16	>5160	7.44	>12.4
Manteca	Surface Water/Effluent	124	>8800	9.14	N/C
	Effluent	117	>8700	7.21	>27.8
	Surface Water	57	7823	7.58	25.0
	Effluent	139	>9500	7.97	>21.2
	Surface Water	104	>11000	8.28	>24.5
	Effluent	128	>9700	7.78	>25.0
	Surface Water	85	>9450	7.85	>25.7
	Effluent	106	>11900	7.66	>15.3
	Surface Water	146	>10650	7.81	>13.7
Modesto	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Placer County (SMD 1)	Effluent	150	>5000	7.4 – 8.7	>13.7
***Daphnia magna* (water flea)**					
Manteca	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5

The Discharger has not conducted a toxicity test for aluminum; however, the City of Auburn conducted two toxicity tests in Auburn Ravine, shown in the previous table. The City of Auburn is located at an elevation of approximately 1,400 feet above sea level, and is surrounded by forest. As shown, the test water quality characteristics of Auburn Ravine are similar to those in the South Yuba River, with the pH at 7.4 and hardness at 16 mg/L as $CaCO_3$ in comparison to the mean pH at 7.17 and the minimum hardness not detected (mean hardness at 17.6 mg/L) as $CaCO_3$, respectively. Thus, results of site-specific studies conducted in Auburn Ravine would represent conservative assumptions for the South Yuba River since the South Yuba River's water quality characteristics (pH and hardness) are similar. Thus, based on these two similar primary water quality characteristics (pH and hardness) that drive aluminum speciation, the aluminum toxicity within Auburn Ravine is expected to be similar in the South Yuba River. The Auburn Ravine aluminum toxicity study resulted in a site-specific aluminum objective at 1,079 µg/L. Although the conditions in the South Yuba River may be similar to those in Auburn Ravine, the Central Valley Water Board finds that additional toxicity studies are

necessary to determine if the chronic criterion of 87 µg/L is not applicable in the South Yuba River.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the NAWQC chronic criterion. The RPA was conducted based on the maximum observed effluent aluminum concentration. The maximum effluent aluminum concentration was 1,970 µg/L based on 31 samples collected between July 2011 and June 2014. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC chronic criterion.

(c) **WQBEL's.** This Order contains a final average monthly effluent limitation (AMEL) and average weekly effluent limitation (AWEL) for aluminum of 49 µg/L and 110 µg/L respectively, based on the NAWQC chronic criterion.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 1,970 µg/L is greater than the applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. Cease and Desist Order (CDO) R5-2015-0044 provides a compliance schedule to achieve compliance with the final effluent limitations for aluminum by 31 December 2017, in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

ii. **Ammonia**

(a) **WQO.** The 1999 U.S. EPA NAWQC for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria"). The 2013 Criteria is an update to U.S. EPA's 1999 Criteria, and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central

Valley waterways. The 2013 Criteria document therefore states that, *"unionid mussel species are not prevalent in some waters, such as the arid west…"* and provides that, *"In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from that national criteria dataset to better represent the species present at the site."*

The Central Valley Water Board issued a 3 April 2014 *California Water Code Section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their intent to pursue an individual site-specific mussel study to evaluate the presence or absence of unionid mussels in the South Yuba River near the Facilities effluent outfall. Mussels were not found during sampling conducted in 2006 (*Table 2, Sensitive Freshwater Mussel Surveys in the Pacific Southwest Region: Assessment of Conservation Status*). Studies are currently underway to determine how that latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective.

The maximum permitted effluent pH is 8.0. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5, however a site-specific pH limit of 8.0 has been established for discharges from the Facility as discussed in section IV.C.3.b.viii. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L.

A chronic criterion was calculated using the rolling 30-day average pH and temperature of the downstream receiving water for each day when paired temperature data and pH were measured. The minimum observed 30-day average criteria was established as the applicable 30-day average chronic criterion, or 30-day CCC. The applicable 30-day CCC is 1.98 mg/L. The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC's of 1.98 mg/L, the 4-day average concentration that should not be exceeded is 4.95 mg/L.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to fish and would violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and effluent limitations are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either*

conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data*." With regard to POTW's, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50).

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBEL's are required.

(c) **WQBEL's.** The Central Valley Water Board calculates WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA).

However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and AWEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final average AMEL and AWEL for ammonia of 2.0 mg/L and 4.3 mg/L, respectively.

(d) **Plant Performance and Attainability.** Based on 135 samples the effluent data shows that the maximum weekly ammonia concentration was 55 µg/L, which is more than the applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. CDO R5-2015-0044 provides a compliance schedule to achieve compliance with the final effluent limitations for ammonia by 1 April 2016, in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

iii. **Copper**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used to calculate the criteria. As discussed in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for copper are 3.1 µg/L and 2.4 µg/L, respectively.

(b) **RPA Results.** The MEC for copper was 10.2 µg/L based on 31 samples collected between July 2011 and June 2014. The maximum observed upstream receiving water concentration for copper was 1.2 µg/L based on two samples collected between July 2011 and June 2014. Therefore, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** This Order contains a final AMEL and MDEL for copper of 1.8 µg/L and 3.1 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 10.2 µg/L is more than the applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. CDO R5 2015-0044 provides a compliance schedule to achieve compliance with the final effluent limitations for copper by 31 December 2017, in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

iv. **Lead**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used to calculate the criteria. As discussed in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for lead are 11 µg/L and 0.41 µg/L, respectively.

(b) **RPA Results.** The MEC for lead was 0.192 µg/L based on three samples collected between July 2011 and June 2014. The maximum observed upstream receiving water concentration for lead was 0.716 µg/L based on three samples collected between July 2011 and June 2014. Therefore, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** This Order contains a final AMEL and MDEL for lead of 0.33 µg/L and 0.66 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 0.192 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Manganese**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Manganese is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar year annual average effluent manganese concentrations.

The maximum annual average effluent concentration for manganese was 181 µg/L based on 29 samples collected between July 2011 and June 2014. Therefore, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.

(c) **WQBEL's.** This Order contains an AMEL and AWEL of 120 µg/L and 350 µg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for the protection of the MUN beneficial use.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum effluent manganese concentration of 759 µg/L is greater than the applicable AMEL. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. CDO R5-2015-0044 provides a compliance schedule to achieve compliance with the final effluent limitations for manganese by 1 April 2016, in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

vi. **Nitrate and Nitrite**

(a) **WQO.** DDW has adopted Primary MCL's for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

U.S. EPA has developed a Primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a*

permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data*." With regard to POTW'S, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL's are required.

(c) **WQBEL's.** This Order contains a final AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 25 mg/L (total as N), based on the Primary MCL. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC for nitrate of 21.2 mg/L is more than the applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. CDO R5-2015-0044 provides a compliance schedule to achieve compliance with the final effluent limitations for nitrate by 1 April 2016, in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

vii. **Pathogens**

(a) **WQO.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.*" Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under Water Code Section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL's are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge*

characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50).

The beneficial uses of the South Yuba River include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

(c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 0.2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 0.2 NTU more than 5% of the time in a 24 hour period and 0.5 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD_5, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary

treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's for BOD_5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

(d) **Plant Performance and Attainability.** The Facility provides tertiary treatment and utilizes a UV disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

viii. **pH**

(a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5.*"

(b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors*

also should be considered with available effluent monitoring data." (TSD, p. 50).

The Facility is a POTW that treats domestic wastewater. Based on 799 samples taken from July 2011 to June 2014, the maximum pH reported was 7.6 and the minimum was 6.5. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

(c) **WQBEL's.** Order R5-2009-0034 contained minimum and maximum effluent limitations for pH of 6.5 and 8.0. The maximum effluent limitation of 8.0 is more stringent than required by the Basin Plan pH objectives and was based on the treatment capabilities of the Facility. The effluent limitations contained in Order R5-2009-0034 have been retained in this Order.

(d) **Plant Performance and Attainability.** Effluent pH ranged from 6.5 to 7.6. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBEL's for aluminum, ammonia, BOD_5, copper, lead, manganese, nitrate plus nitrite, pH, total coliform organisms, and TSS. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$ECA = C + D(C - B) \quad \text{where } C>B, \text{ and}$$
$$ECA = C \quad \text{where } C \leq B$$

where:

ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECA's based on MCL's, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCL's.** For WQBEL's based on site-specific numeric Basin Plan objectives or MCL's, the effluent limitations are applied directly as the

ECA as either an MDEL, AWEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. **Aquatic Toxicity Criteria.** WQBEL's based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECA's are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. **Human Health Criteria.** WQBEL's based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to ECA and a statistical multiplier was used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where:
$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting acute ECA to LTA_{acute}
M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

Table F-15. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	43	65	130	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	43	65	130	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	1.8	--	3.1	--	--
Lead, Total Recoverable	µg/L	0.33	--	0.66	--	--
Non-Conventional Pollutants						

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum, Total Recoverable	µg/L	49	110	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	2.0	4.3	--	--	--
	lbs/day[1]	8.7	19	--	--	--
Manganese, Total Recoverable	µg/L	120	350	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	25	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[2]	23[3]	--	240

[1] Based on a design average dry weather flow of 0.52 MGD.
[2] Applied as a 7-day median effluent limitation.
[3] Not to be exceeded more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) The Basin Plan also states that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*"

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Therefore, due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its

document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order R5-2009-0034, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay---------- 70%
Median for any three consecutive bioassays---------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00). The results of chronic toxicity testing conducted between 15 May 2012 and 3 June 2014 are shown in the following table.

Table F-16. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
15 May 2012	1	1	1	1	1
5 November 2012	1	1	1	1	1
4 February 2013	1	2	1.3	2	1
6 May 2013	1	1	1.3	2	1
25 June 2013	--	--	1	2	--
23 July 2013	1	1	1	1	1
5 November 2013	1	1	1	1	1
4 February 2014	1	2	1.3	2	1
3 June 2014	1	1	1	1	1

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. As shown in the table above, the discharge exhibited periodic low-level toxicity to *P. promelas* growth and *C. dubia* survival and reproduction. Accelerated monitoring conducted following the 4 February 2013 toxicity test indicated that ammonia was the cause of toxicity.

The Monitoring and Reporting Program of this Order requires annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.*" The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. section 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan, or conduct a Toxicity Evaluation Study approved by the Executive Officer. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CF.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia, BOD_5, and TSS because they are oxygen demanding substances. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (Average Dry Weather Flow) permitted in section IV.A.1.f of this Order.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AWEL's and AMEL's for POTW's unless impracticable. For priority pollutants (i.e., copper and lead), this Order includes AMEL's and MDEL's as required by the SIP. For BOD_5, pH, and TSS, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for aldrin, alpha-BHC, chlorine residual, copper, cyanide, dichlorobromomethane, electrical conductivity, manganese, silver, and zinc. The effluent limitations for these pollutants are less stringent than those in Order R5-2009-0034. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits "*except in compliance with Section 303(d)(4).*" CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLAs will assure the attainment of such water quality standards.

   ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

   The South Yuba River is considered an attainment water for aldrin, alpha-BHC, chlorine residual, copper, cyanide, dichlorobromomethane, electrical conductivity, manganese, silver, and zinc because the receiving water is not listed as impaired on

the 303(d) list for these constituents[1]. As discussed in section IV.D.4, below, removal and relaxation of the effluent limitations complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for aldrin, alpha-BHC, chlorine residual, cyanide, dichlorobromomethane, electrical conductivity, silver, and zinc and relaxation of effluent limitations for copper and manganese from Order R5-2009-0034 meets the exception in CWA section 303(d)(4)(B).

b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.a of this Fact Sheet, updated information that was not available at the time Order R5-2009-0034 was issued indicates that aldrin, alpha-BHC, chlorine residual, cyanide, dichlorobromomethane, electrical conductivity, silver, and zinc do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Additionally, updated information that was not available at the time Order R5-2009-0034 was issued indicates that less stringent effluent limitations for copper satisfy requirements in CWA section 402(o)(2). The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. **Chlorine Residual.** The Discharger converted from chlorine disinfection to UV disinfection in December 2014. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the NAWQC criterion for chlorine residual.

ii. **Copper.** Updated ambient hardness data collected between July 2011 and June 2014 was used to update the CTR aquatic life criteria for copper. Additionally, updated effluent monitoring data was used to calculate an update coefficient of variation (CV) for use in determining effluent limitations for copper. The use of the updated criterion and CV calculation resulted in less stringent effluent limitations for copper.

iii. **Cyanide.** Based on effluent and upstream receiving water monitoring data collected between July 2011 and June 2014 and the completion of Facility upgrades in December 2014 which included conversion from chlorine disinfection to UV disinfection, cyanide in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

iv. **Dichlorobromomethane.** Dichlorobromomethane is a common byproduct of chlorine disinfection. The Discharger converted from chlorine disinfection to UV disinfection in December 2014. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criterion for dichlorobromomethane.

v. **Electrical Conductivity.** Effluent and upstream receiving water monitoring data collected between July 2011 and June 2014 indicates that electrical

[1] "The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e., waters on the section 303(d) impaired waters list." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

conductivity in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the agricultural water goal or the Secondary MCL.

vi. **Persistent Chlorinated Hydrocarbon Pesticides (Aldrin and Alpha-BHC).** Effluent and upstream receiving water monitoring data collected between July 2011 and June 2014 for aldrin and alpha-BHC indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan objective or the CTR criteria for aldrin and alpha-BHC.

vii. **Silver**. Effluent and upstream receiving water monitoring data collected between July 2011 and June 2014 indicates that silver in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of CTR criteria for the protection of freshwater aquatic life.

viii. **Zinc**. Effluent and upstream receiving water monitoring data collected between July 2011 and June 2014 indicates that zinc in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of CTR criteria for the protection of freshwater aquatic life.

Thus, removal of the effluent limitations for aldrin, alpha-BHC, chlorine residual, cyanide, dichlorobromomethane, electrical conductivity, silver, and zinc and relaxation of effluent limitations for copper from Order R5-2009-0034 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

4. Antidegradation Policies

a. **Surface Water.** This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for aldrin, alpha-BHC, chlorine residual, cyanide, dichlorobromomethane, electrical conductivity, silver, and zinc based on updated monitoring data and completion of Facility upgrades demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. This Order also includes relaxed effluent limitations for copper based on updated hardness data and CV calculation and manganese based on revised averaging periods to be consistent with 40 C.F.R. section 122.45(d). The removal and relaxation of WQBEL's for these parameters will not results in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal and relaxation of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

b. **Groundwater.** The Facility does not include any earthen structures to hold or treat wastewater. The Discharger utilizes spray irrigation to land discharge disinfected tertiary treated wastewater during the dry season. The irrigation system does include a lined pond to catch any irrigation runoff. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals, and oxygen demanding substances (BOD). Percolation from the spray irrigation may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

i. the degradation is limited in extent;

ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

The Facility produces disinfected tertiary treated wastewater that is considered suitable for parks and playgrounds, school yards, residential landscaping, and unrestricted access golf courses, etc. (Title 22, section 60304). Central Valley Water Board staff has concluded that the discharge of disinfected tertiary treated wastewater as spray irrigation does not pose a threat to groundwater beneficial uses.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for BOD_5 and TSS. Restrictions on these parameters are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May 2000,

but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA"* pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

Summary of Final Effluent Limitations
Discharge Point 001

Table F-17. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	MGD	0.52[2]	--	--	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	43	65	130	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP/PO
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	43	65	130	--	--	
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Copper, Total Recoverable	µg/L	1.8	--	3.1	--	--	CTR
Lead, Total Recoverable	µg/L	0.33	--	0.66	--	--	CTR
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L	49	110	--	--	--	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L	2.0	4.3	--	--	--	NAWQC
	lbs/day[1]	8.7	19	--	--	--	
Manganese, Total Recoverable	µg/L	120	350	--	--	--	SEC MCL
Nitrate Plus Nitrite (as N)	mg/L	10	25	--	--	--	MCL
Total Coliform Organisms	MPN/ 100 mL	--	2.2[4]	23[5]	--	240	Title 22
Acute Toxicity	% Survival	70[6]/90[7]	--	--	--	--	BP
Chronic Toxicity	TUc	--	--	Narrative[8]	--	--	BP

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

[1] DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 C.F.R. part 133.
PO – Based on previous Order R5-2009-0034.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
SEC MCL – Based on the Secondary Maximum Contaminant Level.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on DDW Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] The average dry weather flow shall not exceed 0.52 MGD.

[3] Based on an average dry weather flow of 0.52 MGD.

[4] Applied as a 7-day median effluent limitation.

[5] Not to be exceeded more than once in any 30-day period.

[6] 70% minimum for any one bioassay.

[7] 90% median for any three consecutive bioassays.

[8] There shall be no chronic toxicity in the effluent discharge.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications

The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater.

G. Recycling Specifications

Treated wastewater discharged for reclamation is regulated under separate waste discharge requirements and must meet the requirements of CCR, Title 22.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

   a. **pH**. Order R5-2009-0034 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007,

amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. § 131.12).

Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria are based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are developed to protect under worse-case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. § 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current U.S. EPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

b. **Turbidity.** Order R5-2009-0034 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality

objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. § 131.12).

This Order includes operational specifications that require the Discharger to operate the treatment system to insure that turbidity shall not exceed 0.2 NTU more than 5 percent of the time within a 24 hour period, and 0.5 NTU, at any time. Because this Order limits the average daily discharge of turbidity to 0.2 NTU, the Order will be protective of the receiving water under all natural background conditions as defined in the Basin Plan's revised water quality objective for turbidity. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. § 131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient turbidity is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical

water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCL's in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order

may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Ultraviolet Light (UV) Disinfection Operating Specifications .** UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"* first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation required by Title 22 for disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications, in accordance with Reopener Provision VI.C.1.f.

e. **Mixing Zone.** If the Discharger decides to pursue future Central Valley Water Board approval for dilution of its surface water discharge, this Order requires the Discharger to conduct and submit a mixing zone study. This Order may be reopened to add or modify effluent discharge conditions and attainment of water quality objectives at the boundary of the identified mixing zone.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00). Based on whole effluent chronic toxicity testing performed by the Discharger from 15 May 2012 through 3 June 2014, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE or site-specific Toxicity Evaluation Study initiation if toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of **> 1** TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics*

Control, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e., toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. Numerous guidance documents are available, as identified below:

i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.

ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.

iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.

iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.

v. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA/600/R-92/080, September 1993.

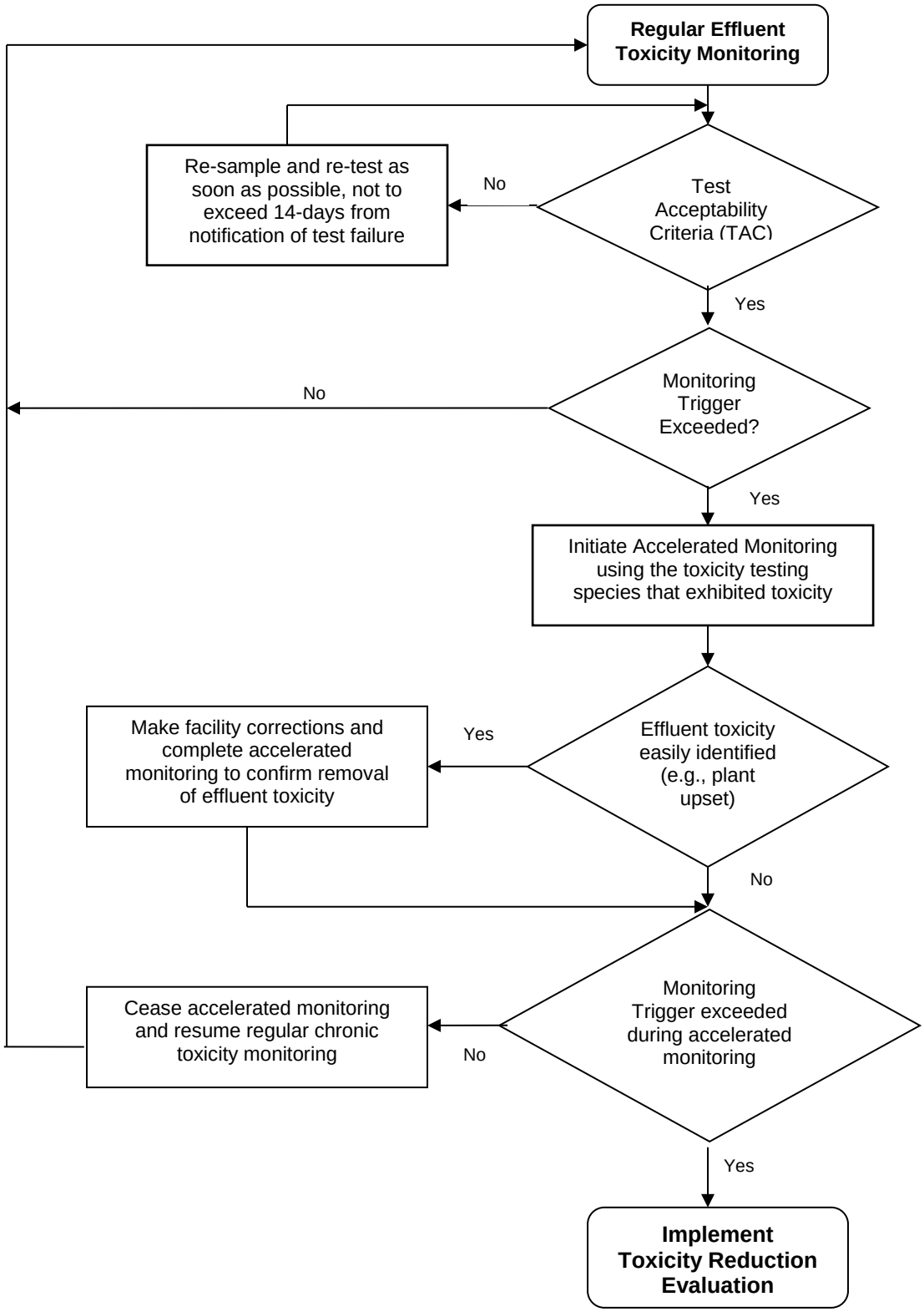
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA 600/R-92/081, September 1993.

vii. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, EPA-821-R-02-012, October 2002.

viii. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA-821-R-02-013, October 2002.

ix. *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



Site-specific Toxicity Evaluation Study. The Facility serves a population of approximately 2,000 and provides tertiary-level treatment of the municipal wastewater disinfected by UV treatment. There are no industrial dischargers to the Facility. The tertiary treatment process uses membrane filtration. The filter system produces low turbidity effluent. The Discharger maintains regularly schedule maintenance activities on the UV system recommended by the manufacturer.

The discharge is a high-quality effluent that indicates low-level toxicity at times. The discharge experienced intermittent and low level effluent chronic toxicity (less than 25% effect) to *P. promelas* and *C. dubia*. Some studies completed within the Central Valley Region focusing on the role of the UV process in causing toxicity indicated, though not conclusively, that free radicals may play a role in the observed toxicity in effluent disinfected by a UV system (City of Woodland TIE/TRE findings from 2009-2014, Robertson-Bryan, Inc.). This provision allows the Discharger to conduct a Toxicity Evaluation Study to investigate the cause of toxicity, individually or as part of a coordinated group effort with other dischargers that evaluate low level and intermittent toxicity in effluent disinfected by a UV disinfection system, instead of conducting accelerated monitoring or TIE/TRE.

b. **Stream Diffuser and Mixing Zone Study**. This Order includes requirements for the Discharger to develop and submit a project Work Plan for collecting receiving water flow monitoring and conducting a mixing zone study if the Discharger decides to pursue future Central Valley Water Board approval for dilution for its surface water discharge.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** An evaluation and minimization plan for salinity is required to be implemented in this Order to ensure that the Discharger continues to control sources of salinity.

4. Construction, Operation, and Maintenance Specifications

a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 0.2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time and an instantaneous maximum of 0.5 NTU.

b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent

limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The NWRI guidelines include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the *Treatment Technology Report for Recycled Water*, December 2009 (or a later version, as applicable) published by the DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board executive officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (per the NWRI Guidelines).

For membrane filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 80 mJ/cm^2. Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 80 mJ/cm^2 and a minimum hourly average UV transmittance of 65%, per the NWRI Guidelines. If the Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22 equivalent virus removal, this Order may be reopened to revise the UV operating specifications accordingly.

5. Special Provisions for Municipal Facilities (POTW's Only)

a. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May,2006. The Monitoring and Reporting Requirements for the General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

b. **Anaerobically Digestible Material.** Managers of POTW's increasingly are considering the addition of organic material such as food waste, fats, oils and grease (FOG) into their anaerobic digesters for co-digestion. Benefits of accepting these materials include increasing the volume of methane and other biogases available for energy production and ensuring such materials are disposed of at the POTW instead of discharged into the collection system potentially causing sanitary sewer overflows. The State Water Board has been working with the California Department of Resources Recycling and Recovery (CalRecycle), the California Department of Food and Agriculture (CDFA), and the California Association of

Sanitation Agencies (CASA) to delineate jurisdictional authority for the receipt of hauled-in anaerobically digestible material (ADM[1]) at POTW's for co-digestion.

CalRecycle is proposing an exclusion from Process Facility/Transfer Station permits for direct injection of ADM to POTW anaerobic digesters for co-digestion that are regulated under waste discharge requirements or NPDES permits. The proposed CalRecycle exclusion is restricted to ADM that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The CalRecycle exclusion assumes that a POTW has developed Standard Operating Procedures (SOP's) for the proper handling, processing, tracking, and management of the ADM received.

The Discharger currently does not accept hauled-in ADM for direct injection into its anaerobic digester for co-digestion. However, if the Discharger proposes to receive hauled-in ADM for injection into its anaerobic digester for co-digestion, this provision requires the Discharger to notify the Central Valley Water Board and develop and implement SOP's for this activity prior to initiation of the hauling. The requirements of the SOP's are discussed in Section VI.C.5.c.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5-2009-0034, this Order requires wastewater to be oxidized, coagulated, filtered, and adequately disinfected pursuant to DDW reclamation criteria, CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent.

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for flow (continuous) and BOD_5 (two times per week) have been retained from Order R5-2009-0034.

2. The influent monitoring frequency for TSS has been reduced from two times per week to two times per month. This monitoring frequency is consistent with other similar facilities and the Central Valley Water Board finds that this frequency is sufficient to characterize the influent.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to

[1] CalRecycle has proposed to define "anaerobically digestible material" to include inedible kitchen grease as defined in Food and Agricultural Code section 19216, food material as defined in California Code of Regulations, title 14, section 17852 and vegetative food material.

assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Effluent monitoring frequencies and sample types for flow (continuous), aluminum (monthly), ammonia (weekly), BOD_5 (twice per week), copper (monthly), hardness (monthly), manganese (monthly), nitrate (weekly), nitrite (weekly), pH (daily), temperature (daily), total dissolved solids (quarterly), and TSS (twice per week) have been retained from Order R5-2009-0034 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters.

3. Monitoring data collected over the term of Order R5-2009-0034 for aldrin, alpha-BHC, chromium VI, cyanide, dichlorobromomethane, organophosphate, persistent chlorinated hydrocarbon pesticides, silver, standard minerals, total nitrogen, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2009-0034.

4. Monitoring data collected over the term of Order R5-2009-0034 for electrical conductivity did not demonstrate reasonable potential to exceed water quality objectives. Therefore, this Order reduces the effluent monitoring frequency from weekly to quarterly.

5. Order R5-2009-0034 required continuous monitoring for chlorine. The Discharger converted from chlorine disinfection to UV disinfection in December 2014 and now only uses chlorine periodically for maintenance purposes. Therefore, this Order only requires daily chlorine monitoring when chlorine is in use.

6. Order R5-2009-0034 required monitoring for total coliform organisms two times per week at Monitoring Location EFF-001. This Order retains the monitoring frequency for total coliform organisms, but moves the point of compliance from Monitoring Location EFF-001 to an internal compliance point following the UV disinfection system (Monitoring Location UVS-002).

7. Order R5-2009-0034 required continuous monitoring for turbidity at Monitoring Location EFF-001. This Order retains the monitoring frequency for turbidity, but moves the point of compliance from Monitoring Location EFF-001 to Monitoring Location FIL-001, located downstream of the filters and upstream of the UV disinfection system.

8. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. This Order requires monitoring quarterly during the third year of the permit term in order to collect data to conduct an RPA for the next permit renewal. See section IX.C of the MRP for more detailed requirements related to performing priority pollutant monitoring.

9. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.*" DDW certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

   Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and

immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Based on acute toxicity testing conducted during the term of Order R5-2009-0034, the discharge has been in compliance with the effluent limitations for acute toxicity. Therefore, this Order reduces the frequency for 96-hour bioassay testing from quarterly to annually to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** The Discharger completed upgrades to the Facility in December 2014 which are expected to reduce the potential for effluent toxicity. Therefore, this Order reduces the frequency for chronic whole effluent toxicity testing from quarterly to annually in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 for flow were included in Order R5-2009-0034 because the Discharger considered performing a mixing zone study which would have required the Discharger to install stream flow monitoring devices. The Discharger is no longer considering a mixing zone study and therefore, does not have the ability to monitor stream flow. Therefore, monitoring for flow in the receiving water has not been retained as part of this Order.

c. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 for hardness, dissolved oxygen, pH, temperature, and turbidity have been reduced from two times per week to weekly.

d. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 for electrical conductivity has been reduced from weekly to quarterly.

e. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 for ammonia, fecal coliform organisms, nitrate, nitrite, organophosphate, radionuclides, and total kjehldahl nitrogen have not been retained as monitoring is unnecessary to determine compliance with the requirements of this Order.

f. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires monitoring for priority pollutants and other pollutants of concern quarterly during the third year of the permit term in the upstream receiving water, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.C of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.a of this Order. Biosolids disposal requirements are imposed pursuant to 40 C.F.R. part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

Order R5-2009-0034 required water supply monitoring for electrical conductivity, standard minerals, and total dissolved solids to determine the contribution of salinity of the water supply. As discussed in section IV.C.3.a.v of this Fact Sheet, based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. Therefore, water supply monitoring is not retained in this Order.

3. Filtration System and UV Disinfection System Monitoring

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DDW and the NWRI Guidelines.

Order R5-2009-0034 required monitoring for total coliform organisms at Monitoring Location EFF-001. This Order moves the point of compliance to Monitoring Location UVS-002.

Order R5-2009-0034 required monitoring for turbidity at Monitoring Location EFF-001. This Order moves the point of compliance to Monitoring Location FIL-001.

4. Land Discharge Monitoring

a. Land discharge monitoring is required to ensure that the discharge to the land disposal area complies with the Land Discharge Specifications in section IV.B of this Order. Monitoring frequencies for flow (continuous) have been retained from Order R5-2009-0034.

b. Monitoring requirements for BOD_5 and TSS have been reduced from twice per week to once per month.

c. Monitoring requirements for total coliform organisms have been reduced from five times per week to once per month.

d. Monitoring requirements for chlorine have not been retained in this Order because the Discharger now uses UV disinfection.

e. Monitoring requirements for electrical conductivity, pH, settleable solids, and turbidity have not been retained in this Order because it is not necessary to characterize the effluent.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Donner Summit Public Utility District Wastewater Treatment Plant. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following: Posting of the Notice of Public Hearing at the Soda Springs Post Office and the Town of Truckee City Hall.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 27 April 2015.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date:	4 June 2015
Time:	9:00 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to David Kirn at (916) 464-4761.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aldrin	µg/L	0.003	<0.05	ND	3	--	0.00013	0.00014	ND	--	No[1]
Alpha-BHC	µg/L	<0.001	<0.05	ND	--	--	0.0039	0.013	ND	--	No
Aluminum, Total Recoverable	µg/L	1,970	85.1	87	750[2]	87[3]	--	--	--	200	Yes
Ammonia Nitrogen, Total (as N)	mg/L	55	0.93	1.98	5.62[2]	1.98[4]	--	--	--	--	Yes
Copper, Total Recoverable	µg/L	10.2	--	2.4	3.1	2.4	1,300	--	--	1,000	Yes
Cyanide, Total (as CN)	µg/L	12	<1.0	5.4	22	5.2	700	220,000	--	150	No[1]
Dichlorobromomethane	µg/L	2.3	<2.0	0.56	--	--	0.56	46	--	80[5]	No[1]
Electrical Conductivity @ 25°C	µmhos/cm	472[6]	74[6]	900	--	--	--	--	--	900	No
Lead, Total Recoverable	µg/L	0.192	0.716	0.41	11	0.41	--	--	--	15	Yes
Manganese, Total Recoverable	µg/L	181[6]	142[6]	50	--	--	--	--	--	50	Yes
Nitrate Nitrogen, Total (as N)	mg/L	21.1	3.97	10	--	--	--	--	--	10	Yes
Nitrite Nitrogen, Total (as N)	mg/L	0.59	0.11	10	--	--	--	--	--	10	Yes[1]
Silver, Total Recoverable	µg/L	0.4	<0.1	0.25	0.25	--	--	--	--	100	No[1]
Zinc, Total Recoverable	µg/L	37.7	13.3	31	31	31	7,400	26,000	--	5,000	No[1]

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect

Footnotes:
(1) See discussion in Fact Sheet section IV.C.3.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(3) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(5) Represents the Primary MCL for total trihalomethanes, which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
(6) Represents the maximum observed average annual concentration for comparison with the Secondary MCL.

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations									
Parameter	**Units**	**Criteria**	**Mean Background Concentration**	**Dilution Factor**	**MDEL/AMEL Multiplier**	**AMEL Multiplier**	**AMEL**	**MDEL**	**AWEL**
Manganese, Total Recoverable	µg/L	50	74	--	2.9	2.4	120	--	350
Nitrate plus Nitrite, Total (as N)	mg/L	10	0.11	--	2.5	1.9	10	--	25

Aquatic Life WQBEL's Calculations																
Parameter	**Units**	**Criteria**		**Dilution Factors**		**Aquatic Life Calculations**							**Final Effluent Limitations**			
		CMC	**CCC**	**CMC**	**CCC**	**ECA Multiplier$_{acute}$**	**LTA$_{acute}$**	**ECA Multiplier$_{chronic}$**	**LTA$_{chronic}$**	**AMEL Multiplier$_{95}$**	**AWEL Multiplier**	**MDEL Multiplier$_{99}$**	**AMEL[1]**	**AWEL[2]**	**MDEL[3]**	
Aluminum, Total Recoverable	µg/L	750	87	--	--	0.12	87	0.20	18	2.79	6.07	8.58	49	110	--	
Ammonia Nitrogen, Total (as N)	mg/L	5.62	1.98	--	--	0.16	0.87	0.58	1.2	2.29	4.87	6.45	2.0	4.2	--	
Copper, Total Recoverable	µg/L	3.1	2.4	--	--	0.41	1.3	0.62	1.5	1.40	--	2.43	1.8	--	3.1	
Lead, Total Recoverable	µg/L	11	0.41	--	--	0.32	3.5	0.53	0.21	1.55	--	3.11	0.33	--	0.66	

1 Average Monthly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 95th percentile occurrence probability.
2 Average Weekly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 98th percentile occurrence probability.
3 Maximum Daily Effluent Limitations are calculated according to Section 1.4 of the SIP using a 99th percentile occurrence probability.

Appendix D WATER QUALITY DATA APPLICABLE TO THE DONNER SUMMIT EFFLUENT

Contains Section 4.0 from the Report of Waste Discharge.

4.0 Reasonable Potential Analysis and Effluent Compliance

The Donner Summit Public Utility District (District) Wastewater Treatment Plant (WWTP) effluent monitoring data, including California Toxics Rule constituent effluent concentrations, obtained during the current permit term are summarized in this section. A Reasonable Potential Analysis (RPA) based on maximum effluent concentrations (MECs) is also included in this section. The RPA identifies constituents present in the WWTP effluent at concentrations that indicate reasonable potential to cause or contribute to an exceedance of a water quality objective (WQO) in discharges to the South Yuba River. The RPA was conducted in accordance with Regional Water Board methodology, consistent with the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, State Water Resources Control Board, 2005 (State Implementation Policy, or SIP). Also included in this section is a brief discussion regarding projected compliance with expected WWTP effluent limitations.

In accordance with the District's current Order Monitoring and Reporting Program (MRP), the District conducts sampling of its WWTP effluent during periods of discharge to the South Yuba River. Required WWTP final effluent sampling frequencies are presented in Table 4-1.

Analytical results from the required WWTP effluent monitoring, summarized in Tables 4-2 through Table 4-5, were used to determine if the WWTP effluent has reasonable potential to cause or contribute to an exceedance of a water quality objective in the receiving water. MECs from available WWTP data collected during periods of discharge to the South Yuba River, from June 2009 through June 2013, are compared to WQOs to determine "reasonable potential". Both California Toxics Rule (CTR) constituents and other constituents of specific concern within the Central Valley with MECs above regulatory criteria are summarized in Tables 4-2 and 4-3. A total of 11 constituents were detected in District WWTP effluent at concentrations warranting additional analysis, and possibly effluent limitations.

Table 4-1 :
Donner Summit Public Utility District WWTP Effluent Sampling Frequencies

Constituent	Sampling Frequency
Flow	Continuous
Chlorine, Total Residual	
Turbidity	
Temperature	1/day
pH	
BOD_5	2/week
TSS	
Total Coliform Organisms	
Ammonia (as N)	1/week
Nitrate (as N)	
Nitrite (as N)	
Hardness	1/month
Aluminum	
Aldrin	
Alpha-BHC	
Chromium VI	
Copper	
Cyanide	
Dichlorobromomethane	
Manganese	
Silver	
Zinc	
Nitrogen	
Organophosphate	
TDS	1/quarter
Chlorinated Hydrocarbon Pest.	
Standard Minerals	1/year
Priority Pollutants	

Table 4-2:
Donner Summit Public Utility District WWTP Constituents with MECs Exceeding WQOs

Constituent	MEC	Lowest WQO	Criterion Basis
CTR Constituents			
Arsenic (µg/L)	10.9	10	Primary MCL
Cadmium (µg/L)	J 0.7	0.54[(a)]	Aquatic Life
Copper (µg/L)	22	2.1[(a)]	Aquatic Life
Selenium (µg/L)	22.7	5.0	Aquatic Life
Dichlorobromomethane (µg/L)		0.56	Human Health
Silver (µg/L)	J 1.9	0.11[(a)]	Aquatic Life
Thallium (µg/L)	J 6.0	1.7	Human Health
Zinc (µg/L)	37.7	27[(a)]	Aquatic Life
Alpha-BHC (µg/L)	J 0.004	0.0039	Human Health
Non-CTR Constituents			
Aluminum (µg/L)	1,970	87	Aquatic Life
Ammonia (mg/L as N)	35.4	5.62	Aquatic Life
Manganese (µg/L)	150[(b)]	50	Secondary MCL

J = Estimated value reported below practical quantitation limit.
(a) Based on a lowest effluent hardness value of 16 mg/L
(b) Maximum annual average

Table 4-3:
Summary of Donner Summit Public Utility District WWTP MECs and WQOs

Constituent	CTR #	Units	Method	10/22/2009	10/26/2010	10/13/2011	10/24/2012	MEC	Criterion	Criterion Basis	MEC Above Criterion
CTR-Data											
Antimony	1	µg/L	EPA 200.8	-	J 5.4	< 0.1	0.9	J 5.4	6	Primary MCL	No
Arsenic	2	µg/L	EPA 1638	< 2	10.9	0.51	0.19	10.9	10	Primary MCL	**Yes**
Beryllium	3	µg/L	EPA 200.8	< 1	< 0.3	< 0.1	< 0.1	< 0.1	4	Primary MCL	No
Cadmium	4	µg/L	EPA 1638	< 1	J 0.0169	< 0.0145	J 0.7	J 0.7	0.54 (a)	Public Health Goal	**Yes**
Chromium (III)	5a	µg/L	EPA 200.8	< 10	J 0.4	J 0.1	< 0.1	J 0.4	50 (a)	Primary MCL	No
Chromium (VI)	5b	µg/L	EPA 200.8	See Table 4.4				2	50 (a)	Public Health Goal	No
Copper	6	µg/L	EPA 200.8	See Table 4.4				22	2.09 (a)	Aquatic Life	**Yes**
Lead	7	µg/L	EPA 1638	< 2	J, NDB 4.1	0.18	0.192	J, NDB 4.1	0.26 (a)	Public Health Goal	No
Mercury	8	µg/L	EPA 1631 E	< 0.2	< 0.05	0.00226	0.0045	< 0.00226	0.05	Human Health	No
Nickel	9	µg/L	EPA 200.7	< 0.6	< 0.6	1.4	1	1.4	11.89 (a)	Aquatic Life	No
Selenium	10	µg/L	EPA 200.8	< 5	22.7	< 0.4	< 0.4	22.7	5	Aquatic Life	**Yes**
Silver	11	µg/L	EPA 200.8	See Table 4.4				J 1.9	0.11 (a)	Aquatic Life	**Yes**
Thallium	12	µg/L	EPA 200.8	< 1	J 6	< 0.2	< 0.2	J 6	1.7	Human Health	**Yes**
Zinc	13	µg/L	EPA 200.8	See Table 4.4				37.7	27.22 (a)	Aquatic Life	**Yes**
Cyanide	14	µg/L	SM 4500CN	See Table 4.4				2	5.2	Aquatic Life	No
Asbestos	15	MFL	-	-	-	-	< 0.96	< 0.96	7	Primary MCL	No
2,3,7,8-TCDD (Dioxin)	16	pg/L	-	-	-	-	< 0.26	< 0.26	0.013	Human Health	No
Acrolein	17	µg/L	-	-	-	-	-	-	21	Aquatic Life	No
Acrylonitrile	18	µg/L	-	-	-	-	-	-	0.059	Human Health	No
Benzene	19	µg/L	EPA 624	< 0.5	< 0.006	< 0.3	< 0.3	< 0.006	1	Primary MCL	No
Bromoform	20	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	4.3	Human Health	No
Carbon tetrachloride	21	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	0.25	Human Health	No
Chlorobenzene (Mono chlorobenzene)	22	µg/L	EPA 624	< 0.5	< 0.08	< 0.3	< 0.3	< 0.08	50	Taste & Odor	No
Dibromochloromethane	23	µg/L	EPA 624	< 0.5	< 0.08	< 0.5	< 0.2	< 0.08	0.41	Human Health	No
Chloroethane	24	µg/L	EPA 624	< 0.5	< 0.2	< 0.5	< 0.5	< 0.2	16	Taste & Odor	No
2-Chloroethyl vinyl ether	25	µg/L	EPA 624	-	-	< 2	< 2	< 2	122	Aquatic Life	No
Chloroform	26	µg/L	EPA 624	13	9.9	35	< 0.2	35	80	Primary MCL	No
Dichlorobromomethane	27	µg/L	EPA 615	See Table 4.4				2.8	0.56	Human Health	**Yes**
1,1-Dichloroethane	28	µg/L	EPA 624	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	Primary MCL	No
1,2-Dichloroethane	29	µg/L	EPA 624	< 0.5	< 0.09	< 0.5	< 0.5	< 0.09	0.38	Human Health	No
1,1-Dichloroethylene	30	µg/L	EPA 624	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	0.057	Human Health	No
1,2-Dichloropropane	31	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	0.52	Human Health	No
1,3-Dichloropropylene (1,3-Dichloropropene)	32	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	0.5	Primary MCL	No
Ethylbenzene	33	µg/L	EPA 624	< 0.5	< 0.06	< 0.3	< 0.3	< 0.06	29	Taste & Odor	No
Bromomethane (Methyl bromide)	34	µg/L	EPA 624	< 0.5	< 0.2	< 0.5	< 0.5	< 0.2	48	Human Health	No
Chloromethane	35	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.2	< 0.1	3	USEPA Health Advisory	No
Methylene chloride (Dichloromethane)	36	µg/L	EPA 624	< 0.5	< 0.1	< 0.5	< 0.5	< 0.1	4.7	Human Health	No
1,1,2,2-Tetrachloroethane	37	µg/L	EPA 624	< 0.5	< 0.2	< 0.5	< 0.5	< 0.2	0.17	Human Health	No
Tetrachloroethylene	38	µg/L	EPA 624	< 0.5	< 0.2	< 0.5	< 0.5	< 0.2	0.8	Human Health	No
Toluene	39	µg/L	EPA 624	< 0.5	< 0.09	< 0.5	< 0.3	< 0.09	42	Taste & Odor	No
trans-1,2-Dichloroethylene	40	µg/L	EPA 624	< 0.5	< 0.08	< 0.5	< 0.5	< 0.08	10	Primary MCL	No
1,1,1-Trichloroethane	41	µg/L	EPA 624	< 0.5	< 0.08	< 0.5	< 0.5	< 0.08	200	Primary MCL	No
1,1,2-Trichloroethane	42	µg/L	EPA 624	< 0.5	< 0.09	< 0.5	< 0.5	< 0.09	0.6	Human Health	No
Trichloroethene	43	µg/L	EPA 624	< 0.5	< 0.09	< 0.5	< 0.5	< 0.09	2.7	Human Health	No
Vinyl chloride	44	µg/L	EPA 624	< 0.5	< 0.08	< 0.5	< 0.3	< 0.08	0.5	Primary MCL	No
2-Chlorophenol	45	µg/L	EPA 625	-	< 0.3	< 10	< 0.8	< 0.3	0.1	Taste & Odor	No
2,4-Dichlorophenol	46	µg/L	EPA 625	-	< 1.4	< 10	< 0.8	< 0.8	0.3	Taste & Odor	No

Reasonable Potential Analysis and Effluent Compliance
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Constituent	CTR #	Units	Method	10/22/2009	10/26/2010	10/13/2011	10/24/2012	MEC	Criterion	Criterion Basis	MEC Above Criterion
CTR-Data											
2,4-Dimethylphenol	47	µg/L	EPA 625	-	< 0.8	< 10	< 0.8	< 0.8	400	Taste & Odor	No
4,6-Dinitro-2-methylphenol	48	µg/L	EPA 625	-	< 25	< 0.2	< 2.2	< 0.2	13.4	Human Health	No
2,4-Dinitrophenol	49	µg/L	EPA 625	-	< 0.3	< 25	< 0.3	< 0.3	70	Human Health	No
2-Nitrophenol	50	µg/L	EPA 625	-	< 0.4	< 10	< 1.2	< 0.4	150	Aquatic Life	No
4-Nitrophenol	51	µg/L	EPA 625	-	< 0.1	< 25	< 0.1	< 0.1	60	USEPA Health Advisory	No
4-Chloro-3-methylphenol	52	µg/L	EPA 625	-	< 0.3	< 20	< 0.6	< 0.3	30	Aquatic Life	No
Pentachlorophenol	53	µg/L	EPA 625	-	< 0.4	< 25	< 2.4	< 0.4	0.28	Human Health	No
Phenol	54	µg/L	EPA 625	-	< 0.6	< 10	< 0.3	< 0.3	300	Taste & Odor	No
2,4,6-Trichlorophenol	55	µg/L	EPA 625	-	< 0.3	< 10	< 1.6	< 0.3	2	Taste & Odor	No
Acenaphthene	56	µg/L	EPA 625	-	< 0.4	< 10	< 0.6	< 0.4	20	Taste & Odor	No
Acenaphthylene	57	µg/L	EPA 625	-	< 0.4	< 10	< 0.3	< 0.3	0.0088	Human Health	No
Anthracene	58	µg/L	EPA 625	-	< 0.4	< 10	< 0.3	< 0.3	9600	Human Health	No
Benzidine	59	µg/L	EPA 625	-	< 0.2	-	< 0.2	< 0.2	0.00012	Human Health	No
Benzo(a)anthracene	60	µg/L	EPA 625	-	< 0.4	< 10	< 0.4	< 0.4	0.0044	Human Health	No
Benzo(a)pyrene (3,4-Benzopyrene)	61	µg/L	EPA 625	-	< 0.5	< 10	< 1.2	< 0.5	0.0044	Human Health	No
3,4-Benzofluoranthene	62	µg/L	EPA 625	-	< 0.5	< 10	< 0.8	< 0.5	0.0044	Human Health	No
Benzo(g,h,i)perylene	63	µg/L	EPA 625	-	< 0.5	< 10	< 1.3	< 0.5	0.0088	Human Health	No
Benzo(k)fluoranthene	64	µg/L	EPA 625	-	< 1.2	< 10	< 1	< 1	0.0044	Human Health	No
Bis(2-chloroethoxy) methane	65	µg/L	EPA 625	-	< 0.5	< 10	< 0.4	< 0.4	4.4	Human Health	No
Bis(2-chloroethyl) ether	66	µg/L	EPA 625	-	< 0.9	< 10	< 0.6	< 0.6	0.031	Human Health	No
Bis(2-chloroisopropyl) ether	67	µg/L	EPA 625	-	< 0.5	< 10	< 0.4	< 0.4	122	Aquatic Life	No
Bis(2-ethylhexyl) phthalate	68	µg/L	EPA 625	-	< 4.8	< 10	< 0.7	< 0.7	1.8	Human Health	No
4-Bromophenyl phenyl ether	69	µg/L	EPA 625	-	< 0.5	< 10	< 0.8	< 0.5	122	Aquatic Life	No
Butyl benzyl phthalate	70	µg/L	EPA 625	-	< 0.6	< 10	< 1	< 0.6	3	Aquatic Life	No
2-Chloronaphthalene	71	µg/L	EPA 625	-	< 0.4	< 10	< 0.2	< 0.2	1600	Aquatic Life	No
4-Chlorophenyl phenyl ether	72	µg/L	EPA 625	-	< 0.3	< 10	< 0.5	< 0.3	122	Aquatic Life	No
Chrysene	73	µg/L	EPA 625	-	< 0.5	< 10	< 0.5	< 0.5	0.0044	Human Health	No
Dibenzo(a,h)-anthracene	74	µg/L	EPA 625	-	< 0.6	< 10	< 1.6	< 0.6	0.0044	Human Health	No
1,2-Dichlorobenzene	75	µg/L	EPA 624	< 0.5	< 0.2	< 0.3	< 0.3	< 0.2	10	Taste & Odor	No
1,3-Dichlorobenzene	76	µg/L	EPA 624	< 0.5	< 0.1	< 0.3	< 0.3	< 0.1	10	Taste & Odor	No
1,4-Dichlorobenzene	77	µg/L	EPA 624	< 0.5	< 0.1	< 0.3	< 0.3	< 0.1	5	Primary MCL	No
3,3'-Dichlorobenzidine	78	µg/L	EPA 625	-	< 0.9	< 20	< 0.8	< 0.8	0.04	NTR	No
Diethyl phthalate	79	µg/L	EPA 625	-	< 0.5	< 10	< 0.6	< 0.5	3	Aquatic Life	No
Dimethyl phthalate	80	µg/L	EPA 625	-	< 0.5	< 10	< 0.8	< 0.5	3	Aquatic Life	No
Di-n-butylphthalate	81	µg/L	EPA 625	-	< 0.3	< 10	< 0.4	< 0.3	3	Aquatic Life	No
2,4-Dinitrotoluene	82	µg/L	EPA 625	-	< 0.4	< 10	< 0.8	< 0.4	0.11	Human Health	No
2,6-Dinitrotoluene	83	µg/L	EPA 625	-	< 0.5	< 10	< 0.8	< 0.5	0.05	USEPA IRIS	No
Di-n-octylphthalate	84	µg/L	EPA 625	-	< 0.6	< 10	< 0.7	< 0.6	3	Aquatic Life	No
1,2-Diphenylhydrazine	85	µg/L	EPA 625	-	< 0.4	< 10	< 0.6	< 0.4	0.04	Human Health	No
Fluoranthene	86	µg/L	EPA 625	-	< 0.5	< 10	< 0.6	< 0.5	300	Human Health	No
Fluorene	87	µg/L	EPA 625	-	< 0.4	< 10	< 0.5	< 0.4	1300	Human Health	No
Hexachlorobenzene	88	µg/L	EPA 625	-	< 0.4	< 10	< 0.6	< 0.4	0.00075	Human Health	No
Hexachlorobutadiene	89	µg/L	EPA 625	< 0.5	< 0.5	< 10	< 0.6	< 0.5	0.44	Human Health	No
Hexachlorocyclopentadiene	90	µg/L	EPA 625	-	< 0.08	< 10	< 0.6	< 0.08	1	Taste & Odor	No
Hexachloroethane	91	µg/L	EPA 625	-	< 0.4	< 10	< 0.5	< 0.4	1.9	Human Health	No
Indeno(1,2,3-c,d)pyrene	92	µg/L	EPA 625	-	< 1	< 10	< 1.6	< 1	0.0044	Human Health	No
Isophorone	93	µg/L	EPA 625	-	< 0.4	< 10	< 0.3	< 0.3	8.4	Human Health	No
Naphthalene	94	µg/L	EPA 625	< 0.5	< 0.1	< 10	< 0.5	< 0.1	14	USEPA IRIS	No
Nitrobenzene	95	µg/L	EPA 625	-	< 0.5	< 10	< 0.7	< 0.5	17	Human Health	No
N-Nitrosodimethylamine	96	µg/L	EPA 625	-	< 0.5	-	< 0.4	< 0.4	0.00069	Human Health	No
N-Nitrosodi-n-propylamine	97	µg/L	EPA 625	-	< 0.4	< 10	< 0.3	< 0.3	0.005	Human Health	No
N-Nitrosodiphenylamine	98	µg/L	EPA 625	-	< 0.5	< 10	< 0.4	< 0.4	5	Human Health	No
Phenanthrene	99	µg/L	EPA 625	-	< 0.4	< 10	< 0.4	< 0.4	0.0088	Human Health	No
Pyrene	100	µg/L	EPA 625	-	< 0.4	< 10	< 1	< 0.4	960	Human Health	No

DONNER SUMMIT PUBLIC UTILITY DISTRICT
REPORT OF WASTE DISCHARGE

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

Constituent	CTR #	Units	Method	10/22/2009	10/26/2010	10/13/2011	10/24/2012	MEC	Criterion	Criterion Basis	MEC Above Criterion
CTR-Data											
1,2,4-Trichlorobenzene	101	µg/L	EPA 625	< 0.5	< 0.09	< 10	< 0.6	< 0.09	5	Public Health Goal	No
Aldrin	102	µg/L	EPA 608	See Table 4.4				J, NDB 0.003	0.00013	Human Health	No
alpha-Hexachlorocyclohexane (BHC)	103	µg/L	EPA 608	See Table 4.4				J 0.004	0.0039	Human Health	**Yes**
beta-Hexachlorocyclohexane BHC)	104	µg/L	EPA 608	< 0.1	< 0.001	< 0.05	< 0.05	< 0.001	0.014	Human Health	No
gamma-Hexachlorocyclohexane (Lindane)	105	µg/L	EPA 608		< 0.002	< 0.05	< 0.05	< 0.002	0.019	Human Health	No
delta-Hexachlorocyclohexane	106	µg/L	EPA 608	< 0.1	< 0.003	< 0.05	< 0.05	< 0.003	0.004	Aquatic Life	No
Chlordane	107	µg/L	EPA 608	< 1	< 0.125	< 0.5	< 0.5	< 0.125	0.00057	Human Health	No
4,4'-DDT	108	µg/L	EPA 608	< 0.1	< 0.0005	< 0.1	< 0.1	< 0.0005	0.00059	Human Health	No
4,4'-DDE	109	µg/L	EPA 608	< 0.1	< 0.0006	< 0.1	< 0.1	< 0.0006	0.00059	Human Health	No
4,4'-DDD	110	µg/L	EPA 608	< 0.1	< 0.0008	< 0.1	< 0.1	< 0.0008	0.00083	Human Health	No
Dieldrin	111	µg/L	EPA 608	< 0.1	< 0.0008	< 0.1	< 0.1	< 0.0008	0.00014	Human Health	No
alpha-Endosulfan (Endosulfan I)	112	µg/L	EPA 608	< 0.1	< 0.0009	< 0.05	< 0.05	< 0.0009	0.056	Freshwater Aquatic Life	No
beta-Endosulfan (Endosulfan II)	113	µg/L	EPA 608	< 0.1	< 0.003	< 0.1	< 0.1	< 0.003	0.056	Freshwater Aquatic Life	No
Endosulfan sulfate	114	µg/L	EPA 608	< 0.1	< 0.0006	< 0.1	< 0.1	< 0.0006	0.056	Ambient Water Quality	No
Endrin	115	µg/L	EPA 608	-	< 0.0009	< 0.1	< 0.1	< 0.0009	0.036	Freshwater Aquatic Life	No
Endrin aldehyde	116	µg/L	EPA 608	< 0.1	< 0.0008	< 0.1	< 0.1	< 0.0008	0.76	Human Health	No
Heptachlor	117	µg/L	EPA 608	< 0.1	< 0.002	< 0.05	< 0.05	< 0.002	0.00021	Human Health	No
Heptachlor epoxide	118	µg/L	EPA 608	< 0.1	< 0.002	< 0.05	< 0.05	< 0.002	0.0001	Human Health	No
PCB-1016 (Arochlor 1016)	119	µg/L	EPA 608	< 1	< 0.0075	-	-	< 0.0075	0.00017	Human Health	No
PCB-1221 (Arochlor 1221)	120	µg/L	EPA 608	< 1	< 0.0162	-	-	< 0.0162	0.00017	Human Health	No
PCB-1232 (Arochlor 1232)	121	µg/L	EPA 608	< 1	< 0.0125	-	-	< 0.0125	0.00017	Human Health	No
PCB-1242 (Arochlor 1242)	122	µg/L	EPA 608	< 1	< 0.0075	-	-	< 0.0075	0.00017	Human Health	No
PCB-1248 (Arochlor 1248)	123	µg/L	EPA 608	< 1	< 0.0075	-	-	< 0.0075	0.00017	Human Health	No
PCB-1254 Arochlor 1254)	124	µg/L	EPA 608	< 1	< 0.0112	-	-	< 0.0112	0.00017	Human Health	No
PCB-1260 (Arochlor 1260)	125	µg/L	EPA 608	< 1	< 0.01	-	-	< 0.01	0.00017	Human Health	No
Toxaphene	126	µg/L	EPA 608	< 1	< 0.125	< 1	< 1	< 0.125	0.0002	Aquatic Life	No
Non-CTR Data											
Aluminum		µg/L	EPA 200.7	See Table 4.4				1970	87	Aquatic Life	**Yes**
Ammonia		mg/L	SM 4500-NH3	See Table 4.5				35.4	5.62 (b)	Ambient Water Quality	**Yes**
Chlorine		mg//L	EPA 330.2	All Daily Results = ND				< 0.01	2	Taste & Odor	No
EC		µmhos/cm	SM 2510 B	-				512 (c)	700	Agriculture Use	No
Hardness		mg/L	SM 2340 B	See Table 4.4				238	5000	-	No
Manganese		µg/L	EPA 200.8	See Table 4.4				70 (c)	50	Secondary MCL	**Yes**
Nitrate		mg/L	EPA 300.0	See Table 4.5				6.14 (c)	10	Primary MCL	No
Nitrite		mg/L	EPA 300.0	See Table 4.5				0.1 (c)	1	Primary MCL	No
Nitrogen		µg/L	-	See Table 4.4				12091 (c)	-	-	No
Organophosphate		µg/L	EPA 300.0	See Table 4.4				0.45	-	-	No
TDS		mg/L	SM 2540 C	See Table 4.4				280 (c)	450	Agriculture Use	No
TSS		mg/L	SM 2540 C	See Table 4.5				20	30	-	No

Notes
NDB: Results considered "non-detect" at the reported concentration due to field blank contamination.
ND: Non-detect.
J: Estimated value reported below practical quantitation limit.
(a) Based on minimum effluent hardness of 16 mg/L.
(b) Based on site-specific ammonia water-quality objective calculation.
(c) Maximum annual average.

