SCV WATER

June 2021

2020 Urban Water Management Plan for Santa Clarita Valley Water Agency

(Los Angeles County Waterworks District No. 36/Cooperating Agency)

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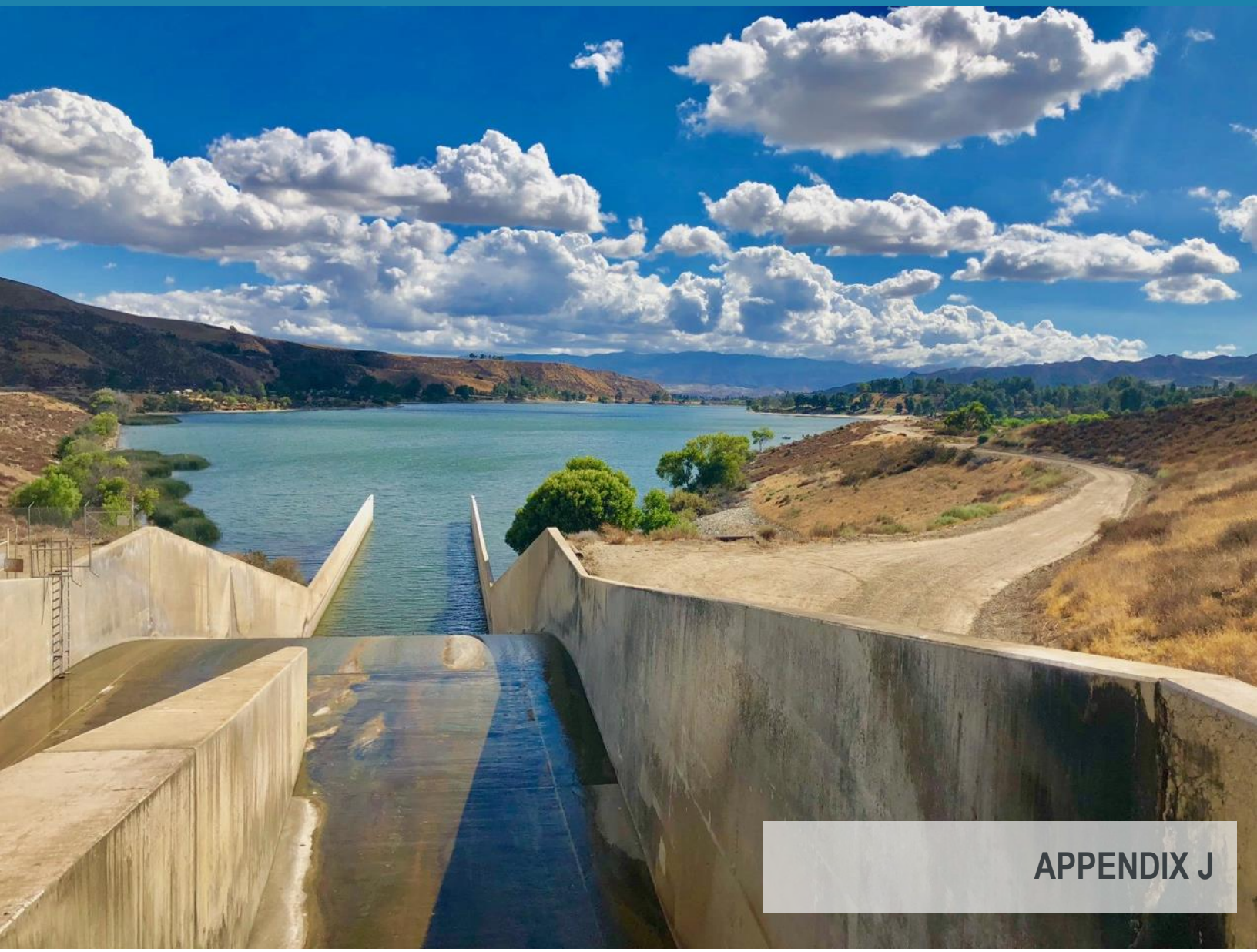

APPENDIX J

Kennedy Jenks

Appendix J: Water Shortage Contingency Plan

Final Water Shortage Contingency Plan

June 2021

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Executive Summary

This Water Shortage Contingency Plan (WSCP, Plan) is a detailed proposal for how the Santa Clarita Valley Water Agency (SCV Water) intends to act in the case of an actual water shortage condition. SCV Water's mission is to provide responsible water stewardship to ensure the Santa Clarita Valley (Valley) has reliable supplies of high-quality water at a reasonable cost. Reliable, high quality water service is critical to an economically and environmentally vibrant community. This plan is part of good management policy even if SCV Water's water supply appears to have a low probability of shortage conditions, as it improves preparedness for droughts and other impacts on water supplies. The WSCP anticipates a water supply shortage and provides pre-planned guidance for managing and mitigating a shortage. The WSCP allows real-time water supply availability assessment and structured steps designed to respond to actual conditions, to allow for efficient and effective management of any shortage with predictability and accountability.

Certain elements of the WSCP are required by California Water Code (Water Code), including five specific response actions that align with six standard water shortage levels based on SCV Water's water supply conditions and shortages resulting from catastrophic supply interruptions. The WSCP also contains SCV Water's procedures for conducting an annual water supply and demand assessment, which is the written decision-making process for determining supply reliability each year, along with the data and methods used to evaluate reliability.

As part of its Urban Water Management Plan (UWMP), Water Code Section 10632 requires Suppliers to prepare and adopt a WSCP that consists of each of the following elements, which comprise the sections in this plan document:

1. Water Supply Reliability Analysis
2. Annual Water Supply and Demand Assessment Procedures
3. Six Standard Water Shortage Stages
4. Shortage Response Actions
5. Communication Protocols
6. Compliance and Enforcement
7. Legal Authorities
8. Financial Consequences of WSCP
9. Monitoring and Reporting
10. WSCP Refinement Procedures
11. Special Water Feature Distinction
12. Plan Adoption, Submittal, and Availability

The WSCP is a stand-alone document created separately from the UWMP and can be amended, as needed, without amending the UWMP. This 2020 WSCP is included in SCV Water's 2020 UWMP submitted to the California Department of Water Resources (DWR) by July 1, 2021.

Section 1: Water Supply Reliability Analysis

This section summarizes (a) the findings related to water system reliability conducted pursuant to Water Code Section 10635, and (b) key issues that may create a shortage condition when looking at the SCV Water's water asset portfolio. Specifically, this section summarizes SCV Water's supply analysis and its water reliability findings in UWMP Section 7 (Reliability Planning and Drought Risk Assessment), recognizing that the WSCP can be a stand-alone document that will be submitted with the 2020 UWMP.

The UWMP Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty years in five-year increments. The Act also requires an assessment for a single dry year and multiple dry years. This section presents the reliability assessment for SCV Water's service area. SCV Water's goal is to deliver a reliable and high-quality water supply for their customers, even during dry periods.

Reliability of Water Supplies

Each water supply source has its own reliability characteristics. In any given year, the variability in weather patterns around the state may affect the availability of supplies to the Valley differently, depending on whether supplies are from local sources or are imported from other parts of the state. The Valley is typical in terms of water management in southern California; local groundwater supplies are used to a greater extent when imported supplies are less available due to dry conditions in the north, and larger amounts of imported water supplies are used during periods when northern California has wetter conditions. This pattern of "conjunctive use" has been in effect since State Water Project (SWP) supplies first came to the Valley in 1980. SWP and other imported water supplies have supplemented the overall supply of the Valley, which previously depended solely on local groundwater supplies.

To supplement these local groundwater supplies, SCV Water contracts with DWR for delivery of SWP water, providing an imported water supply to the Valley. However, the variability in SWP supplies affect the ability of SCV Water to meet the overall water demands for the service area. While each of the Valley's available supply sources has some variability, the variability in SWP supplies has the largest effect on overall supply reliability.

Groundwater

In accordance with the groundwater operating plan for the basin, groundwater supplies for all uses from the Alluvial Aquifer are planned to be in the range 30,000 to 40,000 AF. With long-term pumping for municipal purveyors estimated to be approximately 30,800 AFY at buildout during normal years and about 26,100 AFY during dry-years. Available supplies are substantially less in the near-term as supplies have been curtailed because of PFAS contamination and transfers of pumping associated with the Newhall Ranch development have not yet been fully realized. In 2021 SCV Water estimates 12,000 AF

of alluvial supplies will be available. Recovery of Alluvial supplies over the next decade is shown in Tables 4.8B and 4.8C (2020 UWMP Appendix E). The basin operating plan for the Saugus Aquifer provides for 7,500 AFY-15,000 AFY in normal years and up to 35,000 AFY during dry-years. In the near-term supplies are limited due to Perchlorate contamination and the need to construct additional dry-year well capacity. Currently, SCV Water estimates recovery capacity at about 15,000 AFY. Tables 4.9B and 4.9C (2020 UWMP Appendix E) indicate when additional yield can be accessed from the Saugus Aquifer.

Recycled Water

The existing and projected availability of recycled water supplies, including various factors having the potential to affect the amounts and availability of those supplies, are discussed in detail in the UWMP.

SCV Water has constructed Phase I of the Recycled Water Master Plan (RWMP, 2016), which can deliver up to 1,700 AFY of water to the Valencia service area. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips, however demand from permitted customers have limited deliveries of recycled water. In 2015, recycled water deliveries were 450 AF.

Phase 2 is planned to expand recycled water use within Santa Clarita Valley and consists of four projects currently in various stages of design. The Draft RWMP Update projects providing up to 10,054 AFY of treated (tertiary) recycled water suitable for reuse on golf courses, landscaping and other non-potable uses in Santa Clarita Valley to the extent those supplies are available. Subsequent long-term estimates of available supplies based on recycled water being generated from new development estimate about 9,000 AFY new recycled water being available. All of the available recycled water in the peak summer months would be used to meet demands that include existing Phase 1 projects, Phase 2 expansions currently in design, planned developments (including Newhall Ranch and Vista Canyon) and future nearby customers served by extending off the Phase 2 system.

State Water Project Table A Supply

For this Plan, the availability of SWP supplies to SCV Water was based primarily on DWR's *Delivery Capability Report* (DCR). For the four hydrologic conditions evaluated here, the SWP deliveries to SCV Water were taken from DWR's analyses based on the following: average/normal year based on the average deliveries over the studies' 82-year historical hydrologic study period (1922-2003), single-dry year based on a repeat of the worst-case actual allocation of 2014, four year dry period based on a repeat of the historical drought of 1931-1934, and three-year dry period based on a repeat of the historical drought of 1990-1992.

While contractors may store their unused Table A supply as carryover, and additional types of water such as Article 21 water may periodically be available from the SWP, further the recent Water Management Tools amendment allows for single and multi-year water transfers among SWP Contractors, these are not included as supplies in Section 6 because of the uncertainty in their availability. However, to the extent SCV Water is able

to make use of these supplies when available, SCV Water may be able to improve the reliability of its SWP supplies beyond the values used in this section.

Flexible Storage Account

Under the Supply Contracts with DWR for SWP water, the contractors that share in the repayment of Castaic Lake may access a portion of the storage in that reservoir. This accessible storage is referred to as "flexible storage." The contractors may withdraw water from flexible storage, in addition to their allocated Table A supplies, on an as-needed basis. A contractor must replace any water it withdraws from this storage within five years of withdrawal. As one of the three contractors sharing in the repayment of Castaic Lake, SCV Water has access to this flexible storage. Its share of the total flexible storage is currently 4,684 AF.

Storage and Water Banking Program

SCV Water has invested in flexible supply programs that can be accessed to avoid water shortages and shortage costs to its customers in the Valley. Sometimes termed "water banking," these shortage mitigation investments allow water to be stored in a groundwater basin to be accessed when needed to avoid water shortages. These "smart" investments in storage programs improve the diversity of SCV Water's supply portfolio and cost-effectively improve water service reliability throughout our community. SCV Water currently has two banking programs. The Rosedale-Rio Bravo Bank can store up to 100,000 AF and can currently recover 10,000 AFY. The Semitropic Bank can store 35,000 and recover 5,000 AFY.

Storage programs and supplies that were considered for supply evaluation are as follows.

- Rosedale-Rio Bravo Banking Program – increased take capacity: Under SCV Water 's existing contract with RRBWSD for this program, SCV Water has the right to develop four additional extraction wells, which would bring the firm recovery capacity under this program from 10,000 AFY to 20,000 AFY. This increase would provide additional dry year access to the water SCV Water stores in this existing program, which has a maximum storage capacity of 100,000 AF (and is currently full). This additional take capacity was included in the 2015 UWMP as a planned banking supply increase, assumed in that document to be available by 2030.
- Semitropic Banking Program – Newhall Land: Newhall Land participates in a groundwater banking program with Semitropic in which it has a pump-back capacity of 4,950 AFY and a storage capacity of 55,000 AF. Newhall Land entered into this banking program in anticipation of the development of Newhall Ranch. Under its agreement with Semitropic, Newhall Land may assign its rights to this program to SCV Water. However, the terms for such an assignment have yet to be determined. In the 2015 UWMP, it was assumed that Newhall Ranch would be developed and that Newhall Land's rights in this banking program would be transferred to SCV Water at the time of development, and that prior to that time the take capacity under this program would be available to SCV Water.

This program, including interim access to take capacity, was excluded from the initial assessment of Scenario C.

- New groundwater bank: In the 2015 UWMP, additional groundwater banking programs with a take capacity of 5,000 AFY were assumed to be developed, with supplies assumed to be available after 2045. No specific programs were identified in the UWMP, although a number of groundwater banking programs in various stages of planning and development, or new programs yet to be defined, could provide this supply.
- Willow Springs Water Bank, Antelope Valley: This project is located in eastern Kern County, in the northern portion of the Antelope Valley. It is adjacent to both the East Branch of the California Aqueduct and the Los Angeles Aqueduct. This program is active and is seeking participants.
- Antelope Valley-East Kern Water Agency High Desert Water Bank: This is a project proposed by the Antelope Valley-East Kern Water Agency (AVEK), a SWP wholesaler located in the Antelope Valley area of southeastern Kern County and northern Los Angeles County. The proposed groundwater banking project would be developed and operated by AVEK, and would be located adjacent to the East Branch of the California Aqueduct. As proposed, the project would have a total storage capacity of 280,000 AF, with recharge and recovery capacities of 70,000 AFY. AVEK is currently conducting pilot testing, and the environmental analysis for the proposed project is in process. AVEK is actively seeking banking partners.
- Palmdale Regional Groundwater Recharge and Recovery Project: The Palmdale Water District (PWD), a SWP wholesaler, is implementing a large-scale groundwater recharge and recovery project located adjacent to the East Branch of the California Aqueduct. The project will obtain water for recharge from the SWP and also from recycled water produced by the Los Angeles County Sanitation District Palmdale Water Reclamation Plant. SCV Water could be a potential partner in the project by banking excess supply in wet years and recovering that supply in dry years.
- Saugus Formation Aquifer Storage and Recovery (ASR) Program: The feasibility of implementing an ASR program in the Saugus Formation has been evaluated through field testing and groundwater modeling simulations. Reconnaissance-level analysis indicates that such a program is feasible. In addition to water reliability benefits, a Saugus ASR program could provide other operational benefits (e.g., higher groundwater levels) and local storage.
- Groundwater Replenishment with Recycled Water: The feasibility of using recycled water for a groundwater recharge program in the eastern portion of the Alluvium has been evaluated in the Water Supply Measures Reconnaissance Study and further refined in the draft RWMP. A recycled water recharge project could provide operational benefits (e.g., higher groundwater levels in the Alluvium), increased recycled water usage and greater water recovery from the Alluvium in eastern parts of the groundwater basin. Conceptual design for the

project is an extension of the proposed Phase 2A recycled water pipeline, with approximately 5,000 AFY of recycled water from the Valencia WRP discharged to a recharge basin adjacent to the Santa Clara River, and average recovery of 3,500 AFY from downstream Alluvial wells.

Supply and Demand Comparisons

The available supplies and water demand for SCV Water's service area was analyzed to assess the region's ability to satisfy demands during four scenarios: a normal water year, a single-dry year, and two multiple-dry year periods in the 2015 UWMP.

PFAS

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals, which includes PFOA, PFOS and GenX. For more than 70 years, PFAS have been manufactured and used in a variety of industries worldwide. According to the Environmental Protection Agency, exposure to certain PFAS can lead to adverse health effects in humans. (Source: https://yourscvwater.com/pfas/).

SCV Water quickly responds to changing guidelines and regulations from the State Water Resources Control Board – Division of Drinking Water. Under the current response levels, last lowered in February 2020, 17 of the 42 active agency wells have been removed from service. This accounts for approximately 45 percent of the Agency's groundwater supply. In 2019, groundwater accounted for 28% of the total water used in the SCV Water service area. SCV Water will continue to rely on its diverse water supply portfolio, including imported and banked water, to minimize supply impacts to customers. SCV Water's first PFAS treatment facility opened in fall of 2020, restoring about one-third of the impacted groundwater, with others to follow by summer 2021. (Source: https://yourscvwater.com/pfas/).

Perchlorate

SCV Water prioritizes the delivery of clean water that meets all state and federal health standards. Long-term work toward the remediation of perchlorate contamination, first discovered in 1997 in several Saugus wells, continues at the present time. The objective of the perchlorate restoration and containment plan has been to stop the migration of the contaminant plume and restore the lost well capacity through a pump and treat method. SCV Water's Saugus Perchlorate Treatment Facility (SPTF) has been online since 2011, and a second Perchlorate Treatment Facility came online in 2017, and together these facilities have now treated a combined amount of almost 32,000 AF. The ability to pump the Saugus Formation at dry year levels has been historically impaired due to perchlorate contamination issues and resultant reduced production capacity. Both issues are expected to be resolved through installation of treatment and achieving containment. (Source: Adapted from 2019 Santa Clarita Valley Water Report, July 2020).

Section 2: Annual Water Supply and Demand Assessment Procedures

Beginning by July 1, 2022, SCV Water is required to prepare and submit its annual water supply and demand assessment (referred "Annual Assessment"). The Annual Assessment will be due by July 1 of every year, as required by Water Code Section 10632.1. The Annual Assessment and associated reporting are to be conducted based on the SCV Water procedures detailed in this section of the WSCP. As required by Water Code Section 10623(a), the WSCP shall include its specific procedures, akin to its instruction manual, that describe annual steps and timing to complete the Annual Assessment, such that it can be consistently followed year-after-year, regardless of changing staff undertaking the steps:

- Decision making process
- Data and methodologies
    1. Evaluation criteria
    2. Water supply
    3. Unconstrained customer demand
    4. Planned water use for current year considering dry subsequent year
    5. Infrastructure considerations
    6. Other factors

Decision making process

This section describes the decision-making process, including functional steps, to formally approve the Annual Assessment determination of water supply reliability each year.

September

- Prepare SWP water order for upcoming year.
- Continue to track monthly water demands in service area.
- Monitor San Luis Reservoir Storage Levels including carryover storage levels for Agency and other State Water Contractors (SWC).
- Monitor NOAA precipitation forecasts.

October

- Continue to track monthly water demands in service area.
- Monitor San Luis Reservoir Storage Levels including carryover storage levels for Agency and other SWC.
- Monitor NOAA precipitation forecasts.

November

- Continue to track monthly water demands in service area.
- Monitor San Luis Reservoir Storage Levels including carryover storage levels for Agency and other SWC.
- Monitor NOAA precipitation forecasts.

- Consider early implementation of water recovery from banking and exchange programs when early water year precipitation is low and low levels of carryover water exist.
- Review DWR outage schedules for upcoming year.

December

- Continue to track monthly water demands in service area.
- Monitor San Luis Reservoir Storage Levels including carryover storage levels for Agency and other SWC.
- Monitor NOAA precipitation forecasts. Receive initial SWP allocation.
- Review DWR positional analysis (from SWC Water Operations Committee)
- Prepare alternative operating plans.
- Consider early implementation of water recovery from banking and exchange programs when early water year precipitation is low and low levels of carryover water exist or limitations of local groundwater supplies are anticipated to exist in the upcoming calendar year.

January

- Review DWR positional analysis (from SWC Water Operations Committee)
- Update alternative operating plans.
- Consider early implementation of water recovery from banking and exchange programs and investigate water purchases (transfers) when early water year precipitation is low and low levels of carryover water exist or limitations of local groundwater supplies are anticipated to exist in the calendar year.

February

- Review DWR positional analysis (from SWC Water Operations Committee)
- Update alternative operating plans.
- Consider implementation of water recovery from banking and exchange programs and water transfers when early water year precipitation is low and low levels of carryover water exist or limitations of local groundwater supplies are anticipated to exist in the calendar year.

March

- Review DWR positional analysis (from SWC Water Operations Committee)
- Update alternative operating plans.
- Consider implementation of water recovery from banking and exchange programs and water transfers when early water year precipitation is low and low levels of carryover water exist or limitations of local groundwater supplies are anticipated to exist in the calendar year.
- Seek approval of dry-year water transfers if any.

April

- Review DWR positional analysis (from SWC Water Operations Committee).
- Update alternative operating plans. Consider implementation of water recovery from banking and exchange programs when early water year precipitation is low and low levels of carryover water exist or limitations of local groundwater supplies are anticipated to exist in the upcoming calendar year.
- Seek approval of dry-year water transfers in any.

January/June

- Report to the SCV Water - Water Resources and Watershed Committee (WR Committee) and Board Status of Water Supplies (update the WR Committee monthly to bimonthly, starting in January, depending on conditions).

July/August

- Submit Annual Water Supply and Demand Assessment, July 1 each year.

Data and methodologies

This section includes the description of key data inputs and Annual Assessment methodologies used to evaluate the water system reliability for the coming year. In general, SCV Water follows the state DWR determination of "dry" years, as this is directly related to SWP Table A supply availability. Figure 2 illustrates this Shortage Evaluation Process.

