



SANTA ROSA SUBREGIONAL WATER REUSE SYSTEM

Incremental Recycled Water Program

2007 ADDENDUM TO PROGRAM ENVIRONMENTAL IMPACT REPORT

SCH #2002072046



March 2007

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INCREMENTAL RECYCLED WATER PROGRAM

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MARCH 16, 2007

State Clearinghouse #2002072046

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1.0 INTRODUCTION AND SUMMARY

On November 6, 2003, the City of Santa Rosa, the managing partner of the Subregional Water Reuse System, certified the Program EIR for the Incremental Recycled Water Program. In February, 2004 the City identified a Preferred Program from the six potential alternatives analyzed in the Program EIR and outlined in the February 2004 Recycled Water Master Plan (Master Plan). In March 2004 the City considered an EIR Addendum (2004 Addendum) and approved the Master Plan and Selected Program. Concurrent with this 2007 Addendum, the City is publishing an update to the Master Plan, entitled the 2007 Update to the Recycled Water Master Plan (Updated Master Plan).

The Updated Master Plan responds to the Santa Rosa Urban Reuse Project Feasibility Study submitted to the City in September 2006, which requires minor changes to Alternative 3, Urban Reuse, one of the reuse elements of the selected program. The changes to Urban Reuse include expansion of the urban irrigation area to include all lands within the Santa Rosa Urban Growth Boundary and lands within Sonoma State University, new options for pipelines routes, new options for pump station and tank sites, and the addition of algae removal facilities to prevent clogging of irrigation systems due to algae growth.

The purpose of this 2007 Addendum is to evaluate the potential environmental impacts of the changes in the Updated Master Plan. This Addendum should be read together with the full text of the certified Program EIR and the 2004 Addendum (together known as the 2004 Certified EIR). The complete 2004 Certified EIR is available for review at the Santa Rosa City Hall, at the Laguna Plant library, and at www.SRCity.org/IRWP.

This 2007 Addendum evaluates the changes in the Updated Master Plan and concludes that the revisions do not cause new significant impacts and do not result in substantially more severe impacts relative to the impacts previously disclosed in the 2004 Certified EIR. Thus, an Addendum is the appropriate level of California Environmental Quality Act (CEQA) documentation and the appropriate method of amending the 2004 Certified EIR, pursuant to Sections 15162 and 15164 of the Guidelines implementing CEQA.

ORGANIZATION OF THE ADDENDUM

The 2007 Addendum is organized in a similar fashion to the Program EIR.

- Chapter 1 is a summary and includes Table 1-1, a summary of the potential significant impacts and mitigation measures associated with the Updated Master Plan.
- Chapter 2 contains a detailed description of the revisions to the Master Plan.
- Chapter 3, Mitigation and Monitoring Program, provides revisions to five mitigation measures. The full revised Mitigation and Monitoring Program is a separate document.

- Chapter 4 updates conditions that may have changed since the 2004 Certified EIR, including changes to the Environmental Setting and to the cumulative projects list. The chapter also includes the environmental analysis of the Updated Master Plan. It provides analysis of changes to the Selected Project where the modifications potentially change environmental impacts.
- Chapter 5 updates the CEQA-required Sections chapter.
- Chapter 6 provides a list of references.
- Chapter 7 provides a list of preparers.

PUBLIC AND AGENCY INVOLVEMENT

This 2007 Addendum is available for review at the City of Santa Rosa City Hall and at the following libraries:

- Laguna Plant Library
- Branches of the Sonoma County Library at: Santa Rosa (Central, Northwest Coddington, Rincon Valley), Cloverdale, Forrestville, Guerneville, Healdsburg, Occidental, Petaluma, Sebastopol, Rohnert Park, and Windsor
- Other libraries: Lake County (Lakeport and Middletown) and Marin County (Main Branch)

The 2007 Addendum and Updated Master Plan will be considered at the BPU meeting at 1:30 p.m. on April 5th, 2007, and at the City Council meeting at 5:00 p.m. on April 24th, 2007.

Written comments should be mailed or faxed to:

City of Santa Rosa
69 Stony Circle
Santa Rosa, CA 95401
Attn: Glen Wright
Fax: 707-543-3948
Email: IRWP@SRCity.org

APPLICABILITY AND USE OF AN ADDENDUM

As directed by CEQA, California Public Resources Code Section 21166, and CEQA Guidelines Section 15162 and 15163, when an EIR has been prepared for a project, no subsequent or supplemental EIR shall be prepared, unless one or more of the following circumstances occur:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement

- of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
 3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
 - A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
 - B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The change in environmental impacts due to changes in the Updated Master Plan and changed conditions has been evaluated and measured against the standards set forth in paragraphs 1, 2, and 3 above to determine whether an Addendum is appropriate or a subsequent or supplemental EIR is needed. The environmental analysis in Chapter 4 provides the detailed examination of each of these issues.

This 2007 Addendum should be read together with the full text of the certified 2004 EIR. The changes to the selected program have been subjected to a detailed analytical process consistent with the methodology and thresholds of significance applied in the Program EIR.

Section 15164 of the Guidelines implementing CEQA provides that an Addendum is the appropriate level of CEQA analysis when the circumstances defined in Section 15162 and 15163 calling for preparation of a Subsequent or Supplemental EIR do not occur. None of the circumstances that require a Subsequent or Supplemental EIR, such as new significant impacts or significant impacts of a substantially more severe nature, are present. Thus, an Addendum is the appropriate level of CEQA analysis and the appropriate method of updating the analysis in the 2004 Certified EIR.

SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

No changes to the list of significant unavoidable environmental impacts have been identified as a result of the changes in the Updated Master Plan.

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

A summary of the significant impacts and mitigation measures identified in the 2004 Certified EIR and this 2007 Addendum are presented in Table 1-1. The impacts and mitigation measures are identified as follows:

- Less than Significant after Mitigation – Impact is significant before mitigation, but can be mitigated to a less-than-significant level. This impact is shown as a ⊙ in the table.
- Significant and Unavoidable – Impact is significant before mitigation, and no feasible mitigation has been identified to reduce the impact to a level that is less than significant. This impact is shown as a ● in the table.
- Less than significant impacts are not represented in Table 1-1.