Table 4-4:
Summary of Donner Summit Public Utility District WWTP Monthly and Quarterly Effluent Monitoring Data (June 2009 - June 2013)

	Hardness	Aluminum	Aldrin	alpha-BHC	Chromium VI	Copper	Cyanide	DCBM	Manganese	Silver	Zinc	Nitrogen	Organo-phosphate	TDS
Units	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
MDL/RL	5	0.1	0.001/0.012	0.1	0.1	1.0/5.0	20	0.5	10	5	2.3 / 10	2	0.1	2
6/21/2009	-	-	-	-	-	ND	ND	-	ND	ND	ND	-	-	-
6/25/2009	20	-	-	ND	ND	-	-	-	-	-	-	-	-	-
6/26/2009	-	ND	-	-	-	-	-	2.8	-	-	-	-	0.041	-
10/22/2009	17	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	-	300
11/2/2009	18	-	ND	ND	ND	ND	ND	2.6	0.9	ND	ND	0.9	-	-
11/30/2009	-	134	-	-	-	-	-	-	-	-	-	-	-	-
12/3/2009	19	108	ND	ND	ND	12	ND	1.3	0.9	ND	ND	0.2	-	-
1/3/2010	23	-	-	-	-	-	-	-	-	-	-	-	-	294
1/4/2010	-	328	ND	ND	ND	22	ND	ND	150	ND	ND	38	1.12	-
2/1/2010	30	64.4	ND	ND	ND	7.3	ND	ND	20	ND	27	6,990	ND	334
3/1/2010	30	64.4	ND	ND	ND	7.3	ND	ND	20	ND	27	6,990	ND	334
4/1/2010	26	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,520	ND	196
5/6/2010	16	467	ND	ND	ND	4.2	ND	0.7	2.9	0.1	10.8	2,180	ND	192
6/1/2010	24	52.4	ND	ND	ND	ND	ND	1	ND	ND	ND	6,880	ND	153
7/1/2010	24	76.8	ND	ND	ND	4.8	0.3	0.8	2	ND	3.8	5,110	ND	272
10/26/2010	22	ND	ND	J 0.004	-	J 15.8	ND	ND	12.9	1.3	33.8	2,070	ND	488
11/8/2010	34	524	ND	ND	ND	10.4	ND	1.2	15	ND	26	18,600	ND	265
12/6/2010	24	ND	ND	ND	ND	7.3	ND	ND	64.4	ND	36.7	15,060	3	276
1/3/2011	32	1,180	ND	ND	ND	ND	0.002	ND	347	ND	ND	54,530	ND	200
2/7/2011	30	99.9	ND	J 0.003	ND	3.1	0.0015	0.1	29.9	ND	23.4	11,520	ND	218
3/10/2011	26	46.1	ND	ND	ND	1.2	0.003	ND	77.4	0.1	8.7	12,750	ND	288
4/14/2011	238	67.5	ND	ND	ND	ND	ND	ND	120	ND	ND	12,700	ND	28
5/16/2011	24	15.1	ND	ND	ND	2.7	ND	ND	19.5	ND	11.3	2,380	ND	23
6/9/2011	20	ND	ND	ND	ND	3.1	0.001	ND	5.3	ND	ND	3,640	ND	47
7/5/2011	24	ND	ND	ND	ND	ND	ND	ND	88	ND	29.1	10,350	0.16	148
10/13/2011	24	19.5	ND	ND	ND	5.5	ND	2	4.6	ND	12.3	13	1.02	230
11/10/2011	27	19.1	ND	ND	ND	5.7	1	1.1	1.7	ND	23.1	10,250	0.34	240
12/5/2011	25	26.3	ND	ND	ND	3.9	ND	1.7	6.2	ND	19.6	2,780	ND	-
1/5/2012	26	130	ND	ND	ND	3.2	ND	0.2	46.3	0.41	19.9	1,159	ND	-
2/2/2012	20	50.8	ND	ND	ND	2.3	1	ND	6	ND	17.6	-	ND	-
3/5/2012	34	162	ND	ND	ND	3.2	ND	0.1	14.8	ND	37.7	-	0.58	-
4/2/2012	30	112	ND	ND	ND	4	1	0.1	9.9	ND	15.8	11,477	0.18	-
5/7/2012	18	27.3	ND	ND	ND	2.2	ND	0.8	1.5	ND	5.2	5,060	ND	-
6/11/2012	220	79.1	ND	ND	ND	4.6	ND	1.9	1.1	ND	7.8	12,669	ND	-
10/24/2012	-	-	-	-	ND	4	ND	-	4.7	ND	9.2	-	-	-
10/25/2012	80	57.4	ND	ND	ND	4	ND	ND	4.7	ND	9.2	17.24	ND	196
11/19/2012	36	7.6	ND	ND	2	3.5	ND	0.4	0.08	ND	10.6	3,052	ND	130
12/6/2012	32	16.6	ND	ND	ND	1.9	ND	0.9	10.5	ND	6.3	4,081	ND	136
1/3/2013	32	1,270	ND	ND	ND	4.7	2	ND	348	ND	18.6	2,087	ND	136
2/7/2013	58	149	ND	ND	ND	1.9	2	0	211	ND	6.5	3,226	ND	-
3/12/2013	34	568	ND	ND	ND	3.1	ND	0.3	143	ND	9.7	18,338	ND	-
4/4/2013	22	259	ND	ND	ND	2.7	ND	0.1	53.2	ND	10.3	9,300	ND	-
5/2/2013	24	38.8	ND	ND	ND	1.8	ND	0.2	110	ND	6	2,017	ND	-
6/6/2013	16	1,970	J 0.003	ND	ND	10.2	1	2.3	35.2	ND	ND	-	-	-
Notes	J:	Estimated value reported below practical quantitation limit.												
	ND:	Non-detect.												

Table 4-5:
Summary of Public Utility District WWTP Weekly Effluent Monitoring Data
(June 2009 - June 2013)

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
6/1/2009	0.3	3.9	-	-	-	ND
6/3/2009	-	-	-	ND	1	-
6/4/2009	0.1	2.4	-	-	-	ND
6/7/2009	-	-	-	ND	1	-
6/8/2009	0.1	4.6	-	-	-	ND
6/10/2009	-	-	-	ND	1	-
6/11/2009	0.1	5.6	-	-	-	ND
6/14/2009	-	-	-	ND	1	-
6/15/2009	0.1	8.5	-	-	-	ND
6/17/2009	-	-	-	ND	1	-
6/18/2009	0.1	7.4	ND	-	-	ND
6/21/2009	-	-	-	ND	1	-
6/22/2009	0.3	4.9	ND	-	-	ND
6/24/2009	-	-	-	ND	1	-
6/25/2009	0.3	0.1	ND	-	-	ND
6/26/2009	-	-	-	-	-	ND
10/22/2009	ND	15.3	ND	ND	1	ND
10/26/2009	ND	6.7	ND	ND	1	ND
10/29/2009	ND	6.5	ND	ND	1	ND
11/1/2009	-	-	-	ND	ND	-
11/2/2009	ND	13.9	ND	-	-	ND
11/4/2009	-	-	-	ND	ND	-
11/5/2009	-	-	-	-	-	ND
11/8/2009	-	-	-	ND	ND	-
11/9/2009	ND	4.9	ND	-	-	ND
11/11/2009	-	-	-	ND	ND	-
11/12/2009	-	-	-	-	-	ND
11/15/2009	-	-	-	ND	ND	-
11/16/2009	ND	9.2	ND	-	-	ND
11/18/2009	-	-	-	ND	ND	-
11/19/2009	-	-	-	-	-	ND
11/22/2009	-	-	-	ND	ND	ND
11/23/2009	2	12.5	0.2	-	-	-
11/24/2009	-	-	-	ND	ND	ND
11/29/2009	5.8	3.9	0.25	ND	ND	-
11/30/2009	-	-	-	-	-	ND

Reasonable Potential Analysis and Effluent Compliance
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	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
12/2/2009	-	-	-	ND	2	-
12/3/2009	1.6	9.2	ND	-	-	ND
12/6/2009	-	-	-	ND	1	-
12/7/2009	2.4	4.9	0.1	-	-	ND
12/9/2009	5.5	-	-	-	-	-
12/10/2009	7.4	-	-	ND	1	ND
12/13/2009	-	-	-	6	6	-
12/14/2009	5.9	4.4	ND	-	-	ND
12/16/2009	-	-	-	ND	2	-
12/17/2009	-	-	-	-	-	ND
12/20/2009	-	-	-	7	6	-
12/21/2009	17.4	2.4	ND	-	-	ND
12/22/2009	-	-	-	8	6	-
12/23/2009	-	-	-	-	-	ND
12/27/2009	-	-	-	3	6	-
12/28/2009	17.9	2.9	0.3	-	-	ND
12/30/2009	-	-	-	5	5	-
12/31/2009	-	-	-	-	-	ND
1/3/2010	-	-	-	5	5	-
1/4/2010	35.4	1.4	ND	-	-	ND
1/6/2010	-	-	-	ND	3	-
1/7/2010	-	-	-	-	-	ND
1/10/2010	-	-	-	ND	3	-
1/11/2010	6	3.2	ND	-	-	17
1/13/2010	-	-	-	ND	1	-
1/14/2010	-	2.9	ND	-	-	ND
1/17/2010	-	-	-	ND	2	-
1/18/2010	19.7	2.5	ND	-	-	ND
1/20/2010	-	-	-	ND	1	-
1/21/2010	4	3.7	ND	-	-	ND
1/25/2010	-	-	-	3	10	-
1/26/2010	3	6.7	ND	-	-	ND
1/27/2010	-	-	-	ND	1	-
1/28/2010	0.9	8.6	ND	-	-	ND
2/1/2010	25.3	0.1	ND	ND	8	ND
2/3/2010	-	-	-	ND	2	-
2/4/2010	1.2	5.2	ND	-	-	ND
2/7/2010	-	-	-	3	1	-

Reasonable Potential Analysis and Effluent Compliance
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	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
2/8/2010	0.1	3.2	ND	-	-	ND
2/10/2010	-	-	-	ND	3	-
2/11/2010	0.2	1.8	-	-	-	ND
2/15/2010	-	-	-	5	5	-
2/16/2010	32.5	1.9	ND	-	-	ND
2/18/2010	-	-	-	4	3	-
2/19/2010	1.9	2.5	-	-	-	ND
2/22/2010	20.8	3.2	ND	-	-	ND
2/24/2010	-	-	-	ND	1	-
2/25/2010	2.1	1.5	-	-	-	ND
3/1/2010	25.3	0.1	ND	ND	8	ND
3/3/2010	-	-	-	ND	1	-
3/4/2010	1.8	6.1	ND	-	-	ND
3/7/2010	-	-	-	4	1	-
3/8/2010	13.3	2.5	ND	-	-	ND
3/10/2010	-	-	-	ND	1	-
3/11/2010	-	2.9	ND	-	-	ND
3/12/2010	0.1	-	-	-	-	-
3/14/2010	-	-	-	3	4	-
3/15/2010	0.4	2.4	ND	-	-	ND
3/17/2010	-	-	-	3	2	-
3/18/2010	4	2.7	ND	-	-	ND
3/21/2010	-	-	-	3	2	-
3/22/2010	14.3	2.8	ND	-	-	ND
3/24/2010	-	-	-	ND	4	-
3/25/2010	2.9	5.1	-	-	-	ND
3/28/2010	-	-	-	ND	3	-
3/29/2010	12.3	4.3	ND	-	-	ND
4/1/2010	1.3	3.4	ND	-	-	ND
4/4/2010	-	-	-	ND	7	-
4/5/2010	11.6	4	ND	-	-	ND
4/7/2010	-	-	-	ND	1	-
4/8/2010	0.6	6.4	ND	-	-	ND
4/11/2010	-	-	-	4	5	-
4/12/2010	0.1	4.1	ND	-	-	ND
4/14/2010	-	-	-	ND	1	-
4/15/2010	-	-	-	-	-	ND
4/18/2010	-	-	-	ND	1	-

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
4/19/2010	0.3	4.3	ND	-	-	ND
4/21/2010	-	-	-	ND	1	-
4/22/2010	-	-	-	-	-	ND
4/25/2010	-	-	-	ND	3	-
4/26/2010	0.1	5	ND	-	-	ND
4/28/2010	-	-	-	ND	1	-
4/29/2010	-	-	-	-	-	ND
5/2/2010	-	-	-	ND	4	-
5/3/2010	0.1	5.5	ND	-	-	ND
5/5/2010	-	-	-	ND	1	-
5/6/2010	0.2	2.2	ND	-	-	ND
5/9/2010	-	-	-	ND	5	-
5/10/2010	0.1	3	ND	-	-	ND
5/12/2010	0.1	-	-	ND	3	-
5/13/2010	0.1	-	-	-	-	ND
5/16/2010	-	-	-	ND	1	-
5/17/2010	ND	5.1	ND	-	-	ND
5/19/2010	-	-	-	ND	1	-
5/20/2010	-	-	-	-	-	ND
5/23/2010	-	-	-	ND	1	-
5/24/2010	0.1	4.8	ND	-	-	ND
5/26/2010	-	-	-	ND	1	-
5/27/2010	-	-	-	-	-	ND
6/1/2010	0.01	6.9	ND	ND	ND	ND
6/3/2010	-	-	-	ND	ND	ND
6/6/2010	-	-	-	ND	ND	-
6/7/2010	0.2	3.2	ND	-	-	ND
6/9/2010	-	-	-	ND	ND	-
6/10/2010	-	-	-	-	-	ND
6/13/2010	-	-	-	ND	ND	-
6/14/2010	0.1	4.6	ND	-	-	ND
6/16/2010	-	-	-	ND	ND	-
6/17/2010	-	-	-	-	-	ND
6/20/2010	-	-	-	ND	ND	-
6/21/2010	0.01	5	ND	-	-	ND
6/23/2010	-	-	-	ND	ND	-
6/24/2010	-	-	-	-	-	ND
6/27/2010	-	-	-	ND	ND	-

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
6/28/2010	0.1	6.5	ND	-	-	ND
7/1/2010	0.04	5.1	ND	ND	ND	ND
7/2/2010	-	-	-	-	ND	-
7/3/2010	-	-	-	ND	ND	-
7/4/2010	-	-	-	-	ND	-
7/5/2010	ND	5.4	ND	-	ND	ND
7/6/2010	-	-	-	ND	ND	-
7/7/2010	-	-	-	-	ND	-
7/8/2010	-	-	-	-	ND	ND
7/9/2010	-	-	-	ND	ND	-
7/10/2010	-	-	-	-	ND	-
7/11/2010	-	-	-	-	ND	-
7/12/2010	0.2	10.8	ND	-	ND	ND
7/13/2010	-	-	-	ND	ND	-
7/14/2010	-	-	-	-	ND	ND
10/26/2010	0.048	20.7	ND	ND	1	ND
10/28/2010	-	-	-	ND	1	ND
11/1/2010	0.6	27.6	ND	ND	6	ND
11/4/2010	-	-	-	ND	5	ND
11/8/2010	ND	18.6	ND	ND	1	ND
11/12/2010	-	-	-	ND	8	ND
11/15/2010	0.1	24.9	ND	ND	1	ND
11/18/2010	-	-	-	ND	1	ND
11/22/2010	1.4	20.9	ND	ND	1	ND
11/24/2010	-	-	-	ND	1	ND
11/29/2010	3.6	8.3	1.9	ND	2	ND
12/2/2010	-	5.1	-	ND	1	ND
12/6/2010	7.9	8.4	ND	ND	1	ND
12/8/2010	-	-	-	-	-	ND
12/9/2010	-	ND	-	ND	1	-
12/13/2010	3	8.9	0.7	ND	1	ND
12/16/2010	0.2	0.1	-	ND	1	ND
12/21/2010	ND	0.1	ND	ND	1	ND
12/23/2010	-	-	-	-	-	ND
12/24/2010	-	-	-	ND	1	-
12/28/2010	10	0.6	ND	8	3	ND
12/30/2010	-	-	-	8	9	ND
1/3/2011	29.5	0.8	0.04	9	9	ND

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
1/6/2011	13.1	2	0.12	ND	2	ND
1/10/2011	ND	2.1	ND	4	1	ND
1/13/2011	11.4	0.7	0.06	ND	1	ND
1/18/2011	34.2	2	0.2	ND	9	ND
1/20/2011	12	4.4	ND	4	2	ND
1/24/2011	33.1	ND	ND	6	4	ND
1/27/2011	6.1	0.6	ND	ND	1	ND
1/31/2011	20.1	1.6	ND	3	1	ND
2/3/2011	10.2	0.8	ND	ND	1	ND
2/7/2011	19.2	2.6	ND	5	1	ND
2/10/2011	8	2.2	ND	ND	1	ND
2/14/2011	25.9	0.9	ND	3	1	ND
2/17/2011	-	-	-	ND	1	ND
2/22/2011	8.6	0.3	ND	5	4	ND
2/24/2011	-	-	-	4	2	ND
2/28/2011	-	-	-	4	3	ND
3/3/2011	3.8	2.4	0.08	ND	1	ND
3/7/2011	19.4	0.5	ND	7	2	ND
3/10/2011	9.1	2.1	-	ND	1	ND
3/14/2011	21.3	ND	0.09	10	3	ND
3/17/2011	6.2	-	-	ND	2	ND
3/21/2011	11.4	2.5	0.07	ND	7	-
3/22/2011	-	-	-	-	-	ND
3/24/2011	7	-	-	ND	1	ND
3/28/2011	-	-	-	-	-	ND
3/29/2011	8.4	2.9	ND	ND	1	ND
3/30/2011	-	-	-	-	-	ND
3/31/2011	5.5	-	-	5	1	ND
4/4/2011	12.5	1.36	0.07	ND	1	ND
4/7/2011	-	-	-	ND	1	ND
4/11/2011	9.4	1.15	0.05	ND	1	ND
4/14/2011	1.27	2.05	-	ND	1	ND
4/18/2011	3.1	1.64	0.06	ND	1	ND
4/21/2011	ND	0.04	ND	ND	1	ND
4/25/2011	0.28	2.22	0.06	ND	1	ND
4/28/2011	-	-	-	ND	1	ND
5/2/2011	3.1	4.68	0.11	ND	1	ND
5/5/2011	-	-	-	ND	10	ND
5/9/2011	ND	1.41	ND	ND	1	ND

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
5/12/2011	-	-	-	ND	1	ND
5/16/2011	0.1	2.38	ND	ND	1	ND
5/19/2011	-	-	-	ND	1	ND
5/23/2011	0.1	4.27	ND	ND	1	ND
5/26/2011	-	-	-	ND	1	ND
5/31/2011	0.1	8.73	ND	ND	1	ND
6/2/2011	-	-	-	ND	1	ND
6/6/2011	0.05	4.17	ND	4	1	ND
6/9/2011	0.077	3.64	ND	ND	1	ND
6/13/2011	0.087	4.34	ND	ND	1	ND
6/16/2011	-	-	-	ND	1	ND
6/20/2011	ND	4.14	ND	ND	1	ND
6/23/2011	-	-	-	ND	1	ND
6/27/2011	0.142	12.37	ND	ND	1	ND
6/30/2011	-	-	-	ND	1	ND
7/5/2011	0.4	10.35	ND	ND	ND	ND
7/7/2011	-	-	-	ND	ND	ND
7/11/2011	0.08	6.48	ND	ND	ND	ND
7/14/2011	-	-	-	ND	ND	ND
7/18/2011	0.06	9.3	ND	ND	ND	ND
7/21/2011	-	-	-	5	ND	ND
7/25/2011	0.08	9.61	ND	6	ND	ND
7/28/2011	-	-	-	ND	ND	ND
10/13/2011	0.1	ND	-	ND	ND	ND
10/17/2011	0.1	ND	-	5	7	ND
10/20/2011	-	-	-	ND	ND	ND
10/24/2011	-	-	-	ND	ND	ND
10/25/2011	0.11	ND	-	-	-	-
10/27/2011	-	ND	-	ND	ND	ND
10/31/2011	0.05	ND	-	ND	ND	ND
11/3/2011	-	11	-	ND	ND	ND
11/7/2011	0.1	8	ND	ND	ND	ND
11/10/2011	0.06	10	ND	ND	ND	ND
11/14/2011	0.11	11	ND	ND	ND	ND
11/17/2011	-	5	0.06	ND	ND	ND
11/21/2011	0.09	5	ND	ND	ND	ND
11/23/2011	-	21	ND	ND	ND	ND
11/28/2011	4.52	10	0.59	ND	ND	ND

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
12/1/2011	0.09	1.24	ND	4	ND	ND
12/5/2011	0.05	2.18	ND	ND	ND	ND
12/8/2011	-	1.95	ND	ND	ND	ND
12/12/2011	0.15	3.22	ND	ND	ND	ND
12/15/2011	-	-	-	ND	ND	ND
12/19/2011	3.26	3.59	0.12	ND	ND	ND
12/22/2011	-	3.86	0.14	ND	ND	ND
12/26/2011	13	2.11	0.26	ND	ND	ND
12/29/2011	-	-	-	4	ND	ND
1/2/2012	20.9	0.3	0.12	-	-	ND
1/3/2012	-	-	-	4	10	-
1/5/2012	-	1.66	0.13	ND	ND	ND
1/9/2012	5.38	1.47	0.08	ND	ND	ND
1/12/2012	-	-	-	ND	ND	ND
1/17/2012	7.21	1.48	0.07	ND	ND	ND
1/19/2012	-	-	-	ND	ND	ND
1/23/2012	5.03	1.4	0.09	4	ND	ND
1/26/2012	-	-	-	3	ND	ND
1/30/2012	13.8	1.34	0.04	3	ND	ND
2/2/2012	2.72	2.63	0.03	ND	ND	ND
2/6/2012	0.28	3.97	0.04	ND	ND	ND
2/9/2012	-	-	-	ND	ND	ND
2/13/2012	9.21	2.85	ND	ND	ND	ND
2/16/2012	-	-	-	5	ND	ND
2/21/2012	26	0.64	0.05	7	7	ND
2/23/2012	-	-	-	3	4	ND
2/27/2012	10.4	4.49	0.07	7	ND	ND
3/1/2012	-	-	-	ND	ND	ND
3/5/2012	14.8	1.64	0.02	3	ND	ND
3/8/2012	-	-	-	4	5	ND
3/12/2012	9.19	2.18	0.03	ND	ND	ND
3/15/2012	-	-	-	ND	ND	ND
3/19/2012	5.88	2.36	ND	ND	ND	ND
3/22/2012	-	-	-	4	ND	ND
3/26/2012	7.2	2.28	0.039	ND	ND	ND
3/29/2012	-	-	-	ND	ND	ND
4/2/2012	3.75	3.58	ND	ND	ND	ND
4/5/2012	-	-	-	ND	ND	ND

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
4/9/2012	6.66	2.44	0.04	ND	ND	ND
4/12/2012	-	-	-	ND	ND	ND
4/16/2012	6.4	3.72	0.05	ND	5	ND
4/19/2012	-	-	-	ND	ND	ND
4/23/2012	3.29	5.67	ND	ND	ND	ND
4/27/2012	-	-	-	ND	ND	ND
4/30/2012	1.57	7.33	ND	ND	6	ND
5/3/2012	-	-	-	ND	ND	ND
5/7/2012	0.15	4.41	ND	ND	ND	ND
5/10/2012	-	-	-	ND	ND	ND
5/14/2012	0.07	7.26	0.035	ND	ND	ND
5/17/2012	-	-	-	ND	ND	ND
5/21/2012	0.06	9.36	ND	ND	ND	ND
5/24/2012	-	-	-	ND	ND	ND
5/29/2012	0.08	12.63	ND	ND	ND	ND
5/31/2012	-	-	-	ND	ND	ND
6/4/2012	0.04	7.47	ND	ND	ND	ND
6/7/2012	-	-	-	ND	ND	ND
6/11/2012	0.25	12.33	ND	ND	ND	ND
6/14/2012	-	-	-	ND	ND	ND
6/18/2012	0.67	8.18	ND	ND	ND	ND
6/21/2012	-	-	-	ND	ND	ND
6/25/2012	0.24	7.95	ND	ND	ND	ND
6/28/2012	-	-	-	ND	ND	ND
10/24/2012	-	-	-	-	-	-
10/25/2012	0.836	15.536	0.11	5	ND	ND
10/29/2012	0.72	8.49	0.06	ND	ND	ND
11/1/2012	-	-	-	ND	ND	ND
11/5/2012	0.124	0.066	ND	ND	ND	> 1600
11/8/2012	-	-	-	ND	ND	ND
11/12/2012	0.26	6.75	0.05	ND	ND	ND
11/15/2012	-	-	-	ND	ND	ND
11/19/2012	0.42	2.7	ND	ND	ND	ND
11/21/2012	-	-	-	ND	ND	ND
11/26/2012	3.78	1.7	0.068	ND	ND	ND
11/29/2012	-	-	-	ND	ND	ND
12/3/2012	0.44	0.74	ND	5	4	ND
12/6/2012	0.483	3.67	ND	ND	ND	ND

Reasonable Potential Analysis and Effluent Compliance
October 3, 2013

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
12/10/2012	3.44	1.87	ND	ND	ND	ND
12/13/2012	-	-	-	ND	ND	ND
12/17/2012	13.1	ND	0.02	ND	ND	ND
12/20/2012	-	-	-	ND	ND	ND
12/26/2012	-	-	-	ND	ND	ND
12/27/2012	14.8	ND	0.08	ND	ND	ND
12/31/2012	0.85	ND	ND	7	15	ND
1/3/2013	27.2	0.29	0.08	8	8	ND
1/7/2013	28.2	ND	ND	6	ND	ND
1/10/2013	-	-	-	ND	ND	ND
1/14/2013	20.8	0.15	0.03	8	5	ND
1/17/2013	-	-	-	5	ND	ND
1/22/2013	27.1	ND	0.03	9	6	ND
1/24/2013	-	-	-	3	4	ND
1/28/2013	18	0.05	ND	4	9	ND
1/31/2013	-	-	-	ND	ND	ND
2/4/2013	-	-	-	ND	ND	ND
2/7/2013	1.11	0.12	ND	5	ND	ND
2/11/2013	21.8	ND	ND	9	5	ND
2/14/2013	-	-	-	4	ND	ND
2/19/2013	13.3	ND	ND	13	20	ND
2/21/2013	-	-	-	6	13	ND
2/25/2013	23.9	0.06	ND	ND	ND	ND
2/28/2013	-	-	-	ND	ND	ND
3/4/2013	18.4	ND	ND	ND	6	ND
3/7/2013	-	-	-	ND	ND	ND
3/12/2013	25.1	0.07	0.02	ND	13	ND
3/14/2013	-	-	-	ND	9	ND
3/18/2013	14	0.06	ND	ND	ND	ND
3/21/2013	-	-	-	ND	ND	ND
3/25/2013	20.4	0.09	0.03	ND	ND	ND
3/28/2013	-	-	-	ND	ND	ND
4/1/2013	12.8	ND	ND	11	ND	ND
4/4/2013	9.37	0.07	ND	9	ND	ND
4/8/2013	14	0.1	0.03	ND	5	ND
4/11/2013	-	-	-	ND	ND	ND
4/15/2013	6.69	0.3	0.04	4	ND	ND

	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	BOD	TSS	Total Coliform
Units	mg/L	mg/L	mg/L	mg/L	mg/L	MPN/100mL
MDL/RL	0.05	0.1	0.05	3	2	2
4/19/2013	-	-	-	ND	ND	ND
4/22/2013	1.7	0.51	ND	ND	ND	ND
4/25/2013	-	-	-	ND	ND	ND
4/29/2013	6.43	1.35	0.04	10	ND	ND
5/2/2013	0.82	0.52	ND	ND	ND	ND
5/6/2013	0.29	0.31	ND	ND	6	ND
5/9/2013	-	-	-	ND	ND	ND
5/14/2013	0.14	0.24	0.03	ND	5	ND
5/16/2013	-	-	-	ND	ND	ND
5/20/2013	3.35	0.87	0.05	ND	ND	ND
5/23/2013	-	-	-	ND	ND	ND
5/28/2013	6.39	3.09	0.04	ND	ND	ND
5/30/2013	-	-	-	ND	ND	ND
6/3/2013	0.33	9.65	ND	ND	ND	ND
6/6/2013	0.17	0.82	ND	4	5	ND
6/10/2013	0.32	4.86	ND	ND	ND	ND
6/14/2013	-	-	-	ND	ND	ND
6/17/2013	0.9	2.62	ND	ND	ND	ND
6/20/2013	-	-	-	ND	ND	ND
6/24/2013	0.12	3.01	0.04	-	8	ND
6/27/2013	-	-	-	ND	ND	ND
Notes	ND:	Non-detect.				