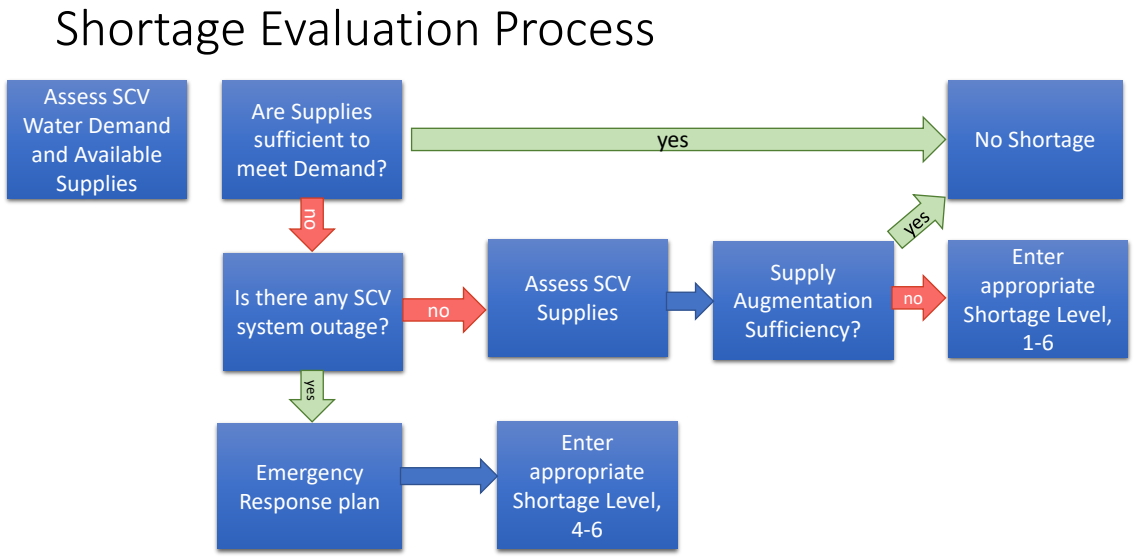

Figure 1: Shortage Evaluation Process

1. Evaluation criteria

The following local and statewide documents and data sources form the evaluation criteria that SCV Water will use for each Annual Assessment:

- SCV Water demand forecast

- Local and imported operations constraints, local groundwater/import demands from each system (collected in September for following calendar year estimates)
- DWR monthly operations report documents (includes snowpack data, DWR positional analysis (allocation forecasts), San Luis Reservoir storage forecasts, streamflow forecasts, and weather updates (Nov-June)
- State Water Table A Allocation ("Notice to Contractors")
- Banking program balances
- Exchange program balances
- SCV precipitation

2. Water supply

The following summarizes the portfolio of water supplies SCV Water relies on to provide reliable service.

Alluvial Groundwater – Use the quantification numbers referenced in the UWMP tables chapter 3 for total amount available with and without PFAS wells each year moving forward (not completed yet). Operations provides an estimate of alluvial groundwater production on a monthly basis for each year. This estimated information is provided in September before the annual assessment year. This information is based on historical monthly demands from each area and includes any operations outages anticipated for the year.

Saugus Groundwater – Use the quantification numbers referenced in the UWMP tables chapter 3 for total amount available each year (not completed yet). Operations provides an estimate of Saugus groundwater production on a monthly basis for each year. This estimated information is provided in September before the annual assessment year. LAWWD 36 also provides an estimate of their monthly Saugus production demands annually. This information is based on historical monthly demands from each area and includes any operations outages anticipated for the year.

Recycled Water – Use the urban plan tables for recycled water estimates and double check with operations to verify amount each year as this production ramps up into the future.

State Water Table A allocation – Range is 0-100%, total Table A supply is 95,200 AF and based on % allocation issued by state throughout the year. This allocation is issued around November prior to the year of the Water Supply Assessment (starts low and ramps up or down depending on winter conditions). In October prior to the Water Supply Assessment year, SCV Water provides DWR with a range of scenarios for our imported water needs based on different allocations (100%, 60%, 50%, 30%, 15%). SCV Water monitors the change in allocation through to the final allocation which could be issued anytime between April and June depending on conditions. Low allocations indicate use of Dry Year Water supplies. Higher allocations could indicate potential surplus conditions which lead to other potential water management options like increased storage at banking programs, increased carryover storage at San Luis Reservoir, transfer of

excess SWP or BVRRB water supplies, and deliveries to water exchange programs with other contractors.

Buena Vista Rosedale-Rio Bravo Water Supply – This water source provides 11,000 AFY. This is a firm water supply that does not change from year to year. Delivery based on the agreement for this water supply is 1,100 AF each month March-December. In the water supply assessment, we would utilize this water locally in dry conditions, and as describe above, look at selling this supply to other Agencies in wet conditions.

Article 56c Water Supply – This water supply is extremely variable from year to year. In dry years it can be a critical source of water to supplement low imported Table A supplies. In wet years, this water is generally not used, or available. This water is utilized within the Water Supply Assessment in the first few months (Jan-April) to help meet imported water demands if available. It is also conserved as needed in anticipation of consecutive dry year scenarios.

Rosedale-Rio Bravo Water Storage District Banking Program – This water supply is classified as a Dry Year water supply and is used to supplement imported water needs in dry years. Annual recovery capacity for this supply is 10,000 AFY, dependent on available water storage balances for the SCV Water program. The water can be delivered throughout the year as requested, with monthly recovery capacity limitations dependent on operations at the RRB Facility. More water is generally available in the Spring, Fall and Winter months. SCV Water makes decisions to use this water based on early dry Winter conditions, dry water operations forecasts from DWR, potential low SWP Table A allocation, reduced local groundwater supply conditions, and or increased imported demands. Preliminary order for this water supply must be submitted to RRB by Feb. 15th and final request by May 1 each year.

Semitropic Stored Water Recovery Unit Banking Program – This water supply is classified as a Dry Year water supply and is used to supplement imported water needs in dry years. Annual recovery capacity for this supply is 5,000 AFY, dependent on available water storage balances for the SCV Water program. The water can be delivered throughout the year as requested with monthly recovery capacity limitations dependent on operations at the Semitropic Facility. Minimal water deliveries are available through the summer months, with greater deliveries available in the Fall and Winter months. SCV Water makes decisions to use this water based on early dry Winter conditions, dry water operations forecasts from DWR, potential low SWP Table A allocation, reduced local groundwater supply conditions, and or increased imported demands. Recovery request are due May 1st each year, and storage requests are due by April 15th.

Yuba Accord Water – This water supply is utilized in dry years to supplement lack of SWP Table A supplies. It is based on an agreement that allows the Agency to purchase transferable and exportable surface water. This water is only available in dry years when there is transfer capacity through the Delta available. The total amount of water supply is variable each year. Reports on Yuba supply availability are provided at the DWR

Operations monthly meetings starting in March. Through 2025, average supply available to SCV Water is about 1,000 AF in dry years.

State Water Contractors Dry Year Water Transfer Program – This is an opt in program available for SCV Water if they are in need of supplemental dry year water supplies. This water is only available in dry years when there is transfer capacity through the Delta available. The total amount of water supply is variable each year. Negotiations for this water supply start in January, and deliveries occur in late summer-fall. Delivery amounts for the Agency depend on cost per acre-foot, participation from other agencies and need.

Water Exchange Programs – These programs provide additional imported water supplies, used in below normal or normal years. The water is not generally available in dry years to supplement lack of water supplies. Deliveries of this water can occur when requested throughout the year if the exchange partner is in agreeance. Current exchange program water is available with a SWP Table A allocation of 30% or higher.

Flexible Storage Account – This is an emergency supply of water for the Agency which is stored in Castaic Lake. The total available water is 6,060 AFY through 2025 and 4,680 AFY thereafter. This water can be used as needed but must be returned within 5 years of use. SCV Water can use any amount at any time, there are no limitations on this.

Nickel Water – This water supply is owned by Five Point (also known as Newhall Land) and is available for purchase in dry years with agreement from Five Point. The amount available each year is 1,607 AFY.

Newhall Land Semitropic Water Storage District Banking Program – This water supply is based on Newhall Land's contract rights to store and recover water from this program. The amount available each year is up to 4,950 AFY. This water supply is available for purchase in dry years with agreement from Five Point.

3. Unconstrained customer demand

SCV Water uses the Decision Support System (DSS) model to estimate unconstrained customer water demand based on sociodemographic and land use data. Unconstrained demand is the Agency's expected water needs for the coming year and may include real-time adjustments to account for factors including weather, prior-year conditions, additional demand estimates, or other factors regarding land use and customer water use patterns known by the Agency.

4. Planned water use for current year considering dry subsequent year

As SCV Water plans for the current year, it evaluates several different scenarios for the current year, ranging from a 100% SWP Table A allocation down to a 5% SWP Table A allocation. In the lower allocation scenarios, the different supplies sources are distributed throughout the operating plan to preserve sufficient supplies for the following year, assuming the worst-case scenario, "Single Dry Year" with a 5% State Water Project Table A allocation. First, it evaluates local groundwater supplies to evaluate available groundwater and adjust imported water needs appropriately (source UWMP tables for

different dry year scenarios for Alluvial and Saugus groundwater supplies in Chapter 3). Specifically, it would modify the use of our Article 56c supplies, banking program supplies, and its Flexible Storage account to make sure it has adequate supplies available for a consecutive Single Dry Year.

5. Infrastructure considerations

In September, Operations provide estimates of imported and groundwater demands to Water Resources for the upcoming water supply assessment. Infrastructure capability considerations are included in this analysis. For example, operations will take into account the schedule for PFAS well recovery in addition to any known outages. Infrastructure capabilities are constantly monitored by operations and water resources staff and communicated if adjustments in water supplies needed are required throughout the year. When there are unexpected infrastructure complications, operations, water resources, engineering and management meet regularly to monitor and manage water supplies decisions as needed.

6. Other factors

The following are locally applicable factors that can influence or disrupt supplies, along with other unique local considerations that are considered as part of the Annual Assessment:

- Construction projects
- DWR planned outages and maintenance at Castaic Lake and other reaches of the CA Aqueduct
- Permitting request delays to get wells back online
- Dry conditions locally can reduce alluvial groundwater supplies
- Agreement coordination delays can influence imported water deliveries
- Demand fluctuations with weather changes
- Fires, earthquakes
- Electrical outages
- Water quality, locally or imported
- Equipment failures

Section 3: Six Standard Water Shortage Levels

SCV Water has developed response action **stages** that correspond to the DWR defined six standard water shortage **levels** (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition). SCV Water's response actions are divided by stages in the WSCP ordinance to meet the severity of the impending shortage level.

The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition) and align with the response actions SCV Water will implement to meet the severity of the impending shortages.

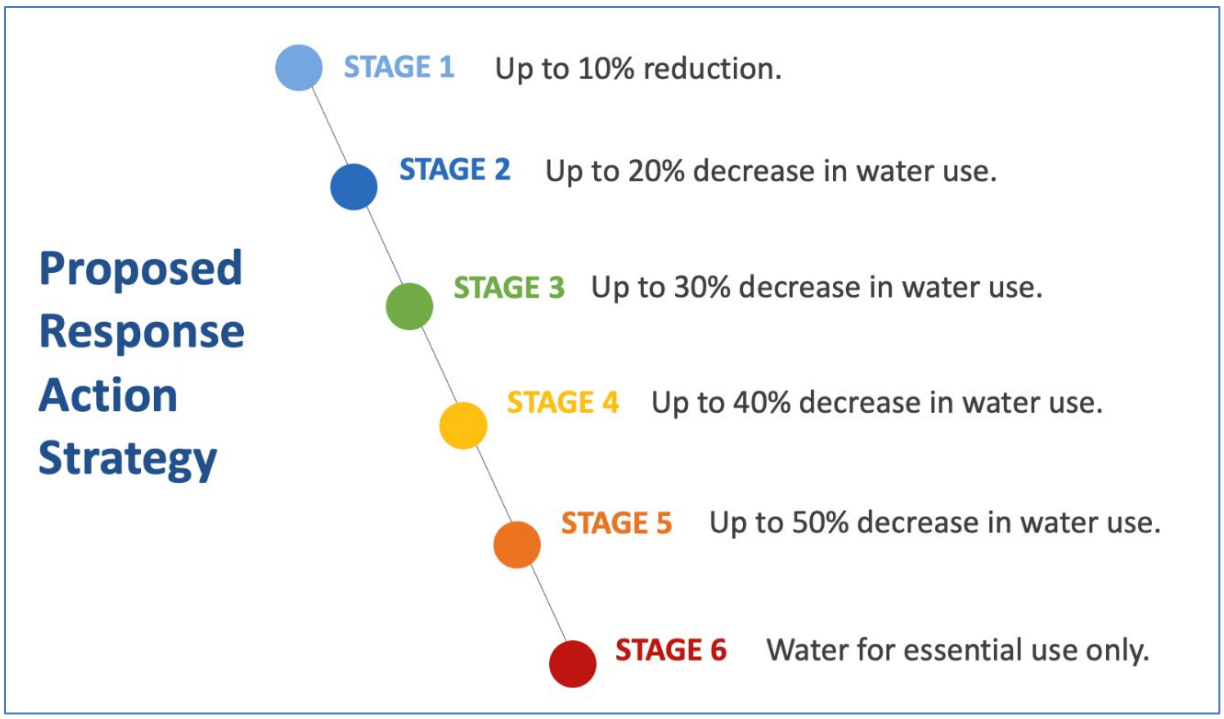

Figure 2: Proposed Response Action Strategy

SCV Water will take an adaptive performance-based approach to its response at all of the water shortage levels. If performance monitoring detects a lack of equilibrium between available supply and expected customer demand, the agency will adapt its approach. To illustrate, SCV Water can adaptively increase activity in public education and awareness to mitigate demand load. SCV Water builds credibility with its customer base through targeted messaging and collaboration. These approaches have been successful in large drought periods in the past without the use of fines, which can be reserved for extreme cases. All of the indicators will be closely monitored and responses will be assessed based on real-time conditions.

Timing of demand response actions will be a key consideration, given different lags between initiated actions and the customer response time. Close monitoring will allow SCV Water to have the lead time to implement response actions in time for needed demand adjustments. Demand response actions can take several weeks to several months to get traction and to move the behavior of a community.

Timing of supply response actions is not as uncertain, given there is not the need to motivate customer behavior, yet it requires careful sequencing and planning to achieve reliability given the various local and imported supply, storage, and transmission infrastructure. SCV Water will closely monitor production numbers and monthly billing as indicators providing visibility into current conditions. In summary, SCV Water will utilize lots of tracking to see what response is needed and adapt in the moment.

The **monitoring framework** provides the tools and process to determine the existence and severity of a drought or water shortage. This framework will rely on SCV Water regularly monitoring numerous data sources, interpretation of real-time conditions and prediction of future supply.

There are five primary components to the monitoring framework.

- Hydrologic conditions
- Imported water availability
- Local groundwater levels
- Banking and transfer availability
- Local demands

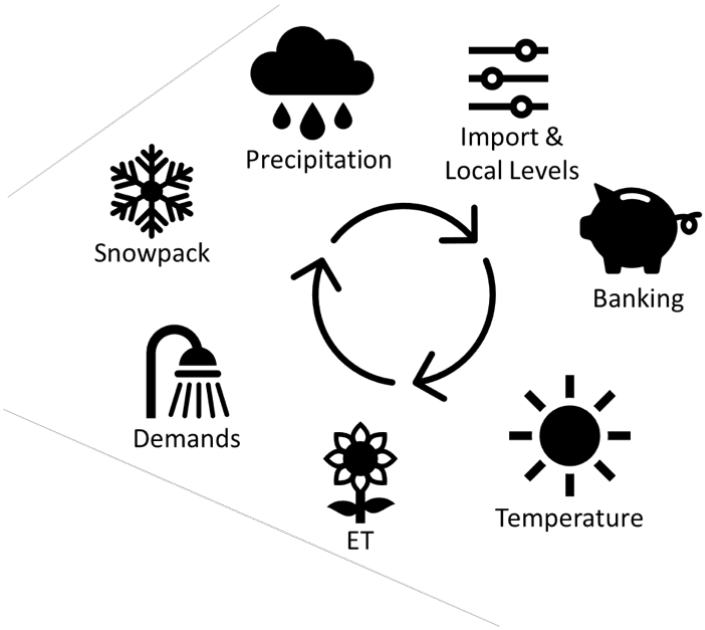

Figure 3: Monitoring Framework

The assessment looks at current and future projected water supplies as compared to current and projected water demand. Should there be a downward shift in available water supplies or an increase in customer demand, SCV Water will determine the severity of the change, the categorized stage level, and then determine the required response.

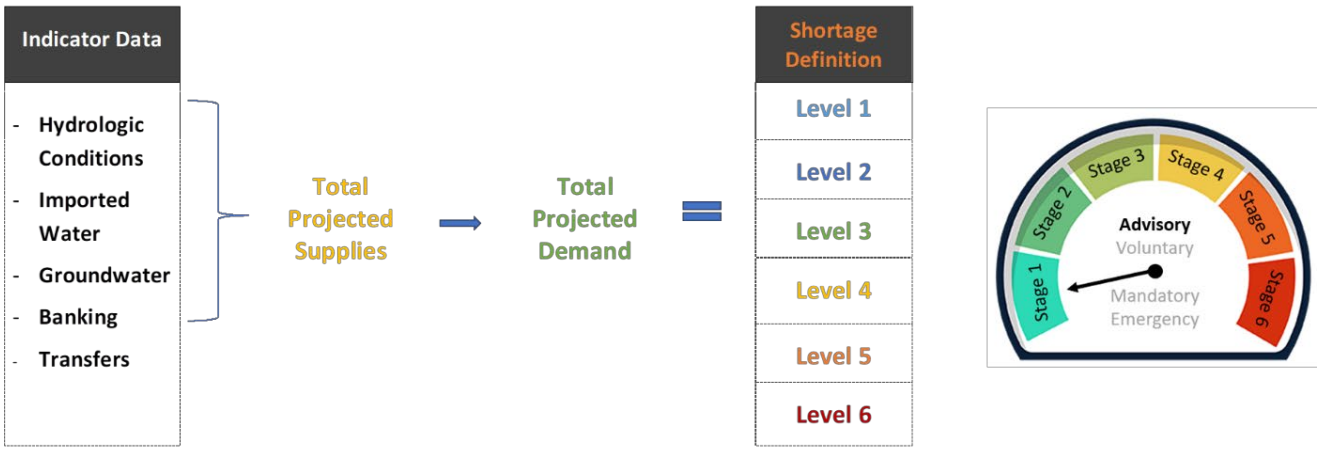

Figure 4: Indicator Data and Shortage Stages

Stages will be defined based on the calculated supply-demand ratios for the service area. The water shortage stages and descriptions are shown in Figure 4 and Table 1 below. These stages will be used to help the Water Shortage Taskforce identify the most appropriate responses for the anticipated shortages. The stages are in compliance with the 2018 state legislation (SB 606 and AB 1668), which now requires water shortage plans to be standardized and include six stages of water shortage severity.

Table 1: Drought Stages

Shortage Stage:	Stage Descriptions:	Triggers:
Stage 0	Normal Conditions	No water shortages anticipated.
Stage 1	Water Shortage	Voluntary up to 10% decrease in water use.
Stage 2	Moderate Shortage	Voluntary up to 20% decrease in water use.
Stage 3	Significant Shortage	Voluntary up to 30% decrease in water use.
Stage 4	Critical Shortage	Mandatory up to 40% decrease in water use.
Stage 5	Emergency Shortage	Mandatory up to 50% decrease in water use.
Stage 6	Catastrophic Shortage	Water for essential use only.

Section 4: Shortage Response Actions

This section presents SCV Water's locally appropriate "shortage response actions" as required by Water Code Section 10632 (a)(4). These include a broad range of supply augmentation responses, customer-class or water use-specific demand reduction initiatives, system infrastructure and operations responses, and increasingly stringent water use prohibitions. We align response actions to the six shortage levels in the Response Plan outlined below.

The overall response strategy SCV Water uses during shortage periods follows the same logical extension of normal operations which balances supply augmentation strategies with conservation progress and demand management. Priority dispatch is designed into SCV Water shortage response actions. Priority dispatch is a well-known principle in networked utilities industry. Lowest cost resource alternatives are base loaded and more expensive flexible resources are dispatched later on an as-needed basis. These principles apply to prioritize the Shortage Response Actions.

What are the characteristics of Shortage Response Actions that would determine an early or late dispatch priority on an action in response to a shortage? The first characteristic is cost: lower-cost actions should be selected for dispatch first. Another important characteristic might be the certainty of result: actions that generate more certain results should be prioritized over actions that were more speculative. Another characteristic would be operational feasibility: actions that can be implemented quickly need to be.

As a result, supply augmentation is the first shortage response action. Implemented prior to calls for demand reduction: shortage response actions involving customer demand reduction impose shortage costs on SCV Water customers. These customer shortage costs, though they do not appear as direct financial costs to SCV Water, do appear as very real costs to SCV Water customers. The purpose of the plan is to minimize the effect of a shortage of water for customers in the Valley. Though described as customer shortage costs, the impact on customers can equally be described as the avoided benefits from having water available.

Motivated by the need to minimize customer shortage costs, a priority for protecting customer end uses of water emerges as shown in Table 2.

Table 2: Order of Prioritization of Water Uses

Prioritized Water Uses
1. Health and Safety – interior residential and firefighting
2. Commercial, Industrial, and Institutional – maintain economic base, protect jobs
3. Permanent Crops – takes 5 to 10 years to replace
4. Annual Crops – protect jobs
5. Landscaping – direct water to trees and shrubs
6. New Demand – beyond construction projects already approved

4.1. Supply Augmentation

This section specifies SCV Water's locally appropriate supply augmentation actions, as required by Water Code Section 10632 (a)(4)(A). As described in Section 1 Supply Reliability Analysis, SCV Water has invested in creating a diversified portfolio of water supply assets that include flexible supply options for dry years. The current dry year supplies potentially available for supply augmentation to mitigate shortage are outlined in Table 3.

Table 3: Supply Augmentation

Dry Year Supplies	Amounts Available	Comments
Article 56C (Carryover Supplies SWP)	varies each year	Used before other programs, but portions saved in case of consecutive dry years
Existing Banked Programs	0-15,000 AFY	RRB - 10,000 AFY, Semitropic SWRU 5,000 AFY
Saugus Groundwater	amounts vary	Pump more water locally if available
Yuba Water Accord Agreement	0-1,000 AFY	Water Purchase in Dry Years only
State Water Contractors Dry Year Transfer Program	0-3,000 AFY	Water Purchase in Dry Years. Not guaranteed amounts
Nickel Water	0-1,607 AFY	Water Purchase with agreement
Newhall Land Banking	0-4,950 AFY	Water Purchase with agreement
Flex Storage	0-6,060 AFY	Emergency Storage in Castaic Lake, available amount of 4,680 AFY beginning in 2025

The selection of flexible (dry year) supplies will be determined on a real-time, case by case basis depending on the circumstances discerned by SCV Water's supply and demand assessment and the drought monitoring process.

4.2. Demand Reduction

With growing populations and the inevitability of future drought cycles, SCV Water's overarching goal is to create a water efficient region that can successfully withstand future water shortages without hardship.

