**DRAFT MITIGATED NEGATIVE DECLARATION**
**FOR THE**
**VENTURA COUNTY WATERWORKS DISTRICT NO. 19**
**NEAR-TERM CAPITAL PROJECTS**

## LEAD AGENCY/PROJECT PROPONENT

Ventura County Waterworks District No. 19
P.O. Box 250
6767 Spring Road
Moorpark, CA 93021

Contact: Mr. Cefe Munoz
(805) 378-3020

## PROJECT LOCATION

The District as a whole encompasses approximately 15,000 acres and includes the Somis community and surrounding rural areas. The District boundaries are shown on Figure 1.

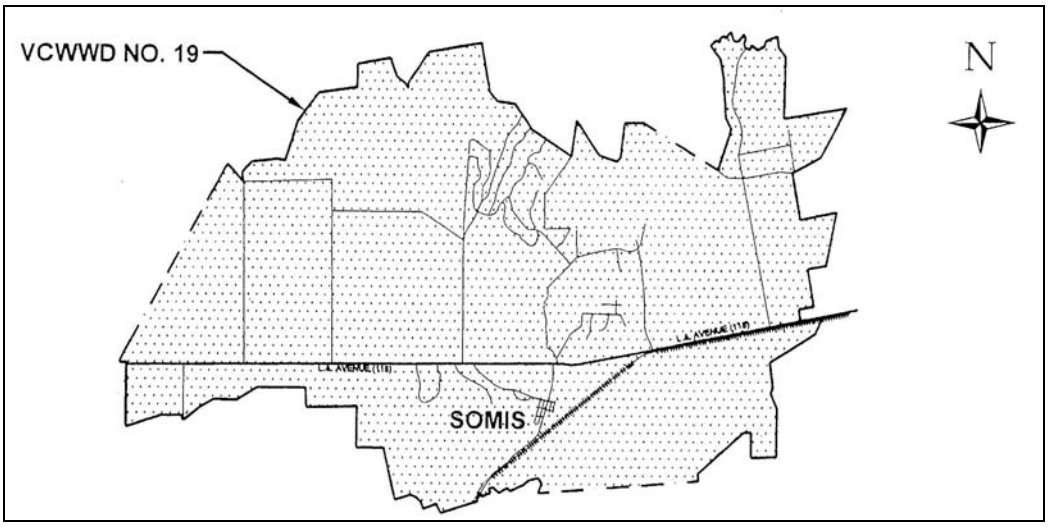



**Figure 1. Ventura County Waterworks District No 19 Boundaries**

Specific project locations are identified in Table 1. All of the Near-term Projects addressed in this Mitigated Negative Declaration are located in the Somis area of unincorporated Ventura County, California. The regional and site locations are shown in Figure 2.

## Table 1. Project Identification and Location

| Project No. | Project Title and Description | Project Location |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility. Construction and operation of a new filtration plant at Well No. 2 remove excess concentrations of iron and manganese and installation of 560 linear feet of 14-inch waterline*. | The project street address is 4990 Bradley Road, Somis, CA. The well site is located on Assessor's Parcel No. (APN) 110-0-170-415. The filtration facility would be located in the adjacent APN 110-0-170-415. The water line would be installed on within the Bradley Road right-of-way and connect to a waterline in Berylwood Road. |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade. Increase the capacity of the Sand Canyon Booster Pump Station; and replace 8-inch water line segment with 12-inch line (approximate 2,850 linear feet). | Booster Pump Station - 4300 Sand Canyon Road<br>Sand Canyon Road (from Booster Pump Station [BPS] to Cameron Drive) |
| 3 | Donlon Road Pipeline Upgrade. Replace 8-inch water line with 12-inch line (about 1,320 linear feet). | Along Donlon Road from McBean Road north. |
| 4 | Kingsgrove Drive Pipeline Upgrade. Replace 8-inch water line with 12-inch line (about 920 linear feet). | Along Kingsgrove Drive from Faircrest Drive northwest to Well No. 3 access. |
| 5 | Bell Ranch/Somis Road[1]/West Street Pipeline Upgrade. Abandon approximately 8,000 linear feet of 4-inch and 5-inch water lines from Highway 118[2] to Bell Ranch Road/Somis Road along Ponderosa Road. | Ponderosa Road |
| | Connect customers to the water service in West Street with approximately 2,600 linear feet each of two 2-inch water lines. | Along agricultural road |
| | Extend the existing 12-inch water line on Somis Road from Hagle Lumber (located at 3100 Somis Road) to Bell Ranch Road/Somis Road by approximately 3,100 linear feet. | Somis Road |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade. Relocate three water meters from the customer's property to within the public right-of-way on Posita Road and the reconnection of those service lines. This project includes replacement of three 2-inch water service lines in kind (about 1,360 linear feet each). | Meter customers:<br>8033 Posita Road<br>6770 Balcom Canyon Road<br>6890 Balcom Canyon Road<br>Off Posita Road to the north |
| 7 | West Street Alley Pipeline Upgrade and replacement. Replace the existing 4-inch water line in the West Street Alley with 8-inch line (1,360 linear feet); and replace 38 service | West Street alley |

[1] Somis Road is also referred to as State Route 34

[2] Highway 118 is also referred to as State Route 118 and in the Program area as Los Angeles Avenue.

| Project No. | Project Title and Description | Project Location |
|---|---|---|
| | lines. | |
| 8 | Highway 118 - Replace existing 8-inch water main with a 12-inch water main (4,500 linear feet) | Highway 118 - Groves Place to Aggen Road |
| 9 | Highway 118 Pipeline Upgrade. Replace 8-inch water line segment (2,500 linear feet) with 12-inch pipe. | Highway 118 from Bradley Road to Groves Place |
| 10 | Highway 118 - Replace 8-inch water main segment with 10-inch line (2,700 linear feet). | Highway 118 - from Bradley Road east to the point of connection to the existing 10-inch main. |
| 11 | Highway 118 - Replace 8-inch water main segment with a 12-inch and reconnect existing services to the new main (4,300 feet). | Highway 118 - Donlon Road to La Cumbre Road |
| 12 | Balcom Canyon Road Upgrade. Replace existing 4-inch (1,810 linear feet) and 6-inch (800 linear feet) water line with 12-inch pipe.<br>Relocate the Balcom Canyon pressure reducing station to the intersection of Balcom Canyon Road and Highway 118. | Balcom Canyon Road from its intersection with Highway 118 to an existing pressure reducing station. |

* All pipelines will be installed within the paved portion of the road with the exception of pipelines that would be located within unpaved agricultural roads and the pipeline in Highway 118 which would be installed at least 6 feet from the white line (fog line) where feasible to avoid traffic impacts.

## PROJECT DESCRIPTION

**Background and Project Objective.** The Ventura County Waterworks District No. 19 (District) was created in 1980 and is managed by the Water and Sanitation Department, Public Works Agency, County of Ventura, which is responsible for the administration, operation and maintenance of the District water system. The District's water supplies are from both local (groundwater) and imported water (State Water Project Water) sources. The District's groundwater supplies are obtained from the Las Posas Basin and the Fox Canyon Aquifers by three groundwater wells (Ventura County Waterworks District 19 Wells No.'s 2, 3, and 4) owned by the District. The District is responsible for the treatment of the groundwater delivered to its customers.

The District intends to replace older, undersized and deteriorating water pipelines, improve the filtration and disinfection system at the Well No. 2 site by installing a new iron and manganese removal facility, abandon an existing 4-inch water line located in the alley between West Street and Somis Road, and reconnect the water services to the proposed new water line located in the alley way. The Program focuses on 12 separate areas within the District's water system that are in need of immediate attention.

**Project Components.** The Program comprises 12 individual Near-term Projects. These projects are briefly described in Table 1 above. A detailed description of the Near-term Projects is provided in the attached Initial Study (IS).

## PROPOSED FINDINGS

The District has prepared this Mitigated Negative Declaration (MND) pursuant to Section 15070 of the State Guidelines for the Implementation of the California Environmental Quality Act. This Mitigated Negative Declaration documents the District's finding that there are no significantly adverse, unavoidable impacts associated with the proposed project, and the project does not require the preparation of an Environmental Impact Report (EIR). The attached IS identifies and discusses potential impacts, mitigation measures that will be incorporated into the proposed project and residual impacts for identified subject areas. Any element in the project description that is not met as described shall constitute an action not considered as part of the MND/IS. If the project description changes, the District will require that a reevaluation of potential environmental effects be conducted that considers these changes.

## PUBLIC COMMENTS

Due to the non-complex nature of this project, a separate environmental hearing will not be held. In compliance with Section 15073 of the State Guidelines for the Implementation of the California Environmental Quality Act, the Ventura County Waterworks District No. 19 issued a public Notice of Intent and established a public review period from November 1, 2011 through November 30, 2011. The purpose of this review period is to accept written or oral comments on the adequacy of the information contained in the Draft MND/IS.

Comments will be addressed in the Final MND/IS for the project. A copy of the IS, if not provided with this notice, can be reviewed at the following locations:

Ventura County Waterworks
District No. 19
6767 Spring Road
Moorpark, CA 93021

Camarillo Public Library
4101 Las Posas Road
Camarillo, CA 93010
for library hours, please call:
Tel. (805) 388-5222

Moorpark Library
699 Moorpark Avenue
Moorpark, CA 93021
for library hours, please call:
Tel. (805) 517-6370

The document is also available on the District's web site. The step-by-step instructions for locating the document on our website are as follows. Go to:

www.countyofventura.org

department listing

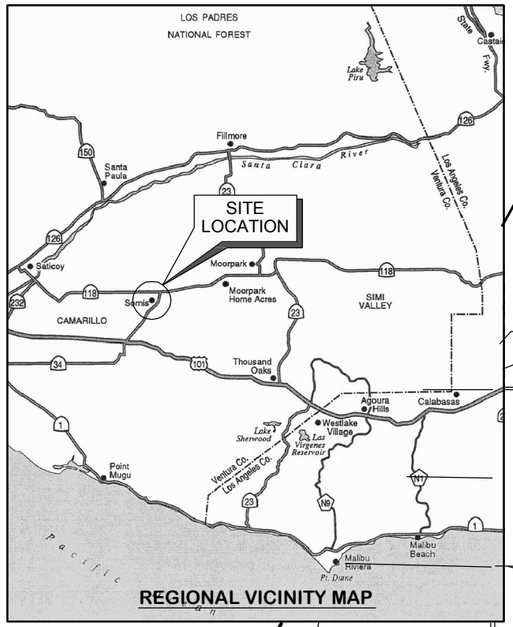
Public Works Agency

Water & Sanitation Services

Current Project Information

look under "Current Projects Feasibility Studies/Reports"

August 2011
Project No. 1102-0631






LEGEND

- DISTRICT BOUNDARY
- 1 → NEAR-TERM PROJECT IDENTIFICATION NUMBER - SEE TABLE 1
- LOCATION OF NEAR-TERM PROJECT

GRAPHIC SCALE

0 1,450 2,900 5,800

( IN FEET )
APPROXIMATE 1 inch = 2,900ft.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

REGIONAL AND PROJECT LOCATION
FIGURE 2

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## MITIGATION MEASURES

The following measures are incorporated into the proposed project to reduce impacts to a less than significant level.

**Air Quality:**

**AQ1** The District shall implement a fugitive dust control program. The dust control program should include the following procedures:

- Water trucks shall continuously spray the graded area to keep dust to a minimum.
- Completed grading will be treated with a polymer binder and monitored quarterly.
- Unpaved parking will be treated with 4 inches of crushed aggregate base which will be watered down as necessary.
- To prevent excessive amounts of dust, dust producing operations shall cease during high wind events. (High wind events are defined as wind of such velocity as to cause fugitive dust from within the site to blow off-site.)
- Streets shall be swept at the end of the day if visible soil material is carried over adjacent roads.
- All exposed soil areas shall be sprinkled with water as necessary during grading operations.
- On-site vehicular traffic shall be limited to no more than 15 mph.
- All trucks importing fill to the site shall use tarpaulins to cover the load.
- All excavated material shall be sufficiently watered to prevent excessive amounts of dust.
- All material being moved shall be watered or covered.
- All material transported off-site should either be sufficiently watered or securely covered to prevent excessive amounts of dust.
- Minimize the necessary amount of disturbance area for clearing, grading, earth moving or excavation.
- At any point in time, if it is observed that fugitive dust is blowing off-site, additional dust prevention measures shall be initiated. If these measures are insufficient to prevent fugitive dust (i.e., during periods of extreme heat or winds), dust generating activities shall be immediately curtailed until the conditions abate.

**AQ2** Minimize equipment idling time.

**AQ3** Maintain equipment engines in good condition and in proper tune as per manufactures' specifications.

**AQ4** Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.

**AQ5** Use alternatively fueled construction equipment such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

**Water Quality:**

**WQ1** The construction of the Near-term Projects shall meet performance criteria defined in Section 1 of Part 4.F through the inclusion of the effective Best Management Practices (BMPs) for Construction sites Less than One Acre during all ground disturbing activities. The project applicant (District) is required to develop and implement a Stormwater Pollution Control Plan (SWPCP). Ventura County Waterworks District 19 (District) shall review and approve the SWPCP for each project for compliance with Section 1 of Part 4.F of the NPDES permit. The review shall be done by qualified personnel. The District shall provide a copy of the approved SWPCP to the Watershed Protection District, Water and Environmental Resources Division for permit tracking purposes. The SWPCP shall be reviewed and approved by the District prior to issuance of a notice to proceed to the contractor. A District inspector shall conduct inspections per Section 8 of Part 4.F of the MS4 permit to assure effective installation and functionality of the approved BMPs.

**Biological Resources:**

**BIO1** If feasible, project activities at the Well No. 2 Iron and Manganese Removal Facility site will be scheduled outside the typical bird breeding season (March 1 to August 15), or if activities are scheduled during this time, a minimum of one pre-construction breeding bird survey will be conducted at the site. If any bird species protected by the Migratory Bird Treaty Act and/or California Department of Fish and Game Code are observed nesting at the site, proper exclusionary buffers will be provided or the project will be postponed until the nestlings have fledged the nest.

**Agricultural Resources:**

**AR1** The District shall coordinate scheduling of Near-term Projects located on agriculturally productive parcels with the landowner and leasee (as applicable) to minimize disturbance of ongoing agricultural operations.

**Visual Resources:**

**VR1** Prior to operation of the proposed iron and manganese removal facility, the District shall replace any plant material that is adjacent to the Well No. 2 fence that is removed during construction. Additionally, the District shall coordinate with the neighboring property owners in determining the type of plant material to be planted along the exterior of project site fencing facing private property. Drought-resistant native plants shall be used where feasible.

**Cultural Resources:**

**CUL1** In the event that archaeological resources are exposed during project construction, all earth disturbing work within the vicinity of the find must be temporarily suspended until a qualified archaeologist has evaluated the nature and significance of the find. The District shall be notified of any such find. A Chumash representative should monitor any archaeological field work associated with Native American materials.

**CUL2** If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission. The District shall also be notified of any such find.

**Geologic Hazards:**

**GEO1** The District shall have a registered engineer for the Well No. 2 Iron and Manganese Removal Facility conduct an evaluation of the expansiveness of project site soils. Any recommendations for remedial actions shall be implemented by the District. Such measures may include standard construction techniques such as: removal of expansive soils and replacement with non-expansive fill, or pre-saturation of expansive soils prior to construction of project foundations.

**Noise and Vibration:**

**N1** The District shall notify all adjacent residents at least two weeks prior to project construction of the construction schedule including beginning and end dates and, days and hours of construction.

**N2** Select truck routes for material delivery and spoils disposal so that noise from heavy-duty trucks will have a minimal impact on noise sensitive receptors. Proposed truck haul routes are to be submitted to the County Transportation Division for approval.

a. Conduct truck loading, unloading, and hauling operations so noise and vibration are kept to a minimum.

b. Route construction equipment and vehicles carrying soil, concrete or other materials over streets and routes that will cause the least disturbance to residents in the vicinity of construction sites and haul roads.

c. Do not operate haul trucks on streets within 250 feet of school buildings during school hours or hospitals and nursing homes at any time, without a variance.

d. Submit haul routes and staging areas to the County Transportation Division for approval, at least 30 days before the required usage date.

**N3** Turn off idling equipment when not in use for periods longer than 30 minutes.

**N4** Operate equipment so as to minimize banging, clattering, buzzing, and other annoying types of noises near noise sensitive receptors.

**N5** Noise producing equipment shall not result in an increase of above 3 dBA over ambient as a result of operation of project facilities at noise sensitive locations (e.g., residential uses). A noise consultant shall be retained to evaluate final development plans and ensure that any necessary noise installation measures have been incorporated as needed to ensure that the project will not result in noise levels over 3 dBA above ambient (1hr Leq) at nearby sensitive receptors. Alternately, a noise consultant shall be retained by the District to take ambient nighttime noise measurements at noise sensitive land uses in proximity to the project site prior to operation of project infrastructure. Upon operation of project equipment, nighttime noise measurements shall be taken again for comparison purposes. If noise levels exceed 3 dBA above ambient, corrective noise reduction measures (e.g., further insulation of noise producing equipment or installation of different models of equipment) shall be made until the reference threshold has been met.

**V1** The District shall retain a vibration consultant to assist in the project design and construction methodology for pipeline installation projects that would result in the use of compaction equipment closer than 15 feet to structures. In such cases, the vibration consultant shall work with the District to determine the potential magnitude of vibratory impact to the structures in question and devise methods such as use of equipment that would produce less vibration to ensure that vibrations at the impacted structures would be below the Construction Vibration Damage Criteria as presented in Chapter 12: Noise and Vibration During Construction of the Federal Transit Administration publication Transit Noise and Vibration Impact Assessment (2007) or similar applicable standards as may be in effect at the time of project design and construction.

**Public Health**

**PH1** Ventura County Waterworks District No. 19 shall ensure that if during construction of the project, soil contamination is suspected, by the construction contractor, construction in the area shall stop and appropriate health and safety procedures shall be implemented including contact with the Ventura County Environmental Health Department. If determined necessary by the Ventura County Health Department or other regulatory agency with jurisdiction over the environmental resources affected appropriate remedial activity shall be conducted prior to the resumption of work in the area of concern. Remediation could involve removal and proper disposal of contaminated materials, on-site treatment, etc.

**Transportation/Circulation:**

**T1** Pipeline Installation, on State Highways, that is not located further than 6 feet from the fog line (this is anticipated to be required only in special circumstances) will need to be conducted from 9:00 AM to 3:00 PM to minimize impacts on Levels of Service for these highways.

**T2** The District shall make a condition of the construction contractor bid specifications that during the construction phase of the Near-term Projects, all construction-related trips affecting SR 118 and SR 34 will occur outside of the peak hours to the maximum extent feasible (most importantly avoiding the intersection of SR 118 and

SR 34 to the extent feasible during these time periods). Peak hours are 6:30 to 9:30 am and 3:30 to 6:30 p.m. weekdays.

**T3** The District shall apply for Encroachment Permits from the Permits Division of the County Transportation Department for work on County roads. The District should contact the Permits Division at 805-654-2055 for the requirements of this permit.

**T4** A Traffic Control Plan shall be prepared by a traffic engineer, submitted, reviewed and approved for any road closure, partial road closure, or detours on County roads. The plan must be approved a minimum of seven calendar days prior to the actual road closure, or detour.

**T5** Provide the Transportation Department with a Site Plan that shows the proximity of trenching operation, construction equipment, and storage of materials to the right-of-way and road edge on the County roads affected by the Near-term Projects.

**T6** Oversize vehicle permits shall be obtained from the County of Ventura if such vehicles are to be used in the truck hauling operations.

**T7** The District shall apply for Encroachment Permits from the Caltrans for work in State highways.

**T8** The District shall prepare and submit to Caltrans for approval a Detour Plan for all Near-term Projects that would block access to a State Highway (e.g. blocking access to SR 118 from Bradley Road).

**T9** Any wide loads or unusual loads (e.g., excessively long loads) to be transported on State highways will require a Transportation Permit from Caltrans.

**T10** The District shall pay a Traffic Impact Mitigation Fee (TIMF) for the average daily trips generated by the overall "Program".

**T11** The District shall comply with the Ventura County Transportation Department policy regarding a moratorium on trenching on recently paved roads. If the road has been paved in the last five years, then the District will be responsible for overlaying the entire width of the road. This policy may apply to Posita Road (paved in 2006) and Balcom Canyon Road (paved in 2010).

**T12** The construction contractor(s) for the Near-term Projects shall inspect the project-impacted road (and videotape) with representatives from the County Road Maintenance Division prior to construction. Precautions shall be taken by the contractor to protect County roads during construction. Immediately after construction is complete, the contractor shall inspect the road jointly with a representative of the County Road Maintenance Division. Any portion damaged during construction, in the opinion of the Transportation Department or Designee, shall be replaced in accordance with the current Standard Construction Details and/or in a manner acceptable to the Transportation Department or designee within 30 days of completion of the project.

**T13** During the hauling of material to or from the project sites, the trucks shall be covered to secure all material so that any nuisance or danger to the public from flying debris can be avoided.

**Solid Waste Management**

**SW1** Recyclable Construction Materials: Contract specifications for this project must require that all recyclable materials generated during the demolition and/or construction phases of the project (e.g., concrete, asphalt, rebar, wood, and metal) be recycled at an appropriate, permitted, recycling facility. A complete list of permitted construction and demolition debris recycling facilities in Ventura County is available at: www.wasteless.org/construction&demolitionrecyclingresources. All non-recyclable materials must be disposed at a permitted solid waste disposal facility.

**SW2** Soil - Recycling & Reuse: Contract specifications for this project must include a requirement that soil and sand not reused on-site during the construction phase of the project be transported to an authorized or permitted organics facility for recycling or reuse. Illegal disposal and landfilling of soil is prohibited. A complete list of facilities in Ventura County that recycle soil is available at: www.wasteless.org/construction&demolitionrecyclingresources.

**SW3** Green Materials - Recycling & Reuse: The Contract Specifications for this project must include a requirement that all wood waste and vegetation removed during the construction phase of this project must be diverted from the landfill. This can be accomplished by on-site chipping and land-application at various project sites, or by transporting the materials to an authorized or permitted greenwaste facility in Ventura County. A complete list of authorized greenwaste facilities is located at: www.wasteless.org/greenwasterecyclingfacilities.

**SW4** Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a Form B – Recycling Plan to the IWMD for approval prior to the issuance of the Notice to Proceed, as provided in Section 6-7.4. of the VCSS. The Recycling Plan must specify how all recyclable materials generated by the project (e.g., metal, concrete, wood, greenwaste, and soil) will be diverted from the landfill. A copy of IWMD's Form B – Recycling Plan is available at: www.wasteless.org/recycling/greenbuildingCD.

**SW5** Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a Form C – Recycling Report to the IWMD for approval prior to the Engineer's preparation of the final estimate, as provided in Section 9-3.2 of the VCSS. The Form C – Recycling Report must have original recycling facility receipts and/or other documentation attached to verify recycling, on-site reuse, or salvage occurred. A copy of IWMD's Form C – Recycling Report is available at: www.wasteless.org/recycling/greenbuildingCD.

# VENTURA COUNTY WATERWORKS DISTRICT NO. 19
# NEAR-TERM CAPITAL PROJECTS

# INITIAL STUDY

**Ventura County Waterworks District No. 19 (District)**
**6767 Spring Road, P.O. Box 250**
**Moorpark, California 93020-0250**
**Mr. Cefe Munoz, Project Manager**
**(805) 378-3020**

**October 2011**

SCH No. _____

**Prepared with the Assistance of:**

**Padre Associates, Inc.**
**1861 Knoll Drive, Ventura, California 93003**

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## TABLES

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## LIST OF FIGURES



## APPENDICES

# SECTION A - PROJECT DESCRIPTION

## 1.0 PROJECT TITLE

Ventura County Waterworks District No. 19 Near-term Capital Projects. (The projects considered together will herein be referred to as the "Program" or "Near-term Projects". Any particular project may be referred to as a Near-term Project or by the specific project name or number as identified below.)

## 2.0 LEAD AGENCY NAME AND ADDRESS/CONTACT PERSON AND PHONE NUMBER

Ventura County Waterworks Districts No.19 (District)
6767 Spring Road, P.O. Box 250
Moorpark, CA 93020-0250
Contact Person: Mr. Cefe Munoz, Project Manager
Phone Number: (805) 378-3020

## 3.0 PREVIOUS PROJECT REVIEW

One of the District's near-term projects identified as the Water Well No. 2 Iron and Manganese Treatment Facility was the subject of a Mitigated Negative Declaration (MND) that was circulated through the State Clearinghouse (SCH No. 2008081063) in 2008. However, the MND was never approved by the District Board and the project was postponed. The project is re-evaluated herein along with eleven additional Near-term Projects planned for implementation by the District.

## 4.0 PROJECT LOCATION

The District as a whole encompasses approximately 14,400 acres and includes the Somis community and surrounding rural areas.

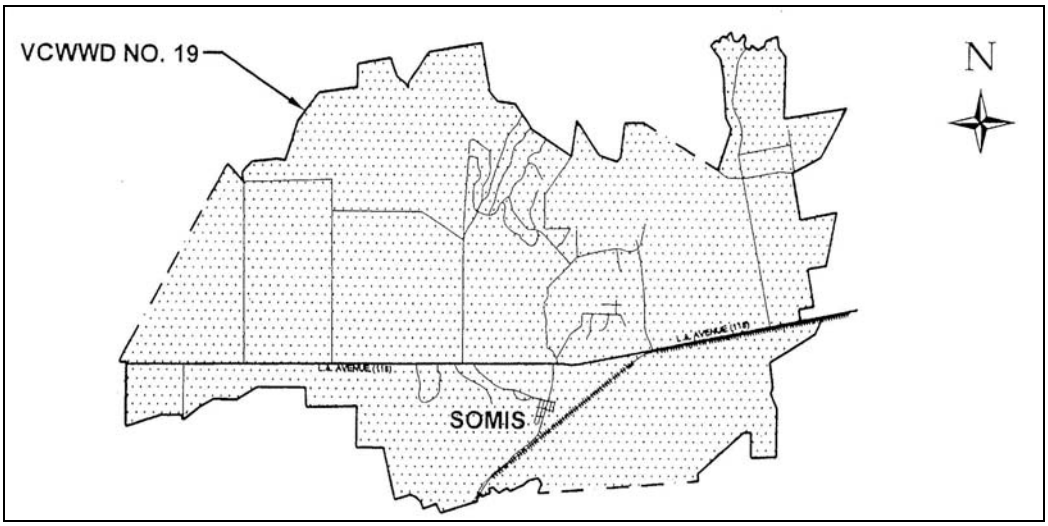


**Figure 1. Ventura County Waterworks District No 19 Boundaries**

Specific project locations are identified in Table A1. All of the Near-term Projects are located within the District boundaries in unincorporated Ventura County, California. The regional and site locations are shown in Figure 2.

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| 3 | Donlon Road Pipeline Upgrade. Replace 8-inch water line with 12-inch line (about 1,320 linear feet). | Along Donlon Road from McBean Road north. |
| 4 | Kingsgrove Drive Pipeline Upgrade. Replace 8-inch water line with 12-inch line (about 920 linear feet). | Along Kingsgrove Drive from Faircrest Drive northwest to Well No. 3 access. |

| Project No. | Project Title and Description | Project Location |
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| 5 | Bell Ranch/Somis Road[1]/West Street Pipeline Upgrade. Abandon approximately 8,000 linear feet of 4-inch and 5-inch water lines from Highway 118[2] to Bell Ranch Road/Somis Road along Ponderosa Road. | Ponderosa Road |
| | Connect customers to the water service in West Street with approximately 2,600 linear feet each of two 2-inch water lines. | Along agricultural road |
| | Extend the existing 12-inch water line on Somis Road from Hagle Lumber (located at 3100 Somis Road) to Bell Ranch Road/Somis Road by approximately 3,100 linear feet. | Somis Road |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade. Relocate three water meters from the customer's property to within the public right-of-way on Posita Road and the reconnection of those service lines. This project includes replacement of three 2-inch water service lines in kind (about 1,360 linear feet each). | Meter customers:<br>8033 Posita Road<br>6770 Balcom Canyon Road<br>6890 Balcom Canyon Road<br>Off Posita Road to the north |
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| 8 | Highway 118 - Replace existing 8-inch water main with a 12-inch water main (4,500 linear feet) | Highway 118 - Groves Place to Aggen Road |
| 9 | Highway 118 Pipeline Upgrade. Replace 8-inch water line segment (2,500 linear feet) with 12-inch pipe. | Highway 118 from Bradley Road to Groves Place |
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| 11 | Highway 118 - Replace 8-inch water main segment with a 12-inch and reconnect existing services to the new main (4,300 feet). | Highway 118 - Donlon Road to La Cumbre Road |

1 Somis Road is also referred to as State Route 34

2 Highway 118 is also referred to as State Route 118 and in the Program area as Los Angeles Avenue.

| Project No. | Project Title and Description | Project Location |
|---|---|---|
| 12 | Balcom Canyon Road Upgrade. Replace existing 4-inch (1,810 linear feet) and 6-inch (800 linear feet) water line with 12-inch pipe.<br>Relocate the Balcom Canyon pressure reducing station to the intersection of Balcom Canyon Road and Highway 118. | Balcom Canyon Road from its intersection with Highway 118 to an existing pressure reducing station. |

* All pipelines will be installed within the paved portion of the road with the exception of pipelines that would be located within unpaved agricultural roads and the pipeline in Highway 118 which would be installed at least 6 feet from the white line (fog line) where feasible to avoid traffic impacts.

## 5.0 PROJECT SPONSOR'S NAME AND ADDRESS

Ventura County Waterworks District No. 19
6767 Spring Road, P.O. Box 250
Moorpark, California 93020-0250

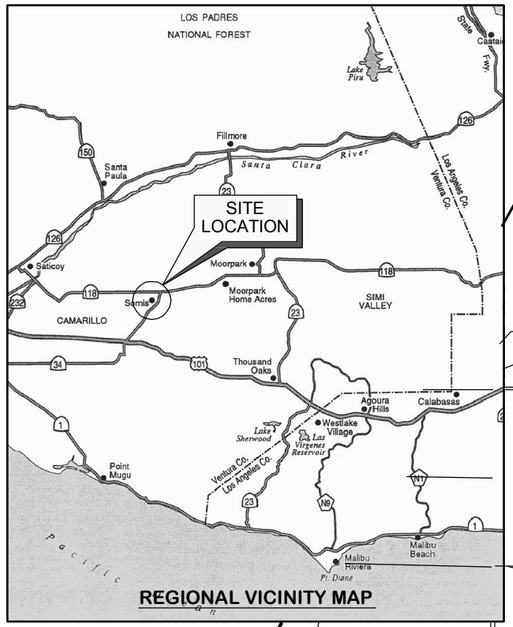
## 6.0 GENERAL PLAN DESIGNATION

### Table A2. General Plan Designations

| Project No. | Project Title | General Plan Designation* |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | Agriculture |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Agriculture |
| 3 | Donlon Road Pipeline Upgrade | Agriculture |
| 4 | Kingsgrove Drive Pipeline Upgrade | Agriculture and Rural |
| 5 | Bell Ranch Road/Somis Road/West | Agriculture and Existing Community |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | Agriculture |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Existing Community |
| 8 - 11 | Highway 118 Pipeline Replacement | Agriculture |
| 12 | Balcom Canyon Pipeline Upgrade | Agriculture |

* Designations are for the site and or surrounding land uses.

August 2011
Project No. 1102-0631






LEGEND

- DISTRICT BOUNDARY
- 1 → NEAR-TERM PROJECT IDENTIFICATION NUMBER - SEE TABLE 1
- LOCATION OF NEAR-TERM PROJECT

GRAPHIC SCALE

0 1,450 2,900 5,800

( IN FEET )
APPROXIMATE 1 inch = 2,900ft.

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REGIONAL AND PROJECT LOCATION
FIGURE 2

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# 7.0 ZONING

## Table A3. Zoning

| Project No. | Project Title | Zoning* |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | Agriculture (AE-40 acre minimum) |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | AE-40 acre minimum |
| 3 | Donlon Road Pipeline Upgrade | AE-40 acre minimum |
| 4 | Kingsgrove Drive Pipeline Upgrade | AE-40 acre minimum and RA-2 ac |
| 5 | Bell Ranch Road/Somis Road/West | AE-40 acre minimum and M2-10,000 sf |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | AE-40 acre minimum |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Various residential and commercial zoning |
| 8 - 11 | Highway 118 Pipeline Replacement | AE-40 acre minimum |
| 12 | Balcom Canyon Pipeline Upgrade | AE-40 acre minimum |

* Designations are for the site and or surrounding land uses.

# 8.0 DESCRIPTION OF PROGRAM

## 8.1 BACKGROUND PURPOSE AND NEED

### 8.1.1 District No. 19 Background

Ventura County Waterworks District No. 19 (District) was created on November 4, 1980 and assumed responsibility from the previous water purveyor, Rancho Las Posas Mutual Water Company. The Ventura County Board of Supervisors is the governing body of the District.

The District owns and operates the water system that provides municipal and industrial, as well as agricultural water supply to an area of approximately 15,000 acres, in the Las Posas Valley, north of the City of Camarillo and west of the City of Moorpark. Within the District is the unincorporated community of Somis.

The District serves approximately 3,275 customers through 1,066 service connections, 290 of which are agricultural. Agricultural customers consumed approximately 70 percent of the total water supplied. Domestic, commercial, industrial, and fire protection customers consumed the remaining 30 percent. The historical average volume of water served by the District is 3,500 acre-feet (AF) per year. The historical maximum is 3,600 AF/year.

The District's water distribution system consists of 46 miles of water lines, six pumping stations, 17 pressure-reducing stations, eight reservoirs storing 3.25 million gallons (MG) of water and three turn-outs.

District water supplies are local groundwater and imported water. Local water, treated by chlorination, is supplied from three groundwater wells owned and maintained by the District. Imported water comes from the State Water Project through the Metropolitan Water District (MWD) and Calleguas Municipal Water District (CMWD). Seventy-two percent of the supply is from the District's wells and 28 percent from imported sources.

### 8.1.2 Purpose

The District intends to replace aged, undersized and deteriorating water pipelines, install iron and magnesium treatment facility at the Well No. 2 site, abandon an existing 4-inch water line located in the alley between West Street and Somis Road, reconnect the water services to the proposed new water line located in the alley way. The Program focuses on 12 separate areas within the District's water system that are needed to be upgraded to provide reliable and better quality water to its customers.

### 8.1.3 Need

The existing pipeline facilities within the District that are slated for replacement, improvement and or upgrade are aging facilities. The pipelines that would be replaced were installed as long ago as 1927 in the case of pipeline segments in Highway 118. The most recently installed segments proposed for replacement were installed in 1956. In addition, the pipeline segments proposed for replacement have one or more of the following problems: restricted flow, leaks, require improved fire flow and require improved water circulation.

Well No. 2 is approximately 40 years old and was purchased by the District from the Berylwood Heights Mutual Water Company. District-provided data indicates that Well No. 2's iron and manganese levels are at approximately 0.5 mg/L and 0.14 mg/L, respectively (RBF, July 2007). Therefore, the District proposes the addition of a new iron and manganese removal facility to Well No. 2 to lower the levels in the produced water and bring it into compliance with the secondary maximum contaminant levels (MCLs), and to provide better quality water to its customers.

## 8.2 PROJECT COMPONENTS

The proposed activities associated with each of the Near-term Projects are described as follows and as identified in Table A1.

### 8.2.1 Water Well No. 2 Iron and Manganese Removal Facility

As stated above, the District is proposing to construct a new iron (Fe) and manganese (Mn) removal facility to treat the water for high levels of these constituents and bring them below the State secondary MCLs. The existing chlorine gas system located adjacent to Well No. 2 is

also proposed to be replaced with bulk sodium hypochlorite, with ammonia feed facilities for chloramination.

The proposed new iron and manganese removal facility will require expansion of the Well No. 2 site. The expansion area will be located adjacent to the existing well site to the east, and is presently in lemon production. The existing well site is 50 feet by 84 feet in size. The proposed expansion would result in a maximum total site size of just over 0.25 acre. The existing 10 feet wide ranch access road which is located along the perimeter (south and west sides) of the site will need to be reconfigured to accommodate the expanded well site. The proposed new site is owned by the District, but as indicated above, is presently used to grow lemons.

The project design criteria have been defined in the Ventura County Waterworks District 19 Preliminary Design Memorandum for Iron and Manganese Removal Facility Well No. 2 prepared by RBF Consulting (July 2007). (This memorandum is available for review by request at the District office or can be provided as a PDF file, and is herein incorporated by reference.) They are as follows:

- Design Flow - 1,250 gallons per minute (gpm) with individual treatment component redundancy (two-625 gpm plus one 625 gpm backup)
- Finished water iron concentration < 80% of (maximum contaminant level) MCL = 0.248 miligrams per liter (mg/L)
- Finished water manganese concentration < 80% of MCL = 40 micrograms per liter (ug/L)
- No use of permanganate for oxidation
- Filter loading rates below regulatory threshold for increased monitoring
- Finished water free chlorine residual = 1.8 - 2.0 mg/L
- Addition of ammonia feed facilities for chloramination
- Zero backwash discharge from site (sufficient on-site backwash storage with decant reclaim and sludge pumped out by truck only)
- Stable, non corrosive water - to comply with the lead and copper rule
- Minimize precipitation and deposition within the distribution system
- Fully automated treatment facility capable of unattended operation
- Provide provisions for future SCADA connection and location for antenna (assumed future radio communication)

- Minimized capital and operation and maintenance costs
- Installation and start-up completed no later than July 2013 (revised from RBF memo)

A coagulation/filtration system is proposed. A general process flow diagram illustrating this treatment process is shown as Figure 3. Characteristics for the system as provided in the Preliminary Design Memorandum are as follows:

- Chemical requirement - chlorine and possibly bisulfite
- Filter footprint - up to a maximum of 35 feet by 25 feet
- Backwash tank - volume - up to a maximum of 50,000 gallons

The primary project components as listed in the Preliminary Design Memorandum include:

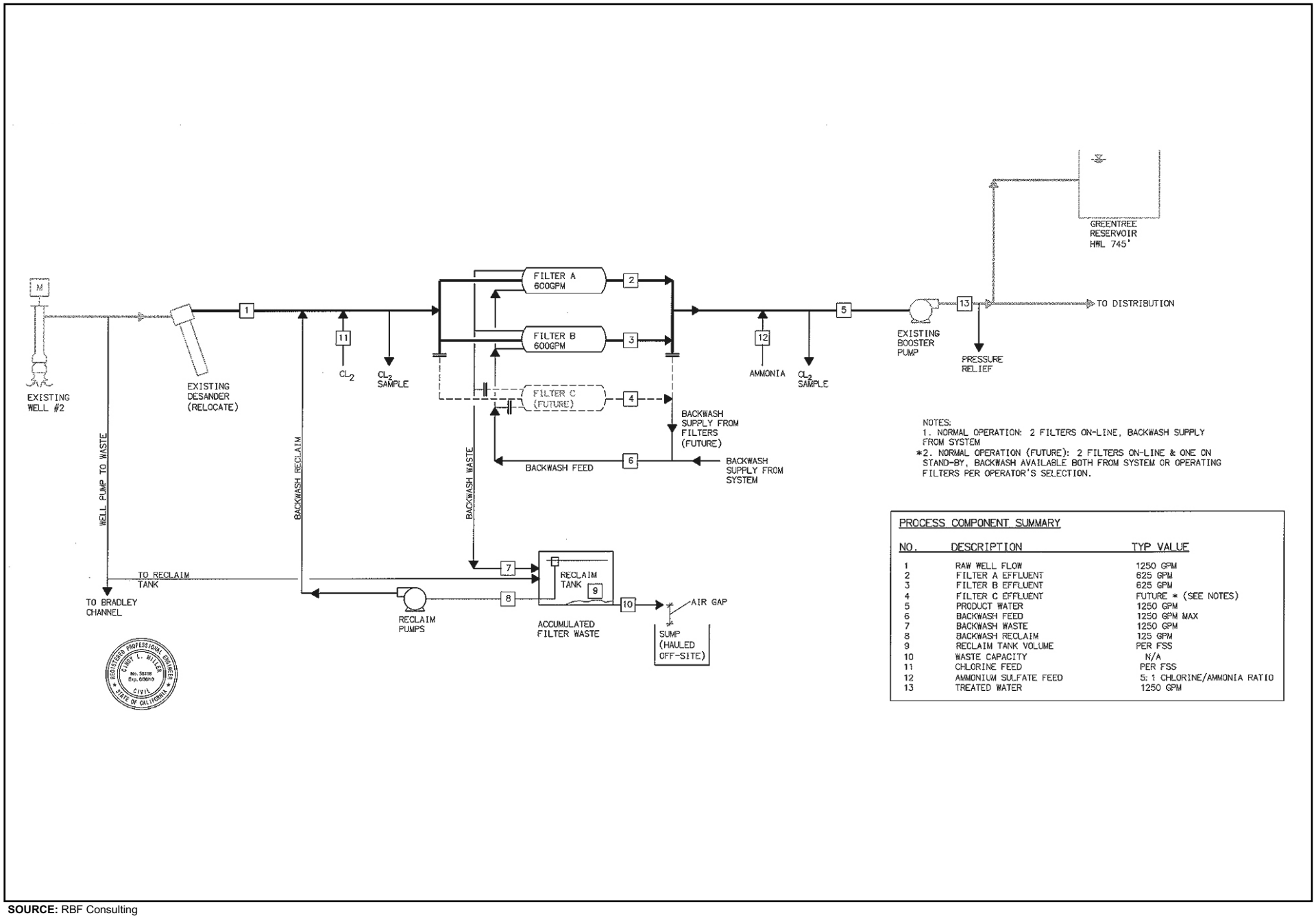
- Site Modifications
- Modification of the Automated Operations System
- Modification of Existing Facilities
- New Chemical Injection Facilities
- New Filters
- New Backwash Supply, Storage, and Sludge Disposal System
- New Reclaim System
- New Electrical and Control Facilities

#### 8.2.1.1 Proposed Site Modifications

A proposed Demolition Plan is shown as Figure 4 and the proposed Site Plan, Grading Plan and Yard Piping are shown on Figure 5. Facilities are conceptually shown to the east of the site, including a 15 feet by 25 feet chemical containment area, filter skid and reclaimed pumps mounted on a 25 feet by 35 feet concrete pad and approximately 25 feet diameter backwash tank pad. The existing desander will be relocated. Because of the wells age, a space for a replacement well is designated on the conceptual site plans.

Access to the proposed facilities to accommodate District trucks, chemical delivery trucks, and sludge pumping trucks would be provided by a 12 feet wide access road along the northern boundary of the site. This would require the relocation of the portable generator and removal of at least one pepper tree. Fifteen orchard trees are proposed for removal.

Existing drainage patterns from the site would be maintained. The 16-inch culvert at the northeast corner of the site would be extended to run under the proposed access road, into an improved concrete drainage swale through the site. The extended site would be graded to drain to the west to enter the swale, and a new concrete drainage swale would be provided along the easterly and southerly boundary, to ensure no drainage or leaking of chemicals into the adjacent orchard site. Figure 6 shows the existing well site and surrounding uses.




NOTES:
1. NORMAL OPERATION: 2 FILTERS ON-LINE, BACKWASH SUPPLY FROM SYSTEM
*2. NORMAL OPERATION (FUTURE): 2 FILTERS ON-LINE & ONE ON STAND-BY, BACKWASH AVAILABLE BOTH FROM SYSTEM OR OPERATING FILTERS PER OPERATOR'S SELECTION.

PROCESS COMPONENT SUMMARY

| NO. | DESCRIPTION | TYP VALUE |
|---|---|---|
| 1 | RAW WELL FLOW | 1250 GPM |
| 2 | FILTER A EFFLUENT | 625 GPM |
| 3 | FILTER B EFFLUENT | 625 GPM |
| 4 | FILTER C EFFLUENT | FUTURE * (SEE NOTES) |
| 5 | PRODUCT WATER | 1250 GPM |
| 6 | BACKWASH FEED | 1250 GPM MAX |
| 7 | BACKWASH WASTE | 1250 GPM |
| 8 | BACKWASH RECLAIM | 125 GPM |
| 9 | RECLAIM TANK VOLUME | PER FSS |
| 10 | WASTE CAPACITY | N/A |
| 11 | CHLORINE FEED | PER FSS |
| 12 | AMMONIUM SULFATE FEED | 5: 1 CHLORINE/AMMONIA RATIO |
| 13 | TREATED WATER | 1250 GPM |

**SOURCE:** RBF Consulting

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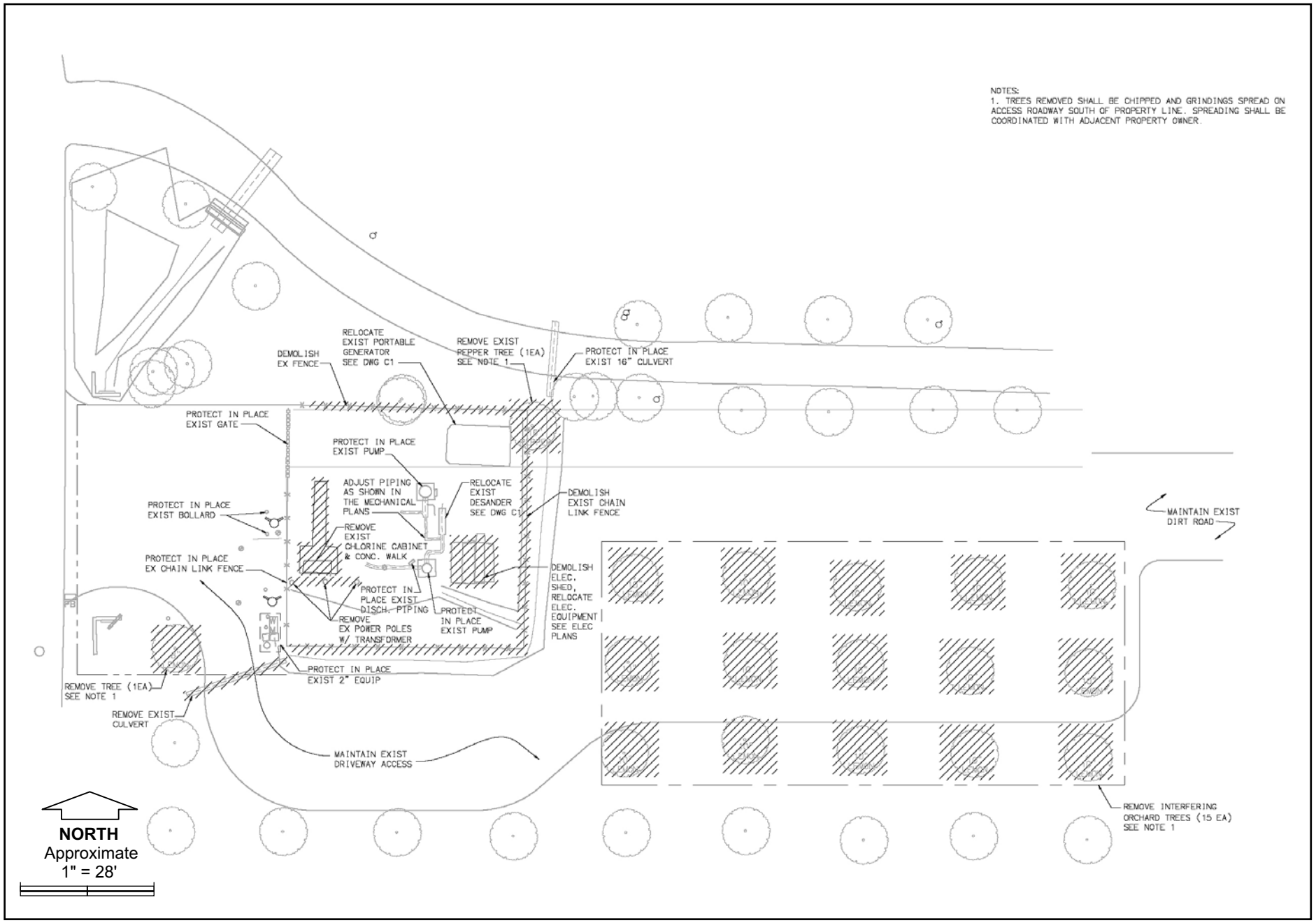
**PROCESS FLOW DIAGRAM**
**FIGURE 3**




**SOURCE:** RBF Consulting

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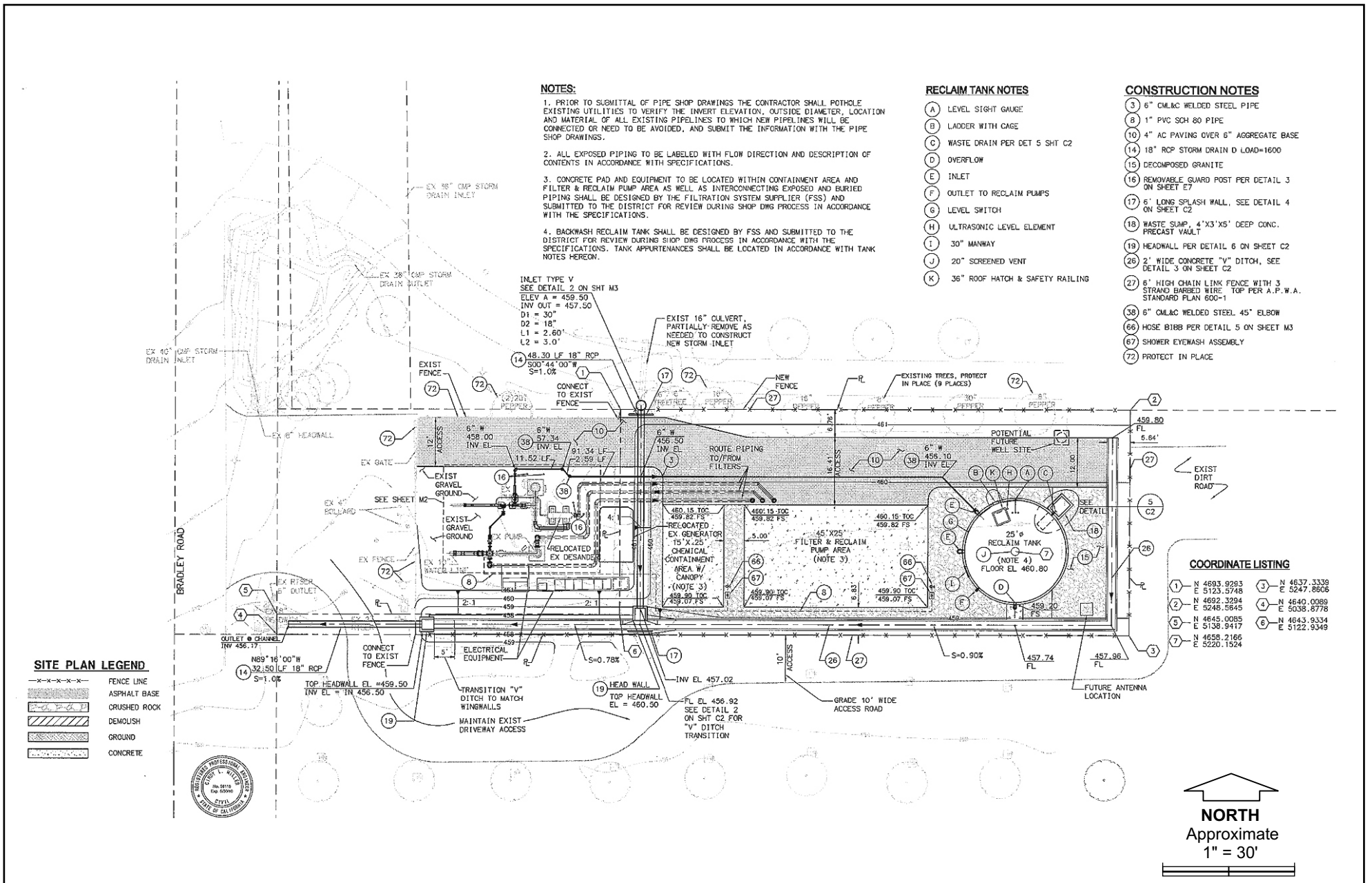
**DEMOLITION PLAN**
**FIGURE 4**




**SOURCE:** RBF Consulting

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## SITE PLAN, GRADING PLAN AND YARD PIPING
## FIGURE 5

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**SOURCE:** AirPhotoUSA - June 2006 as provided by Ventura County Resource Management Agency

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**AERIAL VIEW OF WELL NO. 2 SITE**
**FIGURE 6**

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#### 8.2.1.2 Modification of the Automatic Operations System and Existing Facilities

The well and booster pump start-up and shut-down sequences will be modified to accommodate the proposed filtration facilities. Well water will be diverted to the new treatment system between the well and the booster pump. The existing desander will be relocated, and the flow downstream of the desander will be conveyed to the filters. Effluent from the filters will be routed back to the inlet of the existing booster pump.