4.1 CALIFORNIA TOXICS RULE (CTR) CONSTITUENTS

Of the priority pollutants constituents regulated under CTR, nine constituents are identified as having reported MECs above the lowest WQO, and thus require additional discussion. The CTR constituents that require additional discussion are as follows:

- Arsenic
- Cadmium
- Copper
- Dichlorobromomethane
- Selenium
- Silver
- Thallium
- Zinc
- Alpha-BHC

4.1.1 Non-CTR Constituents

Three constituents that are not regulated under CTR, but are regulated under state law and Basin Plan requirements (termed "non-CTR" constituents) were identified as having MECs above the lowest WQO. The three non-CTR constituents that require additional discussion are as follows:

- Aluminum
- Ammonia
- Manganese

4.2 DETERMINING THE NEED FOR WATER QUALITY BASED EFFLUENT LIMITATIONS

Discussions regarding each of the constituents requiring additional evaluation (presented in Table 4-2), are provided in this section. For each constituent identified as having a reported MEC above the lowest WQO, discussions regarding the results, the need for effluent limitations, and the District's ability to comply with effluent limitations in the future, are provided as follows.

4.2.1 Arsenic

The lowest WQO for arsenic, applicable to WWTP effluent discharges to the South Yuba River, is 10 µg/L, based on the Primary MCL. The WWTP MEC for arsenic was reported at 10.9 µg/L, based on four samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The 10.9 µg/L effluent arsenic result appears to be an outlier as the other three effluent arsenic concentrations ranged between "non-detect" and 0.512 µg/L. The 10.9 µg/L effluent arsenic result occurred October 26, 2010, with a reporting limit of 10 µg/L using analytical method EPA Method 6010B. The reporting limit of 10 µg/L is significantly higher that the reporting limit of 0.1 µg/L achieved using EPA Method 1638 during the 2011 and 2012 priority pollutant monitoring events, and the reporting limit of 2 µg/L achieved using EPA Method 206.2 during the 2013 priority pollutant monitoring event. Further, it should be noted that during the October 26, 2010 monitoring event, similar instances of atypical analytical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other CTR constituents, but not more conventional limits such as BOD, TSS, or turbidity that would indicate some form of treatment process upset. Analytical blanks also showed detectable concentrations of some CTR constituents. The arsenic concentration in the South Yuba River was also reported to be atypically high by the same laboratory on this date. With there being no evidence of any sort of upset with the WWTP, the laboratory reporting atypically high reporting limits and high concentrations for both the effluent and the receiving water, and with method blanks showing detectable concentrations for some CTR constituents, the preponderance of evidence suggest that the analytical laboratory was having QA/QC problems as of October 26, 2010. Accordingly, all results from this laboratory on this data are excluded from these analyses, as noted throughout this section.

As was observed with the effluent data, the highest concentration of arsenic in the receiving water (22.8 µg/L) occurred during the October 26, 2010 monitoring event using EPA Method 6010B and a reporting limit of 10 µg/L. The 22.8 µg/L receiving water arsenic result appears to be an outlier as the other three receiving water arsenic concentrations ranged between non-detect and 0.219 µg/L, and as noted previously an atypical analytical method and reporting limits were used.

After removing the October 26, 2010 outliers from the dataset, the MEC for arsenic is 0.512 µg/L and the maximum receiving water arsenic concentration is 0.219 µg/L. The MEC of 0.512 µg/L is well below the lowest WQO of 10 µg/L, thus there is no reasonable potential for the WWTP effluent to cause or contribute to the exceedance of the arsenic WQO in the receiving water.

4.2.2 Cadmium

The lowest WQO for cadmium, applicable to WWTP effluent discharges to the South Yuba River, is 0.54 µg/L based on the protection of aquatic life and a worst-case lowest effluent hardness of 16 mg/L. The reported WWTP MEC for cadmium was an estimated value of 0.7 µg/L based on four samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The estimated 0.7 µg/L effluent cadmium result occurred October 26, 2010, and appears to be an outlier as discussed previously based on the other three effluent cadmium concentrations ranging between "non-detect" and 0.0169 µg/L. The estimated 0.7 µg/L effluent cadmium result had a reporting limit of 10 µg/L using analytical method EPA Method 6010B. The reporting limit of 10 µg/L is higher than the reporting limits achieved using other EPA analytical methods during the other three monitoring events.

The maximum observed receiving water cadmium concentration, based on four samples collected between June 2009 and June 2013, was 0.0169 µg/L, which occurred during the October 13, 2011 monitoring event.

After removing the October 26, 2010 outlier from the dataset, the MEC for cadmium is 0.0169 µg/L. The MEC of 0.0169 µg/L is well below the lowest WQO of 0.54 µg/L, thus there is no reasonable potential for the WWTP effluent to cause or contribute to the exceedance of the arsenic WQO in the receiving water.

4.2.3 Copper

The lowest WQO for copper, applicable to WWTP effluent discharges to the South Yuba River, is 2.1 µg/L based on the protection of aquatic life and a worst-case lowest effluent hardness of 16 mg/L. The reported WWTP MEC for copper was an estimated value of 22 µg/L, based on 42 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The maximum reported receiving water copper concentration, based on four samples collected between June 2009 and June 2013, was an estimated value of 4.5 µg/L, which occurred during the October 26, 2010 monitoring event. The 4.5 µg/L estimated receiving water copper result appears to be an outlier as the other three receiving water copper concentrations ranged between "non-detect" and 1.2 µg/L.

The 4.5µg/L estimated receiving water copper result occurred October 26, 2010, with a reporting limit of 10 µg/L using analytical method EPA Method 6010B. The reporting limit of 10 µg/L is significantly higher than the typical reporting limit of 0.1 µg/L achieved using EPA Method 200.8, which provided non-qualified receiving water copper results of 0.9 µg/L and 1.2 µg/L during the 2011 and 2012 priority pollutant monitoring events, respectively. Further, as noted previously, during the October 26, 2010 monitoring event, similar instances of atypical analytical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other constituents. Thus, after removing the October 26, 2010 outlier from the dataset, the maximum receiving water copper concentration is 1.2 µg/L.

Based on the preceding data and information, the WWTP appears to have reasonable potential to cause or contribute to the exceedance of the WQO for copper in the receiving water. Even with the newly implemented lime addition pH adjustment, which maintain effluent hardness above 75 µg/L and translates to a copper WQO of 9.4 µg/L, the WWTP still has reasonable potential to cause or contribute to the exceedance of the WQO for copper in the receiving water. WWTP improvements, which include membrane filtration, are currently under construction. It is expected that these improvements will result in improved compliance with the WQO for copper by increasing the removal of particulate copper in the effluent. The extent to which these improvements will improve compliance with the copper WQO will not be known until the improvement project is complete and 12 months of effluent water quality data are collected. If after the completion of the improvement project, effluent copper concentrations remain above the lowest WQO, the District will consider the implementation of a site-specific copper water-effect ratio study.

4.2.4 Dichlorobromomethane

The lowest WQO for dichlorobromomethane, applicable to WWTP effluent discharges to the South Yuba River, is 0.56 µg/L based on the protection of human health. The reported WWTP MEC for dichlorobromomethane was 2.8 µg/L, based on 39 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

All of the receiving water dichlorobromomethane results, based on three samples collected between June 2009 and June 2013, were “non-detect”.

Based on the preceding data and information, the WWTP currently reasonable potential to cause or contribute to the exceedance of the WQO for dichlorobromomethane in the receiving water. However the WWTP improvement project, currently under construction, includes the conversion from chlorine disinfection to UV light disinfection. Since dichlorobromomethane is a known byproduct of chlorine disinfection, it is expected that the disinfection system improvements will result in compliance with the WQO for dichlorobromomethane.

4.2.5 Selenium

The lowest WQO for selenium, applicable to WWTP effluent discharges to the South Yuba River, is 5 µg/L, based on the protection of aquatic life. The WWTP MEC for selenium was reported at a concentration of 22.7 µg/L, based on four samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The 22.7 µg/L effluent selenium result occurred October 26, 2010, and appears to be an outlier as the other three effluent arsenic concentrations were "non-detect". The 22.7 µg/L effluent selenium result had a reporting limit of 20 µg/L using analytical method EPA Method 6010B. The reporting limit of 20 µg/L is significantly higher that the reporting limit of 5 µg/L achieved using EPA Method 270.2 during the 2009 priority pollutant monitoring event, and the reporting limit of 2 µg/L achieved using EPA Method 200.8 during the 2012 and 2013 priority pollutant monitoring events. Further, as noted previously, during the October 26, 2010 monitoring event, similar instances of atypical analytical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other constituents.

All four of the receiving water selenium results, collected between June 2009 and June 2013, were reported as "non-detect".

After removing the October 26, 2010 outlier from the dataset, the MEC for selenium is <2 µg/L, which is below the lowest WQO of 5 µg/L. Thus there is no reasonable potential for the WWTP effluent to cause or contribute to the exceedance of the selenium WQO in the receiving water.

4.2.6 Silver

The lowest WQO for silver, applicable to WWTP effluent discharges to the South Yuba River, is 0.11 µg/L based on the protection of aquatic life and a worst-case lowest effluent hardness of 16 mg/L. The reported WWTP MEC for silver was an estimated concentration of 1.9 µg/L, based on 42 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The estimated 1.9 µg/L effluent silver result occurred October 26, 2010, and appears to be an outlier as only 4 of 42 results are detected above the detection limit. The remaining effluent silver results ranged between "non-detect" and 0.41 µg/L. The estimated 1.9 µg/L effluent silver result had a reporting limit of 10 µg/L using analytical method EPA Method 6010B. The reporting limit of 10 µg/L is higher than the typical reporting limits achieved using other EPA methods during the other monitoring events. Further, as noted previously, during the October 26, 2010 monitoring event, similar instances of atypical analytical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other constituents.

The maximum reported receiving water silver concentration, based on four samples collected between June 2009 and June 2013, was an estimated value of 7.7 µg/L. The 7.7 µg/L estimated receiving water silver result occurred October 26, 2010, and appears to be an outlier as the other three receiving water silver results were reported as "non-detect". The 7.7 µg/L estimated receiving water silver result had a

reporting limit of 10 µg/L, and was analyzed by EPA Method 6010B. The reporting limit of 10 µg/L is higher than the typical reporting limits achieved using other EPA methods during the other monitoring events. Further, as noted previously, during the October 26, 2010 monitoring event, similar instances of atypical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other constituents. Thus, after removing the October 26, 2010 outlier from the dataset, the maximum receiving water silver concentration is <0.5 µg/L.

After removing the October 26, 2010 outliers from the dataset, the MEC for silver is 0.41 µg/L and the maximum receiving water silver concentration is <0.5 µg/L.

Based on the preceding data and information, the WWTP does currently have reasonable potential to cause or contribute to the exceedance of the WQO for silver in the receiving water. However, the WWTP has completed lime feed pH adjustment modifications, which results in effluent hardness near 100 mg/L. Using a conservative lowest effluent hardness of 75 µg/L, which is consistent with the lowest effluent hardness used in the Nevada City Order, the WQO for silver is calculated at 0.57 µg/L. With MEC for silver of 0.41 µg/L, there is no longer reasonable potential for WWTP effluent to cause or contribute to the exceedance of the WQO for silver in the receiving water. The District is currently collecting effluent hardness data, which will be provided to the Regional Water Board prior to permit renewal.

4.2.7 Thallium

The lowest WQO for thallium, applicable to WWTP effluent discharges to the South Yuba River, is 1.7 µg/L, based on the protection of human health. The WWTP MEC for thallium was reported at an estimated concentration of 6 µg/L, based on four samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The 6 µg/L effluent thallium result appears to be an outlier as the other three effluent thallium results were “non-detect”. The 6 µg/L effluent thallium result occurred October 26, 2010, with a reporting limit of 20 µg/L, analyzed by EPA Method 6010B. The reporting limit of 20 µg/L is significantly higher than the typical reporting limit of 1 µg/L achieved using other analytical methods during the other three priority pollutant monitoring events. Further, as noted previously, during the October 26, 2010 monitoring event, similar instances of atypical methods, elevated reporting limits, and reported high apparent outlier concentrations occurred for other constituents.

All four of the receiving water thallium results, collected between June 2009 and June 2013, were “non-detect”. Thus, the maximum receiving water thallium result is <1 µg/L.

After removing the October 26, 2010 outlier from the dataset, the MEC for selenium is <1 µg/L, which is below the lowest WQO of 1.7 µg/L. Thus there is no reasonable potential for the WWTP effluent to cause or contribute to the exceedance of the thallium WQO in the receiving water.

4.2.8 Zinc

The lowest WQO for zinc, applicable to WWTP effluent discharges to the South Yuba River, is 27 µg/L based on the protection of aquatic life and a worst-case lowest effluent hardness of 16 mg/L. The reported WWTP MEC for zinc was 37.7 µg/L based on 41 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The maximum reported receiving water zinc concentration, based on four samples collected between June 2009 and June 2013, was an estimated value of 14.2 µg/L, which occurred during the October 26, 2010 monitoring event. Given the apparent issues associated with the October 26, 2010 monitoring event results, it is likely that this result is not representative. Thus, after removing the October 26, 2010 result from the dataset, the maximum receiving water zinc concentration is 13.3 µg/L.

Based on the preceding data and information, the WWTP does currently have reasonable potential to cause or contribute to the exceedance of the WQO for zinc in the receiving water. However, the WWTP has completed lime feed pH adjustment modifications, which results in effluent hardness near 100 mg/L. Using a conservative lowest effluent hardness of 75 µg/L, which is consistent with the lowest effluent hardness used in the Nevada City Order, the WQO for zinc is calculated at 122 µg/L. With MEC for zinc of 37.7 µg/L, there is no longer reasonable potential for WWTP effluent to cause or contribute to the exceedance of the WQO for zinc in the receiving water. The District is currently collecting effluent hardness data, which will be provided to the Regional Water Board prior to permit renewal.

4.2.9 Alpha BHC

The lowest WQO for alpha-BHC, applicable to WWTP effluent discharges to the South Yuba River, is 0.0039 µg/L, based on the protection of human health. The WWTP MEC for alpha-BHC occurred on October 26, 2010, with an estimated concentration of 0.004 µg/L, based on 43 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

Given the apparent issues associated with the October 26, 2010 monitoring event results, and the fact that a second result from the same day, analyzed using a different analytical method, was reported as "non-detect", it is likely that the 0.004 µg/L estimated result is not representative. Thus, after removing the October 26, 2010 result from the dataset, the maximum receiving water alpha-BHC concentration is an estimated value of 0.003 µg/L.

The highest reported concentration of alpha-BHC in the receiving water was an estimated value of 0.003 µg/L, based on three samples collected between June 2009 and June 2013. The estimated 0.003 µg/L result occurred during the October 26, 2010 monitoring event using EPA Method 8180A. Given the apparent issues associated with the October 26, 2010 monitoring event results, and the fact that the remaining two receiving water alpha-BHC results, analyzed using a different analytical method, were reported as "non-detect", it is likely that the 0.003 µg/L estimated result is not representative. Thus, the maximum receiving water alpha-BHC concentration should be considered to be <0.05 µg/L.

After removing the October 26, 2010 outliers from the dataset, the MEC for alpha-BHC is an estimated value of 0.003 µg/L, which is lower than the lowest WQO of 0.0039 µg/L. Thus, there is no reasonable potential for the WWTP effluent to cause or contribute to the exceedance of the WQO for alpha-BHC in the receiving water.

4.2.10 Aluminum

The lowest WQO for aluminum, applicable to WWTP effluent discharges to the South Yuba River, is 87 µg/L based on the protection of aquatic life. The WWTP MEC for aluminum is 1,970 µg/L based on 41 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The District's current Monitoring and Reporting Program does not require receiving water monitoring for aluminum. Therefore, there was no receiving water aluminum data collected during the current permit term.

Based on the preceding data and information, the WWTP does have reasonable potential to cause or contribute to the exceedance of the WQO for aluminum in the receiving water. WWTP improvements, which include membrane filtration and the elimination of the addition of aluminum based polymer, are currently under construction. The District conducted an effluent filtration study to estimate the expected aluminum removal from membrane treatment. The results were encouraging, especially when combined with the future elimination of aluminum based polymer. Therefore, it is expected that these improvements will result in improved compliance with the WQO for aluminum by increasing the removal of particulate aluminum in the effluent and by eliminating the addition of aluminum based compounds. The extent to which these improvements will improve compliance with the aluminum WQO will not be known until the improvement project is complete and 12 months of effluent water quality data are collected. If after evaluating 12 months of effluent data, effluent aluminum concentrations are still observed at levels above the WQO, the District will consider the implementation of a site-specific aluminum toxicity study similar to the successful study that was conducted by the City of Auburn.

4.2.10.1 Ammonia

The lowest ammonia WQO applicable to WWTP effluent discharges to the South Yuba River is 5.62 mg/L (as N), based on the acute protection of aquatic life calculated using the maximum permitted pH value of 8.0. The WWTP MEC for ammonia was 35.4 mg/L (as N), based on 206 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The maximum reported receiving water ammonia concentration, based on 301 samples collected between June 2009 and June 2013, was a value of 1.3 mg/L.

Based on the preceding data and information, the WWTP does currently have reasonable potential to cause or contribute to the exceedance of the WQO for ammonia in the receiving water. However, WWTP improvements, which are currently under construction, include a complete redesign of the secondary treatment process to eliminate ammonia in the effluent. Following completion of the improvement project, the District expects to be in consistent compliance with effluent limitations on ammonia.

4.2.11 Manganese

The lowest WQO for manganese, applicable to WWTP effluent discharges to the South Yuba River is 50 µg/L, based on the Secondary MCL. The WWTP annual average MEC for manganese is 150 µg/L, based on 41 samples collected during periods of effluent discharge to the South Yuba River between June 2009 and June 2013.

The maximum receiving water manganese concentration is 142 µg/L, based on two samples collected between June 2009 and June 2013.

Based on the preceding data and information, the WWTP does have reasonable potential to cause or contribute to the exceedance of the WQO for manganese in the receiving water. However, WWTP improvements, which include membrane filtration, are currently under construction, which are expected to result in improved compliance with the WQO for manganese by increasing the removal of particulate manganese in the effluent. The extent to which these improvements will improve compliance with the manganese WQO will not be known until the improvement project is complete and 12 months of effluent water quality data are collected. If after evaluating 12 months of effluent data, manganese concentrations are still observed at levels above the WQO, the District will consider the implementation of further source control measures to identify and reduce manganese concentrations. If source control is not feasible, then dilution credits based on flow-weighted annual average concentrations in the effluent and receiving water will be requested.

4.3 SUMMARY OF CONSTITUENTS WITH REASONABLE POTENTIAL

Presented below is a list of both CTR and non-CTR constituents, currently present in the WWTP effluent, that are identified as having reasonable potential to cause or contribute to the exceedance of a water quality objective in the WWTP receiving water based on eliminating October 26, 2010 results from the dataset.

- Copper,
- Dichlorobromomethane,
- Aluminum,
- Ammonia, and
- Manganese.

The above list of constituents with “reasonable potential” is expected to be reduced, or potentially eliminated, following the completion of the WWTP improvement project.

Appendix E TREATMENT PLANT SCHEMATIC AND DESIGN CRITERIA

Treatment Plant: Drawing G009
Design Criteria: Drawing G011

INFLUENT AUTO SAMPLER
FREEWAY CROSSING
RS
EXISTING PARSHALL FLUME
INFLUENT SEWER
STR
TO SODA SPRINGS SKI AREA
IRR
IRRIGATION PUMPS
STRAINER
STORAGE RETURN PUMPS
EMERGENCY STORAGE & IRRIGATION SUPPLY TANK
VALVE (TYP)
OVERFLOW (TYP)
EQUALIZATION STORAGE TANK 1
DIFFUSERS
EQ TANK 1 BLOWERS
AMMONIA FEED SYSTEM
LIME FEED PUMPS
PHOSPHORUS FEED PUMPS
NH3
LMS
PHOS
SCREENINGS TO LANDFILL
ROTARY DRUM SCREENS
MAGNETIC FLOW METER
MOTORIZED PINCH VALVE
BYPASS
HEADWORKS
CARBON FEED PUMPS
CARBON
REACTOR 1
REACTOR AERATION BLOWERS
AA
MEMBRANE BLOWERS
Ae 1B*
Ae 1C*
Ax 1A*
Ax 1B*
Ax 2*
Ae 1A*
WAS
ML
RAS
MEMBRANE CASSETTE (TYP)
PERMEATE PUMPS (TYP OF 4)
TO PLANT DRAIN PUMP STATION
OF
STF
STORAGE FILL PUMPS
MEMBRANE BASIN LEVEL CONTROL VALVE (TYP)
RAS PUMPS (TYP OF 4)
MEMBRANE BASINS
FEF
FE
UV REACTORS
FUTURE
HEAT EXCHANGER 1
HEAT EXCHANGER 2
REACTOR 2
*Ae = AEROBIC
Ax = ANOXIC
**AIR FLOW METER & MOTORIZED VALVE
EST RETURN PUMPS
EQUALIZATION STORAGE TANK 2
DIFFUSERS
TO EMERGENCY STORAGE & IRRIGATION SUPPLY TANK
EQ TANK 2 AND DIGESTER BLOWERS
TO INFLUENT SEWER
PLANT DRAIN PUMP STATION
DECANTER
POLYMER
STATIC MIXER
AEROBIC DIGESTER / SLUDGE STORAGE
SLUDGE TO LAND FILL
SLUDGE DRYING BEDS
BACKWASH TANK
BYPASS
SMP
OVERFLOW FROM EQUALIZATION TANKS
TO 3W DISTRIBUTION SYSTEM
3W
POTABLE WATER
1W
PRESSURE TANK
PLANT WATER PUMPS
TO SOUTH YUBA RIVER
COMPOSITE EFFLUENT SAMPLER
TURBIDITY METER

LEGEND:
- MO — MOTORIZED VALVE
- MO — MOTORIZED TELESCOPIC VALVE
- PNEUMATIC VALVE
- VALVE
- CHECK VALVE
- SLIDE OR SLUICE GATE
- M — MAGNETIC FLOW METER
- MIXER
- PUMP
- PROCESS FLOW
- EXISTING
- NEW
- FUTURE

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Revision	By	Appd.	YY.MM.DD

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05/07/12

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Client / Project
DONNER SUMMIT PUBLIC UTILITY DISTRICT
WASTEWATER FACILTIES
UPGRADE AND EXPANSION PROJECT
Nevada County, California
Project No. 184030273

Drawn	Checked	Designed	YY.MM.DD
ASB	JRH	AEB	12/05/07

Title
PROCESS FLOW DIAGRAM

Drawing No. G009
Sheet 9 of 330
Scale NONE
Revision 0

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ORIGINAL SHEET - ANSI D HORIZ

INFLUENT FLOWS AND LOADS

	UNIT	VALUE
AVERAGE ANNUAL FLOW	MGAL/D	0.33
AVERAGE DAY MAXIMUM MONTHLY FLOW (ADMMF)		
TYPICAL	MGAL/D	0.50
HIGH	MGAL/D	0.58
AVERAGE DAY MAXIMUM WEEKLY FLOW (ADMWF)		
TYPICAL	MGAL/D	0.62
HIGH	MGAL/D	0.80
PEAK DAY FLOW (PDF)	MGAL/D	1.27
PEAK HOUR FLOW (PHF)	MGAL/D	1.70
BOD LOAD		
AVERAGE ANNUAL LOAD (AAL)	LB/D	310
AVERAGE DAY MAXIMUM MONTHLY LOAD (ADM ML)	LB/D	750
AVERAGE DAY MAXIMUM WEEKLY LOAD (ADMW/L)	LB/D	1125
PEAK DAY LOAD (PDL)	LB/D	1298

EFFLUENT REQUIREMENTS FOR RIVER DISCHARGE

BOD – MONTHLY AVERAGE	MG/L	10
BOD – DAILY MAXIMUM	MG/L	30
TSS – MONTHLY AVERAGE	MG/L	10
TSS – DAILY MAXIMUM	MG/L	30
AMMONIA NITROGEN – MONTHLY AVERAGE	MG/L	2.1
AMMONIA NITROGEN – DAILY MAXIMUM	MG/L	5.6
NITRATE NITROGEN – MONTHLY AVERAGE	MG/L	10
TOTAL COLIFORM – 7-DAY MEDIAN	MPN/100 ML	2.2
TOTAL COLIFORM – ONCE IN 30-DAY EXCEEDANCE	MPN/100 ML	23
TOTAL COLIFORM – MAXIMUM AT ANY TIME	MPN/100 ML	240

EFFLUENT REQUIREMENTS FOR LAND DISPOSAL

BOD – MONTHLY AVERAGE	MG/L	30
BOD – DAILY MAXIMUM	MG/L	60
TSS – MONTHLY AVERAGE	MG/L	30
TSS – DAILY MAXIMUM	MG/L	60
TOTAL COLIFORM – MONTHLY AVERAGE	MPN/100 ML	23
TOTAL COLIFORM – DAILY MAXIMUM	MPN/100 ML	240

EQUALIZATION STORAGE

VOLUME EQUALIZATION STOIRAGE TANK 1	MGAL	0.20
VOLUME EQUALIZATION STOIRAGE TANK 2	MGAL	0.70
TYPE OF AERATION	-	COARSE BUBBLE
TYPE OF MIXERS	-	SUBMERSIBLE
EQUALIZATION STORAGE TANK 1 MIXERS		
NUMBER	-	2 DUTY
HORSEPOWER EACH	HP	10
EQUALIZATION STORAGE TANK 2 MIXERS		
NUMBER	-	2 DUTY
HORSEPOWER MIXER 1	HP	15
HORSEPOWER MIXER 2	HP	6
EQUALIZATION STORAGE TANK 1 BLOWERS		
TYPE	-	ROTARY LOBE
NUMBER	-	2
MAXIMUM DISCHARGE PRESSURE	PSIG	8.1
CAPACITY EACH AT MAXIMUM PRESSURE	SCFM	134
MAXIMUM CAPACITY EACH	SCFM	188
DISCHARGE PRESSURE AT MAXIMUM CAPACITY	PSIG	2.3
HORSEPOWER	HP	20
EQUALIZATION STORAGE TANK 2 BLOWERS		
TYPE	-	HYBRID
NUMBER	-	2
MAXIMUM DISCHARGE PRESSURE	PSIG	12.0
CAPACITY EACH AT MAXIMUM PRESSURE	SCFM	214
MAXIMUM CAPACITY EACH	SCFM	376
DISCHARGE PRESSURE AT MAXIMUM CAPACITY	PSIG	2.7
HORSEPOWER	HP	40
EQUALIZATION STORAGE TANK 2 RETURN PUMPS		
TYPE OF PUMPS	-	ROTARY LOBE
NUMBER	-	2 DUTY
CAPACITY EACH	GPM	350
TOTAL DYNAMIC HEAD	PSIG	10
HORSEPOWER	HP	20