SCV Water has been arduously working to re-shape customers' attitudes about water sustainability and their personal role in achieving water shortage resiliency. Through education, messaging, and programs, SCV Water has been driving change, however, customers still have a way to go to fully make the transition. A significant percentage of customers have made significant equipment and lifestyle changes at their properties, but

though significant water conservation and efficiency opportunities persist. Regional water sustainability can be achieved only when:

1. Customers understand the value of water & the unique conditions of the Santa Clarita Valley.
2. Customers have shortage-sustainable properties prior to emergency conditions.
3. Customers experience no water deprivation hardship during a drought cycle or water shortage due to the sustainable landscape design of their properties and their water-consuming equipment.

While striving for full water efficiency as the goal, SCV Water understands challenges persist. With this knowledge, SCV Water recognizes that water savings, during droughts or other water shortages, will need to be driven through an escalation in marketing, increased programming, and enhanced incentives that rise as water shortage stages advance.

The goals of the Response Plan are to:

- Increase the speed that response actions can be rolled out by pre-planning.
- Reduce workload by providing a blueprint for deployment of strategic actions as water shortage stages are declared.
- Provide recommendations on the optimal measures, activity levels, incentives, and services that will drive water savings according to need.
- Act as a starting point for creating a final plan of action during a water shortage event. The finalized plan will include adjustments from customer input, new technologies, grants, or other circumstances.

The plan is devised to balance *customer incentives and programs* with *prohibitions and penalties*. This balance between "carrot and stick" will give SCV Water the flexibility to achieve optimal conservation through engagement and education while enticing customers to move to long-term market transformation through program participation. Enforcement would then serve as a "backstop" the agency could implement when conservation performance fails to achieve the respective water shortage level targets.

Types of Response Actions

There are many response actions available to SCV Water. These include supply augmentation, escalation of customer messaging content and frequency, expanded outreach channels, enhanced water efficiency incentives and programs, and as necessary, water usage restrictions.

- **Supply Augmentation**
  Water supply augmentation includes water storage programs, where water supplies are stored in groundwater basins in wet years and removed in years of need, and water transfers (bulk purchases of water).

- **Expanded Outreach**
  Customer attitudes and expectations have changed dramatically over the past decade, driven by consumers who have higher demands for expanded outreach vehicles. It is a customer-centric world and water agencies are competing for attention. This requires a modern approach to outreach including social media and influencer marketing.

- **Programs**
  Water efficiency programs provide customers with the means and guidance to lower their properties' water usage. Customer-friendly programs, substantial incentives, direct installation options and strong support services drive stronger response rates. The higher the services and incentives; the higher the customer response.

- **Restrictions**
  Watering restrictions further reduce water usage while reinforcing the message of community importance and "doing your part". If the reasoning is well communicated, this message can be highly effective in securing additional water savings and constitutes a powerful tool for agencies.

Response Action Process

Once the monitoring framework indicates that the region has reached a specific stage of water shortage condition, several actions will occur.

First, the Response Taskforce will assemble.

The Response Taskforce is the organizational group empowered to:

1. Create the Response Plan blueprint.
2. During water shortage stages, finalize strategic response actions.
3. Manage the implementation of response actions, according to plan.
4. Monitor supply and demand performance.
5. Adapt response plan and activity accordingly.

The taskforce is comprised of representatives from SCV Water management, conservation team, public affairs, and other public entities in the Valley.

The taskforce will make recommendations about the level of program and services, restrictions, and messaging to customers. These recommendations will be brought to management for approval.

The group will review the proposed actions set forth in the existing plan and make modifications as necessary. The plan was intended to be flexible and changeable. Modifications to the plan might include a change in incentive levels or program delivery mechanisms. There may also be a new water-saving technology that should be offered to

customers. The taskforce might be able to secure additional grant funding, as well. Once the action plan is finalized and approved, the taskforce will advise the agency and SCV Water will manage the implementation of the programs, penalties, and communications plan.

An overview of the response process is below:

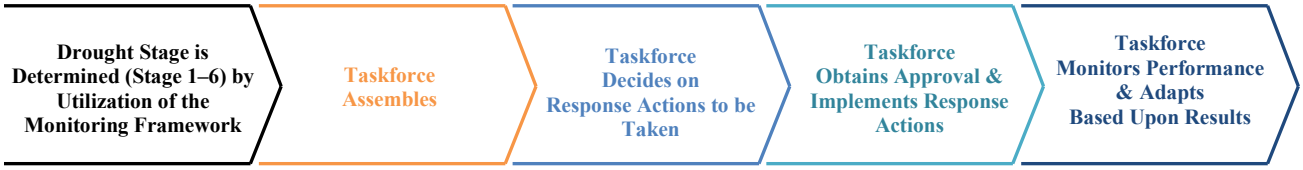

Figure 5: Response Action Process

Response Action Objectives & Strategy

The objectives of the Response Plan are to integrate the response actions into a cohesive whole that improves the effectiveness of each component. The plan's objectives are to:

- Outline programs that are highly appealing to customers.
- Provide targeted marketing and communications for programs and restrictions.
- Guide escalation of response actions as water shortage stages increase.
- Allow for a consistent regional rollout that reduces customer confusion, raises response, and increases savings per household.
- Ensure communication, marketing, programs, and restrictions are interconnected and support each other in achieving water savings goals.

SCV Water's overall strategy is straightforward, ***prioritize water waste and high-savings opportunities.***

Figure 6: Response Plan

Interconnectivity of Response Actions

The Plan's strategy and tactics are devised to effectively communicate, motivate, and gain participation from customers in ever-increasing stages. There is an interactivity between these strategic components that, when performed effectively, creates synergy and heightened response. This happens when multiple, successful marketing initiatives combine to create an effect greater than the sum of the individual parts.

Quality targeting drives better outreach, which in turn creates a larger community of people. These people become influencers and they help agencies to "sell" the programs, services, and messages to others in the community. When rebates and direct installation is added, response increases even further. And lastly, increased restriction and penalties will ultimately drive savings up. When the Plan functions in this synergistic fashion, full goal attainment is achievable.

Figure 7: Interconnectivity of Response Actions

Table 4 aligns the shortage response actions to each shortage stage. Note that the Ordinance Sections 3 and 4 contain recommendations and restrictions that are in place even when there is no shortage, and what is described below is in addition.

Table 4: Water Shortage Contingency Plan Stages

Water Shortage Contingency Plan Stages		
Water Shortage Stage	**SCV Water Response Actions**	**Customer Actions**
Water Shortage Stage 1: (Voluntary - up to 10% reduction)	Groundwater/Banking/Transfers	Practice Voluntary Conservation
	Program: Lawn Replacement Rebates	Consider Participation
	Program: Smart Controller and Irrigation Rebates--Online Store	Consider Participation
	Program: Home Surveys	Consider Participation
	Program: Irrigation Tune-up and Leak Detection Device Incentives	Consider Participation
	Messaging importance of water efficient property to prepare for future shortages	Practice Voluntary Conservation
	Outreach to increase Lawn Replacement Program and Smart Irrigation	Consider Participation
	Watering restrictions in Section 4 of the Ordinance become mandatory; continue general (non-shortage) Section 3 recommendations in the Ordinance	Comply with SCV Water Waste Provisions
Water Shortage Stage 2: Moderate Shortage (Voluntary - up to 20% decrease in water use)	Groundwater/Banking/Transfers	Practice Voluntary Conservation
	Programs remain the same	Consider Participation
	Messaging Watch Condition "Moderate Shortage"	Practice Voluntary Conservation
	Begin profiling, targeting, messaging high potential customers	Practice Voluntary Conservation
	Escalate efforts at compliance with general recommendations in Section 3 and restrictions (Mandatory >=Stage 1) listed in the Ordinance.	Comply with SCV Water Waste Policy
	Communicate, ask “everyone to do their part to save”	Practice Voluntary Conservation
Water Shortage Stage 3: Significant Shortage (Voluntary - up to 30% decrease in water use)	Groundwater/Banking/Transfers	Practice Voluntary Conservation
	Programs with rebates remain the same	Consider Participation
	Program: Virtual irrigation controller programming assist.	Consider Participation
	Program: Direct installation of smart irrigation controllers and nozzles	Consider Participation
	Program: Increase Home Surveys	Consider Participation
	Messaging Watch Condition "Significant Shortage"	Practice Voluntary Conservation
	Continue profiling, targeting, messaging high potential customers	Engage

Water Shortage Contingency Plan Stages		
	Introduce influencer marketing (role models, respected community members, active HOAs)	
	Continue escalated efforts at compliance with general recommendations in Section 3 and restrictions (mandatory >=Stage 1) listed in the Ordinance.	Comply with SCV Water Waste Policy
Water Shortage Stage 4: Severe Shortage (Mandatory - up to 40% decrease in water use)	Groundwater/Banking/Transfers	Practice Mandatory Conservation
	Programs: Continue and increase incentives for nozzles and controllers	Consider Participation
	Program: Continue virtual irrigation controller assist	Consider Participation
	Messaging Watch Condition "Emergency, Significant Shortage"	Practice Mandatory Conservation
	Expand targeting to include mid- and high-water customers	Respond to Targeted Outreach
	Ramp up influencer marketing	Engage
	Additional staff for expanded communication and enforcement	Comply with SCV Water Waste Policy
Water Shortage Stage 5: Critical Shortage (Mandatory – up to 50% decrease in water use)	Groundwater/Banking/Transfers	Practice Mandatory Conservation
	Program: Continue virtual irrigation controller assistance	Consider Participation
	Program: Increase incentives and direct installation	Consider Participation
	Suspend Lawn Replacement Program promotions	Consider Independent Action
	Messaging "Critical Condition" and “Urgency”	Practice Mandatory Conservation
	Restrictions: implement emergency alerts and media coverage	Comply with SCV Water Waste Policy
Water Shortage Stage 6: Super Critical Shortage (Mandatory – greater than 50% decrease in use and water for essential use only)	Groundwater/Banking/Transfers	Practice Mandatory Conservation
	Programs: Only offer leak detection and repair programs	Consider Participation
	Suspend all landscape & irrigation programs	Consider Independent Action
	Messaging "Super Critical Shortage"	Practice Mandatory Conservation
	Crisis messaging; Announce Water for Essential Use Only	Practice Mandatory Conservation
	Restrictions: implement emergency alerts and media coverage	Comply with SCV Water Waste Policy

Strategy per Water Shortage Level

Tactics for shortage stages will expand as drought levels escalate. SCV Water will increase staffing capability, add more customer support, and provide a higher level of program incentives and services as increased water shortage stages are declared.

At **Level Zero**, a non-shortage level, programs and incentives will continue to be offered to customers at current levels. During this time, the goal will be to encourage and incentivize customers to create drought sustainable properties in advance of an emergency. The focus will be on turf replacement programs and customer education offerings.

Once a water shortage enters a specific Level, the taskforce will assemble to finalize the Response Plan for that Level and begin the implementation process for customer targeting and increased outreach.

For all shortage levels, SCV Water's priority is to leverage existing storage and water banking investments to result in supply augmentation.

- At **Level 1,** the goal is up to a 10% water use reduction. The proposed plan is to target high use potential customers, customers that are using water inefficiently. The proposed programs would likely stay the same. The outreach will enforce the importance of water efficiency as a preparedness for heightened shortages and continue voluntary restrictions.

- The goal for **Level 2**, or a moderate shortage is up to 20% reduction in water use. The proposed focus for Level 2 is to expand activity for irrigation equipment direct installation programs and ramp up outreach providing customers with understanding of a Moderate Shortage is and asking everyone to do their part.

- The goal for **Level 3**, or a significant shortage, is to achieve up to a 30% decrease in water use. Tactics for Level 3 may require incentive increases for landscape and irrigation rebates and direct installation programs, expansion in outreach to customers so there's an understanding of what a significant shortage is as well as escalation of water waste prohibition and enforcement.

- The goal for **Level 4**, or a critical shortage, is up to mandatory 40% decrease in water use. The Level 4 proposal is for SCV Water to increase incentives for measures like sprinkler nozzles and smart controllers, expand targeting to included mid-range water users, expand outreach so the community knows there is a critical shortage condition and expand water waste enforcement.

- The goal for **Level 5**, or an emergency condition, is a mandatory 50% reduction in water use. Level 5 may require SCV Water to heighten the message of urgency and put forth a community call to action. Additionally, there will be an increase in

implementation of emergency alerts and expanded news and social media outreach notifying customers of up to a 50% decrease in water use.

- During **Level 6,** or a catastrophic shortage, includes mandatory reductions greater than 50%. In this event, it's likely only indoor plumbing and property leak detection programs will be offered. It is proposed that all landscape & irrigation programs be suspended and SCV Water would implement messaging, announcing water for essential use only. SCV Water would conduct strict enforcement of water waste restrictions.

On the following pages are snapshots of the programs, messaging, and activities for each drought stage:

Level 1 Strategy

Goal: Up to voluntary 10% reduction. Customers create drought sustainable properties prior to emergency conditions. Consider increasing incentives if activity does not increase.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as deemed appropriate to reduce customer shortage request.
Programs:

- Lawn Replacement Rebates
- Smart Controller and Irrigation Rebates – Consider Online store
- Home Surveys
- Consider Irrigation Tune-up Program and Leak Detection Device Incentive

Work to increase response for the Lawn Replacement Program and smart irrigation incentives through increased outreach and a higher level of linkage to support services.
Messaging: & Outreach: Reinforce the importance of creating/maintaining a water efficient property as preparedness for future water shortages.
Restrictions: Continue with current restrictions.

Level 2 Strategy

Goal: Up to a voluntary 20% decrease in water use.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as deemed appropriate to reduce customer shortage request.
Programs: Programs remain the same.
Messaging & Outreach: Define Watch (Moderate Shortage) Condition and utilize in general customer messaging.
Begin profiling customers and micro-target high potential customers, utilizing messaging that will best resonate with those customers.
Restrictions: Consider escalation of local water waste prohibitions.
At this level, SCV Water will communicate to customers that there's a need to increase water efficiency levels and will ask everyone to do their part to save.

Level 3 Strategy

Goal: Voluntary/Mandatory 30% decrease in water use.[1]
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as deemed appropriate to reduce customer shortage request.
Programs:

- Rebate programs remain the same.
- Provide virtual irrigation controller programming assistance.
- Consider direct smart irrigation installation programs (controllers and nozzles).
- Increase the volume of Home Surveys performed.

Messaging & Outreach: Define Warning (Significant Shortage) Condition to use in general customer messaging.
SCV Water continues profiling and micro-targeting of high potential customers. Introduce influencer marketing (role models, respected community members and active HOAs).
Restrictions: Escalation of water waste prohibitions and enforcement. Increase regional outreach regarding prohibitions.

Level 4 Strategy

Goal: Up to a Mandatory 40% decrease in water use.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as available to reduce customer shortage costs.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as deemed appropriate to reduce customer shortage request.
Programs:

- Continue base programs and increase incentive amounts for high efficiency nozzles and smart controllers.
- Continue virtual irrigation controller programming assistance and smart irrigation direct installation programs.

Messaging & Outreach: Define Emergency (Severe Shortage) Condition and utilize as general customer messaging.
SCV Water expands profiling and micro-targeting to include mid-range water users as well as high-water use customers. Ramp up influencer marketing.
Restrictions: Hire additional local staff and set up operations for expanded customer communication and enforcement administration.

[1] Note that the Water Shortage Task Force would be responsible for recommending voluntary or mandatory status to SCV Water management which would then seek Board approval to implement mandatory actions and advise when voluntary.

Level 5 Strategy

Goal: Up to a Mandatory 50% decrease in water use.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as available to reduce customer shortage costs.
Programs:

- Continue virtual irrigation controller programming, increased incentives, and smart irrigation direct installation.
- Suspend Lawn Replacement Program promotions.

Messaging & Outreach: Define Critical Condition and use as general customer messaging.
SCV Water strengthens the message of urgency and the community call to action.
Restrictions: Increase penalties, implement emergency alerts and new media coverage.

Level 6 Strategy

Goal: Mandatory 51+% decrease in water use.
Supply Augmentation: SCV Water deploys groundwater/banking/transfers as available to reduce customer shortage costs.
Programs:

- Only offer leak detection and repairs programs.
- Suspend all landscape & irrigation programs.

Messaging & Outreach: Define Catastrophic (Super Critical Shortage) Condition and utilize as general customer messaging.
Implement crisis messaging, announcing essential use only.
Restrictions: Conduct stringent enforcement of restrictions.

Table 5 summarizes the Water Shortage Contingency Plan Strategy per Shortage Stage/Level.

Table 5: Summary of Water Shortage Contingency Plan Strategy per Shortage Stage/Level

Shortage Stage	Goal	Demand Reduction Actions		
		Potential Programs	**Outreach**	**Restrictions***
No Shortage	Create Resilient Properties Prior to Shortage	Current Programs Lawn Replacement Irrigation Rebates Support & Education Services	Educate Importance of Efficiency as Preparedness for Shortages	Voluntary & General Water Use Efficiency Recommendations,
STAGE 1	up to 10% Reduction	Programs Remain the Same	Increase Outreach Reinforce Importance of Efficiency Target inefficient and high use	Continue with Voluntary General Water Use Efficiency Recommendations, Prohibited Water Waste Measures
STAGE 2	up to 20% Reduction	Consider Addition of Sprinkler System Tune-up and Leak Detection Programs	Educate about ***Moderate Shortage*** Request Everyone to do Their Part	Applicable General Water Use Efficiency Measures, Prohibited Water Waste Measures, Additional Measures (3 Days per Week Watering, 10 Minutes per Watering Station, Time of Day Restrictions)
STAGE 3	up to 30% Reduction	Add Virtual Sprinkler Timer Adjustment Assistance	Educate about ***Significant Shortage***	Applicable General Water Use Efficiency Measures, Prohibited Water Waste Measures, Additional Measures (Irrigation limited to 3 Days per Week April – October, 2 Days per Week November – March, 10 Minutes per Watering Station, Time of Day Restrictions)
		Consider Direct Installation of Irrigation Devices	Increase Outreach	

			Add Mid-range Users at Target	
STAGE 4	up to 40% Reduction	Increase Incentive Amounts for Sprinkler Nozzles & Smart Timers	Educate about ***Critical Shortage***	Applicable General Water Use Efficiency Measures, Prohibited Water Waste Measures, Additional Measures (Irrigation limited to 2 Days per Week, 10 Minutes per Watering Station, Time of Day Restrictions)
			Increase Outreach	
STAGE 5	50% Reduction	Suspend Lawn Replacement Program	Educate about ***Emergency Shortage***	Increase Penalties & Enforcement, Applicable General Water Use Efficiency Measures, Prohibited Water Waste Measures, Additional Measures (Irrigation limited to 1 Day per Week, 10 Minutes per Watering Station, Time of Day Restrictions, No Potable Water for New Turfgrass Installations, Pool and Spa Fill Restrictions, No New Potable Water Service, No Potable Water Use for Grading, Potable Water May Not Be Used to Wash Vehicles, Except at Commercial Facilities that Recycled Water)
		Continue Installation & Support Programs	Strengthen Urgency Message	
			Send Emergency Alerts	
Stage 6	50+% Reduction	Suspend All Programs Except Leak Detection & Repairs	Educate about ***Catastrophic Shortage***	Conduct Strict Enforcement, Applicable General Water Use Efficiency Measures, Additional Measures (No Irrigation Watering)
			Announce Water for Essential Use Only	

***Note:** Restrictions are summarized in Table 5 and are subject to change. Actual provisions are listed and updated in the Water Conservation and Water Shortage Ordinance.

4.3. Operational Changes

A number of operational changes may be utilized at various shortage levels, and SCV Water utilizes a flexible approach whereby it looks for opportunities that meet supply needs at a given period of time. The following are examples:

- Advanced Metering Infrastructure (AMI) Customer Portals can be utilized to convey water shortage messaging, water use within billing cycles, and potential alerts.
- Clusters of intermittent use can be identified and coordinated to maintain optimal supply management (e.g., turnout constraints and rapid response customers).
- Well off-line periods can be reduced by fast tracking maintenance, or otherwise coordinating services.

4.4. Additional Mandatory Restrictions

SCV Water will consider mandatory restrictions if needed in addition to demand response actions mentioned above. These will be flexibly deployed for each on an as-needed basis. Table 6 provides a ranking of each water waste prohibition by stage. Note these are only the water waste measures, and they do not include other activities regulated in the ordinance (number of watering days, time restrictions, etc.).

Table 6: Water Waste Prohibitions--Ranking by Stage

			Stages						
			V = Voluntary M = Mandatory						
Water Waste Measures	**Outdoor/ Commercial**	**Savings Estimates**	**1**	**2**	**3**	**4**	**5**	**6**	**Notes**
Allowing runoff onto non-irrigating areas when irrigating with potable water.	Outdoor	Up to 50%	M	M	M	M	M	M	Irrigation runoff is a significant contributor to water waste in scv. With mostly clay soils in the valley, which absorb water at .2 inches/hour, and with average sprinklers applying ~3 inches/hour, watering times should be limited to no more than 3-5 minutes. However, this can be increased to 30 minutes when using High Efficiency Nozzles 20 minutes for drip.
Using hoses with no shutoff nozzles to wash cars.	Outdoor & Commercial	100-250 gallons per event	M	M	M	M	M	M	SCV Water provides free Water Efficiency Kits to customers upon request which include HE Showerheads, Hose Nozzles, HE Kitchen and Bathroom Aerators, Toilet Leak Detection Dye Tablets, Drip Gauges, and Flow Rate Bags to measure volumes. Consider working with carwashes that recycle water to promote additionally efficiency opportunities during a shortage.
Using potable water to wash sidewalks, driveways, and hardscapes	Outdoor & Commercial	100-250 gallons per event	M	M	M	M	M	M	SCV Water can provide brooms as part of its Drought Residential Check-Up service. Historically, customers have provided feedback on issues like washing dog feces, house cleaning and etc.
Using potable water in decorative water features that do not recirculate water	Outdoor	~80% of annual ET X surface area	M	M	M	M	M	M	Utilizing recirculating pumps on fountains is a smart feature and improves efficiency by eliminating single-pass use.

Irrigating Outdoors during and within 48 hours following measurable precipitation (quarter-inch or more)	Outdoor	500+ gallons per event	M	M	M	M	M	M	There are 3 weather stations in the Valley and these should be used in the agency's measurement. If all three stations report >.25 inches, the agency would enforce Stages 1-6.
Irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development, including the Model Water Efficient Landscape Ordinance updated by the State as required by AB 1881 and Executive Order B-29-15 issued by Governor Brown on April 1, 2015.	Outdoor	26% over MWELO design standards	M	M	M	M	M	M	SCV Water could monitor irrigation meters and applicable water efficiency targets.
The irrigation with potable water of ornamental turf on public street medians.	Outdoor	~40 gallons per sq. ft. per year	M	M	M	M	M	M	Most, if not all, medians were converted during the last drought. The use of potable water for turfgrass on medians provides no functional purpose.
The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased.	Commercial	4-8 gallons per load + water and ice per glass	V	V	V	V	M	M	SCV Water starts with engagement and education, increased to enforcement at higher stages.
Hotels and motels must offer their guests the option to not have their linens and towels laundered daily, and prominently display this option in each guest room.	Commercial	% of total laundry load	V	V	V	V	M	M	SCV Water starts with engagement and education, increased to enforcement at higher stages.