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
Land Use			
1.5.1. The Agricultural Irrigation component may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.5.2. The Agricultural Irrigation component may physically divide an established community.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.5.4. The Agricultural Irrigation component may increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.5.6. The Agricultural Irrigation component may convert public open space for uses not in accordance with restrictions on use of the open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.7.1. The Storage component may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.7.2. The Storage component may physically divide an established community.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
1.7.4. The Storage component may increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.7.6. The Storage component may convert public open space for uses not in accordance with restrictions on use of open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.8.6. The Created Wetlands component may convert public open space for uses not in accordance with restrictions on use of the open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.9.1. The Pump Stations and Tanks component may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.9.3. The Pump Stations and tanks component may introduce inappropriate uses in a Community Separator.	⊙	⊙	3.3.1 Site Facilities to Achieve Compatible Land Use
1.9.4. The Pump Stations and Tanks component may increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.9.6. The Pump Stations and Tanks component may convert public open space for uses not in accordance with restrictions on use of the open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.11.6. The Direct Discharge component may convert public open space for uses not in accordance with restrictions on use of the open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.12.1. The Indirect Discharge component may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.12.4. The Indirect Discharge component may increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.12.6. The Indirect Discharge component may convert public open space for uses not in accordance with restrictions on use of the open space.	⊙	⊙	3.3.2 Replacement of Open Space Easements
1.13.1. The Advanced Membrane Treatment component may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.13.3. The Advanced Membrane Treatment component may introduce an inappropriate use in a	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
Community Separator.			
1.13.4. The Advanced Membrane Treatment component may increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
1.13.6. The Advanced Membrane Treatment component may convert public open space for uses not in accordance with restriction on use of the open space.	⊙	⊙	3.2 Replacement of Open Space Easements
1.1C and 1.4C. The IRWP plus cumulative projects may be inconsistent with the policies of the Land Use Element or land use plan map of an adopted General Plan, or with adopted zoning regulations, or increase potential for conflict as a result of incompatible land uses.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
Agriculture			
2.5.1. The Agricultural Irrigation component may cause loss of farmland.	+	+	No mitigation is needed
2.6.1. The Pipelines component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts
2.7.1. The Storage component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts
2.7.2. The Storage component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.8.1. The Created Wetlands component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.8.2. The Created Wetlands component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.9.1. The Pump Stations and Tanks component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.9.2. The Pump Stations and Tanks component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.11.1. The Direct Discharge component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
2.11.2. The Direct Discharge component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.12.1. The Indirect Discharge component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.12.2. The Indirect Discharge component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.13.1. The Advanced Membrane Treatment component may cause loss of farmland.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
2.13.2. The Advanced Membrane Treatment component may cause conflicts with Williamson Act contracts.	●	●	3.3.3 Avoid Status Farmland and Land under Williamson Act Contracts.
Geology, Soils and Seismicity			
3.4.1. Urban Irrigation facilities could be located in areas of unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.4.3. Urban Irrigation facilities could be susceptible to liquefaction during earthquakes.	⊙	⊙	3.3.8 Reduce Risk of Damage due to Liquefaction
3.5.1. Agricultural Irrigation facilities may be located within an area of unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.5.2. Agricultural Irrigation facilities could be subject to ground rupture.	⊙	⊙	3.3.5 Site Facilities to Avoid Alquist-Priolo Zones
3.6.1. Pipeline facilities could be located in areas of unstable slope conditions.	●	●	3.3.4 Slope Stabilization Design
3.6.2. Pipeline facilities could rupture near faults.	⊙	⊙	3.3.5 Site Facilities to Avoid Alquist-Priolo Zones 3.3.4 Slope Stabilization Design
3.6.3. Pipeline facilities could be susceptible to liquefaction damage during an earthquake.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction
3.7.1. Storage facilities could be located in areas with unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.7.2. Storage facilities could be subject to ground rupture.	⊙	⊙	3.3.5 Site Facilities to Avoid Alquist-Priolo Zones
3.7.3. Storage facilities could be susceptible to damage from liquefaction during an earthquake.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
3.7.9. Storage facilities could be an incompatible land use.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
3.8.1. Created Wetlands could be located in areas with unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.8.2. Created Wetlands could be subject to ground rupture.	⊙	⊙	3.3.5 Site Facilities to Avoid Alquist-Priolo Zones
3.8.3. Created Wetlands could be susceptible to damage from liquefaction during an earthquake.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction
3.8.9. Created Wetlands could be an incompatible land use.	⊙	⊙	3.3.1 Site Facilities to Achieve Compatible Land Use
3.9.1. Pump Stations and Tanks facilities could be located in areas with unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.9.2. Pump Stations and Tanks could be damaged from ground rupture.	⊙	⊙	3.3.5 Site Facilities to Avoid Alquist-Priolo Zones 3.3.6 Earthquake Preparedness and Emergency Response Program.
3.9.3. Pump Stations and Tanks could be susceptible to damage from liquefaction.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction
3.9.9. Pump Station and Tank facilities could be an incompatible land use.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
3.10.1. Geysers Steamfield Expansion could be located in areas with unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.10.4. Geysers Steamfield Expansion could induce seismicity.	●	●	3.5.1 Monitor Seismic Events and Adjust Injection Rates
3.11.3. Direct Discharge facilities could be susceptible to damage from liquefaction during an earthquake.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction
3.11.9. Direct Discharge facilities could be an incompatible land use.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
3.12.1. Indirect Discharge facilities could be located in areas with unstable slope conditions.	⊙	⊙	3.3.4 Slope Stabilization Design
3.12.3. Indirect Discharge facilities could be susceptible to damage from liquefaction.	⊙	⊙	3.3.. Reduce the Risk of Damage due to Liquefaction
3.12.9. Indirect Discharge facilities could be an incompatible land use.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
3.13.1. Advanced Membrane Treatment facilities could be located in areas with unstable slope	⊙	⊙	3.3.4 Slope Stabilization Design

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
conditions.			
3.13.3. Advanced Membrane Treatment facilities could be susceptible to damage from liquefaction.	⊙	⊙	3.3.7 Reduce the Risk of Damage due to Liquefaction
3.13.9. Advanced Membrane Treatment facilities could be an incompatible land use.	●	●	3.3.1 Site Facilities to Achieve Compatible Land Use
3.2C. The IRWP plus cumulative projects may be an incompatible land use type in the MRZ-2 classification, in a designated quarry area, or in The Geysers.	●	●	No additional feasible mitigation has been identified.
Surface Water Hydrology			
4.1.1 and 4.1.2. The Laguna Plant Upgrade component may impact surface water hydrology based on evaluation criteria 1 and 2.	⊙	⊙	3.3.8 Flood Storage Management
4.5.1. and 4.5.2. The Agricultural Irrigation component may impact surface water hydrology based on evaluation criteria 1 and 2.	⊙	⊙	3.3.8 Flood Storage Management
4.6.1. and 4.6.2. The Pipeline component may impact surface water hydrology based on evaluation criteria 1 and 2.	●	●	3.3.7 Reduce Risk of Damage due to Liquefaction
4.8.2. The Created Wetlands component may impact surface water hydrology based on evaluation criteria 2.	⊙	⊙	3.3.8 Flood Storage Management
4.9.1 and 4.9.2. Will the Pump Stations and Tanks component impact surface water hydrology based on evaluation criteria 1 and 2.	⊙	⊙	3.3.8 Flood Storage Management
4.10.1 and 4.10.2. The Geysers Steamfield Expansion component may impact surface water hydrology based on evaluation criteria 1 and 2.	⊙	⊙	3.3.8 Flood Storage Management
4.12.2. The Indirect Discharge component may impact surface water hydrology based on evaluation criteria 1 and 2.	⊙	⊙	3.3.8 Flood Storage Management
4.13.1 and 4.13.2. The Advanced Membrane Treatment component may impact surface water hydrology based on evaluation criteria 1 and 2	⊙	⊙	3.3.8 Flood Storage Management
Groundwater			
5.6.1. The Pipeline component may degrade groundwater quality at existing or future wells, resulting in public health hazards (for pipelines transporting brine).	⊙	⊙	3.3.9 Well Protection Program
5.7.1. The Storage component may degrade groundwater quality at existing or future wells,	⊙	⊙	3.3.9 Well Protection Program