HEADWORKS

TYPE OF SCREEN	-	ROTARY DRUM
NUMBER OF SCREENS	-	2
CAPACITY EACH SCREEN	MGAL/D	1.8
OPENING SIZE	MM	2

MEMBRANE BIOREACTOR

	UNIT	VALUE
DESIGN TEMPERATURE	C	7
AEROBIC MEAN CELL RESIDENCE TIME	DAYS	27
ANOXIC MEAN CELL RESIDENCE TIME	DAYS	21
MAXIMUM MIXED LIQUOR SUSPENDED SOLIDS		
REACTOR BASINS	MG/L	8,000
MEMBRANE BASINS	MG/L	10,000
REACTOR 1 BASIN VOLUMES		
ANOXIC 1A	GAL	49,600
ANOXIC 1B	GAL	49,600
AEROBIC 1A	GAL	52,900
AEROBIC 1B	GAL	52,900
AEROBIC 1C	GAL	52,900
ANOXIC 2	GAL	41,100
TOTAL	GAL	299,000
REACTOR 2 BASIN VOLUMES		
ANOXIC 1A	GAL	36,100
ANOXIC 1B	GAL	36,100
AEROBIC 1A	GAL	36,500
AEROBIC 1B	GAL	36,500
AEROBIC 1C	GAL	36,500
ANOXIC 2	GAL	28,400
TOTAL	GAL	210,000
MEMBRANE BASINS		
NUMBER OF BASINS	-	4
NET VOLUME, EACH	GAL	9,000
NUMBER OF MEMBRANE CASSETTES IN EACH BASIN	-	2
MEMBRANE SURFACE AREA INSTALLED IN EACH BASIN	SF	22,200
MEMBRANE SURFACE AREA ALLOWED IN EACH BASIN	SF	26,640
MEMBRANE SYSTEM DESIGN FLOW, ONE BASIN OFF-LINE		
ADMMF	MGAL/D	0.58
ADMWF	MGAL/D	0.80
PDF	MGAL/D	1.05
PHF	MGAL/D	1.20
MEMBRANE SYSTEM DESIGN FLOW, ALL BASINS ON-LINE		
ADMMF	MGAL/D	0.58
ADMWF	MGAL/D	0.80
PDF	MGAL/D	1.40
PHF	MGAL/D	1.60
NET MEMBRANE FLUX, ONE BASIN OFF-LINE		
ADMMF	GFD	8.7
ADMWF	GFD	12
PDF	GFD	15.7
PHF	GFD	18
NET MEMBRANE FLUX, ALL BASINS ON-LINE		
ADMMF	GFD	6.5
ADMWF	GFD	9.0
PDF	GFD	15.7
PHF	GFD	18
ANOXIC 1 MIXERS (BOTH REACTORS)		
TYPE	-	SUBMERSIBLE
NUMBER OF MIXER PER REACTOR	-	2
HORSEPOWER PER MIXER	HP	5
ANOXIC 2 MIXERS (BOTH REACTORS)		
TYPE	-	SUBMERSIBLE
NUMBER	-	2
HORSEPOWER PER MIXER	HP	2
INTERNAL MIXED LIQUOR RECIRCULATION PUMPS		
NUMBER PER REACTOR	-	1
CAPACITY EACH	MGAL/D	1.0
HORSEPOWER EACH	HP	3
MEMBRANE AIR SCOUR BLOWERS		
TYPE	-	ROTARY LOBE
MAXIMUM DISCHARGE PRESSURE	PSIG	5.1
NUMBER	-	5 (4 DTY, 1STDBY)
CAPACITY EACH	ICFM	426 (273 INITIAL)
HORSEPOWER EACH	HP	20
AERATION BASIN BLOWERS		
TYPE	-	ROTARY LOBE
NUMBER	-	3 (2 DTY, 1 STDBY)
CAPACITY EACH	SCFM	638
MAXIMUM DISCHARGE PRESSURE	PSIG	8.2
HORSEPOWER EACH	HP	50
PERMEATE PUMPS		
TYPE	-	ROTARY LOBE
NUMBER	-	4 DUTY
CAPACITY EACH	GPM	494 (FUTURE BACKPULSE)
TOTAL DYNAMIC HEAD	FT	45 (FUTURE BACKPULSE)
HORSEPOWER EACH	HP	15
RETURN ACTIVATED SLUDGE (RAS) PUMPS		
TYPE	-	CENTRIFUGAL
NUMBER	-	4 DUTY
CAPACITY EACH	GPM	1083
TOTAL DYNAMIC HEAD	FT	16.4
HORSEPOWER EACH	HP	7.5

	UNIT	VALUE
FOAM SPRAY PUMP		
TYPE	-	CENTRIFUGAL
NUMBER	-	1
CAPACITY EACH	GPM	195
TOTAL DYNAMIC HEAD	FT	22
HORSEPOWER EACH	HP	3

SUPPLEMENTAL WASTEWATER HEATING SYSTEM

NUMBER OF BOILER/HEAT EXCHANGERS	-	2
CAPACITY EACH BOILER/HEAT EXCHANGER	MBTU/HR	1.1
HEAT EXCHANGER FEED PUMPS		
TYPE	-	CENTRIFUGAL
NUMBER	-	2 DTY
CAPACITY EACH	GPM	350
TOTAL DYNAMIC HEAD	FT	15
HORSEPOWER EACH	HP	3

ULTRAVIOLET DISINFECTION

TYPE	-	CLOSED VESSEL
NUMBER OF REACTOR TRAINS	-	3
NUMBER OF REACTORS PER TRAIN	-	2
ASSUMED TRANSMITTANCE	%	65
UV DOSE	MJ/CM2	80

RECLAIMED WATER (3W) BOOSTER PUMP STATION

TYPE OF PUMPS	-	MULTI-STAGE
NUMBER OF PUMPS	-	2
CAPACITY EACH	GPM	120
TOTAL DYNAMIC HEAD	FT	179
HORSEPOWER EACH	HP	10

PLANT DRAIN PUMP STATION

TYPE OF PUMPS	-	SUBMERSIBLE
NUMBER OF PUMPS	-	2 (1 DTY, 1 STDBY)
CAPACITY EACH	GPM	300
TOTAL DYNAMIC HEAD	FT	80
HORSEPOWER EACH	HP	11

SOLIDS PRODUCTION

ANNUAL AVERAGE	LB/D	239
PEAK MONTH	LB/D	490

AEROBIC DIGESTER / SOLIDS HOLDING TANK

TANK VOLUME	MGAL	0.60
TANK DIAMETER	FT	60
TANK DEPTH	FT	29
TYPE OF MIXING AND AERATION	-	DIFFUSER
DIFFUSER		
TYPE	-	COARSE BUBBLE
NUMBER	-	48
BLOWERS		
TYPE	-	HYBRID
NUMBER (NOT INCLUDING SPARE SHIARED WITH EST2)	-	1 DUTY
MAXIMUM DISCHARGE PRESSURE	PSIG	12.1
CAPACITY EACH AT MAXIMUM PRESSURE	SCFM	141
MAXIMUM CAPACITY EACH	SCFM	300
DISCHARGE PRESSURE AT MAXIMUM CAPACITY	PSIG	5.8
HORSEPOWER EACH	HP	25
DECANTER		
TYPE	-	FLOAT/SWIVEL
CAPACITY	GPM	200

SLUDGE DRYING BEDS

ANNUAL SOLIDS LOAD	LBS	45,000
TYPE OF DRYING BED	-	SAND
NUMBER OF DRYING BEDS	-	4
TOTAL AREA ALL BEDS	SF	10,400
ANNUAL LOADING RATE	LB/SF/YR	4.3

EMERGENCY / OPERATIONAL STORAGE TANK

TANK VOLUME	MGAL	1.56
TANK DIAMETER	FT	95
TANK DEPTH	FT	32

CHEMICAL FEED SYSTEMS

	UNIT	VALUE
AMMONIA		
TYPE OF FEED SYSTEM	-	VAC, INJECTOR
MAXIMUM CAPACITY	LB NH3/D	250
NUMBER OF 150 LB CYLINDERS ON-LINE	-	10
MICROCGLYCERIN (OR OTHER CARBON SOURCE)		
NUMBER OF STORAGE TANKS	-	2
VOLUME EACH TANK	GAL	3,000
NUMBER OF FEED PUMPS	-	4 DUTY
PUMP TYPE	-	PERISTALTIC
CAPACITY EACH PUMP	GAL/HR	10
HYDRATED LIME		
SILO STORAGE CAPACITY	TONS	26.5
MAXIMUM HYDRATED LIME FEED CAPACITY	LB/D	1000
LIME SLURRY FEED PUMPS		
TYPE	-	PERISTALTIC
NUMBER	-	2
CAPACITY EACH	GPM	7
HORSEPOWER EACH	HP	1.5
PHOSPHORUS FEED SYSTEM		
NUMBER OF STORAGE TANKS	-	1
VOLUME	GAL	90
NUMBER OF FEED PUMPS	-	1
PUMP TYPE	-	PERISTALTIC
CAPACITY OF PUMP	GPH	1.5

STANDBY GENERATOR

NUMBER OF UNITS	-	2
OUTPUT POWER, EACH	KW	600
FUEL TYPE	-	NO. 2 DIESEL

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Revision	By	Appd.	YY.MM.DD

REGISTERED PROFESSIONAL ENGINEER
ABRAM BOTROUS
No.C68781
Exp. 09/30/2013
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Title
DESIGN CRITERIA

Drawing No. G011
Sheet 11 of 330
Scale NONE
Revision 0

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Appendix F SITE SPECIFIC UV DISINFECTION TESTING RESULTS

Donner Summit Wastewater Treatment Plant UV Disinfection System Spot Check Bioassay Testing Results

Appendix F of the Engineering Report for the Production, Distribution, and Use of Recycled Water, dated July 22, 2015

Prepared for:
Donner Summit Public Utility District

Prepared by:
Stantec Consulting Services Inc.

July 22, 2015

Table of Contents

1.0 INTRODUCTION

A spot check bioassay was conducted to validate the performance of the newly installed and operational UV disinfection system at the Donner Summit WWTP. The UV System makes use of three parallel trains of Wedeco LBX400 reactors. Each train contains 2 reactors. The peak flow through the UV disinfection can be accommodated with two reactor trains. The third train was provided to allow for maintenance and redundancy.

The Department of Public Health approved design equation for the system is:

$$UV\ Dose_{lower\ 75\%\ confidence} = (0.9936)\left(10^{1.7984-(0.7577)\left(Log(Flow)\right)+\left(Log(Sensor)\right)}\right) - 2.25$$

$$Sensor_{lower\ 75\%\ confidence} = (0.9978)\left(10^{-4.67+(2.034)\left(Log(UVT)\right)+(1.117)\left(Log(Power)\right)}\right) - 5.7871$$

Where UV Dose is in units of mJ/cm^2

Flow is in units of gallons per minute (GPM)

UVT is "UV Transmittance" and is in units of %

Power = 330 kW

The UV Guidelines published by the National Water Research Institute in collaboration with the Water Reuse Foundation are used by the State of California Department of Public Health to assure that UV Disinfection systems are properly designed and operated when producing recycled water that meets the definition of "disinfected tertiary recycled water," suitable for unrestricted reuse activities. The UV disinfection system was designed and tested in accordance with the Third Edition of those guidelines (August, 2012).

This design equation that describes system performance was approved by the Department of Public Health prior to the latest revision of the UV Disinfection Guidelines (August, 2012). Thus, it is expected that since the revised guidelines now make use of a standard MS-2 Dose-Response Curve, there is likely to be a significant difference between the UV dose reported by the process instrumentation and the actual UV dose that is delivered. Per the UV Guidelines, development of the performance ratio (see section below, entitled "**Compare the Spot-Check Results to the Design Equation"**) will remedy any errors that might be present in the system instrumentation.

The system is programmed to integrate the impact of sensors directly. No manual adjustment is required during routine operation.

The system was designed to allow for a 0.88 end of lamp life (approved by the Department of Public Health for this system) and a 0.9 fouling factor (approved by the Department of Public Health for the cleaning system utilized in the design). Insofar as new lamps were tested and the system was cleaned prior to testing, the target dose for the spot-check bioassay was intended to exceed:

$$Target\ Dose\ \left(\frac{mJ}{cm^2}\right) = \frac{Design\ Dose}{(Lamp\ Factor)(Aging\ Factor)} = \frac{80\frac{mJ}{cm^2}}{(0.88)(0.9)} = 101\frac{mJ}{cm^2}$$

Thus, testing a UV dose objective of 101 mJ/cm^2 allows system performance to degrade over time due to lamp aging and lamp fouling such that the actual delivered dose will never fall below the design dose of 80 mJ/cm^2.

2.0 TEST CONDITIONS

Insofar as we were only able to test flow that was being received by the plant, flowrate testing options were limited. We were able to manually draw from the membrane bioreactor basins for limited durations which assured that the membranes would always remain submerged. The UV Guidelines do not require that all likely test conditions are tested. Rather, eight different test conditions are to be tested to assure that the dose monitoring system is accurate and reliable. The eight test conditions studied were as follows (and represented the greatest process variability feasible for testing):

Test	Train	Reactors	Flowrate (GPM)	UV Transmittance (%)	Ballast Setting (%)	Dose (mJ/cm^2)
1	1	1+2	174	65	70	104
2	1	1+2	278	65	100	104
3	2	1+2	174	65	70	104
4	3	1+2	174	65	70	104
5	1	1+2	375	75	90	102
6	2	1+2	375	75	90	102
7	3	1+2	375	75	90	102
8	1	1+2	278	75	70	102

The rationale for selection of each of the test conditions is as follows:

- **Tests 1 and 2:** Test 1 and 2 together show impact at design minimum transmittance of varied flowrate and ballast settings.
- **Test 3:** Demonstrates impact of operational train when compared to Test 1.
- **Test 4:** Demonstrates impact of operational train when compared to Test 1.
- **Tests 5, 6, & 7:** Demonstrates impact of operational train at higher UV transmittance and higher flowrate.
- **Test 8:** Demonstrates impact of high UV transmittance and low ballast setting.

Note that the dose for each testing condition exceeds 101 mJ/cm^2 (see rationale in Introduction, above). Two reactors in series were always tested because that is the design operating condition at all times. The facility has been designed to make use of a redundant reactor train when needed for system repair or cleaning.

3.0 COLLIMATED BEAM TESTING

To verify the adequacy of the MS-2 stock bacteriophage, a separate sample was collected each day of testing for the conduct of a collimated beam dose-response curve. The collimated beam data and an illustration of the data when compared to the NWRI-mandated quality assurance/quality control (QA/QC) intervals are provided in Appendix F-1. All of the raw data supplied by the laboratory, including the collimated beam data, is provided in Appendix F-2. The data were found to fall within the NWRI-mandated QA/QC intervals. Thus, application of the standard MS-2 inactivation equation (per NWRI) is warranted and valid.

4.0 SITE-SPECIFIC REDUCTION EQUIVALENT DOSE

The site-specific bacteriophage inactivation and dose summary is provided below. All of the raw data used as part of the calculations is provided in Appendix F-2.

MS-2 Bacteriophage Inactivation and Dose Assignment Summary [(a)]

Test	Inlet Replicate	Outlet Replicate	Average Log (Inlet)	Average Log (Outlet)	Log Inactivation	UV Dose (mJ/cm^2) [(b)]
1	3.4x10^6	<1				
1	2.5x10^6	<1	6.45	< 0.10	> 6.35	157.6
1	2.6x10^6	2				

Compare the Spot-Check Results to the Design Equation
July 22, 2015

Test	Inlet Replicate	Outlet Replicate	Average Log (Inlet)	Average Log (Outlet)	Log Inactivation	UV Dose (mJ/cm^2) [(b)]
2	2.9x10^6	<1				
2	3.0x10^6	<1	6.45	< 0.00	> 6.45	160.5
2	2.6x10^6	<1				
3	2.4x10^6	10				
3	2.3x10^6	<1	6.39	< 0.33	> 6.06	149.8
3	2.7x10^6	1				
4	2.4x10^6	<1				
4	2.1x10^6	4	6.35	< 0.20	> 6.15	152.4
4	2.3x10^6	<1				
5	2.2x10^6	<1				
5	3.0x10^6	2	6.41	< 0.10	> 6.31	156.7
5	2.6x10^6	1				
6	4.7x10^6	1				
6	4.0x10^6	1	6.65	0.16	5.49	161.6
6	4.8x10^6	3				
7	2.6x10^6	2				
7	3.1x10^6	6	6.45	0.46	5.99	148.0
7	2.8x10^6	2				
8	6.9x10^5	1				
8	6.8x10^5	3	5.86	0.16	5.70	140.2
8	8.3x10^5	1				

(a) See Test Conditions for explanation of Operating Conditions

(b) The UV dose assignment was made using the standard dose-inactivation equation as required by NWRI. The standard dose-inactivation equation is $UV\ Dose\ \left(\frac{mJ}{cm^2}\right) = \frac{(\log inactivation - 0.5464)}{0.0368}$

5.0 COMPARE THE SPOT-CHECK RESULTS TO THE DESIGN EQUATION

A comparison of the predicted dose values to the spot-check validation results are provided below. The ratio of the spot-check results to the predicted values is defined as the performance ratio.

Summary of Bioassay Testing Results

Test	UV Dose (mJ/cm²)		Performance Ratio Spot-Check/Predicted
	Predicted (a)	Spot-Check	
1	104	158	1.52
2	104	161	1.55
3	104	150	1.44
4	104	152	1.46
5	102	157	1.54
6	102	162	1.59
7	102	148	1.45
8	102	140	1.37

(a) Based on field instrumentation and excludes lamp aging and lamp fouling factors due to testing on new lamps with clean conditions. An allowance in design was provided to allow for ongoing lamp aging and fouling.

6.0 CALCULATE SITE-SPECIFIC DOSE TARGET SETTING

Some agencies prefer that the system dose equation not be modified, but a site-specific dose target set to assure the design dose. If a site-specific target were to be developed, at the 75-percent prediction interval, seven out of the eight tests must exhibit performance equal to or exceeding the design intent. The seventh lowest ratio was 1.44. Therefore, to be assured that the design dose of 80 mJ/cm2 is met, the system could be set to a target dose of 55.6 mJ/cm²:

$$Target\ UV\ dose = \frac{80\,\frac{mJ}{cm^2}}{1.44} = 55.6\,\frac{mJ}{cm^2}$$

The District is not proposing this alternative design dose at this time. Rather, the District will continue making use of a target UV dose of 80 mJ/cm2 with the knowledge that the actual dose is approximately 44 percent higher. If the WWTP is expanded in the future, the District may petition the State Water Resources Control Board to rerate the UV disinfection system to take advantage of the potentially excess capacity available to eliminate the need for an expansion of the UV disinfection system. The planned operation is, thus, conservative.

7.0 CLEANING FACTOR

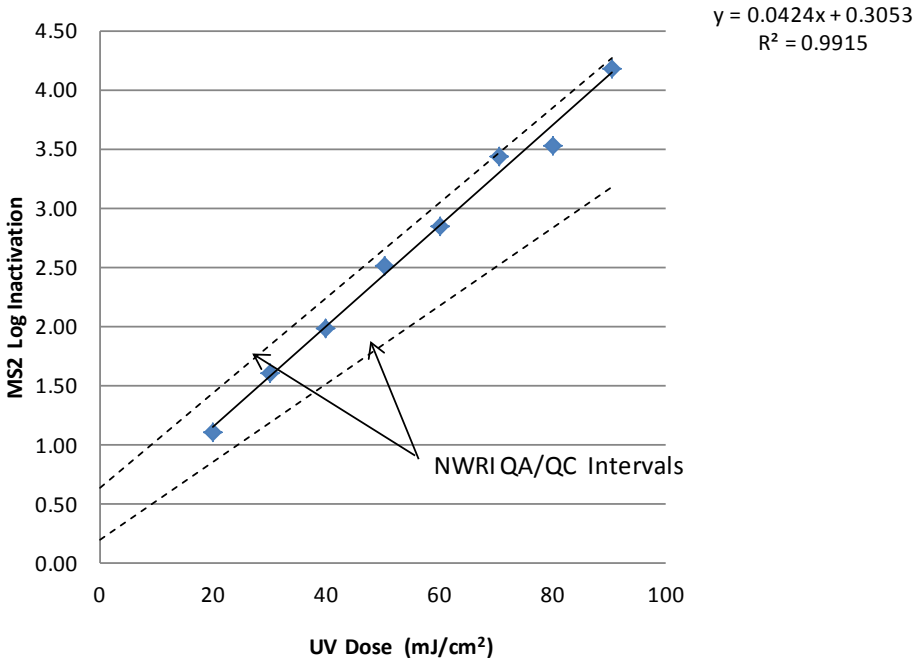
During operation, the UV dose was monitored over the course of days with no apparent deterioration in UV dose output. The system is programmed to clean the lamps at least once per day. The cleaning frequency is shorter than the rate at which the system fouls. Thus, the planned cleaning frequency is conservative.

APPENDICES

Appendix F.1 COLLIMATED BEAM DATA ANALYSIS

COLLIMATED BEAM TEST RESULTS

	Inactivation		
Dose	Observed	Max allowable	Min allowable
0		0.64	0.20
20.1	1.11	1.44	0.86
30.2	1.60	1.85	1.20
40	1.98	2.24	1.52
50.2	2.51	2.65	1.86
60.1	2.85	3.04	2.18
70.5	3.44	3.46	2.53
80.2	3.52	3.85	2.85
90.5	4.18	4.26	3.19
110.6	4.70	5.06	3.85
120.3	4.71	5.45	4.17



Appendix F.2 LABORATORY DATA SHEETS

BioVir Laboratories / IEH
Laboratories & Consulting Group

CA-ELAP #1795
EPA ID #01401
EPA ID #05234CA

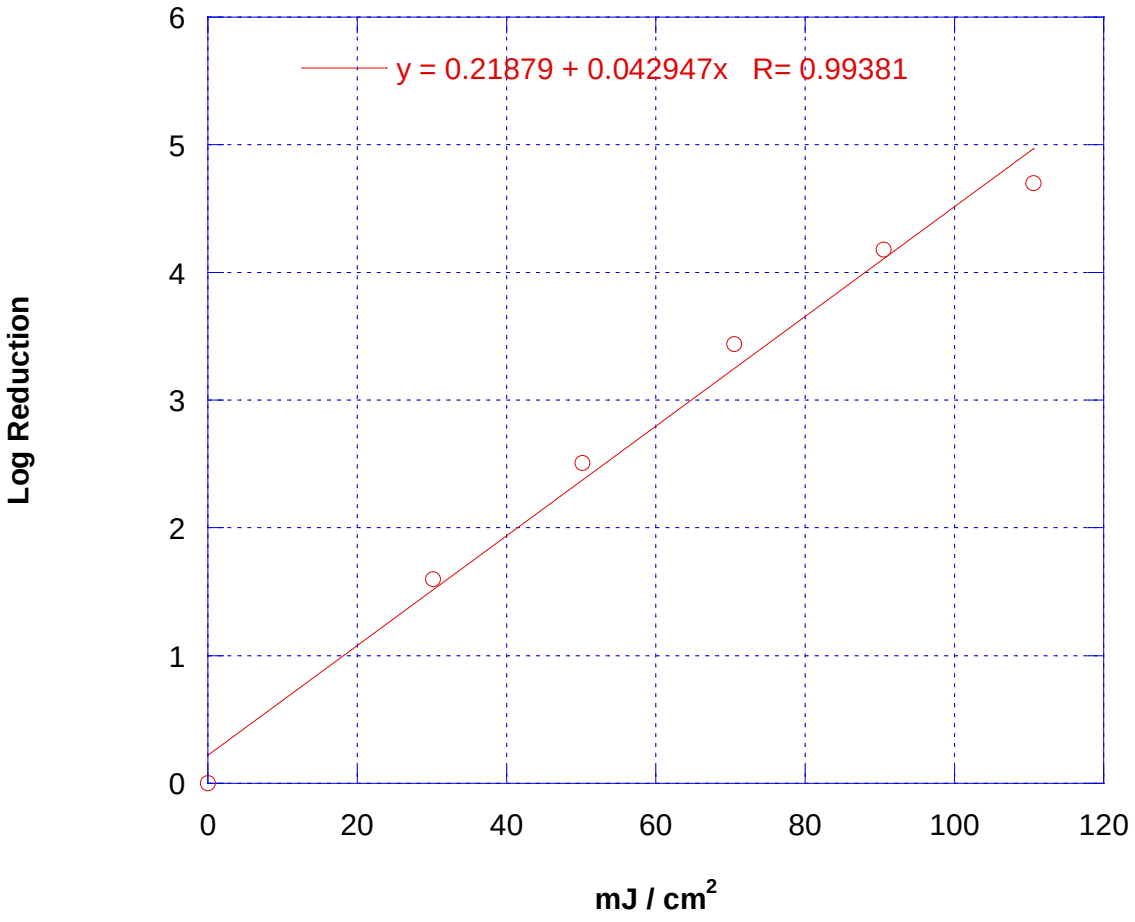
685 Stone Road, Unit 6 ● Benicia, CA 94510 ● (707) 747-5906 ●1-800-GIARDIA ● FAX (707) 747-1751 ● WEB: www.biovir.com

COLLIMATED BEAM TEST REPORT

Client: Donner Summit PUD	**Project#** 141374-43	**Date Processed :** 9/26/2014
Client Contact: Tom Skjelstad	**Address:** 53823 Sherritt Lane	
	City ,State: Soda Springs, CA	
	Phone: 530-426-3456	
Sample Matrix: Treated Wastewater	**Sample ID:** CB	**%UVT:** 84.9
Test Microbe(s): MS2 Coliphage		
Assay Method(s): Double Layer Agar Assay (Adams, 1959)		
Comments:		

Collimated Beam Results for MS2 Coliphage:	
UV Dose mJ/cm^2	**Log Reduction**
0	
30.2	1.60
50.2	2.51
70.5	3.44
90.5	4.18
110.6	4.70

141374-43
Collimated Beam Result



BioVir LABORATORIES

SAMPLE DATA SHEET
BACTERIOPHAGE ANALYSIS
1-800-GIARDIA (442-7342)

DON004
1374-1-18 9.8°C

COMPANY OR UTILITY:	DATE OF SAMPLING:
Donner Summit PUD	9/22/2014
NAME OF SAMPLER:	MATRIX:
Corey	tertiary effluent

SAMPLE ID#	TIME	VOLUME	TREATMENT	EXPECTED CONCENTRATION PER SAMPLE (pfu per mL)	ANALYSIS/METHOD
1	1PM		STS	4.9×10^6	
2	1:05			4.9×10^6	
3	1:10			4.9×10^6	
4	1:15			208	
5	1:20			208	
6	1:25			208	
7	1:30			4.9×10^6	
8	1:35			4.9×10^6	
9	1:40			4.9×10^6	
10	2PM			208	
11	2:05			208	
12	2:10			208	
13	2:15			4.9×10^6	
14	2:20			4.9×10^6	
15	2:25			4.9×10^6	
16	2:30			208	
17	2:35			208	
18	2:40			208	

SIGNATURE: Robert W. Emerick	DATE: 9/22/2014
RECEIVED:	DATE: 9/26/14 14:00

SHIPPING ADDRESS: BIOVIR LABORATORIES, INC., 685 STONE ROAD, BENICIA CALIFORNIA 94510
F:\Shipping+Receiving\Phage Date Sheet.wpd

BioVir LABORATORIES

SAMPLE DATA SHEET
BACTERIOPHAGE ANALYSIS
1-800-GIARDIA (442-7342)

DON004
1374-19-36
9.8°C

COMPANY OR UTILITY:	DATE OF SAMPLING:
Donner Summit PUD	9/25/2014
NAME OF SAMPLER:	MATRIX:
Coteg	tertiary effluent