#### 8.2.1.3 Chemical Injection Facilities

The project will include chlorine injection facilities for oxidation of iron and magnesium, and ammonia injection facilities for the maintenance of a chloramine residual for disinfection. The District currently uses gaseous chlorine at the site; however, it is assumed that the proposed project will utilize bulk liquid 12.5 percent sodium hypochlorite and powdered ammonium sulfate. Each chemical system will include a bulk storage tank (900 gallon capacity for the sodium hypochlorite and 300 gallon capacity for the ammonia), day tank to provide flooded suction, metering pump (with backup) and secondary containment isolated from other chemical systems. No other chemicals are proposed for the system with the exception of possibly sodium bisulfate (55 gallon drum) in the event that the District selects the Filtronics brand system which would require this chemical. Chemical delivery would occur once per month.

The chemical injection facilities will be located on a concrete pad with concrete walls to provide separate secondary containment bins. An estimated 15 feet by 25 feet pad would be required to accommodate the chlorine, ammonia, and if necessary bisulfate feed systems. A chemically resistant canopy with overhang would be constructed over the containment area to provide adequate shade and protection from the elements. A small shed may be located adjacent to the containment area to store ammonium sulfate bags.

All applicable signage and eye/face wash will be located on site per the State of California Occupational Safety and Health Agency (OSHA) requirements. (The existing Well No. 2 site currently complies with relevant OSHA requirements).

#### 8.2.1.4 Other System Components

The system will use two filters at a combined 1,200 gpm capacity or three filters with 600 gpm capacity each to provide adequate redundancy. The filtration system would require backwashing on a regular basis. Backwash would be directed to the backwash storage tank and reclaim pumps will be used to recover the supernatant and recycle it back to the head of the treatment system. First water discharge during well start-up will also discharge to the backwash tank to be reclaimed. The system will produce approximately 5,000 gallons per year of sediment from the backwash process. This liquid waste containing manganese sulfate, manganese carbonate, ferric hydroxide and ferrous carbonate will be transported to the District wastewater facility (Moorpark Wastewater Treatment Plant [MWTP]) for treatment approximately once per year.

A new Motor Control Center with motor controllers for new pumps will be located in an electrical control cabinet. New conduit and wiring to accommodate power and control new equipment will be run on site as needed. The electrical and control facilities will be designed to accommodate future connection to the District's Supervisory Control and Data Acquisition (SCADA) System.

8.2.1.5 Associated Well and Pump Rehabilitation

The existing well with be cleaned using chemicals and brushes if needed. The cleaning would remove fouling material deposited on the interior well surfaces (e.g., gravel pack, well screen) which can adversely affect well capacity and water quality. Typically mineral acids or caustics are used in this process. Used cleaning solution would be pH neutralized and disposed to the sanitary sewer.

The well pump and motor will be replaced in kind as will the booster pump and motor.

8.2.1.6 Associated Pipeline Installation

A 14-inch water line (580 linear feet) will be installed on Bradley Road connecting to Berylwood Road. The pipeline will be installed using conventional trenching methods.

### 8.2.2 Sand Canyon Road Booster Pump Station and Pipeline Upgrade

8.2.2.1 Upgrade of Booster Pump Station

The Sand Canyon Booster Pump Station pumps water from CMWD's Sand Canyon Turnout to pressure zone 745. The booster station consists of two 15 horsepower (HP) pumps which operate on the level of Balcom Reservoir via point to point radio. According to the District's Operations and Maintenance staff, the capacity of Sand Canyon Booster Pump Station is 600 gpm. The pumps at the station are undersized which causes difficulty filling the Balcom Canyon Reservoir. Therefore, the District proposes to increase the capacity by replacing the pumps to a bigger size (two 50 HP pumps).

8.2.2.2 Pipeline Upgrade

A 2,850 linear feet segment of 8-inch water line within Sand Canyon Road will be abandoned in place and new 12-inch line will be installed from the booster pump station (BPS) to Cameron Drive. The pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

### 8.2.3 Donlon Road and Kingsgrove Drive Pipeline Upgrade

A 1,320 linear feet segment of 8-inch water line within Donlon Road will be abandoned in place and new 12-inch line will be installed. The pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

An approximately 920 linear feet segment of 8-inch water line within Kingsgrove Drive will be abandoned in place and new 12-inch line will be installed. The pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

### 8.2.4 Bell Ranch Road/Somis Road/West Street Pipeline Upgrade

About 8,000 linear feet of 4-inch and 5-inch diameter water lines will be abandoned in place from Highway 118 to Bell Ranch Road/Somis Road along Ponderosa Road. Two 2-inch water lines will be installed from West Street westward along an agricultural road as shown on Figure 2. Additionally, the existing 12-inch water line on Somis Road will be extended from Hagle Lumber (3100 Somis Road) to Bell Ranch/Somis Road by approximately 3,100 linear feet. The new pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

### 8.2.5 Posita Road Meter Relocation and Pipeline Upgrade

Three water meters will be relocated from a customer's property to within the public right-of-way on Posita Road. The service lines will be reconnected including the replacement of three 2,000 linear feet segments of 2-inch water line in kind. The new pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

### 8.2.6 West Street Alley Pipeline Upgrade and Replacement

The existing 4-inch water line located in the West Street alley will be replaced with 8-inch line (1,360 linear feet). Thirty-eight service lines segments will be replaced and reconnected. The new pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

### 8.2.7 Pipeline Upgrade and Replacement in Highway 118

Four segments of pipeline will be replaced along State Route 118 as described in Table A1, Near-term Projects numbered 8 through 11 and reiterated below.

- Replace existing 8-inch water main with a 12-inch water main from Groves Place to Aggen Road (4,500 linear feet)
- Replace 8-inch water line segment (2,500 linear feet) with 12-inch pipe from Bradley Road to Groves Place.
- Replace 8-inch water main segment with 10-inch line on Highway 118 from Bradley Road east to the point of connection to the existing 10-inch main (2,700 linear feet).
- Replace 8-inch water main segment with a 12-inch line from Donlon Road to La Cumbre Road; and reconnect existing services to the new main (4,300 feet).

The new pipeline will be installed using conventional trenching methods. The old pipe segment within the Caltrans right-of-way will be capped, filled with sand and left in place. Filling the abandoned pipe with sand will be accomplished by cutting the pavement approximately every 50 feet to access the pipeline, cutting the pipe and injecting it with sand.

### 8.2.8 Balcom Canyon Road Pipeline Upgrade

Segments of the existing 4-inch (1,810 linear feet) and 6-inch (800 linear feet) water line within Balcom Canyon Road will be replaced with 12-inch pipe. The new pipeline will be installed using conventional trenching methods. The old pipe segment will be capped and left in place.

The Balcom Canyon pressure reducing station will be relocated from its present site on Balcom Canyon Road to the intersection of Balcom Canyon Road and Highway 118. The current pressure reducing station consists of valves and pipe structures located within an underground vault with an aluminum traffic-rated access door. The existing vault will be filled with sand and a similar pressure reducing station constructed in the new location.

## 8.3 PROJECT SCHEDULE

Water Well No. 2 Iron and Manganese Removal Facility construction is anticipated to begin in May of 2012 and would last about 10 months. The pipeline projects are anticipated to begin about August 2012 and be completed by December 2013. Project construction is contingent upon USDA loan approval.

Construction will occur Monday through Friday between the hours of 7:00 am until 6:00 pm. Pipeline installation is expected to proceed about 300 linear feet per work day. Filling of the abandoned pipeline in Highway 118 is anticipated to progress at a rate of about 500 feet per work day.

It is anticipated that the Near-term Projects would be completed sequentially. However, depending on the contractor, it could be reasonably expected that two of the individual projects may be in construction simultaneously.

## 8.4 PROJECT CONSTRUCTION

### 8.4.1 Methods

8.4.1.1 Water Well No. 2 Iron and Manganese Removal Facility

Water Well No. 2 Iron and Manganese Removal Facility construction would begin with site preparation. Currently citrus trees and pepper trees occupy a portion of the expansion area. The trees would be cut and disposed in a legally acceptable manner. Stumps would be removed and chipped onsite. Root systems would be removed to the extent feasible and the soil prepared to County-approved specifications. Minimal fill will be needed to insure positive drainage and offset settlement of soil during re-compaction procedures.

Construction and assembly activities associated with the iron and manganese removal facility would include: site improvements, construction of the new system, and installation of piping, electrical wiring and instrumentation; and finally cleanup and demobilizing of equipment.

8.4.1.2 Pipeline Upgrades and Other Projects

Pipe construction methods will be conventional trenching for all segments of pipe. Trenches will be approximately 4.5 feet deep and 2 feet wide (typical for 12-inch diameter pipe installation). Depth of cover (top of pipe to pavement) will be 36-inches and the base below the pipe to bottom of the trench will be 4-inches deep.

Cut, fill, import and export volumes for the pipeline projects is estimated as follows (includes native material, sand and asphalt).

**Table A4. Pipeline Cut and Fill Volumes**

| | Volume in Cubic Yards | Associated Truck Trips |
|---|---|---|
| Cut | 8,840 | 0 |
| Fill | 5,722 | 0 |
| Export | 4,811 | 321 |
| Import | 4,002 | 267 |

Additionally base and asphalt imports would result in an additional 158 trips. Sand imports for the abandonment of the pipeline in Highway 118 would result in about 22 truck trips.

Traffic control measures will be used when work is within the lanes of traffic. Caltrans standard traffic control methods will be implemented for all project traffic control. Lane closures will be necessary where work needs to be conducted in the travel lanes of local roads.

### 8.4.2 Equipment

8.4.2.1 Water Well No. 2 Iron and Manganese Removal Facility

Site preparation is expected to require the following equipment:

- 1 - back hoe
- 3 - chain saws
- 1 - tractor
- 1 - pull-behind sheepsfoot compactor

Treatment and Filtration systems construction and assembly is expected to require the following construction equipment.

- 1 - backhoe

- 1 - 10-ton crane
- 1 - air compressor
- 1 - concrete truck
- 1 - dump truck

8.4.2.2 Pipeline Upgrades and Other Projects

The following construction equipment is anticipated to be required for installation of the proposed pipeline improvements.

- 1 - Rubber Tired Backhoe
- 1 - Boom Truck
- 1 - End Dump Trucks
- 1 - Soil Compactors
- 1 - Roller compactor (pavement replacement)
- 1 -Tracked excavator
- 1 -Wheeled loader
- 1 -Generator (pavement saw cutting)
- 1 - Street Cleaner

The Sand Canyon Booster Pump Station upgrade would require the use of one backhoe and one crane and would be accomplished in one day.

The Balcom Canyon Pressure Reducing Station relocation would require the use of a backhoe for two days.

### 8.4.3 Manpower

8.4.3.1 Water Well No. 2 Iron and Manganese Removal Facility

Three to five employees would be required for site preparation. Three to six construction employees will be required for the iron and manganese removal facility construction and assembly work.

8.4.3.2 Pipeline Upgrades and Other Projects

It is anticipated that a crew of up to six personnel would be required for the pipeline upgrades. Fewer personnel would be required for the other project elements (e.g., meter relocations). In the event that two Near-term Projects were to occur simultaneously the personnel requirements would be additive.

### 8.4.4 Construction Staging Areas

Staging areas will be provided within the District's Well No. 2 site. During the hours of construction operations, materials (e.g., pipe and earth materials) may be temporarily stored adjacent to the pipeline trenches within road rights-of-way.

## 8.5 OPERATIONS AND MAINTENANCE

### 8.5.1 Water Well No. 2 Iron and Manganese Removal Facility

Operation of the iron and manganese removal facility is fully automatic. However, operators would visit the site every day for 10 to 15 minutes to record water quality and equipment status. Once per year, maintenance on the system would be conducted. No new employees would be needed for operation of the system.

As indicated above, chemical delivery, once per month, would be required. Additionally, backwash sediment would need to be transported from the site and disposed once per year at the Moorpark Wastewater Treatment Plant.

### 8.5.2 Pipeline Upgrade, Booster Pump and Meter Relocation Projects

The pipeline, booster station and meter replacement projects would not introduce new facilities that would require long-term operations or maintenance activities in excess of that presently provided. In fact, maintenance requirements should be reduced. Therefore, no new employees would be required for these Near-term Projects.

# 9.0 SETTING

## 9.1 ENVIRONMENTAL SETTING

As indicated above, District No. 19 is in the Las Posas Valley, north of the City of Camarillo and west of the City of Moorpark. The Camarillo Hills and Las Posas Hills are located to the south and South Mountain and Oak Mountain are located to the north. The primary water course in the area is the Arroyo Las Posas. Contributing tributaries in the area include Honda Barranca, Fox Barranca and Coyote Canyon Creek.

Within the District is the unincorporated community of Somis. The generally recognized boundaries of Somis are the areas around the intersection of Los Angeles Avenue (State Highway 118) and Somis Road (State Highway 34). Within its official boundaries are any residences in the 93066 ZIP Code. As of 2010, the total population within census tract 52.02 was an estimated 2,694. It is primarily an agricultural area, but is home to a fire station, a hardware store, a market, a post office, an elementary school, several shops, one main residential tract and numerous estates and ranches. The land use within the District as a whole is primarily dedicated to farming where different types of crops are produced, including avocados, oranges, lemons, strawberries and nursery stock.

## 9.2 SURROUNDING LAND USE

A general description of surrounding land uses near the Near-term Project sites is provided in Table A4.

## Table A5. Surrounding Land Use

| Project No. | Project Title | Surrounding Land Uses |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | Surrounding land uses are agricultural (mostly orchards). Additionally, scattered residences are located along Bradley Road. Coyote Canyon Creek is located about 700 feet east of the site. An unnamed drain is located on the east side of Bradley Road. This drain discharges to the Fox Barranca. Both the Fox Barranca and Coyote Canyon Creek are tributaries to the Arroyo Las Posas. Ground elevation at the project site is approximately 450 feet above mean sea level. |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Surrounding land uses are agriculture (mainly orchards and row crops) with a at least two residences at the southern end of the proposed segment. They are located about 30 and 65 feet from the centerline of Sand Canyon Road. An unnamed blue-line channel parallels Sand Canyon Road on the east in the project area as shown on the Moorpark, California Quadrangle United States Geological Survey (USGS) map. |
| 3 | Donlon Road Pipeline Upgrade | Land uses on either side of the road are agricultural (orchard and row crops). A residence is located about 525 feet east of the road. Donlon Road crosses an unnamed blue-line channel as shown on the Moorpark, California Quadrangle United States Geological Survey (USGS) map just north of the proposed pipeline upgrade section. |
| 4 | Kingsgrove Drive Pipeline Upgrade | Surrounding land uses are agriculture (mainly orchards) with a few residences located in proximity to the road, the closest of which is about 140 feet from the centerline of the road. Kingsgrove Drive crosses an unnamed blue-line channel as shown on the Moorpark, California Quadrangle United States Geological Survey (USGS) map just south of the pipeline upgrade segment. |
| 5 | Bell Ranch/Somis Road/West | The pipeline to be abandoned in place is within an agricultural area.<br>The new service line to West Street is surrounded by agricultural land uses.<br>The new pipeline segment proposed for |

| Project No. | Project Title | Surrounding Land Uses |
|---|---|---|
| | | Somis Road is surrounded by agricultural (row crop) production. However, some commercial-type uses (e.g., Hagel Lumber) are located along the southern side of the eastern reach of this proposed pipeline segment. The Arroyo Las Posas is located southeast of the proposed pipeline upgrade segment at a distance ranging from about 200 to 1,000 feet. |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | Land uses in this area are agricultural including orchards, row crops and greenhouses. |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Land uses along the West Street Alley include residential and commercial uses. The closest homes are located about 30 feet from the centerline of the alley. Fox Canyon Baranca is located about 200 feet north of North Street which is located at the northern extent of the West Street Alley pipeline upgrade site. |
| 8 - 11 | Highway 118 Pipeline Replacement | Land uses along Highway 118 are agricultural. There are a few related residences located as closes as 50 feet from the centerline of the road. (See south side of 118 before Groves Place and at Groves Place for example.) The Fox Barranca and several unnamed blue line channels cross the Highway 118 pipeline upgrade areas. |
| 12 | Balcom Canyon Pipeline Upgrade | Land uses along the Balcom Canyon Road segment are agricultural (mainly orchards and greenhouses). An unnamed blue-line channels parallels Balcom Canyon Road about 400 to 1,000 feet west of the road in the project area. |

* Designations are for the site and or surrounding land uses.

## 9.3 OTHER PENDING AND APPROVED DEVELOPMENT

A review of the County of Ventura's Pending Projects List and Approved Projects List for June 2011 identifies the following pending projects in the Somis and Las Posas Valley area that would have the potential to result in environmental impacts and should be considered relative to cumulative effects associated with the District No.19 Near-term Projects.

- LU11-0014 - Las Posas Valley, north of Highway 118 - Time extension for the construction of 9 acres of greenhouses. Currently only 4.5 acres have been constructed but grading is complete for all nine acres.

- LU09-0059 - 3100 Somis Road - Two-story office addition to an existing one-story building.

The County of Ventura encourages urban uses to be focused in the cities within the County, not in the unincorporated primarily agricultural areas. Therefore, the Somis/Las Posas Valley area is not very active with development.

Based upon a review of the County of Ventura Public Works Agency Planned Capital Projects Program Five Year Plan 2010-2015 which addresses Transportation, Water and Sanitation, Watershed Protection and CEO projects, the following improvement projects are planned for the Somis/Las Posas Valley area.

**Transportation Projects:**

- Center School Road from Fairway Drive to State Route 118 - Construct shoulder and drainage improvements - completion date dependent upon securing additional funding.
- Donlon Road - Realign Donlon Road to create a four-way intersection with State Route 118 and Somis Road (State Route 34) to improve traffic safety - 2011-2012.
- Hitch Boulevard - Realign Hitch Boulevard to create a four-way intersection with State Route 118 and Grimes Canyon Road to improve traffic safety - 2013-1014.

**Water Projects:**

- Bradley/Greentree Booster Pump Station - Construct booster pump station to provide adequate pressure to existing customers and improve operational flexibility of the system (2013-2014).

  The following additional projects, not specifically identified in the County of Ventura Public Works Agency Planned Capital Projects Program Five Year Plan 2010-2015 are also planned.

**Wastewater Projects:**

- Unspecified Ongoing General Sewer System Improvements and Replacements (2010-2015)
- Reclaimed Water Reservoir & Distribution System Expansion (to be completed January 2012)
- Landscaping at MWTP (to be completed by March 2012)
- Expansion of MWTP 5.0 MGD - (2010-2015)

The County of Ventura Initial Study Assessment Guidelines (2011) indicate that the County General Plan's population, dwelling unit and employment forecasts, in conjunction with land use maps, should be used as the foundational basis for determining cumulative

development within the geographic area. Additionally, all known General Plan Amendments that have been filed or are being processed in the same geographical area should be added to the forecasts. As previously noted, there are no significant County discretionary approvals being sought in the Somis/Las Posas Valley area.

For purposes of this cumulative analysis consideration in this Initial Study, the geographical area for the project is the District No. 19 service area and properties within roughly 1-mile of the District No. 19 boundaries. For the assessment of environmental effects associated with population, the service area of Ventura County Waterworks District No. 19 is the area of concern.

## 10.0 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (E.G., PERMITS, FINANCING APPROVAL, OR PARTICIPATION AGREEMENT)

The Near-term Projects will require permits and approvals, as listed below:

- Approval of the project by the Ventura County Waterworks District 19
- Water Supply Permit from the Department of Health Services (Well No. 2 only)
- County Road Encroachment Permit (pipeline replacement projects in County roads)
- California Department of Transportation (pipeline replacement projects in State Route 118)
- Ventura County Watershed Protection District Permit for work in the area of red line channels.
- United States Department of Agriculture (USDA) - funding/loan approval

This environmental document will be used by decision-makers in the review and approval of the proposed Program and individual Near-term Projects, as well as in consideration of issuance of necessary permits and clearances. Because District No. 19 is pursuing financing from the USDA, this document will also be used by the USDA in its environmental review process under the National Environmental Policy Act (NEPA). This Initial Study serves as both a Program-level and Project level environmental review document.

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## SECTION B - ENVIRONMENTAL CHECKLIST

| | Issue (Responsible Department) | Project Impact Degree of Effect* | | | | Cumulative Impact Degree of Effect* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | LS | PS -M | PS | N | LS | PS -M | PS |
| **RESOURCES:** | **1. Air Quality (APCD)** | | X | | | | X | | |
| | **2. Water Resources (PWA):** | | | | | | | | |
| | A. Groundwater Quantity | X | | | | X | | | |
| | B. Groundwater Quality | X | | | | X | | | |
| | C. Surface Water Quantity | | X | | | | X | | |
| | D. Surface Water Quality | | X | | | | X | | |
| | **3. Mineral Resources (Plng.):** | | | | | | | | |
| | A. Aggregate | | X | | | | X | | |
| | B. Petroleum | | X | | | | X | | |
| | **4 . Biological Resources:** | | | X | | | | X | |
| | **5. Agricultural Resources:** | | | | | | | | |
| | A. Soils (Plng.) | | X | | | | X | | |
| | B. Land Use Incompatibility (Ag. Dept.) | | X | | | | X | | |
| | **6 Scenic Resources (Plng.)** | | X | | | | X | | |
| | **7. Paleontological Resources** | X | | | | X | | | |
| | **8. Cultural Resources:** | | | | | | | | |
| | A. Archaeological | | | X | | | | X | |
| | B. Historical (Plng.) | X | | | | X | | | |
| | **9. Coastal Beaches & Sand Dunes** | X | | | | X | | | |
| **HAZARDS:** | **10. Fault Rupture (PWA)** | X | | | | X | | | |
| | **11. Ground Shaking (PWA)** | | X | | | X | | | |
| | **12. Liquefaction (PWA)** | | X | | | X | | | |
| | **13. Seiche &Tsunami (PWA)** | X | | | | X | | | |
| | **14. Landslides/Mudslides (PWA)** | X | | | | X | | | |
| | **15. Expansive Soils (PWA)** | | | X | | X | | | |
| | **16. Subsidence (PWA)** | X | | | | X | | | |
| | **17. Hydraulic Hazards:** | | | | | | | | |
| | A. Non-FEMA (PWA) | | X | | | | X | | |
| | B. FEMA (WPD) | | X | | | | X | | |
| | **18. Fire Hazards (Fire)** | X | | | | X | | | |
| | **19. Aviation Hazards (Airports)** | X | | | | X | | | |

| | Issue (Responsible Department) | Project Impact Degree of Effect* | | | | Cumulative Impact Degree of Effect* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | LS | PS -M | PS | N | LS | PS -M | PS |
| | **20. Hazardous Materials/Waste:** | | | | | | | | |
| | A. Hazardous Materials (EH/Fire) | | X | | | | X | | |
| | B. Hazardous Waste (EH) | | X | | | | X | | |
| | **21. Noise and Vibration** | | | X | | | X | | |
| | **22. Daytime Glare** | X | | | | X | | | |
| | **23. Public Health (EH)** | X | | | | X | | | |
| | **24. Greenhouse Gases (APCD)** | | X | | | | X | | |
| **LAND USE:** | **25. Community Character (Plng.)** | | X | | | X | | | |
| | **26. Housing (Plng.)** | X | | | | X | | | |
| **PUBLIC FACILITIES/ SERVICES:** | **27. Transportation/Circulation:** | | | | | | | | |
| | A. Roads and Highways: | | | | | | | | |
| | (1) Level of Service (PWA) | | X | | | | | X | |
| | (2) Safety/Design of Public Roads (PWA) | | X | | | | X | | |
| | (3) Safety/Design of Private Access (Fire) | X | | | | X | | | |
| | (4) Tactical Access (Fire) | X | | | | X | | | |
| | B. Pedestrian/Bicycle (PWA/Plng.) | X | | | | X | | | |
| | C. Bus Transit | X | | | | X | | | |
| | D. Railroads | X | | | | X | | | |
| | E. Airports (Airports) | X | | | | X | | | |
| | F. Harbors (Harbors) | X | | | | X | | | |
| | G. Pipelines | X | | | | X | | | |
| | **28. Water Supply:** | | | | | | | | |
| | A. Quality (EH) | X | | | | X | | | |
| | B. Quantity (PWA) | | X | | | | X | | |
| | C. Fire Flow (Fire) | X | | | | X | | | |
| | **29. Waste Treatment/Disposal:** | | | | | | | | |
| | A. Individual Sewage Disposal System (EH) | X | | | | X | | | |
| | B. Sewage Collection/Treatment Facilities (EH) | | X | | | | X | | |
| | C. Solid Waste Management (PWA) | | X | | | | X | | |
| | D. Solid Waste Facilities (EH) | X | | | | X | | | |
| | **30. Utilities** | | X | | | | X | | |

| | Issue (Responsible Department) | Project Impact Degree of Effect* | | | | Cumulative Impact Degree of Effect* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | LS | PS -M | PS | N | LS | PS -M | PS |
| | **31. Flood Control/Drainage:** | | | | | | | | |
| | A. WPD Facilities/Watercourses (WPD) | X | | | | X | | | |
| | B. Other Facilities/Watercourses (PWA) | | X | | | | X | | |
| | **32. Law Enforcement/Emergency Svs. (Sheriff):** | X | | | | X | | | |
| | **33. Fire Protection (Fire):** | | | | | | | | |
| | A. Distance/Response Time | | X | | | | X | | |
| | B. Personnel/Equipment/Facilities | | X | | | | X | | |
| | **34. Education:** | | | | | | | | |
| | A. Schools | | | X | | X | | | |
| | B. Libraries (Lib. Agency) | X | | | | X | | | |
| | **35. Recreation (GSA):** | X | | | | X | | | |

DEGREE OF EFFECT:

N = No Impact
LS = Less Than Significant
PS-M = Potentially Significant Impact Unless Mitigation Incorporated.
PS = Potentially Significant Impact

AGENCIES:

APCD - Air Pollution Control District
PWA - Public Works Agency
Plng. - Planning Division
GSA - General Services Agency
Ag. Dept. - Agricultural Department
FCD - Flood Control District
Harbors - Harbor Department
Airports - Department Of Airports
Fire - Fire Protection District
Sheriff - Sheriff's Department
EH - Environmental Health Division
Lib. Agency - Library Services Agency

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## SECTION C - DISCUSSION OF RESPONSES TO CHECKLIST

The assessment and threshold criteria used in this Section (C) are taken from the Ventura County Initial Study Assessment Guidelines (County Guidelines), 2011. The County Guidelines indicate that a project's inconsistency with an adopted policy or development standard may result in a significant impact. Therefore, an assessment of project consistency with applicable General Plan policies is provided in a specific subsection for each checklist issue area. Other applicable threshold criteria are considered in the impact subsections for each checklist issue area.

## 1.0 AIR QUALITY

### 1.1 SETTING

The ambient air quality of Ventura County is monitored by a network of air monitoring stations operated by the California Environmental Protection Agency, Air Resources Board (ARB) and the Ventura County Air Pollution Control District (VCAPCD). The air monitoring network includes eight stations in Ventura County. The closest air quality monitoring station to the Program area is the El Rio station, located on Central Avenue, approximately 8.6 miles west of the Program area (Route 118/Somis Road intersection).

Air quality standards are specific concentrations of pollutants that are used as thresholds to protect public health and the public welfare. Currently, ambient air quality data collected in Ventura County has resulted in the designation of non-attainment for the State 1-hour and Federal 8-hour ozone standards, the State $PM_{10}$ standard (particles less than 10 microns in diameter), the State $PM_{2.5}$ standard (particles less than 2.5 microns in diameter). Non-attainment means the applicable air quality standard is periodically violated.

Air quality standard violations at the El Rio monitoring station from 2008 through 2010 include:

- The State 1-hour ozone standard (0.09 parts per million [ppm]) was violated on one day (August 29, 2009);
- The State 8-hour ozone standard (0.070 ppm) was violated on three days;
- The Federal 8-hour ozone standard (0.075 ppm) was violated on one day (August 29, 2009); and
- The State 24-hour $PM_{10}$ standard was violated on six days.

## 1.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 1.1.2.3: Discretionary development that would have a significant adverse air quality impact shall only be approved if it is conditioned with all reasonable mitigation measures to avoid, minimize or compensate (offset) for the air quality impact. Developers shall be encouraged to employ innovative methods and technologies to minimize air pollution impacts.* | Consistent - Program-related air emissions will not result in a significant impact to local air quality as described below. Appropriate dust and emission control measures have been incorporated into the Program. |
| *Policy 1.1.2.5: Development subject to APCD permit authority shall comply with all applicable APCD rules and permit requirements, including the use of best available control technology (BACT) as determined by the APCD.* | Consistent - The District intends to comply with APCD rules and regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), and Rule 55 (Fugitive Dust), as well as Rule 10, (Permits Required)permit requirements. It is understood that certain types of new and modified equipment and operations require APCD air permits prior to installation and/or inauguration of use. The District will contact the VCAPCD Engineering Division to determine any air permit requirements. The VCAPCD Engineering Division can be contacted by telephone at (805) 645-1401 or by email at engineering@vcapcd.org. |

## 1.3 IMPACT DISCUSSION

In October 2003, the VCAPCD revised the County's Air Quality Assessment Guidelines (Guidelines), which include project-specific thresholds that should not be exceeded to ensure consistency with the Air Quality Management Plan (AQMP) and minimize public exposure to pollutants. These guidelines are listed below:

- Daily emissions exceeding 25 pounds reactive organic gases (ROG) or oxides of nitrogen ($NO_X$);
- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emission that exceed quantitative thresholds for ozone precursors);
- Expose the public (especially schools, day care centers, hospitals, retirement homes, convalescent facilities, and residences) to substantial pollutant concentrations; and
- Create objectionable odors affecting a substantial number of people.

The VCAPCD significance thresholds are not applicable to construction emissions since these emissions are only temporary (VCAPCD, 2003). However, due to the lack of attainment of the ozone and $PM_{10}$ standards, mitigation should be applied to all phases of construction where feasible.

### 1.3.1 Short-Term Impacts

**Criteria Pollutants.** Use of motor vehicles and heavy-duty equipment associated with construction of the iron and manganese removal facility, new water pipelines and other related Near-term Projects would generate air pollutant emissions. Vehicles include autos and light-duty trucks used to transport workers and equipment operators, and heavy-duty trucks used to transport materials to the construction sites.

A peak day construction scenario would include two simultaneous pipeline installation projects. Major equipment in use at each site is assumed to include a tracked excavator, wheeled loader, roller compactor and portable generator. It is assumed a total of 24 one-way trips for workers and 16 one-way trips for heavy-duty trucks would be required for the two projects. Peak day construction emissions for the near-term projects are estimated to be approximately 144.6 pounds $NO_X$, 10.5 pounds ROG, 109.5 pounds $PM_{10}$, and 68.6 pounds CO and are shown below in Table C1.3-1. These construction emissions would be short-term, occurring over a period of about 20 months, as each of the near-term projects are constructed. Due to the short-term nature of these emissions, the VCAPCD significance thresholds are not applicable. As such, near-term project construction will not violate any applicable air quality policies, and short-term emissions are considered a less than significant impact.

**Table C1.3-1. Peak Daily Emissions of Criteria Pollutants**

| Source | Pounds per Peak Day | | | |
|---|---|---|---|---|
| | ROG | $NO_x$ | CO | $PM_{10}$ |
| Heavy equipment | 10.1 | 138.7 | 64.4 | 8.5 |
| Motor vehicles | 0.4 | 5.9 | 4.2 | 0.3 |
| Fugitive dust | 0.0 | 0.0 | 0.0 | 100.7 |
| Total Construction Emissions | 10.5 | 144.6 | 68.6 | 109.5 |

The County of Ventura is currently in attainment for CO, therefore there are no adopted thresholds of significance for CO and no mitigations will be necessary. Ventura County is in non-attainment for the State 24-hour $PM_{10}$ standard, so measures have been adopted to reduce $PM_{10}$ as much as possible in order to minimize impacts to the current air quality. Ventura County does not have any established thresholds of significance for short-term construction equipment, however since Ventura County is in non-attainment for ozone, measures have been adopted to reduce the emission of ozone precursors ($NO_x$ and ROG) to the extent feasible.

**Fugitive Dust.** Pipeline installation and other earthwork would generate fugitive dust, which may cause or substantially contribute to violations of the State $PM_{10}$ standard. The VCAPCD does not have set thresholds of significance for short-term construction projects and emission reduction measures will be implemented under Standard Specifications for Public Works Construction.

**Mitigation and Residual Impact.** The following Program-incorporated measures will be implemented to reduce construction-related dust as appropriate for the individual Near-term Project:

**AQ1** The District shall implement a fugitive dust control program. The dust control program should include the following procedures:

- Water trucks shall continuously spray the graded area to keep dust to a minimum.
- Completed grading will be treated with a polymer binder and monitored quarterly.
- Unpaved parking will be treated with 4 inches of crushed aggregate base which will be watered down as necessary.
- To prevent excessive amounts of dust, dust producing operations shall cease during high wind events. (High wind events are defined as wind of such velocity as to cause fugitive dust from within the site to blow off-site.)
- Streets shall be swept at the end of the day if visible soil material is carried over adjacent roads.
- All exposed soil areas shall be sprinkled with water as necessary during grading operations.
- On-site vehicular traffic shall be limited to no more than 15 mph.
- All trucks importing fill to the site shall use tarpaulins to cover the load.
- All excavated material shall be sufficiently watered to prevent excessive amounts of dust.
- All material being moved shall be watered or covered.
- All material transported off-site should either be sufficiently watered or securely covered to prevent excessive amounts of dust.
- Minimize the necessary amount of disturbance area for clearing, grading, earth moving or excavation.
- At any point in time, if it is observed that fugitive dust is blowing off-site, additional dust prevention measures shall be initiated. If these measures are insufficient to prevent fugitive dust (i.e., during periods of extreme heat or

winds), dust generating activities shall be immediately curtailed until the conditions abate.

The following measures shall be implemented to reduce construction-related ozone precursor emissions from motor vehicles and equipment:

**AQ2** Minimize equipment idling time.

**AQ3** Maintain equipment engines in good condition and in proper tune as per manufactures' specifications.

**AQ4** Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.

**AQ5** Use alternatively fueled construction equipment such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

### 1.3.2 Long-Term Impacts

Project facilities would require maintenance, which would result in tailpipe emissions from on-road vehicles. Most proposed facilities are upgrades for existing facilities and no new maintenance would be required. However, operation of the Well no. 2 Iron and Manganese Removal Facility would require a daily site visit by District staff, a monthly chemical delivery and annual backwash sediment removal. Peak day operational emissions are assumed to include vehicle trips associated with maintenance, chemical delivery and backwash sediment removal on the same day. These emissions have been estimated as 1.5 pounds per day $NO_x$ and 0.1 pounds per day ROG. Because emissions would be less than the VCAPCD 25 pound per day threshold, long-term emissions are considered less than significant.

**Mitigation and Residual Impacts.** None required.

### 1.3.3 General Conformity

Section 176 of the 1990 Amendments to the Clean Air Act prohibits the Federal government from engaging in (or funding) any activity that does not conform to the applicable air quality implementation plan. For the purposes of the proposed project, the applicable implementation plan is the California State Implementation Plan for Ozone.

Ventura County is classified as a moderate non-attainment area for the Federal 8-hour ozone standard, and considered an attainment/unclassified area for all other Federal air quality standards. The Ventura County Air Quality Management Plan (AQMP) addresses ozone attainment and is the applicable local plan.

De minimis emissions values for Ventura County are 100 tons per year $NO_x$ and 50 tons per year ROG, and represent the amount of project emissions that would require a conformity determination under the General Conformity Rule (40 CFR 51.853). The project would not

exceed these values and is assumed to conform to the applicable attainment plan (Ventura County AQMP).

# 2.0 WATER RESOURCES

## 2A GROUNDWATER QUANTITY

### 2A.1 Setting

According to the Ventura County General Plan Public Facilities and Services Appendix (1988 last amended May 2007), local water supply is divided between groundwater, imported water, and surface water with groundwater being the largest single source of water (67 percent of total). A small amount of reclaimed water is also used. Ventura County consumes more groundwater than is available locally, resulting in an overdraft of groundwater resources and increasing dependence on imported water supplies.

The largest groundwater supplies in the County are contained within major water bearing aquifers, which underlie most of the Oxnard Plain and Pleasant Valley areas. These are, in order of depth from top to bottom, the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon aquifer zones.

The proposed Near-term Projects overlie three groundwater basins. The projects south of Highway 118 overlie the Pleasant Valley Groundwater Basin. The projects north of Highway 118 and generally west of the intersection with of its intersection with Somis Road overlie the West Las Posas Groundwater Basin. The projects north of Highway 118 and generally east of Somis Road overlie the East Las Posas Basin. Aquifers in the Las Posas Basins include the Fox Canyon aquifer and Grimes Canyon Aquifer. The Pleasant Valley Basin aquifer is comprised of permeable lenses within recent and Pleistocene alluvium.

The Fox Canyon Groundwater Management Agency (FCGMA) was created by State legislation in 1982 to manage groundwater under the southern portion of Ventura County with the objective of controlling overdrafting. The GMA has prepared a Groundwater Management Plan (Plan) for this purpose. The County of Ventura, cities within the County, various water agencies and any other entity pumping groundwater within the boundaries of the FCGMA jurisdiction must comply with the Plan. Additionally, the FCGMA has promulgated several ordinances in its groundwater management role. One of these ordinances with particular general relevance is Ordinance No. 5. Ordinance No. 5 was adopted with the objective of reducing extractions to a “safe yield” level of 120,000 acre-feet per year (AFY) within the Agency by the year 2010. This was to be accomplished via scheduled five percent reductions in groundwater pumping that total 25 percent by the year 2010. As part of this process a system of allocations to groundwater users based upon historical, baseline and efficiency related water data. The system also provides for credits for allocation volumes not used (under-pumping) as well as penalties if allocations are exceeded (over-pumping). As a member agency Ventura County Waterworks District 19, like other member agencies, has received allocations for its groundwater pumpage.

### 2A.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *Policy 1.3.2.1: Discretionary development which is inconsistent with the goals and policies of the County's Water Management Plan (WMP) shall be prohibited, unless overriding considerations are cited by the decision-making body.* | Consistent -The Near-term Project provided for continued delivery of water to District 19 customers. |
| *Policy 1.3.2.2: Discretionary development shall comply with all applicable County and State water regulations.* | Consistent - The Near-term Projects are County Waterworks District 19 proposal, it is within the District jurisdictional responsibilities to comply with applicable County and State water regulations. |
| *Policy 1.3.2.4: Discretionary development shall not significantly impact the quantity or quality of water resources within watersheds, groundwater recharge areas or groundwater basins.* | Consistent - Per the impact discussion below. |
| *Policy 1.3.2.5: Landscape plans for discretionary development shall incorporate water conservation measures as prescribed by the County's Guide to Landscape Plans, including use of low water usage landscape plants and irrigation systems and/or low water usage plumbing fixtures and other measures designed to reduce water usage.* | Consistent. No landscaping plans are proposed. |

### 2A.3 Impact Discussion

The County Guidelines state that a project will have a significant impact on groundwater quantity if it will increase the net use of groundwater in a basin that is overdrafted, or individually or cumulatively cause a basin to become overdrafted. The proposed activities would not alter the operation of Well No. 2 in any way that would affect total groundwater extraction nor would the replacement of pipelines, upgrade of the Sand Canyon Booster Pump Station, meter relocations or pressure reducing station relocation. District 19 will continue to comply with the GMA established allocation. No impact to water quantity would result from this project.

**Mitigation and Residual Impact.** No significant impact would result. Therefore, no mitigation is required.

## 2B GROUNDWATER QUALITY

### 2B.1 Setting

According to the California's Groundwater Bulletin 118 (2006), the Las Posas Valley Groundwater Basin groundwater contains calcium bicarbonate to sodium bicarbonate in character with an average total dissolved solids (TDS) concentration of 752 mg/L and a maximum of 2,318 mg/L. Of 22 public supply wells sampled, one had concentrations of primary inorganics above the maximum (permissible) contamination level (MCL) as set by the U.S. Environmental Protection Agency, two wells had radiological levels above the MCL, and one well had pesticides levels above the MCL (sampling period 1994 through 2000). However,

according to a 2007 Groundwater Basin Report prepared for the Ventura County Basins of the northwest Metropolitan Water District service area, chloride has become a problem along the Arroyo Las Posas, where groundwater from an area in the East and South Las Posas basins must be blended with lower-chloride water to meet irrigation suitability. The high levels of chloride and sulfates along the southern flank of the East and South Las Posas groundwater basins are reportedly due to higher groundwater levels leaching salts from shallow aquifers and transporting them to deeper aquifers. Perchlorate has been detected at levels of 5 micrograms per liter in a couple of wells in the South Las Posas basin, but no widespread or significant contamination has been reported. The setting discussion provided above in a., Groundwater Quantity also pertains to this topic.

Fox Canyon aquifer wells are affected by low-level concentrations of iron and manganese ions (secondary standards/aesthetic) (Fugro 2004). Typical levels are from about 0.2 to 0.4 mg/l of iron and 0.05 to 0.10 mg/l of manganese.

Water quality data for Well No. 2 taken in 2002 and 2005 as taken from the Ventura County Waterworks District 19 Preliminary Design Memorandum for Iron and Manganese Removal Facility Well No. 2 prepared by RBF Consulting (July 2007) is summarized in Table C2B.1-1.

**Table C2B.1-1. Well Water Quality [1]**

| Constituent | 8/8/02 | 9/23/05 | MCL[2] |
|---|---|---|---|
| Arsenic (ug/L) | ND | ND | 0.05 |
| Iron | 0.22 | 0.28 | 0.03 |
| Manganese (ug/L) | 90 | 120 | 50 (ug/L) or 0.05 mg/L |
| Calcium | 68 | 67 | NA |
| Magnesium | 26 | 24 | NA |
| Sodium | 55 | 50 | NA |
| Potassium | 5 | 4 | NA |
| Bicarbonate | 260 | 260 | NA |
| Sulfate | 176 | 183 | 250-500 |
| Chloride | 12 | 12 | 250-500 |
| Nitrate | ND | ND | 45 (as $NO_3$) |
| Fluoride | 0.2 | 0.4 | 2 |
| Hardness as CaCO3 | 277 | 266 | NA |
| Alkalinity as CaCO3 | 210 | 210 | NA |
| TDS | 520 | 520 | 500-1,000 |
| pH (units) | 7.8 | 7.5 | NA |
| Turbidity (NTU) | NT | 1.3 | 5 |

1 All values as mg/L except as otherwise noted. ND = not detected. NT = not tested.

2 MCL- maximum concentration level established by the United States Environmental Protection Agency

Additional data points for iron and manganese during well startup after a period of well downtime were collected over a 90-minute period on July 13, 2005. The iron and manganese levels peaked at 5 minutes after startup at 1.63 mg/L and 110 ug/L, respectively, and appeared to level off at about 0.4 mg/L Fe and 140 ug/L Mn. As indicated above, the State of California's secondary MCL for iron and magnesium are 0.3 mg/L and 0.05 mg/L, respectively. These MCLs are secondary and address the taste, odor or appearance of drinking water rather than health effects. However, the drinking water notification level for manganese which does address potential health concerns of high levels of manganese in drinking water is 5 mg/L (California Department of Public Health, 2011)

According to the California's Ground Water Bulletin 118 for the Pleasant Valley Groundwater Basin, groundwater within the Basin has calcium as the major cation in solution and chloride, sulfate and bicarbonate as the major anions.

### 2B.2 Project Consistency with Applicable Policies

The policies outlined under topic 2.a are also applicable to groundwater quality.

### 2B.3 Impact Discussion

The County Guidelines state that any project that will individually or cumulatively degrade the quality of groundwater and cause it to fail to meet groundwater quality Basin standards set by the Regional Water Quality Control Board (Regional Board) is a significant impact.

As discussed in the Project Description, the proposed Water Well No. 2 Iron and Manganese Removal Facility has been designed to include conservative chemical hazard prevention measures that include storage of hazardous materials within secondary containment. Additionally, design and construction of all components will be in compliance with the Uniform Building Code (UBC) and local earthquake design standards. These factors will minimize the potential for a release of hazardous materials that would have the potential to impact groundwater quality. It should be noted that the facility is gated and locked at all times in order to prevent vandalism and/or contamination of the groundwater well from occurring. Therefore, the Water Well No. 2 Iron and Manganese Removal Facility project is not anticipated to result in any project-specific impacts to groundwater quality, and would therefore not contribute to any cumulative impacts to groundwater quality.

The remaining Near-term Projects are limited to installation of water pipelines, water meter and pressure reducing station relocations, and a booster pump station upgrade. No activities that would have the potential to result in significant groundwater quality impacts are proposed in association with these projects.

**Mitigation and Residual Impact.** No significant impact would result. Therefore, no mitigation is necessary.

## 2C SURFACE WATER QUANTITY

### 2C.1 Setting

Surface water resources in Ventura County are divided into two major hydrologic units (the Ventura River and Santa-Clara-Calleguas Units) and into four other smaller hydrologic units (Rincon Creek, Cuyama, San Joaquin, and Malibu Hydrologic Units) (Ventura County, 2000).

The Arroyo Simi and Arroyo Las Posas drain the northern portion of the Calleguas Watershed. The Arroyo Simi passes through the cities of Simi Valley and Moorpark. Downstream of Hitch Boulevard, the Arroyo Simi becomes the Arroyo Las Posas. The Arroyo Las Posas passes through agricultural fields and orchards mostly in natural channels. Surface water flows in the Arroyo Las Posas derive from precipitation runoff, agricultural return flows, discharges of effluent from the City of Simi Valley Wastewater Treatment Plant and Moorpark Wastewater Treatment Plant (discharges to percolation ponds near Arroyo Las Posas and only directly discharges during extremely wet periods), and discharges from dewatering wells in the Simi Valley area. The Arroyo Las Posas Channel meets with the Calleguas Creek near Camarillo.

Flow in the Arroyo Simi and the Arroyo Las Posas percolates and evaporates as it travels downstream and is generally not present several miles downstream of the MWTP with the exception of during high runoff events (U.S. EPA, 2002). These flows are significant sources of groundwater recharge.

Surface water bodies located in proximity to the Near-term Project sites are identified in Table C2C.1-1.

**Table C2C.1-1. Surface Water Bodies Located in Proximity to the Near-Term Project Sites**

| Project No. | Project Title | Nearby Surface Water Features |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | Coyote Canyon Creek is located about 700 feet east of the site. Berylwood Canyon drainage is located on the east side of Bradley Road about 250 feet east of the Well No. 2 site. This drain discharges to the Fox Barranca. Both the Fox Barranca and Coyote Canyon Creek are tributaries to the Arroyo Las Posas. |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Sand Canyon drainage (an unnamed blue-line channel as shown on the Moorpark, California Quadrangle United States Geological Survey [USGS] map) parallels Sand Canyon Road on the east in the project area. |
| 3 | Donlon Road Pipeline Upgrade | Donlon Road crosses Puerta Zuela |

| Project No. | Project Title | Nearby Surface Water Features |
|---|---|---|
| | | Barranca (an unnamed blue-line channel as shown on the Moorpark, California Quadrangle USGS map) just north of the proposed pipeline upgrade section. |
| 4 | Kingsgrove Drive Pipeline Upgrade | Kingsgrove Drive crosses Puerta Zuela Barranca (an unnamed blue-line channel as shown on the Moorpark, California Quadrangle USGS map) just south of the pipeline upgrade segment. |
| 5 | Bell Ranch/Somis Road/West | The Arroyo Las Posas is located southeast of the proposed Somis Road pipeline upgrade segment at a distance ranging from about 200 to 1,000 feet.<br>The Groves Place Drain is located between Groves Place and Ponderosa Road and extends from Highway 118 to Somis Road and is proximate to the water line proposed for abandonment.<br>There are no surface water features in close proximity to the pipeline segment to be located in an agricultural road. |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | No surface water features are proximate to the site. |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Fox Canyon Baranca is located about 200 feet north of North Street which is located at the northern extent of the West Street Alley pipeline upgrade site. |
| 8 - 11 | Highway 118 Pipeline Replacement | The Fox Barranca, Berylwood Canyon Drain, Coyote Canyon Creek/Donlon Drain and one unnamed tributary to Coyote Canyon Creek cross the Highway 118 pipeline upgrade area. |
| 12 | Balcom Canyon Pipeline Upgrade | Lang Canyon Creek a blue-line channel generally parallels Balcom Canyon Road about 400 to 1,000 feet west of the road in the project area. |

At the Well No. 2 site, water from initial well start-up discharges to the unnamed drainage west of Bradley Road in accordance with all conditions imposed within Waterworks District 19's NPDES Permit. This drain also discharges to the Fox Barranca. Both the Fox Barranca and Coyote Canyon Creek are tributaries to the Arroyo Las Posas and ultimately Calleguas Creek and the Mugu Lagoon.

### 2C.2 Project Consistency with Applicable Policies

The policies outlined under topic 2A are also applicable to surface water quantity.

### 2C.3 Impact Discussion

According to the County Guidelines, threshold of significance criteria for determining if a land use or project activity has the potential to cause a significant adverse impact upon surface water quantity in itself or on a cumulative basis include, but are not limited to:

1. Any project that will increase surface water consumptive use (demand), either individually or cumulatively, in a fully appropriated stream reach as designated by SWRCB or where unappropriated surface water is unavailable, shall be considered to have a significant adverse impact on surface water quantity.

2. Any project that will increase surface water consumptive use (demand) including but not limited to diversion or dewatering downstream reaches, either individually or cumulatively, resulting in an adverse impact to one or more of the beneficial uses listed in the Basin Plan per Section B, above, is considered a significant adverse impact.

None of the near-term projects would require the use of surface waters.

At the No 2 Well site presently, upon initial startup of the well initial flush water is discharged to the open drainage channel along Bradley Road at a rate of about 1,000 gallons per minute during the 10 to 20 minute flush period. The discharge occurs on a daily basis when the well is in operation. However, the well may not be operated for extended periods of time as was the case in 2007. Upon construction of the proposed project, first discharge from the well will be directed to the reclaim water tank and no further well discharges to surface water collection features are anticipated. Because the current discharge is an inconsistent occurrence and relatively minor relative to storm flow volumes and surface water runoff from agriculture and other area land uses, the loss of this discharge is not expected to significantly impact the surface water hydrology of the area.

Per the discussion above, the project would result in a less than significant impact to surface water quantity on a project-specific basis and would not result in any cumulatively considerable surface water quantity impacts.

**Mitigation and Residual Impact.** No significant impact would result. Therefore, no mitigation is necessary.

## 2D SURFACE WATER QUALITY

### 2D.1 Setting

The Water Quality Control Plan for the Los Angeles Region (Regional Water Quality Control Board, California, 1994) establishes beneficial uses for water bodies within the region. Beneficial uses for the Arroyo Las Posas (hydrological units 403.62 and 403.12) include the following existing and potential uses:

**Existing:**

- Groundwater recharge,
- Freshwater replenishment (403.62 only),
- Contact and non-contact water recreation,
- Water recreation,
- Warm freshwater habitat, and
- Wildlife habitat.

**Potential:**

- Municipal and domestic supply,
- Industrial process supply,
- Industrial service supply,
- Agricultural supply, and
- Cold freshwater habitat.

Section 303(d) of the 1972 Federal Clean Water Act requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the U.S. EPA every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment, and establishes a priority for developing a control plan to address the impairment.

Calleguas Creek Reaches 6 and 7, which is the Arroyo Las Posas from Hitch Road to the confluence with Calleguas Creek, is on the 2010 303(d) List for the following pollutants: (ammonia, chlordane, chloride, chlorpyrifos, DDT (in sediment), diazanon, deldrin, fecal coliform, nitrate and nitrite, sedimentation/siltation, sulfates, total dissolved solids, and toxicity (California State Water Resources Control Board, 2010). Reach 7 is listed for the following additional pollutants boron, indicator bacteria and organophosphorus pesticides.

## 2D.2 Project Consistency with Applicable Policies

The policies outlined under topic 2A are also applicable to surface water quality.

## 2D.3 Impact Discussion

County threshold of significance criteria for determining if a land use or project activity has the potential to cause a significant adverse impact upon surface water quality individually or cumulatively when combined with recently approved, current, and/or reasonably foreseeable future projects, include, but are not limited to the following:

1. Any land use or project proposal that is expected to individually or cumulatively degrade the quality of Surface Water causing it to exceed water quality objectives as contained in Chapter 3 of the three Basin Plans.

2. Any land use or project development that directly or indirectly causes stormwater quality to exceed water quality objectives or standards in the applicable MS4 Permit or any other NPDES Permits.

Construction activities can result in short-term erosion events (e.g., erosion of soil piles, erosion of previously covered soil by the removal of significant amounts of pavement, or living ground cover, etc.). The Near-term Projects must comply with the local requirements of the Ventura Countywide Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit No. CAS004002. "Development Construction Program" Subpart 4.F. Under this permit the project applicant is required to include Best Management Practices (BMPs) designed to ensure compliance and implementation of an effective combination of erosion and sediment control measures to protect surface water quality and develop, implement, and submit for approval a Stormwater Pollution Control Plan (SWPCP) for publicly owned/operated construction projects disturbing less than 1 acre of soil. (Applicable BMPs are listed in Table 6, Subpart 4.F of the Ventura Countywide Municipal Stormwater Permit ORDER R4-2010-0108. Conformance with this permit should reduce impacts to stormwater due to short-term construction related erosion of soils to a less than significant level.