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
resulting in public health hazards.			
5.7.2. The Storage component may cause groundwater mounding or increase groundwater levels that cause surface discharge in a non-stream environment.	⊙	⊙	3.5.2 Septic System Replacement
5.7.3. The Storage component may lower groundwater levels at existing wells.	⊙	⊙	3.3.9 Well Protection Program
5.7.4. The Storage component may lower groundwater levels at future wells.	⊙	⊙	3.3.9 Well Protection Program
5.8.1. The Created Wetlands component may degrade groundwater quality at existing or future wells, resulting in public health hazards.	⊙	⊙	3.3.9 Well Protection Program
5.8.2. The Created Wetlands component may cause groundwater mounding or increase groundwater levels that cause surface discharge in a non-stream environment.	⊙	⊙	3.5.2 Septic System Replacement
5.12.1. The Indirect Discharge component may degrade groundwater quality at existing or future wells, resulting in public health hazards.	⊙	⊙	3.3.9 Well Protection Program
5.12.2. The Indirect Discharge component may cause groundwater mounding or increase groundwater levels that cause surface discharge in a non-stream environment.	⊙	⊙	3.5.2 Septic System Replacement
5.1C. The IRWP plus the cumulative projects may degrade groundwater quality at existing and future drinking water wells, resulting in a public health hazard.	●	●	No feasible mitigation has been identified.
5.3C and 4C. The IRWP and cumulative projects may lower groundwater levels at existing and future wells.	●	●	No feasible mitigation has been identified.
Surface Water Quality			
6.6.1 and 2b. The Pipeline component may impact water quality based on evaluation criteria 1 and 2 for pipelines transporting brine.	●	●	No feasible mitigation has been identified.
6.7.1, 6.7.2, and 6.7.4. The Storage component impact water quality based on evaluation criteria 1, 2, and 4.	⊙	⊙	3.5.6 Dam Seepage Interception
6.11.1. The Direct Discharge component may cause an exceedence of the following numeric-based criteria:			
Cyanide	●	●	No mitigation identified for cyanide.
pH and Dissolved oxygen	⊙	⊙	3.5.3 Adjust pH and

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
			Dissolved Oxygen in Recycled Water Prior to Direct Discharge to the Russian River.
6.11.2. The Direct Discharge component may cause an exceedence of narrative based criteria.	⊙	⊙	3.5.7 Laguna Biostimulation Reduction. 3.5.10 Exception to Allow Discharge Exceeding One Percent of Receiving Water Flow
6.11.4. The Direct Discharge component may result of non-attainment of established TMDLs.	⊙	⊙	3.5.4 Reduce Nitrogen loads to Laguna de Santa Rosa
6.12.1. The Indirect Discharge component may cause an exceedence of the following numeric-based criteria. Cyanide pH and Dissolved oxygen	● ⊙	● ⊙	No mitigation identified for cyanide. 3.5.3 Adjust pH and Dissolved Oxygen in Recycled Water Prior to Release to Discharge to the Russian River.
6.12.2. The Indirect Discharge component may cause an exceedence of narrative-based criteria.	⊙	⊙	3.5.10 Exception to Allow Discharge Exceeding One Percent of Receiving Water Flow.
Public Health and Safety			
7.7.1. The Storage component may expose the public to chemical, radionuclides, or pathogens at concentrations detrimental to human health.	⊙	⊙	3.3.9 Well Protection Program
7.8.1. The Created Wetlands component may expose the public to chemicals, radionuclides, pathogenic viruses, bacteria, or other disease organisms, at concentrations detrimental to human health.	⊙	⊙	3.3.9 Well Protection Program
7.12.1. The Indirect Discharge component may expose the public to chemical, radionuclides, or pathogens at concentrations detrimental to human health.	⊙	⊙	3.3.9 Well Protection Program
Biological Resources			
8.1.1. The Laguna Plant Upgrade component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
rare species of plants and animals.			
8.1.2. The Laguna Plant Upgrade component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species
8.1.3. The Laguna Plant Upgrade component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.1.4. The Laguna Plant Upgrade component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.4.1. The Urban Irrigation component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.4.3. The Urban Irrigation component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.4.5. The Urban Irrigation component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.4.6. The Urban Irrigation component may substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.	⊙	⊙	3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors
8.5.1. The Agricultural Irrigation component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.5.2. The Agricultural Irrigation component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species
8.5.3. The Agricultural Irrigation component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.5.4. The Agricultural Irrigation component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.5.5. The Agricultural Irrigation component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.5.6. The Agricultural Irrigation component may	⊙	⊙	3.3.13 Avoid Blocking Major

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.			Wildlife Migration or Travel Corridors
8.6.1 through 8.6.6. The Pipelines component may impact biological resources based on evaluation criteria 1 through 6.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats 3.3.11 Avoid Loss of Sensitive Plant Species 3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities 3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors 3.4.1 Protect Active Raptor Nests 3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.7.1. The Storage component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.7.2. The Storage component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species
8.7.3. The Storage component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.7.4. The Storage component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.7.5. The Storage component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.7.6. The Storage component may substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.	⊙	⊙	3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors
8.7.8. The Storage component may cause a decrease in streamflows.	⊙	⊙	3.3.14 Avoid Loss of Aquatic Habitat due to Storage Reservoirs

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
8.8.1 through 6. The Created Wetlands component may impact biological resources based on evaluation criteria 1 through 6.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats 3.3.11 Avoid Loss of Sensitive Plant Species 3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities 3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors 3.3.14 Avoid Loss of Aquatic Habitat due to Storage Reservoirs 3.4.1 Protect Active Raptor Nests 3.4.2 Avoid Loss of Protected species, Candidate Species, and Species of Special Concern
8.9.1. The Pump Stations and Tanks component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.9.2. The Pump Stations and Tanks component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species
8.9.3. The Pump Stations and Tanks component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.9.4. The Pump Stations and Tanks component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.9.5. The Pump Stations and Tanks component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.9.6. The Pump Stations and Tanks component may substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.	⊙	⊙	3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors
8.10.1. The Geysers Steamfield Expansion component may cause loss of individuals, or loss of critical habitat,	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.			Resources and their Habitats
8.10.2. The Geysers Steamfield Expansion component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.17 Avoid Loss of Sensitive Plant Species
8.10.3. The Geysers Steamfield Expansion component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.10.4. The Geysers Steamfield Expansion component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.10.5. The Geysers Steamfield Expansion component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Impacts to Sensitive Trees and Plant Communities
8.10.6. The Geysers Steamfield Expansion component may substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.	⊙	⊙	3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors
8.11.1. The Direct Discharge component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.11.2. The Direct Discharge component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species
8.11.3. The Direct Discharge component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Protect Active Raptor Nests
8.11.4. The Direct Discharge component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.11.5. The Direct Discharge component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.12.1. The Indirect Discharge component may cause loss of individuals, or loss of critical habitat, or loss of occupied habitat of endangered, threatened, or rare species of plants and animals.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats
8.12.2. The Indirect Discharge component may cause loss of individuals of CNPS List 2, 3, or 4 plant species.	⊙	⊙	3.3.11 Avoid Loss of Sensitive Plant Species