SAMPLE ID#	TIME	VOLUME	TREATMENT	EXPECTED CONCENTRATION PER SAMPLE (pfu per mL)	ANALYSIS/METHOD
19	2:45		STS	4.8×10^6	
20	2:50			4.8×10^6	
21	3PM			4.8×10^6	
22	3:05			202	
23	3:10			202	
24	3:15			202	
25	3:20			4.8×10^6	
26	3:25			4.8×10^6	
27	3:30			4.8×10^6	
28	3:35			239	
29	3:40			239	
30	3:45			239	
31	3:50			4.1×10^6	
32	4PM			4.1×10^6	
33	4:05			4.1×10^6	
34	4:10			203	
35	4:15			203	
36	4:20			203	

SIGNATURE: Robert F. Cheneil	DATE: 9/25/2014
RECEIVED:	DATE: 9/26/14 10:00

BioVir LABORATORIES

SAMPLE DATA SHEET
BACTERIOPHAGE ANALYSIS
1-800-GIARDIA (442-7342)

JON004
1374-37-42
9.8°C

COMPANY OR UTILITY:	DATE OF SAMPLING:
Donner Summit PUD	9/25/2014
NAME OF SAMPLER:	MATRIX:
Coley	tertiary effluent

SAMPLE ID#	TIME	VOLUME	TREATMENT	EXPECTED CONCENTRATION PER SAMPLE (pfu per mL)	ANALYSIS/METHOD
37	4:25		STS	4.1×10^6	MS2
38	4:30			4.1×10^6	↓
39	4:35			4.1×10^6	
40	4:40			203	
41	4:45			203	
42	5PM			203	

SIGNATURE:	DATE: 9/25/2014
RECEIVED:	DATE: 9/26/14 10:00

SHIPPING ADDRESS: BIOVIR LABORATORIES, INC., 685 STONE ROAD, BENICIA CALIFORNIA 94510
F:\Shipping+Receiving\Phage Date Sheet.wpd

3/4

BioVir LABORATORIES

SAMPLE DATA SHEET

SHIPPING ADDRESS: BIOVIR LABORATORIES, INC., 685 STONE ROAD, UNIT 6, BENICIA, CALIFORNIA 94510
1-800-GIARDIA (442-7342), FAX: 707-747-1751
® Business Hours: Monday through Friday - 8:30 AM to 5:00 PM

DoN004
1374-43

* Required Fields

9.8°C

*CLIENT/COMPANY NAME: Donner Summit PUD / Stanted TELEPHONE# FAX#	*DATE OF SAMPLING: 9/26/2014
	PURCHASE ORDER/SUBCONTRACT ORDER #:
*NAME OF SAMPLER: (Please print) Coley	*PLEASE CHECK APPROPRIATE BOX FOR MATRIX OR FILL IN "OTHER". MATRIX: Drinking Water ☐ Wastewater ☒ Biosolid ☐ OTHER: Turbany Regulatory Drinking Water Sample(s) Yes ☐ No ☐ CA DHS Contact Person and Phone Number (if regulatory):

*SAMPLE ID	*TIME	VOLUME	TREATMENT	SAMPLING LOCATION	*ANALYSIS REQUESTED
CB	11:26 PM label	1L	0, 25, 50, 75, 100, 125		Collimated Beam 0, 30, 50, 70, 90, 110

*RELINQUISHED BY (SIGNED)	*DATE/TIME	RECEIVED BY (SIGNED)	DATE/TIME
[signature]	9/26/2014	[signature]	9/26/14 10:00

F:\WP\FORMS\Datasheets\DATASHT.General.11.18.09wpd.wpd

4/4

BioVir Laboratories, Inc

NELAC #05234CA
EPA ID# 01401, CA-ELAP #179

685 Stone Road, Unit 6 • Benicia, CA 94510 • (707) 747-5906 • 1-800-GIARDIA • FAX (707) 747-1751 • WEB: www.biovir.com

REPORT NO.: 141374
PAGE NO.: 1 of 9
CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-001	**1**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3.4e6**	**pfu/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:00:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-002	**2**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.5e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:05:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-003	**3**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.6e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:10:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-004	**4**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:15:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-005	**5**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:20:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-006	**6**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:25:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-007	**7**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.9e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:30:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-008	**8**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3.0e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:35:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-009	**9**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.6e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 1:40:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-010	**10**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:00:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-011	**11**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:05:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-012	**12**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:10:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-013	**13**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.4e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:15:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-014	**14**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.3e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:20:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-015	**15**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.7e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:25:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-016	**16**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**10**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:30:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-017	**17**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:35:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-018	**18**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:40:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-019	**19**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.4e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:45:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-020	**20**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.1e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 2:50:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-021	**21**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.3e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:00:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-022	**22**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:05:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-023	**23**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**4**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:10:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-024	**24**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:15:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-025	**25**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.2e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:20:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-026	**26**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3.0e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:25:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-027	**27**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.6e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:30:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-028	**28**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:35:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-029	**29**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:40:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-030	**30**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:45:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-031	**31**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**4.7e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 3:50:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-032	**32**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**4.0e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:00:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-033	**33**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**4.8e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:03:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-034	**34**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:10:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-035	**35**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**<1**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:15:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-036	**36**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:20:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-037	**37**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.6e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:25:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-038	**38**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3.1e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:30:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-039	**39**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2.8e6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:35:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

REPORT NO.:	141374
PAGE NO.:	9 of 9
CLIENT:	Donner Summit Public Utilities District
ADDRESS	P.O. Box 610
	Soda Springs, CA 95728
CLIENT NO	DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141374-040	**40**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:40:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-041	**41**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**6**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 4:45:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

141374-042	**42**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**2**	**PFU/mL**

Collector: Cotey S CollectDate: 9/25/2014 CollectTime: 5:00:00 PM
ReceiveDate 9/26/2014 10:00:00 AM Matrix: Waste Water, treated Temp 9.8 C
Volume: 100 mL Analysis Start Date: 9/26/2014 Analysis Start Time: 1510
Analyst: JTruscott Analysis End: 10/6/2014

Comment

SAMPLE EVALUATION PERFORMANCE CRITERIA: The precise rates of recovery of organisms from environmental samples cannot be determined. B ioVir Laboratories has analyzed your sample(s) in accordance with the method described with each analyte above, however, due to inherent limitations of these methods organisms may avoid detection. For additional information regarding the limitations of the method(s) referred to above please call us at 1-800-GIARDIA.
COMPANY IS NOT AN INSURER: BioVir Laboratories is not an insurer or guarantor of the quality and/or purity of water, wastewater, biosolid or other material from which the sample was taken. BioVir offers no express or implied warranties whatsoever concerning the quality or purity of any water, wastewater, biosolid or other material which is ultimately consumed, distributed, applied or disposed.
MAINTENANCE OF RECORDS: BioVir Laboratories, Inc. shall maintain records pertaining to the historical reconstruction of client's data for a minimum of five years from the date of issuance of the final report. Records m ay be destroyed after that date unless a written client's request for records transfer is received by BioVir which requests otherwise. Records transfer or storage charges may apply after the 5 year period. THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF BIOVIR LABORATORIES, INC.

10/17/2014

Date:

Signature

Quality Checked LBarriga

BioVir Laboratories/IEH, Inc.

EPAID#05234CA
EPA ID# 01401, CA-ELAP # 1795

685 Stone Road, Unit 6 • Benicia, CA 94510 • (707) 747-5906 •1-800-GIARDIA • FAX (707) 747-1751 • WEB: www.biovir.com

COLLIMATED BEAM TEST REPORT

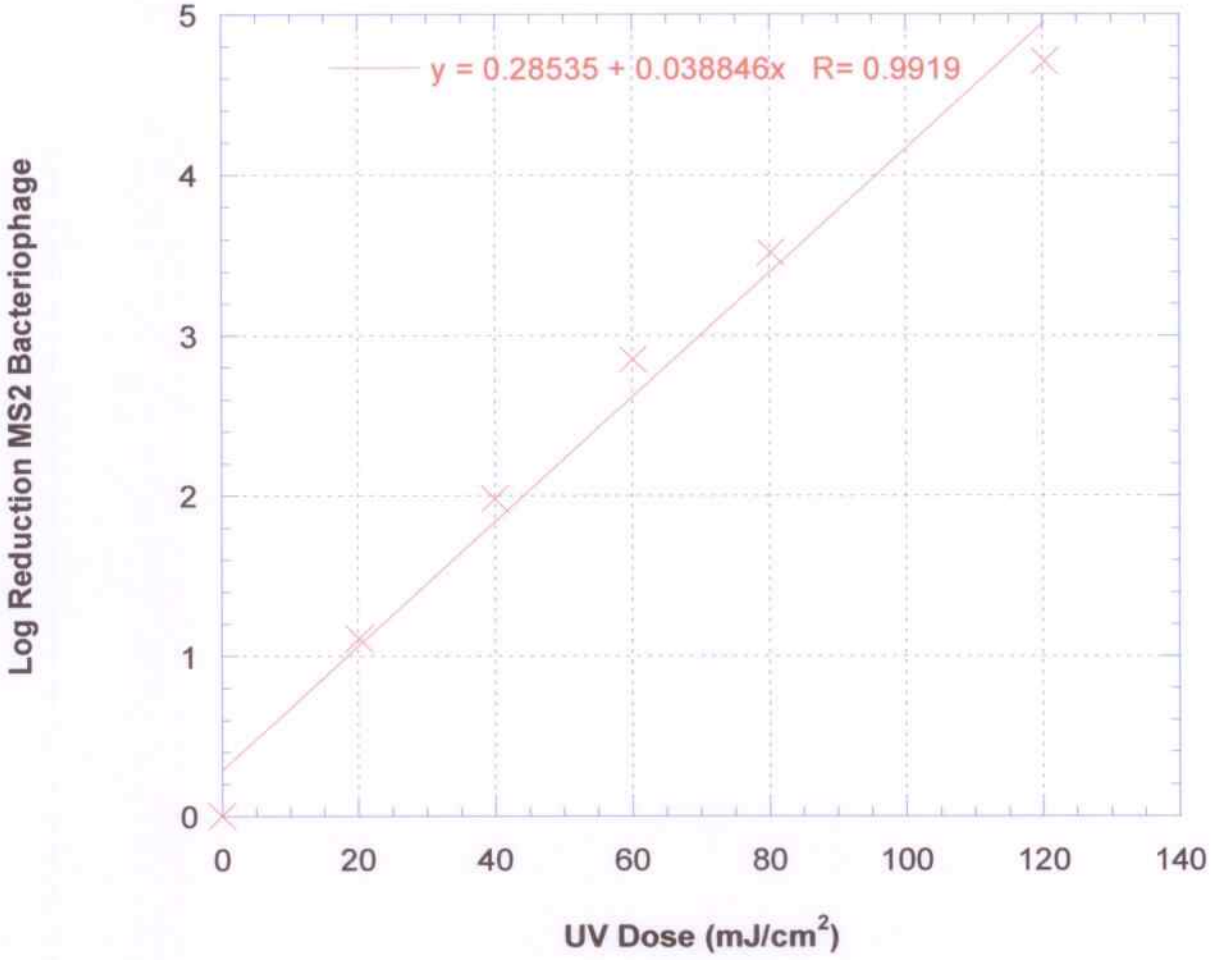
Client: Donner Summit PUD	**Project#** 141592-7	**Date Processed :** 11/5/2014
Client Contact: Tom Skjelstad	**Address:** 53823 Sherritt Lane	
	City ,State: Soda Springs, CA	
	Phone: 530-426-3456	
Sample Matrix: Wastewater	**Sample ID:** Collimated Beam	**%UVT:** 69.7%
Test Microbe(s): MS2 Coliphage		
Assay Method(s): Double Layer Agar Assay (Adams, 1959)		
Comments:		

Collimated Beam Results Results:

UV Dose mJ/cm²	Log Reduction
0	
20.1	1.11
40.0	1.98
60.1	2.85
80.2	3.52
120.3	4.71

BV# 141592-7

Collimated Beam Analysis on MS2 Bacteriophage from UV Inlet



BioVir LABORATORIES

SAMPLE DATA SHEET
BACTERIOPHAGE ANALYSIS
1-800-GIARDIA (442-7342)

DoNo04
1592-1-6

COMPANY OR UTILITY:	DATE OF SAMPLING:
Donner Summit PUD / Stantec	11-4-14
NAME OF SAMPLER:	MATRIX:
Cody Smith	Wastewater

TEST #8

SAMPLE ID#	TIME	VOLUME	TREATMENT	EXPECTED CONCENTRATION PER SAMPLE (pfu per mL)	ANALYSIS/METHOD
#1 UV IN	0933	100mL	STS		
#2 U.V. IN	0934				
#3 U.V IN	0935				
#4 U.V OUT	0933				
#5 U.V OUT	0934				
#6 U.V. OUT	0935				

SIGNATURE: Cody Smith	DATE: 11-4-14
RECEIVED: Jim	DATE: 11/5/14 0945

Fed ex

SHIPPING ADDRESS: BIOVIR LABORATORIES, INC., 685 STONE ROAD, BENICIA CALIFORNIA 94510

F:\Shipping+Receiving\Phage Date Sheet.wpd

1592-7
DON004

SAMPLE DATA SHEET

BioVir LABORATORIES

SHIPPING ADDRESS: BIOVIR LABORATORIES, INC., 685 STONE ROAD, UNIT 6, BENICIA, CALIFORNIA 94510
1-800-GIARDIA (442-7342), FAX: 707-747-1751
® Business Hours: Monday through Friday - 8:30 AM to 5:00 PM

* Required Fields

3.9°C

*CLIENT/COMPANY NAME: STANTEC DONNER Summit PUD TELEPHONE# FAX#	*DATE OF SAMPLING: 11-4-14 PURCHASE ORDER/SUBCONTRACT ORDER #:
*NAME OF SAMPLER: (Please print) TODD SMITH	*PLEASE CHECK APPROPRIATE BOX FOR MATRIX OR FILL IN "OTHER". MATRIX: Drinking Water ☐ Wastewater ☐ Biosolid ☐ OTHER:_____ Regulatory Drinking Water Sample(s) Yes ☐ No ☐ CA DHS Contact Person and Phone Number (if regulatory):

*SAMPLE ID	*TIME	VOLUME	TREATMENT	SAMPLING LOCATION	*ANALYSIS REQUESTED
UNLIMITED BEAM	0937	1000 mL	WW	A.U. INLET	Collimated Beam

COPY

*RELINQUISHED BY (SIGNED)	*DATE/TIME	RECEIVED BY (SIGNED)	DATE/TIME
Todd Smith	11-4-14	[signature]	11/5/14 09:45

fed ex
box

F:\WP\FORMS\Datasheets\DATASHT.General.11.18.09wpd.wpd

BioVir Laboratories

EPA ID# 01401, CA-ELAP #179

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REPORT NO.: 141592
PAGE NO.: 1 of 2
CLIENT: Donner Summit Public Utilities District
ADDRESS P.O. Box 610
Soda Springs, CA 95728
CLIENT NO DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-001	**#1 UV IN**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**6.9e5**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:33:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-002	**#2 UV IN**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**6.8e5**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:34:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-003	**#3 UV IN**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**8.3e5**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:35:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-004	**#4 U.V. OUT**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**1**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:33:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

REPORT NO.:	141592
PAGE NO.:	2 of 2
CLIENT:	Donner Summit Public Utilities District
ADDRESS	P.O. Box 610
	Soda Springs, CA 95728
CLIENT NO	DON004 **CLIENT PO:** N/A

ASSAY RESULTS:

Test: Bacteriophage Male-Specific **Method: Adams 1959**

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-005	**#5 U.V. OUT**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**3**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:34:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

BioVir #	Sample ID	Site	Analyte	Result	Units
141592-006	**#6 U.V. OUT**	**Donner Summit PUD**	**Bacteriophage, Male Specific**	**1**	**PFU/mL**

Collector: Cody Smith CollectDate: 11/4/2014 CollectTime: 9:35:00 AM
ReceiveDate 11/5/2014 9:45:00 AM Matrix: Waste Water, treated Temp 3.9 C
Volume: 100 mL Analysis Start Date: 11/5/14 Analysis Start Time: 1330
Analyst: MPeaslee Analysis End: 11/6/2014

Comment

SAMPLE EVALUATION PERFORMANCE CRITERIA: The precise rates of recovery of organisms from environmental samples cannot be determined. B ioVir Laboratories has analyzed your sample(s) in accordance with the method described with each analyte above, however, due to inherent limitations of these methods organisms may avoid detection. For additional information regarding the limitations of the method(s) referred to above please call us at 1-800-GIARDIA.
COMPANY IS NOT AN INSURER: BioVir Laboratories is not an insurer or guarantor of the quality and/or purity of water, wastewater, biosolid or other material from which the sample was taken. BioVir offers no express or implied warranties whatsoever concerning the quality or purity of any water, wastewater, biosolid or other material which is ultimately consumed, distributed, applied or disposed.
MAINTENANCE OF RECORDS: BioVir Laboratories, Inc. shall maintain records pertaining to the historical reconstruction of client's data for a minimum of five years from the date of issuance of the final report. Records m ay be destroyed after that date unless a written client's request for records transfer is received by BioVir which requests otherwise. Records transfer or storage charges may apply after the 5 year period. THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF BIOVIR LABORATORIES, INC.

11/11/2014

Date:

Richard E Daniel

Signature

Quality Checked LBarriga

Appendix G TRANSMISSION FACILITIES AND DISTRIBUTION SYSTEM LAYOUT

Soda Springs Utility Extension Project Area Statistics

	047-440-018	047-021-071
Parcel Size (Acres)	**24.34**	**65.32**
Zoning	**FR-40, REC**	**FR-40, REC**
General Plan	**FOR-40, REC**	**FOR-40, REC**
Setbacks	**30'**	**30'**
Allowable Impervious Surface (%)	**5.0%**	**5.0%**
Allowable Impervious Surface (sf)	**53,013**	**142,267**
Existing Coverage:		
Buildings (sf)	11,717	2,568
Pavement (sf)	63,839	812
DSPUD Treatment Facility (sf)	-	12,506
Total Existing Coverage (sf)	**75,556**	**15,886**
Total Existing Coverage (%)	**7.1%**	**0.6%**
Proposed Coverage:		
Buildings (sf)	11,717	2,668
Pavement (sf)	63,839	812
DSPUD Treatment Facility (sf)	-	12,506
Total Proposed Coverage (sf)	**75,556**	**15,986**
Total Proposed Coverage (%)	**7.1%**	**0.6%**

100 SF IMPERVIOUS COVERAGE PROPOSED WITH THIS PROJECT.

APPROVALS

DONNER SUMMIT PUBLIC UTILITY DISTRICT

THESE IMPROVEMENT PLANS HAVE BEEN REVIEWED AND APPROVED FOR CONNECTION TO THE TDPUD EFFLUENT DISCHARGE INFRASTRUCTURE.

APPROVED: DONNER SUMMIT PUBLIC UTILITY DISTRICT

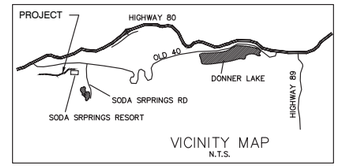
_____ _____
GENERAL MANAGER DATE

SNOWMAKING PROJECT
AT SODA SPRINGS RESORT

10244 AND 12060 SODA SPRINGS ROAD
NEVADA COUNTY APN 047-021-071 AND 047-440-018

NEVADA COUNTY GRADING PERMIT NO. _____

SHEET INDEX



GENERAL NOTES

1. COUNTY, DEPARTMENT or ENGINEER, as used on these plans and notes, refers to the Nevada County Engineer or an authorized agent appointed by the Nevada County Engineer.

2. All field staking shall be done by a registered civil engineer or licensed land surveyor.

3. The contractor is hereby notified that prior to commencing construction, they are responsible for contacting all utility companies for verification at the construction site of the locations of all underground facilities where such facilities may possibly conflict with the placement of the improvements shown on these plans. Call "Underground Service Alert" at 1-800-227-2600 two (2) days minimum to fourteen (14) days maximum before any excavation is started.

4. Contractor is responsible for the protection of all existing monuments and other survey markers. Monuments and survey markers destroyed during construction shall be replaced at the contractor's expense.

5. Contractor shall maintain adequate dust control per Nevada County specifications.

6. No construction shall be done without a County approved sediment/erosion control plan to prevent soil erosion. All erosion and sedimentation control measures shall be in accordance with the Regional Water Quality Control Board Best Management Practices.

7. Installation and maintenance of erosion control measures are the minimum required and the responsibility of the contractor. Winterization and erosion control shown on these plans is intended as a guide. Additional erosion control measures may be required as determined by the County. This responsibility shall apply throughout the course of construction and until all disturbed areas have become stabilized and shall not be limited to wet weather periods.

8. After stripping the debris, any existing loose fill, unsuitable soil, silty, sand deposits, or disturbed natural soils shall be excavated and properly disposed of.

9. The County or utility provider may require the contractor to uncover any improvements that have been completed without proper County or utility inspection and/or approval. If the installation is found not to meet agency standards or previously approved alternatives shown on the plans, the contractor may be required to remove and replace such improvements at contractor's expense.

10. Construction waste and industrial toxic waste (petroleum and other chemical products) shall be disposed of properly in compliance with existing regulations and facilities.

11. Hours of operation shall be limited to the hours of 7 a.m. to 7 p.m. Monday through Friday.

LAND USES (EXISTING AND PROPOSED)

EXISTING USES FOR APN 047-021-071 AND 047-440-018:

RECREATIONAL USE INCLUDING BUT NOT LIMITED TO: SKI/SNOWBOARD/SNOW PLAY RESORT, RESORT LODGE, ACCESSORY BUILDINGS, SPORT INSTRUCTION, LIFT ACCESS, UTILITY INFRASTRUCTURE, SNOWMAKING, FOREST MAINTENANCE.

DONNER SUMMIT PUD USE INCLUDING BUT NOT LIMITED TO: RECYCLED WATER STORAGE AND DISPOSAL VIA EXISTING IRRIGATION SYSTEM.

PROPOSED ADDITIONAL USES FOR APN 047-021-071 AND 047-440-018:

RECYCLED WATER DISPOSAL (DSPUD TREATED EFFLUENT) VIA SNOWMAKING SYSTEM (SODA SPRINGS RESORT)

EXISTING USES FOR SURROUNDING LANDS:

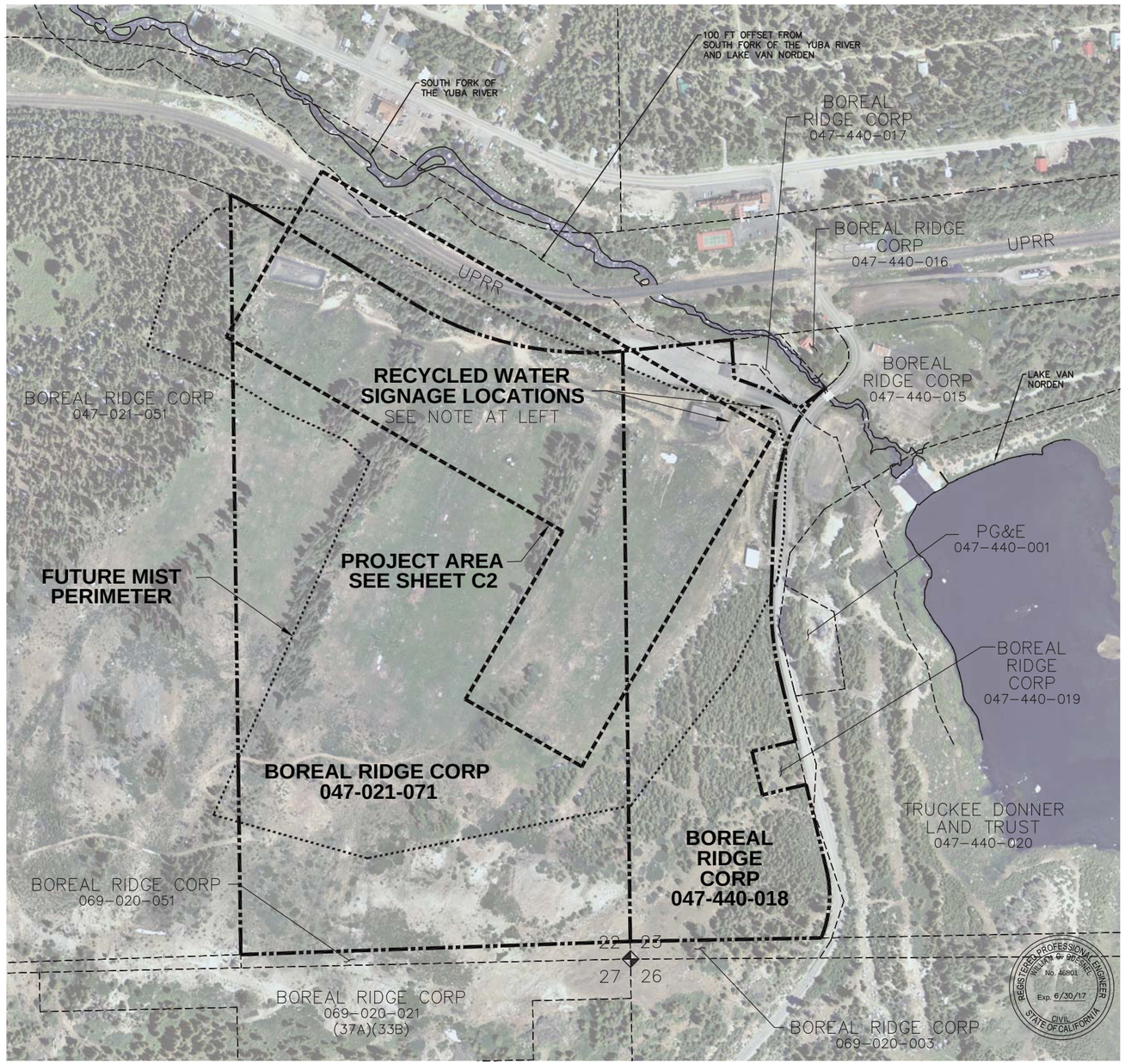
USES INCLUDE BUT NOT LIMITED TO: RAIL ROAD, RECREATION, OPEN SPACE PRESERVATION, RIGHT-OF-WAY, RESIDENTIAL, COMMERCIAL

RECYCLED WATER USE SIGNAGE

SIGNAGE INDICATING USE OF RECYCLED WATER SHALL BE PLACED AT THE ENTRANCE TO THE SODA SPRINGS RESORT DRIVEWAY AND AT THE ENTRANCE TO THE RESORT LODGE.

UTILITY PROVIDERS

SANITARY SEWER	–	DONNER SUMMIT PUD (530) 426-3456
WATER	–	DONNER SUMMIT PUD (530) 426-3456
PROPANE	–	AMERIGAS (530) 273-7968
TELEPHONE	–	AT&T (530) 583-2083
POWER	–	PACIFIC GAS AND ELECTRIC 800-743-5000



N

GRAPHIC SCALE
200 0 100 200 400 800

BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY ANDREGG GEOMATICS.