4.5. Emergency Response Plan

SCV Water periodically updates its Emergency Response Plan (ERP) to ensure restoration of water service for essential use in the Valley if a catastrophic supply interruption (e.g., power outage, earthquake, or other non-dry period related emergency), were to temporarily interrupt water supply. This plan is not publicly available but identifies actions to be taken if there is a catastrophic supply interruption. SCV Water staff responsible for water transportation, treatment, and distribution have established the ERP to guide assessment, prioritization, and repair of SCV Water facilities potentially damaged during such a disaster.

Catastrophic supply interruptions enter into the SCV Water determination of water supply shortages. Specific water shortage levels are not directly tied to supply interruptions as the nature of the interruption and the availability of alternative supplies can mitigate any shortage level experienced by SCV Water customers. To the extent that supply interruptions contribute toward the total SCV Water system shortage, the response actions associated with the determined water shortage level from this WSCP will apply.

4.6. Seismic Risk Assessment and Mitigation Plan

For its own facilities, SCV Water is completing a Seismic Risk Evaluation and Mitigation report that will appear as Appendix C when available. SCV Water has also contributed toward seismic mitigation on the State Water Project (SWP).

SWP Seismic Improvements
DWR's recent SWP seismic resiliency efforts have focused heavily on SWP Dam Safety. The most prominent is the joint United States Bureau of Reclamation (USBR) and DWR corrective action study of Sisk Dam which will result in a massive seismic stability alteration project, which is expected to begin construction in 2021.Similarly, Perris Dam had a major foundation modification and stability berm added to the downstream face which has resulted in the removal of the DSOD imposed storage restriction. Several analyses have been conducted on SWP dam outlet towers/access bridges which has resulted in seismic upgrades (some including the Castaic outlet tower described below are on-going). Dam seismic safety evaluations are being performed on the Oroville Dam embankment and the radial gate control structure on the flood control spillway.

At Castaic Lake DWR is undertaking a project to retrofit the bridge that provides access to the outlet tower. As part of a statewide effort to reduce seismic and hydrologic risk to SWP facilities, DWR's Castaic Dam Modernization Program begin in the fall of 2020. In its most recent inspection, the California Division of Safety of Dams (DSOD) rated Castaic Dam as fair – meaning there are no existing dam safety deficiencies that will impact the dam's functions under normal conditions. However, improvements can be made to prevent serious impacts after either an extreme weather or earthquake event. Studies indicate that the outlet structures (the large towers that allow DWR to release water from the reservoir) are vulnerable to collapse in a major earthquake. While this

would not cause the dam to fail, it would significantly reduce DWR's ability to release water reliably therefore slowing the delivery of water to customers.

Although not directly an impact on SCV Water, seismic retrofits have also been completed on 23 SWP bridges located in four Field Divisions with additional retrofits in various development stages. DWR has also updated the earthquake notification procedures and has replaced and expanded instrumentation for the SWP's seismic network.

Emergency Freshwater Pathway Description (Sacramento-San Joaquin Delta)
It has been estimated by DWR that in the event of a major earthquake in or near the Delta, water supplies could be interrupted for up to three years, posing a significant and unacceptable risk to the California business economy. A post-event strategy would provide necessary water supply protections to avert this catastrophe. Such a plan has been coordinated through DWR, Corps of Engineers (Corps), Bureau of Reclamation (Reclamation), California Office of Emergency Services (Cal OES), the Metropolitan Water District of Southern California and the State Water Contractors.

DWR Delta Flood Emergency Management Plan
The Delta Flood Emergency Management Plan (DWR, 2018) provides strategies for response to Delta levee failures, up to and including earthquake-induced multiple island failures during dry conditions when the volume of flooded islands and saltwater intrusion are large, resulting in curtailment of export operations. Under these severe conditions, the plan includes a strategy to establish an emergency freshwater pathway from the central Delta along Middle River and Victoria Canal to the export pumps in the south Delta. The plan includes the prepositioning of emergency construction materials at existing and new stockpile and warehouse sites in the Delta, and development of tactical modeling tools (DWR Emergency Response Tool) to predict levee repair logistics, timelines of levee repair and suitable water quality to restore exports. The Delta Flood Emergency Management Plan has been extensively coordinated with state, federal and local emergency response agencies. DWR, in conjunction with local agencies, the Corps and Cal OES, conduct tabletop and field exercises to test and revise the plan under real time conditions.

DWR and the Corps provide vital Delta region response to flood and earthquake emergencies, complementary to Cal OES operations. These agencies perform under a unified command structure and response and recovery framework. The Northern California Catastrophic Flood Response Plan (Cal OES, 2018) incorporates the DWR Delta Flood Emergency Management Plan. The Delta Emergency Operations Integration Plan (DWR and USACE, 2019) integrates personnel and resources during emergency operations.

Pathway Implementation Timeline
The Delta Flood Emergency Management Plan has found that using pre-positioned stockpiles of rock, sheet pile and other materials, multiple earthquake-generated levee breaches and levee slumping along the freshwater pathway can be repaired in less than

six months. A supplemental report (Levee Repair, Channel Barrier and Transfer Facility Concept Analyses to Support Emergency Preparedness Planning, M&N, August 2007) evaluated among other options, the placement of sheet pile to close levee breaches, as a redundant method if availability of rock is limited by possible competing uses. The stockpiling of sheet pile is vital should more extreme emergencies warrant parallel and multiple repair techniques for deep levee breaches. Stockpiles of sheet pile and rock to repair deep breaches and an array of levee slumping restoration materials are stored at DWR and Corps stockpile sites and warehouses in the Delta.

Emergency Stockpile Sites and Materials
DWR has acquired lands at Rio Vista and Stockton as major emergency stockpile sites, which are located and designed for rapid response to levee emergencies. The sites provide large loading facilities, open storage areas and new and existing warehousing for emergency flood fight materials, which augment existing warehousing facilities throughout the Delta. The Corps maintains large warehousing facilities in the Delta to store materials for levee freeboard restoration, which can be augmented upon request of other stockpiles in the United States. Pre-positioned rock and sheet pile are used for closure of deep levee breaches. Warehoused materials for rapid restoration of slumped levees include muscle (k-rail) walls, super sacks, caged rock containers, sandbags, stakes and plastic tarp. Stockpiles will be augmented as materials are used.

Emergency Response Drills
Earthquake-initiated multiple island failures will mobilize DWR and Corps resources to perform Delta region flood fight activities within an overall Cal OES framework. In these events, DWR and the Corps integrate personnel and resources to execute flood fight plans through the Delta Emergency Operations Integration Plan (DWR and USACE, 2019). DWR, the Corps and local agencies perform emergency exercises focusing on communication readiness and the testing of mobile apps for information collection and dissemination. The exercises train personnel and test the readiness of emergency preparedness and response capabilities under unified command and provide information to help to revise and improve plans.

Levee Improvements and Prioritization
The DWR Delta Levees Subventions and Special Projects Programs have prioritized, funded and implemented levee improvements along the emergency freshwater pathway and other water supply corridors in the central and south Delta. These efforts are complementary to the Delta Flood Emergency Management Plan, which along with pre-positioned emergency flood fight materials, ensures reasonable seismic performance of levees and timely pathway restoration after a severe earthquake. These programs have been successful in implementing a coordinated strategy of emergency preparedness to the benefit of SWP and CVP export systems.

Significant improvements to the central and south Delta levees systems along Old and Middle Rivers began in 2010 and are continuing to the present time. This complements substantially improved levees at Mandeville and McDonald Islands and portions of Victoria and Union Islands. Levee improvements along the Middle River emergency

freshwater pathway and Old River consist of crest raising, crest widening, landside slope fill and toe berms, which improve seismic stability, reduce levee slumping and create a more robust flood-fighting platform. Urban agencies, including Metropolitan, Contra Costa Water District, East Bay Municipal Utility District, and others have participated in levee improvement projects along or near the Old and Middle River corridors.

4.7. Shortage Response Action Effectiveness

The overall effect of water shortage response actions is to start with the expected unconstrained demand, apply supply augmentations and demand responses, and thereby demonstrate the level of service reliability. Table 7 provides estimates of demand response action effectiveness for each shortage stage.

Table 7: Demand Reduction Action Effectiveness

Shortage Stage	Demand Response Actions	How much is this going to reduce the shortage gap?
No Shortage	Create Resilient Properties Prior to Shortage	No Gap
Water Shortage Level 1: (Voluntary - up to 10% reduction)	Education	up to 5%
	Increased Cons. Program marketing	up to 3%
	Targeted Engagement	up to 1%
	Mandatory Prohibition	up to 1%
Water Shortage Stage 2: Moderate Shortage (Voluntary - up to 20% decrease in water use)	Education	5%
	Increased Cons. Program marketing	up to 3.5%
	Targeted Engagement	up to 10%
	Mandatory Prohibition	up to 3%
Water Shortage Stage 3: Significant Shortage (Voluntary - up to 30% decrease in water use)	Education--about Significant Shortage	5%
	Increased Cons. Program marketing--Consider Direct Installation	up to 5%
	Targeted Engagement -- Add Mid-range users	up to 15%
	Mandatory Prohibition	up to 5%
Water Shortage Stage 4: Severe Shortage (Mandatory - up to 40% decrease in water use)	Education--about Severe Shortage	up to 10%

Shortage Stage	Demand Response Actions	How much is this going to reduce the shortage gap?
	Increased Cons. Program Incentives	up to 6%
	Targeted Engagement -- Broaden	up to 15%
	Mandatory Prohibition	up to 5%
Water Shortage Stage 5: Critical Shortage (Mandatory - 50% decrease in water use)	Education--about Critical Shortage	up to 10%
	Suspend Lawn Replacement Programs, Continue Installation and Support Programs	up to 6%
	Targeted Engagement -- Broaden	up to 15%
	Mandatory Prohibition	up to 25%
Water Shortage Stage 6: Super Critical Shortage (Water for essential use only)	Educate about Catastrophic Shortage	up to 10%
	Conservation: Suspend All Programs Except Leak Detection & Repairs	less than 1%
	Announce Water for Essential Use Only	up to 15%
	Mandatory Prohibition	up to 25%

Table 8 provides estimates for how much emergency restrictions of all outdoor uses would reduce 2020 demand using estimates from SCV Water's DSS model.

Table 8: Estimated Demand Reduction from Restricting all Outdoor Water Uses

Estimated Demand Reduction from Restricting all Outdoor Water Uses					
Reduction in Outdoor Water Use	**Total Demand, Predicted 2020 (AF)**	**Estimated Indoor Use (AF)**	**Estimated Outdoor Use (AF)**	**Reduced Demand (AF)**	**Estimated Reduction in Total Demand (%)**
Base	68,900	26,182	42,718	0	0
25%	58,221	26,182	32,039	10,680	15.5%
50%	47,451	26,182	21,359	21,359	31.0%
75%	36,862	26,182	10,680	32,039	46.5%
100%	26,182	26,182	0	42,718	62.0%
Source: SCV Water DSS model predicted demand and estimated indoor/outdoor for 2020					

Section 5: Communication Protocols

Following the record-breaking drought of 2012-2016, SCV Water's legacy agencies prioritized expansion of their water conservation and education outreach programs to emphasize water efficiency as a sustainable way of life, rather than solely a response to dry conditions or drought. Messaging has encouraged behavioral changes that can be sustained regardless of weather and uses tools and technology that can be implemented to permanently save water in homes and businesses, particularly outdoors where up to 70% of total water use occurs.

These efforts have helped solidify a conservation ethic across Southern California, supporting investments in conservation, recycling, and groundwater recovery since 1990. When combined with additional investments in storage, local supply development, and programs to increase water storage reserves in wet years, the region is better prepared to withstand future droughts. Still, in response to the challenges of climate change and other abnormal supply conditions, increased water efficiency will still be necessary. As those conditions become more prevalent, effective communication strategies and a common understanding of necessary actions between water agencies, the public, elected officials, and other key stakeholders become even more important should the district need to activate the WSCP. These relationships and communication tools must be well-established to be successful. To that end, water providers should aim to communicate to customers in the following areas:

Communication Plan Purpose
This section of the WSCP describes the basic communications strategies needed to help SCV Water effectively communicate vital information for each of the six standard water shortage levels that represent changes from normal reliability.

The six standard water shortage levels depicted in this communications plan correspond to progressively increasing estimated shortage conditions up to 10%, 20%, 30%, 40%, 50%, and greater than 50% shortage compared to the normal reliability conditions.

Key Audiences
Communicating to various stakeholders is essential during normal supply periods and becomes increasingly more involved during water shortages. Communicating to these audiences requires varying levels of involvement depending on the status of supply conditions. Feedback, research, and leveraging existing relationships are central to an effective communications plan. Staff will continue to coordinate closely with member agencies, stakeholders, and governing agencies on an ongoing basis to ensure appropriate messaging is culturally competent and provided in multiple languages to reflect the region's demographics.

Residents
- Single family homeowners
- Multi-family tenants

- Multi-family property owners

Businesses

- Commercial/Industrial/Institutional
- Homeowner Associations
- Building Industry Association and Developers
- Media Networks
- Rapid Response Network (from SCV Water's Demand Management Program)
- SCV Chamber of Commerce
- Valley Industry Association (VIA)
- Vendors/Contractors/Consultants doing business with SCV Water

Public/Community Agencies

- Educational Institutions
- Elected Officials and Community Leaders
- Community-based Organizations (CBOs): Non-profits, service clubs and fraternal organizations
- State and Federal Representatives and Staff
- City of Santa Clarita
- Los Angeles County
- Public Safety Agencies (Fire Department and Law Enforcement)
- Sanitation Districts of Los Angeles County
- School districts/educators/students
- Community Councils (Canyon Country Advisory Council; unincorporated areas – Castaic, Acton and Agua Dulce)
- Area Public Information Officers Coalition
- Environmental Groups (Sierra Club; SCV Hiking Club)
- Watershed Interests

Partnerships

- Water Industry – Association of California Water Agencies (state and federal); Southern California Water Committee; National Water Resources Association; Association of Water Agencies; Ventura County; neighboring water agency partners (i.e., Palmdale)
- Regulatory Agencies (California Department of Water Resources; State Water Resources Control Board; Regional Water Quality Board; etc.)
- Environmental Agencies (state and federal Fish and Wildlife)
- California Water Efficiency Partnership (CalWEP)
- Alliance for Water Efficiency (AWE)
- EPA WaterSense

Media

- Local media outlets (Signal, KHTS, SCVTV, etc.)
- Regional media (TV, newspaper, etc.)

Internal

- Agency staff
  - Office staff
  - Field staff
  - Customer service
  - Management
- Retail Divisions
- Board of Directors

Goals and Objectives
SCV Water's communications goals are rooted in the following guiding principles:

- Motivate key audiences to:
  - Increase conservation
  - Follow voluntary or mandatory water use guidelines
  - Participate in water-saving incentive programs
  - Encourage family, friends, neighbors, and colleagues to do all of the above

- Raise awareness about:
  - Water shortage and/or drought conditions
  - Water sources, supplies and reserves
  - Local, regional and state regulations

- Educate key audiences about:
  - Water supply reliability
  - Water infrastructure and delivery
  - Water quality

- Prepare the region for:
  - Varying water supply conditions
  - Escalating supply shortage levels

Customer Outreach and Engagement Tools
Conservation as a way of life remains central to messaging during normal supply conditions. Regional rebate programs, indoor and outdoor water use efficiency, investments to maintain infrastructure, emergency preparedness, local supply programs, water quality, and regional supply reliability are among some of the themes that make up a normal supply period's communications mix to encourage ongoing conservation actions. Below is a snapshot of the various strategies involved:

Education

- Website
- Social media (boosted/promoted posts – Facebook, Twitter, Instagram, YouTube, LinkedIn, NextDoor)
- Emails to customers (Constant Contact)

- Emails to local elected officials
- eNewsletters
- Media Relations (Press releases, advisories, interview, op-eds)
- FAQ sheet/Fact sheets
- ROBO Calls (all customers)
- Digital, print, and other paid media marketing
- Direct mail (bill messages/inserts, postcards, targeted letters)
- Community Events
- User class outreach
- Education outreach (school programs and gardening classes)
- Resources (conservation "how to" videos, irrigation guide)

Action

- Conservation Rebate Programs

Regulatory

- SCV Water Board Approved Ordinances
- Local/state prohibited actions (State Water Resources Control Board)

Customer Engagement Strategy / Key Communication Strategies
Our customer engagement strategy focuses on prioritizing water savings opportunities, which follows the steps/flow listed in the response plan below:

Figure 8: Response Plan

Water Shortage Communication Response Action Strategy

Water Shortage Level 1 Communications – up to 10% Reduction

This section addresses communications strategies SCV Water uses during periods of 10% water shortage conditions. In addition to the Agency's ongoing communications efforts, a 10% shortage would require the following elements:

Outreach Goal (level 1)
• Increase Outreach • Reinforce importance of efficiency

• Target inefficient and high-water use

Outreach Response:	
Protocols for customers, general public and interested parties	**Protocols for local, regional, and state government entities**
• E.g., social media posts, bill stuffers or newsletters, press releases, radio spots, television coverage, and blog posts	• E.g., formal notifications, emergency communications

Water Shortage Level 2 Communications – up to 20% Reduction

In a more severe supply shortage or demand management period, SCV Water will continue actions outlined in Level 1 communications strategies, and add the following efforts, which are designed to address a 20% percent mandatory conservation under the WSCP:

Outreach Goal (level 2)
• Educate about Moderate Shortage • Request everyone do their part • Option for customized water use reports

Outreach Response:	
Protocols for customers, general public and interested parties	**Protocols for local, regional, and state government entities**
• E.g., social media posts, bill stuffers or newsletters, press releases, radio spots, television coverage, blog posts, and customized water reports.	• E.g., formal notifications, emergency communications

Water Shortage Level 3 and 4 Communications – up to 30% or 40% Reduction

In addition to Level 2 communications strategies, the following efforts will address an even more severe shortage of 30%-40% mandatory conservation under the WSCP:

Outreach Goal (level 3)	**Outreach Goal** (level 4)
• Educate about significant shortage • Increase outreach • Add Mid-range users at target	• Educate about critical shortage • Increase outreach

Outreach Response:	
Protocols for customers, general public and interested parties	**Protocols for local, regional, and state government entities**

• E.g., social media posts, bill stuffers or newsletters, press releases, radio spots, television coverage, blog posts, and customized water reports.	• E.g., formal notifications, emergency communications

Water Shortage Level 5 – 6 Communications – 50% reduction or more

The severity of this level of the WSCP calls for immediate, extreme conservation measures and a focus on water use for health and safety only. As with previous levels, communications strategies at this level of the WSCP incorporate and build upon ongoing efforts.

Outreach Goal (level 5)	**Outreach Goal** (level 6)
• Educate about emergency shortage • Strengthen urgency message • Send emergency alerts	• Educate about Catastrophic shortage • Announce water for essential use only

Outreach Response:	
Protocols for customers, general public and interested parties	**Protocols for local, regional, and state government entities**
• E.g., social media posts, bill stuffers or newsletters, press releases, radio spots, television coverage, blog posts, and customized water reports.	• E.g., formal notifications, emergency communications

Crisis Communications – Catastrophic Shortage

In the event of a catastrophic shortage due to an infrastructure failure and/or natural disaster, SCV Water will enact its crisis communications as part of our Agency's Emergency Response Plan. The Emergency Response Plan was developed in accordance with local, regional, state and federal emergency response guidelines to ensure a coordinated effort and effective response.

Response Action Process

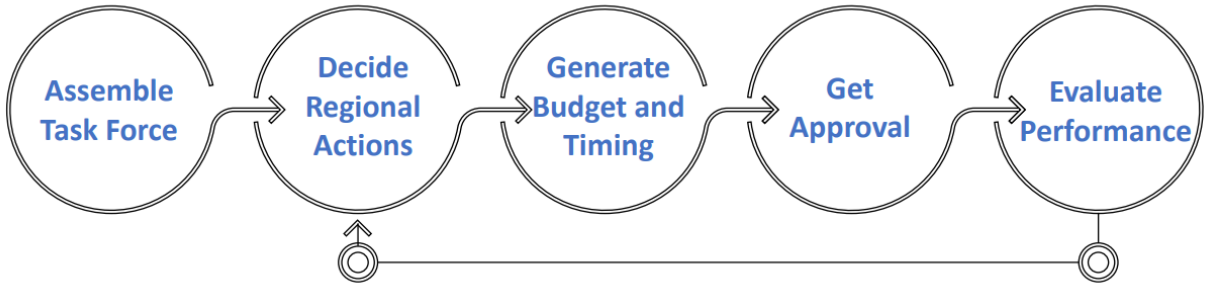

Figure 9: Response Action Process

Section 6: Compliance and Enforcement

Compliance and enforcement will be assured with the following methods:

- Letters of Noncompliance can be distributed with monthly bills to indicate water use above a designated level.
- Monthly efficiency goals can be communicated on bills (e.g., 55 gpd x 4 people + Landscape ETo).
- Water shortage service area inspections (patrols).
- Sending a general letter stating the rules for drought restrictions, with notification that patrols will drive through your area on a particular week. This way compliance is encouraged prioritizing education and engagement.
- SCV Water does not intend to utilize drought rates as a first response. Rather, financial impacts will be mitigated by planned use of reserve funds.

According to Section 11 of the Ordinance, "The General Manager and other authorized Agency representatives have the duty to enforce the provisions of the Ordinance consistent with this Section. The Agency's intent and goal in implementing the contents of this Section is to conserve water resources and generate the greatest benefit for the Agency customers during times of drought and water shortages. The Agency is committed to verifying complaints of excessive water use prior to deeming a customer is in violation and prior to taking enforcement actions. The Agency is focused on communication, education, and enforcement as necessary." Section 11 contains scaled levels of actions it can take for the first, second, third, and greater violations that start with written notices and range to escalating fines and, ultimately, flow restriction. Appeals and Waivers (Section 12) are also included.