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
8.12.3. The Indirect Discharge component may cause loss of active raptor nest sites.	⊙	⊙	3.4.1 Avoid Active Raptor Nests
8.12.4. The Indirect Discharge component may cause loss of animals designated as a federal candidate species, a CA fully protected species, or a CA species of special concern.	⊙	⊙	3.4.2 Avoid Loss of Protected Species, Candidate Species, and Species of Special Concern
8.12.5. The Indirect Discharge component may cause permanent loss of native special-status plant communities.	⊙	⊙	3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities
8.12.6. The Indirect Discharge component may substantially block or disrupt major migration or travel corridors between essential resource areas for native animals.	⊙	⊙	3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors
8.13.1 through 8.13.6. The Advanced Membrane Treatment component may impact biological resources based on evaluation criteria 1 through 6.	⊙	⊙	3.3.10 Avoid Loss of Endangered Biological Resources and their Habitats 3.3.11 Avoid Loss of Sensitive Plant Species 3.3.12 Avoid Permanent Impacts to Sensitive Trees and Plant Communities 3.3.13 Avoid Blocking Major Wildlife Migration or Travel Corridors 3.4.1 Protect Active Raptor Nests 3.4.2 Avoid Loss of Protected species, Candidate Species, and Species of Special Concern
8.2C. The IRWP plus cumulative projects may cause loss of CNPS List 2, 3, or 4 plant species.	●	●	3.3.11 Avoid Loss of Sensitive Plant Species
Jurisdictional Wetlands			
9.1.1 and 9.1.2. The Laguna Plant Upgrade Discharge component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.5.1 and 9.5.2. The Agricultural Irrigation component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.6.1 and 9.6.2. The Pipelines component may fill or alter wetlands or other waters of the U.S. or of the State	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
of California.			Wetlands
9.7.1 and 9.7.2. The Storage component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.8.1 and 9.8.2. The Created Wetlands component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.9.1 and 9.9.2. The Pump Stations and Tanks component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.10.1 and 9.10.2. The Geysers Steamfield Expansion component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.11.1 and 9.11.2. The Direct Discharge component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.12.1 and 9.12.2. The Indirect Discharge component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
9.13.1 and 9.13.2. The Advanced Membrane Treatment component may fill or alter wetlands or other waters of the U.S. or of the State of California.	⊙	⊙	3.3.15 Avoid Fill of Jurisdictional Water and Wetlands
Transportation			
10.4.1. Urban Irrigation construction traffic may cause congestion on local roads.	●	●	No feasible mitigation has been identified.
10.5.1. Agricultural Irrigation traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.6.1. Pipeline construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.6.2. Pipeline construction may cause traffic delays, transit delays, delays for bicycles and pedestrian traffic and delays for emergency vehicles.	●	●	No feasible mitigation has been identified.
10.6.3. Pipeline construction traffic may restrict access to residences, businesses or public facilities.	●	●	No feasible mitigation has been identified.
10.6.7. Pipeline construction traffic may impact residential or commercial parking.	●	●	No feasible mitigation has been identified.
10.7.1. Storage component construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
10.8.1. Created Wetlands construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.9.1. Pump Stations and Tanks construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.9.2. Pump Stations and Tanks construction traffic may cause traffic delays, transit delays, delays for bicycles and pedestrian traffic and delays for emergency vehicles.	●	●	No feasible mitigation has been identified.
10.10.1. Geysers Steamfield Expansion component construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.11.1. Direct Discharge component construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.12.1. Indirect Discharge component construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.13.1. The Advanced Membrane Treatment component construction traffic may cause congestion on local roadways.	●	●	No feasible mitigation has been identified.
10.C. The IRWP plus cumulative projects may cause a substantial increase in traffic congestion, delays, access restriction, hazards, roadway damage, or parking impacts.	●	●	No feasible mitigation has been identified.
Air Quality			
11.1.5. The Laguna Plant Upgrade component may cause odor complaints.	●	●	No feasible mitigation has been identified.
11.1.7. The Laguna Plant Upgrade component may not reduce CO2 emissions.	●	●	No feasible mitigation has been identified.
11.5.2. The Agricultural Irrigation component may cumulatively exceed allowable limits or conflict with or obstruct the implementation of the Bay Area Ozone Attainment Plan.	●	●	No feasible mitigation has been identified
11.5.5. The Agricultural Irrigation component may potentially cause odors.	⊙	⊙	3.5.6 Odor Control from Grape Harvesting and Crushing Operations
11.7.7. The Storage component may increase eCO2 emissions.	●	●	No feasible mitigation has been identified.
11.9.7. The Pump Stations and Tanks component may increase eCO2 emissions.	●	●	No feasible mitigation has been identified.
11.12.7. The Indirect Discharge component may not	●	●	No feasible mitigation has

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
reduce eCO2 emissions.			been identified.
11.13.7. The Advanced Membrane Treatment component may increase eCO2 emissions.	●	●	No feasible mitigation has been identified.
11.2C. The IRWP plus cumulative projects emissions may exceed allowable limits or may conflict with or obstruct the implementation of the Bay Area Ozone Attainment Plan.	●	●	No further feasible mitigation has been identified
11.7C. The IRWP plus cumulative projects may cause the City to exceed its goals for reducing eCO2 emissions.	●	●	No further feasible mitigation has been identified
Noise			
12.1.1. Construction and operation related to the Laguna Plant Upgrade component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.1.3. Operation related to the Laguna Plant Upgrade component may increase ambient noise levels above existing levels in the vicinity.	●	●	3.3.16 Pump Station and Facility Noise Control
12.1.4. Construction activity and traffic noise related to the Laguna Plant Upgrade component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.4.1. Construction related to the Urban Irrigation component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.4.3 Construction Noise Control Measures
12.4.4. Construction activity and traffic related to the Urban Irrigation component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.5.1. Construction related to the Agricultural Irrigation component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.4.3 Construction Noise Control Measures
12.5.4. Construction activity and traffic related to the Agricultural Irrigation component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.6.1. Construction related to the Pipelines component may generate noise levels in excess of standards established in the local general plan or noise	●	●	3.4.3 Construction Noise Control Measures