The Near-term Projects would not introduce impervious surfaces with the exception of the proposed Well No. 2 Iron and Manganese Removal Facility. However, this project will only introduce a minimal amount of impervious surface to the area for the well and treatment facility foundation pad. As discussed within Section 2B (Groundwater Quality) above, the this project has been designed to include conservative hazard prevention measures as well as design of all components in compliance with the Uniform Building Code (UBC) and local earthquake design standards in order to minimize the potential for an unintended chemical release to occur that could impact surface water quality downstream of the project site.

As previously discussed within Section 4C (Surface Water Quantity), initial start-up discharges from Well No. 2 to the surface drainage channel on Bradley Road will no longer occur with implementation of the proposed Well No. 2 Iron and Manganese Removal Facility Project. Therefore, this project will not directly contribute pollutants to surface waters. Additionally, removal of the surface flow provided by the well operations is not expected to significantly reduce any dilution effect of the discharge waters on these pollutants due to the relatively small volume relative to stormwater runoff and other discharges to surface waters. This impact is considered less than significant.

It is likely that construction would be ongoing somewhere within the watershed during construction of the Near-term Projects. Conformance of projects with the applicable NPDES permit should reduce cumulative construction-related impacts to a less than significant level. The projects long-term effect on surface water quality is not considered cumulatively considerable.

**Mitigation and Residual Impact.** Impacts would be less than significant; therefore, no mitigation is required. However, to ensure compliance with Part 4.F, "Development Construction Program" of the Ventura Countywide Municipal Stormwater Permit and inclusion in

the Mitigation Monitoring Program, the following standard requirement provided by the Ventura County Watershed Protection District is presented below.

**WQ1** The construction of the Near-term Projects shall meet performance criteria defined in Section 1 of Part 4.F through the inclusion of the effective Best Management Practices (BMPs) for Construction sites Less than One Acre during all ground disturbing activities. The project applicant (District) is required to develop and implement a Stormwater Pollution Control Plan (SWPCP). Ventura County Waterworks District 19 (District) shall review and approve the SWPCP for each project for compliance with Section 1 of Part 4.F of the NPDES permit. The review shall be done by qualified personnel. The District shall provide a copy of the approved SWPCP to the Watershed Protection District, Water and Environmental Resources Division for permit tracking purposes. The SWPCP shall be reviewed and approved by the District prior to issuance of a notice to proceed to the contractor. A District inspector shall conduct inspections per Section 8 of Part 4.F of the MS4 permit to assure effective installation and functionality of the approved BMPs.

# 3.0 MINERAL RESOURCES

## 3A AGGREGATE

### 3A.1 Setting

The California Department of Conservation (CDC) provides an inventory of the current availability of California's permitted construction aggregate resources. Permitted aggregate resources are resources of aggregate that have been determined to be acceptable for commercial use, which exist within properties owned or leased by aggregate-producing companies, and for which permits have been granted to allow mining and processing of the materials. The reported demand for aggregate resources within Ventura is substantially more than production (CDC, 2006).

The Program area does not include any land identified on the Ventura County Resource Protection Map or the County Resource Management Agency's Unified Mapping System (UMS) maps as a "mineral aggregate resource area".

### 3A.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *1.4.2.8: Discretionary development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources.* | Consistent - None of the Near-term Project sites are not located in significant "mineral resource areas." Additionally, the Program would not preclude access to an existing aggregate resource. |

### 3A.3 Impact Discussion

The County Guidelines provide the following criterion for determining the significance of project impacts on aggregate resources.

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resource Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.

2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.

The Near-term Project sites are not located in or in immediate proximity to a significant "mineral resource area". Additionally, the Program would not hamper or preclude extraction access to identified mineral resources. Implementation of the Program would require the use of sand for backfill of pipeline trenches, other elements of the Program would also require the use limited mineral resources. However, based upon County thresholds this impact would be less than significant on a project-specific and cumulative basis.

**Mitigation and Residual Impacts.** Impacts are less than significant; therefore, no mitigation is necessary.

## 3B PETROLEUM

### 3B.1 Setting

Some of the Near-term Project sites are located adjacent to areas under existing oil permits as identified below. However, based upon a review of the Munger Map Book of California and Alaska Oil and Gas Fields (2001), there are no active oil or gas wells in the Program area.

**Table C3B.1-1. Oil Permit Areas**

| Project No. | Project Title | Oil Permit Number and Location |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | None |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | CUP-2825 west and adjacent to Sand Canyon Road |
| 3 | Donlon Road Pipeline Upgrade | None |
| 4 | Kingsgrove Drive Pipeline Upgrade | None |

| Project No. | Project Title | Oil Permit Number and Location |
|---|---|---|
| 5 | Bell Ranch/Somis Road/West | CUP-208 east of Ponderosa Road and CUP-2754 east of Somis Road |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | None |
| 7 | West Street Alley Pipeline Upgrade and Replacement | None |
| 8 - 11 | Highway 118 Pipeline Replacement | CUP-3907 northeast corner of Highway 118 and Aggen Road; CUP-4282 south of Highway 118 and east of Aggen Road; and CUP-208 east of Ponderosa Road |
| 12 | Balcom Canyon Pipeline Upgrade | None |

### 3B.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *1.9.2.1: Discretionary development shall be evaluated for impact to energy resources and utilization of energy conservation techniques.* | Consistent - Preparation of this environmental document provides consistency with this policy. |
| *1.9.2.3: Energy efficiency and renewable energy use shall be included as factors in designing capital improvement projects of all County agencies, departments and service areas.* | Consistent - The Program involves mainly the installation of replacement water pipelines. Some replacement and upgrade pumps will be installed. These pumps and motors will be selected considering their energy efficiency among other factors applicable to their application. |

### 3B.3 Impact Discussion

The County Guidelines state that determinations of significance for petroleum resources require a case-by-case determination based on the type of land use being requested and its location relative to petroleum resource areas and CUPs. Generally,

1. Any land use that is proposed to be located on or immediately adjacent to any known petroleum resource area, or adjacent to a principal access road to an existing petroleum CUP, has the potential to hamper or preclude access to petroleum resources.

2. If the subject property is not located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the project would not cause a significant impact on the extraction of oil resources. If the subject property is located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the state Division of Oil and Gas Regulation should be consulted for their review of the project application.

3. If the subject property is not located adjacent to a road used as a principal means of access to an existing CUP for oil extraction, and the proposed use is not sensitive to the effects of truck traffic to and from the oil CUP, then the project would not cause a significant impact on access to oil resources.

As the Near-term Project sites do not contain existing oil wells, and would require only a small amount of petroleum products for construction and operation, the Program would have a less than significant impact on petroleum products. Additionally, the Program would not hamper or preclude extraction of a petroleum resource. The Program's contribution to impacts on petroleum resources is inconsequential and is, therefore, not cumulatively significant.

**Mitigation and Residual Impacts.** Impacts are less than significant; therefore, no mitigation is necessary.

# 4.0 BIOLOGICAL RESOURCES

## 4.1 SPECIES

### 4.1.1 Setting

The VCWWD No. 19 service area is located within the Las Posas Valley, with South Mountain to the north, and the Camarillo Hills and Las Posas Hills to the south. The area mostly supports agricultural lands, primarily row crops, with orchards in northern areas. Native plant communities and intact wildlife habitat is primarily limited to linear patches along intermittent drainages including Arroyo Las Posas, Honda Barranca, Fox Barranca, Coyote Canyon and Balcom Canyon.

The Near-term Project sites are comprised of roadways and adjacent agricultural areas. Wildlife habitat is mostly limited to windrows (primarily blue gum [*Eucalyptus globulus]*) and landscaping along roadways, drainages and rural residences.

A search of the California Department of Fish and Game (CDFG) Natural Diversity Database (NDDB) was conducted on August 15, 2011 for reported occurrences of special-status species within the Santa Paula and Moorpark 7.5' quadrangles. The following special-status species were identified.

Listed species:

- Federal & State Endangered: unarmored three-spine stickleback (*Gasterosteus aculeatus williamsoni*): reported from the Santa Clara River, 6 miles to the northwest;
- Federal Endangered: southern California steelhead ESU (*Oncorhynchus mykiss*): reported from the Santa Clara River, 6 miles to the northwest;
- Federal Threatened: Santa Ana sucker (*Catostomus santaanae*): reported from the Santa Clara River, 7 miles to the north-northwest;

- Federal & State Threatened: southwestern willow flycatcher (*Empidonax traillii extimus*): reported from the Santa Clara River, 7 miles to the north-northwest;
- Federal & State Endangered: least Bell's vireo (*Vireo bellii pusillus*): reported from the Santa Clara River, 6 miles to the northwest; and
- Federal Threatened: California gnatcatcher (*Polioptila californica*): reported from near Moorpark, 5 miles to the east.

Non-listed special-status species:

- Plummer's mariposa-lily (Calochortus plummerae): reported along State Route 23;
- Coast horned lizard (*Phrynosoma blainvilli*): reported from near Fillmore, 7 miles to the north;
- Two-striped garter snake (*Thamnophis hammondii*): reported from Santa Paula, 6 miles to the north-northwest;
- Western spadefoot (*Spea hammondii*): reported near Happy Camp Canyon, 5 miles to the east-northeast;
- White-tailed kite (*Elanus leucurus*): reported from the Santa Clara River, 6 miles to the north-northwest;
- San Diego desert wood rat (*Neotoma lepida intermedia*): reported from near Moorpark, 3 miles to the east; and
- American badger (*Taxidea taxus*): reported from South Mountain, 6 miles to the west northwest.

A brief field visit was conducted at each of the Near-term Project sites by a qualified biologist to preliminarily identify special-status species and their habitat. Southern California black walnut (*Juglans californica*) is listed as a plant of limited distribution by the California Native Plant Society and was observed in Fox Barranca near Project No. 10 (about 50 feet upstream of State Route 118) and in the Coyote Canyon drainage near Project No. 11 (about 30 feet downstream of State Route 118).

### 4.1.2 Impact Discussion

The April 26, 2011 Ventura County Initial Study Assessment Guidelines state that the following impacts to plant and animal species or their habitat are considered potentially significant:

- Loss of one or more individuals, occupied habitat or Critical Habitat for species listed as endangered, threatened or rare (or candidates) under the Federal Endangered Species Act or California Endangered Species Act;

- Eliminate or threaten to eliminate a NDDB element occurrence of a special-status species **not** listed (or candidate) under the Federal Endangered Species Act or California Endangered Species Act;
- Threaten the viability of a habitat that sustains a population of special-status wildlife species;
- Restrict the reproductive capacity of special-status species;
- Take of birds protected under the California Fish and Game Code or Migratory Bird Treaty Act;
- Increases in noise and/or ambient lighting that would adversely affect special-status species;
- Increases in human access, predation or competition from domestic animals, pests or exotic species, or other indirect impacts that would adversely affect special-status species; and
- Substantially reduce the habitat of a wildlife species, or cause a wildlife population to decline substantially or drop below self-sustaining levels.

Based on the lack of suitable habitat and field observations, rare, threatened, endangered or special-status species observed or expected to occur in the vicinity of the near-term project sites is limited to southern California black walnut. Proposed pipeline replacement along State Route 118 would not adversely affect this species, as work would not approach the dripline of any trees of this species. No loss individuals or habitat for special-status species would occur. Short-term indirect impacts such as lighting and noise may occur during construction, but these areas are not located near suitable habitat for special-status species.

However, existing vegetation at the Well No. 2 Iron and Manganese Removal Facility site (Project No. 1) may provide nesting habitat for birds protected by the Migratory Bird Treaty Act (MBTA) and CDFG Code. Sections 3503, 3503.5 and 3513 of the CDFG Code prohibit take of birds and their active nests, including raptors and other migratory non-game birds listed under the MBTA. This is considered a potentially significant project-specific impact, and cumulative impact due to the far reaching geographical area of potential impact for migratory birds wherein other vegetation removal may affect migratory birds.

**Mitigation and Residual Impacts.** The following mitigation measure is required for Near-term Project No. 1 to ensure project compliance with the Migratory Bird Treaty Act.

**BIO1** If feasible, project activities at the Well No. 2 Iron and Manganese Removal Facility site will be scheduled outside the typical bird breeding season (March 1 to August 15), or if activities are scheduled during this time, a minimum of one pre-construction breeding bird survey will be conducted at the site. If any bird species protected by the Migratory Bird Treaty Act and/or California Department of Fish and Game Code are observed nesting at the site, proper exclusionary buffers will be provided or the project will be postponed until the nestlings have fledged the nest.

## 4.2 ECOLOGICAL COMMUNITIES - SENSITIVE PLANT COMMUNITIES

### 4.2.1 Setting

Sensitive plant communities observed in proximity to the near-term project sites are limited to southern riparian scrub, which occurs as patches within Arroyo Las Posas, Fox Barranca, the Coyote Canyon drainage and Balcom Canyon drainage.

### 4.2.2 Impact Discussion

The April 26, 2011 Ventura County Initial Study Assessment Guidelines state that the following impacts to sensitive plant communities are considered potentially significant:

- Activities that would temporarily or permanently remove sensitive plant communities; and
- Indirect effects that would degrade the health of a sensitive plant community.

Projects Nos. 3, 10 and 11 would involve pipeline replacement near Fox Barranca or the Coyote Canyon drainage which support southern willow scrub. However, all work would occur within the roadway right-of-way and no impacts to this sensitive plant community would occur.

## 4.3 ECOLOGICAL COMMUNITIES - WATERS AND WETLANDS

### 4.3.1 Setting

The Ventura County General Plan Goals, Policies & Programs Element defines wetlands follows.

> *"Plant communities that are associated with lands which are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. The frequency of occurrence of water is sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs and seeps."*

The U.S. Army Corps of Engineers (Corps) has jurisdiction over waters of the United States (U.S.) under the authority of Section 404 of the Clean Water Act. The limit of jurisdiction in non-tidal waters extends to the ordinary high water (OHW) mark and includes all adjacent wetlands. Waters of the U.S. are defined as:

> *"All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; including all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa*

*lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce."*

### 4.3.2 Impact Discussion

The April 26, 2011 Ventura County Initial Study Assessment Guidelines state that the following impacts to waters and wetlands are considered potentially significant:

- Activities that would remove vegetation, involve grading, obstruction or diversion of water flow, change in stream flow velocity, siltation, volume of flow or runoff rate, placement of fill, placement of structures, construction of road crossings, placement of culverts or other underground piping, and any disturbance of the substratum;
- Disruption of wetland or riparian plant communities that would isolate or substantially interrupt contiguous habitats, block seed dispersal routes or increase vulnerability of wetland species to exotic weed invasion or local extirpation;
- Interference with ongoing maintenance of hydrological conditions in a water or wetland; and
- Inadequate buffer for protection of functions and values of existing waters or wetlands.

Wetlands as defined by Ventura County occur in Fox Barranca and the Coyote Canyon drainage near proposed Near-term Projects Nos. 3, 10 and 11. However, implementation of these pipeline replacement projects would occur within the roadway right-of-way, and would not result in the loss of vegetation, placement of fill or structures, or modification of hydrology at these drainages.

**Mitigation and Residual Impacts.** No impacts to waters or wetlands would occur; therefore, no mitigation is required.

## 4.4 HABITAT CONNECTIVITY

### 4.4.1 Setting

Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local such as between foraging and nesting or denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. Habitat linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional ecology of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

The proposed near-term project sites are located within agricultural areas, mostly along roadways. No known habitat connectivity features occur in proximity to the project sites. Arroyo Las Posas is located approximately 1,000 feet south of Near-term Project site No. 5 (Somis Road) and Near-term Project site No. 11 (State Route 118), and may be considered a wildlife movement corridor. Proposed Near-term Projects Nos. 3, 10 and 11 are located adjacent to ephemeral drainages (Fox Barranca, Coyote Canyon), which may focus wildlife movement and be considered movement corridors.

### 4.4.2 Impact Discussion

The April 26, 2011 Ventura County Initial Study Assessment Guidelines state that the following impacts to habitat connectivity are considered potentially significant:

- A habitat connectivity feature (linkage, corridor, chokepoint, stepping stone) would be severed, substantially interfered with, or potentially blocked;
- Wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction would be prevented or substantially interfered with;
- Wildlife would be forced to use movement routes that endanger their survival;
- Introduction of lighting, noise, domestic animals, or other indirect impacts that could hinder or discourage fish and/or wildlife movement within a habitat connectivity feature.
- The width of a linkage, corridor, or chokepoint would be reduced to less than the sufficient width for movement of species relying on the connectivity feature; and
- Visual continuity (lines-of-sight) across highly constrained wildlife corridors would not be maintained.

Potential wildlife movement corridors (Fox Barranca, Coyote Canyon) that may provide habitat connectivity are located near proposed Near-term Projects No. 3, 10 and 11. However, construction of these pipeline replacement projects would occur within the roadway right-of-way, and would not result in the loss of significant vegetation, or otherwise adversely affect these potential connectivity features. Pipeline installation activities would result in noise and human presence near these potential movement corridors and may temporarily cause wildlife to avoid these areas. However, wildlife movement primarily occurs at night, when construction activities would not be occurring. Therefore, impacts to habitat connectivity are considered less than significant.

**Mitigation and Residual Impacts.** Impacts to habitat connectivity would be less than significant; therefore, no mitigation is required.

## 4.5 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 1.5.2.1: Evaluate biological impacts of discretionary development.* | Consistent - This Initial Study includes an evaluation of biological impacts. No significant biological impacts were identified. |
| *Policy 1.5.2.2: Mitigate significant biological impacts.* | Consistent - No significant impacts would result. |
| *Policy 1.5.2.3: Evaluate impacts to wetland habitat, discretionary development that would have a significant impact on a significant wetland habitat shall be prohibited.* | Consistent - This Initial Study includes an evaluation of biological impacts, including wetland habitats. No significant wetland habitat impact would occur. |
| *Policy 1.5.2.4: Discretionary development shall be sited a minimum of 100 feet from significant wetland habitats.* | Consistent - near-term project sites are located at least 1,000 feet from wetland habitats (Arroyo Las Posas). |
| *Policy 1.5.2.5: The California Department of Fish and Game, U.S. Fish and Wildlife Service, National Audubon Society and California Native Plant Society shall be consulted when discretionary development may significantly impact biological resources.* | Consistent - The near-term projects would not significantly impact biological resources. |

# 5.0 AGRICULTURAL RESOURCES

## 5A SOILS

### 5A.1 Setting

Agriculture plays an important role in the national, State, and County economies. Ventura County is one of the principal agricultural counties in the State. The estimated gross value for the County's agricultural commodities in 2005 was $1.25 billion giving the County a State ranking of 11$^{th}$ with respect to the values of agricultural production (California Farm Bureau Federation web site, August 2007). This prolific production is made possible by the presence of high quality soils, adequate water, favorable climate, and level topography. In addition, according to the State Employment Development Department, agricultural employment accounts for approximately 5 percent of total employment in the County. There are several factors that affect agricultural economic viability. Cost of land, water, materials and equipment, etc., are important factors. To preserve the agricultural base of the County, it is necessary to discourage the conversion of farmland to other uses.

In Ventura County, the California Department of Conservation Important Farmlands Inventory (IFI) system is used to inventory lands considered to have agricultural value. The areas with the highest agricultural potential are classified as "Prime" or of "Statewide Importance," followed by "Unique," "Local Importance," "Grazing," "Urban" and "Other." This system is superior to merely identifying class I and II type soils because other aspects of the land's productive potential are factored in.

Most of the Near-term Projects involve upgrade of existing water pipelines in paved road rights of way. However, in the case of several of the Near-term Projects the areas of impact include agricultural lands as identified in Table C5A.1-1. For Near-term Projects that have the potential to convert agricultural lands detailed soils information is also provided.

**Table C5A.1-1. Agricultural Uses at the Near-term Project Sites**

| Project No. | Project Title | Site Condition |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | The project site has historically been utilized for agriculture, although the well site has been in operation for about 40 years. The expansion area is in orchard production. In addition, the Ventura County General Plan Land Use Map designates the project site as Agricultural. Surrounding land uses are agricultural (mostly orchards).<br><br>The soils at the project site (existing well site and proposed expansion area) are classified as Garretson silt loam (GcB), calcareous variant by the U.S. Department of Agriculture (Soil Survey of the Ventura County Area, 1970). These soils are characterized as being gently sloping to moderately sloping soil of the alluvial fans and plains. The surface layer is gray, highly calcareous silt loam about 18 inches thick. It is underlain by light-gray, highly calcareous silt loam that extends to a depth of more than 60 inches. Permeability is moderate, with a water holding capacity of 10 to 12 inches in the 60 inches of effective rooting depth. Inherent fertility is medium. This soil is typically used primarily for citrus crops, field crops, and range. The capability unit is IIe-1, which are considered Class II type soils, or soils that have only moderate limitations that reduce the choice of plants or that require moderate conservation practices.<br><br>According to the IFI system, the project site is located in an area designated as Prime (P) soils. Adjacent and nearby properties are also designated as Prime (P), Statewide Importance (S) or Unique (U). |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Paved road right-of-way and existing Booster Pump Station. Surrounding land uses are agriculture (mainly orchards and row crops). |

| Project No. | Project Title | Site Condition |
|---|---|---|
| 3 | Donlon Road Pipeline Upgrade | Paved road right-of-way. Land uses on either side of the road are agricultural (orchard and row crops). |
| 4 | Kingsgrove Drive Pipeline Upgrade | Paved road right-of-way. Surrounding land uses are agriculture (mainly orchards and row crops). |
| 5 | Bell Ranch/Somis Road/West | The pipeline to be abandoned in place is within an agricultural area. Land along this route includes the following designations: Prime, Statewide Importance, Unique and Grazing.<br>The new service line to West Street is within an unpaved agricultural road and is surrounded by agricultural land uses. The agricultural land that this pipeline segment will extend through is designated as Prime.<br>The new pipeline segment proposed for Somis Road is within paved right-of way. Surrounding land uses include agricultural (row crop) production as well as other uses. Agricultural land adjacent to Somis Road along this route are designated Prime or of Statewide Importance. |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | The new pipeline segments are proposed to be located in an existing unpaved agricultural access road. Land uses in this area are agricultural including orchards, row crops and greenhouses. Agricultural land along this proposed pipeline route is designated as Prime. |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Paved access road. No adjacent agriculture except at the southern terminus of the alley. These agricultural lands are designated as Prime. |
| 8 - 11 | Highway 118 Pipeline Replacement | Land uses along Highway 118 are agricultural. Because the pipeline will be located at least six feet from the white fog line where it could potentially affect agricultural land depending on the ultimate location. Agricultural lands along the proposed pipeline segments include Prime farmland and farmland of Statewide Importance. |
| 12 | Balcom Canyon Pipeline Upgrade | Paved road right-of-way. Land uses on either side of the road are agricultural (orchard and row crops). Agricultural lands adjacent to the proposed pipeline segment includes Prime farmland and Unique farmland. |

The California Land Conservation Act (LCA) Program, also known as the Williamson Act", is a State-adopted, voluntary land conservation program. In Ventura County, the LCA Program is administered by the Ventura County Planning Division. Implementation of the LCA Program involves a contract between the County and qualifying landowners that restricts contracted land to agricultural uses for either a minimum of 10 years (LCA contract) or maximum of 20 years (Farmland Security Zone Act (FSZA contract). In exchange for the land use restriction, the land owner receives preferential property tax treatment. None of the Near-term Project sites are located within agricultural parcels that have active LCA contracts. Some of the sites are located adjacent to parcels under LCA contracts.

Agriculturally zoned land at and proximate to the Near-term Project sites are "protected" under the Ventura County Save Open Space and Agricultural Resources (SOAR) ordinance. This ordinance requires countywide voter approval of any change to the County General Plan involving the Agricultural, Open Space or Rural land use map designations, or any change to a General Plan goal or policy related to those land use designations. The ordinance remains in effect until 2020.

### 5A.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *1.6.2.1: Discretionary development located on land designated as Agricultural (see Land Use Chapter) and identified as Prime Farmland or Farmland of Statewide Importance on the State's Important Farmland Inventory, shall be planned and designed to remove as little land as possible from potential agricultural production and to minimize impacts on topsoil.* | Consistent - The removal of Prime agricultural soil for the purposes of the Well No. 2 Iron and Manganese Removal Facility project is consistent with this policy in that it is designed to take out only the amount of agricultural land that is necessary for the project. |
| *1.6.2.6: Discretionary development adjacent to Agricultural-designated lands shall not conflict with agricultural use of those lands.* | Consistent - The proposed land uses would not conflict with remaining agricultural uses in the long-term. Dust control measures will be incorporated into the Program to reduce short-term construction-related impacts to agriculture. Additionally, the District must negotiate easement agreements with the landowners of any parcels that would be directly impacted by the installation of water infrastructure. |

### 5A.3 Impact Discussion

The County Guidelines state that projects resulting in the loss of over 5 acres of prime soil would result in significant project-specific impacts to agriculture (in areas with a land use designation of Agriculture). Any direct or indirect loss of agricultural soils is considered a significant contribution to the cumulative loss of agricultural land. The pipeline upgrade projects would not result in conversion of agricultural land to non-agricultural uses. Based on a review of the proposed site plan for the proposed Well No. 2 Iron and Manganese Removal Facility, less than 0.25 acre of land would be utilized for the proposed Iron and Manganese Removal Facility. The relocation of the Balcom Canyon Road Pressure Reducing Station would result in the conversion of only a few square yards of agricultural land. The District would need to obtain

easements and would temporarily disturb existing agricultural operations for installation of pipelines for Near-term Projects Nos. 5, 6, and possibly 8 through 11. Based on the County's criteria, none of the Near-term Projects or the Program as a whole would result in a significant project-level impact to agricultural land.

The County Guidelines states that the cumulative loss of agricultural soils was discussed in the Final Environmental Impact Report for the Comprehensive Plan Amendment to the County General Plan (1988). (A subsequent EIR was certified by the Board of Supervisors in 2005.) The conclusions of that EIR were that there will be a significant loss of agricultural soils, and that although the General Plan contains policies and programs to partially mitigate the cumulative impact, the impact can't be reduced to a less than significant level. Therefore, in accordance with Section 15183 of the CEQA Guidelines, additional cumulative environmental analysis is not required for any project that is consistent with the General Plan.

**Mitigation and Residual Impacts.** No significant impact would result, so no mitigation is required.

## 5B LAND USE INCOMPATIBILITY

### 5B.1 Setting

The general setting provided in a. above applies to this issue.

### 5B.2 Project Consistency with Applicable Policies

The policies outlined under topic 5A are also applicable to agricultural land use incompatibility.

### 5B.3 Impact Discussion

The County Guidelines agricultural land use compatibility impact thresholds state that a project that is closer than 300 feet with vegetative screening, or 150 feet without vegetative screening, may have a potentially significant impact on agricultural resources. However, several waiver conditions from these thresholds are also identified. The following waiver condition is applicable to the proposed Program:

- Individuals are not continuously present in the proposed structures or use area.

Thus no incompatibility between the Near-term Projects and nearby agricultural land use practices such as the use of agricultural chemicals is anticipated since no continuously occupied structures are proposed. Furthermore, the operation of the proposed uses would not interfere with agricultural operations over the long-term.

Construction of Near-term Projects located within active agricultural parcels (e.g., Projects Nos. 5 and 6) may interfere with ongoing agricultural operations. Additionally, construction will result in the creation of dust; however, standard dust suppression measures

recommended by the VCAPCD will be implemented as part of the Program. Therefore, dust impacts to adjacent agricultural uses will be less than significant.

The Program would not result in water consumption and would therefore, not reduce the availability of agricultural water supplies. Nor would it introduce structures that would significantly decrease solar access to any agricultural areas.

Based upon the factors discussed above, the Program would not result in project-specific or cumulatively significant land use compatibility impacts on nearby agricultural uses.

**Mitigation and Residual Impacts.** No impact would result, so no mitigation is required. However the following measure is recommended to reduce adverse impacts to agricultural operations and is applicable to any Near-term Project that would result in excavation on agriculturally productive land.

**AR1** The District shall coordinate scheduling of Near-term Projects located on agriculturally productive parcels with the landowner and leasee (as applicable) to minimize disturbance of ongoing agricultural operations.

## 6.0 SCENIC RESOURCES

### 6.1 SETTING

The main natural scenic features of the Program area include the Las Posas Valley and east-west trending Las Posas and Camarillo Hills south of the Valley and South Mountain and Oak Mountain to the north. The area is rural in character and land uses include agriculture with some scattered residential and commercial uses. Agricultural uses include orchards, covered crops and row crops. The community of Somis is also within the Program area and is comprised of a central residential neighborhood with a few supporting businesses and public facilities.

Highway 118 is the primary travel corridor that extends through the Valley. A railroad also parallels Somis Road and Highway 118 east of its junction with Somis Road. These travel corridors may also be considered primary view corridors.

There are no Ventura County designated Scenic Resources areas, as identified on the Ventura County General Plan Resource Protection Map, in the Program area. Based on a review of Ventura County General Plan Resources Appendix (updated April 6, 2010) Figure 1.7.3b, Designated and Eligible Scenic Highways Southern Half, Highway 118 is considered an eligible County Scenic Highway.

## 6.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 1.7.2.1: Notwithstanding Policy 1.7.2.2, discretionary development which would significantly degrade visual resources or significantly alter or obscure public views of visual resources shall be prohibited unless no feasible mitigation measures are available and the decision-making body determines there are overriding considerations.* | Consistent - Due to the nature of the proposed uses and existing scenic environment as described in this section, the Program would not significantly degrade visual resources, or alter or obscure public views of visual resources. |

## 6.3 IMPACT DISCUSSION

The County Guidelines state that:

A project has the potential to create a significant impact to scenic resources if it:

a. Is located within an area that has a scenic resource that is visible from a public viewing location; and,

b. Would physically alter the scenic resource either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects; or

c. Would substantially obstruct, degrade, or obscure the scenic vista, either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects.

During Near-term Project construction activities, construction equipment and disturbed earth would be visible at the sites from the adjacent roads and agricultural/residential properties. Such temporary views are not uncommon in this area mainly due to the agricultural nature of the existing land uses.

Most of the Near-term Projects are upgrades of subsurface pipelines or other infrastructure improvements that would result in virtually no long-term aesthetic effect with the exception of Project No. 1, Well No. 2 Iron and Manganese Removal Facility (described further as follows). At the Project No. 1 site, orchard and ornamental trees would be removed from the expansion area to make room for the filtration equipment. Permanent above-ground project components would be located adjacent to the existing well site and are expected to be no higher than approximately 14 feet with the exception of three light poles which are planned to be 16 feet tall and a slender antenna to be located at the southeast corner of the site which would be 40 feet in height (Muna, personal communication, January 2008). In terms of aesthetic integrity, water wells and associated infrastructure are commonly placed within an agricultural setting because they are used for irrigation, and the above-ground components are not inconsistent with agricultural piping, maintenance equipment or heavy machinery that are typically associated with common agricultural operations. Well No. 2 has been located at its present site

for about 40 years. As such, placement of the proposed water well filtration facilities adjacent to the existing well would not introduce an inconsistent element to the community. Additionally, only a small portion of the expansion area would be fronting Bradley Road. However, at present, there are ornamental cactus plants along a portion of the well site fence. These cactus help reduce the visual starkness of the well facility but may be removed as part of project construction. This is considered an adverse visual impact. No other projects are planned for the project vicinity that would together with the project result in cumulative scenic resource impacts.

Nighttime lighting would be provided for the Well No. 2 Iron and Manganese Removal Facility Project, but would be manually controlled and only used when operators needed to access the plant at night. The lighting would be shielded. Due to the infrequent use of night lighting and shielding of the lights, night light impacts would be less than significant. The project would not be constructed of reflective material and would, therefore, not create a source of glare.

**Mitigation and Residual Impacts.** The following mitigation measure is proposed to reduce any adverse effect of the project on neighboring property views for Project No. 1.

**VR1** Prior to operation of the proposed iron and manganese removal facility, the District shall replace any plant material that is adjacent to the Well No. 2 fence that is removed during construction. Additionally, the District shall coordinate with the neighboring property owners in determining the type of plant material to be planted along the exterior of project site fencing facing private property. Drought-resistant native plants shall be used where feasible.

# 7.0 PALEONTOLOGICAL RESOURCES

## 7.1 SETTING

According to the Ventura County General Plan Resources Appendix, paleontological resources refer to the fossilized remains of pre-historic plant and animal life. In Ventura County, paleontological remains include examples from throughout most of geologic history dating back 600 million years ago to the present. Certain geologic formations are of known paleontological importance, others are of low importance, while the importance of other deposits is unknown. According to the County Guidelines, fossil remains are considered important if they are: 1) well preserved; 2) identifiable; 3) type/topotypic specimens; 4) age diagnostic; 5) useful in environmental reconstruction; 6) represent rare and/or endemic taxa; 7) represent a diverse assemblage; and/or 8) represent associated marine and non-marine taxa.

The Geologic Map of the Santa Paula Quadrangle (Dibblee, 1992) and the Moorpark Quadrangle (Dibblee, 1992) were reviewed. The geologic formations at the Near-term Project sites are identified in Table C7.1-1. As stated in the table, the geology of the Near-term Project sites consist of Quarternary age deposits of alluvial material.

**Table C7.1-1. Geologic Formations at the Near-term Project Sites**

| Project No. | Project Title | Geologic Formation |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | Surficial Sediments - Alluvial Deposits (Qa) |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Qa |
| 3 | Donlon Road Pipeline Upgrade | Older Surficial Sediments - Alluvial (Qoa) |
| 4 | Kingsgrove Drive Pipeline Upgrade | Qa and Qoa |
| 5 | Bell Ranch Road/Somis Road/West | Qa |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | Qoa |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Qa |
| 8 - 11 | Highway 118 Pipeline Replacement | Qa and Qoa |
| 12 | Balcom Canyon Pipeline Upgrade | Qa |

## 7.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES:

| Policy | Consistency Determination |
|---|---|
| *Policy 1.8.2.1: Discretionary developments shall be assessed for potential paleontological and cultural resource impacts, except when exempt from such requirements by CEQA. Such assessments shall be incorporated into a Countywide paleontological and cultural resource data base.* | Consistent - The Program has been reviewed for potential paleontological and cultural resource impacts. |
| *Policy 1.8.2.2: Discretionary development shall be designed or re-designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical or paleontological consultants, depending on the type of resource in question.* | Consistent - No onsite paleontological or cultural resources impacts are anticipated. However, mitigation for addressing unanticipated archeological finds are proposed. |

## 7.3 IMPACT DISCUSSION

Based upon the County Guidelines, if the proposed project's disturbance is located in an area of "Quarternary Deposits (alluvium), or formations ranked as Moderate, Low of No paleontological importance no further assessment need to be done and the "N" column checked in the Initial Study. As indicated above, the sites are comprised of alluvial deposits and have

been disturbed by previous activities. Furthermore, based upon United States Department of Agriculture Soil Survey mapping, soils at the Near-term Project sites have a depth of 80-inches or more to restrictive features, thus excavations would not extend into underlying bedrock formations of potentially greater paleontological significance. No intact, unique, paleontological resources are expected to be impacted by Program activities. Since the Program is not expected to result in project-specific impacts to paleontological resources its cumulative impact is not expected to be significant

**Mitigation and Residual Impacts.** No significant impacts would result therefore no mitigation is required.

## 8.0 CULTURAL RESOURCES

The following evaluation is based upon Archaeological Survey Report of Approximately 6.4 linear Miles for the VCWD No. 19 Near-term Capital Projects Somis, Unincorporated Ventura County, California prepared by Conejo Archaeological Consultants (October 2011). This report is incorporated by reference and is available for review upon request.

### 8A ARCHAEOLOGICAL

### 8A.1 Regional Setting

The project area lies within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied the region from San Luis Obispo County to Malibu Canyon on the coast, and inland as far as the western edge of the San Joaquin Valley, and the four northern Channel Islands. The Chumash are subdivided into factions based on distinct dialects.

The Ventureño were the southernmost Chumash group, occupying most of the area of present day Ventura County and the southwest corner of Los Angeles County. The name Ventureño is derived from the mission with local jurisdiction, San Buenaventura.

Chumash society developed over the course of some 9,000 years and achieved a level of social, political and economic complexity not ordinarily associated with hunting and gathering groups. The protohistoric Chumash are believed to have maintained one of the most elaborate bead money systems in the world, as well as one of the most complex non-agricultural societies.

Unlike the coastal Chumash, there is a general lack of ethnographic information on the interior Chumash. The permanent inland settlements subsisted from a variety or resources including an abundance of acorns, seed plants, rabbits, and deer. The smaller inland villages were generally economically allied with the larger coastal villages.

The Chumash aboriginal way of life ended with Spanish colonization. As neophytes brought into the mission system, they were transformed from hunters and gatherers into

agricultural laborers and exposed to diseases to which they had no resistance. By the end of the Mission Period in 1834, the Chumash population had been decimated by disease and declining birthrates. Population loss as a result of disease and economic deprivation continued into the next century.

Today many people claim their Chumash heritage in Ventura County. In general, they place high value on objects and places associated with their past history, especially burials, grave goods, and archaeological sites.

## 8A.2 Site Specific Setting

As indicated above, a Phase I archaeological investigation was conducted by Conejo Archaeological Consultants (Conejo) addressing the proposed Program. The Phase I cultural resources investigation included:

- Review of archaeological archives at the South Central Coastal Information Center (SCCIC), housed at California State University, Fullerton;
- A sacred lands file check by the Native American Heritage Commission (NAHC);
- Native American consultation; and
- Archaeological survey of the Program's area of potential effect (APE)

### 8A.2.1 Archaeological Sites

The SCCIC archaeological site records identified two prehistoric sites and two historic archaeological sites within a 0.5-mile radius of the Program APE; none of which will be directly or indirectly impacted by Program implementation. The sites are described below.

**CA-VEN-631** was recorded by Lopez in 1979 and consists of ground stone and lithics located on the west bank of Arroyo Las Posas. The project boundaries were later expanded to north of the railroad tracks.

CA-VEN-631 is located approximately 213 meters (700 ft.) east of Project No. 7 and over 305 meters (1000 ft.) of Project No. 5, and will not be directly or indirectly impacted by Program implementation.

**CA-VEN-661H** consisted of a vacant lot with the remnants of foundation and broken cement slab, which was site of a former blacksmith shop erected ca. 1982. Ceramic and glass shards ca. 1900, square nails and a hand-forged carriage bolt were also found at this site.

CA-VEN-661H is located half a block east of Project No. 7. The vacant lot where CA-VEN-661H was recorded has since been developed and the site destroyed. CA-VEN-661H will not be directly or indirectly impacted by Program implementation.

**CA-VEN-673H** is marked by a large pepper tree, fragments of crockery and glass, galvanized iron water pipe, clam shell fragments, broken brick and possible mano fragments, which may represent an early twentieth century farmhouse (Maxwell 1980).

CA-VEN-673H is located approximately 61 meters (200 ft.) east of Project No. 2. Since this site was recorded over 30 years ago, the peppertree has been removed and the entire hillside cleared. CA-VEN-673H will not be directly or indirectly impacted by implementation of the Program.

**CA-VEN-1089** consists of 1 circular granitic mano/abrader, (< 20) unidentified marine shell fragments and (< 20) burnt large mammal bone fragments.

CA-VEN-1089 is located approximately 90 meters (300 ft.) southeast of Project No. 11 and will not be directly or indirectly impacted by Program implementation.

8A.2.2 Previous Archaeological Investigations

Forty-three archaeological investigations are recorded within a 0.5-mile radius of the Program APE. Projects Nos. 8 and 9's APE along Highway 118 were previously surveyed by Lopez in 1988, but as the survey is over 22 years old a new survey of that area was deemed warranted. Two linear surveys associated with the Southern Pacific Railroad border the eastern portions of the Project No. 12 APE were conducted by Dames & Moore in 1988, and Peak and Associates in 1991. Conejo previously conducted two surveys along Bradley Road for the lateral line and proposed upgrades to Well No. 2. The majority of the proposed pipeline routes were not subject to previous archaeological reconnaissance.

8A.2.3 Federal, State and Local Historic Listings.

The listings of the National Register of Historic Places, California Historical Landmarks and the California Points of Historical Interest (1992) include no properties within a 0.5-mile radius of the Program APE.

The California State Historic Resources Inventory lists no properties that have been evaluated for significance within or adjacent to the Program APE.

Review of the Caltrans (2011) Historic Bridge Evaluations indicated that all evaluated bridges within the Somis area were determined not eligible for the National Register.

There are three designated Ventura County Landmarks within Somis:

- [85] Somis Thursday Clubhouse, 5380 Bell Street;
- [128] Fulkerson Hardware Store, 3403 Somis Road; and
- [133] Somis School, 5268 North Street.

8A.2.4 Native American Consultation.

The Native American Heritage Commission (NAHC) sacred lands file search failed to identify any cultural resources within the immediate Program area.

The following Chumash individuals and groups were emailed or mailed a Program description letter on July 13, 2011:

- Beverly Salazar Folkes
- Carol A. Pulido
- Charles Cooke
- Charles S. Parra
- Coastal Band of the Chumash Nation - Vennise Miller, and Janet Garcia Chairpersons
- Frank Arredondo
- Barbareno/Ventureno Band of Mission Indians -Julie Tumamait
- Mark Vigil, Chief, San Luis Obiso county Chumash Council
- Melissa M. Para-Hernandez
- Owl Clan
- Pat Tumamait
- Randy Guzman-Folkes
- Richard Angulo
- Santa Inez Band of Mission Indians, Tribal Administrator
- Santa Inez Band of Mission Indians, Vincent Armenta, Chairperson
- Santa Inez Tribal Elders Council, Adelina Alva-Padilla, Chairwoman
- Stephen William Miller

The above contacts were requested to respond if they had any cultural resources concerns regarding the VCWD No. 19 Near-term Projects. To date, two responses have been received. The first was a telephone call from Freddy Romero who indicated that the Santa Ynez Tribal Elders would not be commenting on this project. Patrick Tumamait stated in a telephone conversation that there was a village site in the Somis area, but that he was not aware of any specific resources within the Program APE.

8A.2.5 Archaeological Survey

Ms. Maki of Conejo conducted an archaeological survey of the Program's 12 project APEs on July 30 and 31, 2011. Archaeologist Gwen Romani assisted on the field survey on July 30, 2011. The Program APE boundaries were determined using aerial maps provided by the District No. 19. In addition, Conejo met with County Engineer Andrew Martinez in Somis to verify the various project locations on July 30, 2011. Survey methodology for eleven project APEs consisted of walking up to a 10 meter wide (33 ft.) corridor where feasible along each side of the paved street. The same methodology was used for sites which consisted of unpaved agricultural roads. The total linear length of pipelines surveyed was approximately 6.4 miles. No archaeological resources were observed within the Program APE.

### 8A.3 Regulatory Setting

The federal law that deals with cultural resources that could be affected by federal undertakings is the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the Act requires that federal agencies take into account the effect of a federal undertaking on properties listed in or eligible for the National Register of Historic Places (NRHP).

The State of California has formulated laws for the protection and preservation of archaeological resources. Generally, a cultural resource shall be considered to be "historically significant" if the resource meets the criteria for listing on the California Register of Historic Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b. Is associated with the lives of persons important in our past;

c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d. Has yielded, or may be likely to yield, information important in prehistory or history.

The County Guidelines indicate that damage or destruction of unique archaeological resources is considered a significant impact.

### 8A.4 Project Consistency with Applicable Policies

The policy discussion provided in Section 7.2 applies to this section.

### 8A.5 Impact Discussion

Based on the SCCIC record search findings, archaeological field survey results, NAHC consultation, and Native American project notification, the proposed Program is not expected to impact known prehistoric or historic resources. However, since an archaeological survey can only confidently assess the potential for encountering surface cultural resource remains, there is the potential that previously undiscovered remains could exist. In the unlikely event that site preparation activities disturb previously unidentified, intact prehistoric or historic resources within the project APE and such resources were determined to be significant, project activities would have the potential to result in a significant cultural resource impact.

Because the Program is not expected to result in project-specific impacts to cultural resources its cumulative impact is not expected to be significant. However, any impacts associated with the identification and impact of unanticipated cultural resources may be considered cumulatively significant.

**Mitigation and Residual Impacts.** The following measures will be incorporated into the Program (each of the Near-Term Projects) to ensure that potential project-specific and cumulative cultural resource impacts would be less than significant.

**CUL1** In the event that archaeological resources are exposed during project construction, all earth disturbing work within the vicinity of the find must be temporarily suspended until a qualified archaeologist has evaluated the nature and significance of the find. The District shall be notified of any such find. A Chumash representative should monitor any archaeological field work associated with Native American materials.

**CUL2** If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission. The District shall also be notified of any such find.

## 8B HISTORICAL

### 8B.1 Setting

As indicated above in Section 8A, there are three historic landmarks in the Somis area of Ventura County. Additionally, during the Conejo field survey, one 1941 concrete box culvert recorded at 4785 E. Los Angeles Avenue, Somis was identified. However, the culvert does not meet criteria for listing on NRHP or California Register and no further documentation is required, as pipeline will go under culvert, thereby avoiding any impact.

### 8B.2 Project Consistency with Applicable Policies

The assessment in Section 7.2 applies to historic resources as well as archaeological and paleontological resources.

### 8B.3 Impact Discussion

The Ventura County thresholds for historic resources state that a project that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment. Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired.

None of the above noted Ventura County Landmarks will be directly or indirectly impacted by Program implementation and the concrete box culvert recorded at 4785 E. Los Angeles Avenue, Somis does not meet criteria for listing on NRHP or California Register. Therefore, no project-specific impacts to historic resources would result from Program

implementation. Additionally, the Program would not contribute to any cumulative impact to such resources.

**Mitigation and Residual Impacts.** No impact to historic resources would result. Therefore, no mitigation is warranted.

## 9.0 COASTAL BEACHES AND SAND DUNES

### 9.1 SETTING

The Program area is not located on the coast.

### 9.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no applicable policies from Ventura County's General Plan.

### 9.3 IMPACT DISCUSSION

Due to the distance of the Near-term Project sites from the coast, Program implementation would not directly or indirectly impact coastal beaches or sand dunes. In addition, the Program would not result in the paving of significant open areas or other activities that could indirectly affect the deposition or erosion of sand at the coast. No impact to coastal beaches or sand dunes would result. Since there would be no project-specific impact, the Program would not contribute significantly to cumulative impacts.

**Mitigation and Residual Impacts.** No impact would result. Therefore, no mitigation is required.

## 10.0 FAULT RUPTURE

### 10.1 SETTING

The State Division of Mines and Geology indicates that on a statewide basis the potential hazard to structures from the surface displacement of faults is low compared to such geologic phenomena as earthquake shaking and landsliding. The greatest potential for fault activity is along any of the faults, which lie within the several major fault systems which transect the County from east to west. Many of the faults in the County are associated with major fault systems extending beyond County boundaries. Several of these faults and fault systems are considered to be active, but a great deal of additional information must be assembled to determine the potential for, as well as the nature of the activity of most of the faults presently considered to be active.

Based on a review of the County of Ventura Geographic Information Systems Mapping none of the Near-term Project sites are crossed by a known fault (Dibblee Included) nor are they

located within a State Special Studies Fault Zone (Alquist Priolo) with the exception of the Project. No 5 pipeline to be abandoned along Ponderosa Road. A few feet within the central portion of this pipeline alignment is located within an Alquist Priolo Zone.

### 10.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No County policies relating to fault rupture are applicable to the Program.

### 10.3 IMPACT DISCUSSION

Threshold of significance criteria for determining whether a project is potentially at risk with respect to fault rupture is its location within any of the following areas:

- State of California designated Alquist-Priolo Special Fault Study Zone, or
- County of Ventura designated Fault Hazard Area.

There is no known cumulative fault rupture hazard impact that would occur as a result of other approved, proposed or probable projects.

None of the Near-term Project sites that would include construction of new facilities or upgrade of facilities are within an Alquist-Priolo Special Fault Study Zone, or County of Ventura designated Fault Hazard Area. Therefore, no impact would result.

**Mitigation and Residual Impacts.** No impact would result. Therefore, no mitigation is required.

## 11.0 GROUND SHAKING

### 11.1 SETTING

The entire southern California region is seismically active given the numerous faults throughout the region. Several faults are present in the general area including the Simi-Santa Rosa Fault, San Oak Ridge Fault, Cayetano Fault, Ventura Fault, and Malibu Coast Fault. The active San Andreas Fault Zone is located about 35 miles north-northeast of Program area. The discussion provided under fault rupture provides additional setting information relevant for this issue.

### 11.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies relating to ground shaking from Ventura County's General Plan are applicable to the Program.

### 11.3 IMPACT DISCUSSION

Ground-shaking is the cause of most damage during earthquakes. The predominant (10 percent probability of exceedance in 50 years) earthquake in the Program area is magnitude

6.9. In the Program area, the peak ground acceleration with a probability of 10 percent exceedance in 50 years generally ranges from 0.60 g to 0.67 g in alluvium conditions with the exception of Project No. 6 site where the value is 0.71 g (California Department of Conservation Division of Mines and Geology, 2000 and 2003).

The County Guidelines provide the following significance thresholds for groundshaking impacts.

1. Is the proposed structure designed to be built in accordance with all applicable requirements of the Ventura County Building Code? If the answer is no, then the project has the potential to expose people or other structures to potential significant adverse effects, including the risk of loss, injury or death involving ground shaking hazards. If the answer is yes, then the project design will reduce the adverse effects of ground shaking to less than significant.

2. The hazards from ground shaking will affect each project individually; and no cumulative ground shaking hazard would occur as a result of other approved, proposed or probable projects.

As previously stated, there are no faults or special study fault zones located beneath the Near-term Project sites, however due to the location of the sites within the Southern California area, the potential exists for seismic ground shaking events to occur that may damage the proposed above-ground (e.g., tanks, pumps) and belowground structures (e.g., pipelines) during the design life of the project. However, the Program structures will be designed in compliance with the Uniform Building Code (UBC) and local earthquake design standards. For the Well No. 2 Iron and Manganese Removal Facility Project conservative preventative measures to avoid release of chemicals during an earthquake that include storage of these chemicals within double-walled tanks with a canopy cover is proposed. Further, the Program would not involve the construction of habitable structures, and would not subject additional people to risk of injury or loss of life in the event that strong ground shaking occurs. Considering the above, hazards associated with ground shaking would be a less than significant impact with respect to the proposed Program. An assessment of cumulative development impacts is not relevant to the issue of ground shaking.

**Mitigation and Residual Impacts.** Impacts are less than significant. Therefore, no mitigation is required.

## 12.0 LIQUEFACTION

### 12.1 SETTING

Liquefaction occurs when strong, cyclic motions during an earthquake cause water-saturated soils to lose their cohesion and take on a liquid state. Liquefied soils are unstable and can subject overlying structures to substantial damage. The occurrence of liquefaction is highly dependent on local soil properties, depth to groundwater, and the strength and duration of a

given ground-shaking event. Based upon Ventura County Geographical Information Systems mapping (2011), some of the Near-term Project sites are located within a liquefaction hazard zone as indicated in the Table C12.1-1 below.

**Table C12.1-1. Liquefaction Potential of the Near-term Project Sites**

| Project No. | Project Title | In Liquefaction Hazard Zone (yes or no) |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | No |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Yes |
| 3 | Donlon Road Pipeline Upgrade | Northern end of pipeline segment only |
| 4 | Kingsgrove Drive Pipeline Upgrade | Yes |
| 5 | Bell Ranch Road/Somis Road/West | Somis Road portion only |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | No |
| 7 | West Street Alley Pipeline Upgrade and Replacement | Southern end of pipeline segment only |
| 8 - 11 | Highway 118 Pipeline Replacement | Parts of Project Nos. 10 and 11 |
| 12 | Balcom Canyon Pipeline Upgrade | No |

## 12.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 2.4.2: Prior to the issuance of building or grading permits for essential facilities, special occupancy structures, two-story single family residences, or hazardous materials storage facilities located within areas prone to liquefaction, a geotechnical report that includes a seismic analysis and evaluation of liquefaction in accordance with the State of California Guidelines shall be prepared in order to assess the liquefaction potential and provide recommendations for mitigation.* | Consistent - Geotechnical reports will be prepared as necessary for the Near-term Projects. |

## 12.3 IMPACT DISCUSSION

The project would have a significant impact if liquefaction hazards would subject persons or property to loss of life or substantial injury or damage. For the Near-term Projects on sites with a potential for liquefaction, given the existence of alluvial materials underlying the sites and potential for high groundwater, during a large earthquake event, soil liquefaction could possibly develop in the sandy layers below groundwater level, depending on the density and composition of the soils. Impacts from potential liquefaction to the proposed project are probably no greater than those already present for the existing facilities (e.g., pipelines). Because the Program

structures will be designed in compliance with the Uniform Building Code (UBC) and local earthquake design standards, the potential for substantial adverse affects due liquefaction are not anticipated to be significant.

**Mitigation and Residual Impacts.** No significant impacts were identified. Therefore, no mitigation is necessary.

## 13.0 SEICHE AND TSUNAMI

### 13.1 SETTING

According to the General Plan Hazards Appendix (2007), there is no record of a seiche occurring in Ventura County. However, the worldwide history of the phenomenon illustrates the damage that seiches can do, and that seismic disturbances at great distances from Ventura County could have an effect here. As indicated within the County Guidelines, areas subject to seiche hazards are those located within 10 feet vertical elevation from an enclosed body of water such as a bay, lake, or reservoir.