Section 7: Legal Authorities

The Agency has the legal authority to implement and enforce its water shortage contingency plan. California Constitution article X, section 2 and California Water Code section 100 provide that water must be put to beneficial use, the waste or unreasonable use or unreasonable method of use of water shall be prevented, and the conservation of water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare. In addition, Water Code Section 375 provides the Agency with the statutory authority to adopt and enforce water conservation restrictions, and Water Code Section 350 et seq. authorizes the Agency to declare a water shortage emergency and impose water conservation measures when it determines that the Agency may not be able to satisfy ordinary demands without depleting supplies to an insufficient level. Lastly, the Agency is a Special Act Agency and has the authority to impose water conservation restrictions through Section 17 of the Santa Clarita Valley Water Agency Act, (SB 634, Chapter 833, 2017).

Pursuant to these authorities, the Agency is adopting the Water Conservation and Water Shortage Ordinance (WCWSO)in 2021, which prohibits the waste of water and imposes water conservation requirements on customers (see Appendix A). The WCWSO contains six stages of water shortage conditions with escalating water conservation requirements at each stage. These stages are consistent with the requirements of Water Code Section 10632(a)(3) and include the declaration of a water shortage emergency by the Agency Board of Directors depending on conditions at the appropriate stages. Such declarations will be made in accordance with Water Code Section 350. The WCWSO also provides for the enforcement of all requirements and restrictions, and has a process for appeals.

Section 8: Financial Consequences of WSCP

Implementing the WSCP will produce financial consequences to SCV Water that can be anticipated, including potential reductions in revenue and increased expenses associated with implementation of shortage response actions. Likewise, SCV Water can implement actions to mitigate these financial impacts.

Water Rate Structure

SCV Water has a uniform commodity rate within each division and a fixed monthly charge.

Use of Financial Reserves

SCV Water has two types of cash reserves, Restricted and Unrestricted. Restricted reserves are established and utilized for narrowly defined purposes as specified by legal restrictions, bond covenants, and other regulations or ordinances. The SCV Water can have restricted cash reserves for:

- Unspent Bond Proceeds
- Bond Redemption
- Water Conservation
- Grants

The utilization of unrestricted reserves is guided by the Unrestricted Reserve Fund Policy (Dec. 2020). This policy was developed to maintain prudent management of the Agency water system and to integrate the unrestricted cash reserves of the four divisions of the Agency: Regional (formerly wholesale), Newhall Water Division (NWD), Santa Clarita Water Division (SCWD) and Valencia Water Division (VWD). The policy identifies the sources of funding for such reserves, and target amounts for each reserve. The policy established reserve funds applicable to water shortage events:

Water Supply Reliability Reserve – This reserve is maintained to provide a source of funding for the extraction of water from groundwater banking programs or acquisition of other necessary water supply during dry years that will help to further mitigate rate increases.

Revenue Rate Stabilization Reserve – This reserve is maintained to provide the Agency with the ability and flexibility to avoid sharp increases in customers' rates.

Emergency Reserves – This reserve is established to provide additional liquidity in the event of a natural disaster, financial crisis, various economic uncertainties or financial hardships, loss of significant revenue sources, local disasters or capital obligations, cash flow requirements, unfunded mandates including costly regulatory

requirements and other such needs. These amounts should supplement monies received from insurance policies and by state and federal programs.

Use of these reserve funds is based on the recommendation of the General Manager and approval of the Board.

Should revenue shortfalls due to drought or shortage occur, SCV Water could consider the options of drawing from the appropriate reserve fund balances, deferring operation and maintenance and capital projects, or using water stored for emergencies. Multiple year water shortages may require consideration of additional changes to SCV Water's rate structure to maintain financial capacity to deliver reliable water supply to water customers and communities in the Santa Clarita Valley.

Potential Revenue Reductions and Expenses Associated with Activated Shortage

Potential revenue reductions and expenses caused by WSCP deployment will vary depending on shortage response actions. Customer reductions in water consumption will result in decreased revenue in shortage events. Some short run operating costs may be lower, but operations expenditures for customer outreach and shortage mitigation will be significantly higher, depending on the shortage level.

Potential Consequences of Limiting Excessive Water Use

SCV Water's Water Conservation and Water Supply Shortage Ordinance identifies specific water waste measures and includes an escalating framework aimed at greatly reducing wasteful and excessive uses of water. Should the Agency declare a water shortage stage, specific water waste activities would be prohibited. Additionally, since discouraging excessive use is a standard part of SCV Water's everyday practice, the financial consequences of prohibiting excessive use would be minimal.

Section 9: Monitoring and Reporting

SCV Water monitors and reports water supply and demand monthly, including forecasts of supply availability and weather/drought tracking. Water supply volumes from all supply sources and customer billing records are generated monthly. If the monthly goals of balancing supply and demand under shortage conditions are not being met, SCV Water can implement shortage response actions, including both supply augmentation and demand response. Baseline and demand reduction targets can utilize unconstrained demands, demand target as a percent, and weighted by month to determine success.

Section 10: WSCP Refinement Procedures

WSCP refinement procedures are used to ensure shortage risk tolerance is appropriate and that water shortage mitigation tactics are implemented when required. SCV Water plans to refine the WSCP at least every five years in conjunction with the UWMP updates, unless a shorter time frame is deemed appropriate by SCV Water.

Evaluation tracking will be implemented with each future WSCP deployment to evaluate the effectiveness of the water shortage response actions on demand levels. The evaluation logic model will document SCV Water programmatic shortage response and compare the expected percent demand reduction against actual reductions; by this means, the shortage response actions in the WSCP will be revised using the evaluation generated evidence. The success of customer outreach and communications will also be assessed to inform the next WSCP revision. The WSCP development will be considered a life cycle with the following steps:

1. Implementation
2. Monitoring
3. Performance Indicators
4. Assessment and Evaluation
5. Process to Refine and Improve the Plan
6. Adoption by the Board

Section 11: Special Water Feature Distinction

The Water Code requires us to analyze water features that are not pools or spas separately from pools and spas in the WSCP. Non-pool or non-spa water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations.

An additional difference between types of water features that is of particular consequence to SCV Water is that some water features are used as firefighting water supplies.

Thus, the Response Actions in this WSCP reflect the following considerations:

- For pools and spas, and any other water features with direct human contact, potable water is needed for health and safety considerations. And thus, restrictions on these water features are consistent with and complement restrictions on other potable water end uses.

- For water features that use recycled water, restrictions on these water features are consistent with, and complement, restrictions on other water features that use recycled water. For example, recycled water is used for golf courses and median strips in the SCV Water service area. To the extent recycled water can be used to replace scarce potable water supplies, this is incorporated in the plan.

- For water features that are part of the emergency supply for firefighting purposes, water restrictions should avoid impacting the availability of this supply. For example, lakes in the SCV Water service area that are used for fighting purposes are not subject to water use restrictions even in the highest Shortage Levels.

Section 12: Plan Adoption, Submittal and Availability

1. Staff Analysis
2. Management Review and Revise
3. Committee Review, Revise, and Approval
4. Board Adoption
5. Submit to DWR
6. Implement
7. Amend WSCP Outside UWMP Cycle

Resources and References

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"2015 Urban Water Management Plan for Santa Clarita Valley," Prepared for Castaic Lake Water Agency (CLWA), CLWA Santa Clarita Water Division, Newhall County Water District, Valencia Water Company, and Los Angeles County Waterworks District No. 36/Cooperating Agency. July 1, 2016, including June 6, 2017 Update.

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http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=6.&title=&part=2.6.&chapter=&article=

California's Most Significant Droughts: Comparing Historical and Recent Conditions (DWR, 2019) https://water.ca.gov/drought/

National Drought Mitigation Center – U.S. Drought Monitor https://drought.unl.edu/

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Appendix A: SCV Water Conservation and Water Supply Shortage Ordinance

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ORDINANCE NO. 02

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SANTA CLARITA VALLEY WATER AGENCY TO ESTABLISH WATER CONSERVATION AND WATER SUPPLY SHORTAGE RESTRICTIONS AND REGULATIONS

WHEREAS, the Santa Clarita Valley Water Agency (Agency or SCV Water) was created on January 1, 2018 by the Santa Clarita Valley Water Agency Act (SB 634, Chapter 833, 2017) and is the successor entity to the Castaic Lake Water Agency and Newhall County Water District, which were merged into SCV Water through SB 634; and

WHEREAS, pursuant to SB 634, Valencia Water Company, a former private retail water provider in the Santa Clarita Valley, was dissolved and its assets were transferred to the Agency in January 2018; and

WHEREAS Castaic Lake Water Agency, Newhall County Water District, and Valencia Water Company each had water conservation regulations in place and the Agency now desires to adopt one conservation ordinance to apply throughout its service area; and

WHEREAS, this Ordinance has six escalating stages of water shortage regulations and is consistent with new requirements in the Water Code for Urban Water Management Plans; and

WHEREAS, California Constitution Article X, Section 2 and California Water Code Section 100 provide that because of conditions prevailing in the state of California (State), it is declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable, the waste of water or unreasonable use of or unreasonable method of use of water shall be prevented, and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare; and

WHEREAS, in addition to Article X, Section 2, the Agency has the authority to adopt and enforce water conservation restrictions pursuant to Water Code sections 375 and 31026, and the Santa Clarita Valley Water Agency Act, (SB 634, Chapter 833 2017 Section 17); and

WHEREAS, pursuant to California Water Code Section 350, the Board of Directors is authorized to declare a water shortage emergency to prevail within its jurisdiction when it finds and determines that the Agency will not be able to or cannot satisfy the ordinary demands and requirements of water consumers without depleting supplies of the Santa Clarita Valley to the extent that there would be insufficient water for human consumption, sanitation, and fire protection; and

WHEREAS, because of persistent unpredictable water conditions in the State, statutory requirements for water planning, and the declared policy of the State, the Agency hereby finds and determines that it is necessary and appropriate for SCV Water to adopt, implement, and enforce a water conservation program with stages of water shortage restrictions, including

emergency stages, to reduce the quantity of water used by consumers within SCV Water, to preserve water supplies, to prevent the waste or unreasonable use or unreasonable method of use of water, and to ensure that there is sufficient water for human consumption, sanitation, and fire protection; and

WHEREAS, this Ordinance is intended to encourage responsible water use, conserve our water resources and protect the Agency's customers, especially during times of drought and water shortages. While enforcement is a necessary component of this Ordinance, the Agency is focused on outreach, communication, and education first, and then enforcement as necessary. The Agency is also committed to verifying complaints prior to taking enforcement actions.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

Section 1. Findings and Determinations. The Agency hereby finds and determines that the above recitals are true and correct and incorporated herein.

Section 2. Rescission of Previous Regulations. Castaic Lake Water Agency Ordinance No. 44, Newhall County Water District Ordinance No. 117, and Valencia Water Company Rule 14.1 are hereby repealed and replaced by this Ordinance.

Section 3. General Water Use Efficiency Recommendations. The following recommendations are smart management practices for indoor and outdoor water use. Since more severe effects of a water shortage are often brought about due to wasteful water use habits carried over from times of sufficient supply, these certain water-use practices are encouraged at all times.

3.1 Outdoor Water Use Efficiency Recommendations

a. Irrigation systems should be checked monthly for breaks and adjusted so that overspray, runoff and water waste are avoided.
b. Repair all water system leaks within 24 hours of detection or before next scheduled watering cycle.
c. Drip irrigation for plantings and high efficiency nozzles for turf should be considered where appropriate.
d. Shredded bark mulch, spread at a minimum 3" depth, should cover all bare earth and landscape planting areas to help soil retain moisture and keep weeds from growing.
e. Turf should be core aerated annually.
f. Replace underutilized turf areas with low water use plants and mulch.
g. Pool covers should be used to reduce evaporation.
h. The following watering schedule should be maintained throughout the year during average rainfall years: December-January (1x/week), February, March and November (1-2x/week), April and October (2x/week), May and September (2-3x/week), June, July and August (3x/week). Irregularities in average temperatures could cause the actual scheduling to be adjusted either more or less.
i. Due to mostly clay soils in the Santa Clarita Valley, where clay soils have slow absorption rates (~1/5 (.2) inches/hour), irrigation runtimes should

incorporate a cycle-and-soak schedule to allow maximum absorption of applied water and to greatly reduce/eliminate runoff. Runtimes for each cycle should not exceed the amount of time it takes for runoff to occur (example – if runoff occurs after 6 minutes, each cycle should be set to run no more than 5 minutes).

3.2 Indoor Water Use Efficiency Recommendations

a. All leaks to faucets, toilets, and indoor pipes should be repaired immediately.
b. WaterSense Certified devices for plumbing faucets, toilets, and showers should be used.
c. Install 1.0 gallon per flush ultra-low-flow toilets or dual-flush toilets.
d. Water-efficient Energy Star® appliances such as clothes washer and dishwashers should be used.
e. Showers should be limited to 5 minutes.
f. To promote water conservation, operators of hotels and motels should provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel should prominently display notice of this option in each guestroom in a clear and easily understood manner.
g. Eating or drinking establishments, including but not limited to restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drink are served and/or purchased, should only serve drinking water upon request.

Section 4. Watering Restrictions. To promote water conservation and prevent the waste, unreasonable use or unreasonable method of use of water, each of the following actions are discouraged at all times:

a. Allowing runoff onto non-irrigated areas when irrigating with potable water.

b. Using hoses with no shutoff nozzles to wash cars.

c. Using potable water to wash sidewalks, driveways, and hardscapes.

d. Using potable water in decorative water features that do not recirculate the water.

e. Irrigating outdoors during and within 48 hours following measurable precipitation (quarter-inch or more).

f. Irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development, including the Model Water Efficient Landscape Ordinance updated by the State as required by AB 1881 and Executive Order B-29-15 issued by Governor Jerry Brown on April 1, 2015.

g. The irrigation with potable water of ornamental turf on public street medians.

Section 5. Certain Exemptions.

a. The watering day and time limitations in Stages 1, 2, 3 and 4 do not apply to landscape irrigation zones that use drip irrigation and/or low precipitation rated High-Efficiency rotary nozzles (equal to or less than 1 inch per hour).

b. The hand watering of established trees is not prohibited and is exempt from the requirements of this Ordinance.

c. The hand watering of plants that are used for the production of fruits and/or vegetables for human consumption is not prohibited and is exempt from the requirements of this Ordinance.

d. Notwithstanding anything to the contrary in this Section, the SCV Water Board of Directors may prohibit the exempted activities in subsections b and c if it determines that such activities impede its ability to achieve the water use reduction requirements of this Ordinance.

Section 6. Stage 1 Water Shortage.

A Stage 1 Water Shortage condition exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, a reduction in water use is necessary to make the most efficient use of water and appropriately respond to existing water and regulatory conditions. The water use reduction goal during a Stage 1 Water Shortage condition is up to 10%. Upon declaration by the Agency of a Stage 1 Water Shortage condition, the following water conservation restrictions go into effect:

a. The actions described in Section 4 above are prohibited.

Section 7. Stage 2 Moderate Water Shortage

A Stage 2 Moderate Water Shortage condition exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, a reduction in water use is necessary to make the most efficient use of water and appropriately respond to existing water and regulator conditions. The water use reduction goal during a Stage 2 Moderate Water Shortage condition is 10-20%.

6.1 Additional Measures. Upon declaration by the Agency of a Stage 2 Moderate Water Shortage condition, in addition to the requirements for a Stage 1 Water Shortage, the following water conservation restrictions shall be in effect:

a. Limits on Watering Days
Outdoor irrigation of ornamental landscapes or turf with potable water is restricted to three (3) days per week. Customers with street addresses ending in an odd number (1,2,5,7,9) may only water on Monday, Wednesday, and Friday. Customers with street addresses ending in an even number (0,2,4,6,8) may only water Tuesday, Thursday, and Sunday.

Outdoor irrigation of ornamental landscapes or turf with potable water is prohibited on Saturdays. Customers with multiple accounts on the same property must select either an even or odd address watering schedule for their property.

b. Limits on Watering Station Run Time (Duration)
Outdoor irrigation of ornamental landscapes or turf with potable water is limited to no more than Two 5-minute cycles (10 Minutes Max.) per watering station (recommend Cycle & Soak Schedule See 3.1.i).

c. Watering Times (Time of Day)
Outdoor irrigation of ornamental landscapes or turf with potable water must occur during the following timeframes:

November through April – 6 PM to 10 AM
May through October – 8 PM to 9 AM

Section 8. Stage 3 Significant Water Shortage

A Stage 3 Significant Water Shortage exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, a reduction in water use is necessary to make the most efficient use of water and appropriately respond to existing water and regulatory conditions. The water use reduction goal during a Stage 3 Significant Water Shortage condition is 20-30%.

8.1 Additional Measures. Upon declaration by the Agency of a Stage 3 Significant Water Shortage condition, in addition to the requirements for a Stage 1 and Stage 2 Water Shortage, the following water conservation restrictions shall be in effect. If there is a conflict between the restrictions in certain stages, the restrictions in the higher level stage will apply.

a. Limits on Irrigation Watering Days
During the months of April, May, June, July, August, September, and October, outdoor irrigation of ornamental landscapes or turf with potable water is restricted to three (3) days per week. Customers with street addresses ending in an odd number (1,3,5,7,9) may only water on Monday, Wednesday and Friday. Customers with street addresses ending in an even number (0,2,4,6,8) may only water Tuesday, Thursday and Sunday. Outdoor irrigation of ornamental landscapes or turf with potable water is prohibited on Saturdays. Customers with multiple accounts on the same property must select either an even or odd address watering schedule for their property.

b. During the months of November, December, January, February and March, outdoor irrigation of ornamental landscapes or turf with potable water is restricted to two (2) days per week. Customers with street addresses ending in an odd number (1,3,5,7,9) may only water on

Monday and Thursday. Customers with street addresses ending in an even number (0,2,4,6,8) may only water on Tuesday and Friday. Outdoor irrigation of ornamental landscapes or turf with potable water is prohibited on Wednesdays, Saturdays and Sundays

c. Limits on Watering Station Run Times (Duration)
Outdoor irrigation of ornamental landscapes or turf with potable water is limited to no more than Two 5-minute cycles (10 Minutes Max.) per watering station (recommend Cycle & Soak Schedule See 3.1.i).

d. Watering Times (Time of Day)
Outdoor irrigation of ornamental landscapes or turf with potable water must occur during the following timeframes:

November through April – 6 PM to 10 AM
May through October – 8 PM to 9 AM

Section 9. Stage 4 Critical Water Shortage

A Stage 4 Critical Water Shortage exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, a reduction in water use is necessary to make the most efficient use of water and appropriately respond to existing water and regulatory conditions. The water use reduction goal during a Stage 4 Critical Water Shortage condition is 30-40%.

9.1 Additional Measures. Upon declaration by the Agency of a Stage 4 Critical Water Shortage condition, in addition to the requirements for a Stage 1, Stage 2, and Stage 3 Water Shortage, the following water conservation restrictions shall be in effect. If there is a conflict between the restrictions in certain stages, the restrictions in the higher level stage will apply.

a. Limits on Irrigation Water Days
Outdoor irrigation of ornamental landscapes or turf with potable water is restricted to two (2) days per week at all times. Customers with street addresses ending in an odd number (1,3,5,7,9) may only water on Monday and Thursday. Customers with street addresses ending in an even number (0,2,4,6,8) may only water on Tuesday and Friday. Outdoor irrigation of ornamental landscapes or turf with potable water is prohibited on Wednesdays, Saturdays and Sundays. Customers with multiple accounts on the same property must select either an even or odd address watering schedule for their property.

b. Irrigation Watering Times (Duration)
Outdoor irrigation of ornamental landscapes or turf with potable water is limited to no more than Two 5-minute cycles (10 Minutes Max.) per watering station (recommend Cycle & Soak Schedule See 3.1.i).

c. Irrigation Watering Times (Time of Day) Outdoor irrigation of ornamental landscapes or turf with potable water must occur during the following timeframes:

November through April – 6 PM to 10 AM
May through October – 8 PM to 9 AM

d. If existing pools or spas are drained, they may not be re-filled with potable water. Existing water levels may however be maintained.

Section 10. Stage 5 Emergency Water Shortage

A Stage 5 Emergency Water Shortage exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, an emergency situation exists that requires a significant reduction in water use in order to maintain sufficient water supplies for public health and safety. The water use reduction goal during a Stage 5 Emergency Water Shortage is 40-50%.

10.1 Additional Measures. Upon declaration by the Agency of a Stage 5 Emergency Water Shortage condition, in addition to the requirements for a Stage 1, Stage 2, Stage 3, and Stage 4 Water Shortage, the following water conservation restrictions shall be in effect. If there is a conflict between the restrictions in certain stages, the restrictions in the higher level stage will apply.

a. The recommendations in Section 3.2(f) and 3.2(g) above are mandatory.

b. Limits on Irrigation Water Days
Outdoor irrigation of ornamental landscapes or turf with potable water is restricted to one (1) day per week. Customers with street addresses ending in an odd number (1,3,5,7,9) may only water on Monday. Customers with street addresses ending in an even number (0,2,4,6,8) may only water on Thursday. Outdoor irrigation of ornamental landscapes or turf with potable water is prohibited on Tuesdays, Wednesdays, Fridays, Saturdays and Sundays. Customers with multiple accounts on the same property must select either an even or odd address watering schedule for their property.

c. Irrigation Watering Times (Duration)
Outdoor irrigation of ornamental landscapes or turf with potable water is limited to no more than Two 5-minute cycles (10 Minutes Max.) per watering station (recommend Cycle & Soak Schedule See 3.1.i).

d. Irrigation Watering Times (Time of Day)
Outdoor irrigation of ornamental landscapes or turf with potable water must occur during the following timeframes:

November through April – 6 PM to 10 AM

May through October – 8 PM to 9 AM

e. No potable water may be used for new landscaping installed after the declaration of a Stage 5 Emergency Water Shortage except for drought tolerant plants requiring less than typical water requirements.

f. No potable water may be used for any lawn, whether by seed or sod, established after the declaration of a Stage 5 Emergency Water Shortage.

g. No pools or spas, whether existing or subsequently constructed, may be filled with potable water, but existing water levels may be maintained.

h. No New Potable Water Service.
Upon declaration of a Stage 5 Emergency Water Shortage condition, no new potable water service will be provided, no new temporary meters or permanent meters will be provided, and no statements of immediate ability to serve or provide potable water service ("will-serve letters") will be issued, except under the following circumstances:

- A valid, unexpired building permit has been issued for the project; or
- The project is necessary to protect the public health, safety, and welfare; or
- The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the Agency.

This Section 10.1(h) does not preclude the resetting or turn-on of meters to provide continuation of water service or the restoration of service that has been interrupted for a period of one year or less.

i. Potable water may not be used for grading.

j. Potable water may not be used to wash vehicles, except at commercial facilities that recycle water.

k. Street cleaning with potable water is prohibited.