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
ordinance, or applicable standards of other agencies.			
12.6.2. Construction related to the Pipelines component may general excessive ground borne vibration levels.	⊙	⊙	3.4.3 Construction Noise Control Measures
12.6.4. Construction activity and traffic related to the Pipelines component may exceed ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.7.1. Construction related to the Storage component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	●	●	3.4.3 Construction Noise Control Measures
12.7.2. Construction related to the Storage component may generate excessive ground borne vibration levels.	⊙	⊙	3.4.3 Construction Noise Control Measures
12.7.4. Construction activity and traffic related to the Storage component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.8.1. Construction related to the Created Wetlands component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.4.3 Construction Noise Control Measures
12.8.4. Construction activity and traffic noise related to the Created Wetlands component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.9.1. Construction and operation related to the Pump Stations and Tanks component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.9.3. Operation related to the Pump Stations and Tanks component may increase ambient noise levels above existing levels in the vicinity.	●	●	3.3.16 Pump Station and Facility Noise Control
12.9.4. Construction activity and traffic noise related to the Pump Stations and Tanks component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.10.1. Construction and operation related to the Geysers Steamfield Expansion component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.10.3. Operation of the Geysers Steamfield Expansion component may increase ambient noise levels above existing levels in the vicinity.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
			Control Measures
12.10.4. Construction activity and traffic related to the Geysers Steamfield Expansion component may exceed existing ambient noise levels.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.11.1. Construction related to the Direct Discharge component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.4.3 Construction Noise Control Measures
12.11.4. Construction activity and traffic noise related to the Direct Discharge component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.12.1. Construction and operation related to the Indirect Discharge component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.12.3. Operation related to the Indirect Discharge component may increase ambient noise levels above existing ambient noise levels.	●	●	3.3.16 Pump Station and Facility Noise Control
12.12.4. Construction activity and traffic related noise related to the Indirect Discharge component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.13.1. Construction and operation related to the Advanced Membrane Treatment component may generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	●	●	3.3.16 Pump Station and Facility Noise Control 3.4.3 Construction Noise Control Measures
12.13.3. Operation related to the Advanced Membrane Treatment component may increase ambient noise levels above existing ambient noise levels.	●	●	3.3.16 Pump Station and Facility Noise Control
12.13.4. Construction activity and traffic related noise related to the Advanced Membrane Treatment component may exceed existing ambient noise levels.	●	●	3.4.3 Construction Noise Control Measures
12.1C, 12.2C, and 12.3C. Construction or operation of the IRWP plus cumulative projects may generate noise levels in excess of standards or cause a substantial increase in noise levels above existing levels in the vicinity.	●	●	No feasible mitigation has been identified

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
Cultural Resources			
13.1.1 through 13.1.4. The Laguna Plant Upgrade Component may impact cultural resources based on the evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.1.5. The Laguna Plant Upgrade component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.4.1 through 13.4.4. The Urban Irrigation component may impact cultural resources, based on the evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.4.5. The Urban Irrigation component may directly or indirectly destroy a unique paleontological resource or site.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.5.1 through 13.5.4. The Agricultural Irrigation component may impact cultural resources based on the evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.5.5. The Agricultural Irrigation component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.6.1 through 13.6.4. The Pipelines component may impact cultural resources based on evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.6.5. The Pipelines component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.7.1 through 3.7.4. The Storage component may impact cultural or paleontological resources based on evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.7.5. The Storage component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
13.8.1 through 3.8.4. The Created Wetlands component may impact cultural based on evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.8.5. The Created Wetlands component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.9.1 through 13.9.4. The Pump Stations and Tanks component may impact cultural resources based on the evaluation criteria 1 through 4.	●	●	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.9.5. The Pump Stations and Tanks component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17 Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.10.1 through 13.10.4. The Geysers Steamfield Expansion component impact cultural resources based on the evaluation criteria 1 through 4.	●	●	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.10.5. The Geysers Steamfield Expansion component may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.11.1 through 13.11.4. The Direct Discharge component may impact cultural resources based on evaluation criteria 1 through 4.	●	●	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.11.5. The Direct Discharge component may directly or indirectly destroy a unique cultural or paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.12.1 through 13.12.4. The Indirect Discharge component may impact cultural resources based on evaluation criteria 1 through 4.	●	●	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.12.5. The Indirect Discharge component may directly or indirectly destroy a unique cultural or paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.13.1 through 13.13.4. The Advanced Membrane Treatment component impact cultural resources based	●	●	3.3.17. Identification, Evaluation, and Avoidance of

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
on the evaluation criteria 1 through 4.			Cultural and Paleontological Resources
13.13.5. The Advanced Membrane Treatment component may directly or indirectly destroy a unique cultural or paleontological resource or site or unique geologic feature.	⊙	⊙	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
13.1C through 13.4C. The IRWP plus cumulative projects may impact cultural resources.	●	●	3.3.17. Identification, Evaluation, and Avoidance of Cultural and Paleontological Resources
Visual Resources			
14.1.3. The Laguna Treatment Plant Upgrade component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.4.1. The Urban Irrigation component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.4.2. The Urban Irrigation component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.5.3. The Agricultural Irrigation component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.6.1. The Pipelines component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.6.2. The Pipelines component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.6.3. The Pipelines component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.7.1. The Storage component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening

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Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
Highways.			
14.7.2. The Storage component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4. Landscape and Architectural Screening
14.7.3. The Storage component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.8.1. The Created Wetlands component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.8.2. The Created Wetlands component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area?	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts
14.8.3. The Created Wetlands component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.9.1. The Pump Stations and Tanks component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.9.2. The Pump Stations and Tanks component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.9.3. The Pump Stations and Tanks component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.10.1. The Geysers Steamfield Expansion component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.10.2. The Geysers Steamfield Expansion component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
14.10.3. The Geysers Steamfield Expansion component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.11.1. The Direct Discharge component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.11.2. The Direct Discharge component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	⊙	⊙	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.11.3. The Direct Discharge component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.12.1 The Indirect Discharge component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.12.2. The Indirect Discharge component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.12.3. The Indirect Discharge component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.13.1. The Advanced Membrane Treatment component may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans, or Caltrans designated Scenic Highways.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.13.2. The Advanced Membrane Treatment component may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	●	●	3.3.18 Minimize Temporary and Permanent Visual Impacts 3.4.4 Landscape and Architectural Screening
14.13.3. The Advanced Membrane Treatment component may create a new light source.	⊙	⊙	3.4.3 Construction Noise Control Measures
14.1C. Will the IRWP components plus cumulative projects have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General	●	●	No feasible mitigation has been identified.

TABLE 1-1
Summary of Impacts

Impact	Selected Program- 2004 Addendum	Updated Master Plan- 2007 Addendum	Mitigation Measures
Plans, or Caltrans designated Scenic Highways?			
14.2C. Will the IRWP components plus cumulative projects substantially degrade the existing visual character of the site or its surroundings, including views from private residences, high volume travelways, recreation use areas or other public use areas?	●	●	No feasible mitigation has been identified.
Energy			
16.2.1. The Indoor Water Conservation component may require more energy than providers could deliver.	+	+	No mitigation is necessary.
16.10.1. The Geysers Steamfield expansion component may require more energy than providers could deliver.	+	+	No mitigation is necessary.