Tsunamis are seismically induced sea waves that can be of sufficient size to cause substantial damage to coastal areas. The last major tsunami in Southern California was in 1812. The largest tsunami wave amplitude recorded in Ventura County was 8.8 feet, associated with the Chilean earthquake of 1960. Based on a review of the County of Ventura General Plan Hazards Appendix, the nearest tsunami hazard zone is located approximately 15 miles south of the Program area.

### 13.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No seiche or tsunami hazard policies from the Ventura County's General Plan are applicable to the proposed Program.

### 13.3 IMPACT DISCUSSION

The Near-term Project sites are not located near an enclosed body of water such as a bay or lake that would create a significant oscillating wave (seiche) in the event of an earthquake. Therefore, no impact would result. This issue is not subject to cumulative analysis as it is site specific.

The Near-term Project sites are not located in a tsunami hazard zone and would not increase the severity or the number of persons potentially affected by a tsunami. No impact would result. This issue is not subject to cumulative analysis as it is site specific.

**Mitigation and Residual Impacts.** No significant impacts would result. Therefore, no mitigation is needed.

# 14.0 LANDSLIDES/MUDSLIDES

## 14.1 SETTING

Areas of high landslide or mudflow potential are typically hillside areas with slopes of greater than 10 percent. Based on a review of Ventura County mapping form actual and potential landslides as well as earthquake induced landslides, the Near-term Project sites are not located within an area subject to landslide/mudflow.

## 14.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies from Ventura County's General Plan relating to this issue are applicable to the proposed Program.

## 14.3 IMPACT DISCUSSION

The project area is level and has been determined to have little or no landslide/mudflow potential. Therefore, no impact would result. This issue is not subject to cumulative analysis, as it is site specific.

**Mitigation and Residual Impacts.** No impacts would result. Therefore, no mitigation is needed.

# 15.0 EXPANSIVE SOILS

## 15.1 SETTING

"Expansive soils" are soils that expand when wet and contract when dry. Based upon a review of the Expansive Soils Hazard Mapping provided by the Ventura County Geographic Information System Department, most of the Near-term Project sites have a medium potential for expansive soils with the exception of Project No. 6 which has a high potential for expansive soil.

## 15.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 2.8.2.1: Construction must conform to established standards of the Ventura County Building Code, adopted from the California Building Code.* | Consistent - The Near-term Projects will be constructed in compliance with applicable standards. |
| *Policy 2.8.2.2: A geotechnical report, prepared by a registered civil engineer and based upon adequate soil testing of the materials to be encountered at the sub-grade elevation, shall be submitted to the County Surveyor, Environmental Health Division, and Building and Safety for every applicable subdivision and Building Permit application (as required by the California Building Code).* | Consistent - Geotechnical reports will be prepared as needed for the Near-term Projects. |

## 15.3 IMPACT DISCUSSION

The determination of a significant soils expansion effect shall be based upon an inquiry of whether a proposed project will expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving soil expansion if it is located within a soils expansive hazard zone or where soils with an expansion index greater than 20 are present. The hazards from expansive soils will affect each project individually; and no cumulative expansive soils hazard would occur as a result of other approved, proposed or probable projects.

As indicated above, the Near-term Project sites are located in areas with medium or high potential for expansive soils. For most of the Near-term Projects implementation of standard building practices in conformance with all applicable codes, are expected to ensure that impacts associated with expansive soils are expected to be less than significant. However, for Project No. 1, the Well No. 2 Iron and Manganese Removal Facility, the sites expansive soil potential could result in impacts to treatment facility pads and is considered to be a potentially significant environmental impact. (Expansive soils are typically a concern within the top 8 feet.)

**Mitigation and Residual Impacts.** The following mitigation is required for Project No. 1 only to reduce impacts associated with expansive soils to a less than significant level.

**GEO1** The District shall have a a registered engineer for the Well No. 2 Iron and Manganese Removal Facility Project conduct, an evaluation of the expansiveness of project site soils. Any recommendations for remedial actions shall be implemented by the District. Such measures may include standard construction techniques such as: removal of expansive soils and replacement with non-expansive fill, or pre-saturation of expansive soils prior to construction of project foundations.

Because the mitigation of expansive soil hazards can be feasibly accomplished through the implementation of mitigation measure GEO1, impacts related to expansive soils would be reduced to a less than significant level.

# 16.0 SUBSIDENCE

## 16.1 SETTING

Subsidence is generally related to over pumping of groundwater or petroleum reserves from deep underground reservoirs. No recognized subsidence has been identified within the Program area (Ventura County General Plan Hazards Appendix, updated 2007).

### 16.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 2.9.2.1: Structural design of buildings and other structures shall recognize the potential for hydro-compaction subsidence and provide mitigation recommendations for structures that may be affected.* | Consistent - Subsidence is not an issue in the Program area. |

### 16.3 IMPACT DISCUSSION

The Program area is not located in a designated subsidence zone pursuant to the Ventura County Liquefaction and Subsidence Zones Map and Landslide Map. No subsidence impact would result from Program implementation.

**Mitigation and Residual Impacts.** No impacts would result. Therefore, no mitigation is needed.

## 17.0 HYDRAULIC HAZARDS

### 17A NON-FEMA

### 17A.1 Setting

As indicated in the County Guidelines, hydraulic hazards, in the context of flood control and drainage, consist of the wearing away or deposition of land surface by wind or water. Erosion occurs naturally from weather or runoff but can be intensified by land clearing practices. Flooding is an overflow of water onto land that is normally dry.

The Program area is generally characterized by alluvial deposits containing mostly silt, sand, and gravel. These deposits are generally poorly consolidated and easily eroded by stream hydraulics. Some of the Near-term Project sites are located in proximity to drainage channels as identified in Table C2C.1-1. However, the Near-term Project sites are relatively flat. Additionally, most of the soil disturbance would be limited to trenching with the exception of at the Well No. 2 site.

The soils within the Well No. 2 site (existing well site and proposed expansion area) are classified as Garretson silt loam (GcB), calcareous variant by the U.S. Department of Agriculture (Soil Survey of the Ventura County Area, 1970). These soils are characterized as being gently sloping to moderately sloping soil of the alluvial fans and plains. The surface layer is gray, highly calcareous silt loam about 18 inches thick. Permeability is moderate, with a water holding capacity of 10 to 12 inches in the 60 inches of effective rooting depth. The capability unit is IIe-1, which are considered Class II type soils, or soils that have only moderate limitations that reduce the choice of plants or that require moderate conservation practices. As such, the site does not contain soils that are subject to substantive erosion hazards.

### 17A.2 Project Consistency with Applicable Policies

No policies of the Ventura County's General Plan relating to hydraulic hazards are applicable to the proposed Program.

### 17A.3 Impact Discussion

Potential erosion/siltation hazards and flooding hazards are ubiquitous throughout Ventura County and are addressed by the Ventura County Public Works Agency-Watershed Protection District's Standards and Specifications Design Manual. Erosion/siltation hazards and the effects of flooding hazards are required to be considered within the existing framework of grading and building code ordinances, which apply to all sites and projects.

Construction activities can result in short-term erosion events (e.g., erosion of soil piles, erosion of previously covered soil by the removal of significant amounts of pavement, or living ground cover, etc.) These potential short-term impacts would be reduced to a less than significant level of impact with Program compliance with the local requirements of the Ventura Countywide Stormwater Quality Management Program, NPDES Permit conditions.

During normal operation of the exiting No. 2 Well and upon initial start-up, water is discharged to a surface drain along Bradley Road. With implementation of the Project No. 1 this water will be discharged to the reclaimed storage tank and will not be discharged to any surface drainage. Due to the nature of the Project No. 1 and the level topography of the site, no significant, long-term erosion or siltation impact is anticipated. None of the other Near-term Projects would result in long-term non-FEMA hydraulic hazards as they are limited to subsurface water infrastructure and appropriate re-establishment of cover in kind would be accomplished as part of the construction process.

Because the Program would comply with the Countywide Stormwater Quality Management Program, the project's contribution to cumulative erosion/siltation impacts would be less than significant. (In addition, please see Surface Water Quality impact discussion provided in Section 4d., above).

**Mitigation and Residual Impacts.** No significant impacts would result. Therefore, no mitigation is needed.

## 17B FEMA

### 17B.1 Setting

The Ventura County Geographical Information System Floodplain Map for the Program area showing 100-year and 500-year FEMA Flood Zones was reviewed as well as the Flood Insurance Rate Maps for the area. Table C17B.1-1 indicates the location of the Near-term Project sites within FEMA Flood Zones.

**Table C17.1-1. Location of Near-term Project Sites within Flood Zones**

| Project No. | Project Title | In FEMA Flood Zone (yes or no)/flood zone |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility | No |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade | Yes - in or adjacent to 100-year Flood Zone |
| 3 | Donlon Road Pipeline Upgrade | No - Northern tip of pipeline segment only proximate to 100-year Flood Zone |
| 4 | Kingsgrove Drive Pipeline Upgrade | No |
| 5 | Bell Ranch Road/Somis Road/West | No - Somis Road portion adjacent to 500-year Flood Zone |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade | No |
| 7 | West Street Alley Pipeline Upgrade and Replacement | No - Northern end of pipeline segment near 100-year Flood Zone |
| 8 - 11 | Highway 118 Pipeline Replacement | Yes - Parts of Project No.s 10 and 11 have 100-year Flood Zone channels traversing the road |
| 12 | Balcom Canyon Pipeline Upgrade | No |

As required by the California Dam Safety Act, preparation of dam inundation maps showing areas of potential flooding in the event of sudden or total dam failure have been prepared by the Ventura County Sheriff's Department through its Office of Emergency Services (OES). According to Figure 2.11.2, Dam Inundation Areas provided within the General Plan Hazards Appendix (Ventura County 2007), the Near-term Projects Nos. 11 and 12 (relocated pressure reducing station) lie within areas that are subject to inundation in the event of dam failure.

### 17B.2 Project Consistency with Applicable Policies

No policies of the Ventura County's General Plan relating to hydraulic hazards are applicable to the proposed Program.

### 17B.3 Impact Discussion

Threshold criteria provided by the County Guidelines states that flooding hazards are ubiquitous throughout Ventura County and are accommodated by the building design and construction standards set forth in FEMA and County regulations pertinent to flooding hazards. As indicated in Table C17B.1-1 and the text above, certain Near-term Projects will be located within the 100-year Flood Zone and/or dam inundation area. However, these projects are replacement subsurface water infrastructure that is not expected to be damaged by flooding.

Following construction, the drainage pattern at the Near-term Project sites will remain essentially unchanged and runoff will continue to flow in the general existing pattern. Additionally, Program implementation will not result in a considerable increase in runoff from current levels.

The proposed Program does not include any elements that would substantially contribute to significant cumulative flooding impacts. As such, the Program would not result in significant impacts associated with hydraulic hazards.

**Mitigation and Residual Impacts.** No significant impact would result. Therefore, no mitigation is required.

## 18.0 FIRE HAZARDS

### 18.1 SETTING

Ventura County is characterized by a Mediterranean-type climate, featuring wet winters and very dry summers. In addition, the local meteorological phenomenon of Santa Ana winds contributes to the high incidence of wildfires in this area. Because most of the Near-term Project sites are located with agricultural land use areas, they are not in high hazard areas. However, the Somis community is identified as a "very high" fire hazard area as shown on the Ventura County Fire Hazards Map (Figure 2.13.2b of the Ventura County General Plan Hazards Appendix). Historically, the northern portion of the District 19 service area has been subject to fires based upon the Fire History Map (Figure 2.13.3b of the Ventura County General Plan Hazards Appendix.

### 18.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *2.13.2.1: All discretionary permits shall be required, as a condition of approval, to provide adequate water supply and access for fire protection and evacuation purposes.* | Consistent - The proposed pipeline upgrades are to provide adequate fire flow in the Program area. |
| *2.13.2.2: All discretionary permits in fire hazard areas shall be conditioned to include fire-resistant vegetation, cleared firebreaks, or a long-term comprehensive fuel management program as a condition of approval. Fire hazard reduction measures shall be incorporated into the design of any project in a fire hazard area.* | Consistent - See response above. Due to the nature and location of the Near-term Projects, no specific fire hazard reduction measures are necessary. |

### 18.3 IMPACT DISCUSSION

The County Guidelines indicate that the fire hazard section focuses on the rural or wildland areas of the County. The fire hazard area extends into all areas where native brush

can be found growing in pure natural stands, which is most common on undeveloped hillside areas. Section 2.14 of the County General Plan covers goals and policies for fire hazard areas.

Ventura County Building Code, Article IV Section UBC Code 1601 identifies high fire hazard areas as any within 500 feet of uncultivated brush, grass, or forest covered land wherein an authorized representative of the Fire District determines that a potential fire hazard exists due to the presence of such flammable growth. Projects located within a high fire hazard area may have a significant impact. The impact can be mitigated by compliance with Building and Safety requirements for structures and the Fire District Weed Abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within 100 feet of structures or buildings. Projects not located within a high fire hazard zone will not have a significant impact.

Due to the nature and location of the Near-term Project, the Program would not cause an increase in exposure of people or structures to risks of wildland fires. Available water supply and fire flow would not be adversely affected by the development of the Near-term Projects either during construction (continuity of available flow would be maintained) or over the life of the project. The Program would not have a fire hazard impact and, therefore, would not contribute to any cumulative fire hazard impacts.

**Mitigation and Residual Impacts.** No impact would result; therefore no mitigation is required.

## 19.0 AVIATION HAZARDS

### 19.1 SETTING

The Program area is not located in an area addressed in any Airport Land Use Plan within Ventura County. The Program area is located about 5 miles from the closest public use airport, Camarillo Airport, and is not near any private airstrip.

### 19.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No aviation hazard policies from the Ventura County General Plan are applicable to the proposed Program.

### 19.3 IMPACT DISCUSSION

The Program area is not identified in any Airport Land Use Plans hazard zone, nor is it located within two miles of a public or private airport. No aviation hazard impacts are anticipated on a project-specific basis, nor would the Program contribute to cumulative impacts for this issue.

**Mitigation and Residual Impacts.** No significant impact would result; therefore, no mitigation is required.

# 20.0 HAZARDOUS MATERIALS/WASTE (A AND B)

## 20.1 SETTING

By definition, hazardous material is any substance that, if improperly handled, can be damaging to the health and well being of humans. A hazardous material becomes hazardous waste when the material has been used for its original intended purpose and is going to be discarded or recycled.

Most of the Near-term Project sites are within public road rights-of-way. A few pipeline segments are within agricultural roads. The Well No. 2 site Iron and Manganese Removal Facility Project would require expansion into an agricultural area. For all of the Near-term Project sites that are located within agricultural parcels it can be assumed that residual traces of agricultural chemicals may be present in the soil. A more detailed assessment of agricultural chemical use is provided for the Well No. 2 site Iron and Manganese Removal Facility Project below.

**Existing Well No. 2 Site.** The District maintains a Hazardous Materials Release Response Plans and Inventory (Business Plan); for the No. 2 Well site with the Ventura County Certified Unified Program Agency (CUPA), which is part of the Ventura County Hazardous Materials Program administered by the Environmental Health Division of the County. The Hazardous Materials Business Plan consists of four parts: 1) an inventory of hazardous materials at the site, which also describes their behavior, characteristics, and health risk; 2) a site map and facilities floor plan indicating the location of the hazardous materials; 3) a Hazardous Materials Emergency Response Plan; and 4) a training program for all employees.

As reported in the Business Plan, the following hazardous materials are presently stored and used at the Well No. 2 site:

- Chlorine Gas - 150 lbs. in cylinder (two cylinders connected and one spare)
- Diesel Fuel 200-gallon fuel tank
- Chlorine gas is an inhalation hazards which can cause burns to the respiratory tract, eyes and skin. Additionally, containers may rupture if exposed to heat and may ignite combustibles.
- Diesel fuel is a flammability hazard. It can also cause severe skin irritation and is an aspiration hazard if swallowed.

Onsite (unless otherwise noted) safety equipment includes the following:

- Air purifying respirators (onsite when performing chlorine cylinder change)
- First aid kits (on work vehicles)
- Plumbed eye wash station
- Respirator with cartridges
- Safety glasses (on work vehicle)

- Safety shower

Other safety related features at the site include: secondary spill containment is provided on the generator which uses the diesel fuel, chemical alarms, onsite telephone and portable radios (on work vehicle).

**Historic Uses of the Proposed Expansion Area at Well No. 2 Site.** The subject property has been historically utilized for agricultural operations, and the potential exists for residual pesticides (hazardous materials) to exist in the soils that would have the potential to expose persons to this hazard during the proposed site preparation/initial grading construction activities. Padre requested pesticide usage records from the Ventura County Office of the Agricultural Commissioner for the parcel in question in order to further characterize the potential for agriculturally related chemicals to exist at the site. According to the VCACO (September 2007), the following pesticides have been used at the site historically.

**Table C20.1-1. Ventura County Office of the Agricultural Commissioner Pesticide Usage Record Search Results**

| *Year(s) of Application* | *Name of Commodity* |
|---|---|
| 2007, 2006, 2004 | Colton Hydrated Lime |
| 2007, 2006, 2004 | S-K-H Agricultural Adhesive |
| 2007, 2006, 2004 | Basic Copper Sulfate |
| 2007, 2006, 2004 | Admire Insecticide |
| 2007, 2006, 2004 | Omni Supreme Spray |
| 2007, 2006, 2004 | Agri-mek Miticide |
| 2004 | Silwet L-77 (surfactant) |
| 2004 | Kelthan MF Agricultural MI |

Agricultural chemicals utilized at the site have included those identified as being used in organic farming (e.g., Colton Hydrated Lime, Basic Copper Sulfate, Omni Supreme Spray and S-K-H Agricultural Adhesive) as well as conventional pesticides (e.g., Admire Insecticide, Agri-mek Miticide and Kelthan MF Agricultural Miticide). It should also be noted that the Office of the Agricultural Commissioner typically maintains pesticide use records for only two years. All pesticides, including “general use”, “restricted” (requires permits) or “organic” are required to be reported by the grower to the Office of the Agricultural Commissioner. Other agricultural chemicals that were applied to the project site prior to the date of records referenced above may also remain in the soil (such as DDT, which has not been used for many years). Therefore, Table C20.1-1 is not an exhaustive list of all the agricultural chemicals that may be present in Near-term Project No. 2 site soils. The potential exists for the chemicals listed above, as well as others to remain in the soils at the proposed project site.

**Review of Near-term Project Sites for Existing Cleanup Sites.** Based upon a review (accessed August 15, 2011) of the California Department of Toxic Substances Control (DTSC)

Envirostor database covering Federal Superfund Sites (NPL), State Response Sites, Voluntary Cleanup Sites, School Cleanup Sites, Evaluation Site School Investigation Sites, Military Investigation Sites, Tiered Permits, Hazardous Waste Permits, Corrective Action Sites, Monitoring Wells, leaking underground storage tanks (LUST), and Spills, Leaks, Investigations, and Cleanups Program (SLIC) for the Somis area of Ventura County, the closest active site to any of the Near-term Projects is a LUST site located at 5394 Los Angeles Avenue/Highway 118 (Somis Supply). This site is a diesel cleanup site which has affected groundwater as is in remediation. The site is located on the southwest corner of Highway 118 and Highway 34; however, based upon mapping of the contaminant plume, it does not extend into the Near-term Project No. 11 site (AET, 2011).

## 20.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 2.15.2.1: Hazardous wastes and hazardous materials shall be managed in such a way that waste reduction through alternative technology is the first priority, followed by recycling and on-site treatment, with disposal as the last resort.* | Consistent - Chemicals for Well No. 2 rehabilitation that may be used would be neutralized onsite prior to disposal in the sanitary sewer. Operational chemicals would be used and not produce hazardous waste.<br>This policy does not apply to other Near-term Project elements as they do not require use of hazardous substances. |
| *Policy 2.15.2.2: Site plans for discretionary development that will generate hazardous waste or utilize hazardous materials shall include details on hazardous waste reduction, recycling and storage.* | Consistent - See response above. |

## 20.3 IMPACT DISCUSSION

As stated in the County Environmental Thresholds Manual, a project that is designed to meet all of the applicable requirements set forth in the following authorities shall not be considered to have a significant impact in this environmental area:

- Underground Storage Tanks - California Health and Safety Code, Division 20, Chapter 6.7 and the California Code of Regulations Title 23, Division 3, Chapter 16.
- Business Plan (BP) - California Health and Safety Code Section 25504.
- Risk Management Plan (RMP) - California Health and Safety Code, Division 20, Chapter 6.95, Article 2.
- California Unified Program Agencies (CUPA) - California Health and Safety Code, Division 20, Chapter 6.11.
- Fire Code - The Fire Code adopted by the Ventura County Fire Protection District in regards to aboveground hazardous materials. Reference California Health and Safety Code, Division 12, part 2.7

**Short-term Impacts**. During construction, the potential exists for workers to be exposed to residual pesticides located within the subsurface soils during earth-disturbing activities on agricultural sites. However, removal of the citrus trees and preparation of the soils beneath the subject site for the well iron and manganese removal facility as well as pipeline activities in agricultural areas will be done under the assumption that residual pesticides exist within these soils, and appropriate safety precautions as required under the applicable Occupational Safety and Health Administration (OSHA) regulations will be followed.

**Long-term Impacts.** The Near-term projects do not require the use of hazardous materials in the long-term with the exception of the Well No 2 Iron and Manganese Removal Facility Project. The installation and operation of an iron and manganese removal facility is intended to ensure that the well water served to District 19 customers will meet State drinking water standards pursuant to Title 22 California Code of Regulations (CCR). This project will include the use of chlorine for oxidation of iron and magnesium, and ammonia for the maintenance of a chloramines residual for disinfection. The District presently uses gaseous chlorine at the site; however, it is assumed that the project will use bulk liquid sodium hypochlorite solution (12.5 percent bleach)[3] and powdered ammonium sulfate[4]. Each chemical system will include a bulk storage tank (900 gallon capacity for the sodium hypochlorite and 300 gallon capacity for the ammonia). Secondary containment is also proposed. In the event that the District selects a Filtronics brand system, sodium bisulfate[5] would also be required and would be stored onsite in a 55-gallon drum. All applicable signage and safety equipment will be located onsite per the applicable OSHA requirements.

In the event of inappropriate handling of hazardous materials or waste at the site, District employees, the public and environment could inadvertently, be exposed to such materials. Additionally, it is important for local health and safety officials (e.g., County Fire Protection District and Environmental Health Department) to be aware of the types and quantities of hazardous materials at any given site. This is in order to ensure that emergency response personnel as well as others are not exposed to health risks in association with routine inspections at the site or response actions in the event of emergencies. As stated above, the

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3 ***Sodium Hypochlorite*** is also known as soda bleach or liquid bleach. Strong sodium hypochlorite solutions are powerful oxidizing agents that rapidly produce burns when in contact with the skin. This chemical should not be handled directly or allowed to splash or spill onto any part of the body. Inhalation of fumes is to be avoided as it may cause respiratory irritation. This chemical is harmful if swallowed. Health rating: 2-Moderate. Contact rating: 3-Severe. Common uses include disinfection and chlorination to process drinking water. The TSCA-CAS No. is 7681-52-9, with an ID No. of NA-1791 (RO). The DOT Hazard class is a corrosive material. It should be stored in corrosion resistant tanks such as hard rubber lined steel tanks, PVC, Polyethylene, FRP or other plastic tanks ((Mallinckrodt Baker, Inc. MSDS web site September 2007)).

4 ***Ammonium Sulfate*** causes irritation to skin, eyes and respiratory tract. This chemical may be harmful if swallowed and is considered a hazardous substance. Health rating: 1-slight. Contact rating: 2-moderate. The Storage Color Code is Green (general storage). Transport of this material is not regulated. The CAS No. is 7783-20-0 (Mallinckrodt Baker, Inc. MSDS web site September 2007).

***5*** ***Sodium Bisulfate*** is corrosive and causes burns to any area of contact and may be harmful or fatal if swallowed. Health rating: 3-severe (Life). Contact rating: 3-Severe (Corrosive). This chemical also is an inhalation hazard. Transport of this material is regulated. The CAS No. is 7681-38-1 (Anhydrous) (Mallinckrodt Baker, Inc. MSDS web site September 2007).

District presently maintains a Hazardous Materials Business Plan for the Well No. 2 facility, which is kept on file with the County Environmental Health Department (a copy is also kept at the District office). The Business Plan will need to be updated to cover the new chemicals to be kept at the site and remove the gaseous chlorine as appropriate. Assuming project compliance with this County requirement as well as any and all applicable state and federal regulations, hazardous materials impacts associated with the use and storage of chemicals associated with the well project would be less than significant.

**Mitigation and Residual Impacts.** With the implementation of existing regulations and standard, County requirements impacts are less than significant and require no additional mitigation.

# 21.0 NOISE AND VIBRATION

## 21.1 SETTING

### 21.1.1 Noise

Noise is defined as any unwanted sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying (Ventura County, 2010). Physically, sound magnitude is measured and quantified in terms of the decibel (dB), which is a unit on a logarithmic scale based on the ratio of the measured sound pressure to the reference sound pressure of 20 micropascals. The decibel system can be confusing to people since it is logarithmic and not arithmetic. For example, doubling or halving the number of sources of equal sound (a two-fold change in acoustic energy) changes the receptor sound level by only 3 dB, which is a barely perceptible sound loudness change for humans. However, a doubling or halving of the sound *loudness* at the receiver results from a 10 dB change, which also represents a 10-fold change in the acoustic energy (County of Ventura/Advanced Engineering Acoustics, 2005).

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on sensitive land uses. Noise is more disturbing at night than during the day and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Community Noise Level Equivalent (CNEL) and the Day-Night Average Level (DNL or Ldn) are such indices. They are time-weighted average values based on the equivalent sound level (Leq), which is a constant sound level that equals the same amount of acoustic energy as actual time-varying sound over a particular period. The CNEL penalizes noise levels during the night (10 p.m. to 7 a.m.) by 10 dB to account for the increased sensitivity of people to noise after dark. Evening noise levels (7 p.m. to 10 p.m.) are penalized 5 dB by the CNEL. Appropriately weighted hourly Leqs are then combined over a 24-hour period to result in a CNEL. The Ldn also penalizes nighttime noise levels, but does not penalize evening levels. These two indices are generally equivalent.

In general, the CNEL may be thought qualitatively as an accumulation of the noise associated with individual events occurring throughout a 24-hour period. The noise of each

individual event is accounted for in a separate, discrete measurement that integrates the changing sound level over time as, for example, when an aircraft approaches, flies overhead, then continues off into the distance. These integrated sound levels for individual operations are referred to as Sound Exposure Levels or SELs. The accumulation of the SELs from each individual operation during a 24-hour period determines the CNEL for the day.

To limit population exposure to physically and/or psychologically significant noise levels, the State of California, various County governments, and most cites in the state have established guidelines and ordinances to control noise. Based upon the County of Ventura General Plan Hazards Appendix, an exterior noise level of 60 to 65 dBA CNEL is considered "normally acceptable" for residential uses. A noise level of 70 dBA CNEL is considered to be "conditionally acceptable" and a noise level of greater than 75 dBA CNEL is considered "clearly unacceptable" for residences. The 70 dBA CNEL noise level is considered to be the upper limit of "normally acceptable" noise levels for other sensitive uses such as schools, libraries, hospitals, nursing homes, churches, and parks. These noise criteria are based upon the California Office of Noise Control land use compatibility guidelines.

The Ventura County General Plan (Section 2.16.2-1 of the Goals, Policies and Programs) also establishes policies pertaining to noise. These policies are reflected in the County Guidelines, threshold criteria for noise as presented below in the impact analysis section of this noise discussion.

Land uses adjacent to the Near-term Project sites are identified in Table A4, Surrounding Land Uses. The major noise sources for all of the sites are traffic on the adjacent roads, passing trains and noises associated with operations at the adjacent land uses mainly agricultural operations with the exception of the West Street alley site (Project No. 7) where Somis Community activities are a source of ambient noise. Sensitive receptors in the project area include residences. Additionally, Somis Elementary School is located at the southwest corner of the intersection of North Street and West Street, about 230 feet west of the West Street alley.

The following ambient noise estimates (Table C21.1-1) are from the Ventura County Hazards Appendix Figure 2.16.7, “Current Year and 2020 CNEL Contours for Highway in the County” and are specific to SR 118 in the project area.

Ambient noise levels were measured in the Program area during the day on August 1, 2011, using a Larson Davis Type LXT Precision Sound Level Meter. Table C21.1-2 shows the results of these ambient noise measurements. Data presented in Table C21.1-2 are representative of single event fifteen minute LEQ noise measurements only.

**Table C21.1-1. 2005 and 2020 Noise Contours for Highways (118 and 34) in the Project Area**

| Road Segment | ADT | Distance from Roadway Centerline in Feet | | | | | |
|---|---|---|---|---|---|---|---|
| | | 50 CNEL | 55 CNEL | 60 CNEL | 65 CNEL | 70 CNEL | 75 CNEL |
| 118-Center School Rd. to North St. | Current (2005): 14,600 | 1,370 | 705 | 350 | 170 | 80 | - |
| 118-Center School Rd. to North St. | Year 2020: 17,000 | 2,045 | 1,090 | 550 | 270 | 130 | 60 |
| 118-North St. to Somis Rd. | Current (2005): 17,300 | 1,500 | 780 | 780 (sic) | 185 | 90 | - |
| 118-North St. to Somis Rd. | Year 2020 16,000 (sic) | 1,845 | 975 | 490 | 240 | 115 | 55 |
| 118-Somis Rd. to Balcom Canyon Rd. | Current (2005): 17,300 | 1,500 | 780 | 390 | 185 | 90 | - |
| 118-Somis Rd. to Balcom Canyon Rd. | Year 2020: 29,000 | 2,680 | 1.465 | 760 | 375 | 185 | 85 |
| 34 - Camarillo City Limit to Highway 118 | Current (2005): 11,800 | 830 | 415 | 200 | 95 | - | - |
| 34 - Camarillo City Limit to Highway 118 | Year 2020: 18,000 | 1,130 | 575 | 280 | 135 | 65 | - |

## Table C21.1-2. Ambient Noise Levels within the Project Area

| Noise Measurement Locations | Time | Noise Sources | Ambient Noise Level Measured in dBA LEQ (15 min.) |
|---|---|---|---|
| Well No. 2 site immediately west of fence line | 5:10 - 5:25 PM | Well operations, traffic on Bradley Road | 63.4 (without the passage of cars the ambient is 60 dBA which can be attributed to the well operations) |
| Bradley Road - about 90 feet east of pavement at intersection with Berylwood Road | 5:30 - 5:45 PM | Traffic on Bradley Road and a few cars on Berylwood and the driveway extension of Berylwood | 56.1 |
| Sand Canyon Road - 15 feet east of edge of Sand Canyon Road and 100 feet north of the Waterworks District 19 pump station. | 3:45 - 4:00 PM | Traffic on Highway 118 and a few cars on Sand Canyon Road | 55.2 |
| Donlon Road - near the end of the public road where private road begins, 5 feet from pavement | 4:20 - 4:35 PM | Traffic on Highway 118 and a few cars on Donlon Road | 49.8 |
| Kingsgrove - just north of intersection with Faircrest, about 8 feet from the edge of pavement | 4:45 - 5:00 PM | Heavy traffic on Kingsgrove (agricultural workers were leaving a nearby site) and a few cars on Faircrest | 60.6 |
| Somis Road - southeast side across from 2789 Somis Road, about 30 feet from edge of pavement | 2:00 - 2:20 PM | Traffic on Somis Road momentary passing of passenger train (railroad tracks 30 feet from noise meter), agricultural sprinklers | 75 dBA |
| Posita Site - about 1,130 ft. north of Posita Road and 400 ft east of Balcom Canyon Road | 3:00 - 3:15 PM | Agricultural operations, grinding, worker voices, distant traffic | 51.8 |
| West Street Alley - about 150 feet south of the centerline of North Street and 5 feet into alley | 1:15 - 1:30 PM | Traffic on nearby streets peoples voices, distant sawing, overheard aircraft | 49.0 |
| Highway 118 - between Aggen Road and Bradley Road intersections at drive of 3072 Los Angeles | 11:50 AM - 12:05 PM | Traffic on Highway 118 | 68.4 |

| Noise Measurement Locations | Time | Noise Sources | Ambient Noise Level Measured in dBA LEQ (15 min.) |
|---|---|---|---|
| Avenue, 50 feet south of the edge of 118 | | | |
| Highway 118 - 40 feet south of the edge of 118 and 10 feet west of North Street | 12:45 - 1:00 PM | Traffic on 118 and North Street, occasional small equipment operation | 69.0 |
| Balcom Canyon Road - about 300 feet north of the edge of Highway 118 and 40 feet east of the edge of Balcom Canyon Road | 2:30 - 2:45 PM | Traffic on Highway 118 and Balcom Canyon Road | 63.4 |

### 21.1.2 Vibration

Vibration from construction activity is caused by general equipment operations and is usually highest during pile driving, blasting, soil compacting, jack hammering and construction related demolition. Although vibration is sometimes noticeable outdoors, it is almost exclusively an indoor problem (Transit Link Consultants, January 2007). Ground vibrations from construction activities do not often reach the levels that can damage structures (with the exception of fragile buildings), but they can achieve the audible and feelable ranges in buildings very close to the site (Federal Transit Administration, May 2006). A vibration that causes annoyance will be well below the damage threshold for normal buildings. Annoyance from vibrations can occur when the vibration exceeds the threshold of perception by only a small margin.

Construction vibration consists of a composite or spectrum of many frequencies, and is generally classified as broadband. The normal frequency range of most ground-borne vibration that can be felt generally ranges from 1 Hertz (Hz) to 200 Hz. Vibration energy spreads out as it travels through the ground. Therefore, vibration levels diminish with distance away from the source. High frequency vibration levels reduce more rapidly than low frequency vibrations. Therefore, low frequencies tend to dominate the vibration spectrum at large distances from the source. When a vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall level of vibration that propagates into the building.

To evaluate construction vibration impacts to buildings, the peak particle velocity (ppv) in inches per second is the metric of interest. The peak particle velocity is defined as the maximum instantaneous positive or negative peak of the vibration event. Although ppv is the appropriate metric for evaluating the potential for building damage, it is not suitable for evaluating human response to vibration. Because it takes some time for the human body to respond to vibration signals, the average or root mean square (rms) vibration level expressed in VdB is used in the Federal Transit Authority guidance manual to evaluate vibration impacts in terms of annoyance to humans. The threshold of perception for humans is around 65 VdB. If the vibration level in a residence reached 85 VdB, most people will be strongly annoyed by the

vibration. The relationship of ppv to rms velocity is expressed in terms of the "crest factor", defined as the ratio of the ppv amplitude to the rms amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than rms vibration velocity.

## 21.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 2.16.2.1. All discretionary development shall be reviewed for noise compatibility with surrounding uses. Noise compatibility shall be determined from a consistent set of criteria based on the standards listed below.* | Consistent - The following analysis ensures project consistency with this policy. |

## 21.3 IMPACT DISCUSSION

### 21.3.1 Noise

The County Guidelines state the following. "Any project that produces noise in excess of the standards for noise in the Ventura County General Plan Goals, Policies and Programs (Section 2.16) or the applicable Area Plan has the potential to cause a significant noise impact. Noise-generating uses that either individually or when combined with other recently approved, pending, and probable future projects, exceeds the noise thresholds of General Plan Noise Policy 2.16.2-1(4) are considered to have a potentially significant impact."

Pursuant to the statement above, the County Guidelines establish the following noise threshold (from General Plan Section 2.16.2-1 of the Goals, Policies, and Programs) criteria, above which significant noise impacts would be anticipated.

*Noise generators proposed to be located near any noise sensitive use shall incorporate noise control measures so that outdoor noise levels at the sensitive receptor do not exceed:*

a. Leq 1H of 55 dBA or ambient noise level plus 3 dBA, whichever is greater during any hour from 6:00 am to 7:00 pm.

b. Leq 1H of 50 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 7:00 pm to 10 pm.

c. Leq 1H of 45 dBA or ambient noise level plus 3 dBA, whichever is greater during any hour from 10 pm to 6 am.

Discretionary development which would be impacted by noise or generate project related noise which cannot be reduced to meet the above standards, shall be prohibited. However, this criteria is not applicable to increased traffic noise identified along any of the roads identified within the 2020 Regional Roadway Network (Figure 4.2.3 of the Public Facilities Appendix of the Ventura County General Plan). In addition, State and Federal highways, all railroad line operations, aircraft in flight, and public utility facilities are noise generators having Federal and State Regulations that preempt local regulations.

General Plan Policy 2.16.2-1(5) requires construction noise to be evaluated and mitigated in accordance with the Construction Noise Threshold Criteria and Control Plan prepared by Advanced Engineering Acoustics (2005). Based on this document, the following list identifies noise-sensitive uses along with their typical periods sensitivity to construction noise:

- Hospitals and nursing homes (sensitive 24 hours/day);
- Residences (sensitive during evening and nighttime - 7 pm to 7 am);
- Hotels and motels (sensitive during evening and nighttime); and
- Schools, churches and libraries (daytime and evening, when in use).

Construction noise threshold criteria are provided in the County of Ventura Construction Noise Threshold Criteria and Control Measures (County of Ventura, 2005) and are presented below.

- During daytime hours, construction work should comply with the County of Ventura construction noise threshold criteria (NTC), defined hereafter. Normally, no evening or nighttime construction activity is permitted in areas having noise-sensitive receptors. However, in the event such activity is deemed necessary and is permitted, reduced noise threshold criteria are provided for construction that must occur during evening and/or nighttime hours. Emergency construction work is exempt from these construction noise thresholds.
- Daytime Construction - Daytime (7:00 a.m. to 7:00 p.m. Monday through Friday, and from 9:00 a.m. to 7:00 p.m. Saturday, Sunday and local holidays) generally means any time period not specifically defined as a more noise-sensitive time period. The daytime construction noise threshold criteria are given below. Depending on project duration, the daytime noise threshold criteria shall be the greater of the fixed $L_{eq}(h)$ limit (which includes non-construction evening and nighttime noise) or the measured ambient $L_{eq}(h)$ plus 3 dB.
- Evening Construction - Evening hours (7:00 p.m. to 10:00 p.m.) are more noise-sensitive time periods. Therefore, evening construction noise threshold criteria differ from the daytime criteria. Overall project construction noise, for the noise-sensitive hours specified, shall not exceed the noise threshold criteria listed below, at the nearest noise-sensitive receptor area or 10 feet from the façade of the nearest noise-sensitive building.
- Nighttime Construction - Nighttime hours (10:00 p.m. to 7:00 a.m. Monday through Friday, and from 10:00 p.m. to 9:00 a.m. Saturday, Sunday and local holidays) are the most noise-sensitive time periods. Therefore, nighttime and holiday construction noise threshold criteria differ from the daytime and evening criteria. Overall project construction noise, for the noise-sensitive hours specified, shall not exceed the noise threshold criteria listed below, at the nearest noise-sensitive receptor area or 10 feet from the façade of the nearest noise-sensitive building.

- Maximum Construction Noise - In addition, the construction-related, slow response, instantaneous maximum noise ($L_{max}$) shall not exceed the noise threshold criteria by 20 dBA more than eight times per daytime hour, more than six times per evening hour and more than four times per nighttime hour.
- Determination of Compliance - The construction noise at sensitive receptor locations for each construction phase is due to the contributions of each piece of noise producing equipment used in each construction phase. The resulting construction phase noise must be compared to the construction noise threshold criteria to determine whether noise mitigation measures are required. The construction noise monitoring methods are discussed in Appendix C of the County of Ventura Construction Noise Threshold Criteria and Control Measures and typical noise mitigation measures are given in Appendix D. During periods of greater construction noise activity, the construction noise shall be monitored by a designated person trained in the use of a sound meter in accordance with the methods of Appendix C of the County of Ventura Construction Noise Threshold Criteria and Control Measures. When construction noise fails to comply with the appropriate noise threshold criteria, or falls out of compliance during use, the designated noise monitor shall immediately identify the non-compliant activity or equipment. Either the non-compliant activity must be stopped and the equipment removed from service or effective remedial action must be taken, similar to the noise mitigation measures of Appendix D (of the County of Ventura Construction Noise Threshold Criteria and Control Measures), to restore compliance with the respective noise threshold criteria.

**Daytime Construction Activity Noise Threshold Criteria**

| *Construction Duration Affecting Noise-sensitive Receptors* | *Noise Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building* | |
|---|---|---|
| | *Fixed Leq(h), dBA* | *Hourly Equivalent Noise Level (Leq), dBA*[1, 2] |
| *0 to 3 days* | *75* | *Ambient Leq(h) + 3 dB* |
| *4 to 7 days* | *70* | *Ambient Leq(h) + 3 dB* |
| *1 to 2 weeks* | *65* | *Ambient Leq(h) + 3 dB* |
| *2 to 8 weeks* | *60* | *Ambient Leq(h) + 3 dB* |
| *Longer than 8 weeks* | *55* | *Ambient Leq(h) + 3 dB* |

*Note 1. The instantaneous $L_{max}$ shall not exceed the NTC by 20 dBA more than 8 times per daytime hour.*
*Note 2. Local ambient Leq measurements shall be made on any mid-week day prior to project work.*

***Evening Construction Activity Noise Threshold Criteria***

| *Receptor Location* | *Evening Noise Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building* | |
|---|---|---|
| | *Fixed Leq(h), dBA* | *Hourly Equivalent Noise Level (Leq), dBA*[1, 2] |
| *Residential* | *50* | *Ambient Leq(h) + 3 dB* |

*Note 1. The instantaneous Lmax shall not exceed the NTC by 20 dBA more than 6 times per evening hour.*
*Note 2. Hourly evening local ambient noise measurements shall be made on a typical mid-week evening prior to project work.*

***Nighttime Construction Activity Noise Threshold Criteria***

| *Receptor Location* | *Nighttime Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building* | |
|---|---|---|
| | *Fixed Leq(h), dBA* | *Hourly Equivalent Noise Level (Leq), dBA,*[1,2] |
| *Resident, Live-in Institutional* | *45* | *Ambient Leq(h) + 3 dB* |

*Note 1. The instantaneous Lmax shall not exceed the NTC by 20 dBA more than 4 times per nighttime hour.*
*Note 2. Hourly nighttime local ambient noise measurements shall be made on a typical mid-week night prior to project work.*

The use of construction equipment would generate noise in the short term. Noise produced by construction equipment varies substantially depending on the type of equipment, and its operation and maintenance. Construction is anticipated to last about 13 months for the Well No. 2 Iron and Manganese Removal Facility. Pipeline upgrades would progress at a pace of about 300 lineal feet per day. Construction will occur Monday through Friday between the hours of 7:00 am until 6:00 pm.

Based on the equipment expected to be in operation during construction, the Federal Highway Administration Roadway Construction Noise Model (RCNM) (a computer-modeling program to estimate noise levels from construction activity) was used to estimate short-term noise levels that would result at the nearest noise sensitive land uses for each of the Near-Term Projects. A discussion of impacts at each of the Near-term Project sites for the closest sensitive receptors (residences) is presented in the table below (Table C21.1-3).

Pipeline installation is a linear process and any individual sensitive receptor along the construction corridor would be impacted temporarily as the work proceeded in proximity to the particular property. An estimate of reasonably expected noise levels for a sensitive receptor adjacent to the pipeline corridor during a day when construction would occur along the property line was prepared using the RCNM. Pipeline installation noise levels were estimated using the

estimated complement of construction equipment including a backhoe, dump truck, crane and compactor at usage factors of 80 percent, 80 percent 50 percent and 40 percent respectively. It was assumed that equipment would be distributed within a 150 linear feet area. The estimated noise level under these conditions is 86.6 dBA. For a portion of the day receptors located along the pipeline corridor may experience noise levels louder than the estimate and during other portions of the day noise levels would be less than the estimate. Because residential uses are considered to be sensitive to construction noise only during evening and night time hours, and the construction noise would be short-term (particularly due to the progression of equipment along the linear pipeline route), construction noise impacts to sensitive receptors for all pipeline segments are considered adverse, but less than significant.

**Table C21.1-3. Short-term Noise Impacts**

| Project No. | Project Title | Short-term Noise Impact Discussion |
|---|---|---|
| 1 | Water Well No. 2 Iron and Manganese Removal Facility Upgrade and Bradley Road Pipeline Installation | Less than Significant for Filtration Plant Construction. Noise levels at the nearest noise sensitive land use (residence about 100 feet across Bradley Road) is 74.1 dBA Leq as estimated for a day when pumps would be replaced requiring the use of a dump truck and crane.<br>Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Several residences would be impacted by increased noise levels during pipeline installation. |
| 2 | Sand Canyon Road Booster Pump Station and Pipeline Upgrade. . | Less than Significant for the Booster Pump Station as only pumps will be replaced within the existing structure.<br>Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Several residences would be impacted by increased noise levels during pipeline installation. |
| 3 | Donlon Road Pipeline Upgrade | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Only a few residences would be impacted by increased noise levels during pipeline installation. |
| 4 | Kingsgrove Drive Pipeline Upgrade | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Several residences would be impacted by increased noise levels during pipeline installation. However, these residences generally have generous set backs from the road (about 200 feet). |

| Project No. | Project Title | Short-term Noise Impact Discussion |
|---|---|---|
| 5 | Bell Ranch/Somis Road/West Street Pipeline Upgrade. | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq plus 1 dBA accounting for the addition of ambient noise or 87.6.<br>The only sensitive receptor along the pipeline segment that would be installed within the agricultural parcels is a church located about 250 feet from the eastern end of the segment.<br>Abandonment of the pipeline along the Ponderosa Road alignment would affect few if any sensitive receptors. |
| 6 | Posita Road Meter Relocation and Pipeline Upgrade. | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Only a few residences would be impacted by increased noise levels during pipeline installation. |
| 7 | West Street Alley Pipeline Upgrade and replacement. | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Residences along the West Street Alley are in close proximity to each other and rear yard set backs are modest. Additionally, there are about 30 residences along the West Street Alley. Therefore, pipeline construction in this neighborhood will result in greater construction noise impacts than at any other project site considered. |
| 8 - 11 | Highway 118[6] Pipeline Upgrade | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. Several residences along Highway 118 including but not limited to those at Groves Place near Highway 118 would be impacted. |
| 12 | Balcom Canyon Road Pipeline Upgrade and Pressure Reducing Station Relocation. | Less than Significant for Pipeline Installation. The estimated average daily noise is 86.6 dBA Leq. There are a few residences located along the pipeline segment. No sensitive receptors are located at the intersection of Balcom Canyon Road and Highway 118. As such, the relocation of the pressure reducing station would not result in significant noise impacts. |

[6] Highway 118 is also referred to as State Route 118 and in the project areas as Los Angeles Avenue.

Besides construction noise from the operation of construction equipment, the construction phases would cause minor traffic noise along access routes to and from the sites from the movement of equipment, materials and workers.

Long-term operational noise associated with the proposed Program would be include vehicle noise associated with transportation of operations and maintenance employees, and noise generated by tools during maintenance activities. Because the proposed activities are modifications to existing facilities, these types of operational noise are not expected to change substantially from existing conditions.

Existing long-term sources of noise at the Well No 2 site include operation of the well pump (350 HP motor) and booster pump (125 HP motor) as well as the backup generator, when necessary. The pump operates when water demand necessitates its use. The proposed project would introduce an iron and manganese removal facility to the existing well site. Noise producing equipment is expected to include two 10-HP motors (reclaim pumps), only one of which would operate at a time (the other is a back-up). The noise generating components of the proposed project are not expected to produce high noise levels especially in consideration of existing noise produced by the well (noise levels are not additive and higher noise masks softer noises sources). The noise level associated with pump motors is correlated to the horsepower of the motor. For example, based upon Seimans standard motor technical specifications, a 1 HP motor has a noise level around 60 dBA whereas a 60 HP motor has a noise level of 76 dBA. Therefore, the addition of a 10 HP motor to well site operations would result in a negligible increase in noise levels produced by well operations and would not exceed the most sensitive night time noise threshold for noise generating uses of 45 dBA (1 hr Leq) or ambient noise level plus 3 dBA, whichever is greater.

The Sand Canyon Booster Pump Station currently includes two 15 HP pumps these are proposed to be replaced with two 50 HP pumps. The closest sensitive receptor to the pump station is a residence located about 70 feet west across the street. Based upon replacement pumps with reference noise levels of 76 dBA at 50 feet and continuous operation, the noise level produced by the two pumps at 70 feet would be 73 dBA. The existing pumps are in a structure as would be the proposed pumps which would reduce the noise levels for receptors by an estimated 15 dBA which would result in a noise level of 58 at the closest sensitive receptor. Assuming the ambient noise is 55 dBA, the total noise at this receptor would be 59.8 dBA (see noise appendix for information on combining noise levels). This would exceed the threshold of 55 dBA or ambient plus 3 dBA and is therefore considered potentially significant.

There no known cumulative projects which have the potential to result in short-term noise impacts to receptors that would also be impacted by the Near-term Projects. There is no other development proposed in proximity to the Near-term Projects that would together with the project result in long-term cumulative noise impacts.

### 21.3.2 Vibration

The following vibration construction threshold from the County Guidelines is applicable to the proposed Program. “Any project that either individually or when combined with other

recently approved, pending, and probable future projects, includes construction activities involving blasting, pile-driving, vibratory compaction, demolition, and drilling or excavation which exceed the threshold criteria provided in the Transit Noise and Vibration Impact Assessment (Section 12.2), is considered to have a potentially significant impact."

Project construction will generally involve the temporary movement and use of trucks, and heavy equipment. These activities will result in some level of vibration. The following table (C21.3-1) shows vibration source levels for construction equipment as documented in the Federal Highway Administration. (Although Table C21.3-1 gives one level for each piece of equipment, it should be noted that there is a considerable variation in reported ground vibration levels from construction activities. The data in the table provide a reasonable estimate for a wide range of soil conditions.) Table C21.3-2 shows the vibration limits that are recommended for use by the FHA during environmental assessments to identify potential problem locations that need to be address in final project design.

**Table C21.3-1. Vibration Source Levels for Construction Equipment**

| Equipment | PPV at 25 feet (inches/second) | Approximate $L_v$[1] at 25 feet |
|---|---|---|
| Vibratory Roller | 0.210 | 94 |
| Hoe Ram | 0.089 | 87 |
| Large Bulldozer | 0.089 | 87 |
| Caisson Drilling | 0.089 | 87 |
| Loaded Trucks | 0.076 | 86 |
| Jackhammer | 0.035 | 79 |
| Small Bulldozer | 0.003 | 58 |

[1] RMS velocity in decibels (VdB) re 1 micro-inch/second

**Table C21.3-2. Construction Vibration Damage Criteria**

| Building Category | PPV (inches/second) | Approximate $L_v$[1] |
|---|---|---|
| Reinforced-concrete, steel or timber (no plaster) | 0.5 | 102 |
| Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| Non-engineered timber and masonry buildings | 0.2 | 94 |
| Buildings extremely susceptible to vibration damage (historic buildings) | 0.12 | 90 |

[1] RMS velocity in decibels (VdB) re 1 micro-inch/second

Pipeline installation would necessitate the use of a compactor as well as other heavy equipment. However, the project is linear and the width of the trench that will need to be backfilled and compacted is 2 feet. Therefore, the type of compacting equipment to be used is

expected to be more on the order of a hoe ram. The worst case situation for potential damage to structures due to construction related vibration for Program activities would be installation of pipe in the West Street Alley where structures may include non-engineered timber and masonry buildings in close proximity to equipment operations. Assuming that a residential structure is as close as 10 feet from the operating equipment, the associated PPV would be 0.351[7] which is in excess of the construction vibration damage criteria for non-engineered timber and masonry buildings. In order to ensure that vibrations are below the damage criteria, equipment operation would need to be 15 feet or more from the structure. However, even at this distance the vibration would be considered very annoying to most people.

Other program activities would not result in significant vibratory impacts due to the nature of construction and equipment to be used.

No other projects are expected to occur simultaneously with the proposed Near-term Projects, such that cumulative vibration impacts would result.

**Mitigation and Residual Impacts:** No short-term mitigation measures are required. However, the following measures are recommended for each of the Near-term Projects.

**N1** The District shall notify all adjacent residents at least two weeks prior to project construction of the construction schedule including beginning and end dates and, days and hours of construction.

**N2** Select truck routes for material delivery and spoils disposal so that noise from heavy-duty trucks will have a minimal impact on noise sensitive receptors. Proposed truck haul routes are to be submitted to the County Transportation Division for approval.

a. Conduct truck loading, unloading, and hauling operations so noise and vibration are kept to a minimum.

b. Route construction equipment and vehicles carrying soil, concrete or other materials over streets and routes that will cause the least disturbance to residents in the vicinity of construction sites and haul roads.

c. Do not operate haul trucks on streets within 250 feet of school buildings during school hours or hospitals and nursing homes at any time, without a variance.

d. Submit haul routes and staging areas to the County Transportation Division for approval, at least 30 days before the required usage date.

**N3** Turn off idling equipment when not in use for periods longer than 30 minutes.

[7] ppv of equipment=$ppv_{ref}$ x $(25/D)^{1.5}$ Therefore, for a residence at 10 feet, ppv of equipment = 0.089 x $(25/10)^{1.5}$ = 0.351. To reduce impact operate at distance of 15 feet: ppv of equipment = 0.089 x $(25/15)^{1.5}$ = 0.191

**N4** Operate equipment so as to minimize banging, clattering, buzzing, and other annoying types of noises near noise sensitive receptors.