Section 11. Stage 6 Catastrophic Water Shortage

A Stage 6 Catastrophic Water Shortage exists when the Agency determines in its sole discretion that due to drought, state regulations, or other water supply conditions, a catastrophic situation exists that requires a significant reduction in water use in order to maintain sufficient water supplies for public health and safety. The water use reduction goal during a Stage 6 Catastrophic Water Shortage is more than 50%.

11.1 Additional Measures. Upon declaration by the Agency of a Stage 6 Catastrophic Water Shortage condition, in addition to the requirements for a Stage 1, Stage 2, Stage 3, Stage 4, and Stage 5 Water Shortage, the following water conservation restrictions shall be in effect. If there is a conflict between the restrictions in certain stages, the restrictions in the higher level stage will apply.

a. No Irrigation Watering
Water or irrigating of outdoor lawns, landscape, or other vegetated area with potable water is prohibited.

Section 12. Penalties & Enforcement

The General Manager and other authorized Agency representatives have the duty to enforce the provisions of this Ordinance consistent with this Section. The Agency's intent and goal in implementing the contents of this Section is to conserve water resources and generate the greatest benefit for the Agency customers during times of drought and water shortages. The Agency is committed to verifying complaints of excessive water use prior to deeming a customer is in violation and prior to taking enforcement actions. The Agency is focused on communication and education and enforcement as necessary.

12.1. Penalties for failure to comply with any provision of this Ordinance are as follows:

a. First Violation: A written warning will be provided to the customer by mail or personal delivery.

b. Second Violation: For a second violation within twelve (12) calendar months of the first violation, a written notice of non-compliance will be provided to the customer by mail and/or personal delivery and a fine of $50 per violation will be imposed.

c. Third and Subsequent Violations: For a third violation within twelve (12) calendar months of the first violation, a written notice of non-compliance will be provided to the customer by mail and/or personal delivery and a fine of $100 per violation and an increase of $100 for each subsequent violation up to a maximum of $500 per day will be imposed.

d. After a third violation within twelve (12) calendar months of the first violation, the Agency may install a flow restrictor after written notice. It is the customer's responsibility to pay for the installation and removal of any such flow restrictor and the Agency may collect such costs from the customer. The Agency is under no obligation to provide sufficient fire flow to the customer after the third notice of violation within twelve (12) calendar months of the first violation. This requirement is the sole responsibility of the customer.

12.2 Additional Penalties

a. In addition to any fines and the installation of a water flow restrictor imposed pursuant to this Section, the Agency may shut off a customer's water service for willful violations of mandatory restrictions in this Ordinance.

b. Leak Shut Off – Irrigation Meters
In instances where a leak is observed on the customer's side of a dedicated irrigation system or water meter, the Agency may immediately shut off such system and/or meter and may issue a notice of violation as provided for in this Ordinance. Water service will not be reinstated until such leak is repaired.

12.3 Separate Violations:

Each violation of this Ordinance is a separate offense. However, for the limited purpose of calculating the number of violations to determine the escalating penalties in subsections 12.1(b),(c), and (d) above, lack of compliance with multiple measures of this Ordinance on the same day will only count as one violation.

12.4 Appeals:

The Agency will issue a Notice of Violation by mail and/or personal delivery. Customers may appeal a Notice of Violation by filing a written appeal with the Agency within fourteen(14) days of the date of the Notice of Violation. Any Notice of Violation not timely appealed will be final. Upon receipt of a timely appeal, a hearing on the appeal will be scheduled, and the Agency will mail and/or personally deliver written notice of the hearing date to the customer at least fourteen(14) days before the date of the hearing. The Agency's General Manager, or authorized delegate, shall serve as the hearing officer and make any and all decisions regarding any appeals. The Agency shall promptly send written notification of any decision and all decisions are final.

Section 13. Waivers

a. Undue or Disproportional Hardship:
If, due to unique circumstances, a specific requirement of this Ordinance would result in undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to the water users generally or to similar property or classes of water users, then the person may apply for a waiver to the requirements as provided in this section.

b. Establishment Waiver
Customers installing or renovating landscaped areas may qualify for a waiver if the Agency determines that additional watering is required to plant and maintain those landscaped areas for a limited amount of time. If such a determination is made, the Agency will provide the customer with an allowable watering schedule, which will include an allocated increase in water use, and when such watering schedule exception will expire. Any violation of the schedule will be punishable as described in this Ordinance. Approval of establishment waivers will be based on current conservation targets and the Agency's ability to meet those targets.

c. Alternative Performance Compliance Waiver
Customers with more than ten (10) active master-controlled smart weather-based irrigation controllers may qualify for the Alternative Performance Compliance Waiver. An Alternative Performance Compliance Waiver would relieve qualifying and approved customers from having to comply with the Limits on Watering Days, Limits on Watering Times (Duration), and Irrigation Watering Times (Time of Day) in Water Shortage Stages 2-5. In order to qualify, customers with more than ten (10) active master-controlled smart weather-based irrigation controllers must agree to reduce their water use by the water use reduction goal percentage in each declared Stage of Water Shortage. Failure to comply with the applicable water use reduction goal percentage in the applicable declared Stage of Water Shortage will result in expiration of the waiver and such violations will be punishable as described in this Ordinance.

d. Application:
A person wishing to receive a waiver pursuant to this section must submit a written request/application to the Agency, which should include a statement describing the reasons for the request, a detailed watering schedule, duration of waiver, and any other relevant information to support the request, including but not limited to any photographs, drawings, or maps.

e. Written Finding:
The waiver may be granted or conditionally granted only upon a written finding of the existence of unique circumstances and facts demonstrating an undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user's property. The findings must also include a determination that, based on the information in the request/application and any other relevant information, a waiver does not constitute a grant of special privilege inconsistent with the limitations upon other residents and businesses.

f. Approval Authority

The General Manager or authorized delegate of the Agency must act on any completed application no later than ten (10) business days after submittal. The Agency may request a site visit, if needed, to verify or collect any missing information needed to make the final decision. The General Manager or authorized delegate may approve, conditionally approve, or deny the waiver request. The applicant requesting the waiver must be promptly notified in writing of any action taken. The decision of the General Manager or authorized delegate is final.

Section 14. CEQA Exemption

The adoption of this ordinance is not subject to the requirements of the California Environmental Quality Act ("CEQA"), or, alternatively, is exempt from CEQA. As only water conservation would result from the implementation of the Ordinance's provisions, the Ordinance would not commit the Agency to any action that would result in any significant environmental effects. As a result, per State CEQA Guidelines §15378, the Ordinance does not constitute a project subject to requirements of CEQA. Alternatively, the adoption of this Ordinance is exempt from CEQA under State CEQA Guidelines, §15061 (b)(3) and §15308 because CEQA only applies to projects that have the potential for causing a significant effect on the environment and it can be seen with certainty that there is no possibility that the Ordinance will have a significant effect on the environment, and because the Ordinance would result in the conservation of water, a limited and currently scare resource, and would, therefore, have a beneficial effect on the environment. On this basis, and the on the basis of the information contained in the whole of the administrative record, the adoption of this Ordinance requires no further analysis under CEQA.

Section 15. Severability

If any provision of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the ordinance which can be given effect without invalid provision or application, and to this end the provisions of this ordinance are severable. The Board hereby declares that it would have adopted this ordinance irrespective of the invalidity of any particular portion thereof.

Section 16. Effective Date

This Ordinance shall become effective immediately upon adoption.

President

I, the undersigned, hereby certify: That I am the duly appointed and acting Secretary of the Santa Clarita Valley Water Agency, and that at a special meeting of the Board of Directors of said Agency held on June 16, 2021, the foregoing Ordinance No. 02 was duly and regularly adopted by said Board, and that said ordinance has not been rescinded or amended since the date of its adoption, and that it is now in full force and effect.

DATED: June 16, 2021

Secretary

SANTA CLARITA VALLEY WATER AGENCY ESTABLISHED JANUARY 1, 2018 CALIFORNIA

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Appendix B: SCV Water Seismic Analysis

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Seismic Risk Evaluation and Mitigation Report

22 June 2021

Prepared for

Santa Clarita Valley Water Agency
27234 Bouget Canyon Road
Santa Clarita, CA 91350

KJ Project No. 2044228*00

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Section 1: Draft Seismic Risk Analysis

1.1 Overview

The Urban Water Management Planning Act requires urban water suppliers to evaluate potential seismic risk to the facilities in their system and produce a mitigation plan. This section describes the review of the existing documentation and preliminary evaluation of seismic risk to SCV Water's existing facilities. This section also provides recommendations for mitigation of the existing risks. Current structural design practice is to design structures for ground motion with a 2.5% probability of exceedance in any 50-year period. This design earthquake is highly dependent on conditions at any given location. Earthquake magnitude is an estimate of the total energy released by a given earthquake and cannot be directly translated into the design earthquake used for structural design. However, The U.S Geological Survey estimates that there is a 99% chance that California will experience a 6.7 magnitude earthquake within 30 years. The current design earthquake has a lower probability of occurring than an earthquake of similar magnitude to the 1994 Northridge Earthquake, 6.7.

The facilities review as part of this assessment include approximately 45 well sites, 44 booster pump station, and 92 steel water storage tanks, the Earl Schmidt Filtration Plant (ESFP), and the Rio Vista Treatment Plant (RVTP). SCV Water was formed by the merger of CLWA, NCWD, SCWD and VWC. The facilities described in this report were constructed between 1961 and 2020. There are significant gaps in the construction documentation of many of these facilities. Final seismic risk mitigation planning will require site visits by a Structural or Civil Engineer experienced in design of water treatment facilities to evaluate the existing conditions. Where possible an initial determination of the seismic loads at the facilities has been determined in accordance with the 2010 Edition Minimum Design Loads Associate for Buildings and Other Structures (ASCE 7-10) using the web based Hazard Maps by the Applied Technology Council (ATC). The 2010 edition was used in this stage because ASCE 7-16 as referenced in the current California Building Code (CBC) requires site specific geotechnical investigations for most conditions and structures. When implementing the final mitigation recommendations, a geotechnical investigation will be required for most of SCV Water's facilities.

1.2 Water Storage Tank Evaluation Summary

The seismic evaluation of SCV Water was conducted by applying the seismic design provision of the 2011 edition of Welded Carbon Steel Tanks for Water Storage by the American Water Works Association (AWWA D100-11). SCV Water currently operates over 90 steel water storage tanks. For our analysis we were provided the diameter, height to the overflow and maximum capacity of the storage tank. Using this information, ASCE 7-10 seismic parameters, and the seismic provision of AWWA D100-11, we determined the seismic loads, sloshing wave height, and anchorage requirements of SCV Water's storage tanks. We were provided with the overflow height rather than the maximum. Final design of welded and bolted steel water storage tanks is typically conducted by specialty contractors and submitted during construction. The construction drawings rarely indicate the final plate thicknesses, location and size of columns, size and location of anchors or other significant aspects of design beyond size and design criteria. Further field investigations will be required quantify further risk.

Storage tanks built prior to 1984 are unlikely to be compliant with current building standards and are unlikely to have been designed for lateral loads due to seismic events. Storage tanks built between 1984 and 2011 were probably designed with seismic loads however they may not be designed to withstand seismic loads determined in accordance with the current building code. Storage tanks designed after 2011 are likely designed to meet current building code requirements.

Table 1-1 Tank Design Use Group

AWWA D100-11 Design use Group and Seismic Importance Factor

Use Group	*Importance Factor, I_e	Description
I	1	Tanks that provide services to facilities deemed essential for post-earthquake recovery and essential to the life, health and safety of the public, including post-earthquake recovery.
II	1.25	Tanks that provide service to facilities that are deemed important to the welfare of the public
III	1.5	All Other

Note: *Importance Factor is used to amplify loads from earthquakes.

74 of the existing storage tanks require anchors and foundations. The remaining storage tanks will experience uplift due to seismic loads but do not require anchors at the foundation. It is our understanding that very few of the existing tanks are anchored or provided with concrete anchors. The sloshing wave height and required freeboard varies between seven and nine feet in height. We have not been provided the height of the roof framing, however, it is probable that in all cases, the required free board exceeds the distance from the bottom of the roof framing to the maximum operating water level.

Table 1-2 Anchorage, Freeboard, and Capacity Reduction

		Tank Geometry						Results of the Analysis in accordance with AWWA D100-11					
Tank Site	Address	Date Built	Dia	Volume (gallons)	Overflow Height	Seismic Use Group	Importance Factor, I_e	[1]Overturning Ratio, J	Anchors	Allowable Water Height to Prevent Uplift	Sloshing Height, d (ft)	[2]Minimum Required Freeboard (ft)	[3]Actual Freeboard
N Tank 1	21575 Deputy Jakes Way	1962	64	745,578	31	iii	1.5	2.79	Unstable	23	9.87	9.87	
N Tank 1A	21575 Deputy Jakes Way	1995	132	3,069,307	30	iii	1.5	1.47	Stable	30	9.87	9.87	
N Tank 1B	23780 N. Pine Street	1995	60	634,154	30	iii	1.5	3.25	Unstable	20	9.87	9.87	
N Tank 2*	23554 Dockweiler Drive	1989	80	1,428,022	38	iii	1.5	4.36	Unstable	23	9.87	9.87	2
N Tank 3	23252 1/2 Haskell Vista Lane	1995	60	634,154	30	iii	1.5	3.19	Unstable	20	9.87	9.87	
N Tank 4	24548-1/2 Peachland Avenue	1994	60	634,154	30	iii	1.5	3.01	Unstable	21.5	9.87	9.87	
N Tank 4A	24548-1/2 Peachland Avenue	1975	90	1,450,628	30.5	iii	1.5	2.09	Unstable	26	9.87	9.87	2
N Tank 5	24001-1/2 Briardale Way	1983	60	465,047	22	iii	1.5	1.80	Unstable	19	9.87	9.87	5
N Tank 6	23500 The Old Road	1994	20	46,035	20	iii	1.5	7.55	Unstable	6.5	9.87	9.87	
N Tank 7	23071 1/2 Pine St.	2019	79	1,099,377	30	iii	1.5	2.24	Unstable	25	9.87	9.87	
C Tank 1A	33030 Ridge Route Rd	1999	130	3,076,236	31	iii	1.5	1.22	Stable	31	9.87	9.87	
C Tank 1D	32601 N. Ridge Top Lane	1998	92	1,490,967	30	iii	1.5	1.34	Stable	30	9.87	9.87	2
C Tank 2	28768-1/2 Greenwood Place	1988	60	613,016	29	iii	1.5	1.83	Unstable	26	9.87	9.87	3
C Tank 3	31527U Valley Creek Rd	2016	66	767,327	30	iii	1.5	2.55	Unstable	23	9.87	9.87	
P Tank 1	29515 Poppy Meadow Street	2005	81	1,463,945	38	iii	1.5	2.49	Unstable	29.5	9.87	9.87	
P Tank 1A	29515 Poppy Meadow Street	1999	80	1,428,022	38	iii	1.5	2.51	Unstable	29.5	9.87	9.87	
P Tank 2	14751 Hydrangea Way	2004	92	1,490,967	30	iii	1.5	2.53	Unstable	2	9.87	9.87	2
P Tank 3	29251 Mammoth Lane	1993	80	1,127,386	30	iii	1.5	1.48	Stable	30	9.87	9.87	
P Tank 4	15644 Nahin Ln	2007	46	410,016	33	iii	1.5	2.91	Unstable	20	9.87	9.87	
P Tank 4A	15644 Nahin Ln	2006	62	744,850	33	iii	1.5	2.27	Unstable	26	9.87	9.87	
T Tank 1	29505 Avenida Rancho Tesoro	2002	81	1,155,746	30	iii	1.5	1.17	Stable	30	9.87	9.87	2
T Tank 1A	29505 Avenida Rancho Tesoro	2002	81	1,155,746	30	iii	1.5	1.40	Stable	30	9.87	9.87	2
T Tank 2	29505 Avenida Rancho Tesoro	2003	68	814,536	30	iii	1.5	1.53	Stable	30	9.87	9.87	2
T Tank 2A	29505 Avenida Rancho Tesoro	2003	68	814,536	30	iii	1.5	1.53	Stable	30	9.87	9.87	2

Note:
1. Overturning Ratio is determined in accordance with AWWA D100-11 Equation 13-36, J Greater than or Equal to 1.54 requires anchors to the foundation.
2. The minimum required freeboard is equal to the sloshing wave height for Use Group III and may be reduced for Use Group I and II.
3. Freeboard was only determined in cases were available documentation indicated the roof height.

		Tank Geometry						Results of the Analysis in accordance with AWWA D100-11					
TankName	Address	*Date Built*	*Dia*	*Volume (gallons)*	*Overflow Height*	*Seismic Use Group*	I_E	[1]Overturning Ratio, J	Anchors	Allowable Water Height to Prevent Uplift	Sloshing Height, d (ft)	[2]Minimum Required Freeboard (ft)	[3]Actual Freeboard
Bouquet	Through RVTP west gate, past solar panels, through park gate, overlooking park	1984	105	2,006,834	31	iii	1.5	1.91	Provide Anchors	27.5	9.87	9.87	
No Longer in Service	22200 Pamplico Dr.	1971	60	0		iii	1.5	-	-	-	-	-	
No Longer in Service	22200 Pamplico Dr.	1971	60	0		iii	1.5	-	-	-	-	-	
Catala 3	22200 Pamplico Dr.	1978	104	1,397,207	22	iii	1.5	0.81	Uplift but Stable	22	9.87	9.87	
Catala 4	22200 Pamplico Dr.	1989	104	1,397,207	22	iii	1.5	0.81	Uplift but Stable	22	9.87	9.87	
Benz	On Copper Hill xs is Benz Rd.	1999	104	1,968,791	31	iii	1.5	1.93	Provide Anchors	27	9.87	9.87	
Copper Hill 1	22000 Beldove Ct.	1988	105	1,942,098	30	iii	1.5	1.44	Uplift but Stable	30	9.87	9.87	
Copper Hill 2	22000 Beldove Ct.	1988	105	2,006,834	31	iii	1.5	1.54	Uplift but Stable	31	9.87	9.87	
Mesa	27238 Bouquet Canyon (next to Rio Vista)	2013	170	3,733,290	22	iii	1.5	0.53	Tank Is Stable	22	9.87	9.87	
Seco 1	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	1999	73	970,015	31	iii	1.5	1.92	Provide Anchors	27	9.87	9.87	
Seco 2	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	1999	105	2,006,834	31	iii	1.5	1.48	Uplift but Stable	31	9.87	9.87	
Sky Blue 1	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	1988	73	970,015	31	iii	1.5	2.19	Provide Anchors	25	9.87	9.87	
Sky Blue 2	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	1999	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue 3	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	2003	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue 4	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	2007	104	1,968,791	31	iii	1.5	1.68	Provide Anchors	29.5	9.87	9.87	
Sky Blue East	28452 Hawks Ridge	1999	73	970,015	31	iii	1.5	2.13	Provide Anchors	26	9.87	9.87	
Sky Blue North	28558 Santa Catarina	1990	105	2,006,834	31	iii	1.5	1.51	Uplift but Stable	31	9.87	9.87	
Honby 1	20251 Keaton St.	1981	132	3,990,099	39	iii	1.5	2.38	Provide Anchors	31	9.87	9.87	
Honby 2	20251 Keaton St.	1995	114	2,976,087	39	iii	1.5	2.68	Provide Anchors	29.5	9.87	9.87	
Nonby South	20225 Jennifer Ct.	1987	114	2,976,087	39	iii	1.5	3.06	Provide Anchors	28	9.87	9.87	
North Oaks 1	18501 Olympian Ct. follow signs to Helispot 107C	1974	73	719,689	23	iii	1.5	1.31	Uplift but Stable	23	9.87	9.87	
North Oaks 2	18501 Olympian Ct. follow signs to Helispot 107C	1980	146	3,880,062	31	iii	1.5	1.32	Uplift but Stable	31	9.87	9.87	
North Oaks 3	18501 Olympian Ct. follow signs to Helispot 107C	1995	130	3,076,236	31	iii	1.5	1.50	Uplift but Stable	31	9.87	9.87	

		Tank Geometry						Results of the Analysis in accordance with AWWA D100-11					
Tank Site	**Address**	***Date Built***	***Dia***	***Volume (gallons)***	***Overflow Height***	***Seismic Use Group***	***I_E***	**[1]Overturning Ratio, J**	**Anchors**	**Allowable Water Height to Prevent Uplift**	**Sloshing Height, d (ft)**	**[2]Minimum Required Freeboard (ft)**	**[3]Actual Freeboard**
North Oaks 4	18501 Olympian Ct. follow signs to Helispot 107C	2000	73	970,015	31	iii	1.5	2.38	Provide Anchors	25	9.87	9.87	
Lower Fair Oaks 1	17705 Heron Ln	1999	134	2,424,983	23	iii	1.5	0.84	Uplift but Stable	23	9.87	9.87	
Lower Fair Oaks 2	17705 Heron Ln	1999	134	2,424,983	23	iii	1.5	0.84	Uplift but Stable	23	9.87	9.87	
Sand Canyon	27200 Sand Canyon Rd. (Between 27230 and 27166 Sand Canyon Rd)	1979	28	142,708	31	iii	1.5	7.08	Provide Anchors	10	9.87	9.87	
Fairway	27201 Appaloosa Rd.	1999	104	1,460,716	23	iii	1.5	0.95	Uplift but Stable	23	9.87	9.87	
Dean 1	28613 Winterdale Dr.	1977	73	970,015	31	iii	1.5	2.14	Provide Anchors	26	9.87	9.87	
Dean 2	28613 Winterdale Dr.	1985	73	970,015	31	iii	1.5	2.14	Provide Anchors	26	9.87	9.87	
Placerita 1	16742 Placerita Canyon Rd.	1980	73	970,015	31	iii	1.5	2.71	Provide Anchors	23.5	9.87	9.87	
Placerita 2	16742 Placerita Canyon Rd.	1995	73	970,015	31	iii	1.5	2.71	Provide Anchors	23.5	9.87	9.87	
Golden Valley	Golden Valley Road before Robert C Lee Pkwy	2003	104	1,968,791	31	iii	1.5	2.18	Provide Anchors	26	9.87	9.87	
Live Oak	15126 Live Oak Springs Cyn Rd	1999	73	970,015	31	iii	1.5	2.34	Provide Anchors	25	9.87	9.87	
Friendly Valley 2	20092 Avenue of the Oaks (inside gated community)	1973	80	1,240,124	33	iii	1.5	3.04	Provide Anchors	23.5	9.87	9.87	
Friendly Valley 4	20092 Avenue of the Oaks (inside gated community)	1985	80	1,240,124	33	iii	1.5	3.04	Provide Anchors	23.5	9.87	9.87	
Friendly Valley 5	18623 Cedar Valley Way (inside private gate next to house overlooking 14fwy)	1979	60	486,185	23	iii	1.5	1.75	Provide Anchors	21	9.87	9.87	
Princess 1	25529 Mountain Pass Rd.	1980	73	970,015	31	iii	1.5	2.83	Provide Anchors	23	9.87	9.87	
Princess 2	25529 Mountain Pass Rd.	1987	73	970,015	31	iii	1.5	2.83	Provide Anchors	23	9.87	9.87	
Golden Valley Ranch 1	Oak Crest Dr.	2005	90	1,474,409	31	iii	1.5	2.43	Provide Anchors	24.5	9.87	9.87	
Golden Valley Ranch 2	Oak Crest Dr.	2005	90	1,474,409	31	iii	1.5	2.43	Provide Anchors	24.5	9.87	9.87	
Plum 1	Benison Dr. (West cul-de-sac)	2007	73	970,015	31	iii	1.5	1.96	Provide Anchors	27	9.87	9.87	
Plum 2	Benison Dr. (West cul-de-sac)	2007	73	970,015	31	iii	1.5	1.96	Provide Anchors	27	9.87	9.87	
Cherry Willow 1	26833 Cherry Willow Dr.	2006	60	486,185	23	iii	1.5	1.66	Provide Anchors	21.5	9.87	9.87	
Cherry Willow 2	26833 Cherry Willow Dr.	2006	60	486,185	23	iii	1.5	1.66	Provide Anchors	21.5	9.87	9.87	
Upper Fair Oaks 1	17705 Heron Ln above Lower Fair Oaks Tanks (continue on access road)	1998	73	970,015	31	iii	1.5	2.70	Provide Anchors	23.5	9.87	9.87	