Level of Significance:

⊙	Significant impact before mitigation; less than significant after mitigation
●	Significant impact before mitigation and after mitigation
+	Beneficial Impact

2.0 PROJECT DESCRIPTION

The Updated Master Plan identifies several minor revisions to the Selected Program. These changes affect only Alternative 3, Urban Reuse. The Selected Program establishes both a target and a range for recycled water disposal for each alternative. The range for each alternative has not changed. However, because implementation of the Selected Program has progressed since the Master Plan was approved, the Updated Master Plan reports recycled water use and discharge as “Completed or In Process”, as shown in Table 2-1.

TABLE 2-1
Size of the Selected Program with Revisions from Updated Master Plan

Program Elements	Range	Completed or in Process
Alternative 1 – Indoor Water Conservation	150 to 300 MG	220 MG
Alternative 3 – Urban Reuse	0 to 2,200 MG ^a	1,000 MG
Alternative 4 – Agricultural Reuse	0 to 2,200 MG ^a	0 MG
Alternative 5 – Geysers Expansion	0 to 2,200 MG ^a	0 MG
Alternative 6 – Discharge	1,600 to 4,500 MG ^b	4,500 MG
Total Recycled Water Use	6,700 MG	5,720 MG
Laguna Plant Upgrade	25.9 mgd	Master Plan Completed
Storage ^c	0 to 1,200 MG	500 MG
Created Wetlands	0 to 30 acres	0

a. The original range for the 3 reuse alternatives, as identified in the 2004 Master Plan, included 300 MG of capacity in case Indoor Water Conservation was not fully implemented. Because Indoor Water Conservation has already saved 220 MG, the upper range for reuse capacity should now be reduced by 220 MG.

b. Range represents the maximum discharge in driest and wettest years. If discharge is precluded, the lower end of the range could be 0 MG. Laguna discharge is within permit limits (lower end of range could be 0 MG), with remainder to the Russian River.

c. Storage may be needed for Urban Reuse, Agricultural Reuse, Geysers Expansion, or Discharge.

For the complete description of alternatives for the Selected Program, please refer to the 2004 Certified EIR. Changes to Alternative 3, Urban Reuse and its components are described in the following sections. If no changes are identified herein, the description remains the same as presented in the 2004 Certified EIR.

CHANGES TO ALTERNATIVE 3, URBAN REUSE

Minor changes to Alternative 3, Urban Reuse, are included in the Updated Master Plan. These changes are:

- Expansion of the Urban Irrigation area to include all lands within the Santa Rosa Urban Growth Boundary and lands within Sonoma State University;
- Addition of options for pipeline alignments to Santa Rosa, either from the Geysers pipeline or from the Rohnert Park urban reuse system;
- Addition of pipeline alignments to the east of Santa Rosa near the Farmers Lane extension;
- Addition of pipeline alignments to the Rohnert Park Urban Reuse System;
- Addition of potential sites for pump stations and tanks southeast of Santa Rosa, west of Santa Rosa, northwest of Rohnert Park, east of Rohnert Park, and west of Cotati;
- Increase in the size of above-ground storage tanks to 4 million gallons; and
- Addition of algae removal facilities at the Laguna Plant, pump stations, tanks, or along a transmission pipeline for the purpose of removing algae in irrigation systems.

Figure 1-1, Concept-Level Map, is taken from the 2004 Addendum and shows the geographic extent of the Selected Program in the Master Plan; Figure 1-2, Revised Concept-Level Map, shows the revised geographic areas in the Updated Master Plan; and Figure 1-3, Changes from 2004 Master Plan, shows the changes from the 2004 to the 2007 Master Plan.

CHANGES TO COMPONENTS

Minor changes are proposed to the following components: Laguna Plant Upgrade, Urban Irrigation, Pipelines, and Pump Stations and Tanks.

Laguna Plant Upgrade Component

Algae removal facilities may be added at the Laguna Plant. Algae growth in storage reservoirs can enter the recycled water distribution pipes and clog irrigation sprinkler heads and drip systems. The facilities would require up to 3,000 square feet of space and would consist of circulation piping and pumps, membrane filters to remove algae, an electrical panel, and chlorination facilities, including up to 3,000 gallons of hypochlorite to prevent algae regrowth in pipelines. The facilities should not be confused with disinfection undertaken at the Laguna Plant; the chlorination of recycled water used in urban irrigation pipelines is not required to meet any standards, but only to prevent clogging of irrigation systems. An alternative method of reducing algae growth in storage ponds would be to cover one of the smaller storage ponds at the Treatment Plant (known as the Meadow Lane Ponds). Covering a pond reduces algae growth by eliminating sunlight.

Also, a diurnal above-ground storage tank may be located at the Laguna Plant. Refer to the Pump Station and Tanks Component description below for more information.

Urban Irrigation Component

The Urban Irrigation component includes the application of recycled water, dual piping systems in new development, and installation of gray water systems. Under the Updated Master Plan the Urban Irrigation area would be expanded to encompass all of the lands within the City of Santa Rosa Urban Growth Boundary so that changes to the Santa Rosa Municipal Code that allow recycled water use can be applicable to the entire City. This would include the Oakmont area and portions of northeast and southeast Santa Rosa. The Urban Irrigation area also would include lands within Sonoma State University, which has been using recycled water provided by the Rohnert Park reuse system for many years, and a small area along Petaluma Hill Road. Refer to Figures 1-2 and 1-3.

Pipelines Component

The pipeline alignment options for urban reuse evaluated in the 2004 Certified EIR included a pipeline from the existing reuse system near Occidental Road to the Country Club area west of Santa Rosa and a second pipeline that would originate from the Laguna Plant and convey recycled water to the city limits. The additional alignments evaluated in this 2007 Addendum include pipelines that would originate from the Geysers pipeline or the Rohnert Park reuse system and extend to the Santa Rosa city limits. In addition, pipelines would be needed to convey recycled water to and from pumps and tanks, and to convey filtrate from the algae removal facilities to storage ponds or sanitary sewers.

The precise location of the pipelines has not been determined. However, pipelines would most likely follow public rights-of-way. To reach some sites pipelines may follow private roads or cross-country alignments, and acquisition of property could be required for these segments. In general, pipes would be buried with about 3 to 4 feet of cover and would be constructed in one lane or shoulder of the road, typically at 10 feet off the road centerline.

Distribution pipelines within Santa Rosa and Rohnert Park would remain as described in the 2004 Certified EIR, but would be extended throughout the larger Urban Irrigation area.

The overall length of pipelines required to implement Alternative 3 Urban Reuse does not change from that evaluated in the 2004 Certified EIR and remains at 81 miles.