The following mitigation measure is required to ensure that long-term noise impacts at the Sand Canyon Booster Pump Station are less than significant.

**N5** Noise producing equipment shall not result in an increase of above 3 dBA over ambient as a result of operation of project facilities at noise sensitive locations (e.g., residential uses). A noise consultant shall be retained to evaluated final development plans and ensure that any necessary noise installation measures have been incorporated as needed to ensure that the project will not result in noise levels over 3 dBA above ambient (1hr Leq) at nearby sensitive receptors. Alternately, a noise consultant shall be retained by the District to take ambient nighttime noise measurements at noise sensitive land uses in proximity to the project site prior to operation of project infrastructure. Upon operation of project equipment, nighttime noise measurements shall be taken again for comparison purposes. If noise levels exceed 3 dBA above ambient, corrective noise reduction measures (e.g., further insulation of noise producing equipment or installation of different models of equipment) shall be made until the reference threshold has been met.

Implementation of the above measure will reduce potential long-term noise impacts from stationary equipment to less than significant.

The following measure is required in order to ensure that construction vibration impacts are less than significant.

**V1** The District shall retain a vibration consultant to assist in the project design and construction methodology for pipeline installation projects that would result in the use of compaction equipment closer than 15 feet to structures. In such cases, the vibration consultant shall work with the District to determine the potential magnitude of vibratory impact to the structures in question and devise methods such as use of equipment that would produce less vibration to ensure that vibrations at the impacted structures would be below the Construction Vibration Damage Criteria as presented in Chapter 12: Noise and Vibration During Construction of the Federal Transit Administration publication Transit Noise and Vibration Impact Assessment (2007) or similar applicable standards as may be in effect at the time of project design and construction.

## 22.0 DAYTIME GLARE

### 22.1 SETTING

As defined by the County Guidelines, glare is intense light that is blinding or discomforting to humans. Glare has a potentially significant effect on motorists.

Conditions that create daytime glare are typically caused by the reflection of sunlight from highly reflective surfaces at or above eye level. Daytime glare is caused by the reflective surfaces of buildings with materials such as metal or glass that lead to disability glare or discomfort glare for motorists travelling on County's roads where the traffic volumes/speeds are generally high (e.g. Regional Road Network).

No highly reflective materials are present in the immediate vicinity of the Near-term Project sites.

### 22.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no General Plan policies for this issue area that are relevant to the proposed Program.

### 22.3 IMPACT DISCUSSION

A proposed project will be considered to have a significant project-specific or cumulative glare impact if the project will create a new source of disability glare or discomfort for motorist traveling along any road of the County Regional Road Network. A project would be considered significant when the glare source to the median of background radiation exceeds 3:1 in a luminance histogram.

There are no highly reflective materials that would be required as part of the proposed Near-term Projects that would create an additional source of glare.

Project No.1, the proposed Well No. 2 Filtration System would include three lights of 16 ft poles that would provided night lighting only in the event that it is needed by plant operators during the night. It is anticipated that such use would be infrequent. Additionally, the lights would be shielded to prevent light spillover to adjacent residences. Therefore, night-time lighting impacts would be less than significant.

Because the Program would not result in a project-specific glare impact, it would not contribute to any cumulative glare impacts. There are no other known projects in the area of Well No. 2 that would contribute to night lighting impacts and the project's impact would only be occasional. Therefore, the night lighting impact is not considered cumulatively significant.

**Mitigation and Residual Impacts:** No impact would result. Therefore, no mitigation is required.

## 23.0 PUBLIC HEALTH

### 23.1 SETTING

A public health issue is defined by the County's Initial Study Assessment Guidelines as a human health related issue, such as, but not limited to, vectors, bioaerosols, and other

pathogens or environmental factors that may pose a substantial present or potential hazard to public health.

## 23.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies from the Ventura County's General Plan that relate to public health are applicable to the proposed Program.

## 23.3 IMPACT DISCUSSION

As described in Section 18 (Hazardous Materials), the proposed Well No 2 Filtration System project site expansion area as well as other Near-term Project sites have historically been used for agriculture and may contain residual agricultural chemicals. During construction there is a potential to expose workers and the public to such hazardous materials should such materials be present within the proposed excavation areas. However, the project will comply with all applicable OSHA requirements which would reduce such impacts to public health to a less than significant level.

As previously discussed, for Near-term Project No. 1, the Well No. 2 Filtration System, hazardous materials would be utilized as part of the well rehabilitation in the short-term and in association with the filtration process in the long-term. However, these materials will be permitted for handling and storage in accordance with County and OSHA regulations and will, therefore, not present a significant impact to public health.

**Mitigation and Residual Impacts:** No significant impact would result therefore, no mitigation is required.

**Mitigation and Residual Impacts.** Although no hazardous waste sites (e.g., LUST sites) are presently known to affect the Near-term Project sites, there is the potential for an currently unknown source of contamination to exist. The following measure is recommended to ensure compliance with existing environmental regulations in the event that unexpected contamination is discovered during construction of any of the Near-term Projects.

**PH1** Ventura County Waterworks District No. 19 shall ensure that if during construction of the project, soil contamination is suspected, by the construction contractor, construction in the area shall stop and appropriate health and safety procedures shall be implemented including contact with the Ventura County Environmental Health Department. If determined necessary by the Ventura County Health Department or other regulatory agency with jurisdiction over the environmental resources affected appropriate remedial activity shall be conducted prior to the resumption of work in the area of concern. Remediation could involve removal and proper disposal of contaminated materials, on-site treatment, etc.

# 24.0 GREENHOUSE GASES

## 24.1 SETTING

Greenhouse gases (GHGs) are defined as any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). These greenhouse gases lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the Greenhouse Effect. There is increasing evidence that the Greenhouse Effect is leading to global climate change. The primary source of GHG in the United States is energy-use related activities, which include fuel combustion, as well as energy production, transmission, storage and distribution. These energy-related activities generated 85 percent of the total U.S. emissions on a carbon equivalent basis in 1998 and 86 percent in 2004. Fossil fuel combustion represents the vast majority of the energy related GHG emissions, with $CO_2$ being the primary GHG. Both the legislation and California Climate Action Team (CCAT) currently estimate that the solid waste industry, particularly landfills, is a significant source of the total net GHG emissions in California and should be a major focus of any efforts to reduce GHG emissions.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006 and the Governor signed it into law. AB 32 focuses on reducing greenhouse gas (GHG) emissions in California. GHG as defined under AB 32 include: water vapor, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the California Air Resources Board (CARB), the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. In addition, two State-level Executive Orders have been enacted by the Governor (Executive Order S-3-05, signed June 1, 2005, and Executive Order S-01-07, signed January 18, 2007) that mandate reductions in GHG emissions.

From 2007 to 2009, CARB has promulgated several discrete early action measures to reduce GHG emissions prior to the full and final adoption of a plan to reduce aggregate California GHG emissions to 1990 levels by 2020. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that greenhouse gas emissions and the effects of GHG emissions are appropriate for CEQA analysis. It directs the California Office of Planning and Research (OPR) to develop guidelines *. "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division."* (Pub. Res. Code § 21083.05(a))

In December of 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines (tit. 14, Cal. Code of Regs., § 15000 et seq.) to comply with the mandate set forth in Public Resources Code § 21083.05. These revisions became effective March 18, 2010.

According to GHG amendments to the CEQA Guidelines, each public agency that is a CEQA lead agency needs to develop its own approach to performing a climate change analysis

for projects that generate GHG emissions. A consistent approach should be applied for the analysis of all such projects, and the analysis must be based on best available information. For these projects, compliance with CEQA entails three basic steps:

- Identify and quantify the GHG emissions;
- Assess the significance of the impact on climate change; and
- If the impact is found to be significant, identify alternatives and/or mitigation measures that will reduce the impact below significance.

To date, in California, there are no formally adopted or published CEQA thresholds of significance for project specific or cumulative anthropogenic GHG emissions. Formulating such significance thresholds for CEQA purposes is especially problematic for GHG emissions because, unlike other air pollutant emissions that create impacts in local and regional air basins (i.e., air pollution nonattainment areas or toxic air contaminant hotspots), anthropogenic GHG emissions are implicated as a cause for global climate change regardless of their emission source or location. Moreover, simply estimating GHG emissions from a specific project is not an adequate way to gauge the degree to which those emissions would contribute to global warming or climate change. Substantial additional scientific research and regulatory guidance are needed to determine whether a project's incremental GHG emissions impacts on climate change would be significant, and whether and how cumulative GHG emissions will affect global climate change.

The CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. They do not, however, establish a specific threshold of significance. The amendments do identify a general methodology for assessing the significance of impacts from project GHG emissions. Specifically, CEQA Guideline Section 15064.4 states:

*(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:*

*(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or*

*(2) Rely on a qualitative analysis or performance based standards.*

*(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:*

*(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*

*(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*

*(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.*

## 24.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no County policies on greenhouse gases that are relevant to the proposed Program.

## 24.3 IMPACT DISCUSSION

To date, the VCAPCD has not yet adopted an approach to setting a significance threshold for the assessment of greenhouse gas emissions from development projects. However, CARB has proposed an interim industrial project screening threshold of 7,000 metric tons of carbon dioxide equivalent per year (MTCO2e/yr) for non-transportation emissions, as well as a threshold that would evaluate compliance with "performance standards" for transportation and construction activities which have yet to be developed.

### 24.3.1 Short Term

Each of the proposed Near-term Projects would result in greenhouse gas emissions during construction, primarily in the form of $CO_2$ from the use of off-road construction equipment and on-road vehicles. Emissions of greenhouse gases from construction-related sources were estimated using CARB's EMFAC2007 Model and emission factors provided in the California Climate Action Registry General Reporting Protocol. It is estimated that the near-term projects would be implemented over a 20 month period (minimum). Therefore, total greenhouse gas emissions were multiplied by a factor of 12/20 to derive the worst-case annual emissions. Estimated emissions of annual greenhouse gases associated with construction of the near-term projects are 187.0 metric tons of $CO_2$ equivalent ($MTCO_2E$) and are presented in Table C24.3-1.

Because emissions would be less than the 7,000 $MTCO_2E$ per year threshold suggested by the CARB for projects, and because the VCAPCD has not yet set a threshold, short-term greenhouse gas impacts are considered less than significant.

**Table C24.3-1. Construction Related Annual Greenhouse Gas Emissions**

| Source | $CO_2$ Emissions (metric tons) | $CH_4$ Emissions (metric tons) | $N_2O$ Emissions (metric tons) |
|---|---|---|---|
| Total GHG Emissions | 184.7 | 0.010 | 0.007 |
| Global Warming Potential Factor[1] | *1* | *21* | *310* |
| Total $CO_2$ Equivalent Emissions | 184.7 | 0.22 | 2.11 |
| Total Metric Tons of $CO_2$ Equivalent | **187.0** | | |

1 $CO_2E$ conversion factors were provided in California's GHG Inventory, 2008.
2 GHG emissions calculated using emission factors provided in the California Climate Action Registry General Reporting Protocol

### 24.3.2 Long-Term

Project facilities would require maintenance, which may result in greenhouse gas emissions from on-road vehicles. Most proposed facilities are upgrades for existing facilities and no new maintenance would be required. However, operation of the Well no. 2 Iron and Manganese Removal Facility would require a daily site visit by District staff, a monthly chemical delivery and annual backwash sediment removal. Estimated emissions of annual greenhouse gases associated with long-term operation of the near-term projects are 1.7 $MTCO_2E$. Because emissions would be less than the 7,000 $MTCO_2E$ per year threshold suggested by the CARB for projects, and because the VCAPCD has not yet set a threshold, long-term greenhouse gas impacts are considered less than significant.

Mitigation and Residual Impacts. None required.

## 25.0 COMMUNITY CHARACTER

### 25.1 SETTING

As defined by the County Guidelines, a community is a particular area within which people with common interests reside. Community character consists of the image of a community, as defined by such factors as its built environment, natural features, architectural form and style, existing uses (e.g., agricultural, residential, commercial, industrial, or institutional), and density and intensity of development. Central to the concept of community character is a sense of place, or the characteristics of a location that make it readily recognizable as being unique and different from its surroundings and that provides a feeling of belonging to, or being identified with, that particular place.

The Near-term Projects are generally located in areas that are predominantly developed with agriculture with the exception of the Somis Community.

## 25.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *3.1.2.3: Consistency of Land Use: Any land use shall be deemed consistent with the General Plan if it is permitted under a zoning designation which is consistent with Policy Number 2 above, and if the land use does not conflict with any other policy of the County General Plan.* | Consistent - The Near-term Projects are allowable uses within the respective zoning designations. |

## 25.3 IMPACT DISCUSSION

The threshold of significance criteria in the County Guidelines for community character states that:

1. *A project that is inconsistent with any of the policies or development standards relating to community character of the Ventura County General Plan, Policies and Programs or Saticoy Area Plan is regarded as having potentially significant environmental impact; and/or*

2. *A project has the potential to have a significant impact on community character, if it either individually or cumulatively when combined with recently approved, current and reasonably foreseeable probable future projects would introduce physical development that is incompatible with existing land uses, architecture form or style, site design/layout, or density/parcel sizes with the community in which the project is located.*

All of the pipeline upgrade projects would only result in short-term construction impacts and since the pipelines would be located below ground, no long-term community character impacts would result.

The Well No. 2 Iron and Manganese Removal Facility Project would result in the removal of a limited number of existing orchard trees and would introduce various construction equipment and materials for a period of less than one year. Because exposed soils and equipment are common sights within agricultural areas, this short-term impact is considered less than significant.

In terms of long-term aesthetic integrity, water wells, pipelines and associated infrastructure are commonly placed within an agricultural setting because they are used for irrigation, and the above-ground components are not inconsistent with agricultural piping, maintenance equipment or heavy machinery that are typically associated with common agricultural operations. As such, expansion of the water well site with associated treatment facilities would not introduce an inconsistent element to the existing community.

At the Well No. 2 site, three light poles with shielding are proposed which would be operated manually in the event that an operator needs to access the plant at night. This is

anticipated to be an infrequent occurrence. Due to the infrequency of the anticipated need for night-time lighting at the site and the shielding of the light, this additional source of light is anticipated to result in a less than significant lighting impact. No new sources of significant glare (e.g., expanses of glazing, etc.) would be added to the community as a result of the project. Additionally, the proposed project site is not visible from any designated scenic highways.

There are no other development projects proposed for the project vicinity, therefore, the project would not contribute to any cumulative impacts on community character.

**Mitigation and Residual Impacts.** No mitigation other than those measures already identified and incorporated into the proposed Program are required.

# 26.0 HOUSING

## 26.1 SETTING

The Near-term Project sites are within unincorporated Ventura County road rights-of way, lands designated for agricultural use and the Somis community.

## 26.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No housing-related policies from Ventura County's General Plan are applicable to the proposed Program.

## 26.3 IMPACT DISCUSSION

The County Guidelines indicate that any project that would eliminate existing dwelling units would have an impact. The Near-term Projects would not involve the removal of any existing housing.

The County Guidelines also state that *any project that involves construction has an impact on the demand for additional housing due to potential housing demand created by construction workers. However, construction worker demand is a less than significant project-specific and cumulative impact because construction work is short-term and there is a sufficient pool of construction workers within Ventura County and the Los Angeles metropolitan regions*.

Additionally, the County Guidelines state that *pursuant to General Plan Policy 3.4.2-9, projects that would result in new jobs in the County have an impact on the demand for housing. However, only projects that result in 30 or more new full-time-equivalent ("FTE") lower-income employees would have a significant project-specific and cumulative impact on the demand for housing because the General Plan shows that there is potentially insufficient inventory of land to develop lower-income housing*.

The Near-term Projects would not result in the need for additional employees and therefore, would not create a demand for housing.

**Mitigation and Residual Impacts:** No impact to housing would result; therefore, no mitigation is required.

## 27.0 TRANSPORTATION/CIRCULATION

### 27A ROADS AND HIGHWAYS (1-3)

#### 27A.1 Setting

The quality of traffic service provided by a roadway system can be described through the Level of Service (LOS) concept. LOS is a standardized means of describing traffic conditions by comparing traffic volumes in a roadway system with the system's capacity. A LOS rating of A-C indicates that the roadway is operating efficiently. Minor delays are possible on an arterial with a LOS of D. LOS E represents traffic volumes at or near the capacity of the highway, resulting in possible delays and unstable flow. LOS F represents the least favorable level of service.

State highways that would be directly impacted by the Program include SR 118 (Los Angeles Avenue) and SR 34 (Somis Road). County roads that would be directly impacted by the Program include the following. The Year 2010 estimate of Vehicles Per Day (VPD) is also provided if available.

- Bradley Road (2,200 VPD);
- West Street Alley
- Kingsgrove Drive
- Ponderosa Road
- Donlon Road
- Sand Canyon Road
- Balcom Canyon Road (1,900 VPD)
- Posita Road

Access to the site is provided from SR 118/Los Angeles Avenue. Based on year 2009 traffic counts compiled by Caltrans, volumes on SR 118 west of the Grimes Canyon Road intersection are 17,500 average vehicles per day (LOS E).

## 27A.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *Policy 4.2.2.3: The minimum acceptable Level of Service (LOS) for road segments and intersections within the Regional Road Network and Local Road Network shall be as follows:*<br>*(a) LOS-'D' for all County thoroughfares and Federal highways and State highways in the unincorporated area of the County, except as otherwise provided in subparagraph (b);*<br>*(b) LOS-'E' for State Route 33 between the northerly end of the Ojai Freeway and the City of Ojai, Santa Rosa Road, Moorpark Road north of Santa Rosa Road, State Route 34 north of the City of Camarillo and State Route 118 between Santa Clara Avenue and the City of Moorpark;*<br>*(c) LOS-'C' for all County-maintained local roads; and*<br>*(d) The LOS prescribed by the applicable city for all Federal highways, State highways, city thoroughfares and city-maintained local roads located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County (similar to Policies 4.2.2-3 through 4.2.2-6) respecting development in the city that would individually or cumulatively affect the LOS of Federal highways, State highways, County thoroughfares and County-maintained local roads in the unincorporated area of the County.*<br>*At any intersection between two roads, each of which has a prescribed minimum acceptable LOS, the lower LOS of the two shall be the minimum acceptable LOS for that intersection.* | Consistent - With the implementation of traffic mitigation incorporated into the project as described below, the Program is not considered to significantly impact LOS. |

## 27A.3 Impact Discussion

**a. Level of Service.** The County Guidelines state that the minimum acceptable level of service for road segments within the Regional Road Network and the Local Road Network is as shown in Table C27A.3-1.

**Table C27A.3-1. Minimum Acceptable Level of Service for Roadway Segments (Table 1 from Ventura Initial Study Assessment Guidelines Section 27A(1) Roads and Highways - Levels of Service)**

| County of Ventura - Minimum Acceptable Level of Service | |
|---|---|
| **Minimum LOS** | **Description** |
| C | All County maintained local roads. |
| D | All County thoroughfares and state highways within the unincorporated area of the County accept as provided below. |
| E | 1. State Route 33 between the end of the freeway and the City of Ojai.<br>2. State Route between 118 between Santa Clara Avenue and the city of Moorpark<br>3. State Route 34 (Somis Road) north of the City of Camarillo.<br>4. Santa Rosa Road between the Camarillo city limits line and Thousand Oaks city limits line.<br>5. Moorpark Road north of Santa Rosa Road to Moorpark city limits line. |
| Varies | The LOS prescribed by the applicable city for all State highways, city thoroughfares, and the city maintained local roads located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County, pertaining to development in the city that would individually or cumulatively affect the LOS of state highways, county thoroughfares and county-maintained local roads in the unincorporated area of the County |
| | County LOS standards are applicable for any city that has not adopted its own standards. |

At any intersection between two roads, each of which has a prescribed minimum acceptable LOS, the less stringent LOS of the two shall be the minimum acceptable LOS of that intersection.

The County considers any project that would cause the existing LOS on a roadway segment to fall to an unacceptable level, or any project that adds one or more peak hour trips to a roadway operating at an unacceptable LOS to have a significant project-specific impact. The County guidelines further state that if a project will add one or more peak hour trips to a roadway segment that is part of the regional road network and is currently operating at an unacceptable LOS; or 10 or more peak hour trips to a roadway segment that is part of the regional road network and is projected to fall to a less-than-acceptable level LOS by the year 2020 it will result in a significant cumulative impact.

The Program as a whole will generate approximately 768 trucks (321 - 15-CY trucks for exports of sand, gravel, or slurry; 267 trucks for imports; 158 trucks for sand/asphalt; 22 trucks for work on SR 118) on County roads over a couple of years. Due to the temporary nature and

small scale of the construction activities, short-term traffic impacts to State Highways and County roads are considered to be less than significant assuming compliance with standard County Transportation Department and Caltrans policies. The County Public Works Transportation Agency considers the cumulative impact of the Program, when considered with the cumulative impact of all other approved or anticipated projects in the County, as potentially significant, but would be mitigated through the payment of the appropriate Traffic Impact Mitigation Fee (TIMF).

Program implementation would not require additional permanent staff. Therefore, no increase in long-term trips would be generated by additional employees. One existing staff member from the District would visit the Well No. 2 site on a daily basis. However, this would be part of the staff members existing rounds visiting the District's various facilities. A chemical delivery would need to be made once per month and sludge would need to be removed from the Well No. 2 site once per month. As no new vehicle trips will be generated from the proposed Program, no long-term impacts to LOS on the local roadway network are anticipated. However, the standard County transportation mitigation fee would need to be paid. No significant long-term impacts to State Highways would result.

**b. Safety and Design of Public Roads.** The Program consists of installation of replacement water pipelines and minor upgrades of other water related infrastructure. No new roads or access driveways are proposed. However, the Program would result in potentially significant short-term safety impacts associated with the encroachment into public roads during construction of water pipelines and relocation of the Balcom Canyon Road Pressure Reducing Station. However, compliance with required road encroachment permit requirements would reduce this impact to a less than significant level.

**c. Safety and Design of Private Access, and Tactical Access.** No new private road access is proposed as part of the Program. Thus no impacts would result.

**Mitigation and Residual Impacts.** The following measures will be incorporated into the project to further reduce short-term LOS impacts and mitigate roadway safety impacts as required by the County of Ventura Transportation Department and California Department of Transportation (Caltrans) (Weeks and Alvarez, personal communication, August 2011).

**T1** Pipeline Installation, on State Highways, that is not located further than 6 feet from the fog line (this is anticipated to be required only in special circumstances) will need to be conducted from 9:00 AM to 3:00 PM to minimize impacts on Levels of Service for these highways.

**T2** The District shall make a condition of the construction contractor bid specifications that during the construction phase of the Near-term Projects, all construction-related trips affecting SR 118 and SR 34 will occur outside of the peak hours to the maximum extent feasible (most importantly avoiding the intersection of SR 118 and SR 34 to the extent feasible during these time periods). Peak hours are 6:30 to 9:30 am and 3:30 to 6:30 p.m. weekdays.

**T3** The District shall apply for Encroachment Permits from the Permits Division of the County Transportation Department for work on County roads. The District should contact the Permits Division at 805-654-2055 for the requirements of this permit.

**T4** A Traffic Control Plan shall be prepared by a traffic engineer, submitted, reviewed and approved for any road closure, partial road closure, or detours on County roads. The plan must be approved a minimum of seven calendar days prior to the actual road closure, or detour.

**T5** Provide the Transportation Department with a Site Plan that shows the proximity of trenching operation, construction equipment, and storage of materials to the right-of-way and road edge on the County roads affected by the Near-term Projects.

**T6** Oversize vehicle permits shall be obtained from the County of Ventura if such vehicles are to be used in the truck hauling operations.

**T7** The District shall apply for Encroachment Permits from the Caltrans for work in State highways.

**T8** The District shall prepare and submit to Caltrans for approval a Detour Plan for all Near-term Projects that would block access to a State Highway (e.g. blocking access to SR 118 from Bradley Road).

**T9** Any wide loads or unusual loads (e.g., excessively long loads) to be transported on State highways will require a Transportation Permit from Caltrans.

**T10** The District shall pay a Traffic Impact Mitigation Fee (TIMF) for the average daily trips generated by the overall "Program".

(The fee to be collected is estimated as follows: 13 ADT x $109/ADT = $1417.

The Program ADT was calculated as follows:

$$\frac{\text{6 employees x 2 trips/day x 5 days/week x 5 weeks/year + 768 trucks x 2 trips/truck}}{\text{365 days/year}} = 12.75 \text{ ADT or } 13 \text{ ADT}$$

The $109/ADT rate is for the Central Traffic District No. 12)

**T11** The District shall comply with the Ventura County Transportation Department policy regarding a moratorium on trenching on recently paved roads. If the road has been paved in the last five years, then the District will be responsible for overlaying the entire width of the road. This policy may apply to Posita Road (paved in 2006) and Balcom Canyon Road (paved in 2010).

**T12** The construction contractor(s) for the Near-term Projects shall inspect the project-impacted road (and videotape) with representatives from the County Road Maintenance Division prior to construction. Precautions shall be taken by the contractor to protect County roads during construction. Immediately after construction is complete, the contractor shall inspect the road jointly with a representative of the County Road Maintenance Division. Any portion damaged during construction, in the opinion of the Transportation Department or Designee, shall be replaced in accordance with the current Standard Construction Details and/or in a manner acceptable to the Transportation Department or designee within 30 days of completion of the project.

**T13** During the hauling of material to or from the project sites, the trucks shall be covered to secure all material so that any nuisance or danger to the public from flying debris can be avoided.

## 27B PEDESTRIAN/BICYCLE

### 27B.1 Setting

There are no designated pedestrian or bicycle paths in the vicinity of the Near-term Project sites.

### 27B.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *Policy 4.2.2.8:. Discretionary development shall be conditioned, where feasible, to minimize traffic impacts by incorporating pedestrian and bicycle pathways, bicycle racks and lockers, ridesharing programs, transit improvements (bus turnouts, shelters, benches), and/or transit subsidies for employees or residents of the proposed development.* | Consistent - The Program does not include the type of development that requires alternative transportation facilities. |

### 27B.3 Impact Discussion

The proposed Program would not impact existing pedestrian or bicycle facilities as there are none near the site. Due to the short-term nature of the project effects it would also not impact planned pedestrian or bicycle facilities.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 27C BUS TRANSIT

### 27C.1 Setting

Based upon a review of public transit information on the Ventura County Transportation Commission web site, there is no public transit in the Somis area. Additionally, staff from Padre did not observe transit stops in proximity to the Near-term Project sites during a field visit in July, 2011.

### 27C.2 Project Consistency with Applicable Policies

See policy discussion for 27B.

### 27C.3 Impact Discussion

According to the County Guidelines a project will have a significant impact on bus transit if it would interfere with existing bus transportation or if it would increase demand for new bus transit services. The project would not individually or cumulatively impact public transit because it would not create a demand for bus transit, and currently there are no public transit routes in the Program area.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 27D RAILROADS

### 27D.1 Setting

A railroad track is located parallel to Somis Road and Highway 118 in the Program area.

### 27D.2 Project Consistency with Applicable Policies

No policies from the Ventura County's General Plan with respect to railroads are applicable to the proposed Program.

### 27D.3 Impact Discussion

According to the County Guidelines, a project would have a significant impact on a railroad if it would substantially interfere with an existing railroad's facilities or operations. None of the Near-term Project (construction or operations) would impact railroad facilities or operations on either a project-specific or cumulative basis.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 27E AIRPORTS

### 27E.1 Setting

There are no airports near the project site; therefore, there are no impacts due to airport transportation. (For further information please refer to Section 19 of Aviation Hazards).

### 27E.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *Policy 4.2.2.10: Discretionary development that would endanger the efficient, safe operation of an airport or would result in significant land use incompatibility with an airport shall be prohibited.* | Consistent - The Program would not impact airport operations. |

### 27E.3 Impact Discussion

The Near-term Project sites are not near an existing airport and would not directly, indirectly or cumulatively impact such a facility.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 27F HARBORS

### 27F.1 Setting

There are no harbors in the vicinity of the Program area as it about 12 miles from the ocean.

### 27F.2 Project Consistency with Applicable Policies

The General Plan does not include any harbor-related policies that are applicable to the proposed Program.

### 27F.3 Impact Discussion

The Program area is not near an existing harbor and would not directly, indirectly or cumulatively impact such a facility.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 27G PIPELINES

### 27G.1 Setting

Based upon a review of the U. S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration National Pipeline Information System - Mapping for Ventura County (August 2011), no gas transmission pipelines of hazardous liquid pipelines are located in the Program area. However, pipelines not mapped through this system are certain to exist in the Program area. For example according to the Preliminary Design Memorandum for the Well No. 2 Iron and Manganese Removal Facility (RBF, July 2007), the following pipelines are located on Bradley road in the project vicinity:

- 6-inch gas line (southern California Gas)
- 6-inch oil line (Vintage Production California LLC)
- 24-inch water line (Calleguas Municipal Water District)

### 27G.2 Project Consistency with Applicable Policies

No General Plan policies relating to pipelines are applicable to the proposed Program.

### 27G.3 Impact Discussion

It is likely that oil or gas pipelines are located within the potential area of impact for the Near-term Projects. However, prior to construction; the standard precaution of contacting Dig Alert to determine the presence of such lines and their location would be performed prior to any excavation. If pipelines are identified, they would then be avoided. Using this standard precaution, exposure to hazards from oil and gas pipes as well as other pipelines would be less than significant on a project-specific and cumulative basis.

**Mitigation and Residual Impacts.** No impact would result. Therefore, no mitigation is required.

# 28.0 WATER SUPPLY

## 28A QUALITY

### 28A.1 Setting

See setting information provided in Section 2B1 pertaining to groundwater quality.

### 28A.2 Project Consistency with Applicable Policies

There are no water quality policies from the Ventura County's General Plan that are applicable to the Program.

### 28A.3 Impact Discussion

The County Guidelines thresholds for water quality state that the quality of water available to development must be in compliance with: the applicable State Drinking Water Standards as described in Title 22 of the California Code of Regulations, Section 64421 et seq., California Health and Safety Code, Division 104, Part 13, Chapter 4, Ventura County ordinance Code, Division 4, Chapter 8, and Ventura County Building Code, Article 1, Article 6. The Program includes projects that are intended to ensure provision of continued supply of potable water meeting all state and local potable water quality regulations to District No. 19 customers.

The following discussion is specific to Project No. 1. The groundwater pumped from Well No. 2 is presently treated as necessary in order to remove substances such as total dissolved solids (TDS) and sulfites from the produced water in order to meet State drinking water standards pursuant to Title 22 CCR. However, historically, the District's groundwater has exceeded the secondary MCL for manganese. The proposed project would provide for the manganese and iron filtration of the produced water at Well No. 2. Therefore, the project would have a beneficial impact on the quality of the public water supply.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 28B QUANTITY

### 28B.1 Setting

Ventura County Waterworks District No. 19 is responsible for providing potable water within the Somis area (see Figure 1).

### 28B.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *4.3.2.3: Discretionary development shall be conditioned to incorporate water conservation techniques and the use of drought resistant native plants pursuant to the County's Guide to Landscape Plans.* | Consistent - The Near-term Projects do not include landscaping plans. However, mitigation measure V1 requires the use of drought-resistant native plants where feasible. |

### 28B.3 Impact Discussion

As the Program is limited to construction and operation of potable water infrastructure, it will not require a new source of domestic water and would not require an additional long-term water supply. Additional short-term water supply needs may result during construction operations. However, this impact to water supplies would be less than significant and not cumulatively considerable due to its limited nature.

Mitigation and Residual Impacts. None required.

## 28C FIRE FLOW REQUIREMENTS

### 28C.1 Setting

Fire flow is defined as the number of gallons per minute (GPM) of water at a minimum residual pressure of 20 pounds per square inch (PSI) for a designated duration available from a fire hydrant in the event of an emergency situation.

### 28C.2 Applicable Policies

No policies relating to fire flow from the Ventura County's General Plan are applicable to the Program.

### 28C.3 Impact Discussion

A project would be considered to have a significant impact if:

1. It cannot meet the fire flow requirements as determined by:

    a. The Insurance Services Office (I.S.O.) Guide for Determination of required fire flow;

    b. The Ventura County Waterworks Manual;

    c. Ventura County Fire Protection District Fire Code;

    d. Prevention Standards 14.5.1, 14.5.2 and 14.5.3

2. It cannot provide an acceptable mitigation factor, i.e., fire sprinklers to allow for a reduction in the required fire flow.

3. A private water system cannot meet flow, duration, or reliability requirements as defined in the Ventura County Waterworks Manual and VCFPD Fire Code.

The proposed Program is limited to water infrastructure improvements and is therefore not expected to result in fire flow impacts. However, the upgrade of water facilities would help meet fire flow requirements within the District No. 19 service area which are presently deficient in some areas. The proposed improvements to the infrastructure will greatly enhance the District's ability to meet the Ventura County Fire Protection District's fire flow criteria of 1,500 gallons per minute (gpm) for commercial/industrial uses and 1,000 gpm for residential uses. In addition, the improvements will help maintain Emergency, Operational and Fire Fighting Storage and will allow the upper zones water supplies to be available to the lower zones during fire situations.

Mitigation and Residual Impacts. No adverse impact would result and no mitigation is required.

# 29.0 WASTE TREATMENT/DISPOSAL

## 29A INDIVIDUAL SEWAGE DISPOSAL SYSTEM

### 29A.1 Setting

The Program is limited to upgrades of water infrastructure, thus the sites do not have or require any septic service.

### 29A.2 Project Consistency with Applicable Policies

There are no applicable policies.

### 29A.3 Impact Discussion

According to the County Guidelines, a project in compliance with applicable sections of the following documents shall not be considered to have a significant impact in this environmental area:

- Ventura County Building Code
- Ventura County Sewer Policy
- Ventura County Ordinance Code
- Uniform Plumbing Code
- Environmental Health Division Individual Sewage Disposal System Technical Information Manual
- Los Angeles Regional Water Quality Control Board Basin Plan

No individual septic disposal systems exist onsite and none are proposed; therefore, the Program would not result in any impacts associated with such systems. A cumulative analysis is not relevant to this issue.

**Mitigation and Residual Impacts.** No impact would result; therefore, no mitigation is required.

## 29B SEWAGE COLLECTION/TREATMENT FACILITIES

### 29B.1 Setting

Wastewater generated in the project area is treated at the Moorpark Wastewater Treatment Plant (MWTP), located on SR 118. The MWTP is owned and operated by the County of Ventura.

### 29B.2 Project Consistency with Applicable Policies

There are no applicable policies.

### 29B.3 Impact Discussion

The County Guidelines Environmental Thresholds state that a project that is designed to meet all of the applicable requirements set forth in the following authorities shall not be considered to have a significant impact in this environmental area:

- Porter-Cologne Water Quality Control Act (California Water Code)
- California Code of Regulations, Title 22
- California Regional Water Quality Control Board Basin Plans
- Uniform Plumbing Code
- Ventura County Building Code

No structures are proposed as part of the Program that would require sewage collection or treatment facilities. In addition, no new employees would be needed for maintenance of Program facilities that would necessitate such facilities. However, Project No. 1, specifically the iron and manganese removal facility proposed for the Well No. 2 site, would require backwashing on a regular basis. Backwash would be directed to the reclaimed water tank for settlement. Reclaimed water would be decanted and sent back into the system for treatment and use. The system would produce sediment from the backwash process. This liquid waste would be transported to the MWTP for disposal/treatment approximately once per month Sludge from the MWTP is presently being disposed of in Kern County through land application. The MWTP is operated in conformance with applicable State and local regulations. Impacts to sewage collection and treatment facilities would be less than significant and not cumulatively considerable.

**Mitigation and Residual Impacts.** No significant impact would result and no mitigation is required.

## 29C SOLID WASTE MANAGEMENT

### 29C.1 Setting

The Simi Valley Landfill and Recycling Center serves the solid waste disposal needs of the Program area. Simi Valley Landfill and Recycling Center is located at 2801 Madera Road, in the City of Simi Valley. Currently, this facility is permitted 3,000 tons per day of municipal solid waste and 6,250 tons per day of recyclables. As of 2007 the landfill had a remaining capacity of 21,993,270 cubic yards (CIWMB website, August 2011). The estimated closure date as identified on the facilities Solid Waste Facility Permit (56-AA-0007) is 2022.

### 29C.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *Policy 4.4.2-6: Applicants for discretionary development shall be encouraged to employ practices that reduce the quantities of wastes generated and shall be requested to engage in recycling activities to further reduce the volume of waste disposed of in landfills.* | Consistent - The project includes solid waste reduction measures as described below. |

### 29C.3 Impact Discussion

The County Guidelines indicate that a project that has a direct or indirect adverse effect on a landfill such that impairs the landfill's disposal capacity in terms of reducing its useful life to less than 15 years has a potentially significant impact on the demand for solid waste disposal capacity. In addition, Ventura County Ordinance 4155 minimizes the potential solid waste disposal capacity impacts for any project by mandating the recycling of materials found on the "Director's List of Recyclables".

Program construction related waste anticipated for disposal is expected to be minimal. Any waste generated during construction activities is anticipated to be hauled to the Del Norte facility in Oxnard or the Simi Valley Landfill for disposal.

Only minor incidental waste would be generated in the long-term by the project due to its nature other than sludge to be generated by Project No. 1. Adequate permitted capacity has been demonstrated such that Ventura County provides sufficient disposal capacity beyond the 15 year planning period identified in the County thresholds (Goldstein, personal communication, August 2011). As the amount of solid waste associated with the project would be relatively minor, and there is currently no shortage of landfill space, project specific and cumulative impacts to solid waste management would be less than significant.

**Mitigation and Residual Impacts.** Impacts would be less than significant. Therefore, no mitigation is required. However, the District shall comply with the general requirements of Ventura County Ordinance 4421 to assist the County in its efforts to meet and exceed the requirements of Assembly Bill 939, which mandates statewide jurisdictions to divert a minimum of 50 percent of their solid waste from landfills. Per Ventura County Ordinance 4421, permit applicants working on construction and/or demolition projects within the County's unincorporated area must practice waste prevention, and recycle, reuse, or salvage recyclable construction and demolition (C&D) debris generated by their project. All residual non-recyclable debris must be disposed at a permitted solid waste facility. The majority of materials generated during the demolition and construction phases of this project will be recyclable C&D debris, the majority of which can be diverted from landfill disposal by recycling or on-site reuse. Ordinance 4421 may be reviewed at: www.wasteless.org/ord4421.

Specifically, the District shall implement the following measures/contract specification to the extent practicable which are provided here to ensure inclusion in the mitigation monitoring program for the project.

**SW1** Recyclable Construction Materials: Contract specifications for this project must require that all recyclable materials generated during the demolition and/or construction phases of the project (e.g., concrete, asphalt, rebar, wood, and metal) be recycled at an appropriate, permitted, recycling facility. A complete list of permitted construction and demolition debris recycling facilities in Ventura County is available at: www.wasteless.org/construction&demolitionrecyclingresources. All non-recyclable materials must be disposed at a permitted solid waste disposal facility.

**SW2** Soil - Recycling & Reuse: Contract specifications for this project must include a requirement that soil and sand not reused on-site during the construction phase of the project be transported to an authorized or permitted organics facility for recycling or reuse. Illegal disposal and landfilling of soil is prohibited. A complete list of facilities in Ventura County that recycle soil is available at: www.wasteless.org/construction&demolitionrecyclingresources.

**SW3** Green Materials - Recycling & Reuse: The Contract Specifications for this project must include a requirement that all wood waste and vegetation removed during the construction phase of this project must be diverted from the landfill. This can be accomplished by on-site chipping and land-application at various project sites, or by transporting the materials to an authorized or permitted greenwaste facility in Ventura County. A complete list of authorized greenwaste facilities is located at: www.wasteless.org/greenwasterecyclingfacilities.

**SW4** Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a ***Form B – Recycling Plan*** to the IWMD for approval prior to the issuance of the Notice to Proceed, as provided in Section 6-7.4. of the VCSS. The ***Recycling Plan*** must specify how all recyclable materials generated by the project (e.g., metal, concrete, wood, greenwaste, and soil) will be diverted from the landfill. A copy of IWMD's ***Form B – Recycling Plan*** is available at: www.wasteless.org/recycling/greenbuildingCD.

**SW5** Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a Form C – Recycling Report to the IWMD for approval prior to the Engineer's preparation of the final estimate, as provided in Section 9-3.2 of the VCSS. The Form C – Recycling Report must have original recycling facility receipts and/or other documentation attached to verify recycling, on-site reuse, or salvage occurred. A copy of IWMD's Form C – Recycling Report is available at: www.wasteless.org/recycling/greenbuildingCD.

### 29D SOLID WASTE FACILITIES

The Program does not include any new solid waste facilities. Thus an evaluation of this issue is not necessary.

## 30.0 UTILITIES

### 30.1 SETTING

Southern California Edison (SCE) provides electrical service in the Program Area. The Near-term Project sites are not served by natural gas or communication infrastructure, nor will it be required.

## 30.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no relevant policies.

## 30.3 IMPACT DISCUSSION

Electrical service is available in the Program area and no expansion of electrical service would be required as a result of Program implementation. Furthermore, Program implementation is not expected to result in the disruption of electrical service. Thus electrical utility impacts would be less than significant and not cumulatively considerable.

Natural gas and communication services are not required at the Near-term Project sites and Program implementation would not impact these utilities.

**Mitigation and Residual Impacts.** No significant impact would result. Therefore, no mitigation is required.

# 31.0 FLOOD CONTROL FACILITIES/WATER SOURCES

## 31A WATERSHED PROTECTION DISTRICT (WPD)

### 31A.1 Setting

The water courses as identified in Table C2C.1-1 with the exception of the unnamed tributary to Coyote Canyon Creek are under the jurisdiction of the Ventura County Watershed Protection District as (red line channels) as shown on the County of Ventura Jurisdictional Streams Map A (1994).

### 31A.2 Project Consistency with Applicable Policies

| Policy | Consistency Determination |
|---|---|
| *2.10.2.2: Within areas subject to flooding, the County shall require the recordation of a Notice of Flood Hazard or dedication of a flowage easement with the County Recorder for all divisions of land and discretionary permits.* | Consistent - The only Program areas subject to flooding are certain pipeline segments over which District No. 19 will have an easement. No *recordation of a Notice of Flood Hazard or dedication of a flowage easement with the County Recorder* would be required. |
| *2.10.2.4: The design of any structures which are constructed in flood plain areas as depicted on the Hazards Protection Maps, shall be governed by Federal regulations as well as the County Flood Plain Management Ordinance and shall incorporate measures to reduce flood damage to the structure and to eliminate any increased potential flood hazard in the general area due to such construction.* | Consistent - Some proposed replacement pipeline segments are within the flood zone. These pipelines will be constructed in accordance with all applicable regulations. Additionally, such pipelines are not subject to damage from inundation. |

| Policy | Consistency Determination |
|---|---|
| *4.6.2.1: All necessary flood control and drainage facilities shall be constructed to meet the minimum standards of the Public Works Agency and the County Flood Control District consistent with the goals, policies and programs of the General Plan.* | Consistent - If any drainage features are included in the final project design for Project No 1, they would be constructed to County standards. |
| *4.6.2.2: Discretionary development shall be conditioned to provide flood control and drainage facilities deemed by the Public Works Agency and Flood Control District as necessary for the development, and shall be required to contribute toward flood control facilities necessitated by cumulative development.* | Consistent - See response above. |

### 31A.3 Impact Discussion

According to the County Guidelines, *any project that will, either directly or indirectly, impact flood control facilities and watercourses by obstructing, impairing, diverting, impeding, or altering the characteristics of the flow of water, resulting in exposing adjacent property and the community to increased risk for flood hazards shall be considered to have a potentially significant impact.* As described above in 2C, with development of the Near-term Projects, the drainage patterns on-site would generally continue to flow in the existing pattern, and any increase in on-site runoff is expected to be minimal. Any potential increased flow from the Well No. 2 site would be intercepted by non-Watershed Protection District drainage channels. The proposed Program would not reduce the capacity of flood control facilities or watercourses. The pipeline segments proposed for SR 118 would be designed to go under any existing flood control facilities in a manner as approved by the Watershed Protection District. No impacts on Watershed Protection District facilities are expected thus the project would not contribute to any cumulative impacts.

**Mitigation and Residual Impacts.** No significant impact would result; therefore, no mitigation measures are necessary.

## 31B OTHER FACILITIES

### 31B.1 Setting

Non-WPD maintained watercourses in the Program area may include a tributary of Coyote Canyon Creek which crosses SR 118 as well as other roadside ditches.

### 31B.2 Project Consistency with Applicable Policies

The policy discussion provided above for 31A is also applicable to this subject.

### 31B.3 Impact Discussion

The construction of the Well No. 2 Iron and Manganese Treatment Facility would introduce minor amounts of impervious surface to the site. Any minor increase in runoff that may result at the Well No. 2 site would be is expected to percolate on site or be directed to the non-WPD maintained ditch on Bradley Road. The proposed pipeline of Highway 118 would be subsurface and would not impede flows of any non-WPD maintained watercourse, nor would the Program as a whole result in increased runoff which would significantly affect the capacity of non-WPD maintained flood channels or Areas of Special Flood Hazard on a project-specific or cumulative basis.

**Mitigation and Residual Impacts:** No significant impact will result. Therefore no mitigation is necessary.

## 32.0 LAW ENFORCEMENT/EMERGENCY SERVICES

### 32.1 SETTING

The Program area is served by the Ventura County Sheriff's Department. The nearest local offices maintained by the Sheriff's Department are in Moorpark and Camarillo, 610 Spring Road, Moorpark and 3701 East Las Posas Road in Camarillo respectively.

### 32.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 4.7.2.2: Discretionary development shall be conditioned to provide adequate site security during the construction phase (e.g., licensed security guard and/or fencing around the construction site, and all construction equipment, tools, and appliances to be properly secured and serial numbers recorded for identification purposes).* | Consistent - Material and equipment storage is anticipated to occur at secured District facilities overnight. Additionally, a measure has been provided below to ensure Program consistency with this condition. |
| *Policy 4.7.2.3: Discretionary development shall be conditioned to provide adequate security lighting (e.g., parking lots to be well lighted with a minimum 1 foot candle of light at ground level, lighting devices to be protected from the elements and constructed of vandal resistant materials and located high enough to discourage anyone on the ground from tampering with them).* | Consistent - The Well No. 2 site has security lighting. Water infrastructure such as pipelines are subsurface and do not require security lighting.. |
| *Policy 4.7.2.4: Discretionary development shall be conditioned to avoid landscaping which interferes with police surveillance (e.g., landscaping must not cover any exterior door or window, landscaping at entrances and exits or at any parking lot intersection must not block or screen the view of a seated driver from another moving vehicle or* | Consistent - No landscaping that would be detrimental to security is proposed. |

| Policy | Consistency Determination |
|---|---|
| *pedestrian, trees must not be placed underneath any overhead light fixture which would cause a loss of light at ground level).* | |

## 32.3 IMPACT DISCUSSION

Water infrastructure is not identified on the list of development types that have the potential to increase demand for law enforcement or emergency services as identified in the County Initial Study Assessment Guidelines. No impacts relating to police protection to personnel, equipment and facilities are expected. The project would, therefore, not contribute to any cumulative police protection impacts.

**Mitigation and Residual Impacts.** No impacts are anticipated. Therefore, no mitigation is required. However, the following measure shall be implemented to ensure project consistency with applicable policies.

**L1** The District shall ensure that proper security measures are followed during the construction phase of the Near-term Projects to protect materials, tools and equipment.

# 33.0 FIRE PROTECTION - (A) DISTANCE AND RESPONSE; AND (B) PERSONNEL, EQUIPMENT AND FACILITIES

## 33.1 SETTING

Fire protection services for the unincorporated portion of Ventura County are provided by the Ventura County Fire Protection District (VCFPD). The VCFPD provides fire prevention, fire suppression, fire investigation, hazardous materials response team, rescue, and related emergency services. The District includes four battalion areas with a total of 31 fire stations, strategically located to provide fire protection for urban areas, as well as the extremely important watershed areas, for the benefit of the entire County. The closest station to the well site is Station No. 57 located at 3356 Somis Road in Somis, Ventura County. The Somis Fire Station is staffed daily by three firefighters and houses: a pumper (*Engine 57*); a brush engine (*Engine 357*); a 500-gallon potable water trailer (*"water buffalo"*); a tractor-trailer light & air unit (*Light and Air 57*); and a utility truck (*Utility 57*). The light & air unit (one of two in county service) provides electricity, lights, compressed breathing air, and rehab services at emergency incidents throughout the county. Also assigned is a mobile command post vehicle (Command 11) (Ventura County Fire Department web site, August 2011).

## 33.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

| Policy | Consistency Determination |
|---|---|
| *Policy 4.8.2.1: Discretionary development shall be permitted only if adequate water supply, access and response time for fire protection can be made available.* | Consistent - The majority of Program facilities are replacement water pipelines and related infrastructure that are not anticipated to require fire protection services. Project No. 1, the Well No. 2 Iron and Manganese Removal Facility. |

## 33.3 IMPACT DISCUSSION

According to the County Guidelines, project distance from a full time paid fire department is considered a significant impact if the project is in excess of five (5) miles, measured from the apron of the fire station to the structure or pad of the proposed structure. The Guidelines also indicate that response time of more than 12 minutes would be considered significant. The only Program facilities that have the potential to require fire protection services is the Well No. 2 site. This site is located about 2.5 miles from Station 54. Due to the proximity of the nearest fire station and lack of any unusual circumstances that would impede response times, response time to the site is anticipated to be adequate. The Program area is within the distance and response time criteria and would not result in a significant impact on fire protection services.

The County thresholds of significance for fire-fighting personnel are based on population to firefighter ratios. However, the Guidelines state that most projects will have an impact on personnel due to increased needs for service, but it would not be significant due to increases in assessed value to compensate for increases in staffing. The County Guidelines further state that equipment and facility concerns become significant when the magnitude of the project or the distance from existing facilities indicates that a new facility or additional equipment would be required within the proposed project. The Program would not introduce a new population requiring fire protection services. Also, the Program does not include structures or uses that would require special or additional firefighting equipment. The Program impact on fire protection personnel, equipment and facilities would be less than significant. The Program's small effect on fire protection services is not cumulatively considerable.

**Mitigation and Residual Impacts.** No significant impact would result. Therefore, no mitigation is required.

# 34.0 EDUCATION - (A) SCHOOLS AND (B) LIBRARIES

## 34.1 SETTING

Ventura County encompasses 20 school districts, 3 community colleges, and a four-year university that opened in the fall of 1999. Schools within the project vicinity are managed by the Somis Union School District, which provides K through 8$^{th}$ grade schools. High school aged students attend grades 9 through 12 in either Camarillo or Moorpark.

## 34.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No education-related policies from Ventura County's General Plan are applicable to the proposed Program.

## 34.3 IMPACT DISCUSSION

According to the County Guidelines, a project will normally have a significant impact on school facilities if it would substantially interfere with the operations of an existing school facility. A project has a significant project-specific impact on public library facilities and services if it would substantially interfere with the operations of an existing public library facility, put additional demands on a public library facility which is currently deemed overcrowded, or limit the ability of individuals to access public library facilities by private vehicle or alternative transportation modes. The proposed Program is not expected to cause an increase in demand for educational facilities (schools and libraries); as no housing or commercial/industrial development would be constructed, and no direct or indirect increase in population would result. The minimal number of construction personnel required are expected to come from the local population or if from outside of the area would only reside locally on a temporary basis.

Somis Elementary School is located at the southwest corner of the intersection of West and North Streets, one block away from the West Street Alley where a pipeline will be replaced (Project No. 7). This project is not expected to substantially interfere with school operations due to the intervening land uses between the school and the proposed pipeline route with the exception that transport of equipment and materials may conflict with the transport of students to and from the school. This may be considered a potentially significant short-term impact associated with Project No. 7 and potentially Project No. 5 where a pipeline is proposed at the southern terminus of West Street. There are no cumulative projects, that together with the proposed project are expected to result in cumulatively significant impacts for this issue.

**Mitigation and Residual Impacts.** The following mitigation is required to reduce potential impact to Somis School to a less than significant level and will be incorporated into the Program.

**E1** The District shall notify the administration of Somis Elementary School in advance of implementation of pipeline replacement projects in the Somis community proximate to the school (i.e., Projects Nos. 5 and 7). The purpose of this notice is to inform the school administration of the nature, timing, location and duration of the projects. Additionally, the District shall coordinate with the Somis Elementary School administration to reduce potential impacts to school operations by modifying the project schedule and or/construction equipment materials routing to minimize the impact on school operations. This may include scheduling construction during periods when school is not in session, avoiding the movement of equipment and material to the site during the hours when students are arriving and leaving the school, or other acceptable measure(s).

# 35.0 RECREATION

## 35.1 SETTING

Park and recreation facilities in Ventura County area are provided by a wide array of agencies. These facilities enhance the quality of life of County residents as well as stimulate the County's tourist industry. There are currently no parks or recreation facilities located proximate to the Near-term Project sites.

## 35.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No recreation-related policies from Ventura County's General Plan are applicable to the proposed Program.