Upper Fair Oaks 2	17705 Heron Ln above Lower Fair Oaks Tanks (continue on access road)	1998	73	970,015	31	iii	1.5	2.70	Provide Anchors	23.5	9.87	9.87
Circle J 1	25198 Karie Ln	1981	73	970,015	31	iii	1.5	2.81	Provide Anchors	23	9.87	9.87
Circle J 2	25198 Karie Ln	1987	73	970,015	31	iii	1.5	2.81	Provide Anchors	23	9.87	9.87

		Tank Geometry						Results of the Analysis in accordance with AWWA D100-11					
Tank Site	**Address**	***Date Built***	***Dia***	***Volume (gallons)***	***Overflow Height***	***Seismic Use Group***	I_E	[1]**Overturning Ratio, J**	**Anchors**	**Allowable Water Height to Prevent Uplift**	**Sloshing Height, d (ft)**	[2]**Minimum Required Freeboard (ft)**	[3]**Actual Freeboard**
Hasley Canyon	Firebrand, between 27840 & 27902, Castaic	1988	114	2,473,202	39	iii	1.5	2.34	Provide Anchors	32.5	9.87	9.87	
Round Mountain	Access end of Anza Drive, Valencia	1989	120	2,451,341	31	iii	1.5	1.77	Provide Anchors	29	9.87	9.87	
Post Office	Franklin Pkwy., west of Post Office, Valencia	1992	108	1,918,317	36	iii	1.5	2.82	Provide Anchors	28	9.87	9.87	
Magic Mountain 5	26975 Westridge Pkwy., Valencia	2001	135	3,095,237	38	iii	1.5	3.13	Provide Anchors	29	9.87	9.87	
Northbridge	Harwick Place, between 27659 & 27663, Valencia	1989	140	3,864,378	39	iii	1.5	2.18	Provide Anchors	33.5	9.87	9.87	
Rye Canyon	25112 Rye Canyon Loop, Valencia	2003	116	2,441,622	37.25	iii	1.5	2.37	Provide Anchors	31	9.87	9.87	3
Cal Arts	25841 Tournament Rd., Valencia	1996	109	1,538,141	22	iii	1.5	1.05	Uplift but Stable	22	9.87	9.87	
Villa	Yucca Place, between 30563 & 30568, Castaic	1990	66	673,261	31.2	iii	1.5	2.22	Provide Anchors	26	9.87	9.87	
Presley	30016 Hamlet Wy., Castaic (changed 1/06)	1989	66	673,261	31.2	iii	1.5	2.12	Provide Anchors	26.5	9.87	9.87	
Commerce Center 1	28636 Livingston Ave., Valencia	1999	89	1,155,236	30.33	iii	1.5	2.42	Provide Anchors	25	9.87	9.87	
Commerce Center 2	28636 Livingston Ave., Valencia	1999	89	1,155,236	30.33	iii	1.5	2.42	Provide Anchors	25	9.87	9.87	
Seco I	28400 Copper Hill, Saugus	1996	108	2,115,513	34.5	iii	1.5	1.94	Provide Anchors	31	9.87	9.87	
Seco II	28400 Copper Hill, Saugus	1998	116	2,336,119	34.5	iii	1.5	1.85	Provide Anchors	32	9.87	9.87	2
Benz	28820 Bellows Ct., Valencia	2008	104	1,888,670	33	iii	1.5	1.90	Provide Anchors	30	9.87	9.87	
4 Million	Access road end of Oakview Estates Drive, Valencia	2006	128	2,693,888	29.5	iii	1.5	1.74	Provide Anchors	28	9.87	9.87	3
Westridge	25774 Oak Meadow Drive., Valencia	2001	142	2,619,577	29.5	iii	1.5	1.76	Provide Anchors	28	9.87	9.87	3
Hillcrest 1	30400 Vineyard Ln., Castaic	1996	72	859,632	30.5	iii	1.5	1.77	Provide Anchors	28.5	9.87	9.87	
Hillcrest 2	30400 Vineyard Ln., Castaic	1999	71	845,539	30	iii	1.5	1.72	Provide Anchors	28.5	9.87	9.87	
Mtn. View 1	29238 Black Pine Wy., Saugus	2001	80	831,447	29.5	iii	1.5	1.74	Provide Anchors	26.5	9.87	9.87	3
Mtn. View 2	29238 Black Pine Wy., Saugus	2001	80	831,447	29.5	iii	1.5	1.74	Provide Anchors	26.5	9.87	9.87	3
Poe	26024 Kavenaugh Ln., Stevenson Ranch	1989	90	1,130,517	31	iii	1.5	2.79	Provide Anchors	24	9.87	9.87	
Sunset Pointe	25101 Sagecrest Cir., Stevenson Ranch	1995	98	1,397,438	30.5	iii	1.5	2.53	Provide Anchors	25	9.87	9.87	
West Hills 1	28834 Bellows Ct., Valencia	2008	56	290,020	21	iii	1.5	1.64	Provide Anchors	20	9.87	9.87	2
West Hills 2	28834 Bellows Ct., Valencia	2008	56	290,020	21	iii	1.5	1.64	Provide Anchors	20	9.87	9.87	2
Stevenson Ranch	26748 Sandburn, Stevenson Ranch	1999	111	1,923,390	30.33	iii	1.5	2.12	Provide Anchors	26.5	9.87	9.87	

Note:
1. Overturning Ratio is determined in accordance with AWWA D100-11 Equation 13-36, J Greater than or Equal to 1.54 requires anchors to the foundation.
2. The minimum required freeboard is equal to the sloshing wave height for Use Group III and may be reduced for Use Group I and II.
3. Freeboard was only determined in cases were available documentation indicated the roof height.

To determine if the storage tank walls and roof systems are adequate to resist potential seismic loads, field visits will be required to determine the existing plate thicknesses and structural sections used in construction. Further analysis will then be performed to determine the capacity of the storage tank structural system. For those storage tanks that required anchors, greater freeboard, or do not have the structural capacity to meet demand we recommend reducing the operating capacity and overflow height in order to reduce the seismic demands on the structures. Water storage tanks designed in accordance with AWWA D100 and D103 can be classified in one of three seismic use groups as described in Table 1. The initial analysis has been conducted assuming all of the storage tanks are in Use Group III, essential for post-earthquake recovery and essential to the life, health and safety of the public, including post-earthquake fire suppression. For those facilities that are not required for post-earthquake recovery, the use group may be designated as Use Group II, tanks that provide direct service to facilities that are teemed important to the welfare of the public. In rare cases they may be assigned to Use Group I, those that are not essential to the health and safety of the public. This will reduce the design seismic load by twenty-five percent and fifty percent. The final report will assess the impacts of this reduction on SCV Water's facilities and include tables summarizing our findings.

Field investigation are necessary to determine the structural capacity of the existing storage tanks. Thickness of the tank shells and roofs will be determined using an ultrasonic thickness gauge, the size number and location of columns will be determined. In our experience the most common mode of failure for steel storage tanks is buckling of the lowest shell plate.

1.3 Water Treatment Facilities

SCV Water's treatment facilities consist of the ESFP, RVTP, perchlorate treatment facility, and multiple PFAS treatment facilities under construction and design currently. We have recently found copies of several as-built drawing for the ESFP and RVTP facilities in Kennedy Jenks archives and are currently undergoing a more detailed analysis than was available previously. Analysis of the seismic loads will be in accordance with the ASCE 7-10 due to the current requirements of the California Building Code for site specific geotechnical investigations. Prior to the final mitigation planning, we recommend that a qualified civil or structural engineer visit the sites to verify existing conditions and that a geotechnical engineering firm be consulted to determine the current seismic design criteria. The results of that analysis will be included in the final report. The PFAS facilities are designed and constructed to current building standards and do not represent substantial risk to SCV Water or their customers.

ACI 350.3, Seismic Design of Liquid Containing Structures was not adopted until 2001, therefore, structures designed and built prior to 2001 are likely at risk to cracking due to earthquake forces. Liquid containing structure have generally been designed with long term durability and to limit cracking. This results in structures that tend to be resistant to earthquake loads. Structures at ESFP and RVTP also withstood the 1994 Northridge Earthquake. Those structures that were damaged were later repaired and strengthened. Lateral forces in concrete water retaining structures result in stress concentrations at corners. Review of the as-built drawings indicates that there may be insufficient reinforcing by current standards of practice. There is potential for cracking to occur as a result of earthquake loads. Tables 3 and 4 summarize the findings from the initial analysis of the treatment plants. It should be noted that where no specific risks were noted, field investigations and/or geotechnical investigations could reveal risks that were not observed in the available documentation.

Table 1-3 Rio Vista Treatment Plant Structures and Risks

Rio Vista Water Treatment Plant

	Structure	Date Built	Structural System	Lateral Load Path	Notable Risks
1	Administration Building	1991	Two Story Steel Braced Frame	Complete	Chevron braced frames exhibit poor seismic performance relative to other lateral systems.
2	Chemical Building	1991	Steel Framed Roof over Concrete Shear Walls	Complete	None Noted
3	Ozone Building	1991	Steel Framed Roof over Concrete Walls with Chevron Braced Frames	Complete	Chevron braced frames exhibit poor seismic performance relative to other lateral systems.
4	Clarifier Filter Structures (2)	1991 2008	Concrete Shear Walls	Complete	None Noted
5	Control Room Building	2008	Steel Framed Roof over Cantilever Columns	Complete	None Noted
6	Maintenance -Equipment Building	1991	Metal Framed Roof over Concrete Shear Walls	Complete	None Noted
7	Chlorine Building	2008	Steel Framed Roof Over Concrete Shear Walls	Complete	None Noted
8	Sludge Thickness (2)	1991 2008	Circular Steel Tank with Concrete Floor	Complete	None Noted
9	Water Level Control Structure	1991	Circular Concrete Tank	Complete	
10	Wash Water Recovery Basins (3)	2008	Concrete Slab-on-Grade with Sloped Walls	Complete	None Noted
11	Clearwells (2)	1991	Cantilever Retaining Walls	Complete	None Noted
12	Pre-Ozone Contractor	1991	CIP Concrete Shear Walls, Steel Cantilver Columns	Complete	None Noted
13	Ozone Injection Station	2008	Steel Framed Roof over CMU Shear Walls and Steel Framing	Complete	None Noted
14		2008	CIP Sub Grade Concrete Shear Wall	Complete	None Noted
15	Ammonia Injection Vault	1991			
16	Treated Water Vault	1991	Concrete Shear Walls	Complete	None Noted
17	Plant Water Pump Station	2008			
18	Sludge Pump Station	2008	CIP Concrete Shear Walls	Complete	None Noted
19	Intake Pump Station	1992	Subgrade CIP Concrete Vault	Complete	
20	Intake Pump Station Building	1992	CIP Concrete Roof over Steel Brace Frame		

Table 1-4 Earl Schmidt Filtration Plant Structures and Risks

Earl Schmidt Filtration Plant

	Structure	Date Built	Structural System	Lateral Load Path	Risks
1	Chemical Building	1979	Wood truss roof over CMU shear walls	Complete	None noted
2	Operations Building	1979	Wood truss roof over CMU shear walls	Complete	None noted
5	Flocclation Basins	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
6	Sedimentation Basin	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
7	Clarifier	1979			
8	Filters	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
9	Washwater Recovery Basins (2)	1979	CIP Concrete Shear Wall Basin	Complete	Potentially insufficient reinforcing at corners
10	Central Pumping Plant	1979	Pre-engineered Metal Building	Appears Complete	None Noted
11	Sludge Drying Bed (2)	1979	Concrete Slab-on-Grade with Sand Bedding	Complete	None Noted
12	Sludge Drying Bed Sump	1979	Sub Grade CIP Concrete Shear Walls	Complete	None Noted
13	Sludge Effluent Vault	1979	Sub Grade CIP Concrete Shear Walls	Complete	None Noted
14	Sludge Thickener	1979	Circular Steel Tank with Concrete Floor	Complete	None Noted

1.4 Source Water Supply

SCV Water's source water mainly consists of imported water that is stored in Castaic Lake Reservoir and more than 45 well sites. The Castaic Lake Reservoir is administered by the California Department of Water Resources and under the jurisdiction of the California Division of Safety of Dams. The Division of Safety of Dams inspects the Castaic Lake Dam on an annual basis and periodically reviews the stability of dams in light of improved design approaches. Review and analysis of the Castaic Lake Reservoir is out of scope of this project, however, it represents minimal risk to SCV Water due to the inspection and review by the Division of Dam Safety.

Due to lack of documentation, we have not conducted a systematic analysis of the well sites. Site visits by a qualified civil or structural engineer should be conducted in verify the existing conditions at each site. The typical well site consists of vertical turbine pumps embedded directly into the soil and represent minimal risk of failure during or after an earthquake. Above ground piping is generally rigid and also represents minimal risk of failure during an earthquake. It is typical for the piping systems at older well sites to lack support for lateral loads due to earthquakes. The inspections should take note of any pipe supports that are not anchored into concrete foundation.

1.5 Booster Pump Stations

Lack of available documentation of the Booster Pump Stations makes a detailed analysis of the risks impossible without site visits to verify the existing conditions. Pump stations may consist of above grade or below grade structures with multiple pumps wet wells, and additional equipment. Like steel water storage tanks older facilities are less likely to be designed for Those designed and built later than 2000 are unlikely to pose a substantial risk in the event of an earthquake. Site visits should verify that existing equipment is anchored to the foundations and walls, and that there is an adequate load path to transfer lateral loads from the roof and walls to the foundations.

1.6 Mitigation Planning

SCV Water should identify which facilities are required to operate immediately following an earthquake, are required for the health and safety of the public, and those that are not either. The highest priority should be given to those facilities that supply fire suppression systems. The first step in mitigating the risks identified in this report will be to arrange for a civil or structural engineer experienced in design of water treatment and distribution systems to inspect SCV Water's facilities. Once SCV Water and Kennedy Jenks has identified the most critical and at risk facilities, SCV Water should consult with a geotechnical engineering firm to perform site investigations of the most crucial facilities to allow a qualified engineer to perform a more accurate and detailed analysis and provide the most appropriate mitigation efforts.

For those storage tanks that require anchorage and or have insufficient freeboard height to accommodate wave action the district may take immediate action to reduce the risk. As shown in Table 2, SCV Water may choose to reduce the operational capacity in order to prevent instability, increase freeboard, and reduce the sloshing wave height. SCV Water may determine

that some of the storage tanks are not required for immediate post-earthquake recovery and do not pose a substantial risk to human life. In those cases the Seismic Use Group will be reduced to reduce the required freeboard and demands do to seismic loads. This may result in no further action being required. Kennedy Jenks recommends providing anchors for all steel water storage tanks.