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

NOTE

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPE, CONDUIT, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS, AND OTHER STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER WILLIAM W. WEBER No. A6801 Exp. 6/30/17 CIVIL STATE OF CALIFORNIA

ACUMEN ENGINEERING COMPANY
ph 530.550.8068
fax 530.550.8069
Post Office Box 3497
Truckee, CA 96160

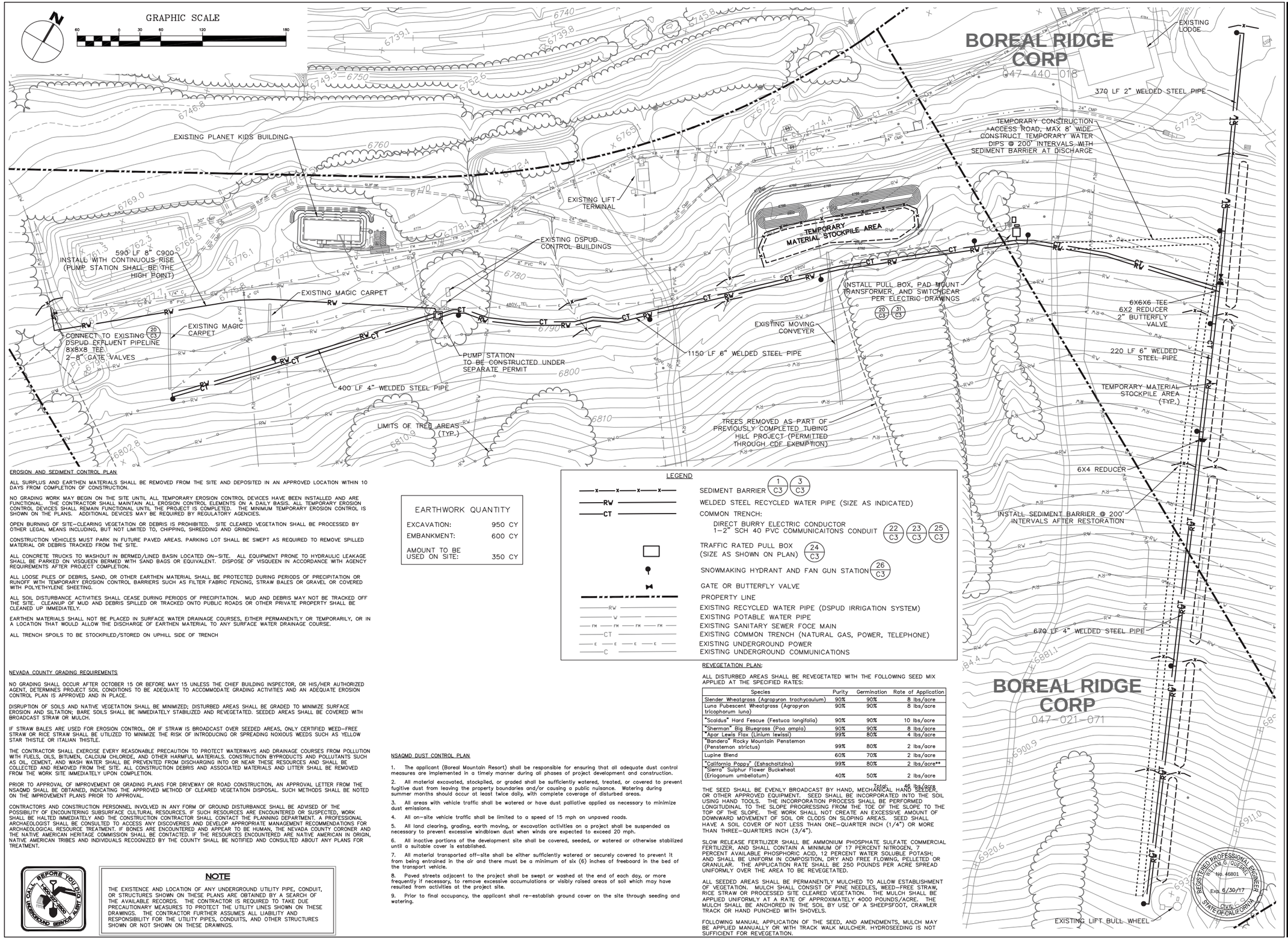
SNOWMAKING PROJECT
AT SODA SPRINGS RESORT
12060 SODA SPRINGS ROAD
APN 047-021-071 AND 047-440-018 NEVADA COUNTY

CLIENT NAME:
BOREAL MOUNTAIN RESORT
P.O. BOX 39
TRUCKEE, CA 96160
(530) 426-3666

FILE: Soda Springs Snowmaking.dwg
SCALE: AS NOTED
DATE: 16 JULY 2015
REVISIONS:

DESCRIPTION:
PROJECT AREA AND COVER SHEET

SHEET: C1
OF 5 SHEETS



EROSION AND SEDIMENT CONTROL PLAN

ALL SURPLUS AND EARTHEN MATERIALS SHALL BE REMOVED FROM THE SITE AND DEPOSITED IN AN APPROVED LOCATION WITHIN 10 DAYS FROM COMPLETION OF CONSTRUCTION.

NO GRADING WORK MAY BEGIN ON THE SITE UNTIL ALL TEMPORARY EROSION CONTROL DEVICES HAVE BEEN INSTALLED AND ARE FUNCTIONAL. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL ELEMENTS ON A DAILY BASIS. ALL TEMPORARY EROSION CONTROL DEVICES SHALL REMAIN FUNCTIONAL UNTIL THE PROJECT IS COMPLETED. THE MINIMUM TEMPORARY EROSION CONTROL IS SHOWN ON THE PLANS. ADDITIONAL DEVICES MAY BE REQUIRED BY REGULATORY AGENCIES.

OPEN BURNING OF SITE-CLEARING VEGETATION OR DEBRIS IS PROHIBITED. SITE CLEARED VEGETATION SHALL BE PROCESSED BY OTHER LEGAL MEANS INCLUDING, BUT NOT LIMITED TO, CHIPPING, SHREDDING AND GRINDING.

CONSTRUCTION VEHICLES MUST PARK IN FUTURE PAVED AREAS. PARKING LOT SHALL BE SWEPT AS REQUIRED TO REMOVE SPILLED MATERIAL OR DEBRIS TRACKED FROM THE SITE.

ALL CONCRETE TRUCKS TO WASHOUT IN BERMED/LINED BASIN LOCATED ON-SITE. ALL EQUIPMENT PRONE TO HYDRAULIC LEAKAGE SHALL BE PARKED ON VISQUEEN BERMED WITH SAND BAGS OR EQUIVALENT. DISPOSE OF VISQUEEN IN ACCORDANCE WITH AGENCY REQUIREMENTS AFTER PROJECT COMPLETION.

ALL LOOSE PILES OF DEBRIS, SAND, OR OTHER EARTHEN MATERIAL SHALL BE PROTECTED DURING PERIODS OF PRECIPITATION OR RUNOFF WITH TEMPORARY EROSION CONTROL BARRIERS SUCH AS FILTER FABRIC FENCING, STRAW BALES OR GRAVEL OR COVERED WITH POLYETHYLENE SHEETING.

ALL SOIL DISTURBANCE ACTIVITIES SHALL CEASE DURING PERIODS OF PRECIPITATION. MUD AND DEBRIS MAY NOT BE TRACKED OFF THE SITE. CLEANUP OF MUD AND DEBRIS SPILLED OR TRACKED ONTO PUBLIC ROADS OR OTHER PRIVATE PROPERTY SHALL BE CLEANED UP IMMEDIATELY.

EARTHEN MATERIALS SHALL NOT BE PLACED IN SURFACE WATER DRAINAGE COURSES, EITHER PERMANENTLY OR TEMPORARILY, OR IN A LOCATION THAT WOULD ALLOW THE DISCHARGE OF EARTHEN MATERIAL TO ANY SURFACE WATER DRAINAGE COURSE.

ALL TRENCH SPOILS TO BE STOCKPILED/STORED ON UPHILL SIDE OF TRENCH

NEVADA COUNTY GRADING REQUIREMENTS

NO GRADING SHALL OCCUR AFTER OCTOBER 15 OR BEFORE MAY 15 UNLESS THE CHIEF BUILDING INSPECTOR, OR HIS/HER AUTHORIZED AGENT, DETERMINES PROJECT SOIL CONDITIONS TO BE ADEQUATE TO ACCOMMODATE GRADING ACTIVITIES AND AN ADEQUATE EROSION CONTROL PLAN IS APPROVED AND IN PLACE.

DISRUPTION OF SOILS AND NATIVE VEGETATION SHALL BE MINIMIZED; DISTURBED AREAS SHALL BE GRADED TO MINIMIZE SURFACE EROSION AND SILTATION; BARE SOILS SHALL BE IMMEDIATELY STABILIZED AND REVEGETATED. SEEDED AREAS SHALL BE COVERED WITH BROADCAST STRAW OR MULCH.

IF STRAW BALES ARE USED FOR EROSION CONTROL, OR IF STRAW IS BROADCAST OVER SEEDED AREAS, ONLY CERTIFIED WEED-FREE STRAW OR RICE STRAW SHALL BE UTILIZED TO MINIMIZE THE RISK OF INTRODUCING OR SPREADING NOXIOUS WEEDS SUCH AS YELLOW STAR THISTLE OR ITALIAN THISTLE.

THE CONTRACTOR SHALL EXERCISE EVERY REASONABLE PRECAUTION TO PROTECT WATERWAYS AND DRAINAGE COURSES FROM POLLUTION WITH FUELS, OILS, BITUMEN, CALCIUM CHLORIDE, AND OTHER HARMFUL MATERIALS. CONSTRUCTION BYPRODUCTS AND POLLUTANTS SUCH AS OIL, CEMENT, AND WASH WATER SHALL BE PREVENTED FROM DISCHARGING INTO OR NEAR THESE RESOURCES AND SHALL BE COLLECTED AND REMOVED FROM THE SITE. ALL CONSTRUCTION DEBRIS AND ASSOCIATED MATERIALS AND LITTER SHALL BE REMOVED FROM THE WORK SITE IMMEDIATELY UPON COMPLETION.

PRIOR TO APPROVAL OF IMPROVEMENT OR GRADING PLANS FOR DRIVEWAY OR ROAD CONSTRUCTION, AN APPROVAL LETTER FROM THE NSAQMD SHALL BE OBTAINED, INDICATING THE APPROVED METHOD OF CLEARED VEGETATION DISPOSAL. SUCH METHODS SHALL BE NOTED ON THE IMPROVEMENT PLANS PRIOR TO APPROVAL.

CONTRACTORS AND CONSTRUCTION PERSONNEL INVOLVED IN ANY FORM OF GROUND DISTURBANCE SHALL BE ADVISED OF THE POSSIBILITY OF ENCOUNTERING SUBSURFACE CULTURAL RESOURCES. IF SUCH RESOURCES ARE ENCOUNTERED OR SUSPECTED, WORK SHALL BE HALTED IMMEDIATELY AND THE CONSTRUCTION CONTRACTOR SHALL CONTACT THE PLANNING DEPARTMENT. A PROFESSIONAL ARCHAEOLOGIST SHALL BE CONSULTED TO ACCESS ANY DISCOVERIES AND DEVELOP APPROPRIATE MANAGEMENT RECOMMENDATIONS FOR ARCHAEOLOGICAL RESOURCE TREATMENT. IF BONES ARE ENCOUNTERED AND APPEAR TO BE HUMAN, THE NEVADA COUNTY CORONER AND THE NATIVE AMERICAN HERITAGE COMMISSION SHALL BE CONTACTED. IF THE RESOURCES ENCOUNTERED ARE NATIVE AMERICAN IN ORIGIN, NATIVE AMERICAN TRIBES AND INDIVIDUALS RECOGNIZED BY THE COUNTY SHALL BE NOTIFIED AND CONSULTED ABOUT ANY PLANS FOR TREATMENT.

CALL BEFORE YOU DIG — UNDERGROUND SERVICE ALERT

NOTE

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EARTHWORK QUANTITY	
EXCAVATION:	950 CY
EMBANKMENT:	600 CY
AMOUNT TO BE USED ON SITE:	350 CY

LEGEND

- SEDIMENT BARRIER (1 C3) (3 C3)
- WELDED STEEL RECYCLED WATER PIPE (SIZE AS INDICATED)
- COMMON TRENCH:
  - DIRECT BURRY ELECTRIC CONDUCTOR
  - 1-2" SCH 40 PVC COMMUNICAITONS CONDUIT (22 C3) (23 C3) (25 C3)
- TRAFFIC RATED PULL BOX (SIZE AS SHOWN ON PLAN) (24 C3)
- SNOWMAKING HYDRANT AND FAN GUN STATION (26 C3)
- GATE OR BUTTERFLY VALVE
- PROPERTY LINE
- EXISTING RECYCLED WATER PIPE (DSPUD IRRIGATION SYSTEM)
- EXISTING POTABLE WATER PIPE
- EXISTING SANITARY SEWER FOCE MAIN
- EXISTING COMMON TRENCH (NATURAL GAS, POWER, TELEPHONE)
- EXISTING UNDERGROUND POWER
- EXISTING UNDERGROUND COMMUNICATIONS

NSAQMD DUST CONTROL PLAN

1. The applicant (Boreal Mountain Resort) shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manner during all phases of project development and construction.
2. All material excavated, stockpiled, or graded shall be sufficiently watered, treated, or covered to prevent fugitive dust from leaving the property boundaries and/or causing a public nuisance. Watering during summer months should occur at least twice daily, with complete coverage of disturbed areas.
3. All areas with vehicle traffic shall be watered or have dust palliative applied as necessary to minimize dust emissions.
4. All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.
5. All land clearing, grading, earth moving, or excavation activities on a project shall be suspended as necessary to prevent excessive windblown dust when winds are expected to exceed 20 mph.
6. All inactive portions of the development site shall be covered, seeded, or watered or otherwise stabilized until a suitable cover is established.
7. All material transported off-site shall be either sufficiently watered or securely covered to prevent it from being entrained in the air and there must be a minimum of six (6) inches of freeboard in the bed of the transport vehicle.
8. Paved streets adjacent to the project shall be swept or washed at the end of each day, or more frequently if necessary, to remove excessive accumulations or visibly raised areas of soil which may have resulted from activities at the project site.
9. Prior to final occupancy, the applicant shall re-establish ground cover on the site through seeding and watering.

REVEGETATION PLAN:

ALL DISTURBED AREAS SHALL BE REVEGETATED WITH THE FOLLOWING SEED MIX APPLIED AT THE SPECIFIED RATES:

Species	Purity	Germination	Rate of Application
Slender Wheatgrass (Agropyron trachycaulum)	90%	90%	8 lbs/acre
Luna Pubescent Wheatgrass (Agropyron tricophorum luna)	90%	90%	8 lbs/acre
"Scaldus" Hard Fescue (Festuca longifolia)	90%	90%	10 lbs/acre
"Sherman" Big Bluegrass (Poa ampla)	90%	90%	8 lbs/acre
"Apar Lewis Flax (Linium lewissi)	99%	80%	4 lbs/acre
"Bandera" Rocky Mountain Penstemon (Penstemon strictus)	99%	80%	2 lbs/acre
Lupine Blend	60%	70%	2 lbs/acre
"California Poppy" (Eshscholtzina)	99%	80%	2 lbs/acre**
"Sierra" Sulphur Flower Buckwheat (Eriogonum umbellatum)	40%	50%	2 lbs/acre
		Total:	46 lbs/acre

THE SEED SHALL BE EVENLY BROADCAST BY HAND, MECHANICAL HAND SEEDER, OR OTHER APPROVED EQUIPMENT. SEED SHALL BE INCORPORATED INTO THE SOIL USING HAND TOOLS. THE INCORPORATION PROCESS SHALL BE PERFORMED LONGITUDINAL TO THE SLOPE PROGRESSING FROM THE TOE OF THE SLOPE TO THE TOP OF THE SLOPE. THE WORK SHALL NOT CREATE AN EXCESSIVE AMOUNT OF DOWNWARD MOVEMENT OF SOIL OR CLODS ON SLOPING AREAS. SEED SHALL HAVE A SOIL COVER OF NOT LESS THAN ONE-QUARTER INCH (1/4") OR MORE THAN THREE-QUARTERS INCH (3/4").

SLOW RELEASE FERTILIZER SHALL BE AMMONIUM PHOSPHATE SULFATE COMMERCIAL FERTILIZER, AND SHALL CONTAIN A MINIMUM OF 17 PERCENT NITROGEN, 7 PERCENT AVAILABLE PHOSPHORIC ACID, 12 PERCENT WATER SOLUBLE POTASH; AND SHALL BE UNIFORM IN COMPOSITION, DRY AND FREE FLOWING, PELLETED OR GRANULAR. THE APPLICATION RATE SHALL BE 250 POUNDS PER ACRE SPREAD UNIFORMLY OVER THE AREA TO BE REVEGETATED.

ALL SEEDED AREAS SHALL BE PERMANENTLY MULCHED TO ALLOW ESTABLISHMENT OF VEGETATION. MULCH SHALL CONSIST OF PINE NEEDLES, WEED-FREE STRAW, RICE STRAW OR PROCESSED SITE CLEARED VEGETATION. THE MULCH SHALL BE APPLIED UNIFORMLY AT A RATE OF APPROXIMATELY 4000 POUNDS/ACRE. THE MULCH SHALL BE ANCHORED IN THE SOIL BY USE OF A SHEEPSFOOT, CRAWLER TRACK OR HAND PUNCHED WITH SHOVELS.

FOLLOWING MANUAL APPLICATION OF THE SEED, AND AMENDMENTS, MULCH MAY BE APPLIED MANUALLY OR WITH TRACK WALK MULCHER. HYDROSEEDING IS NOT SUFFICIENT FOR REVEGETATION.

REGISTERED PROFESSIONAL ENGINEER — WILLIAM G. QUARLES — No. 46801 — Exp. 6/30/17 — Civil — STATE OF CALIFORNIA

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Truckee, CA 96160

SNOWMAKING PROJECT

AT SODA SPRINGS RESORT

12060 SODA SPRINGS ROAD

APN 047-021-071 AND 047-440-018 NEVADA COUNTY

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P.O. BOX 39
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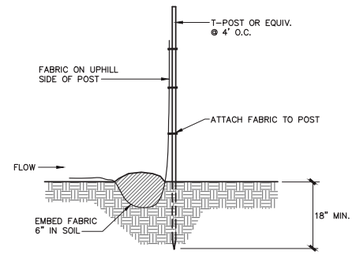
(530) 426-3666

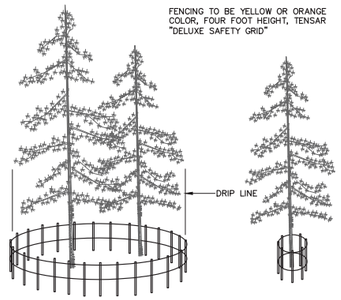
FILE: Soda Springs Snowmaking.dwg
SCALE: AS NOTED
DATE: 16 JULY 2015
REVISIONS:

DESCRIPTION:
SITE PLAN

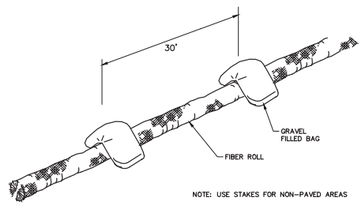
SHEET: C2
OF 5 SHEETS



1 SEDIMENT BARRIER
N.T.S.

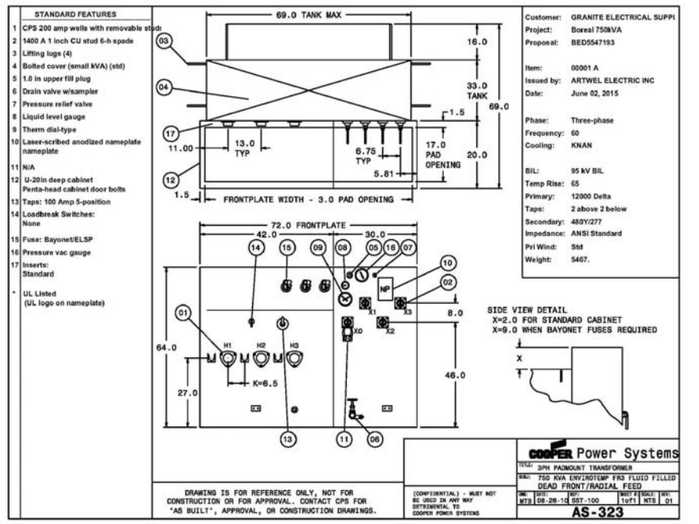


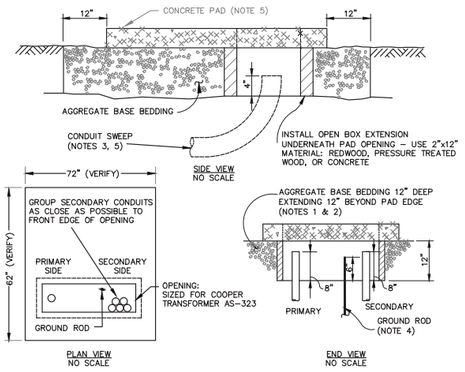
2 VEGETATION PROTECTION FENCING
N.T.S.



NOTE: USE STAKES FOR NON-PAVED AREAS

3 FIBER ROLL
N.T.S.

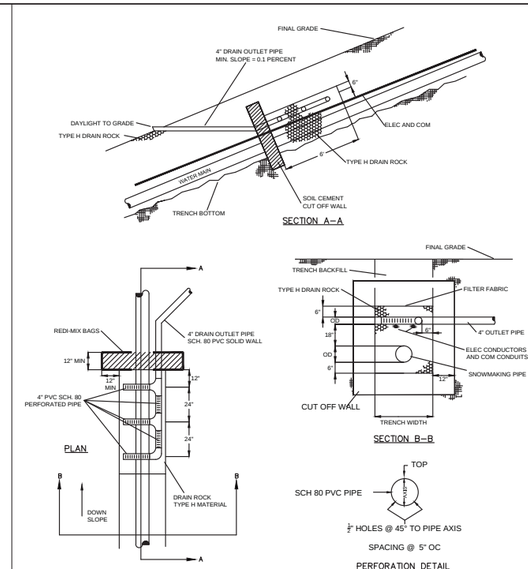




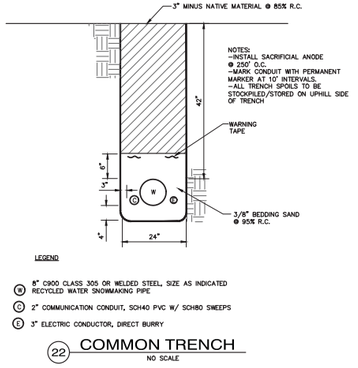
INSTALLATION NOTES:

1. PAD SHALL BE INSTALLED ON A MINIMUM 12" AGGREGATE BASE AFTER TRENCH COMPACTION IS COMPLETE. EXTEND AGGREGATE BASE 1 FOOT AROUND OUTSIDE DIMENSION OF PAD.
2. AGGREGATE BASE BEDDING AND BACKFILL PLACED IN 12" LIFTS. COMPACT TO A MINIMUM OF 90% RELATIVE DENSITY. COMPACTION TESTING AND DOCUMENTATION OF RESULTS TO BE PERFORMED AS REQUESTED BY THE DISTRICT.
3. MINIMUM REQUIRED SWEEP RADIUS:
   48 INCHES – PRIMARY CONDUIT
   36 INCHES – SECONDARY CONDUIT
4. INSTALL 5/8" x 8 FT. GROUND ROD IN LOCATION SHOWN, AT LEAST 7 FT. IN CONTACT WITH EARTH. DISTRICT WILL SUPPLY ONE GROUND ROD FOR EACH TRANSFORMER LOCATION FOR INSTALLATION BY THE CUSTOMER.
5. INSTALL THE ENDS OF ALL CONDUIT STUBS VERTICALLY INTO THE PAD (I.E. PLUMB AND LEVEL).
6. TRANSFORMER PAD SHALL BE MANUFACTURED BY JENSEN PRECAST (OR EQUAL) CUSTOM FOR COOPER TRANSFORMER SHOWN IN DETAIL AS-323.

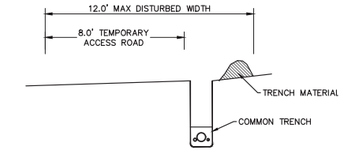
20 TRANSFORMER PAD
NO SCALE



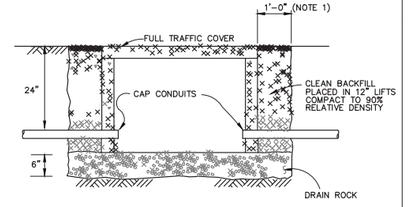
21 TRENCH CUT OFF WALL
NO SCALE



22 COMMON TRENCH
NO SCALE



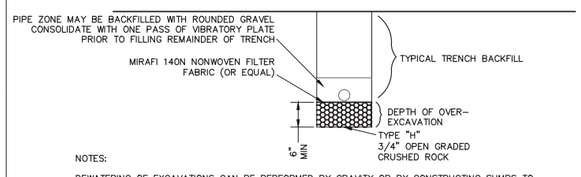
23 CONSTRUCTION DISTURBANCE LIMITS
NO SCALE



INSTALLATION NOTES:

1. EXCAVATION TO BE A MINIMUM OF 1 FOOT BEYOND THE OUTSIDE DIMENSION OF THE VAULT. VAULT SHALL BE INSTALLED ON A MINIMUM 6" DRAIN ROCK BEDDING.
2. INSTALL CLEAN BACKFILL (SCREEN AS REQUIRED) AND COMPACT IN 12" LIFTS. NO ROCKS OVER 2" IN SIZE ARE PERMITTED IN CLEAN BACKFILL. COMPACT TO A MINIMUM OF 90% RELATIVE DENSITY. COMPACTION TESTING AND DOCUMENTATION OF RESULTS TO BE PERFORMED AS REQUESTED BY OWNER.
3. INSTALL A 2" x 2" STAKE AT EACH BOX TO MARK LOCATION.

24 UTILITY PULL BOX
NO SCALE



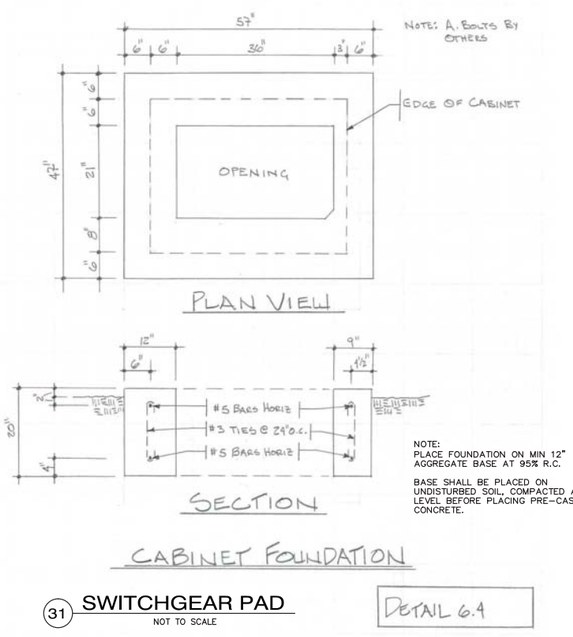
NOTES:

DEWATERING OF EXCAVATIONS CAN BE PERFORMED BY GRAVITY OR BY CONSTRUCTING SUMPS TO DEPTHS BELOW THE EXCAVATION AND REMOVING WATER WITH PUMPS. TO MAINTAIN STABILITY OF THE EXCAVATION WHEN PLACING AND COMPACTING THE TRENCH BACKFILL, GROUND WATER LEVELS SHOULD BE DRAWN DOWN A MINIMUM OF 2 FEET BELOW THE LOWEST POINT OF THE EXCAVATION.

IF SEEPAGE IS ENCOUNTERED DURING TRENCH EXCAVATION, IT MAY BE NECESSARY TO REMOVE UNDERLYING SATURATED SOIL AND REPLACE WITH WITH FREE DRAINING, OPEN-GRADED CRUSHED ROCK. TYPICAL BACKFILL MATERIAL MAY BE PLACED AFTER BACKFILLING WITH DRAIN ROCK TO AN ELEVATION HIGHER THAN ENCOUNTERED GROUNDWATER.

25 WET TRENCH BACKFILL
NO SCALE

FNW ENGINEERS
21459 Delta Dr.
Reno, NV 89521
(775) 323-4200
fnwengineers.com
PROJECT Soda Springs / Acumen PAGE 6R OF
LOCATION
JURISDICTION STATE BY RTF
JOB # 14025 DATE 6/18/15 REV

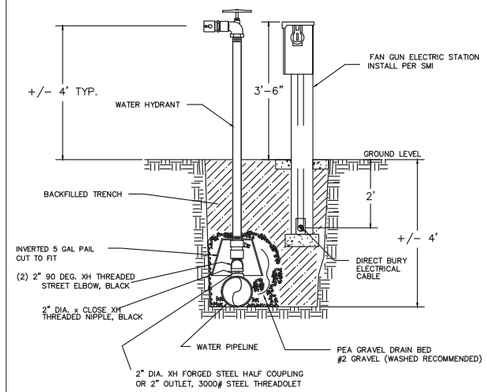


NOTE:
PLACE FOUNDATION ON MIN 12" AGGREGATE BASE AT 95% R.C.

BASE SHALL BE PLACED ON UNDISTURBED SOIL, COMPACTED AND LEVEL BEFORE PLACING PRE-CAST CONCRETE.

31 SWITCHGEAR PAD
NOT TO SCALE

DETAIL 6.4



26 TYPICAL HYDRANT AND AND FAN GUN STATION
NO SCALE

REGISTERED PROFESSIONAL ENGINEER
WILLIAM C. GUESSEL
No. 46801
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

ACUMEN ENGINEERING COMPANY
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Truckee, CA 96160

SNOWMAKING PROJECT
AT SODA SPRINGS RESORT
12060 SODA SPRINGS ROAD
APN 047-021-071 AND 047-440-018 NEVADA COUNTY

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(530) 426-3666

FILE: Soda Springs Snowmaking.dwg
SCALE: AS NOTED
DATE: 16 JULY 2015
REVISIONS:

DESCRIPTION:
DETAILS

SHEET:
C3
OF 5 SHEETS

GRAPHIC SCALE

60 0 30 60 120 180

1 PIPING PLAN
SCALE: 1" = 60'-0"

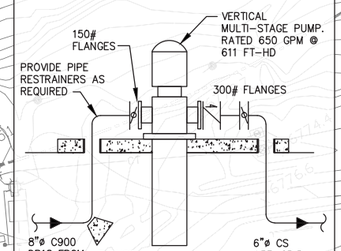
INSTALL (N) 8" C900 DR18 PURPLE RECYCLED WATER PIPE. SEE ADDITIONAL INFORMATION ON SITE PLAN C2. PIPE SHALL BE MARKED ALONG ITS FULL LENGTH WITH "RECLAIMED WATER, DO NOT DRINK". INSTALL DETECTABLE UNDERGROUND WARNING TAPE, PURPLE W/BLACK LETTERS "RECYLCED WATER MAIN BELOW", CONTINUOUS LENGTH AT 1 FOOT ABOVE THE PIPE. PIPE SHALL SLOPE MIN. 1% TOWARDS DRAIN POINT. INSTALL THRUST BLOCKS AT ELBOWS PER PIPE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

POINT OF CONNECTION TO EXISTING 8" BRANCH VALVE ON DSPUD FORCE MAIN. EXISTING CONNECTION INCLUDES AN ISOLATION VALVE AND A DRAIN VALVE.