## 35.3 IMPACT DISCUSSION

According to the County Guidelines, a project will have a significant impact on recreation if it would cause an increase in the demand for recreation, parks, and/or trails and corridors or would cause a decrease in recreation, parks, and/or trails or corridors when measured against specific standards provided in the Guidelines. The proposed Program is not expected to cause an increase in demand for recreational facilities (including regional and local parks and trails), as no housing or commercial and industrial development would be constructed, and no direct or indirect increase in population would result. The minimal number of construction personnel are expected to come from the local population or if from outside of the area would only reside on a temporary basis locally. Additionally, the Program would not directly impact any recreational facilities. Therefore, the Program would have no impact on recreational facilities. Since there are no project-specific impacts, cumulative impacts would not result.

**Mitigation and Residual Impacts.** No impact would result. Therefore, no mitigation is required.

# 36.0 INFORMATION SOURCES

## 36.1 AGENCIES AND INDIVIDUALS CONSULTED

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Finley, Kari, Senior Planner, County of Ventura Resource Management Agency, Planning Division, email communication with Cefe Munoz, Engineering Manager III, Ventura County Waterworks District No. 19, dated September 20, 2011.

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Aerial Photography Map

Expansive Soil Hazards Map

Fault Zone Map

FEMA Flood Zone Map

General Plan Land Use Map

Groundshaking Hazards Map

Important Farmland Inventory

Landslides Map

Liquefaction Hazard Map

Mineral Aggregate Resources Map

Oil Permits Map

Slope Percentage Map

USDA Soils Classification Map

Vegetation Alliances Map

Ventura County Flood Control District Jurisdiction Map (1994)

Zoning Map

2010 LCA Contracts Map

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## 37.0 LIST OF PREPARERS

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**Subconsultant to Padre Associates, Inc.**

Conejo Archaeological Consultants, Mary Maki, Principal Archaeologist

## SECTION D - MANDATORY FINDINGS OF SIGNIFICANCE

| MANDATORY FINDINGS OF SIGNIFICANCE | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☒ | ☐ | ☐ |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☒ | ☐ | ☐ |
| c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☒ | ☐ | ☐ |

## SECTION E - DETERMINATION

On the basis of this initial evaluation:

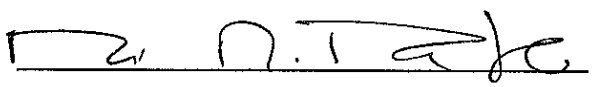
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature  Date 10/17/2011

R. Reddy Pakala, P.E.

Title Director, County of Ventura Water and Sanitation Department

# APPENDICES

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# AIR EMISSION DATA

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Project: VCWWD 19 Near-Term Projects
Date: 8/23/11

Daily one-way trips: 40
Miles per trip: 15

Percent Autos: 15
Percent LDT: 45
Percent MDT: 0
Percent HDT: 40
Sum 100

Title : Ventura County Subarea Summer CYr 2011
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/01/11 10:46:54
Scen Year: 2011 -- All model years in the range 1967 to 2011 selected
Season : Summer
Area : Ventura
********** 2011 -- Model Years 1967 to 2011 Inclusive -- Summer
Year:

County Average Ventura County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 5.419 | 0.055 | 0.185 | 0.077 | 5.561 | 0.064 | 0.087 | 0.125 | 5.437 | 0.08 | 0.14 | 0.096 | 6.962 | 0.109 | 0.081 | 0.141 | 3.955 | 0.246 | 0.163 | 0.236 | 3.955 | 0.176 | 0.237 | 0.212 | 5.981 | 0.486 | 0.202 | 0.272 | 16.104 | 3.597 | 1.103 | 1.239 | 5.981 |
| 30 | 4.613 | 0.044 | 0.158 | 0.063 | 4.735 | 0.052 | 0.075 | 0.104 | 4.629 | 0.064 | 0.12 | 0.077 | 5.931 | 0.086 | 0.069 | 0.113 | 3.038 | 0.188 | 0.14 | 0.183 | 3.038 | 0.134 | 0.203 | 0.173 | 4.605 | 0.369 | 0.173 | 0.222 | 12.435 | 2.763 | 0.899 | 1.001 | 4.605 |
| 35 | 4.112 | 0.037 | 0.139 | 0.053 | 4.221 | 0.043 | 0.066 | 0.09 | 4.126 | 0.053 | 0.105 | 0.065 | 5.29 | 0.072 | 0.061 | 0.096 | 2.432 | 0.15 | 0.122 | 0.149 | 2.432 | 0.107 | 0.178 | 0.145 | 3.694 | 0.291 | 0.152 | 0.188 | 10.008 | 2.212 | 0.746 | 0.827 | 3.694 |
| 40 | 3.839 | 0.032 | 0.124 | 0.048 | 3.941 | 0.038 | 0.059 | 0.082 | 3.852 | 0.047 | 0.094 | 0.058 | 4.94 | 0.063 | 0.054 | 0.086 | 2.029 | 0.125 | 0.11 | 0.125 | 2.029 | 0.089 | 0.159 | 0.126 | 3.09 | 0.24 | 0.136 | 0.164 | 8.396 | 1.847 | 0.646 | 0.712 | 3.09 |
| 45 | 3.755 | 0.03 | 0.114 | 0.045 | 3.854 | 0.036 | 0.054 | 0.078 | 3.768 | 0.044 | 0.086 | 0.054 | 4.832 | 0.059 | 0.05 | 0.081 | 1.767 | 0.108 | 0.1 | 0.11 | 1.767 | 0.077 | 0.146 | 0.113 | 2.696 | 0.207 | 0.124 | 0.147 | 7.344 | 1.608 | 0.596 | 0.652 | 2.696 |
| 50 | 3.847 | 0.03 | 0.107 | 0.045 | 3.949 | 0.035 | 0.05 | 0.079 | 3.86 | 0.043 | 0.081 | 0.054 | 4.95 | 0.058 | 0.047 | 0.08 | 1.606 | 0.098 | 0.094 | 0.1 | 1.606 | 0.07 | 0.136 | 0.104 | 2.454 | 0.187 | 0.116 | 0.136 | 6.698 | 1.462 | 0.599 | 0.647 | 2.454 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| 25 | 0.007 | 0.011 | 0.000 | | 0.011 | 0.010 | 0.001 | | 0.011 | 0.035 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.584 | 0.000 | 0.668 |
| 30 | 0.006 | 0.009 | 0.000 | | 0.009 | 0.008 | 0.001 | | 0.009 | 0.028 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.476 | 0.000 | 0.545 |
| 35 | 0.006 | 0.007 | 0.000 | | 0.008 | 0.006 | 0.001 | | 0.008 | 0.023 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.395 | 0.000 | 0.454 |
| 40 | 0.005 | 0.006 | 0.000 | | 0.008 | 0.006 | 0.000 | | 0.008 | 0.020 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.342 | 0.000 | 0.395 |
| 45 | 0.005 | 0.006 | 0.000 | | 0.008 | 0.005 | 0.000 | | 0.007 | 0.019 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.315 | 0.000 | 0.366 |
| 50 | 0.005 | 0.006 | 0.000 | | 0.008 | 0.005 | 0.000 | | 0.008 | 0.019 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.317 | 0.000 | 0.368 |

Pollutant Name: Carbon Monoxide Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 55.525 | 2.384 | 0.841 | 2.599 | 54.951 | 2.987 | 0.638 | 3.457 | 53.755 | 3.279 | 0.76 | 3.42 | 96.841 | 3.607 | 0.62 | 4.025 | 81.986 | 2.767 | 0.85 | 2.52 | 81.986 | 2.152 | 1.005 | 1.775 | 122.979 | 7.438 | 1.806 | 3.209 | 450.903 | 41.581 | 5.067 | 7.217 | 122.979 |
| 30 | 49.778 | 2.188 | 0.695 | 2.38 | 49.264 | 2.733 | 0.528 | 3.15 | 48.191 | 3.003 | 0.629 | 3.129 | 86.817 | 3.303 | 0.513 | 3.677 | 67.969 | 2.294 | 0.703 | 2.089 | 67.969 | 1.784 | 0.831 | 1.471 | 101.953 | 6.166 | 1.494 | 2.658 | 373.812 | 34.472 | 4.34 | 6.115 | 101.953 |
| 35 | 46.996 | 2.02 | 0.602 | 2.202 | 46.51 | 2.524 | 0.457 | 2.918 | 45.497 | 2.771 | 0.544 | 2.889 | 81.965 | 3.052 | 0.444 | 3.406 | 59.534 | 2.01 | 0.609 | 1.828 | 59.534 | 1.563 | 0.72 | 1.284 | 89.301 | 5.401 | 1.293 | 2.316 | 327.423 | 30.194 | 3.753 | 5.311 | 89.301 |
| 40 | 46.726 | 1.877 | 0.545 | 2.058 | 46.243 | 2.353 | 0.414 | 2.752 | 45.236 | 2.575 | 0.493 | 2.694 | 81.494 | 2.847 | 0.402 | 3.2 | 55.094 | 1.86 | 0.552 | 1.689 | 55.094 | 1.446 | 0.652 | 1.182 | 82.642 | 4.998 | 1.172 | 2.123 | 303.006 | 27.942 | 3.306 | 4.756 | 82.642 |
| 45 | 48.924 | 1.756 | 0.517 | 1.947 | 48.419 | 2.216 | 0.393 | 2.645 | 47.365 | 2.413 | 0.467 | 2.538 | 85.329 | 2.682 | 0.381 | 3.053 | 53.869 | 1.818 | 0.523 | 1.648 | 53.869 | 1.414 | 0.618 | 1.147 | 80.803 | 4.887 | 1.111 | 2.047 | 296.264 | 27.321 | 2.998 | 4.428 | 80.803 |
| 50 | 53.948 | 1.654 | 0.513 | 1.866 | 53.39 | 2.112 | 0.39 | 2.6 | 52.228 | 2.28 | 0.464 | 2.42 | 94.089 | 2.556 | 0.378 | 2.968 | 55.648 | 1.878 | 0.519 | 1.698 | 55.648 | 1.461 | 0.613 | 1.173 | 83.472 | 5.049 | 1.102 | 2.079 | 306.051 | 28.223 | 2.83 | 4.321 | 83.472 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| 25 | 0.076 | 0.469 | 0.000 | | 0.108 | 0.446 | 0.005 | | 0.106 | 1.424 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.681 | 0.000 | 5.314 |
| 30 | 0.068 | 0.430 | 0.000 | | 0.097 | 0.408 | 0.004 | | 0.095 | 1.304 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.296 | 0.000 | 4.702 |
| 35 | 0.064 | 0.397 | 0.000 | | 0.091 | 0.377 | 0.004 | | 0.089 | 1.203 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.986 | 0.000 | 4.211 |
| 40 | 0.064 | 0.369 | 0.000 | | 0.091 | 0.351 | 0.003 | | 0.089 | 1.118 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.749 | 0.000 | 3.834 |
| 45 | 0.067 | 0.345 | 0.000 | | 0.095 | 0.331 | 0.003 | | 0.093 | 1.048 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.586 | 0.000 | 3.568 |
| 50 | 0.074 | 0.325 | 0.000 | | 0.105 | 0.315 | 0.003 | | 0.103 | 0.990 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.497 | 0.000 | 3.412 |

Pollutant Name: Carbon Dioxide Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 549.537 | 417.791 | 357.689 | 418.221 | 543.741 | 519.789 | 346.865 | 512.941 | 544.363 | 519.153 | 352.115 | 519.018 | 687.207 | 710.444 | 346.528 | 709.272 | 685.012 | 685.012 | 519.792 | 650.378 | 685.012 | 685.012 | 527.557 | 610.608 | 685.012 | 685.012 | 1505 | 1346.77 | 685.012 | 685.012 | 2042.685 | 1972.886 | 685.012 |
| 30 | 482.739 | 367.051 | 357.689 | 367.508 | 477.261 | 456.628 | 346.865 | 452.34 | 477.811 | 456.07 | 352.115 | 456.003 | 603.264 | 624.122 | 346.528 | 623.214 | 567.895 | 567.895 | 519.792 | 557.811 | 567.895 | 567.895 | 527.557 | 548.834 | 567.895 | 567.895 | 1505 | 1324.17 | 567.895 | 567.895 | 1924.234 | 1854.504 | 567.895 |
| 35 | 440.107 | 335.012 | 357.689 | 335.482 | 434.773 | 416.723 | 346.865 | 414.047 | 435.277 | 416.215 | 352.115 | 416.19 | 549.626 | 569.588 | 346.528 | 568.844 | 497.421 | 497.421 | 519.792 | 502.11 | 497.421 | 497.421 | 527.557 | 511.661 | 497.421 | 497.421 | 1505 | 1310.571 | 497.421 | 497.421 | 1827.808 | 1759.412 | 497.421 |
| 40 | 416.358 | 317.493 | 357.689 | 317.97 | 411.031 | 394.881 | 346.865 | 393.083 | 411.51 | 394.401 | 352.115 | 394.398 | 519.668 | 539.744 | 346.528 | 539.086 | 460.326 | 460.326 | 519.792 | 472.792 | 460.327 | 460.327 | 527.557 | 492.096 | 460.326 | 460.326 | 1505 | 1303.413 | 460.326 | 460.326 | 1753.407 | 1686.929 | 460.326 |
| 45 | 408.678 | 312.225 | 357.689 | 312.702 | 403.237 | 388.284 | 346.865 | 386.744 | 403.709 | 387.814 | 352.115 | 387.815 | 509.856 | 530.737 | 346.528 | 530.102 | 450.085 | 450.085 | 519.792 | 464.697 | 450.085 | 450.085 | 527.557 | 486.694 | 450.085 | 450.085 | 1505 | 1301.437 | 450.085 | 450.085 | 1701.03 | 1636.719 | 450.085 |
| 50 | 416.146 | 318.359 | 357.689 | 318.83 | 410.479 | 395.882 | 346.865 | 394.026 | 410.961 | 395.404 | 352.115 | 395.395 | 519.038 | 541.13 | 346.528 | 540.46 | 464.953 | 464.953 | 519.792 | 476.448 | 464.953 | 464.953 | 527.557 | 494.536 | 464.953 | 464.953 | 1505 | 1304.306 | 464.953 | 464.953 | 1670.679 | 1608.692 | 464.953 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.750 | 82.135 | 0.163 | | 1.068 | 77.605 | 2.726 | | 1.069 | 225.391 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1080.786 | 0.000 | 1471.692 |
| 30 | 0.659 | 72.159 | 0.163 | | 0.938 | 68.175 | 2.726 | | 0.939 | 198.003 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1018.113 | 0.000 | 1361.874 |
| 35 | 0.601 | 65.861 | 0.163 | | 0.854 | 62.217 | 2.726 | | 0.855 | 180.700 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 967.094 | 0.000 | 1281.070 |
| 40 | 0.568 | 62.417 | 0.163 | | 0.807 | 58.956 | 2.726 | | 0.808 | 171.229 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 927.729 | 0.000 | 1225.403 |
| 45 | 0.558 | 61.381 | 0.163 | | 0.792 | 57.971 | 2.726 | | 0.793 | 168.370 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 900.016 | 0.000 | 1192.769 |
| 50 | 0.568 | 62.587 | 0.163 | | 0.806 | 59.105 | 2.726 | | 0.807 | 171.665 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 883.957 | 0.000 | 1182.385 |

Pollutant Name: Oxides of Nitrogen  Temperature: 75F  Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 3.311 | 0.157 | 1.107 | 0.171 | 3.274 | 0.192 | 1.14 | 0.265 | 3.209 | 0.315 | 1.111 | 0.324 | 5.255 | 0.402 | 1.146 | 0.426 | 1.653 | 0.458 | 2.885 | 0.969 | 1.653 | 0.427 | 3.689 | 1.971 | 2.48 | 1.616 | 5.526 | 4.774 | 14.272 | 7.759 | 11.931 | 11.72 | 2.48 |
| 30 | 3.463 | 0.147 | 1.058 | 0.162 | 3.424 | 0.18 | 1.09 | 0.252 | 3.356 | 0.293 | 1.063 | 0.303 | 5.496 | 0.375 | 1.096 | 0.401 | 1.723 | 0.477 | 2.759 | 0.958 | 1.723 | 0.445 | 3.527 | 1.904 | 2.584 | 1.684 | 5.284 | 4.592 | 14.874 | 8.086 | 11.418 | 11.251 | 2.584 |
| 35 | 3.617 | 0.14 | 1.048 | 0.155 | 3.577 | 0.172 | 1.08 | 0.246 | 3.505 | 0.279 | 1.053 | 0.289 | 5.74 | 0.358 | 1.086 | 0.385 | 1.792 | 0.496 | 2.734 | 0.968 | 1.792 | 0.463 | 3.495 | 1.898 | 2.689 | 1.752 | 5.235 | 4.566 | 15.475 | 8.413 | 11.031 | 10.901 | 2.689 |
| 40 | 3.772 | 0.135 | 1.076 | 0.152 | 3.73 | 0.167 | 1.109 | 0.245 | 3.656 | 0.271 | 1.081 | 0.282 | 5.987 | 0.348 | 1.115 | 0.376 | 1.862 | 0.516 | 2.806 | 0.999 | 1.862 | 0.481 | 3.588 | 1.952 | 2.793 | 1.82 | 5.375 | 4.691 | 16.077 | 8.74 | 10.768 | 10.669 | 2.793 |
| 45 | 3.929 | 0.134 | 1.145 | 0.151 | 3.886 | 0.166 | 1.18 | 0.248 | 3.808 | 0.269 | 1.15 | 0.28 | 6.236 | 0.346 | 1.186 | 0.375 | 1.932 | 0.535 | 2.985 | 1.051 | 1.932 | 0.499 | 3.816 | 2.069 | 2.898 | 1.888 | 5.717 | 4.981 | 16.678 | 9.067 | 10.63 | 10.555 | 2.898 |
| 50 | 4.087 | 0.135 | 1.262 | 0.153 | 4.042 | 0.169 | 1.3 | 0.257 | 3.961 | 0.272 | 1.267 | 0.283 | 6.487 | 0.351 | 1.307 | 0.382 | 2.001 | 0.554 | 3.29 | 1.131 | 2.001 | 0.517 | 4.206 | 2.263 | 3.002 | 1.956 | 6.301 | 5.465 | 17.28 | 9.394 | 10.617 | 10.559 | 3.002 |

| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.005 | 0.031 | 0.001 | | 0.006 | 0.029 | 0.009 | | 0.006 | 0.137 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.313 | 0.000 | 6.536 |
| 30 | 0.005 | 0.029 | 0.000 | | 0.007 | 0.027 | 0.009 | | 0.007 | 0.127 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.041 | 0.000 | 6.251 |
| 35 | 0.005 | 0.028 | 0.000 | | 0.007 | 0.026 | 0.008 | | 0.007 | 0.121 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.837 | 0.000 | 6.039 |
| 40 | 0.005 | 0.027 | 0.000 | | 0.007 | 0.025 | 0.009 | | 0.007 | 0.118 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.697 | 0.000 | 5.895 |
| 45 | 0.005 | 0.026 | 0.001 | | 0.008 | 0.025 | 0.009 | | 0.007 | 0.117 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.624 | 0.000 | 5.823 |
| 50 | 0.006 | 0.027 | 0.001 | | 0.008 | 0.025 | 0.010 | | 0.008 | 0.118 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.617 | 0.000 | 5.819 |

Pollutant Name: PM10 Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.035 | 0.011 | 0.138 | 0.011 | 0.035 | 0.012 | 0.057 | 0.014 | 0.035 | 0.026 | 0.1 | 0.026 | 0.036 | 0.026 | 0.052 | 0.026 | 0.024 | 0.009 | 0.041 | 0.016 | 0.024 | 0.01 | 0.054 | 0.031 | 0.024 | 0.011 | 0.257 | 0.21 | 0.024 | 0.025 | 0.517 | 0.491 | 0.024 |
| 30 | 0.03 | 0.009 | 0.118 | 0.009 | 0.03 | 0.01 | 0.049 | 0.012 | 0.03 | 0.021 | 0.086 | 0.021 | 0.031 | 0.021 | 0.045 | 0.021 | 0.019 | 0.007 | 0.035 | 0.013 | 0.019 | 0.008 | 0.047 | 0.026 | 0.019 | 0.008 | 0.221 | 0.18 | 0.019 | 0.019 | 0.447 | 0.425 | 0.019 |
| 35 | 0.027 | 0.007 | 0.104 | 0.008 | 0.026 | 0.008 | 0.043 | 0.01 | 0.027 | 0.018 | 0.075 | 0.018 | 0.028 | 0.018 | 0.039 | 0.018 | 0.015 | 0.006 | 0.031 | 0.011 | 0.015 | 0.006 | 0.041 | 0.023 | 0.015 | 0.007 | 0.193 | 0.157 | 0.015 | 0.015 | 0.403 | 0.383 | 0.015 |
| 40 | 0.025 | 0.007 | 0.093 | 0.007 | 0.025 | 0.008 | 0.038 | 0.009 | 0.025 | 0.016 | 0.068 | 0.016 | 0.026 | 0.016 | 0.035 | 0.016 | 0.013 | 0.005 | 0.028 | 0.01 | 0.013 | 0.005 | 0.037 | 0.02 | 0.013 | 0.006 | 0.173 | 0.141 | 0.013 | 0.013 | 0.385 | 0.366 | 0.013 |
| 45 | 0.024 | 0.006 | 0.085 | 0.006 | 0.024 | 0.007 | 0.035 | 0.008 | 0.025 | 0.015 | 0.062 | 0.015 | 0.025 | 0.015 | 0.032 | 0.015 | 0.011 | 0.004 | 0.025 | 0.009 | 0.011 | 0.005 | 0.034 | 0.018 | 0.011 | 0.005 | 0.159 | 0.129 | 0.011 | 0.011 | 0.393 | 0.373 | 0.011 |
| 50 | 0.025 | 0.006 | 0.08 | 0.006 | 0.025 | 0.007 | 0.033 | 0.008 | 0.025 | 0.014 | 0.058 | 0.015 | 0.026 | 0.015 | 0.03 | 0.015 | 0.01 | 0.004 | 0.024 | 0.008 | 0.01 | 0.004 | 0.031 | 0.017 | 0.01 | 0.005 | 0.148 | 0.121 | 0.01 | 0.01 | 0.426 | 0.405 | 0.01 |

| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.002 | 0.000 | | 0.000 | 0.002 | 0.000 | | 0.000 | 0.011 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.274 | 0.000 | 0.289 |
| 30 | 0.000 | 0.002 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.237 | 0.000 | 0.249 |
| 35 | 0.000 | 0.001 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.008 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.213 | 0.000 | 0.224 |
| 40 | 0.000 | 0.001 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.007 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.204 | 0.000 | 0.214 |
| 45 | 0.000 | 0.001 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.007 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.208 | 0.000 | 0.217 |
| 50 | 0.000 | 0.001 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.006 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.225 | 0.000 | 0.234 |

Pollutant Name: PM10 - Tire Wear Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 30 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 35 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 40 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 45 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 50 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |

Pollutant Name: PM10 - Brake Wear Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 30 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 35 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 40 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 45 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 50 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |

| Pounds/day: tires & brakes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |
| 30 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |
| 35 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |
| 40 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |
| 45 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |
| 50 | 0.000 | 0.004 | 0.000 | | 0.000 | 0.003 | 0.000 | | 0.000 | 0.009 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.000 | 0.051 |

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 2.717 | 0.041 | 0 | 0.059 | 2.758 | 0.036 | 0 | 0.069 | 2.656 | 0.047 | 0 | 0.055 | 3.237 | 0.061 | 0 | 0.078 | 4.478 | 0.158 | 0 | 0.163 | 4.478 | 0.153 | 0 | 0.139 | 6.717 | 0.375 | 0 | 0.305 | 10.502 | 1.056 | 0 | 1.084 | 6.717 |
| 10 | 2.694 | 0.08 | 0 | 0.097 | 2.734 | 0.07 | 0 | 0.101 | 2.633 | 0.091 | 0 | 0.1 | 3.21 | 0.12 | 0 | 0.136 | 4.44 | 0.308 | 0 | 0.299 | 4.44 | 0.298 | 0 | 0.246 | 6.659 | 0.73 | 0 | 0.421 | 10.411 | 2.058 | 0 | 1.602 | 6.659 |
| 20 | 2.72 | 0.152 | 0 | 0.169 | 2.761 | 0.134 | 0 | 0.162 | 2.658 | 0.174 | 0 | 0.183 | 3.24 | 0.23 | 0 | 0.245 | 4.482 | 0.588 | 0 | 0.554 | 4.482 | 0.569 | 0 | 0.445 | 6.723 | 1.384 | 0 | 0.64 | 10.511 | 3.902 | 0 | 2.569 | 6.723 |
| 30 | 2.842 | 0.218 | 0 | 0.235 | 2.885 | 0.192 | 0 | 0.218 | 2.778 | 0.25 | 0 | 0.258 | 3.386 | 0.33 | 0 | 0.345 | 4.683 | 0.84 | 0 | 0.784 | 4.683 | 0.813 | 0 | 0.626 | 7.025 | 1.962 | 0 | 0.839 | 10.983 | 5.532 | 0 | 3.443 | 7.025 |
| 40 | 3.061 | 0.276 | 0 | 0.294 | 3.107 | 0.244 | 0 | 0.27 | 2.992 | 0.317 | 0 | 0.325 | 3.646 | 0.42 | 0 | 0.436 | 5.044 | 1.065 | 0 | 0.989 | 5.044 | 1.03 | 0 | 0.787 | 7.566 | 2.464 | 0 | 1.02 | 11.828 | 6.947 | 0 | 4.224 | 7.566 |
| 50 | 3.376 | 0.327 | 0 | 0.347 | 3.427 | 0.29 | 0 | 0.317 | 3.3 | 0.376 | 0 | 0.385 | 4.022 | 0.499 | 0 | 0.517 | 5.563 | 1.261 | 0 | 1.17 | 5.563 | 1.22 | 0 | 0.93 | 8.345 | 2.89 | 0 | 1.182 | 13.047 | 8.148 | 0 | 4.912 | 8.345 |
| 60 | 3.51 | 0.371 | 0 | 0.392 | 3.562 | 0.331 | 0 | 0.357 | 3.43 | 0.427 | 0 | 0.437 | 4.181 | 0.569 | 0 | 0.586 | 5.784 | 1.429 | 0 | 1.323 | 5.784 | 1.382 | 0 | 1.05 | 8.676 | 3.24 | 0 | 1.306 | 13.564 | 9.134 | 0 | 5.452 | 8.676 |
| 120 | 3.851 | 0.503 | 0 | 0.525 | 3.909 | 0.462 | 0 | 0.485 | 3.764 | 0.585 | 0 | 0.595 | 4.588 | 0.796 | 0 | 0.814 | 6.346 | 1.918 | 0 | 1.77 | 6.346 | 1.851 | 0 | 1.398 | 9.519 | 3.955 | 0 | 1.566 | 14.882 | 11.151 | 0 | 6.571 | 9.519 |
| 180 | 4.192 | 0.535 | 0 | 0.559 | 4.255 | 0.492 | 0 | 0.517 | 4.097 | 0.622 | 0 | 0.633 | 4.994 | 0.847 | 0 | 0.866 | 6.908 | 2.04 | 0 | 1.883 | 6.908 | 1.969 | 0 | 1.488 | 10.362 | 4.197 | 0 | 1.669 | 16.2 | 11.832 | 0 | 6.993 | 10.362 |
| 240 | 4.533 | 0.567 | 0 | 0.592 | 4.601 | 0.521 | 0 | 0.549 | 4.43 | 0.659 | 0 | 0.671 | 5.4 | 0.897 | 0 | 0.918 | 7.47 | 2.159 | 0 | 1.994 | 7.47 | 2.083 | 0 | 1.575 | 11.205 | 4.431 | 0 | 1.769 | 17.518 | 12.492 | 0 | 7.404 | 11.205 |
| 300 | 4.874 | 0.597 | 0 | 0.625 | 4.947 | 0.549 | 0 | 0.581 | 4.764 | 0.695 | 0 | 0.708 | 5.806 | 0.946 | 0 | 0.969 | 8.032 | 2.275 | 0 | 2.102 | 8.032 | 2.195 | 0 | 1.661 | 12.048 | 4.657 | 0 | 1.866 | 18.836 | 13.129 | 0 | 7.803 | 12.048 |
| 360 | 5.215 | 0.627 | 0 | 0.657 | 5.293 | 0.578 | 0 | 0.612 | 5.097 | 0.73 | 0 | 0.744 | 6.213 | 0.995 | 0 | 1.02 | 8.594 | 2.389 | 0 | 2.207 | 8.594 | 2.304 | 0 | 1.745 | 12.891 | 4.876 | 0 | 1.962 | 20.154 | 13.745 | 0 | 8.192 | 12.891 |
| 420 | 5.556 | 0.657 | 0 | 0.689 | 5.639 | 0.605 | 0 | 0.642 | 5.43 | 0.764 | 0 | 0.779 | 6.619 | 1.042 | 0 | 1.069 | 9.156 | 2.499 | 0 | 2.31 | 9.156 | 2.411 | 0 | 1.826 | 13.734 | 5.087 | 0 | 2.054 | 21.472 | 14.34 | 0 | 8.569 | 13.734 |
| 480 | 5.897 | 0.685 | 0 | 0.719 | 5.985 | 0.632 | 0 | 0.672 | 5.764 | 0.798 | 0 | 0.813 | 7.025 | 1.088 | 0 | 1.117 | 9.718 | 2.607 | 0 | 2.411 | 9.718 | 2.515 | 0 | 1.906 | 14.577 | 5.29 | 0 | 2.144 | 22.79 | 14.913 | 0 | 8.934 | 14.577 |
| 540 | 6.238 | 0.713 | 0 | 0.749 | 6.332 | 0.658 | 0 | 0.701 | 6.097 | 0.83 | 0 | 0.847 | 7.432 | 1.134 | 0 | 1.164 | 10.28 | 2.713 | 0 | 2.509 | 10.28 | 2.617 | 0 | 1.984 | 15.42 | 5.485 | 0 | 2.232 | 24.107 | 15.464 | 0 | 9.289 | 15.42 |
| 600 | 6.579 | 0.74 | 0 | 0.778 | 6.678 | 0.684 | 0 | 0.73 | 6.43 | 0.862 | 0 | 0.88 | 7.838 | 1.178 | 0 | 1.21 | 10.842 | 2.815 | 0 | 2.604 | 10.842 | 2.715 | 0 | 2.06 | 16.263 | 5.673 | 0 | 2.316 | 25.425 | 15.994 | 0 | 9.632 | 16.263 |
| 660 | 6.92 | 0.767 | 0 | 0.807 | 7.024 | 0.709 | 0 | 0.758 | 6.764 | 0.894 | 0 | 0.912 | 8.244 | 1.222 | 0 | 1.256 | 11.404 | 2.915 | 0 | 2.698 | 11.404 | 2.811 | 0 | 2.134 | 17.106 | 5.853 | 0 | 2.399 | 26.743 | 16.502 | 0 | 9.964 | 17.106 |
| 720 | 7.261 | 0.793 | 0 | 0.835 | 7.37 | 0.734 | 0 | 0.786 | 7.097 | 0.924 | 0 | 0.944 | 8.65 | 1.264 | 0 | 1.3 | 11.966 | 3.012 | 0 | 2.788 | 11.966 | 2.905 | 0 | 2.206 | 17.949 | 6.026 | 0 | 2.479 | 28.061 | 16.989 | 0 | 10.285 | 17.949 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0.000381535 | 0.007012 | 0 | | 0.000557 | 0.004897 | 0 | | 0.000537 | 0.018003 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0.031387 |

Pollutant Name: Carbon Monoxide Temperature: 75F Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 23.63 | 0.396 | 0 | 0.554 | 24.217 | 0.429 | 0 | 0.717 | 23.743 | 0.489 | 0 | 0.568 | 44.68 | 0.596 | 0 | 0.831 | 42.016 | 1.707 | 0 | 1.733 | 42.016 | 1.519 | 0 | 1.37 | 63.024 | 5.574 | 0 | 3.546 | 239.82 | 12.733 | 0 | 18.819 | 63.024 |
| 10 | 20.925 | 0.779 | 0 | 0.915 | 21.445 | 0.844 | 0 | 1.071 | 21.025 | 0.962 | 0 | 1.029 | 39.565 | 1.172 | 0 | 1.375 | 37.206 | 3.352 | 0 | 3.207 | 37.206 | 2.984 | 0 | 2.417 | 55.809 | 10.922 | 0 | 5.121 | 212.366 | 24.949 | 0 | 23.796 | 55.809 |
| 20 | 16.153 | 1.505 | 0 | 1.601 | 16.554 | 1.631 | 0 | 1.749 | 16.23 | 1.859 | 0 | 1.906 | 30.542 | 2.262 | 0 | 2.407 | 28.721 | 6.456 | 0 | 5.99 | 28.721 | 5.748 | 0 | 4.396 | 43.081 | 20.939 | 0 | 8.092 | 163.934 | 47.829 | 0 | 33.268 | 43.081 |
| 30 | 12.231 | 2.178 | 0 | 2.241 | 12.536 | 2.363 | 0 | 2.384 | 12.29 | 2.691 | 0 | 2.72 | 23.127 | 3.271 | 0 | 3.368 | 21.748 | 9.313 | 0 | 8.555 | 21.748 | 8.293 | 0 | 6.223 | 32.623 | 30.049 | 0 | 10.825 | 124.137 | 68.639 | 0 | 42.099 | 32.623 |
| 40 | 9.161 | 2.798 | 0 | 2.834 | 9.389 | 3.039 | 0 | 2.979 | 9.205 | 3.457 | 0 | 3.472 | 17.322 | 4.199 | 0 | 4.256 | 16.289 | 11.923 | 0 | 10.901 | 16.289 | 10.618 | 0 | 7.898 | 24.433 | 38.253 | 0 | 13.319 | 92.975 | 87.379 | 0 | 50.29 | 24.433 |
| 50 | 6.941 | 3.365 | 0 | 3.381 | 7.114 | 3.658 | 0 | 3.532 | 6.974 | 4.158 | 0 | 4.162 | 13.125 | 5.046 | 0 | 5.073 | 12.342 | 14.285 | 0 | 13.03 | 12.342 | 12.724 | 0 | 9.421 | 18.513 | 45.552 | 0 | 15.574 | 70.447 | 104.051 | 0 | 57.84 | 18.513 |
| 60 | 5.572 | 3.88 | 0 | 3.882 | 5.711 | 4.222 | 0 | 4.043 | 5.599 | 4.794 | 0 | 4.79 | 10.536 | 5.811 | 0 | 5.817 | 9.908 | 16.4 | 0 | 14.94 | 9.908 | 14.61 | 0 | 10.792 | 14.862 | 51.944 | 0 | 17.591 | 56.554 | 118.652 | 0 | 64.749 | 14.862 |
| 120 | 15.023 | 5.732 | 0 | 5.781 | 15.396 | 6.276 | 0 | 6.1 | 15.095 | 7.083 | 0 | 7.1 | 28.405 | 8.521 | 0 | 8.6 | 26.712 | 23.556 | 0 | 21.513 | 26.712 | 21.011 | 0 | 15.595 | 40.067 | 71.215 | 0 | 24.649 | 152.466 | 162.672 | 0 | 92.576 | 40.067 |
| 180 | 23.737 | 6.118 | 0 | 6.223 | 24.327 | 6.719 | 0 | 6.633 | 23.851 | 7.56 | 0 | 7.605 | 44.882 | 9.065 | 0 | 9.228 | 42.206 | 24.813 | 0 | 22.723 | 42.206 | 22.146 | 0 | 16.522 | 63.31 | 73.297 | 0 | 25.965 | 240.908 | 167.427 | 0 | 99.547 | 63.31 |
| 240 | 31.528 | 6.475 | 0 | 6.63 | 32.312 | 7.127 | 0 | 7.12 | 31.679 | 8.002 | 0 | 8.071 | 59.613 | 9.57 | 0 | 9.808 | 56.059 | 26.003 | 0 | 23.864 | 56.059 | 23.218 | 0 | 17.394 | 84.089 | 75.447 | 0 | 27.238 | 319.977 | 172.339 | 0 | 106.124 | 84.089 |
| 300 | 38.395 | 6.803 | 0 | 7.002 | 39.35 | 7.5 | 0 | 7.561 | 38.579 | 8.408 | 0 | 8.499 | 72.598 | 10.037 | 0 | 10.341 | 68.269 | 27.126 | 0 | 24.937 | 68.269 | 24.229 | 0 | 18.21 | 102.404 | 77.667 | 0 | 28.467 | 389.673 | 177.408 | 0 | 112.307 | 102.404 |
| 360 | 44.339 | 7.102 | 0 | 7.339 | 45.441 | 7.838 | 0 | 7.958 | 44.551 | 8.778 | 0 | 8.887 | 83.836 | 10.466 | 0 | 10.826 | 78.838 | 28.182 | 0 | 25.942 | 78.838 | 25.177 | 0 | 18.971 | 118.257 | 79.954 | 0 | 29.652 | 449.995 | 182.634 | 0 | 118.095 | 118.257 |
| 420 | 49.359 | 7.372 | 0 | 7.641 | 50.586 | 8.141 | 0 | 8.31 | 49.595 | 9.111 | 0 | 9.236 | 93.328 | 10.856 | 0 | 11.264 | 87.764 | 29.17 | 0 | 26.879 | 87.764 | 26.064 | 0 | 19.676 | 131.646 | 82.31 | 0 | 30.793 | 500.944 | 188.016 | 0 | 123.489 | 131.646 |
| 480 | 53.456 | 7.613 | 0 | 7.907 | 54.784 | 8.408 | 0 | 8.616 | 53.711 | 9.409 | 0 | 9.547 | 101.074 | 11.208 | 0 | 11.655 | 95.048 | 30.091 | 0 | 27.747 | 95.048 | 26.888 | 0 | 20.325 | 142.571 | 84.735 | 0 | 31.891 | 542.519 | 193.555 | 0 | 128.489 | 142.571 |
| 540 | 56.628 | 7.825 | 0 | 8.139 | 58.036 | 8.642 | 0 | 8.877 | 56.899 | 9.671 | 0 | 9.818 | 107.073 | 11.521 | 0 | 11.998 | 100.689 | 30.945 | 0 | 28.547 | 100.689 | 27.65 | 0 | 20.919 | 151.034 | 87.229 | 0 | 32.944 | 574.721 | 199.251 | 0 | 133.095 | 151.034 |
| 600 | 58.878 | 8.008 | 0 | 8.335 | 60.341 | 8.84 | 0 | 9.093 | 59.159 | 9.897 | 0 | 10.051 | 111.326 | 11.796 | 0 | 12.293 | 104.689 | 31.732 | 0 | 29.279 | 104.689 | 28.351 | 0 | 21.458 | 157.033 | 89.791 | 0 | 33.954 | 597.55 | 205.103 | 0 | 137.306 | 157.033 |
| 660 | 60.204 | 8.162 | 0 | 8.497 | 61.7 | 9.003 | 0 | 9.264 | 60.491 | 10.087 | 0 | 10.244 | 113.833 | 12.033 | 0 | 12.541 | 107.046 | 32.451 | 0 | 29.943 | 107.046 | 28.989 | 0 | 21.941 | 160.569 | 92.422 | 0 | 34.92 | 611.005 | 211.113 | 0 | 141.124 | 160.569 |
| 720 | 60.606 | 8.286 | 0 | 8.623 | 62.112 | 9.131 | 0 | 9.39 | 60.895 | 10.241 | 0 | 10.399 | 114.594 | 12.231 | 0 | 12.742 | 107.761 | 33.103 | 0 | 30.538 | 107.761 | 29.565 | 0 | 22.368 | 161.642 | 95.121 | 0 | 35.842 | 615.087 | 217.279 | 0 | 144.546 | 161.642 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0.002160423 | 0.080183 | 0 | | 0.003186 | 0.066877 | 0 | | 0.003124 | 0.218812 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0.3743422 |

Pollutant Name: Oxides of Nitrogen  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.045 | 0.194 | 0 | 0.2 | 1.045 | 0.211 | 0 | 0.211 | 1.029 | 0.347 | 0 | 0.349 | 1.702 | 0.425 | 0 | 0.43 | 0.53 | 1.37 | 0 | 1.247 | 0.53 | 1.366 | 0 | 1.007 | 0.795 | 1.458 | 0 | 0.504 | 3.086 | 3.989 | 0 | 2.237 | 0.795 |
| 10 | 1.136 | 0.224 | 0 | 0.229 | 1.136 | 0.235 | 0 | 0.236 | 1.118 | 0.393 | 0 | 0.395 | 1.85 | 0.481 | 0 | 0.486 | 0.576 | 1.625 | 0 | 1.478 | 0.576 | 1.641 | 0 | 1.209 | 0.864 | 2.197 | 0 | 0.75 | 3.354 | 6.01 | 0 | 3.305 | 0.864 |
| 20 | 1.301 | 0.276 | 0 | 0.282 | 1.302 | 0.279 | 0 | 0.279 | 1.281 | 0.476 | 0 | 0.478 | 2.119 | 0.58 | 0 | 0.586 | 0.66 | 2.075 | 0 | 1.888 | 0.66 | 2.126 | 0 | 1.566 | 0.99 | 3.495 | 0 | 1.183 | 3.842 | 9.56 | 0 | 5.181 | 0.99 |
| 30 | 1.444 | 0.319 | 0 | 0.326 | 1.445 | 0.315 | 0 | 0.315 | 1.422 | 0.545 | 0 | 0.547 | 2.352 | 0.662 | 0 | 0.669 | 0.732 | 2.447 | 0 | 2.226 | 0.732 | 2.526 | 0 | 1.86 | 1.099 | 4.552 | 0 | 1.536 | 4.265 | 12.452 | 0 | 6.71 | 1.099 |
| 40 | 1.565 | 0.353 | 0 | 0.36 | 1.566 | 0.345 | 0 | 0.344 | 1.541 | 0.599 | 0 | 0.602 | 2.549 | 0.727 | 0 | 0.735 | 0.794 | 2.74 | 0 | 2.492 | 0.794 | 2.84 | 0 | 2.091 | 1.191 | 5.369 | 0 | 1.809 | 4.623 | 14.688 | 0 | 7.894 | 1.191 |
| 50 | 1.664 | 0.378 | 0 | 0.386 | 1.665 | 0.367 | 0 | 0.366 | 1.638 | 0.64 | 0 | 0.642 | 2.711 | 0.776 | 0 | 0.784 | 0.844 | 2.953 | 0 | 2.686 | 0.844 | 3.069 | 0 | 2.259 | 1.266 | 5.946 | 0 | 2.002 | 4.915 | 16.266 | 0 | 8.732 | 1.266 |
| 60 | 1.741 | 0.394 | 0 | 0.403 | 1.742 | 0.381 | 0 | 0.381 | 1.714 | 0.667 | 0 | 0.669 | 2.836 | 0.808 | 0 | 0.817 | 0.883 | 3.088 | 0 | 2.809 | 0.883 | 3.211 | 0 | 2.364 | 1.325 | 6.283 | 0 | 2.115 | 5.143 | 17.186 | 0 | 9.224 | 1.325 |
| 120 | 1.745 | 0.414 | 0 | 0.422 | 1.746 | 0.404 | 0 | 0.403 | 1.718 | 0.703 | 0 | 0.705 | 2.842 | 0.853 | 0 | 0.861 | 0.885 | 3.213 | 0 | 2.923 | 0.885 | 3.331 | 0 | 2.452 | 1.328 | 6.305 | 0 | 2.122 | 5.154 | 17.245 | 0 | 9.255 | 1.328 |
| 180 | 1.703 | 0.412 | 0 | 0.42 | 1.704 | 0.403 | 0 | 0.401 | 1.677 | 0.7 | 0 | 0.703 | 2.775 | 0.85 | 0 | 0.858 | 0.864 | 3.203 | 0 | 2.913 | 0.864 | 3.32 | 0 | 2.444 | 1.296 | 6.281 | 0 | 2.114 | 5.031 | 17.182 | 0 | 9.216 | 1.296 |
| 240 | 1.648 | 0.41 | 0 | 0.417 | 1.649 | 0.4 | 0 | 0.397 | 1.623 | 0.695 | 0 | 0.698 | 2.685 | 0.844 | 0 | 0.851 | 0.836 | 3.182 | 0 | 2.894 | 0.836 | 3.299 | 0 | 2.428 | 1.254 | 6.246 | 0 | 2.101 | 4.868 | 17.085 | 0 | 9.157 | 1.254 |
| 300 | 1.579 | 0.405 | 0 | 0.412 | 1.58 | 0.396 | 0 | 0.392 | 1.555 | 0.688 | 0 | 0.69 | 2.573 | 0.835 | 0 | 0.842 | 0.801 | 3.15 | 0 | 2.865 | 0.801 | 3.267 | 0 | 2.404 | 1.202 | 6.198 | 0 | 2.084 | 4.665 | 16.955 | 0 | 9.079 | 1.202 |
| 360 | 1.497 | 0.4 | 0 | 0.406 | 1.498 | 0.39 | 0 | 0.386 | 1.474 | 0.678 | 0 | 0.68 | 2.439 | 0.823 | 0 | 0.829 | 0.759 | 3.108 | 0 | 2.826 | 0.759 | 3.224 | 0 | 2.373 | 1.139 | 6.138 | 0 | 2.062 | 4.422 | 16.791 | 0 | 8.981 | 1.139 |
| 420 | 1.401 | 0.392 | 0 | 0.398 | 1.403 | 0.382 | 0 | 0.377 | 1.38 | 0.665 | 0 | 0.667 | 2.283 | 0.807 | 0 | 0.813 | 0.711 | 3.055 | 0 | 2.778 | 0.711 | 3.171 | 0 | 2.333 | 1.066 | 6.066 | 0 | 2.036 | 4.14 | 16.594 | 0 | 8.864 | 1.066 |
| 480 | 1.292 | 0.384 | 0 | 0.389 | 1.293 | 0.373 | 0 | 0.367 | 1.272 | 0.65 | 0 | 0.651 | 2.105 | 0.788 | 0 | 0.793 | 0.656 | 2.992 | 0 | 2.721 | 0.656 | 3.107 | 0 | 2.286 | 0.983 | 5.982 | 0 | 2.006 | 3.817 | 16.363 | 0 | 8.727 | 0.983 |
| 540 | 1.17 | 0.373 | 0 | 0.378 | 1.171 | 0.362 | 0 | 0.355 | 1.152 | 0.632 | 0 | 0.633 | 1.905 | 0.766 | 0 | 0.77 | 0.593 | 2.918 | 0 | 2.653 | 0.593 | 3.032 | 0 | 2.231 | 0.89 | 5.886 | 0 | 1.972 | 3.455 | 16.099 | 0 | 8.571 | 0.89 |
| 600 | 1.033 | 0.362 | 0 | 0.365 | 1.034 | 0.35 | 0 | 0.342 | 1.018 | 0.611 | 0 | 0.612 | 1.684 | 0.741 | 0 | 0.744 | 0.524 | 2.834 | 0 | 2.576 | 0.524 | 2.947 | 0 | 2.168 | 0.786 | 5.777 | 0 | 1.933 | 3.053 | 15.802 | 0 | 8.395 | 0.786 |
| 660 | 0.884 | 0.349 | 0 | 0.351 | 0.885 | 0.336 | 0 | 0.327 | 0.87 | 0.588 | 0 | 0.588 | 1.44 | 0.713 | 0 | 0.714 | 0.448 | 2.739 | 0 | 2.49 | 0.448 | 2.852 | 0 | 2.098 | 0.673 | 5.656 | 0 | 1.89 | 2.611 | 15.471 | 0 | 8.2 | 0.673 |
| 720 | 0.721 | 0.334 | 0 | 0.336 | 0.721 | 0.32 | 0 | 0.31 | 0.71 | 0.562 | 0 | 0.562 | 1.174 | 0.681 | 0 | 0.682 | 0.366 | 2.633 | 0 | 2.394 | 0.366 | 2.746 | 0 | 2.019 | 0.548 | 5.522 | 0 | 1.842 | 2.129 | 15.106 | 0 | 7.986 | 0.548 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0.000154999 | 0.0054 | 0 | | 0.000223 | 0.004011 | 0 | | 0.00022 | 0.02026 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0302691 |

Pollutant Name: PM10  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.012 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.002 | 0 | 0.002 | 0.011 |
| 10 | 0.01 | 0.001 | 0 | 0.001 | 0.01 | 0.001 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.002 | 0.01 | 0.002 | 0 | 0.002 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.004 | 0 | 0.002 | 0.01 |
| 20 | 0.008 | 0.002 | 0 | 0.002 | 0.008 | 0.002 | 0 | 0.002 | 0.008 | 0.005 | 0 | 0.005 | 0.008 | 0.005 | 0 | 0.005 | 0.008 | 0.003 | 0 | 0.003 | 0.008 | 0.003 | 0 | 0.002 | 0.008 | 0.005 | 0 | 0.002 | 0.008 | 0.007 | 0 | 0.004 | 0.008 |
| 30 | 0.006 | 0.003 | 0 | 0.003 | 0.006 | 0.003 | 0 | 0.003 | 0.006 | 0.007 | 0 | 0.007 | 0.006 | 0.007 | 0 | 0.007 | 0.006 | 0.004 | 0 | 0.004 | 0.006 | 0.005 | 0 | 0.004 | 0.006 | 0.006 | 0 | 0.002 | 0.006 | 0.01 | 0 | 0.005 | 0.006 |
| 40 | 0.004 | 0.004 | 0 | 0.004 | 0.004 | 0.004 | 0 | 0.004 | 0.004 | 0.009 | 0 | 0.009 | 0.004 | 0.009 | 0 | 0.009 | 0.004 | 0.005 | 0 | 0.005 | 0.004 | 0.006 | 0 | 0.005 | 0.004 | 0.008 | 0 | 0.003 | 0.004 | 0.012 | 0 | 0.007 | 0.004 |
| 50 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.01 | 0 | 0.01 | 0.003 | 0.01 | 0 | 0.01 | 0.003 | 0.006 | 0 | 0.006 | 0.003 | 0.007 | 0 | 0.005 | 0.003 | 0.01 | 0 | 0.003 | 0.003 | 0.015 | 0 | 0.008 | 0.003 |
| 60 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.006 | 0 | 0.005 | 0.003 | 0.012 | 0 | 0.012 | 0.003 | 0.012 | 0 | 0.012 | 0.003 | 0.007 | 0 | 0.007 | 0.003 | 0.008 | 0 | 0.006 | 0.003 | 0.011 | 0 | 0.004 | 0.003 | 0.017 | 0 | 0.009 | 0.003 |
| 120 | 0.007 | 0.008 | 0 | 0.008 | 0.007 | 0.008 | 0 | 0.008 | 0.007 | 0.018 | 0 | 0.018 | 0.007 | 0.018 | 0 | 0.018 | 0.007 | 0.011 | 0 | 0.01 | 0.007 | 0.012 | 0 | 0.009 | 0.007 | 0.015 | 0 | 0.005 | 0.007 | 0.023 | 0 | 0.012 | 0.007 |
| 180 | 0.011 | 0.009 | 0 | 0.009 | 0.011 | 0.009 | 0 | 0.009 | 0.011 | 0.019 | 0 | 0.019 | 0.012 | 0.019 | 0 | 0.019 | 0.011 | 0.011 | 0 | 0.01 | 0.011 | 0.013 | 0 | 0.009 | 0.011 | 0.016 | 0 | 0.006 | 0.011 | 0.024 | 0 | 0.013 | 0.011 |
| 240 | 0.015 | 0.009 | 0 | 0.009 | 0.015 | 0.01 | 0 | 0.009 | 0.015 | 0.02 | 0 | 0.02 | 0.015 | 0.02 | 0 | 0.02 | 0.015 | 0.012 | 0 | 0.011 | 0.015 | 0.013 | 0 | 0.01 | 0.015 | 0.016 | 0 | 0.006 | 0.015 | 0.024 | 0 | 0.013 | 0.015 |
| 300 | 0.018 | 0.01 | 0 | 0.01 | 0.018 | 0.01 | 0 | 0.01 | 0.018 | 0.022 | 0 | 0.022 | 0.019 | 0.021 | 0 | 0.021 | 0.018 | 0.012 | 0 | 0.011 | 0.018 | 0.014 | 0 | 0.01 | 0.018 | 0.017 | 0 | 0.006 | 0.018 | 0.025 | 0 | 0.014 | 0.018 |
| 360 | 0.021 | 0.01 | 0 | 0.01 | 0.021 | 0.011 | 0 | 0.01 | 0.021 | 0.023 | 0 | 0.023 | 0.022 | 0.022 | 0 | 0.022 | 0.021 | 0.013 | 0 | 0.012 | 0.021 | 0.014 | 0 | 0.011 | 0.021 | 0.017 | 0 | 0.006 | 0.021 | 0.026 | 0 | 0.014 | 0.021 |
| 420 | 0.023 | 0.01 | 0 | 0.011 | 0.023 | 0.011 | 0 | 0.011 | 0.024 | 0.024 | 0 | 0.023 | 0.024 | 0.023 | 0 | 0.023 | 0.023 | 0.013 | 0 | 0.012 | 0.023 | 0.015 | 0 | 0.011 | 0.023 | 0.018 | 0 | 0.006 | 0.023 | 0.026 | 0 | 0.015 | 0.023 |
| 480 | 0.025 | 0.011 | 0 | 0.011 | 0.025 | 0.012 | 0 | 0.011 | 0.026 | 0.024 | 0 | 0.024 | 0.026 | 0.024 | 0 | 0.024 | 0.025 | 0.014 | 0 | 0.012 | 0.025 | 0.015 | 0 | 0.011 | 0.025 | 0.018 | 0 | 0.007 | 0.025 | 0.027 | 0 | 0.016 | 0.025 |
| 540 | 0.027 | 0.011 | 0 | 0.011 | 0.027 | 0.012 | 0 | 0.012 | 0.027 | 0.025 | 0 | 0.025 | 0.028 | 0.025 | 0 | 0.025 | 0.027 | 0.014 | 0 | 0.013 | 0.027 | 0.015 | 0 | 0.012 | 0.027 | 0.019 | 0 | 0.007 | 0.027 | 0.028 | 0 | 0.016 | 0.027 |
| 600 | 0.028 | 0.011 | 0 | 0.011 | 0.028 | 0.012 | 0 | 0.012 | 0.028 | 0.026 | 0 | 0.025 | 0.029 | 0.025 | 0 | 0.025 | 0.028 | 0.014 | 0 | 0.013 | 0.028 | 0.016 | 0 | 0.012 | 0.028 | 0.019 | 0 | 0.007 | 0.028 | 0.029 | 0 | 0.016 | 0.028 |
| 660 | 0.029 | 0.012 | 0 | 0.012 | 0.028 | 0.012 | 0 | 0.012 | 0.029 | 0.026 | 0 | 0.026 | 0.03 | 0.026 | 0 | 0.026 | 0.029 | 0.015 | 0 | 0.013 | 0.029 | 0.016 | 0 | 0.012 | 0.029 | 0.02 | 0 | 0.007 | 0.029 | 0.03 | 0 | 0.017 | 0.029 |
| 720 | 0.029 | 0.012 | 0 | 0.012 | 0.029 | 0.012 | 0 | 0.012 | 0.029 | 0.026 | 0 | 0.026 | 0.03 | 0.026 | 0 | 0.026 | 0.029 | 0.015 | 0 | 0.014 | 0.029 | 0.017 | 0 | 0.012 | 0.029 | 0.02 | 0 | 0.008 | 0.029 | 0.031 | 0 | 0.017 | 0.029 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 1.00116E-06 | 0.000118 | 0 | | 1.44E-06 | 8.96E-05 | 0 | | 1.44E-06 | 0.00055 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0007613 |