Pump Stations and Tanks Component

For the Urban Reuse Alternative, the 2004 Certified EIR analyzed upgrading the existing Llano pump station, a new pump station at the West College Ponds, and up to six booster pump stations and seven above-ground tanks to be located within the urban irrigation area. The total volume to be stored in tanks has increased from 7 MG to 9 MG, and individual tanks may increase in size to 4 MG to reduce the number of tanks needed. Under the Updated Master Plan, algae removal facilities may also be located at the Llano pump station, West College Ponds, at any of the other pump station or tank sites or along a transmission pipeline. The Updated Master Plan also includes an upgrade to the existing Rohnert Park pump station west of Rohnert Park; and the potential for a tank or pump station to be sited west of Santa Rosa, southeast of Santa Rosa, northwest of Rohnert Park, east of Rohnert Park, or west of Cotati (refer to Figure 1-3 for the potential locations for pumps and/or tanks).

Llano Pump Station Upgrade

The algae removal facilities at the Llano Pump Station would be the same as described for the Laguna Treatment Plant Upgrade Component above.

West College Pond Pump Station

The improvements at the West College Pond site remain the same as described in the 2004 Certified EIR, except for the addition of algae removal facilities as described above under Laguna Treatment Plant Upgrade Component.

Booster Pump Stations

As described in the 2004 Certified EIR, the Urban Reuse Alternative could require up to six booster pumps. This Addendum evaluates optional sites for the booster pumps at the five areas shown on Figures 1-2 and 1-3. The number and type of facilities and construction materials for the pump stations remain the same as described in the 2004 Certified EIR.

The existing Rohnert Park Pump Station, located west of Rohnert Park, would need to be upgraded to meet the future recycled water demands in Santa Rosa, Rohnert Park, and Cotati. The upgrade would require up to two acres of land. Facilities for the upgrade could include pumps, a 15,000-gallon surge tank, a small electrical building, and algae removal facilities, as described under the Laguna Treatment Plant Upgrade Component above.

Urban Reuse Storage Tanks

The 2004 Certified EIR analyzed seven above-ground storage tanks with a capacity of up to 1 MG located within the Urban Irrigation area at elevations between 170 and 350 feet. The potential number of tanks remains the same under the Updated Master Plan. However, instead of seven tanks at 1 MG per tank larger tanks of up to 4 MG each, or any combination of tank sizes to attain up to 9 MG. The location of the tank(s) within the Urban Irrigation area would be at elevations between 170 and 400 feet. In the 2004 Certified EIR, a 1-MG tank was estimated to require 0.9 acre; a larger 4-MG tank would require up to 1.7 acres. In addition, the tanks could occur in the five areas outside the city limits (west of Santa Rosa, southeast of Santa Rosa, northwest of Rohnert Park, east of Rohnert Park, or west of Cotati) identified in Figure 1-3.

MEASURES INCLUDED IN THE PROGRAM

Twenty-two measures are included as part of the Program to reduce or eliminate potential environmental impacts from the IRWP Program. Of these, three measures, Measure 3.2.7, 3.2.8, and 3.2.10 are proposed to be changed to increase feasibility and reduce impacts; refer to Section 3, Mitigation and Monitoring Program for the text of the proposed change.

OTHER PROJECT DESCRIPTION INFORMATION

Please refer to the 2004 Certified EIR Project Description regarding employment generation, emergency scenarios, and required permits and approvals.

3.0 MITIGATION AND MONITORING PROGRAM

Three Project measure and four mitigation measures that were adopted as part of the 2004 Master Plan approval are proposed to be revised to increase feasibility and reduce impacts. The proposed revisions are shown on the following pages in strike out and underline mode for deletion and addition respectively. The other Project measures and mitigation measures remain as they appear in the 2004 Certified EIR and are not repeated here.

3.2.7 Pipeline Features in Active Fault Zones

The City of Santa Rosa shall implement design measures for transmission pipelines crossing active fault zones to prevent excessive loss of water, which could include with manual or automated isolation line valves, higher strength pipe and/or joints, or special backfill. The application of these methods shall depend on pipeline size and configuration of the fault crossing. In the event that valves are used, ~~t~~The ~~isolation~~ valves will be on one or both sides of the pipeline crossing, depending on what is needed to isolate the pipeline drainage from the fault zone. The valves shall be located one thousand feet or less from the fault zone or as close as is feasible beyond the 1,000-foot distance depending on local topography and site characteristics.

In addition, depending upon the specific location, the City may take the following actions to minimize pipeline rupture potential during a seismic event:

- Specify special classes or types of pipelines crossing the active fault zones. The special pipe would extend about two thousand feet on either side of the fault zone.
- Utilize slip joints or ball joints.
- Design pipeline trenches and pipe embedment with sloping sidewalls and use pipe embedment materials that offer flexibility with ground movements.

Implementing Agency: City of Santa Rosa

Timing: **Start:** During design.

Complete: Prior to approval of Final Engineering Drawings.

Monitoring Agency: City of Santa Rosa

Validation: Report that 90% design plans conform with measure.

3.2.8 Ensure Stored Recycled Water ~~Does not Exceed MCL for Nitrate Quality~~

The City of Santa Rosa shall ensure that the recycled water in storage reservoirs does not exceed the MCL for nitrate (measured as Nitrogen) of 10 mg/L. In addition, storage reservoirs that store water for discharge into the Laguna or Russian River shall not receive backwash from algae filtration facilities until after the last discharge from that pond in the spring and before the pond is emptied in the fall.

Implementing Agency: City of Santa Rosa

Timing: **Start:** At the start of operation.

Complete: Ongoing throughout operation.

Monitoring Agency: City of Santa Rosa

Validation: The City of Santa Rosa shall monitor storage reservoirs as needed.

3.2.10 Update Existing Hazardous Materials Management Plan and Prepare Additional Plan(s) as Needed

The City of Santa Rosa shall amend the Laguna Treatment Plant's existing Hazardous Materials Management Plan (HMMP) to reflect increased hypochlorite usage. In addition, the City shall prepare a new HMMP for each off-site facility that uses hypochlorite.

Implementing Agency: City of Santa Rosa

Timing: **Start:** Prior to operation of the proposed Project.

Complete: The HMMP(s) shall be updated annually to reflect average annual use of hypochlorite.

Monitoring Agency: City of Santa Rosa

Validation: The Fire Department shall review the amended HMMP prior to operation of the proposed Project. Reviews shall be conducted annually, thereafter.

3.3.5 Site Facilities to Avoid Alquist-Priolo Zones

The City of Santa Rosa shall not site facilities within Alquist-Priolo Earthquake zones, to the extent feasible. The City shall utilize a licensed geotechnical engineer and, when appropriate, a structural engineer to conduct construction-level geotechnical investigation for facilities.