2 FOR NEW PUMP STATION BUILDING SEE SEPARATE PERMIT.

NEW HYDRANT, TYP. (13). IN ADDITION TO UNDERGROUND LABELING, ABOVE GROUND PIPING TO HAVE CLEARLY VISIBLE LABEL, PURPLE W/BLACK OR PURPLE W/WHITE LETTERS "RECYCLED WATER, DO NOT DRINK."

LABEL ALL PIPING WITH ADHESIVE PIPE MARKERS, PURPLE W/BLACK OR PURPLE W/WHITE LETTERS "RECYCLED WATER, DO NOT DRINK."



2 PUMP PIPING DETAIL
SCALE: NONE

PER 2013 CPC SECTION 1619.4.0(B) POST A SIGN INSIDE THE PUMP BUILDING, VISIBLE TO ANYONE WORKING ON THE EQUIPMENT, WITH THE FOLLOWING WORDING IN 1" LETTERS ON A PURPLE BACKGROUND:

CAUTION.
RECYCLED WATER,
DO NOT DRINK.
DO NOT CONNECT TO
DRINKING WATER SYSTEM.

NOTICE.
CONTACT BUILDING MANAGEMENT
BEFORE PERFORMING ANY WORK
ON THIS WATER SYSTEM.

INSTALL NEW CARBON STEEL (CS) SNOWMAKING PIPING IN COMMON TRENCH (CT) PER SITE PLAN SHEET C2. PIPING SHALL HAVE APPROPRIATE CORROSION PROTECTION COATING AND THEN BE MARKED USING ADHESIVE MYLAR PVC TAPE ALONG THE ENTIRE LENGTH OF THE PIPE. LABEL SHALL BE PURPLE WITH BLACK LETTERS "CAUTION: RECYCLED WATER, DO NOT DRINK". INSTALL (11) CORROSION PROTECTION ANODES.

2" 300# RF LUG BUTTERFLY VALVE. PROVIDE WITH ACCESS VAULT AND COVER.

BOREAL RIDGE CORP
047-440-018

BOREAL RIDGE CORP
047-021-071

PIPING SYSTEMS SPECIFICATIONS

1 GENERAL
1.1 DESCRIPTION
Provide a complete working installation with all equipment called for in proper operating condition. Documents do not undertake to show or list every item to be provided. When an item not shown or listed is clearly necessary for proper operation of equipment, which is shown or listed, provide an item which will allow the system to function properly at no increase in the Contract Amount.
1.2 QUALITY ASSURANCE
A Supply all equipment and all accessories new, free from defects.
B All items of a given type shall be the product of the same manufacturer.
C Welding materials and labor to conform to ASME code and applicable state Labor Regulations.
D Use fully qualified welders licensed by state authorities.
1.3 APPLICABLE PUBLICATIONS: THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED. THE PUBLICATIONS ARE REFERRED TO IN THE TEXT BY THE BASIC DESIGNATION ONLY.
A Reference Standards: (Refer to individual Mechanical SECTIONS for additional reference standards.)
ANSI/ASME - B31.1 Power Piping
ANSI B2.1 - Pipe Threads
ASTM D1557 - Test Methods for Moisture Density Relationships of Soil and Soil Aggregate Mixtures.
AWWA C209-83 - Cold applied tape coatings for exterior of connections and fittings for steel water pipe lines.
AWWA C214-83 - Tape Coating Systems for exterior of steel water pipe lines.
B American National Standards Institute (ANSI) Publications:
B16.5 Steel Pipe Flanges, Flanged Valves, and Fittings.
B16.9 Factory Made Wrought Steel Butt Welding Fittings
B16.11 Forged Steel Fittings, Socket Welding and Threaded
B16.21 Nonmetallic Gaskets for Pipe Flanges
B16.39 Malleable Iron Screwed Fittings
B18.2.1 Square and Hex bolts and Screws, including Hex Cap Screws and Lag Screws
B18.2.2 Square and Hex Nuts
B31.1 Power Piping
B31.9 Building Service Piping
C American Society for Testing and Materials (ASTM) Publications:
A 47 Malleable Iron Castings
A 53 Pipe, Steel, Black and Seamless Steel Pipe
A 183 Carbon Steel Track Bolts and Nuts
A 307 Carbon Steel External and Internally Threaded Standard Fasteners
A 123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
D2774 Standard Practice for Underground Installation of Thermoplastic Pressure Piping
D American Society of Mechanical Engineers (ASME) Publications:
ASME Boiler and Pressure Vessel Code and Interpretations
Section VIII - Pressure Vessels - Division 1

2 PRODUCTS
2.1 PIPE SERVICES
A Recycled Water System, design pressures up to 235 psi:
1 PVC gasketed pressure piping AWWA C900 DR18, JM Eagle Blue Brute, or equal, purple color, and with continuous markings "Reclaimed Water – Do Not Drink".
2 Fittings: AWWA C907, gasketed pressure fitting, JM Eagle Blue Brute, or equal.
3 Flanges: Vanstone 150# for C900 bell or pipe adaptor.
B Recycled Water System, design pressures up to 1,000 psi:
1 Above Ground Pipe: Steel schedule 40, 2-1/2" and larger welded, 2" and smaller screwed, ASTM A53 Grade B.
2 Below Ground Pipe: Steel schedule 40, welded, ASTM A53 Grade B, corrosion resistance coated.
3 Screwed Fittings: malleable iron, Class 300, ANSI B16.3 or forged steel Class 2000, ANSI B16.11
4 Welded Fittings: Schedule 40, ASTM A53, ANSI B16.9
5 Flanges: Steel flanges and flanged fittings, ANSI B16.5, 300#.

3 EXECUTION
3.1 INSTALLATION
A Installation of Piping:
1 The term "piping" as used in Drawings or these Specifications, means all pipe, fittings, nipples, valves, unions, etc., as may be required for a complete, functional system.
2 Piping on plans is diagrammatically indicated. Install generally as shown. Do not scale drawings for exact location of piping. Coordinate with project foreman for final locations.
3 Run all pipes in the approximate locations shown. Sizes are given on the Drawings. The finished work shall present a neat and workmanlike appearance. Unless otherwise noted, minimum pipe size is 1/2" for all piping systems.
4 Install pipe lines free from traps, air pockets, sags and bends. Arrange water piping for draining at low points and provide vent valve at high points. Drain valves shall be accessible.
5 Piping connections to equipment shall be arranged so that removal of equipment or components of equipment including pump casing, shaft seals and similar work can be accomplished with the least amount of disassembly or removal of the piping system.
6 Wherever changes in size of pipes occur, the changes shall be made with reducing fittings, as the use of bushings will not be permitted.
7 Pipe penetrations of exterior foundation walls or slabs on grade are to be sealed using Thunderline Link Seal, Calpico, or equal.
B Excavation: Trench excavation shall be true to line and grade. Remove all rock protruding at sides and bottom of trenches. Minimum width shall be pipe OD plus 12", but not less than 16 inches. The trench shall have a base layer of sand not less than 6" below bottom of the pipe. Pipe crown shall not be less than 24 inches below ground surface for metallic pipe and 30 inches for non-metallic pipe, unless otherwise indicated on the drawings or otherwise directed by the Engineer.
C Bedding material, from the bottom of the trench to level 6 inches above the pipe crown, shall be unwashed sand, dampened but not puddled, and subsequently compacted earth, free of rocks or organic matter, and dampened and tamped in 6 inch layers by air-hammers to 90 percent compaction in accordance with ASTM D1557-78T. In graded and undeveloped areas, in addition to backfill specified above, backfill trenches with crown 8 inches above the surrounding surface.
D Buried Warning and Identification Tape: Bury tape 12 inches below finished grade; under pavements and exterior slabs, bury tape 6 inches below top of subgrade.
E Underground Plastic Pipe shall be installed per the manufacturer's installation instructions.
F Underground Uninsulated Steel Pipe Protection: All piping shall have a corrosion protection coating, as directed by Owner. Prior to placing pipe in trench, the contractor shall conduct a thorough visual inspection of the piping for complete coverage of coating system. Defects or damages in the coating shall be repaired. Straight pipe field joints, fittings, flanges and other field joints shall have a manually applied repair coating. After any coating repair or patch, the piping shall be tested with an electrical holiday detector. A cathodic protection system shall be included and maintained as an integral part of the corrosion protection system.
G Cathodic Protection System: Provide sacrificial anodes for pipe protection. Install per manufacturer's instructions. Use minimum 12 AWG insulated copper conductor wire attached to pipe with ground lug style bolts welded to pipe. Owner shall be responsible for maintenance and annual testing of cathodic protection system. Testing method shall be with copper sulfate half cell and volt meter, per manufacturer's instructions.
H Threaded Joints: Pipe threads shall be tapered threads in accordance with ANSI/ASME B31.9 and ANSI B2.1 for IPS threaded work. No screwed pipe joints shall be caulked or screwed up with rope or packing of any kind. Teflon pipe tape may be used where appropriate.
I Welded Joints:
1 Welding shall comply with the provisions of the latest revision of ANSI B31.1 Power Piping.
2 Unless otherwise indicated, welding shall be permitted or 1-1/2 inch and larger black steel pipe lines. Use long radius forged steel welding elbows. Tees may be cut in where the branch pipe does not exceed one size less than half the size of the main. If a larger branch is used, then only weldolets or threadolets may be installed.
3.2 FIELD QUALITY CONTROL
A Welding:
1 Welding Procedure Specifications: Before any welding is performed, the Contractor shall submit copies to the Owner of his welding procedure specification for all metals included in the work, together with proof of its qualification as outlined in ANSI B31.1.
2 Performance Qualification Record: Before any welder or operator shall perform any welding, the Contractor shall submit to the Owner a copy of the Welder's Performance Qualification Record in conformance with ANSI B31.1 showing that the welder was tested under the approved procedure specification submitted by the Contractor. In addition the Contractor shall also submit each welder's assigned number, letter, or symbol which shall be used to identify the work of the welder which shall be affixed immediately upon completion of the weld. Welders making defective welds after passing a qualification test shall be given a requalification test and upon failing to pass the test shall not be permitted to work this contract.
3 Surface Conditions: Surfaces to be welded shall be free from frost, moisture, loose scale, slag, rust, paint, oil, and other foreign material. Joint surfaces shall be smooth, uniform, and free from fins, tears, and other defects which might affect proper welding. Slag shall be removed from flame cut edges to be welded by grinding, but temper color need not be removed. Each layer of weld metal shall be cleaned thoroughly by wire brushing prior to inspection and deposition of additional weld metal.
4 Base Metal Preparation: Follow ANSI B31.1 for base metal preparation and alignment.
5 Quality of Welds: The quality of welds shall be in accordance with ANSI B31.1. The surface of the finished welds shall have a bright metallic luster after cleaning, shall be fairly smooth with regular, even ripples, and shall be uniform in contour. Except as necessary to correct defects, the surfaces shall not be dressed, smoothed, or finished for improving their appearance unless required specifically by the project specification. Welds shall be sound throughout and fused thoroughly, and shall be free from gas pockets, oxides, slag inclusions, and surface porosity, except that very small pores or specs of oxides or slag will be allowed if dispersed widely and if not larger or more numerous than those produced in passing qualification tests. Welds shall be free from overlaps, undercuts and excessive convexity. The inside of the pipe shall be free from globules of weld metal which would restrict the pipe area or might become loose. Inspections are the responsibility of the Owner and conducted by the Owner's designated inspector. Piping systems with design operating pressures less than 1,000 psig and temperatures less 350°F require only visual examinations.
6 Correction of Defects: Defective or unsound welds shall be corrected by removing and replacing the welds with new welds at the Contractor's expense. Pipe or fittings which cannot be rewelded satisfactorily shall be replaced with new pipe or fittings at the Contractor's expense.
3.3 TESTING AND STARTUP
A Initial flush and fill shall be with clean, fresh water. All air shall be vented from piping system prior to pressure and leak tests.
B General Tests:
1 Plastic Pressure Piping Systems:
a Test hydrostatically at 125% of design system pressure. Test pressure shall be 125 psig for this project.
b Pressure and leak testing shall be per the piping manufacturer's instructions.
2 Steel piping systems:
a Test hydrostatically to 1-1/2 times operating pressure. For this project the test pressure shall be 540 psig at the pump discharge piping. The pressure shall be maintained for a minimum of 10 minutes. The pressure may then be reduced to design pressure (360 psig) to conduct the leakage tests.
b Test for leaks by hydrostatically pressurizing to design pressure (360 psig) and disconnecting or isolating the pump. There shall be no change in pressure for 1 hour. Compensate for temperature change, as necessary. Conduct a visual inspection for leaks.
3 Repair or replace any leaks as directed, without additional cost.
4 Furnish written report and certification that tests have been satisfactorily completed.
END OF SECTION

REGISTERED PROFESSIONAL ENGINEER
JEFFREY C. BENDER
No. M33225
Exp. 9/30/2015
MECHANICAL
STATE OF CALIFORNIA

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BENDER
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10037 East River Street
Truckee, CA 96161
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www.becx.net

SNOWMAKING PROJECT

AT SODA SPRINGS RESORT

12060 SODA SPRINGS ROAD

APN 047-021-071 AND 047-440-018 NEVADA COUNTY

CLIENT NAME:
BOREAL MOUNTAIN RESORT
P.O. BOX 39
TRUCKEE, CA 96160
(530) 426-3666

FILE: -
SCALE: AS NOTED
DATE: 16 JULY 2015
REVISIONS:

DESCRIPTION:
PIPING PLAN

SHEET: P1
OF 5 SHEETS

Appendix H SNOWMAKING USE AREA DETAILS

Soda Springs Utility Extension Project Area Statistics

	047-440-018	047-021-071
Parcel Size (Acres)	**24.34**	**65.32**
Zoning	**FR-40, REC**	**FR-40, REC**
General Plan	**FOR-40, REC**	**FOR-40, REC**
Setbacks	**30'**	**30'**
Allowable Impervious Surface (%)	**5.0%**	**5.0%**
Allowable Impervious Surface (sf)	**53,013**	**142,267**
Existing Coverage:		
Buildings (sf)	11,717	2,568
Pavement (sf)	63,839	812
DSPUD Treatment Facility (sf)	-	12,506
Total Existing Coverage (sf)	**75,556**	**15,886**
Total Existing Coverage (%)	**7.1%**	**0.6%**
Proposed Coverage:		
Buildings (sf)	11,717	2,668
Pavement (sf)	63,839	812
DSPUD Treatment Facility (sf)	-	12,506
Total Proposed Coverage (sf)	**75,556**	**15,986**
Total Proposed Coverage (%)	**7.1%**	**0.6%**

100 SF IMPERVIOUS COVERAGE PROPOSED WITH THIS PROJECT.

APPROVALS

DONNER SUMMIT PUBLIC UTILITY DISTRICT

THESE IMPROVEMENT PLANS HAVE BEEN REVIEWED AND APPROVED FOR CONNECTION TO THE TDPUD EFFLUENT DISCHARGE INFRASTRUCTURE.

APPROVED: DONNER SUMMIT PUBLIC UTILITY DISTRICT

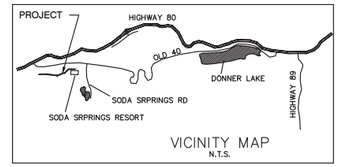
_____ _____
GENERAL MANAGER DATE

SNOWMAKING PROJECT
AT SODA SPRINGS RESORT

10244 AND 12060 SODA SPRINGS ROAD
NEVADA COUNTY APN 047-021-071 AND 047-440-018

NEVADA COUNTY GRADING PERMIT NO. _____

SHEET INDEX



GENERAL NOTES

1. COUNTY, DEPARTMENT or ENGINEER, as used on these plans and notes, refers to the Nevada County Engineer or an authorized agent appointed by the Nevada County Engineer.

2. All field staking shall be done by a registered civil engineer or licensed land surveyor.

3. The contractor is hereby notified that prior to commencing construction, they are responsible for contacting all utility companies for verification at the construction site of the locations of all underground facilities where such facilities may possibly conflict with the placement of the improvements shown on these plans. Call "Underground Service Alert" at 1-800-227-2600 two (2) days minimum to fourteen (14) days maximum before any excavation is started.

4. Contractor is responsible for the protection of all existing monuments and other survey markers. Monuments and survey markers destroyed during construction shall be replaced at the contractor's expense.

5. Contractor shall maintain adequate dust control per Nevada County specifications.

6. No construction shall be done without a County approved sediment/erosion control plan to prevent soil erosion. All erosion and sedimentation control measures shall be in accordance with the Regional Water Quality Control Board Best Management Practices.

7. Installation and maintenance of erosion control measures are the minimum required and the responsibility of the contractor. Winterization and erosion control shown on these plans is intended as a guide. Additional erosion control measures may be required as determined by the County. This responsibility shall apply throughout the course of construction and until all disturbed areas have become stabilized and shall not be limited to wet weather periods.

8. After stripping the debris, any existing loose fill, unsuitable soil, silty, sand deposits, or disturbed natural soils shall be excavated and properly disposed of.

9. The County or utility provider may require the contractor to uncover any improvements that have been completed without proper County or utility inspection and/or approval. If the installation is found not to meet agency standards or previously approved alternatives shown on the plans, the contractor may be required to remove and replace such improvements at contractor's expense.

10. Construction waste and industrial toxic waste (petroleum and other chemical products) shall be disposed of properly in compliance with existing regulations and facilities.

11. Hours of operation shall be limited to the hours of 7 a.m. to 7 p.m. Monday through Friday.

LAND USES (EXISTING AND PROPOSED)

EXISTING USES FOR APN 047-021-071 AND 047-440-018:

RECREATIONAL USE INCLUDING BUT NOT LIMITED TO: SKI/SNOWBOARD/SNOW PLAY RESORT, RESORT LODGE, ACCESSORY BUILDINGS, SPORT INSTRUCTION, LIFT ACCESS, UTILITY INFRASTRUCTURE, SNOWMAKING, FOREST MAINTENANCE.

DONNER SUMMIT PUD USE INCLUDING BUT NOT LIMITED TO: RECYCLED WATER STORAGE AND DISPOSAL VIA EXISTING IRRIGATION SYSTEM.

PROPOSED ADDITIONAL USES FOR APN 047-021-071 AND 047-440-018:

RECYCLED WATER DISPOSAL (DSPUD TREATED EFFLUENT) VIA SNOWMAKING SYSTEM (SODA SPRINGS RESORT)

EXISTING USES FOR SURROUNDING LANDS:

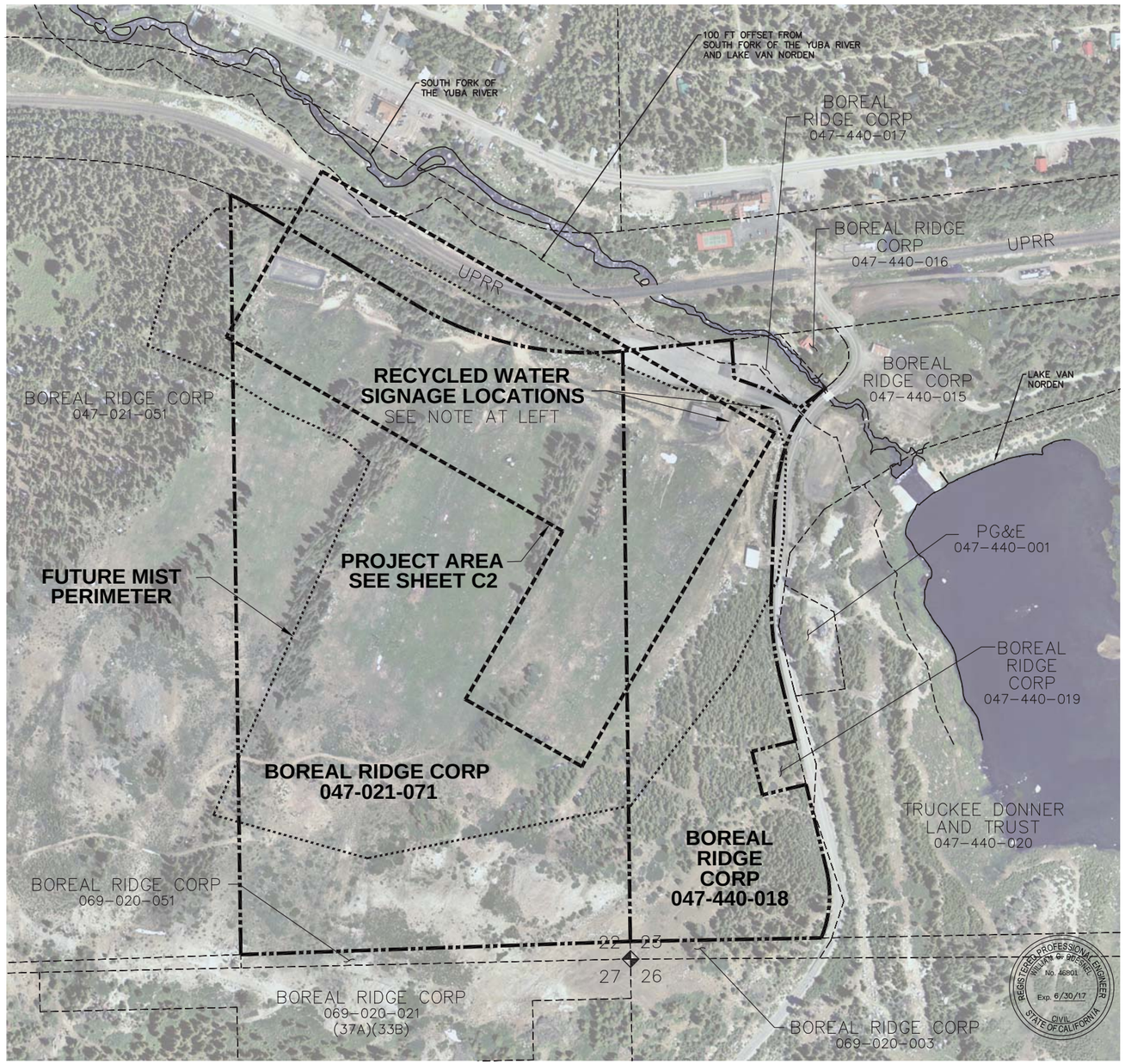
USES INCLUDE BUT NOT LIMITED TO: RAIL ROAD, RECREATION, OPEN SPACE PRESERVATION, RIGHT-OF-WAY, RESIDENTIAL, COMMERCIAL

RECYCLED WATER USE SIGNAGE

SIGNAGE INDICATING USE OF RECYCLED WATER SHALL BE PLACED AT THE ENTRANCE TO THE SODA SPRINGS RESORT DRIVEWAY AND AT THE ENTRANCE TO THE RESORT LODGE.

UTILITY PROVIDERS

SANITARY SEWER	–	DONNER SUMMIT PUD (530) 426-3456
WATER	–	DONNER SUMMIT PUD (530) 426-3456
PROPANE	–	AMERIGAS (530) 273-7968
TELEPHONE	–	AT&T (530) 583-2083
POWER	–	PACIFIC GAS AND ELECTRIC 800-743-5000



N

GRAPHIC SCALE
200 0 100 200 400 800

BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY ANDREGG GEOMATICS.

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

NOTE

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPE, CONDUIT, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS, AND OTHER STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER WILLIAM W. WEBER No. A6801 Exp. 6/30/17 CIVIL STATE OF CALIFORNIA

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SNOWMAKING PROJECT
AT SODA SPRINGS RESORT
12060 SODA SPRINGS ROAD
APN 047-021-071 AND 047-440-018 NEVADA COUNTY

CLIENT NAME:
BOREAL MOUNTAIN RESORT
P.O. BOX 39
TRUCKEE, CA 96160
(530) 426-3666

FILE: Soda Springs Snowmaking.dwg
SCALE: AS NOTED
DATE: 16 JULY 2015
REVISIONS:

DESCRIPTION:
PROJECT AREA AND COVER SHEET

SHEET: C1
OF 5 SHEETS

Appendix I EMPLOYEE TRAINING GUIDANCE DOCUMENTS

Soda Springs Recycled Water Training and Education

What is recycled water?
"Recycled water" is water that is treated and suitable for a direct beneficial use, in this case, making artificial snow for our ski resort.

Where does recycled water come from?
The recycled water that Soda Springs uses for snowmaking comes from the DSPUD. In October of 2014, the Donner Summit Public Utility District (DSPUD) completed a project converting their recycled water treatment process to use of membranes and UV disinfection from a granular medium filtration and chlorination/de-chlorination process. The result is a highly treated and safe recycled water outcome, producing essentially pathogen free recycled water. This water source is of higher quality than other available water sources for snowmaking.

What is the classification of the recycled water used at Soda Springs?
The classification of the recycled water from DSPUD is the highest level of treatment, "disinfected tertiary."

Is it safe to use?
The State Water Board finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to raw and potable water supplies.

Is the use of recycled water approved for snowmaking?
In the California Code of Regulations, Title 22 expressly allows for the use of disinfected tertiary recycled water for snowmaking for commercial outdoor use. Soda Springs is proud to be the first ski resort in California to use recycled water for snowmaking.

Recycled Water Handling and Use

1. Any water used for snowmaking, whether from the municipal hydrant, snowmaking storage ponds, or from effluent sources should not be ingested. Both natural snow and snow made with recycled water should not be ingested.

2. Snowmaking will only commence in areas in which the public is clear of snowmaking-in-progress.

3. Recycled, potable and natural water users shall take adequate measures to prevent overspray, ponding, or run off of recycled water from the authorized recycled water use area.

4. No connection shall be made between the recycled water connection and any part of a potable water system.

5. Staff and public will be notified of the use of recycled water by Installing and maintaining signs at all points of entry (pedestrian and vehicular).

6. All above ground equipment that utilizes recycled water including; pumps, piping, snowmaking hose and snowmaking guns will be properly tagged and identified as required by title 22. These identifications are not to be removed.

7. At Soda Springs, all drinking fountains are inside the base lodges. Recycled water should not contact any drinking fountains or eating areas.

8. Staff should comply and assist in any inspections/audits by the Regional Water Board.

I certify that I have read, understand, and agree to abide by the above guidelines.

Signature _____ Date _____
Print Name _____
Company _____
California Driver License Number: _____

Soda Springs Snowmaking Operations

Overview

Soda Springs Mountain Resort (SSMR) is a ski area in Soda Springs, CA. SSMR intends to use disinfected tertiary recycled water from Donner Summit Public Utility District for the purpose of making artificial snow at the resort to secure the operating season and long term business viability. In using recycled water from DSPUD, SSMR will no longer have a need to use potable water for snowmaking, reducing further impact on the local and state water scarcity.

Snowmaking operation

SSMR is scheduled for snowmaking operations from November 1st through mid-April as temperatures allow. SSMR's snowmaking plan enables a timely resort opening and consistent operating season that supports winter sports users and the resort employees who can rely on consistent hours. Snow made from recycled water is a quality product for skiing, tubing and snowplay made using skilled work and efficient technology.

Snowmaking will take place in the area indicated on the accompanying map; from the lift at the eastern side of the resort to the snow play area on the northern side of the resort. Spray and mist from snowmaking operations will be contained within the resort boundaries.

Snowmaking will take place when conditions are appropriate from November 1st until April 15th each winter season. This generally means when temperatures are at or below 28 degrees with light to moderate winds, with the majority of this occurring during evening and early morning hours.

SSMR has served as a summer spray field for DSPUD's recycled water and has existing infrastructure to deliver water from the DSPUD to SSMR. Snowmaking will involve pumping recycled water from the DSPUD system using existing spray field infrastructure. Soda Springs will connect to this system, boost the water pressure to suitable levels for snowmaking, and using electrically powered high efficiency snow guns, convert up to 600 gallons per minute into artificial snow.