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.884 | 0.063 | 0 | 0.068 | 0.904 | 0.056 | 0 | 0.065 | 0.898 | 0.058 | 0 | 0.061 | 0.313 | 0.052 | 0 | 0.053 | 0.382 | 0.017 | 0 | 0.018 | 0.383 | 0.017 | 0 | 0.015 | 0.221 | 0.016 | 0 | 0.011 | 0.22 | 0.014 | 0 | 0.019 | 0.221 |
| 10 | 1.628 | 0.116 | 0 | 0.126 | 1.665 | 0.104 | 0 | 0.12 | 1.654 | 0.107 | 0 | 0.113 | 0.576 | 0.096 | 0 | 0.098 | 0.704 | 0.033 | 0 | 0.033 | 0.706 | 0.033 | 0 | 0.028 | 0.406 | 0.03 | 0 | 0.021 | 0.406 | 0.027 | 0 | 0.035 | 0.407 |
| 20 | 2.764 | 0.199 | 0 | 0.216 | 2.826 | 0.179 | 0 | 0.205 | 2.807 | 0.184 | 0 | 0.193 | 0.978 | 0.165 | 0 | 0.169 | 1.195 | 0.057 | 0 | 0.057 | 1.198 | 0.057 | 0 | 0.049 | 0.69 | 0.052 | 0 | 0.036 | 0.689 | 0.047 | 0 | 0.06 | 0.69 |
| 30 | 3.53 | 0.256 | 0 | 0.278 | 3.608 | 0.231 | 0 | 0.264 | 3.583 | 0.238 | 0 | 0.249 | 1.249 | 0.213 | 0 | 0.218 | 1.525 | 0.075 | 0 | 0.075 | 1.53 | 0.074 | 0 | 0.064 | 0.88 | 0.069 | 0 | 0.046 | 0.879 | 0.062 | 0 | 0.077 | 0.881 |
| 40 | 3.808 | 0.278 | 0 | 0.301 | 3.892 | 0.251 | 0 | 0.286 | 3.865 | 0.258 | 0 | 0.27 | 1.347 | 0.232 | 0 | 0.237 | 1.645 | 0.082 | 0 | 0.082 | 1.65 | 0.081 | 0 | 0.07 | 0.95 | 0.075 | 0 | 0.051 | 0.948 | 0.068 | 0 | 0.084 | 0.95 |

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

| Pounds/day: 30 min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000321283 | 0.003355 | 0 | 0.000473 | 0.002299 | 0 | 0.000469 | 0.006889 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.013806 |

Table 7: Estimated Travel Fractions

Pollutant Name:  Temperature: ALL  Relative Humidity: ALL

| | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| %VMT | 0.002 | 0.451 | 0.001 | 0.454 | 0.001 | 0.085 | 0.004 | 0.089 | 0.001 | 0.247 | 0 | 0.248 | 0.001 | 0.125 | 0 | 0.126 | 0 | 0.024 | 0.006 | 0.031 | 0 | 0.005 | 0.004 | 0.009 | 0 | 0.002 | 0.01 | 0.013 | 0 | 0.001 | 0.013 | 0.014 | 0 |
| %TRIP | 0.003 | 0.432 | 0.001 | 0.437 | 0.001 | 0.076 | 0.004 | 0.081 | 0.001 | 0.221 | 0 | 0.222 | 0.001 | 0.108 | 0 | 0.109 | 0 | 0.069 | 0.007 | 0.076 | 0 | 0.014 | 0.005 | 0.019 | 0.001 | 0.012 | 0.023 | 0.036 | 0 | 0.002 | 0.001 | 0.003 | 0 |
| %VEH | 0.005 | 0.46 | 0.001 | 0.467 | 0.002 | 0.081 | 0.004 | 0.087 | 0.001 | 0.235 | 0 | 0.236 | 0.001 | 0.114 | 0 | 0.116 | 0 | 0.014 | 0.004 | 0.018 | 0 | 0.003 | 0.003 | 0.005 | 0 | 0.002 | 0.006 | 0.007 | 0 | 0 | 0.002 | 0.002 | 0 |
| Project: | 0.001 | 0.149 | 0.000 | 0.001 | 0.113 | 0.006 | 0.001 | 0.328 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.4 | SUM: | | | | | | | | | | | | | |

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Reactive Org Gases  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.455 | 0.014 | 0 | 0.02 | 1.657 | 0.393 | 0 | 0.391 | 1.577 | 0.458 | 0 | 0.46 | 0.476 | 0.378 | 0 | 0.377 | 2.034 | 0.325 | 0 | 0.26 | 1.922 | 0.327 | 0 | 0.176 | 1.646 | 0.542 | 0 | 0.108 | 2.575 | 0.325 | 0 | 0.018 | 1.615 |
| 2 | 1.374 | 0.018 | 0 | 0.024 | 1.182 | 0.2 | 0 | 0.203 | 1.111 | 0.232 | 0 | 0.235 | 0.304 | 0.193 | 0 | 0.193 | 1.179 | 0.172 | 0 | 0.138 | 1.259 | 0.171 | 0 | 0.093 | 1.168 | 0.289 | 0 | 0.058 | 1.683 | 0.175 | 0 | 0.01 | 1.137 |
| 3 | 1.344 | 0.022 | 0 | 0.028 | 1.021 | 0.138 | 0 | 0.142 | 0.954 | 0.159 | 0 | 0.162 | 0.247 | 0.133 | 0 | 0.134 | 0.893 | 0.122 | 0 | 0.098 | 1.036 | 0.121 | 0 | 0.066 | 1.006 | 0.206 | 0 | 0.042 | 1.383 | 0.127 | 0 | 0.007 | 0.976 |
| 4 | 1.326 | 0.026 | 0 | 0.031 | 0.939 | 0.109 | 0 | 0.114 | 0.873 | 0.124 | 0 | 0.126 | 0.217 | 0.105 | 0 | 0.105 | 0.75 | 0.098 | 0 | 0.079 | 0.923 | 0.097 | 0 | 0.053 | 0.924 | 0.165 | 0 | 0.034 | 1.231 | 0.105 | 0 | 0.006 | 0.893 |
| 5 | 1.313 | 0.028 | 0 | 0.033 | 0.889 | 0.092 | 0 | 0.097 | 0.824 | 0.104 | 0 | 0.106 | 0.2 | 0.088 | 0 | 0.089 | 0.663 | 0.084 | 0 | 0.067 | 0.854 | 0.083 | 0 | 0.045 | 0.873 | 0.141 | 0 | 0.029 | 1.138 | 0.092 | 0 | 0.005 | 0.842 |
| 10 | 1.271 | 0.032 | 0 | 0.037 | 0.778 | 0.059 | 0 | 0.064 | 0.717 | 0.064 | 0 | 0.066 | 0.163 | 0.057 | 0 | 0.057 | 0.486 | 0.057 | 0 | 0.046 | 0.708 | 0.055 | 0 | 0.031 | 0.762 | 0.095 | 0 | 0.02 | 0.942 | 0.066 | 0 | 0.004 | 0.732 |
| 15 | 1.241 | 0.033 | 0 | 0.038 | 0.731 | 0.049 | 0 | 0.055 | 0.672 | 0.053 | 0 | 0.055 | 0.149 | 0.048 | 0 | 0.048 | 0.423 | 0.049 | 0 | 0.039 | 0.651 | 0.048 | 0 | 0.026 | 0.715 | 0.081 | 0 | 0.017 | 0.866 | 0.058 | 0 | 0.003 | 0.686 |
| 20 | 1.215 | 0.033 | 0 | 0.038 | 0.701 | 0.045 | 0 | 0.051 | 0.643 | 0.049 | 0 | 0.051 | 0.141 | 0.044 | 0 | 0.045 | 0.389 | 0.046 | 0 | 0.037 | 0.617 | 0.045 | 0 | 0.025 | 0.686 | 0.074 | 0 | 0.016 | 0.82 | 0.054 | 0 | 0.003 | 0.656 |
| 25 | 1.191 | 0.033 | 0 | 0.038 | 0.677 | 0.043 | 0 | 0.048 | 0.621 | 0.047 | 0 | 0.048 | 0.135 | 0.043 | 0 | 0.043 | 0.367 | 0.044 | 0 | 0.035 | 0.592 | 0.043 | 0 | 0.024 | 0.663 | 0.071 | 0 | 0.015 | 0.786 | 0.051 | 0 | 0.003 | 0.633 |
| 30 | 1.169 | 0.032 | 0 | 0.037 | 0.663 | 0.042 | 0 | 0.047 | 0.608 | 0.045 | 0 | 0.046 | 0.132 | 0.041 | 0 | 0.041 | 0.36 | 0.043 | 0 | 0.034 | 0.579 | 0.041 | 0 | 0.023 | 0.649 | 0.069 | 0 | 0.015 | 0.77 | 0.05 | 0 | 0.003 | 0.62 |
| 35 | 1.149 | 0.031 | 0 | 0.036 | 0.649 | 0.04 | 0 | 0.045 | 0.596 | 0.043 | 0 | 0.044 | 0.13 | 0.039 | 0 | 0.04 | 0.353 | 0.041 | 0 | 0.033 | 0.567 | 0.04 | 0 | 0.022 | 0.636 | 0.066 | 0 | 0.014 | 0.754 | 0.049 | 0 | 0.003 | 0.607 |
| 40 | 1.129 | 0.03 | 0 | 0.035 | 0.636 | 0.038 | 0 | 0.043 | 0.584 | 0.041 | 0 | 0.042 | 0.127 | 0.038 | 0 | 0.038 | 0.347 | 0.04 | 0 | 0.032 | 0.555 | 0.038 | 0 | 0.021 | 0.623 | 0.064 | 0 | 0.014 | 0.739 | 0.047 | 0 | 0.003 | 0.595 |
| 45 | 1.11 | 0.029 | 0 | 0.034 | 0.624 | 0.037 | 0 | 0.042 | 0.573 | 0.039 | 0 | 0.041 | 0.125 | 0.036 | 0 | 0.036 | 0.341 | 0.038 | 0 | 0.031 | 0.544 | 0.037 | 0 | 0.021 | 0.611 | 0.062 | 0 | 0.014 | 0.724 | 0.046 | 0 | 0.003 | 0.583 |
| 50 | 1.064 | 0.028 | 0 | 0.032 | 0.605 | 0.035 | 0 | 0.04 | 0.556 | 0.037 | 0 | 0.039 | 0.122 | 0.035 | 0 | 0.035 | 0.333 | 0.037 | 0 | 0.03 | 0.529 | 0.036 | 0 | 0.02 | 0.593 | 0.06 | 0 | 0.013 | 0.701 | 0.045 | 0 | 0.003 | 0.566 |
| 55 | 1.008 | 0.027 | 0 | 0.031 | 0.584 | 0.034 | 0 | 0.038 | 0.537 | 0.036 | 0 | 0.037 | 0.119 | 0.033 | 0 | 0.033 | 0.326 | 0.036 | 0 | 0.029 | 0.513 | 0.035 | 0 | 0.019 | 0.572 | 0.059 | 0 | 0.013 | 0.675 | 0.043 | 0 | 0.003 | 0.548 |
| 60 | 0.959 | 0.026 | 0 | 0.029 | 0.565 | 0.032 | 0 | 0.037 | 0.52 | 0.034 | 0 | 0.036 | 0.116 | 0.032 | 0 | 0.032 | 0.319 | 0.035 | 0 | 0.028 | 0.498 | 0.033 | 0 | 0.019 | 0.553 | 0.057 | 0 | 0.012 | 0.652 | 0.042 | 0 | 0.003 | 0.531 |

| Pounds/day: 30 min per trip | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000106397 | 0.000419 | 0 | 8.68E-05 | 0.000418 | 0 | 7.96E-05 | 0.001302 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0024127 |

**RESULTS: pounds per day**

**Total Days:** 120

| Speed | ROG | CO | NOx | PM10 | CO2 | CO2 MT/yr |
|---|---|---|---|---|---|---|
| 25 | 0.72 | 5.69 | 6.57 | 0.34 | 1471.69 | 80.1 |
| 30 | 0.59 | 5.08 | 6.28 | 0.30 | 1361.87 | 74.1 |
| 35 | 0.50 | 4.59 | 6.07 | 0.28 | 1281.07 | 69.7 |
| 40 | 0.44 | 4.21 | 5.93 | 0.26 | 1225.40 | 66.7 |
| 45 | 0.41 | 3.94 | 5.85 | 0.27 | 1192.77 | 64.9 |
| 50 | 0.42 | 3.79 | 5.85 | 0.29 | 1182.38 | 64.3 |

# HEAVY EQUIPMENT EMISSIONS

**Project:** VCWWD 19 Near-Term Projects
**Date:** 8/23/2011
**Scenario:** Two pipeline spreads

## INPUTS AND EMISSION FACTORS

| | | | | | Load Factor | | Emission Factors (lb/BHP-hr) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Equipment Type** | **Model** | **Fuel** | **BHP** | **Number** | **(Percent)** | **Hours/Day** | **NOx** | **ROC** | **CO** | **PM10** | **CO2** |
| Tracked tractor | Caterpillar D6 | Diesel | 140 | 0 | 64 | 8 | 0.023 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Tracked tractor | Caterpillar D8N | Diesel | 285 | 0 | 64 | 8 | 0.023 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Tracked tractor (cert.) | Caterpillar D8 | Diesel | 285 | 0 | 64 | 8 | 0.015 | 0.002 | 0.011 | 0.0009 | 1.150 |
| Pipelayer | Caterpillar 527G | Diesel | 200 | 0 | 64 | 8 | 0.023 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Wheeled tractor | Caterpillar 824C | Diesel | 315 | 0 | 59 | 8 | 0.021 | 0.002 | 0.010 | 0.0005 | 1.150 |
| Soil compactor | Caterpillar 815B | Diesel | 216 | 0 | 59 | 8 | 0.021 | 0.002 | 0.010 | 0.0005 | 1.150 |
| Elevating scraper | Caterpillar 623E | Diesel | 365 | 0 | 72 | 8 | 0.019 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Elevating scraper (cert.) | Caterpillar 623 | Diesel | 365 | 0 | 72 | 8 | 0.015 | 0.002 | 0.011 | 0.0009 | 1.150 |
| Tandem scraper | Caterpillar 637E | Diesel | 700 | 0 | 72 | 8 | 0.019 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Standard scraper | Caterpillar 631E | Diesel | 450 | 0 | 72 | 8 | 0.019 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Grader | Caterpillar 140G | Diesel | 150 | 0 | 61 | 8 | 0.021 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Backhoe | Caterpillar 426 | Diesel | 70 | 0 | 55 | 8 | 0.022 | 0.003 | 0.015 | 0.0010 | 1.150 |
| Wheeled loader | Bobcat | Diesel | 65 | 0 | 68 | 8 | 0.023 | 0.002 | 0.011 | 0.0015 | 1.150 |
| Wheeled loader | Caterpillar 950E | Diesel | 160 | 0 | 68 | 8 | 0.023 | 0.002 | 0.011 | 0.0015 | 1.150 |
| Wheeled loader | Caterpillar 966E | Diesel | 216 | 2 | 68 | 8 | 0.023 | 0.002 | 0.011 | 0.0015 | 1.150 |
| Wheeled loader | Caterpillar 988B | Diesel | 375 | 0 | 68 | 8 | 0.023 | 0.002 | 0.011 | 0.0015 | 1.150 |
| Excavator | Caterpillar 235 | Diesel | 250 | 2 | 57 | 8 | 0.024 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Excavator | Caterpillar 245 | Diesel | 360 | 0 | 57 | 8 | 0.024 | 0.001 | 0.011 | 0.0015 | 1.150 |
| Off-highway truck | Caterpillar 773B | Diesel | 650 | 0 | 57 | 8 | 0.026 | 0.005 | 0.032 | 0.0020 | 1.150 |
| Crane | Cummins | Diesel | 230 | 0 | 43 | 8 | 0.023 | 0.003 | 0.009 | 0.0015 | 1.150 |
| Rock Crusher | | Diesel | 400 | 0 | 78 | 8 | 0.024 | 0.003 | 0.020 | 0.0015 | 1.150 |
| Generator | Caterpillar 3114 | Diesel | 109 | 2 | 74 | 4 | 0.018 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Air compressor | | Diesel | 109 | 0 | 48 | 8 | 0.018 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Asphalt paver | Caterpillar AP-1200 | Diesel | 145 | 0 | 62 | 8 | 0.023 | 0.001 | 0.007 | 0.0010 | 1.150 |
| Welding machine | Perkins 4-236 | Diesel | 63 | 0 | 45 | 8 | 0.018 | 0.002 | 0.011 | 0.0010 | 1.150 |
| Water wagon | Caterpillar 3406B | Diesel | 350 | 0 | 57 | 8 | 0.026 | 0.005 | 0.032 | 0.0020 | 1.150 |
| Roller | Caterpillar CS-431B | Diesel | 102 | 2 | 56 | 8 | 0.020 | 0.002 | 0.007 | 0.0010 | 1.150 |
| Dewatering pumps | | Gasoline | 5 | 0 | 74 | 4 | 0.002 | 0.054 | 1.479 | 0.0003 | 1.080 |

## DAILY AND TOTAL EMISSIONS

| | Emissions (lb/day) | | | | | Total | Emissions (Total Tons) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Equipment Type** | **NOx** | **ROC** | **CO** | **PM10** | **CO2** | **Days** | **NOx** | **ROC** | **CO** | **PM10** | **CO2** |
| Tracked tractor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tracked tractor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tracked tractor (cert.) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pipelayer | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Wheeled tractor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil compactor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elevating scraper | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elevating scraper (cert.) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tandem scraper | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Standard scraper | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grader | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Backhoe | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Wheeled loader | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Wheeled loader | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Wheeled loader | 54.1 | 4.7 | 25.9 | 3.5 | 2702.6 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Wheeled loader | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Excavator | 54.7 | 2.3 | 25.1 | 3.4 | 2622.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Excavator | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Off-highway truck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Crane | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rock Crusher | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Generator | 11.6 | 1.3 | 7.1 | 0.6 | 742.1 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air compressor | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Asphalt paver | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Welding machine | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Water wagon | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Roller | 18.3 | 1.8 | 6.4 | 0.9 | 1051.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dewatering pumps | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **SUM** | 138.7 | 10.1 | 64.4 | 8.5 | 7117.7 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

| **Fuel** | **Total Daily BHP-hr** | **N2O g/gal** | **CH4 g/gal** | **N2O g/BHP-hr** | **CH4 g/BHP-hr** | **Daily lbs N2O** | **Daily lbs CH4** | **Total tons N2O** | **Total tons CH4** | **CO2** | **TOTAL** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | 6189.28 | 0.1 | 1.4 | 0.0051 | 0.0720 | 0.070 | 0.983 | 0.0000 | 0.0000 | | |
| Gasoline | 0 | 0.1 | 1.3 | 0.0056 | 0.0727 | 0.000 | 0.000 | 0.0000 | 0.0000 | | |

| | | | | |
|---|---|---|---|---|
| GHG Summary (metric tons) | 0.0000 | 0.0000 | 0.00 | |
| GHG CO2 Eq | 0.0000 | 0.0000 | 0.00 | **0.0** |

CH4 and N2O emissions factors from California Climate Action Registry General Reporting Protocol, Table C5

# HEAVY CONSTRUCTION PARTICULATE EMISSIONS ESTIMATE

Project: VCWWD 19 Near-Term Projects
Date: 08/23/11

| | Debris | Soil |
|---|---|---|
| Silt Content (%) | 30 | 15 |
| Moisture Content (%) | 2 | 3.4 |

| | Volume (cf/day) | Emissions (lb/day) |
|---|---|---|
| Building Demolition | 0 | 0.0 |

E (lb/day) = cf * 0.00042 (SCAQMD CEQA Handbook, 1993)

| | Wind Speed (mph) | Emissions (lb/ton) | Total Tons/day | Emissions (lb/day) |
|---|---|---|---|---|
| Debris Loading | 12 | 0.0035 | 0 | 0.0 |

E (lb/ton) = 0.35 * 0.0032 * (wind speed/5)^1.3/(moisture/2)^1.4 (Section 13.2.4, EPA, 1995)

| | Emissions (lb/hr) | No. Units x Hours/day | Emissions (lb/day) |
|---|---|---|---|
| Land Clearing | 7.85 | 8 | 62.8 |

E (lb PM10/hr) = 0.75 *silt^1.2/moisture^1.4 (Table 11.9.2, EPA, 1995)

| | TSP lb/VMT | % PM10 | Emissions lb PM10/VMT | Total VMT/day | Emissions (lb/day) |
|---|---|---|---|---|---|
| Scraper soil removal | 20.2 | 50 | 10.1 | 0 | 0 |

E (lb PM10/VMT) = 20.2 * %PM10 (Table 13.2.3-1, EPA, 1995)

| | Weight (tons) | Emissions (lb PM10/VMT) | Total VMT/day | Emissions (lb/day) |
|---|---|---|---|---|
| Scraper travel | 48 | 2.6313 | 0 | 0.0 |

E (lb PM10/VMT) = 0.6 * 6.2E-6 * silt^1.4 * weight^2.5 (Table 11.9-1, EPA, 1995)

| | Wind Speed (mph) | Emissions (lb/ton) | Total Tons/day | Emissions (lb/day) |
|---|---|---|---|---|
| Scraper soil dumping | 12 | 0.0017 | 0 | 0.0 |

E (lb/ton) = 0.35 * 0.0032 * (wind speed/5)^1.3/(moisture/2)^1.4 (Section 13.2.4, EPA, 1995)

| | Speed (mph) | Emissions lb PM10/VMT | Total VMT/day | Emissions (lb/day) |
|---|---|---|---|---|
| Motor grading | 5 | 0.7650 | 0 | 0.0 |

E (lb PM10/VMT) = 0.6 * 0.051 * speed^2 (Table 11.9-1, EPA, 1995)

| | Weight (tons) | Emissions lb PM10/VMT | Total VMT/day | Emissions (lb/day) |
|---|---|---|---|---|
| Unpaved Roads-LDT | 3 | 1.83 | 5 | 9.2 |

E (lb PM10/VMT) = 1.5 * (silt/12)^0.9 * (weight/3)^0.45 (Section 13.2.2, EPA, 2003)

| | Weight (tons) | Emissions lb PM10/VMT | Total VMT/day | Emissions (lb/day) |
|---|---|---|---|---|
| Unpaved Roads-HDT | 40 | 5.88 | 4 | 23.5 |

E (lb PM10/VMT) = 1.5 * (silt/12)^0.9 * (weight/3)^0.45 (Section 13.2.2, EPA, 2003)

| | Area (ac) | Emissions (lb/acre/day) | Emissions (lb/day) |
|---|---|---|---|
| Wind Erosion | 2 | 26.4 | 52.8 |

E (lb/day) = acres * 26.4 (SCAQMD CEQA Handbook, 1993)

TOTAL Demolition Emissions (lb/day): **0.00**
TOTAL Construction Emissions (lb/day): **148.33**

MITIGATED Construction Emissions (lb/day): **100.68**

Mitigation based on watering: 65% reduction for unpaved roads and 50% reduction for wind erosion

Project: VCWWD 19 Near-Term Projects - Operation
Date: 8/23/11

Title : Ventura County Subarea Summer CYr 2011
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/01/11 10:46:54
Scen Year: 2011 -- All model years in the range 1967 to 2011 selected
Season : Summer
Area : Ventura

Daily one-way trips: 6
Miles per trip: 15

Percent Autos: 0
Percent LDT: 33
Percent MDT: 0
Percent HDT: 67
Sum 100

********** 2011 -- Model Years 1967 to 2011 Inclusive -- Summer
Year:

County Average Ventura County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 5.419 | 0.055 | 0.185 | 0.077 | 5.561 | 0.064 | 0.087 | 0.125 | 5.437 | 0.08 | 0.14 | 0.096 | 6.962 | 0.109 | 0.081 | 0.141 | 3.955 | 0.246 | 0.163 | 0.236 | 3.955 | 0.176 | 0.237 | 0.212 | 5.981 | 0.486 | 0.202 | 0.272 | 16.104 | 3.597 | 1.103 | 1.239 | 5.981 |
| 30 | 4.613 | 0.044 | 0.158 | 0.063 | 4.735 | 0.052 | 0.075 | 0.104 | 4.629 | 0.064 | 0.12 | 0.077 | 5.931 | 0.086 | 0.069 | 0.113 | 3.038 | 0.188 | 0.14 | 0.183 | 3.038 | 0.134 | 0.203 | 0.173 | 4.605 | 0.369 | 0.173 | 0.222 | 12.435 | 2.763 | 0.899 | 1.001 | 4.605 |
| 35 | 4.112 | 0.037 | 0.139 | 0.053 | 4.221 | 0.043 | 0.066 | 0.09 | 4.126 | 0.053 | 0.105 | 0.065 | 5.29 | 0.072 | 0.061 | 0.096 | 2.432 | 0.15 | 0.122 | 0.149 | 2.432 | 0.107 | 0.178 | 0.145 | 3.694 | 0.291 | 0.152 | 0.188 | 10.008 | 2.212 | 0.746 | 0.827 | 3.694 |
| 40 | 3.839 | 0.032 | 0.124 | 0.048 | 3.941 | 0.038 | 0.059 | 0.082 | 3.852 | 0.047 | 0.094 | 0.058 | 4.94 | 0.063 | 0.054 | 0.086 | 2.029 | 0.125 | 0.11 | 0.125 | 2.029 | 0.089 | 0.159 | 0.126 | 3.09 | 0.24 | 0.136 | 0.164 | 8.396 | 1.847 | 0.646 | 0.712 | 3.09 |
| 45 | 3.755 | 0.03 | 0.114 | 0.045 | 3.854 | 0.036 | 0.054 | 0.078 | 3.768 | 0.044 | 0.086 | 0.054 | 4.832 | 0.059 | 0.05 | 0.081 | 1.767 | 0.108 | 0.1 | 0.11 | 1.767 | 0.077 | 0.146 | 0.113 | 2.696 | 0.207 | 0.124 | 0.147 | 7.344 | 1.608 | 0.596 | 0.652 | 2.696 |
| 50 | 3.847 | 0.03 | 0.107 | 0.045 | 3.949 | 0.035 | 0.05 | 0.079 | 3.86 | 0.043 | 0.081 | 0.054 | 4.95 | 0.058 | 0.047 | 0.08 | 1.606 | 0.098 | 0.094 | 0.1 | 1.606 | 0.07 | 0.136 | 0.104 | 2.454 | 0.187 | 0.116 | 0.136 | 6.698 | 1.462 | 0.599 | 0.647 | 2.454 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| 25 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.004 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.147 | 0.000 | 0.154 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.003 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.120 | 0.000 | 0.126 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.003 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.099 | 0.000 | 0.104 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.002 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.086 | 0.000 | 0.090 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.002 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.079 | 0.000 | 0.084 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.001 | 0.000 | | 0.001 | 0.002 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.080 | 0.000 | 0.084 |

Pollutant Name: Carbon Monoxide Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 55.525 | 2.384 | 0.841 | 2.599 | 54.951 | 2.987 | 0.638 | 3.457 | 53.755 | 3.279 | 0.76 | 3.42 | 96.841 | 3.607 | 0.62 | 4.025 | 81.986 | 2.767 | 0.85 | 2.52 | 81.986 | 2.152 | 1.005 | 1.775 | 122.979 | 7.438 | 1.806 | 3.209 | 450.903 | 41.581 | 5.067 | 7.217 | 122.979 |
| 30 | 49.778 | 2.188 | 0.695 | 2.38 | 49.264 | 2.733 | 0.528 | 3.15 | 48.191 | 3.003 | 0.629 | 3.129 | 86.817 | 3.303 | 0.513 | 3.677 | 67.969 | 2.294 | 0.703 | 2.089 | 67.969 | 1.784 | 0.831 | 1.471 | 101.953 | 6.166 | 1.494 | 2.658 | 373.812 | 34.472 | 4.34 | 6.115 | 101.953 |
| 35 | 46.996 | 2.02 | 0.602 | 2.202 | 46.51 | 2.524 | 0.457 | 2.918 | 45.497 | 2.771 | 0.544 | 2.889 | 81.965 | 3.052 | 0.444 | 3.406 | 59.534 | 2.01 | 0.609 | 1.828 | 59.534 | 1.563 | 0.72 | 1.284 | 89.301 | 5.401 | 1.293 | 2.316 | 327.423 | 30.194 | 3.753 | 5.311 | 89.301 |
| 40 | 46.726 | 1.877 | 0.545 | 2.058 | 46.243 | 2.353 | 0.414 | 2.752 | 45.236 | 2.575 | 0.493 | 2.694 | 81.494 | 2.847 | 0.402 | 3.2 | 55.094 | 1.86 | 0.552 | 1.689 | 55.094 | 1.446 | 0.652 | 1.182 | 82.642 | 4.998 | 1.172 | 2.123 | 303.006 | 27.942 | 3.306 | 4.756 | 82.642 |
| 45 | 48.924 | 1.756 | 0.517 | 1.947 | 48.419 | 2.216 | 0.393 | 2.645 | 47.365 | 2.413 | 0.467 | 2.538 | 85.329 | 2.682 | 0.381 | 3.053 | 53.869 | 1.818 | 0.523 | 1.648 | 53.869 | 1.414 | 0.618 | 1.147 | 80.803 | 4.887 | 1.111 | 2.047 | 296.264 | 27.321 | 2.998 | 4.428 | 80.803 |
| 50 | 53.948 | 1.654 | 0.513 | 1.866 | 53.39 | 2.112 | 0.39 | 2.6 | 52.228 | 2.28 | 0.464 | 2.42 | 94.089 | 2.556 | 0.378 | 2.968 | 55.648 | 1.878 | 0.519 | 1.698 | 55.648 | 1.461 | 0.613 | 1.173 | 83.472 | 5.049 | 1.102 | 2.079 | 306.051 | 28.223 | 2.83 | 4.321 | 83.472 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| 25 | 0.000 | 0.000 | 0.000 | | 0.012 | 0.049 | 0.001 | | 0.012 | 0.157 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.674 | 0.000 | 0.903 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.011 | 0.045 | 0.000 | | 0.010 | 0.143 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.577 | 0.000 | 0.787 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.010 | 0.041 | 0.000 | | 0.010 | 0.132 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.499 | 0.000 | 0.693 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.010 | 0.039 | 0.000 | | 0.010 | 0.123 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.439 | 0.000 | 0.621 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.010 | 0.036 | 0.000 | | 0.010 | 0.115 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.399 | 0.000 | 0.571 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.012 | 0.035 | 0.000 | | 0.011 | 0.109 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.376 | 0.000 | 0.543 |

Pollutant Name: Carbon Dioxide Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 549.537 | 417.791 | 357.689 | 418.221 | 543.741 | 519.789 | 346.865 | 512.941 | 544.363 | 519.153 | 352.115 | 519.018 | 687.207 | 710.444 | 346.528 | 709.272 | 685.012 | 685.012 | 519.792 | 650.378 | 685.012 | 685.012 | 527.557 | 610.608 | 685.012 | 685.012 | 1505 | 1346.77 | 685.012 | 685.012 | 2042.685 | 1972.886 | 685.012 |
| 30 | 482.739 | 367.051 | 357.689 | 367.508 | 477.261 | 456.628 | 346.865 | 452.34 | 477.811 | 456.07 | 352.115 | 456.003 | 603.264 | 624.122 | 346.528 | 623.214 | 567.895 | 567.895 | 519.792 | 557.811 | 567.895 | 567.895 | 527.557 | 548.834 | 567.895 | 567.895 | 1505 | 1324.17 | 567.895 | 567.895 | 1924.234 | 1854.504 | 567.895 |
| 35 | 440.107 | 335.012 | 357.689 | 335.482 | 434.773 | 416.723 | 346.865 | 414.047 | 435.277 | 416.215 | 352.115 | 416.19 | 549.626 | 569.588 | 346.528 | 568.844 | 497.421 | 497.421 | 519.792 | 502.11 | 497.421 | 497.421 | 527.557 | 511.661 | 497.421 | 497.421 | 1505 | 1310.571 | 497.421 | 497.421 | 1827.808 | 1759.412 | 497.421 |
| 40 | 416.358 | 317.493 | 357.689 | 317.97 | 411.031 | 394.881 | 346.865 | 393.083 | 411.51 | 394.401 | 352.115 | 394.398 | 519.668 | 539.744 | 346.528 | 539.086 | 460.326 | 460.326 | 519.792 | 472.792 | 460.327 | 460.327 | 527.557 | 492.096 | 460.326 | 460.326 | 1505 | 1303.413 | 460.326 | 460.326 | 1753.407 | 1686.929 | 460.326 |
| 45 | 408.678 | 312.225 | 357.689 | 312.702 | 403.237 | 388.284 | 346.865 | 386.744 | 403.709 | 387.814 | 352.115 | 387.815 | 509.856 | 530.737 | 346.528 | 530.102 | 450.085 | 450.085 | 519.792 | 464.697 | 450.085 | 450.085 | 527.557 | 486.694 | 450.085 | 450.085 | 1505 | 1301.437 | 450.085 | 450.085 | 1701.03 | 1636.719 | 450.085 |
| 50 | 416.146 | 318.359 | 357.689 | 318.83 | 410.479 | 395.882 | 346.865 | 394.026 | 410.961 | 395.404 | 352.115 | 395.395 | 519.038 | 541.13 | 346.528 | 540.46 | 464.953 | 464.953 | 519.792 | 476.448 | 464.953 | 464.953 | 527.557 | 494.536 | 464.953 | 464.953 | 1505 | 1304.306 | 464.953 | 464.953 | 1670.679 | 1608.692 | 464.953 |
| Pounds/day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.000 | 0.000 | | 0.117 | 8.537 | 0.300 | | 0.118 | 24.793 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 271.547 | 0.000 | 305.412 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.103 | 7.499 | 0.300 | | 0.103 | 21.780 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 255.801 | 0.000 | 285.587 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.094 | 6.844 | 0.300 | | 0.094 | 19.877 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 242.982 | 0.000 | 270.191 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.089 | 6.485 | 0.300 | | 0.089 | 18.835 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 233.092 | 0.000 | 258.890 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.087 | 6.377 | 0.300 | | 0.087 | 18.521 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 226.129 | 0.000 | 251.501 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.089 | 6.502 | 0.300 | | 0.089 | 18.883 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 222.094 | 0.000 | 247.956 |

Pollutant Name: Oxides of Nitrogen  Temperature: 75F  Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 3.311 | 0.157 | 1.107 | 0.171 | 3.274 | 0.192 | 1.14 | 0.265 | 3.209 | 0.315 | 1.111 | 0.324 | 5.255 | 0.402 | 1.146 | 0.426 | 1.653 | 0.458 | 2.885 | 0.969 | 1.653 | 0.427 | 3.689 | 1.971 | 2.48 | 1.616 | 5.526 | 4.774 | 14.272 | 7.759 | 11.931 | 11.72 | 2.48 |
| 30 | 3.463 | 0.147 | 1.058 | 0.162 | 3.424 | 0.18 | 1.09 | 0.252 | 3.356 | 0.293 | 1.063 | 0.303 | 5.496 | 0.375 | 1.096 | 0.401 | 1.723 | 0.477 | 2.759 | 0.958 | 1.723 | 0.445 | 3.527 | 1.904 | 2.584 | 1.684 | 5.284 | 4.592 | 14.874 | 8.086 | 11.418 | 11.251 | 2.584 |
| 35 | 3.617 | 0.14 | 1.048 | 0.155 | 3.577 | 0.172 | 1.08 | 0.246 | 3.505 | 0.279 | 1.053 | 0.289 | 5.74 | 0.358 | 1.086 | 0.385 | 1.792 | 0.496 | 2.734 | 0.968 | 1.792 | 0.463 | 3.495 | 1.898 | 2.689 | 1.752 | 5.235 | 4.566 | 15.475 | 8.413 | 11.031 | 10.901 | 2.689 |
| 40 | 3.772 | 0.135 | 1.076 | 0.152 | 3.73 | 0.167 | 1.109 | 0.245 | 3.656 | 0.271 | 1.081 | 0.282 | 5.987 | 0.348 | 1.115 | 0.376 | 1.862 | 0.516 | 2.806 | 0.999 | 1.862 | 0.481 | 3.588 | 1.952 | 2.793 | 1.82 | 5.375 | 4.691 | 16.077 | 8.74 | 10.768 | 10.669 | 2.793 |
| 45 | 3.929 | 0.134 | 1.145 | 0.151 | 3.886 | 0.166 | 1.18 | 0.248 | 3.808 | 0.269 | 1.15 | 0.28 | 6.236 | 0.346 | 1.186 | 0.375 | 1.932 | 0.535 | 2.985 | 1.051 | 1.932 | 0.499 | 3.816 | 2.069 | 2.898 | 1.888 | 5.717 | 4.981 | 16.678 | 9.067 | 10.63 | 10.555 | 2.898 |
| 50 | 4.087 | 0.135 | 1.262 | 0.153 | 4.042 | 0.169 | 1.3 | 0.257 | 3.961 | 0.272 | 1.267 | 0.283 | 6.487 | 0.351 | 1.307 | 0.382 | 2.001 | 0.554 | 3.29 | 1.131 | 2.001 | 0.517 | 4.206 | 2.263 | 3.002 | 1.956 | 6.301 | 5.465 | 17.28 | 9.394 | 10.617 | 10.559 | 3.002 |

Pounds/day

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.015 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.586 | 0.000 | 1.607 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.014 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.518 | 0.000 | 1.537 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.013 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.466 | 0.000 | 1.485 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.013 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.431 | 0.000 | 1.450 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.013 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.413 | 0.000 | 1.431 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.001 | 0.003 | 0.001 | | 0.001 | 0.013 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.411 | 0.000 | 1.430 |

Pollutant Name: PM10 Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.035 | 0.011 | 0.138 | 0.011 | 0.035 | 0.012 | 0.057 | 0.014 | 0.035 | 0.026 | 0.1 | 0.026 | 0.036 | 0.026 | 0.052 | 0.026 | 0.024 | 0.009 | 0.041 | 0.016 | 0.024 | 0.01 | 0.054 | 0.031 | 0.024 | 0.011 | 0.257 | 0.21 | 0.024 | 0.025 | 0.517 | 0.491 | 0.024 |
| 30 | 0.03 | 0.009 | 0.118 | 0.009 | 0.03 | 0.01 | 0.049 | 0.012 | 0.03 | 0.021 | 0.086 | 0.021 | 0.031 | 0.021 | 0.045 | 0.021 | 0.019 | 0.007 | 0.035 | 0.013 | 0.019 | 0.008 | 0.047 | 0.026 | 0.019 | 0.008 | 0.221 | 0.18 | 0.019 | 0.019 | 0.447 | 0.425 | 0.019 |
| 35 | 0.027 | 0.007 | 0.104 | 0.008 | 0.026 | 0.008 | 0.043 | 0.01 | 0.027 | 0.018 | 0.075 | 0.018 | 0.028 | 0.018 | 0.039 | 0.018 | 0.015 | 0.006 | 0.031 | 0.011 | 0.015 | 0.006 | 0.041 | 0.023 | 0.015 | 0.007 | 0.193 | 0.157 | 0.015 | 0.015 | 0.403 | 0.383 | 0.015 |
| 40 | 0.025 | 0.007 | 0.093 | 0.007 | 0.025 | 0.008 | 0.038 | 0.009 | 0.025 | 0.016 | 0.068 | 0.016 | 0.026 | 0.016 | 0.035 | 0.016 | 0.013 | 0.005 | 0.028 | 0.01 | 0.013 | 0.005 | 0.037 | 0.02 | 0.013 | 0.006 | 0.173 | 0.141 | 0.013 | 0.013 | 0.385 | 0.366 | 0.013 |
| 45 | 0.024 | 0.006 | 0.085 | 0.006 | 0.024 | 0.007 | 0.035 | 0.008 | 0.025 | 0.015 | 0.062 | 0.015 | 0.025 | 0.015 | 0.032 | 0.015 | 0.011 | 0.004 | 0.025 | 0.009 | 0.011 | 0.005 | 0.034 | 0.018 | 0.011 | 0.005 | 0.159 | 0.129 | 0.011 | 0.011 | 0.393 | 0.373 | 0.011 |
| 50 | 0.025 | 0.006 | 0.08 | 0.006 | 0.025 | 0.007 | 0.033 | 0.008 | 0.025 | 0.014 | 0.058 | 0.015 | 0.026 | 0.015 | 0.03 | 0.015 | 0.01 | 0.004 | 0.024 | 0.008 | 0.01 | 0.004 | 0.031 | 0.017 | 0.01 | 0.005 | 0.148 | 0.121 | 0.01 | 0.01 | 0.426 | 0.405 | 0.01 |

Pounds/day

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.069 | 0.000 | 0.070 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.059 | 0.000 | 0.061 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.054 | 0.000 | 0.055 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.051 | 0.000 | 0.052 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.052 | 0.000 | 0.053 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.057 | 0.000 | 0.057 |

Pollutant Name: PM10 - Tire Wear Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 30 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 35 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 40 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 45 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |
| 50 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.008 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.036 | 0.035 | 0.012 |

Pollutant Name: PM10 - Brake Wear Temperature: 75F Relative Humidity: 60%

| Speed MPH | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 30 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 35 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 40 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 45 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |
| 50 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 | 0.028 | 0.028 | 0.028 | 0.028 | 0.013 |

Pounds/day: tires & brakes

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SUM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |
| 30 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |
| 35 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |
| 40 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |
| 45 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |
| 50 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.010 |

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 2.717 | 0.041 | 0 | 0.059 | 2.758 | 0.036 | 0 | 0.069 | 2.656 | 0.047 | 0 | 0.055 | 3.237 | 0.061 | 0 | 0.078 | 4.478 | 0.158 | 0 | 0.163 | 4.478 | 0.153 | 0 | 0.139 | 6.717 | 0.375 | 0 | 0.305 | 10.502 | 1.056 | 0 | 1.084 | 6.717 |
| 10 | 2.694 | 0.08 | 0 | 0.097 | 2.734 | 0.07 | 0 | 0.101 | 2.633 | 0.091 | 0 | 0.1 | 3.21 | 0.12 | 0 | 0.136 | 4.44 | 0.308 | 0 | 0.299 | 4.44 | 0.298 | 0 | 0.246 | 6.659 | 0.73 | 0 | 0.421 | 10.411 | 2.058 | 0 | 1.602 | 6.659 |
| 20 | 2.72 | 0.152 | 0 | 0.169 | 2.761 | 0.134 | 0 | 0.162 | 2.658 | 0.174 | 0 | 0.183 | 3.24 | 0.23 | 0 | 0.245 | 4.482 | 0.588 | 0 | 0.554 | 4.482 | 0.569 | 0 | 0.445 | 6.723 | 1.384 | 0 | 0.64 | 10.511 | 3.902 | 0 | 2.569 | 6.723 |
| 30 | 2.842 | 0.218 | 0 | 0.235 | 2.885 | 0.192 | 0 | 0.218 | 2.778 | 0.25 | 0 | 0.258 | 3.386 | 0.33 | 0 | 0.345 | 4.683 | 0.84 | 0 | 0.784 | 4.683 | 0.813 | 0 | 0.626 | 7.025 | 1.962 | 0 | 0.839 | 10.983 | 5.532 | 0 | 3.443 | 7.025 |
| 40 | 3.061 | 0.276 | 0 | 0.294 | 3.107 | 0.244 | 0 | 0.27 | 2.992 | 0.317 | 0 | 0.325 | 3.646 | 0.42 | 0 | 0.436 | 5.044 | 1.065 | 0 | 0.989 | 5.044 | 1.03 | 0 | 0.787 | 7.566 | 2.464 | 0 | 1.02 | 11.828 | 6.947 | 0 | 4.224 | 7.566 |
| 50 | 3.376 | 0.327 | 0 | 0.347 | 3.427 | 0.29 | 0 | 0.317 | 3.3 | 0.376 | 0 | 0.385 | 4.022 | 0.499 | 0 | 0.517 | 5.563 | 1.261 | 0 | 1.17 | 5.563 | 1.22 | 0 | 0.93 | 8.345 | 2.89 | 0 | 1.182 | 13.047 | 8.148 | 0 | 4.912 | 8.345 |
| 60 | 3.51 | 0.371 | 0 | 0.392 | 3.562 | 0.331 | 0 | 0.357 | 3.43 | 0.427 | 0 | 0.437 | 4.181 | 0.569 | 0 | 0.586 | 5.784 | 1.429 | 0 | 1.323 | 5.784 | 1.382 | 0 | 1.05 | 8.676 | 3.24 | 0 | 1.306 | 13.564 | 9.134 | 0 | 5.452 | 8.676 |
| 120 | 3.851 | 0.503 | 0 | 0.525 | 3.909 | 0.462 | 0 | 0.485 | 3.764 | 0.585 | 0 | 0.595 | 4.588 | 0.796 | 0 | 0.814 | 6.346 | 1.918 | 0 | 1.77 | 6.346 | 1.851 | 0 | 1.398 | 9.519 | 3.955 | 0 | 1.566 | 14.882 | 11.151 | 0 | 6.571 | 9.519 |
| 180 | 4.192 | 0.535 | 0 | 0.559 | 4.255 | 0.492 | 0 | 0.517 | 4.097 | 0.622 | 0 | 0.633 | 4.994 | 0.847 | 0 | 0.866 | 6.908 | 2.04 | 0 | 1.883 | 6.908 | 1.969 | 0 | 1.488 | 10.362 | 4.197 | 0 | 1.669 | 16.2 | 11.832 | 0 | 6.993 | 10.362 |
| 240 | 4.533 | 0.567 | 0 | 0.592 | 4.601 | 0.521 | 0 | 0.549 | 4.43 | 0.659 | 0 | 0.671 | 5.4 | 0.897 | 0 | 0.918 | 7.47 | 2.159 | 0 | 1.994 | 7.47 | 2.083 | 0 | 1.575 | 11.205 | 4.431 | 0 | 1.769 | 17.518 | 12.492 | 0 | 7.404 | 11.205 |
| 300 | 4.874 | 0.597 | 0 | 0.625 | 4.947 | 0.549 | 0 | 0.581 | 4.764 | 0.695 | 0 | 0.708 | 5.806 | 0.946 | 0 | 0.969 | 8.032 | 2.275 | 0 | 2.102 | 8.032 | 2.195 | 0 | 1.661 | 12.048 | 4.657 | 0 | 1.866 | 18.836 | 13.129 | 0 | 7.803 | 12.048 |
| 360 | 5.215 | 0.627 | 0 | 0.657 | 5.293 | 0.578 | 0 | 0.612 | 5.097 | 0.73 | 0 | 0.744 | 6.213 | 0.995 | 0 | 1.02 | 8.594 | 2.389 | 0 | 2.207 | 8.594 | 2.304 | 0 | 1.745 | 12.891 | 4.876 | 0 | 1.962 | 20.154 | 13.745 | 0 | 8.192 | 12.891 |
| 420 | 5.556 | 0.657 | 0 | 0.689 | 5.639 | 0.605 | 0 | 0.642 | 5.43 | 0.764 | 0 | 0.779 | 6.619 | 1.042 | 0 | 1.069 | 9.156 | 2.499 | 0 | 2.31 | 9.156 | 2.411 | 0 | 1.826 | 13.734 | 5.087 | 0 | 2.054 | 21.472 | 14.34 | 0 | 8.569 | 13.734 |
| 480 | 5.897 | 0.685 | 0 | 0.719 | 5.985 | 0.632 | 0 | 0.672 | 5.764 | 0.798 | 0 | 0.813 | 7.025 | 1.088 | 0 | 1.117 | 9.718 | 2.607 | 0 | 2.411 | 9.718 | 2.515 | 0 | 1.906 | 14.577 | 5.29 | 0 | 2.144 | 22.79 | 14.913 | 0 | 8.934 | 14.577 |
| 540 | 6.238 | 0.713 | 0 | 0.749 | 6.332 | 0.658 | 0 | 0.701 | 6.097 | 0.83 | 0 | 0.847 | 7.432 | 1.134 | 0 | 1.164 | 10.28 | 2.713 | 0 | 2.509 | 10.28 | 2.617 | 0 | 1.984 | 15.42 | 5.485 | 0 | 2.232 | 24.107 | 15.464 | 0 | 9.289 | 15.42 |
| 600 | 6.579 | 0.74 | 0 | 0.778 | 6.678 | 0.684 | 0 | 0.73 | 6.43 | 0.862 | 0 | 0.88 | 7.838 | 1.178 | 0 | 1.21 | 10.842 | 2.815 | 0 | 2.604 | 10.842 | 2.715 | 0 | 2.06 | 16.263 | 5.673 | 0 | 2.316 | 25.425 | 15.994 | 0 | 9.632 | 16.263 |
| 660 | 6.92 | 0.767 | 0 | 0.807 | 7.024 | 0.709 | 0 | 0.758 | 6.764 | 0.894 | 0 | 0.912 | 8.244 | 1.222 | 0 | 1.256 | 11.404 | 2.915 | 0 | 2.698 | 11.404 | 2.811 | 0 | 2.134 | 17.106 | 5.853 | 0 | 2.399 | 26.743 | 16.502 | 0 | 9.964 | 17.106 |
| 720 | 7.261 | 0.793 | 0 | 0.835 | 7.37 | 0.734 | 0 | 0.786 | 7.097 | 0.924 | 0 | 0.944 | 8.65 | 1.264 | 0 | 1.3 | 11.966 | 3.012 | 0 | 2.788 | 11.966 | 2.905 | 0 | 2.206 | 17.949 | 6.026 | 0 | 2.479 | 28.061 | 16.989 | 0 | 10.285 | 17.949 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0 | 0 | 0 | | 6.13E-05 | 0.000539 | 0 | | 5.9E-05 | 0.00198 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0.0026393 |