If the geotechnical investigations identify hazards due to active fault zones, the engineer shall identify risk areas and provide engineering design and construction recommendations to prevent damage. One or more of the following options may be used to implement this mitigation measure:

- For Fault Rupture (the fault slips at or very close to the pipeline fault location), it is not practical to design for the large potential displacements, so use a shutoff valve system. Prepare a contingency plan to repair the pipe (have available sections of pipe and plan to expedite repair).
- For Creep (one side of the fault is slowly moving relative to the other), install a "rattle box", where the pipe crosses the fault in a box rather than direct burial.
- Use a restrained joint which cannot easily be pulled apart--double welded (inside and outside).
- If the pipe runs parallel to a fault, use steel or HDPE pipe with restrained joints ~~double welding~~ as appropriate for the setting.

Impacts Mitigated and Mitigation Level

Impacts Mitigated	Level of Significance after Mitigation
3.5.2, 3.6.2, 3.7.2, 3.8.2, and 3.9.2. Agricultural Irrigation, Pipelines, Pump Stations and Tanks, Storage, and Created Wetlands components may be damaged from ground rupture.	Less than Significant

Alternatives: 3 through 6

Implementing Agency: City of Santa Rosa

Timing: **Start:** At the beginning of design.

Complete: Prior to construction.

Monitoring Agency: City of Santa Rosa,

Validation: Report that 90% design plans conform with this measure.

3.3.6 Earthquake Preparedness and Emergency Response Program

The City of Santa Rosa shall reduce the risk of damage to facilities due to earthquakes to the extent feasible. The City shall develop and implement an Earthquake Preparedness and Emergency Response Program. One or more of the following measures, or alternative measures of equivalent effectiveness, shall be used to implement this mitigation measure:

- Identify specific facility locations that would be vulnerable to damage in an earthquake and define priorities for system repairs.
- Use pressure and seismic sensors for automatic pump shut down due to pressure loss or a significant seismic event and use automated control valves at pump stations to limit water release after pump station shut-down.
- Inspect nearby facilities after any significant movement on a fault.
- House emergency equipment and supplies at key locations along the transmission distribution system.
- Ensure that emergency power supply would be available to supply electricity to critical facilities.
- Provide operators with emergency response training, including first aid and cardiopulmonary resuscitation.
- Conduct practice drills, using simulated earthquake scenarios, of emergency response procedures annually.

Impacts Mitigated and Mitigation Level

Impacts Mitigated	Level of Significance after Mitigation
3.3.2, 3.6.2, and 3.9.2. The I&I Reduction, Pipelines, and Pump Stations and Tanks components may be subject to ground rupture.	I&I Reduction: Significant Pipelines: Less than Significant Pump Stations: Less than Significant

Alternatives: 2 through 6

Implementing Agency: City of Santa Rosa

Timing: **Start:** The Program shall be developed during Project design.
Complete: Program must be complete prior to operation. Training and practice drills shall be conducted annually.

Monitoring Agency: City of Santa Rosa

Validation: Completion of Program prior to operation.

3.3.7 Reduce Risk of Damage due to Liquefaction

The City of Santa Rosa shall site facilities outside areas with high liquefaction potential, to the extent feasible. Where facilities must be sited in areas with high liquefaction potential, as mapped by California Division of Mines and Geology, the City shall utilize a registered geotechnical engineer to conduct a detailed, facility-specific, soil analysis in areas.

If the geotechnical investigations identify hazards due to liquefaction, the engineer shall identify risk areas and provide engineering design and construction recommendations to minimize damage. One or more of the following options shall be used to implement this mitigation measure:

- Densification or dewatering of surface and subsurface soils;
- Construction of concrete foundations to support pipelines or pile foundations to support buildings; or
- Removal of material that could undergo liquefaction in the event of an earthquake and replacement with stable material.

Where areas prone to liquefaction are so extensive that removal of liquefaction-prone material is not feasible, the following measures may be implemented, depending upon site-specific conditions:

- Use of restrained joint pipe throughout the area prone to liquefaction.
- Installation of shut-off valves at key locations.
- Provision of pressure and seismic sensors for automatic pump shut down due to pressure loss or a significant seismic event.
- Use of automated control valves at pump stations to limit water release after pump station shut-down.

Impacts Mitigated and Mitigation Level

Impacts Mitigated	Level of Significance after Mitigation
3.3.3, 3.6-9.3, and 3.11-13.3. The I&I Reduction, Pipelines, Storage, Created Wetlands, Pump Stations and Tanks, Direct and Indirect Discharge, and AMT components may be susceptible to liquefaction during an earthquake.	Less than Significant

Alternatives:	2 through 6
Implementing Agency:	City of Santa Rosa
Timing:	Start: At onset of Project design. Complete: Upon completion of construction.
Monitoring Agency:	City of Santa Rosa

Validation:

Report that 90% plans conform with measure.

3.4.4 Landscape and Architectural Screening

The City of Santa Rosa shall plant drought tolerant, non-invasive shrubs and trees and/or utilize raised berms at facilities as appropriate to screen views from sensitive viewpoints (scenic vistas, designated local or State scenic resources, private residences, high volume travelways, recreation use areas, or other public use area) and to reduce visual contrast in off-site foreground views. Screening may also take the form of architectural remedies such as designing a pump station to appear as a structure that would blend with the surrounding neighborhood.

Where sites may be viewed from residences, the City shall coordinate with landowners in close proximity to the project to provide vegetation screening on the residential property. All visible faces of storage facility dams or berms shall be revegetated with drought tolerant, non-invasive grasses and where appropriate natural groupings of shrubs shall be planted adjacent to the dams or berms to reduce the visual contrast of the exposed face compared to the surrounding landscape.

Impacts Mitigated and Mitigation Level

Impacts Mitigated	Level of Significance After Mitigation
14.7.1 and 14.9-13.1 The Storage, Pump Stations and Tanks, Geysers Steamfield Expansion, Direct and Indirect Discharge, and AMT components may have a substantial adverse effect on scenic vistas or substantially damage scenic resources including those designated by City or County General Plans or Caltrans designated Scenic Highways.	Storage: Alts 3 - 6 – Significant Pump Stations: Alt 3, and 6 - Significant; Alt 4 - Less than Significant Geysers Steamfield: Alts 5 and 6 – Less than Significant Discharge: Alt 6C – Significant; all other less than significant AMT: Alt 6 –Significant
14.7.2 and 14.9-13.2 The Storage, Pump Stations and Tanks, Geysers Steamfield Expansion, Direct and Indirect Discharge, and AMT components may substantially degrade the existing visual character of the site or its surroundings, including private residences, high volume travelway, recreation use areas, or other public use area.	Storage: Alts 3 - 6 – Significant Pump Stations: Alt 3, 5 and 6 - Significant; Alt 4 - Less than Significant Geysers Steamfield: Alts 5 and 6 – Less than Significant Discharge: Alt 6C and 6E – Significant; all others less than significant AMT: Alt 6 –Significant

Alternatives: 3 through 6

Implementing Agency: City of Santa Rosa

Timing: **Start:** During construction.

Complete: Within one year of completing construction of an IRWP facility.

Monitoring Agency: City of Santa Rosa

Validation:

The City shall verify that landscaping is included in plans, and shall monitor success of landscaping for five years after completing construction of an IRWP facility.