Pollutant Name: Carbon Monoxide  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 23.63 | 0.396 | 0 | 0.554 | 24.217 | 0.429 | 0 | 0.717 | 23.743 | 0.489 | 0 | 0.568 | 44.68 | 0.596 | 0 | 0.831 | 42.016 | 1.707 | 0 | 1.733 | 42.016 | 1.519 | 0 | 1.37 | 63.024 | 5.574 | 0 | 3.546 | 239.82 | 12.733 | 0 | 18.819 | 63.024 |
| 10 | 20.925 | 0.779 | 0 | 0.915 | 21.445 | 0.844 | 0 | 1.071 | 21.025 | 0.962 | 0 | 1.029 | 39.565 | 1.172 | 0 | 1.375 | 37.206 | 3.352 | 0 | 3.207 | 37.206 | 2.984 | 0 | 2.417 | 55.809 | 10.922 | 0 | 5.121 | 212.366 | 24.949 | 0 | 23.796 | 55.809 |
| 20 | 16.153 | 1.505 | 0 | 1.601 | 16.554 | 1.631 | 0 | 1.749 | 16.23 | 1.859 | 0 | 1.906 | 30.542 | 2.262 | 0 | 2.407 | 28.721 | 6.456 | 0 | 5.99 | 28.721 | 5.748 | 0 | 4.396 | 43.081 | 20.939 | 0 | 8.092 | 163.934 | 47.829 | 0 | 33.268 | 43.081 |
| 30 | 12.231 | 2.178 | 0 | 2.241 | 12.536 | 2.363 | 0 | 2.384 | 12.29 | 2.691 | 0 | 2.72 | 23.127 | 3.271 | 0 | 3.368 | 21.748 | 9.313 | 0 | 8.555 | 21.748 | 8.293 | 0 | 6.223 | 32.623 | 30.049 | 0 | 10.825 | 124.137 | 68.639 | 0 | 42.099 | 32.623 |
| 40 | 9.161 | 2.798 | 0 | 2.834 | 9.389 | 3.039 | 0 | 2.979 | 9.205 | 3.457 | 0 | 3.472 | 17.322 | 4.199 | 0 | 4.256 | 16.289 | 11.923 | 0 | 10.901 | 16.289 | 10.618 | 0 | 7.898 | 24.433 | 38.253 | 0 | 13.319 | 92.975 | 87.379 | 0 | 50.29 | 24.433 |
| 50 | 6.941 | 3.365 | 0 | 3.381 | 7.114 | 3.658 | 0 | 3.532 | 6.974 | 4.158 | 0 | 4.162 | 13.125 | 5.046 | 0 | 5.073 | 12.342 | 14.285 | 0 | 13.03 | 12.342 | 12.724 | 0 | 9.421 | 18.513 | 45.552 | 0 | 15.574 | 70.447 | 104.051 | 0 | 57.84 | 18.513 |
| 60 | 5.572 | 3.88 | 0 | 3.882 | 5.711 | 4.222 | 0 | 4.043 | 5.599 | 4.794 | 0 | 4.79 | 10.536 | 5.811 | 0 | 5.817 | 9.908 | 16.4 | 0 | 14.94 | 9.908 | 14.61 | 0 | 10.792 | 14.862 | 51.944 | 0 | 17.591 | 56.554 | 118.652 | 0 | 64.749 | 14.862 |
| 120 | 15.023 | 5.732 | 0 | 5.781 | 15.396 | 6.276 | 0 | 6.1 | 15.095 | 7.083 | 0 | 7.1 | 28.405 | 8.521 | 0 | 8.6 | 26.712 | 23.556 | 0 | 21.513 | 26.712 | 21.011 | 0 | 15.595 | 40.067 | 71.215 | 0 | 24.649 | 152.466 | 162.672 | 0 | 92.576 | 40.067 |
| 180 | 23.737 | 6.118 | 0 | 6.223 | 24.327 | 6.719 | 0 | 6.633 | 23.851 | 7.56 | 0 | 7.605 | 44.882 | 9.065 | 0 | 9.228 | 42.206 | 24.813 | 0 | 22.723 | 42.206 | 22.146 | 0 | 16.522 | 63.31 | 73.297 | 0 | 25.965 | 240.908 | 167.427 | 0 | 99.547 | 63.31 |
| 240 | 31.528 | 6.475 | 0 | 6.63 | 32.312 | 7.127 | 0 | 7.12 | 31.679 | 8.002 | 0 | 8.071 | 59.613 | 9.57 | 0 | 9.808 | 56.059 | 26.003 | 0 | 23.864 | 56.059 | 23.218 | 0 | 17.394 | 84.089 | 75.447 | 0 | 27.238 | 319.977 | 172.339 | 0 | 106.124 | 84.089 |
| 300 | 38.395 | 6.803 | 0 | 7.002 | 39.35 | 7.5 | 0 | 7.561 | 38.579 | 8.408 | 0 | 8.499 | 72.598 | 10.037 | 0 | 10.341 | 68.269 | 27.126 | 0 | 24.937 | 68.269 | 24.229 | 0 | 18.21 | 102.404 | 77.667 | 0 | 28.467 | 389.673 | 177.408 | 0 | 112.307 | 102.404 |
| 360 | 44.339 | 7.102 | 0 | 7.339 | 45.441 | 7.838 | 0 | 7.958 | 44.551 | 8.778 | 0 | 8.887 | 83.836 | 10.466 | 0 | 10.826 | 78.838 | 28.182 | 0 | 25.942 | 78.838 | 25.177 | 0 | 18.971 | 118.257 | 79.954 | 0 | 29.652 | 449.995 | 182.634 | 0 | 118.095 | 118.257 |
| 420 | 49.359 | 7.372 | 0 | 7.641 | 50.586 | 8.141 | 0 | 8.31 | 49.595 | 9.111 | 0 | 9.236 | 93.328 | 10.856 | 0 | 11.264 | 87.764 | 29.17 | 0 | 26.879 | 87.764 | 26.064 | 0 | 19.676 | 131.646 | 82.31 | 0 | 30.793 | 500.944 | 188.016 | 0 | 123.489 | 131.646 |
| 480 | 53.456 | 7.613 | 0 | 7.907 | 54.784 | 8.408 | 0 | 8.616 | 53.711 | 9.409 | 0 | 9.547 | 101.074 | 11.208 | 0 | 11.655 | 95.048 | 30.091 | 0 | 27.747 | 95.048 | 26.888 | 0 | 20.325 | 142.571 | 84.735 | 0 | 31.891 | 542.519 | 193.555 | 0 | 128.489 | 142.571 |
| 540 | 56.628 | 7.825 | 0 | 8.139 | 58.036 | 8.642 | 0 | 8.877 | 56.899 | 9.671 | 0 | 9.818 | 107.073 | 11.521 | 0 | 11.998 | 100.689 | 30.945 | 0 | 28.547 | 100.689 | 27.65 | 0 | 20.919 | 151.034 | 87.229 | 0 | 32.944 | 574.721 | 199.251 | 0 | 133.095 | 151.034 |
| 600 | 58.878 | 8.008 | 0 | 8.335 | 60.341 | 8.84 | 0 | 9.093 | 59.159 | 9.897 | 0 | 10.051 | 111.326 | 11.796 | 0 | 12.293 | 104.689 | 31.732 | 0 | 29.279 | 104.689 | 28.351 | 0 | 21.458 | 157.033 | 89.791 | 0 | 33.954 | 597.55 | 205.103 | 0 | 137.306 | 157.033 |
| 660 | 60.204 | 8.162 | 0 | 8.497 | 61.7 | 9.003 | 0 | 9.264 | 60.491 | 10.087 | 0 | 10.244 | 113.833 | 12.033 | 0 | 12.541 | 107.046 | 32.451 | 0 | 29.943 | 107.046 | 28.989 | 0 | 21.941 | 160.569 | 92.422 | 0 | 34.92 | 611.005 | 211.113 | 0 | 141.124 | 160.569 |
| 720 | 60.606 | 8.286 | 0 | 8.623 | 62.112 | 9.131 | 0 | 9.39 | 60.895 | 10.241 | 0 | 10.399 | 114.594 | 12.231 | 0 | 12.742 | 107.761 | 33.103 | 0 | 30.538 | 107.761 | 29.565 | 0 | 22.368 | 161.642 | 95.121 | 0 | 35.842 | 615.087 | 217.279 | 0 | 144.546 | 161.642 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0 | 0 | 0 | | 0.00035 | 0.007356 | 0 | | 0.000344 | 0.024069 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0.0321198 |

Pollutant Name: Oxides of Nitrogen  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.045 | 0.194 | 0 | 0.2 | 1.045 | 0.211 | 0 | 0.211 | 1.029 | 0.347 | 0 | 0.349 | 1.702 | 0.425 | 0 | 0.43 | 0.53 | 1.37 | 0 | 1.247 | 0.53 | 1.366 | 0 | 1.007 | 0.795 | 1.458 | 0 | 0.504 | 3.086 | 3.989 | 0 | 2.237 | 0.795 |
| 10 | 1.136 | 0.224 | 0 | 0.229 | 1.136 | 0.235 | 0 | 0.236 | 1.118 | 0.393 | 0 | 0.395 | 1.85 | 0.481 | 0 | 0.486 | 0.576 | 1.625 | 0 | 1.478 | 0.576 | 1.641 | 0 | 1.209 | 0.864 | 2.197 | 0 | 0.75 | 3.354 | 6.01 | 0 | 3.305 | 0.864 |
| 20 | 1.301 | 0.276 | 0 | 0.282 | 1.302 | 0.279 | 0 | 0.279 | 1.281 | 0.476 | 0 | 0.478 | 2.119 | 0.58 | 0 | 0.586 | 0.66 | 2.075 | 0 | 1.888 | 0.66 | 2.126 | 0 | 1.566 | 0.99 | 3.495 | 0 | 1.183 | 3.842 | 9.56 | 0 | 5.181 | 0.99 |
| 30 | 1.444 | 0.319 | 0 | 0.326 | 1.445 | 0.315 | 0 | 0.315 | 1.422 | 0.545 | 0 | 0.547 | 2.352 | 0.662 | 0 | 0.669 | 0.732 | 2.447 | 0 | 2.226 | 0.732 | 2.526 | 0 | 1.86 | 1.099 | 4.552 | 0 | 1.536 | 4.265 | 12.452 | 0 | 6.71 | 1.099 |
| 40 | 1.565 | 0.353 | 0 | 0.36 | 1.566 | 0.345 | 0 | 0.344 | 1.541 | 0.599 | 0 | 0.602 | 2.549 | 0.727 | 0 | 0.735 | 0.794 | 2.74 | 0 | 2.492 | 0.794 | 2.84 | 0 | 2.091 | 1.191 | 5.369 | 0 | 1.809 | 4.623 | 14.688 | 0 | 7.894 | 1.191 |
| 50 | 1.664 | 0.378 | 0 | 0.386 | 1.665 | 0.367 | 0 | 0.366 | 1.638 | 0.64 | 0 | 0.642 | 2.711 | 0.776 | 0 | 0.784 | 0.844 | 2.953 | 0 | 2.686 | 0.844 | 3.069 | 0 | 2.259 | 1.266 | 5.946 | 0 | 2.002 | 4.915 | 16.266 | 0 | 8.732 | 1.266 |
| 60 | 1.741 | 0.394 | 0 | 0.403 | 1.742 | 0.381 | 0 | 0.381 | 1.714 | 0.667 | 0 | 0.669 | 2.836 | 0.808 | 0 | 0.817 | 0.883 | 3.088 | 0 | 2.809 | 0.883 | 3.211 | 0 | 2.364 | 1.325 | 6.283 | 0 | 2.115 | 5.143 | 17.186 | 0 | 9.224 | 1.325 |
| 120 | 1.745 | 0.414 | 0 | 0.422 | 1.746 | 0.404 | 0 | 0.403 | 1.718 | 0.703 | 0 | 0.705 | 2.842 | 0.853 | 0 | 0.861 | 0.885 | 3.213 | 0 | 2.923 | 0.885 | 3.331 | 0 | 2.452 | 1.328 | 6.305 | 0 | 2.122 | 5.154 | 17.245 | 0 | 9.255 | 1.328 |
| 180 | 1.703 | 0.412 | 0 | 0.42 | 1.704 | 0.403 | 0 | 0.401 | 1.677 | 0.7 | 0 | 0.703 | 2.775 | 0.85 | 0 | 0.858 | 0.864 | 3.203 | 0 | 2.913 | 0.864 | 3.32 | 0 | 2.444 | 1.296 | 6.281 | 0 | 2.114 | 5.031 | 17.182 | 0 | 9.216 | 1.296 |
| 240 | 1.648 | 0.41 | 0 | 0.417 | 1.649 | 0.4 | 0 | 0.397 | 1.623 | 0.695 | 0 | 0.698 | 2.685 | 0.844 | 0 | 0.851 | 0.836 | 3.182 | 0 | 2.894 | 0.836 | 3.299 | 0 | 2.428 | 1.254 | 6.246 | 0 | 2.101 | 4.868 | 17.085 | 0 | 9.157 | 1.254 |
| 300 | 1.579 | 0.405 | 0 | 0.412 | 1.58 | 0.396 | 0 | 0.392 | 1.555 | 0.688 | 0 | 0.69 | 2.573 | 0.835 | 0 | 0.842 | 0.801 | 3.15 | 0 | 2.865 | 0.801 | 3.267 | 0 | 2.404 | 1.202 | 6.198 | 0 | 2.084 | 4.665 | 16.955 | 0 | 9.079 | 1.202 |
| 360 | 1.497 | 0.4 | 0 | 0.406 | 1.498 | 0.39 | 0 | 0.386 | 1.474 | 0.678 | 0 | 0.68 | 2.439 | 0.823 | 0 | 0.829 | 0.759 | 3.108 | 0 | 2.826 | 0.759 | 3.224 | 0 | 2.373 | 1.139 | 6.138 | 0 | 2.062 | 4.422 | 16.791 | 0 | 8.981 | 1.139 |
| 420 | 1.401 | 0.392 | 0 | 0.398 | 1.403 | 0.382 | 0 | 0.377 | 1.38 | 0.665 | 0 | 0.667 | 2.283 | 0.807 | 0 | 0.813 | 0.711 | 3.055 | 0 | 2.778 | 0.711 | 3.171 | 0 | 2.333 | 1.066 | 6.066 | 0 | 2.036 | 4.14 | 16.594 | 0 | 8.864 | 1.066 |
| 480 | 1.292 | 0.384 | 0 | 0.389 | 1.293 | 0.373 | 0 | 0.367 | 1.272 | 0.65 | 0 | 0.651 | 2.105 | 0.788 | 0 | 0.793 | 0.656 | 2.992 | 0 | 2.721 | 0.656 | 3.107 | 0 | 2.286 | 0.983 | 5.982 | 0 | 2.006 | 3.817 | 16.363 | 0 | 8.727 | 0.983 |
| 540 | 1.17 | 0.373 | 0 | 0.378 | 1.171 | 0.362 | 0 | 0.355 | 1.152 | 0.632 | 0 | 0.633 | 1.905 | 0.766 | 0 | 0.77 | 0.593 | 2.918 | 0 | 2.653 | 0.593 | 3.032 | 0 | 2.231 | 0.89 | 5.886 | 0 | 1.972 | 3.455 | 16.099 | 0 | 8.571 | 0.89 |
| 600 | 1.033 | 0.362 | 0 | 0.365 | 1.034 | 0.35 | 0 | 0.342 | 1.018 | 0.611 | 0 | 0.612 | 1.684 | 0.741 | 0 | 0.744 | 0.524 | 2.834 | 0 | 2.576 | 0.524 | 2.947 | 0 | 2.168 | 0.786 | 5.777 | 0 | 1.933 | 3.053 | 15.802 | 0 | 8.395 | 0.786 |
| 660 | 0.884 | 0.349 | 0 | 0.351 | 0.885 | 0.336 | 0 | 0.327 | 0.87 | 0.588 | 0 | 0.588 | 1.44 | 0.713 | 0 | 0.714 | 0.448 | 2.739 | 0 | 2.49 | 0.448 | 2.852 | 0 | 2.098 | 0.673 | 5.656 | 0 | 1.89 | 2.611 | 15.471 | 0 | 8.2 | 0.673 |
| 720 | 0.721 | 0.334 | 0 | 0.336 | 0.721 | 0.32 | 0 | 0.31 | 0.71 | 0.562 | 0 | 0.562 | 1.174 | 0.681 | 0 | 0.682 | 0.366 | 2.633 | 0 | 2.394 | 0.366 | 2.746 | 0 | 2.019 | 0.548 | 5.522 | 0 | 1.842 | 2.129 | 15.106 | 0 | 7.986 | 0.548 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0 | 0 | 0 | 2.45E-05 | 0.000441 | 0 | | 2.42E-05 | 0.002229 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0.0027186 |

Pollutant Name: PM10  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.012 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.001 | 0 | 0.001 | 0.011 | 0.002 | 0 | 0.002 | 0.011 |
| 10 | 0.01 | 0.001 | 0 | 0.001 | 0.01 | 0.001 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.002 | 0.01 | 0.002 | 0 | 0.002 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.002 | 0 | 0.001 | 0.01 | 0.004 | 0 | 0.002 | 0.01 |
| 20 | 0.008 | 0.002 | 0 | 0.002 | 0.008 | 0.002 | 0 | 0.002 | 0.008 | 0.005 | 0 | 0.005 | 0.008 | 0.005 | 0 | 0.005 | 0.008 | 0.003 | 0 | 0.003 | 0.008 | 0.003 | 0 | 0.002 | 0.008 | 0.005 | 0 | 0.002 | 0.008 | 0.007 | 0 | 0.004 | 0.008 |
| 30 | 0.006 | 0.003 | 0 | 0.003 | 0.006 | 0.003 | 0 | 0.003 | 0.006 | 0.007 | 0 | 0.007 | 0.006 | 0.007 | 0 | 0.007 | 0.006 | 0.004 | 0 | 0.004 | 0.006 | 0.005 | 0 | 0.004 | 0.006 | 0.006 | 0 | 0.002 | 0.006 | 0.01 | 0 | 0.005 | 0.006 |
| 40 | 0.004 | 0.004 | 0 | 0.004 | 0.004 | 0.004 | 0 | 0.004 | 0.004 | 0.009 | 0 | 0.009 | 0.004 | 0.009 | 0 | 0.009 | 0.004 | 0.005 | 0 | 0.005 | 0.004 | 0.006 | 0 | 0.005 | 0.004 | 0.008 | 0 | 0.003 | 0.004 | 0.012 | 0 | 0.007 | 0.004 |
| 50 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.01 | 0 | 0.01 | 0.003 | 0.01 | 0 | 0.01 | 0.003 | 0.006 | 0 | 0.006 | 0.003 | 0.007 | 0 | 0.005 | 0.003 | 0.01 | 0 | 0.003 | 0.003 | 0.015 | 0 | 0.008 | 0.003 |
| 60 | 0.003 | 0.005 | 0 | 0.005 | 0.003 | 0.006 | 0 | 0.005 | 0.003 | 0.012 | 0 | 0.012 | 0.003 | 0.012 | 0 | 0.012 | 0.003 | 0.007 | 0 | 0.007 | 0.003 | 0.008 | 0 | 0.006 | 0.003 | 0.011 | 0 | 0.004 | 0.003 | 0.017 | 0 | 0.009 | 0.003 |
| 120 | 0.007 | 0.008 | 0 | 0.008 | 0.007 | 0.008 | 0 | 0.008 | 0.007 | 0.018 | 0 | 0.018 | 0.007 | 0.018 | 0 | 0.018 | 0.007 | 0.011 | 0 | 0.01 | 0.007 | 0.012 | 0 | 0.009 | 0.007 | 0.015 | 0 | 0.005 | 0.007 | 0.023 | 0 | 0.012 | 0.007 |
| 180 | 0.011 | 0.009 | 0 | 0.009 | 0.011 | 0.009 | 0 | 0.009 | 0.011 | 0.019 | 0 | 0.019 | 0.012 | 0.019 | 0 | 0.019 | 0.011 | 0.011 | 0 | 0.01 | 0.011 | 0.013 | 0 | 0.009 | 0.011 | 0.016 | 0 | 0.006 | 0.011 | 0.024 | 0 | 0.013 | 0.011 |
| 240 | 0.015 | 0.009 | 0 | 0.009 | 0.015 | 0.01 | 0 | 0.009 | 0.015 | 0.02 | 0 | 0.02 | 0.015 | 0.02 | 0 | 0.02 | 0.015 | 0.012 | 0 | 0.011 | 0.015 | 0.013 | 0 | 0.01 | 0.015 | 0.016 | 0 | 0.006 | 0.015 | 0.024 | 0 | 0.013 | 0.015 |
| 300 | 0.018 | 0.01 | 0 | 0.01 | 0.018 | 0.01 | 0 | 0.01 | 0.018 | 0.022 | 0 | 0.022 | 0.019 | 0.021 | 0 | 0.021 | 0.018 | 0.012 | 0 | 0.011 | 0.018 | 0.014 | 0 | 0.01 | 0.018 | 0.017 | 0 | 0.006 | 0.018 | 0.025 | 0 | 0.014 | 0.018 |
| 360 | 0.021 | 0.01 | 0 | 0.01 | 0.021 | 0.011 | 0 | 0.01 | 0.021 | 0.023 | 0 | 0.023 | 0.022 | 0.022 | 0 | 0.022 | 0.021 | 0.013 | 0 | 0.012 | 0.021 | 0.014 | 0 | 0.011 | 0.021 | 0.017 | 0 | 0.006 | 0.021 | 0.026 | 0 | 0.014 | 0.021 |
| 420 | 0.023 | 0.01 | 0 | 0.011 | 0.023 | 0.011 | 0 | 0.011 | 0.024 | 0.024 | 0 | 0.023 | 0.024 | 0.023 | 0 | 0.023 | 0.023 | 0.013 | 0 | 0.012 | 0.023 | 0.015 | 0 | 0.011 | 0.023 | 0.018 | 0 | 0.006 | 0.023 | 0.026 | 0 | 0.015 | 0.023 |
| 480 | 0.025 | 0.011 | 0 | 0.011 | 0.025 | 0.012 | 0 | 0.011 | 0.026 | 0.024 | 0 | 0.024 | 0.026 | 0.024 | 0 | 0.024 | 0.025 | 0.014 | 0 | 0.012 | 0.025 | 0.015 | 0 | 0.011 | 0.025 | 0.018 | 0 | 0.007 | 0.025 | 0.027 | 0 | 0.016 | 0.025 |
| 540 | 0.027 | 0.011 | 0 | 0.011 | 0.027 | 0.012 | 0 | 0.012 | 0.027 | 0.025 | 0 | 0.025 | 0.028 | 0.025 | 0 | 0.025 | 0.027 | 0.014 | 0 | 0.013 | 0.027 | 0.015 | 0 | 0.012 | 0.027 | 0.019 | 0 | 0.007 | 0.027 | 0.028 | 0 | 0.016 | 0.027 |
| 600 | 0.028 | 0.011 | 0 | 0.011 | 0.028 | 0.012 | 0 | 0.012 | 0.028 | 0.026 | 0 | 0.025 | 0.029 | 0.025 | 0 | 0.025 | 0.028 | 0.014 | 0 | 0.013 | 0.028 | 0.016 | 0 | 0.012 | 0.028 | 0.019 | 0 | 0.007 | 0.028 | 0.029 | 0 | 0.016 | 0.028 |
| 660 | 0.029 | 0.012 | 0 | 0.012 | 0.028 | 0.012 | 0 | 0.012 | 0.029 | 0.026 | 0 | 0.026 | 0.03 | 0.026 | 0 | 0.026 | 0.029 | 0.015 | 0 | 0.013 | 0.029 | 0.016 | 0 | 0.012 | 0.029 | 0.02 | 0 | 0.007 | 0.029 | 0.03 | 0 | 0.017 | 0.029 |
| 720 | 0.029 | 0.012 | 0 | 0.012 | 0.029 | 0.012 | 0 | 0.012 | 0.029 | 0.026 | 0 | 0.026 | 0.03 | 0.026 | 0 | 0.026 | 0.029 | 0.015 | 0 | 0.014 | 0.029 | 0.017 | 0 | 0.012 | 0.029 | 0.02 | 0 | 0.008 | 0.029 | 0.031 | 0 | 0.017 | 0.029 |
| Pounds/day: 180 min soak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
| | 0 | 0 | 0 | 1.58E-07 | 9.85E-06 | 0 | | 1.58E-07 | 6.05E-05 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 7.066E-05 |

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.884 | 0.063 | 0 | 0.068 | 0.904 | 0.056 | 0 | 0.065 | 0.898 | 0.058 | 0 | 0.061 | 0.313 | 0.052 | 0 | 0.053 | 0.382 | 0.017 | 0 | 0.018 | 0.383 | 0.017 | 0 | 0.015 | 0.221 | 0.016 | 0 | 0.011 | 0.22 | 0.014 | 0 | 0.019 | 0.221 |
| 10 | 1.628 | 0.116 | 0 | 0.126 | 1.665 | 0.104 | 0 | 0.12 | 1.654 | 0.107 | 0 | 0.113 | 0.576 | 0.096 | 0 | 0.098 | 0.704 | 0.033 | 0 | 0.033 | 0.706 | 0.033 | 0 | 0.028 | 0.406 | 0.03 | 0 | 0.021 | 0.406 | 0.027 | 0 | 0.035 | 0.407 |
| 20 | 2.764 | 0.199 | 0 | 0.216 | 2.826 | 0.179 | 0 | 0.205 | 2.807 | 0.184 | 0 | 0.193 | 0.978 | 0.165 | 0 | 0.169 | 1.195 | 0.057 | 0 | 0.057 | 1.198 | 0.057 | 0 | 0.049 | 0.69 | 0.052 | 0 | 0.036 | 0.689 | 0.047 | 0 | 0.06 | 0.69 |
| 30 | 3.53 | 0.256 | 0 | 0.278 | 3.608 | 0.231 | 0 | 0.264 | 3.583 | 0.238 | 0 | 0.249 | 1.249 | 0.213 | 0 | 0.218 | 1.525 | 0.075 | 0 | 0.075 | 1.53 | 0.074 | 0 | 0.064 | 0.88 | 0.069 | 0 | 0.046 | 0.879 | 0.062 | 0 | 0.077 | 0.881 |
| 40 | 3.808 | 0.278 | 0 | 0.301 | 3.892 | 0.251 | 0 | 0.286 | 3.865 | 0.258 | 0 | 0.27 | 1.347 | 0.232 | 0 | 0.237 | 1.645 | 0.082 | 0 | 0.082 | 1.65 | 0.081 | 0 | 0.07 | 0.95 | 0.075 | 0 | 0.051 | 0.948 | 0.068 | 0 | 0.084 | 0.95 |

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

| Pounds/day: 30 min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | | 5.2E-05 | 0.000253 | 0 | | 5.16E-05 | 0.000758 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0011142 |

Table 7: Estimated Travel Fractions

Pollutant Name:  Temperature: ALL  Relative Humidity: ALL

| | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| %VMT | 0.002 | 0.451 | 0.001 | 0.454 | 0.001 | 0.085 | 0.004 | 0.089 | 0.001 | 0.247 | 0 | 0.248 | 0.001 | 0.125 | 0 | 0.126 | 0 | 0.024 | 0.006 | 0.031 | 0 | 0.005 | 0.004 | 0.009 | 0 | 0.002 | 0.01 | 0.013 | 0 | 0.001 | 0.013 | 0.014 | 0 |
| %TRIP | 0.003 | 0.432 | 0.001 | 0.437 | 0.001 | 0.076 | 0.004 | 0.081 | 0.001 | 0.221 | 0 | 0.222 | 0.001 | 0.108 | 0 | 0.109 | 0 | 0.069 | 0.007 | 0.076 | 0 | 0.014 | 0.005 | 0.019 | 0.001 | 0.012 | 0.023 | 0.036 | 0 | 0.002 | 0.001 | 0.003 | 0 |
| %VEH | 0.005 | 0.46 | 0.001 | 0.467 | 0.002 | 0.081 | 0.004 | 0.087 | 0.001 | 0.235 | 0 | 0.236 | 0.001 | 0.114 | 0 | 0.116 | 0 | 0.014 | 0.004 | 0.018 | 0 | 0.003 | 0.003 | 0.005 | 0 | 0.002 | 0.006 | 0.007 | 0 | 0 | 0.002 | 0.002 | 0 |
| Project: | 0.000 | 0.000 | 0.000 | | 0.001 | 0.083 | 0.004 | | 0.001 | 0.241 | 0.000 | | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | 0.000 | | | | | | | | | | | | | 0.67 | | SUM: |

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Reactive Org Gases  Temperature: 75F  Relative Humidity: ALL

| Time min | LDA NCAT | LDA CAT | LDA DSL | LDA ALL | LDT1 NCAT | LDT1 CAT | LDT1 DSL | LDT1 ALL | LDT2 NCAT | LDT2 CAT | LDT2 DSL | LDT2 ALL | MDV NCAT | MDV CAT | MDV DSL | MDV ALL | LHD1 NCAT | LHD1 CAT | LHD1 DSL | LHD1 ALL | LHD2 NCAT | LHD2 CAT | LHD2 DSL | LHD2 ALL | MHD NCAT | MHD CAT | MHD DSL | MHD ALL | HHD NCAT | HHD CAT | HHD DSL | HHD ALL | LHV NCAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.455 | 0.014 | 0 | 0.02 | 1.657 | 0.393 | 0 | 0.391 | 1.577 | 0.458 | 0 | 0.46 | 0.476 | 0.378 | 0 | 0.377 | 2.034 | 0.325 | 0 | 0.26 | 1.922 | 0.327 | 0 | 0.176 | 1.646 | 0.542 | 0 | 0.108 | 2.575 | 0.325 | 0 | 0.018 | 1.615 |
| 2 | 1.374 | 0.018 | 0 | 0.024 | 1.182 | 0.2 | 0 | 0.203 | 1.111 | 0.232 | 0 | 0.235 | 0.304 | 0.193 | 0 | 0.193 | 1.179 | 0.172 | 0 | 0.138 | 1.259 | 0.171 | 0 | 0.093 | 1.168 | 0.289 | 0 | 0.058 | 1.683 | 0.175 | 0 | 0.01 | 1.137 |
| 3 | 1.344 | 0.022 | 0 | 0.028 | 1.021 | 0.138 | 0 | 0.142 | 0.954 | 0.159 | 0 | 0.162 | 0.247 | 0.133 | 0 | 0.134 | 0.893 | 0.122 | 0 | 0.098 | 1.036 | 0.121 | 0 | 0.066 | 1.006 | 0.206 | 0 | 0.042 | 1.383 | 0.127 | 0 | 0.007 | 0.976 |
| 4 | 1.326 | 0.026 | 0 | 0.031 | 0.939 | 0.109 | 0 | 0.114 | 0.873 | 0.124 | 0 | 0.126 | 0.217 | 0.105 | 0 | 0.105 | 0.75 | 0.098 | 0 | 0.079 | 0.923 | 0.097 | 0 | 0.053 | 0.924 | 0.165 | 0 | 0.034 | 1.231 | 0.105 | 0 | 0.006 | 0.893 |
| 5 | 1.313 | 0.028 | 0 | 0.033 | 0.889 | 0.092 | 0 | 0.097 | 0.824 | 0.104 | 0 | 0.106 | 0.2 | 0.088 | 0 | 0.089 | 0.663 | 0.084 | 0 | 0.067 | 0.854 | 0.083 | 0 | 0.045 | 0.873 | 0.141 | 0 | 0.029 | 1.138 | 0.092 | 0 | 0.005 | 0.842 |
| 10 | 1.271 | 0.032 | 0 | 0.037 | 0.778 | 0.059 | 0 | 0.064 | 0.717 | 0.064 | 0 | 0.066 | 0.163 | 0.057 | 0 | 0.057 | 0.486 | 0.057 | 0 | 0.046 | 0.708 | 0.055 | 0 | 0.031 | 0.762 | 0.095 | 0 | 0.02 | 0.942 | 0.066 | 0 | 0.004 | 0.732 |
| 15 | 1.241 | 0.033 | 0 | 0.038 | 0.731 | 0.049 | 0 | 0.055 | 0.672 | 0.053 | 0 | 0.055 | 0.149 | 0.048 | 0 | 0.048 | 0.423 | 0.049 | 0 | 0.039 | 0.651 | 0.048 | 0 | 0.026 | 0.715 | 0.081 | 0 | 0.017 | 0.866 | 0.058 | 0 | 0.003 | 0.686 |
| 20 | 1.215 | 0.033 | 0 | 0.038 | 0.701 | 0.045 | 0 | 0.051 | 0.643 | 0.049 | 0 | 0.051 | 0.141 | 0.044 | 0 | 0.045 | 0.389 | 0.046 | 0 | 0.037 | 0.617 | 0.045 | 0 | 0.025 | 0.686 | 0.074 | 0 | 0.016 | 0.82 | 0.054 | 0 | 0.003 | 0.656 |
| 25 | 1.191 | 0.033 | 0 | 0.038 | 0.677 | 0.043 | 0 | 0.048 | 0.621 | 0.047 | 0 | 0.048 | 0.135 | 0.043 | 0 | 0.043 | 0.367 | 0.044 | 0 | 0.035 | 0.592 | 0.043 | 0 | 0.024 | 0.663 | 0.071 | 0 | 0.015 | 0.786 | 0.051 | 0 | 0.003 | 0.633 |
| 30 | 1.169 | 0.032 | 0 | 0.037 | 0.663 | 0.042 | 0 | 0.047 | 0.608 | 0.045 | 0 | 0.046 | 0.132 | 0.041 | 0 | 0.041 | 0.36 | 0.043 | 0 | 0.034 | 0.579 | 0.041 | 0 | 0.023 | 0.649 | 0.069 | 0 | 0.015 | 0.77 | 0.05 | 0 | 0.003 | 0.62 |
| 35 | 1.149 | 0.031 | 0 | 0.036 | 0.649 | 0.04 | 0 | 0.045 | 0.596 | 0.043 | 0 | 0.044 | 0.13 | 0.039 | 0 | 0.04 | 0.353 | 0.041 | 0 | 0.033 | 0.567 | 0.04 | 0 | 0.022 | 0.636 | 0.066 | 0 | 0.014 | 0.754 | 0.049 | 0 | 0.003 | 0.607 |
| 40 | 1.129 | 0.03 | 0 | 0.035 | 0.636 | 0.038 | 0 | 0.043 | 0.584 | 0.041 | 0 | 0.042 | 0.127 | 0.038 | 0 | 0.038 | 0.347 | 0.04 | 0 | 0.032 | 0.555 | 0.038 | 0 | 0.021 | 0.623 | 0.064 | 0 | 0.014 | 0.739 | 0.047 | 0 | 0.003 | 0.595 |
| 45 | 1.11 | 0.029 | 0 | 0.034 | 0.624 | 0.037 | 0 | 0.042 | 0.573 | 0.039 | 0 | 0.041 | 0.125 | 0.036 | 0 | 0.036 | 0.341 | 0.038 | 0 | 0.031 | 0.544 | 0.037 | 0 | 0.021 | 0.611 | 0.062 | 0 | 0.014 | 0.724 | 0.046 | 0 | 0.003 | 0.583 |
| 50 | 1.064 | 0.028 | 0 | 0.032 | 0.605 | 0.035 | 0 | 0.04 | 0.556 | 0.037 | 0 | 0.039 | 0.122 | 0.035 | 0 | 0.035 | 0.333 | 0.037 | 0 | 0.03 | 0.529 | 0.036 | 0 | 0.02 | 0.593 | 0.06 | 0 | 0.013 | 0.701 | 0.045 | 0 | 0.003 | 0.566 |
| 55 | 1.008 | 0.027 | 0 | 0.031 | 0.584 | 0.034 | 0 | 0.038 | 0.537 | 0.036 | 0 | 0.037 | 0.119 | 0.033 | 0 | 0.033 | 0.326 | 0.036 | 0 | 0.029 | 0.513 | 0.035 | 0 | 0.019 | 0.572 | 0.059 | 0 | 0.013 | 0.675 | 0.043 | 0 | 0.003 | 0.548 |
| 60 | 0.959 | 0.026 | 0 | 0.029 | 0.565 | 0.032 | 0 | 0.037 | 0.52 | 0.034 | 0 | 0.036 | 0.116 | 0.032 | 0 | 0.032 | 0.319 | 0.035 | 0 | 0.028 | 0.498 | 0.033 | 0 | 0.019 | 0.553 | 0.057 | 0 | 0.012 | 0.652 | 0.042 | 0 | 0.003 | 0.531 |

| Pounds/day: 30 min per trip | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **SUM** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | | 9.55E-06 | 4.6E-05 | 0 | | 8.76E-06 | 0.000143 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0002076 |

**RESULTS: pounds per day**

**Total Days:** 120

| Speed | ROG | CO | NOx | PM10 | CO2 | CO2 MT/yr |
|---|---|---|---|---|---|---|
| 25 | 0.16 | 0.94 | 1.61 | 0.08 | 305.41 | 16.6 |
| 30 | 0.13 | 0.82 | 1.54 | 0.07 | 285.59 | 15.5 |
| 35 | 0.11 | 0.73 | 1.49 | 0.06 | 270.19 | 14.7 |
| 40 | 0.09 | 0.65 | 1.45 | 0.06 | 258.89 | 14.1 |
| 45 | 0.09 | 0.60 | 1.43 | 0.06 | 251.50 | 13.7 |
| 50 | 0.09 | 0.58 | 1.43 | 0.07 | 247.96 | 13.5 |

# VCWWD no. 19 Near-Term Projects - Well 2 Iron & Manganese Removal Facility
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 1 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.055 | 958.5 | 5 | 0.000 | 0.000 | 2.4 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 30 | 0.000 | 0.001 | 15.9 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 60 | 0.000 | 0.001 | 9.5 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 20 | 0.000 | 0.001 | 9.8 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 5 | 0.000 | 0.000 | 2.1 |
| | | | | | | | | | 0.11 | 0.24 | 4161.4 | | 0.001 | 0.002 | 39.7 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 150 | 0.0621 | 0.0346 | 395 | 0.02 | 0.01 | 130.62 | 240 | 0.002 | 0.001 | 15.7 |
| Materials transportation (HD trucks) | 30 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 115.94 | 240 | 0.000 | 0.000 | 13.9 |
| | | | | | | | | | 0.003 | 0.001 | 29.6 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.004 | 0.004 | 69.3 |

# VCWWD no. 19 Near-Term Projects - Sand Canyon PS & Pipeline Upgrade
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 3 | 0.000 | 0.000 | 1.6 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 10 | 0.000 | 0.000 | 1.6 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 10 | 0.000 | 0.000 | 4.9 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 10 | 0.000 | 0.000 | 5.9 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 10 | 0.000 | 0.000 | 2.9 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 5 | 0.000 | 0.000 | 2.0 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 5 | 0.000 | 0.000 | 2.1 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.001 | 0.001 | 20.9 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 20 | 0.000 | 0.000 | 2.6 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 10 | 0.000 | 0.000 | 1.2 |
| | | | | | | | | | 0.000 | 0.000 | 3.8 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.001 | 0.001 | 24.7 |

# VCWWD no. 19 Near-Term Projects - Donlon Road Pipeline Upgrade
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 0 | 0.000 | 0.000 | 0.0 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 5 | 0.000 | 0.000 | 0.8 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 5 | 0.000 | 0.000 | 2.4 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 5 | 0.000 | 0.000 | 2.9 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 5 | 0.000 | 0.000 | 1.4 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 2 | 0.000 | 0.000 | 0.8 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 2 | 0.000 | 0.000 | 0.8 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.000 | 0.001 | 9.3 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 5 | 0.000 | 0.000 | 0.7 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 5 | 0.000 | 0.000 | 0.6 |
| | | | | | | | | | 0.000 | 0.000 | 1.2 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.000 | 0.001 | 10.5 |

# VCWWD no. 19 Near-Term Projects - Kingsgrove Drive Pipeline Upgrade
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 0 | 0.000 | 0.000 | 0.0 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 6 | 0.000 | 0.000 | 1.0 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 6 | 0.000 | 0.000 | 2.9 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 6 | 0.000 | 0.000 | 3.5 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 6 | 0.000 | 0.000 | 1.7 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 2 | 0.000 | 0.000 | 0.8 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 2 | 0.000 | 0.000 | 0.8 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.000 | 0.001 | 10.8 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 6 | 0.000 | 0.000 | 0.8 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 6 | 0.000 | 0.000 | 0.7 |
| | | | | | | | | | 0.000 | 0.000 | 1.5 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.000 | 0.001 | 12.3 |

# VCWWD no. 19 Near-Term Projects - Bell Ranch/Somis Road Pipeline Upgrade (project 5)
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 0 | 0.000 | 0.000 | 0.0 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 17 | 0.000 | 0.000 | 2.7 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 17 | 0.000 | 0.000 | 8.3 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 17 | 0.000 | 0.001 | 10.0 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 17 | 0.000 | 0.000 | 4.9 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 5 | 0.000 | 0.000 | 2.0 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 5 | 0.000 | 0.000 | 2.1 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.001 | 0.002 | 30.0 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 17 | 0.000 | 0.000 | 2.2 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 17 | 0.000 | 0.000 | 2.0 |
| | | | | | | | | | 0.000 | 0.000 | 4.2 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.001 | 0.002 | 34.2 |

# VCWWD no. 19 Near-Term Projects - Posita Road Meter Relocation and Pipeline Upgrade (project 6)
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 0 | 0.000 | 0.000 | 0.0 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 12 | 0.000 | 0.000 | 1.9 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 12 | 0.000 | 0.000 | 5.9 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 12 | 0.000 | 0.000 | 7.1 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 12 | 0.000 | 0.000 | 3.5 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 4 | 0.000 | 0.000 | 1.6 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 4 | 0.000 | 0.000 | 1.7 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.001 | 0.001 | 21.6 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 12 | 0.000 | 0.000 | 1.6 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 12 | 0.000 | 0.000 | 1.4 |
| | | | | | | | | | 0.000 | 0.000 | 3.0 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.001 | 0.001 | 24.5 |

# VCWWD no. 19 Near-Term Projects - West Street Alley Pipeline Upgrade (project 7)
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 0 | 0.000 | 0.000 | 0.0 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 15 | 0.000 | 0.000 | 2.4 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 15 | 0.000 | 0.000 | 7.3 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 15 | 0.000 | 0.001 | 8.8 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 15 | 0.000 | 0.000 | 4.3 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 4 | 0.000 | 0.000 | 1.6 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 4 | 0.000 | 0.000 | 1.7 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.001 | 0.001 | 26.2 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 15 | 0.000 | 0.000 | 2.0 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 15 | 0.000 | 0.000 | 1.7 |
| | | | | | | | | | 0.000 | 0.000 | 3.7 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.001 | 0.002 | 29.9 |

# VCWWD no. 19 Near-Term Projects - SR 118 Pipeline Upgrade (projects 8-11)
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 5 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 5 | 0.000 | 0.000 | 2.6 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 56 | 0.000 | 0.001 | 8.9 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 56 | 0.001 | 0.002 | 27.4 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 56 | 0.001 | 0.002 | 32.9 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 56 | 0.000 | 0.001 | 16.2 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 10 | 0.000 | 0.000 | 4.0 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 10 | 0.000 | 0.000 | 4.2 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.002 | 0.005 | 96.2 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 56 | 0.001 | 0.001 | 7.3 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 56 | 0.000 | 0.000 | 6.5 |
| | | | | | | | | | 0.001 | 0.001 | 13.8 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.004 | 0.006 | 110.0 |

# VCWWD no. 19 Near-Term Projects - Balcom Canyon Road Pipeline Upgrade & PRS Relocation (project 12)
# Greenhouse Gas Emissions

## Off-Road Equipment

| | | | | | | Emission Factors: g/gallon | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Fuel | BHP | Number | Load Factor | Hours/ Day | N2O | CH4 | CO2 | N2O | CH4 | CO2 | Days | N2O | CH4 | CO2 |
| Dozer (Caterpillar D6H or eq.) | Diesel | 165 | 0 | 59 | 8 | 0.26 | 0.58 | 10150 | 0.000 | 0.000 | 0.0 | 0 | 0.000 | 0.000 | 0.0 |
| Crane | Diesel | 250 | 1 | 43 | 8 | 0.26 | 0.58 | 10150 | 0.027 | 0.060 | 1058.4 | 5 | 0.000 | 0.000 | 2.6 |
| Backhoe | Diesel | 70 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.008 | 0.018 | 317.0 | 14 | 0.000 | 0.000 | 2.2 |
| Wheeled loader (Caterpillar 966 or eq.) | Diesel | 216 | 1 | 46 | 8 | 0.26 | 0.58 | 10150 | 0.025 | 0.056 | 978.3 | 14 | 0.000 | 0.000 | 6.8 |
| Excavator | Diesel | 206 | 1 | 58 | 8 | 0.26 | 0.58 | 10150 | 0.030 | 0.067 | 1176.4 | 14 | 0.000 | 0.000 | 8.2 |
| Roller compactor | Diesel | 102 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.015 | 0.033 | 577.4 | 14 | 0.000 | 0.000 | 4.0 |
| Generator | Diesel | 109 | 1 | 74 | 8 | 0.26 | 0.58 | 10150 | 0.020 | 0.045 | 794.2 | 3 | 0.000 | 0.000 | 1.2 |
| Motor grader | Diesel | 150 | 1 | 57.5 | 8 | 0.26 | 0.58 | 10150 | 0.022 | 0.049 | 849.2 | 3 | 0.000 | 0.000 | 1.3 |
| | | | | | | | | | 0.15 | 0.33 | 5750.9 | | 0.001 | 0.002 | 26.5 |

Emission factors from the California Climate Action Registry General Reporting Protocol (Table C.6: Construction diesel fuel)

## On-Road Vehicles

| | Average | Emission Factors: g/mile | | | Average Pounds/Day | | | | Tons | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Source | Miles/Day | N20 | CH4 | CO2 | N20 | CH4 | CO2 | Days | N20 | CH4 | CO2 |
| Worker transportation (light trucks) | 300 | 0.0621 | 0.0346 | 395 | 0.04 | 0.02 | 261.24 | 14 | 0.000 | 0.000 | 1.8 |
| Materials transportation (HD trucks) | 60 | 0.0048 | 0.0051 | 1753 | 0.00 | 0.00 | 231.88 | 9 | 0.000 | 0.000 | 1.0 |
| | | | | | | | | | 0.000 | 0.000 | 2.9 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

## Project Total

| Tons | | |
|---|---|---|
| N2O | CH4 | CO2 |
| 0.001 | 0.002 | 29.3 |

## VCWWD no. 19 Near-Term Projects
## Greenhouse Gas Emissions

| | Total English Tons | | | Total Metric Tons | | | CO2eq (metric tons) | | | CO2 MTeq |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project** | **N2O** | **CH4** | **CO2** | **N2O** | **CH4** | **CO2** | **N2O** | **CH4** | **CO2** | **Sum** |
| Well no. 2 Fe/Mn Removal Facility | 0.004 | 0.004 | 69.3 | 0.003 | 0.003 | 61.9 | 0.97 | 0.07 | 61.9 | 62.9 |
| Sand Cyn Road BPS & Pipeline Upgrade | 0.001 | 0.001 | 24.7 | 0.001 | 0.001 | 22.1 | 0.26 | 0.03 | 22.1 | 22.4 |
| Donlon Road Pipeline Upgrade | 0.000 | 0.001 | 10.5 | 0.000 | 0.001 | 9.4 | 0.09 | 0.01 | 9.4 | 9.5 |
| Kingsgrove Drive Pipeline Upgrade | 0.000 | 0.001 | 12.3 | 0.000 | 0.001 | 11.0 | 0.11 | 0.01 | 11.0 | 11.1 |
| Bell Ranch/Somis Road Pipeline Upgrade | 0.001 | 0.002 | 34.2 | 0.001 | 0.002 | 30.6 | 0.31 | 0.04 | 30.6 | 30.9 |
| Posita Road Meter Relocation & Pipeline Upgrade | 0.001 | 0.001 | 24.5 | 0.001 | 0.001 | 21.9 | 0.22 | 0.03 | 21.9 | 22.2 |
| West Street Alley Pipeline Upgrade | 0.001 | 0.002 | 29.9 | 0.001 | 0.001 | 26.7 | 0.27 | 0.03 | 26.7 | 27.0 |
| SR 118 Pipeline Upgrades | 0.004 | 0.006 | 110.0 | 0.003 | 0.005 | 98.3 | 1.01 | 0.12 | 98.3 | 99.4 |
| Balcom Cyn Road Pipeline Upgrade & PRS Relocation | 0.001 | 0.002 | 29.3 | 0.001 | 0.001 | 26.2 | 0.27 | 0.03 | 26.2 | 26.5 |
| **Total** | 0.013 | 0.019 | 344.7 | 0.011 | 0.017 | 307.8 | 3.52 | 0.36 | 307.8 | **311.7** |
| Worst-case Annual Emissions (12/20) | | | | 0.007 | 0.010 | 184.7 | 2.11 | 0.22 | 184.7 | **187.0** |

# VCWWD no. 19 Near-Term Projects - Well no. 2 Fe & Mn Removal Facility Operation
# Greenhouse Gas Emissions

## On-Road Vehicles

| Source | Total Miles/Year | Emission Factors: g/mile | | | Metric Tons/Year | | | MT CO2eq | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N20 | CH4 | CO2 | N20 | CH4 | CO2 | N20 | CH4 | CO2 | SUM |
| Daily staff transportation (light trucks) | 2500 | 0.0621 | 0.0346 | 395 | 0.000 | 0.000 | 0.97 | 0.047 | 0.002 | 0.97 | 1.021 |
| Chemical delivery & sediment removal (HD trucks) | 400 | 0.0048 | 0.0051 | 1753 | 0.000 | 0.000 | 0.69 | 0.001 | 0.000 | 0.69 | 0.691 |
| **Total** | | | | | 0.000 | 0.000 | 1.66 | 0.048 | 0.002 | 1.66 | 1.712 |

N2O and CH4 emission factors from the California Climate Action Registry General Reporting Protocol (Table C.4: year 2000)
CO2 emissions factors from EMFAC2007 model, year 2011

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# NOISE DATA

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Roadway Construction Noise Model (RCNM),Version 1.0

Report date: 8/3/2011
Case Description: Well No 2 Filtration Plant Construction

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---|---|---|---|---|
| Description | Land Use | Daytime | Evening | Night |
| Residence | Residential | 56 | 55 | 50 |

| | | | Equipment | | | |
|---|---|---|---|---|---|---|
| | | | Spec | Actual | Receptor | Estimated |
| | Impact | | Lmax | Lmax | Distance | Shielding |
| Description | Device | Usage(%) | (dBA) | (dBA) | (feet) | (dBA) |
| Dump Truck | No | 100 | | 76.5 | 100 | 0 |
| Crane | No | 50 | | 80.6 | 100 | 0 |

| | | Results | | | | | |
|---|---|---|---|---|---|---|---|
| | | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | | | | Day | | Evening | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Dump Truck | | 70.5 | 70.5 | N/A | N/A | N/A | N/A |
| Crane | | 74.6 | 71.6 | N/A | N/A | N/A | N/A |
| | Total | 74.6 | 74.1 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.0

Report date: 8/4/2011
Case Description: Typical Pipeline Construction

---- Receptor #1 ----

| | | Baselines (dBA) | | |
|---|---|---|---|---|
| Description | Land Use | Daytime | Evening | Night |
| Adjacent home | Residential | 56 | 55 | 50 |

| Description | Impact Device | Usage(%) | Equipment Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) | Estimated Shielding (dBA) |
|---|---|---|---|---|---|---|
| Crane | No | 50 | | 80.6 | 75 | 0 |
| Backhoe | No | 80 | | 77.6 | 150 | 0 |
| Dump Truck | No | 80 | | 76.5 | 100 | 0 |
| Compactor | No | 50 | | 83.2 | 25 | 0 |

| | | Results | | | | | |
|---|---|---|---|---|---|---|---|
| | | Calculated (dBA) | | Noise Limits (dBA) | | | |
| | | | | Day | | Evening | |
| Equipment | | *Lmax | Leq | Lmax | Leq | Lmax | Leq |
| Crane | | 77.1 | 74.1 | N/A | N/A | N/A | N/A |
| Backhoe | | 68.1 | 67.1 | N/A | N/A | N/A | N/A |
| Dump Truck | | 70.5 | 69.5 | N/A | N/A | N/A | N/A |
| Compactor | | 89.2 | 86.2 | N/A | N/A | N/A | N/A |
| | Total | 89.2 | 86.6 | N/A | N/A | N/A | N/A |

*Calculated Lmax is the Loudest value.

# Combining Sound Levels in Decibels — Worksheet A

The noise environment at a site is determined by combining the contributions of different noise sources. In these Guidelines, Workcharts are provided to estimate the contribution of aircraft, automobile, truck, and train noise to the total day-night average sound level (DNL) at a site. The DNL contributions from each source are expressed in decibels and entered on Worksheet A. The combined DNL from all the sources is the DNL for the site and is the value used to determine the acceptability of the noise environment.

Sound levels in decibels ARE NOT COMBINED BY SIMPLE ADDITION! The following table shows how to combine sound levels:

Table 1

| Difference in Sound Level | Add to Larger Level |
|---|---|
| 0 | 3.0 |
| 1 | 2.5 |
| 2 | 2.1 |
| 3 | 1.8 |
| 4 | 1.5 |
| 5 | 1.2 |
| 6 | 1.0 |
| 7 | 0.8 |
| 8 | 0.6 |
| 9 | 0.5 |
| 10 | 0.4 |
| 12 | 0.3 |
| 14 | 0.2 |
| 16 | 0.1 |
| greater than 16 | 0 |

Use the table by first finding the numerical difference in sound level between two levels being combined. Entering the table with this value, find the value to be added to the larger of the two levels, add this value to the larger level to determine the total. Where more than two levels are to be combined use the same procedure to combine any two levels, then use this subtotal and combine it with any other level, and so on. Fractional numerical values may be interpolated from the table; however, the final result should be rounded to the nearest whole number.

*Example 1: In performing a site evaluation, the separate DNL values for airports, road traffic, and railroads have been listed on Worksheet A as 56, 63, and 61 decibels. In order to complete the final evaluation of the site, these separate DNL values must be combined. The difference between 63 and 56 is 7; from the table you find that 0.8 should be added to 63, for a subtotal of 63.8. The difference between 63.8 and 61 is 2.8; from the table you interpolate that approximately 1.9 should be added to 63.8 for a total of 65.7 or 66 dB when rounded to whole numbers. This example shows how noise from different sources may be Acceptable, individually, at a site, but when combined, the total noise environment may exceed the Acceptable DNL limit of 65 decibels.*

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