Appendix A: Detailed Calculations

AWWA D100-11 Welded Carbon Steel Tanks Chapter 13 Seismic Design

				Coordinates		Tank Details							Table 28	Section 13.2.1	Table 24	ATC[1]	Eqn 13-9 1,[2]	Eqn 13-22	Eqn 13-12/13[2]				13-27	13-25/26	Eqn 13-28/29	Estimate	Estimate	Estimate	Eqn 13-16		Eqn 13-24/25		Eqn 13-30			Eqn 13-26	Eqn 13-31	Eqn 13-23	Eqn 13-37		Eqn 13-41	Eqn 13-36		Eqn 13-53/54			Eqn 13-52	Table 29		Eqn 13-57			
District	Tank Site	Zone	Address	Latitude	Longitude	Date Built	Dia	Size	Bottom of the Knuckle	Top of Knuckle	Overflow Height	Freeboard Assumed to be 3 feet unless drawings indicate otherwise	Ri 3 if anchored 2.5 if unanchored	Seismic Use Group III, Tanks that provide direct service to essential facilities to post Earthquake recovery	I_E, assume that all tanks are Seismic Use Group III	Sd1, per ATC Seismic Hazard Maps	Sai, g Based on Sds from ASCE 7-10	Sloshing Period, Tc(S)	Sac, g Based on Sd1 from ASCE 7-10	D/H	3.67*D/H	Volume ft³ Vol = π*(Dia^2)/4	Total Weight, lbf W = Vol*62.4pcf	Impulsive Weight, Moves with Tank, (Wi)	Centroid of the lateral Force due to Sloshing (Xi), ft	Weight of the Roof (Wr), lbf	Weight of the Shell (Ws), lbf	Weight of the Floor (Wf), lbf	Implusive Design Acceleration (Ai)	Impulsive Lateral Force (Vi), kip	Overturning Moment due to Impulsive Lateral Force(Mi), ft-kip	Convective Weight (Wc), lbf	Centroid of the lateral force do to convective mass (Xc), ft	Convective Design Acceleration (Ai)	Convective Lateral Force (Vc), kip	Overturning Moment due to Convective Lateral Force(Mc), ft-kip	Design Lateral Force at the top of the foundation (Vf), kip	Design Overturning Moment (Ms), ft-kip $Ms = \sqrt{Mi^2+Mc^2}$	Maximum Resting Weight of the Tank Contents (wL), lbf/ft		Weight of the Tank Shell and Roof Resisting Overturning (wt), lbf/ft	Overturning Ratio, J	Anchor Requirements	Convective Design Accelaration, Af			Sloshing Wave Height (d), ft	Minimum Required Freeboard (D), ft	Actual Freeboard (Roof Height-Overflow)	Allowable Lateral Load, V_{allow} (kip) = tan(30)*(Ws+Wi+Wr+Wc)*(1-.4*.14*Sds)	Total Lateral Seismic Load, Vt (Kip)	Sliding Check	Min Shell Thickness, in
NWD	N Tank 1	1	21575 Deputy Jakes Way	34.37804	-118.51547	1962	64	745,578		Unknown	31	3	2.5	iii	1.5	0.977	1.859	4.75	0.31	2.065	1.778	99727	6222947	3291075	12	24630	66610	24630	0.797	2714	31554	2790730	19	0.220	615	11441	2783	33565	2086	2540	393	3.39	Provide Anchors	0.31	0.52	0.31	9.87	9.87	3	3196	2783.158	OK	0.25
NWD	N Tank 1A	1	21575 Deputy Jakes Way	34.37804	-118.51547	1995	132	3,069,307		Unknown	30	3	2.5	iii	1.5	0.977	1.859	8.02	0.18	4.400	0.834	410543	25617904	6716566	11	104774	129885	104774	0.797	5622	63243	17698347	16	0.130	2305	36446	6076	72993	2052	5069	440	1.73	Provide Anchors	0.18	0.18	0.18	12.03	12.03	3	12762	6075.736	OK	0.25
NWD	N Tank 1B	1	23780 N. Pine Street	34.36752	-118.52048	1995	60	634,154		Unknown	30	3	2.5	iii	1.5	0.988	2.057	4.59	0.32	2.000	1.835	84823	5292955	2870456	11	21648	60613	21648	0.882	2622	29499	2313783	18	0.231	534	9696	2676	31051	2052	2304	379	3.64	Provide Anchors	0.32	0.56	0.32	9.70	9.70	3	2693	2675.972	OK	0.25
NWD	N Tank 2*	2	23554 Dockweiler Drive	34.37517	-118.50449	1989	80	1,428,022	40	Unknown	38	3	2.5	iii	1.5	0.987	2.068	5.32	0.28	2.105	1.743	191009	11918951	6205113	14	38485	101150	38485	0.886	5657	80617	5428481	23	0.199	1079	24480	5759	84252	2310	3891	479	4.86	Provide Anchors	0.28	0.42	0.28	11.13	11.13	3	6016	5759.294	OK	0.25
NWD	N Tank 3	3	23252 1/2 Haskell Vista Lane	34.36479	-118.53706	1995	60	634,154		Unknown	30	3	2.5	iii	1.5	0.966	2.037	4.59	0.32	2.000	1.835	84823	5292955	2870456	11	21648	60613	21648	0.873	2597	29212	2313783	18	0.226	522	9480	2649	30712	2052	2304	379	3.60	Provide Anchors	0.32	0.55	0.32	9.48	9.48	3	2696	2648.624	OK	0.25
NWD	N Tank 4	4	24548-1/2 Peachland Avenue	34.36908	-118.54735	1994	60	634,154		Unknown	30	3	2.5	iii	1.5	0.0965	2.043	4.59	0.03	2.000	1.835	84823	5292955	2870456	11	21648	60613	21648	0.876	2604	29298	2313783	18	0.023	52	947	2605	29313	2052	2304	379	3.44	Provide Anchors	0.03	0.06	0.03	0.95	0.95	3	2695	2604.791	OK	0.25
NWD	N Tank 4A	4	24548-1/2 Peachland Avenue	34.36908	-118.54735	1975	90	1,450,628	32	32	30.5	2	2.5	iii	1.5	0.977	1.859	5.95	0.25	2.951	1.244	194033	12107635	4681232	11	48707	90968	48707	0.797	3880	44374	6956069	17	0.176	1224	20753	4068	48987	2070	3514	408	2.50	Provide Anchors	0.25	0.33	0.25	11.09	11.09	2	6097	4068.236	OK	0.25
NWD	N Tank 5	5	24001-1/2 Briardale Way	34.35801	-118.54226	1983	60	465,047	24	27	22	5	2.5	iii	1.5	0.995	2.071	4.78	0.31	2.727	1.346	62204	3881501	1614498	8	21648	44450	21648	0.888	1511	12465	2125610	12	0.223	474	5878	1583	13781	1758	1690	293	1.98	Provide Anchors	0.31	0.52	0.31	9.36	9.36	5	1944	1583.411	OK	0.25
NWD	N Tank 6	6	23500 The Old Road	34.35243	-118.53870	1994	20	46,035		Unknown	20	3	2.5	iii	1.5	1.012	2.084	2.58	0.59	1.000	3.670	6283	392071	306599	8	2405	14752	2405	0.893	291	2365	90059	15	0.420	38	560	294	2431	1676	512	254	8.40	Provide Anchors	0.59	1.82	0.59	5.88	5.88	3	211	293.7524	Needs Anc	0.25
NWD	N Tank 7	7		34.36867	-118.54677	2019	79	1,099,377		Unknown	30	3	2.5	iii	1.5	0.977	1.859	5.45	0.27	2.633	1.394	147050	9175926	3940462	11	37528	78893	37528	0.797	3262	36698	4912743	17	0.192	943	16061	3396	40059	2052	3034	393	2.69	Provide Anchors	0.27	0.39	0.27	10.61	10.61	3	4644	3395.614	OK	0.25
NWD	C Tank 1A	1	33030 Ridge Route Rd	34.51362	-118.63064	1999	130	3,076,236	35	43	31	12	2.5	iii	1.5	0.881	1.543	7.84	0.17	4.194	0.875	411470	25675734	7060160	12	101623	132226	101623	0.661	4891	56854	17433905	16	0.120	2100	34477	5322	66491	2086	5158	448	1.59	Provide Anchors	0.17	0.17	0.17	10.96	10.96	12	13055	5322.362	OK	0.25
NWD	C Tank 1D	1	32601 N. Ridge Top Lane	34.51084	-118.64102	1998	92	1,490,967		32	30	2	2.5	iii	1.5	0.827	1.442	6.06	0.20	3.067	1.197	199428	12444326	4639815	11	50896	91401	50896	0.618	2987	33601	7308564	17	0.146	1068	17693	3172	37975	2052	3533	404	1.86	Provide Anchors	0.20	0.27	0.20	9.41	9.41	2	6423	3172.001	OK	0.25
NWD	C Tank 2	2	28768-1/2 Greenwood Place	34.48329	-118.63962	1988	60	613,016	32	32	29	3	2.5	iii	1.5	0.927	1.514	4.60	0.30	2.069	1.774	81996	5116523	2701273	11	21648	58593	21648	0.649	1819	19780	2298481	17	0.216	496	8632	1885	21581	2018	2227	368	2.56	Provide Anchors	0.30	0.53	0.30	9.07	9.07	3	2687	1885.331	OK	0.25
NWD	C Tank 3	3		34.49079	-118.85974	2016	66	767,327		Unknown	30	3	2.5	iii	1.5	0.977	1.859	4.86	0.30	2.200	1.668	102636	6404476	3215955	11	26194	66386	26194	0.797	2657	29889	3018066	18	0.215	650	11527	2735	32035	2052	2534	383	3.09	Provide Anchors	0.30	0.50	0.30	9.96	9.96	3	3275	2735.274	OK	0.25
NWD	P Tank 1	1	29515 Poppy Meadow Street	34.44275	-118.39835	2005	81	1,463,945		Unknown	38	3	2.5	iii	1.5	0.839	1.522	5.36	0.23	2.132	1.722	195814	12218787	6297308	14	39453	102369	39453	0.652	4226	60219	5619439	23	0.168	942	21313	4330	63879	2310	3940	480	3.56	Provide Anchors	0.23	0.35	0.23	9.51	9.51	3	6375	4329.626	OK	0.25
NWD	P Tank 1A	1	29515 Poppy Meadow Street	34.44275	-118.39835	1999	80	1,428,022		Unknown	38	3	2.5	iii	1.5	0.839	1.522	5.32	0.24	2.105	1.743	191009	11918951	6205113	14	38485	101150	38485	0.652	4164	59333	5428481	23	0.169	917	20809	4263	62876	2310	3891	479	3.60	Provide Anchors	0.24	0.36	0.24	9.46	9.46	3	6224	4263.47	OK	0.25
NWD	P Tank 2	2	14751 Hydrangea Way	34.45456	-118.39626	2004	92	1,490,967	30	32	30	2	2.5	iii	1.5	0.818	2.191	6.06	0.20	3.067	1.197	199428	12444326	4639815	11	50896	91401	50896	0.939	4538	51055	7308564	17	0.145	1056	17500	4660	53971	2052	3533	404	2.67	Provide Anchors	0.20	0.27	0.20	9.31	9.31	2	6130	4659.521	OK	0.25
NWD	P Tank 3	3	29251 Mammoth Lane	34.44763	-118.38085	1993	80	1,127,386		Unknown	30	3	2.5	iii	1.5	0.815	1.456	5.50	0.22	2.667	1.376	150796	9409698	3995024	11	38485	79855	38485	0.624	2591	29146	5079356	17	0.159	806	13701	2713	32206	2052	3072	394	2.10	Provide Anchors	0.22	0.32	0.22	8.89	8.89	3	4879	2713.343	OK	0.25
NWD	P Tank 4	4	15644 Nahin Ln	34.44483	-118.40689	2007	46	410,016		Unknown	33	3	2.5	iii	1.5	0.842	1.531	3.93	0.32	1.394	2.633	54843	3422190	2369499	12	12724	51858	12724	0.656	1605	19867	1085897	22	0.229	249	5514	1625	20618	2153	1943	403	4.24	Provide Anchors	0.32	0.65	0.32	7.38	7.38	3	1860	1624.644	OK	0.25
NWD	P Tank 4A	4	15644 Nahin Ln	34.44483	-118.40689	2006	62	744,850		Unknown	33	3	2.5	iii	1.5	0.842	1.531	4.64	0.27	1.879	1.953	99629	6216870	3536854	12	23115	68791	23115	0.656	2396	29652	2580547	20	0.195	502	10194	2448	31356	2153	2619	413	3.24	Provide Anchors	0.27	0.47	0.27	8.45	8.45	3	3281	2448.2	OK	0.25
NWD	T Tank 1	1	29505 Avenida Rancho Tesoro	34.47829	-118.55980	2002	81	1,155,746		32	30	2	2.5	iii	1.5	0.681	1.286	5.55	0.18	2.700	1.359	154590	9646411	4049442	11	39453	80817	39453	0.551	2320	26098	5248934	17	0.132	690	11703	2420	28602	2052	3110	395	1.81	Provide Anchors	0.18	0.27	0.18	7.46	7.46	2	5051	2420.418	OK	0.25
NWD	T Tank 1A	1	29505 Avenida Rancho Tesoro	34.47829	-118.55980	2002	81	1,155,746		32	30	2	2.5	iii	1.5	0.977	1.286	5.55	0.26	2.700	1.359	154590	9646411	4049442	11	39453	80817	39453	0.551	2320	26098	5248934	17	0.189	991	16790	2522	31033	2052	3110	395	1.97	Provide Anchors	0.26	0.38	0.26	10.70	10.70	2	5051	2522.48	OK	0.25
NWD	T Tank 2	2	29505 Avenida Rancho Tesoro	34.48022	-118.56046	2003	68	814,536		32	30	2	2.5	iii	1.5	0.977	1.286	4.95	0.30	2.267	1.619	108950	6798507	3329453	11	27805	68310	27805	0.551	1903	21412	3276681	18	0.212	693	12198	2026	24643	2052	2611	385	2.22	Provide Anchors	0.30	0.48	0.30	10.07	10.07	2	3594	2025.581	OK	0.25
NWD	T Tank 2A	2	29505 Avenida Rancho Tesoro	34.48022	-118.56046	2003	68	814,536		32	30	2	2.5	iii	1.5	0.977	1.286	4.95	0.30	2.267	1.619	108950	6798507	3329453	11	27805	68310	27805	0.551	1903	21412	3276681	18	0.212	693	12198	2026	24643	2052	2611	385	2.22	Provide Anchors	0.30	0.48	0.30	10.07	10.07	2	3594	2025.581	OK	0.25
SCWD	Tank 1	-	Through RVTP west gate, past solar panels, through park gate, overlooking park			1984	105	2,006,834		Unknown	31	3	2.5	iii	1.5	0.977	1.859	6.63	0.22	3.387	1.084	268429	16749998	5678173	12	66296	107372	66296	0.797	4715	54813	10367291	17	0.158	1637	27589	4991	61364	2086	4166	426	2.27	Provide Anchors	0.22	0.27	0.22	11.60	11.60	3	8397	4991.023	OK	0.25
SCWD	Tank 2	-	22200 Pamplico Dr. [3]	34.44958	-118.52516	1971	60	0		Unknown		3	2.5	iii	1.5	0.905	1.659	#DIV/0!	#DIV/0!	#DIV/0!	0.000	0	0	#DIV/0!	#DIV/0!	21648	0	21648	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25
SCWD	Tank 3	-	22200 Pamplico Dr. [3]	34.44958	-118.52516	1971	60	0		Unknown		3	2.5	iii	1.5	0.905	1.659	#DIV/0!	#DIV/0!	#DIV/0!	0.000	0	0	#DIV/0!	#DIV/0!	21648	0	21648	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25
SCWD	Tank 4	-	22200 Pamplico Dr.	34.44958	-118.52516	1978	104	1,397,207		Unknown	22	3	2.5	iii	1.5	0.905	1.659	7.29	0.19	4.727	0.776	186887	11661753	2847041	8	65039	75494	65039	0.711	2170	17906	8249343	12	0.133	1097	12640	2432	21918	1758	2929	331	0.99	Uplift but Stable	0.19	0.20	0.19	9.68	9.68	3	5890	2431.939	OK	0.25
SCWD	Tank 5	-	22200 Pamplico Dr.	34.44958	-118.52516	1989	104	1,397,207		Unknown	22	3	2.5	iii	1.5	0.905	1.659	7.29	0.19	4.727	0.776	186887	11661753	2847041	8	65039	75494	65039	0.711	2170	17906	8249343	12	0.133	1097	12640	2432	21918	1758	2929	331	0.99	Uplift but Stable	0.19	0.20	0.19	9.68	9.68	3	5890	2431.939	OK	0.25
SCWD	Tank 6	-	On Copper Hill xs is Benz Rd.			1999	104	1,968,791		Unknown	31	3	2.5	iii	1.5	0.977	1.859	6.58	0.22	3.355	1.094	263341	16432470	5622265	12	65039	106378	65039	0.797	4668	54262	10122208	17	0.159	1609	27168	4937	60684	2086	4127	425	2.29	Provide Anchors	0.22	0.27	0.22	11.58	11.58	3	8240	4937.396	OK	0.25
SCWD	Tank 7	-	22000 Beldove Ct.	34.45818	-118.52358	1988	105	1,942,098		Unknown	30	3	2.5	iii	1.5	0.89	1.622	6.69	0.20	3.500	1.049	259770	16209676	5323102	11	66296	103908	66296	0.695	3865	43478	10194371	16	0.143	1454	23607	4129	49473	2052	4032	415	1.86	Provide Anchors	0.20	0.24	0.20	10.48	10.48	3	8242	4129.101	OK	0.25
SCWD	Tank 8	-	22000 Beldove Ct.	34.45818	-118.52358	1988	105	2,006,834		Unknown	31	3	2.5	iii	1.5	0.89	1.622	6.63	0.20	3.387	1.084	268429	16749998	5678173	12	66296	107372	66296	0.695	4114	47825	10367291	17	0.144	1491	25132	4376	54026	2086	4166	426	1.99	Provide Anchors	0.20	0.24	0.20	10.57	10.57	3	8521	4375.761	OK	0.25
SCWD	Tank 9	-				2013	170	3,733,290		Unknown	22	3	2.5	iii	1.5	0.977	1.859	11.30	0.09	7.727	0.475	499356	31159824	4656392	8	173782	122060	173782	0.797	4084	33693	24487878	11	0.066	1605	17977	4388	38189	1758	4787	391	0.63	Tank Is Stable	0.13	0.09	0.09	7.80	7.80	3	15242	4387.954	OK	0.25
SCWD	Tank 10	-	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	34.46892	-118.51875	1999	73	970,015		Unknown	31	3	2.5	iii	1.5	0.896	1.573	5.15	0.26	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.674	2681	31172	4013059	18	0.186	748	13476	2784	33960	2086	2897	399	2.62	Provide Anchors	0.26	0.40	0.26	9.52	9.52	3	4194	2783.711	OK	0.25
SCWD	Tank 11	-	28801 Garnet Canyon Dr. (access road marked as Edison Rd. on map)	34.46892	-118.51875	1999	105	2,006,834		Unknown	31	3	2.5	iii	1.5	0.896	1.573	6.63	0.20	3.387	1.084	268429	16749998	5678173	12	66296	107372	66296	0.674	3990	46380	10367291	17	0.145	1501	25302	4263	52832	2086	4166	426	1.95	Provide Anchors	0.20	0.24	0.20	10.64	10.64	3	8547	4262.655	OK	0.25
SCWD	Tank 12	-	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	34.43882	-118.47974	1988	73	970,015		Unknown	31	3	2.5	iii	1.5	0.916	1.711	5.15	0.27	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.733	2917	33906	4013059	18	0.190	764	13777	3015	36599	2086	2897	399	2.83	Provide Anchors	0.27	0.41	0.27	9.73	9.73	3	4158	3015.162	OK	0.25
SCWD	Tank 13	-	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	34.43882	-118.47974	1999	104	1,968,791		Unknown	31	3	2.5	iii	1.5	0.916	1.711	6.58	0.21	3.355	1.094	263341	16432470	5622265	12	65039	106378	65039	0.733	4296	49942	10122208	17	0.149	1509	25472	4553	56063	2086	4127	425	2.11	Provide Anchors	0.21	0.25	0.21	10.85	10.85	3	8316	4553.403	OK	0.25
SCWD	Tank 14	-	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	34.43882	-118.47974	2003	104	1,968,791		Unknown	31	3	2.5	iii	1.5	0.916	1.711	6.58	0.21	3.355	1.094	263341	16432470	5622265	12	65039	106378	65039	0.733	4296	49942	10122208	17	0.149	1509	25472	4553	56063	2086	4127	425	2.11	Provide Anchors	0.21	0.25	0.21	10.85	10.85	3	8316	4553.403	OK	0.25
SCWD	Tank 15	-	West side of Whites Canyon before it turns into Plum Canyon (top of hill)	34.43882	-118.47974	2007	104	1,968,791		Unknown	31	3	2.5	iii	1.5	0.916	1.711	6.58	0.21	3.355	1.094	263341	16432470	5622265	12	65039	106378	65039	0.733	4296	49942	10122208	17	0.149	1509	25472	4553	56063	2086	4127	425	2.11	Provide Anchors	0.21	0.25	0.21	10.85	10.85	3	8316	4553.403	OK	0.25
SCWD	Tank 16	-	28452 Hawks Ridge	34.44116	-118.46717	1999	73	970,015		Unknown	31	3	2.5	iii	1.5	0.903	1.683	5.15	0.26	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.721	2869	33352	4013059	18	0.188	753	13581	2966	36011	2086	2897	399	2.78	Provide Anchors	0.26	0.41	0.26	9.59	9.59	3	4166	2966.241	OK	0.25
SCWD	Tank 17	-	28558 Santa Catarina	34.45510	-118.48029	1990	105	2,006,834		Unknown	31	3	2.5	iii	1.5	0.873	1.605	6.63	0.20	3.387	1.084	268429	16749998	5678173	12	66296	107372	66296	0.688	4071	47323	10367291	17	0.141	1462	24652	4326	53359	2086	4166	426	1.97	Provide Anchors	0.20	0.24	0.20	10.37	10.37	3	8530	4325.537	OK	0.25
SCWD	Tank 18	-	20251 Keaton St.	34.43109	-118.49236	1981	132	3,990,099		Unknown	39	3	2.5	iii	1.5	0.9417	1.781	7.43	0.19	3.385	1.084	533706	33303275	11297660	15	104774	168851	104774	0.763	8912	130340	20605312	21	0.136	2797	59320	9341	143204	2340	6589	534	2.94	Provide Anchors	0.19	0.20	0.19	12.54	12.54	3	16740	9340.714	OK	0.25
SCWD	Tank 19	-	20251 Keaton St.	34.43109	-118.49236	1995	114	2,976,087		Unknown	39	3	2.5	iii	1.5	0.9417	1.781	6.68	0.21	2.923	1.256	398074	24839839	9689339	15	78148	146337	78148	0.763	7627	111541	14192108	22	0.151	2143	46535	7922	120859	2340	5691	518	3.34	Provide Anchors	0.21	0.25	0.21	12.05	12.05	3	12541	7922.122	OK	0.25
SCWD	Tank 20	-	20225 Jennifer Ct.	34.41239	-118.48984	1987	114	2,976,087		Unknown	39	3	2.5	iii	1.5	1.005	1.917	6.68	0.23	2.923	1.256	398074	24839839	9689339	15	78148	146337	78148	0.822	8209	120058	14192108	22	0.161	2287	49663	8522	129924	2340	5691	518	3.60	Provide Anchors	0.23	0.27	0.23	12.86	12.86	3	12435	8521.788	OK	0.25
SCWD	Tank 21	-	18501 Olympian Ct. follow signs to Helispot 107C	34.42394	-118.45715	1974	73	719,689		Unknown	23	3	2.5	iii	1.5	0.948	1.791	5.44	0.26	3.174	1.156	96264	6006867	2167582	9	32044	56059	32044	0.768	1756	15145	3594969	13	0.187	671	8473	1880	17354	1797	2149	314	1.58	Provide Anchors	0.26	0.38	0.26	9.54	9.54	3	3042	1879.77	OK	0.25
SCWD	Tank 22	-	18501 Olympian Ct. follow signs to Helispot 107C	34.42394	-118.45715	1980	146	3,880,062		Unknown	31	3	2.5	iii	1.5	0.948	1.791	8.63	0.15	4.710	0.779	518988	32384849	7935674	12	128177	148133	128177	0.768	6402	74419	22881842	16	0.109	2498	40565	6872	84757	2086	5793	463	1.60	Provide Anchors	0.16	0.15	0.15	11.16	11.16	3	16166	6871.764	OK	0.25
SCWD	Tank 23	-	18501 Olympian Ct. follow signs to Helispot 107C	34.42394	-118.45715	1995	130	3,076,236		Unknown	31	3	2.5	iii	1.5	0.948	1.791	7.84	0.18	4.194	0.875	411470	25675734	7060160	12	101623	132226	101623	0.768	5677	65991	17433905	16	0.130	2260	37099	6110	75705	2086	5158	448	1.81	Provide Anchors	0.18	0.19	0.18	11.79	11.79	3	12857	6109.838	OK	0.25
SCWD	Tank 24	-	18501 Olympian Ct. follow signs to Helispot 107C	34.42394	-118.45715	2000	73	970,015		Unknown	31	3	2.5	iii	1.5	0.948	1.791	5.15	0.28	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.768	3053	35492	4013059	18	0.197	791	14258	3154	38249	2086	2897	399	2.96	Provide Anchors	0.28	0.43	0.28	10.07	10.07	3	4138	3153.862	OK	0.25
SCWD	Tank 25	-	17705 Heron Ln	34.39691	-118.44505	1999	134	2,424,983		Unknown	23	3	2.5	iii	1.5	1.004	1.921	8.94	0.15	5.826	0.630	324360	20240065	4011262	9	107973	101054	107973	0.823	3563	30734	15133924	12	0.108	1631	19356	3919	36322	1797	3945	368	0.96	Uplift but Stable	0.17	0.15	0.15	10.11	10.11	3	9981	3919.042	OK	0.25
SCWD	Tank 26	-	17705 Heron Ln	34.39691	-118.44505	1999	134	2,424,983		Unknown	23	3	2.5	iii	1.5	1.004	1.921	8.94	0.15	5.826	0.630	324360	20240065	4011262	9	107973	101054	107973	0.823	3563	30734	15133924	12	0.108	1631	19356	3919	36322	1797	3945	368	0.96	Uplift but Stable	0.17	0.15	0.15	10.11	10.11	3	9981	3919.042	OK	0.25
SCWD	Tank 27	-	27200 Sand Canyon Rd. (Between 27230 and 27166 Sand Canyon Rd)	34.40309	-118.41687	1979	28	142,708		Unknown	31	3	2.5	iii	1.5	0.952	1.809	3.06	0.47	0.903	4.063	19088	1191111	956577	13	4714	30820	4714	0.775	773	9945	247297	24	0.334	83	1951	777	10134	2086	1111	377	9.02	Provide Anchors	0.47	1.22	0.47	6.54	6.54	3	644	777.2225	Needs Anc	0.25
SCWD	Tank 28	-	27201 Appaloosa Rd.	34.40957	-118.40853	1999	104	1,460,716		Unknown	23	3	2.5	iii	1.5	0.926	1.746	7.18	0.19	4.522	0.812	195382	12191832	3111006	9	65039	78925	65039	0.748	2484	21427	8501495	12	0.138	1174	14201	2748	25706	1797	3062	341	1.14	Uplift but Stable	0.19	0.22	0.19	10.06	10.06	3	6130	2747.913	OK	0.25
SCWD	Tank 29	-	28613 Winterdale Dr.	34.43161	-118.43327	1977	73	970,015		Unknown	31	3	2.5	iii	1.5	0.903	1.686	5.15	0.26	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.723	2874	33411	4013059	18	0.188	753	13581	2971	36066	2086	2897	399	2.78	Provide Anchors	0.26	0.41	0.26	9.59	9.59	3	4165	2971.188	OK	0.25
SCWD	Tank 30	-	28613 Winterdale Dr.	34.43161	-118.43327	1985	73	970,015		Unknown	31	3	2.5	iii	1.5	0.903	1.686	5.15	0.26	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.723	2874	33411	4013059	18	0.188	753	13581	2971	36066	2086	2897	399	2.78	Provide Anchors	0.26	0.41	0.26	9.59	9.59	3	4165	2971.188	OK	0.25
SCWD	Tank 31	-	16742 Placerita Canyon Rd.	34.37487	-118.42567	1980	73	970,015		Unknown	31	3	2.5	iii	1.5	1.009	1.928	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.826	3287	38207	4013059	18	0.210	842	15176	3393	41110	2086	2897	399	3.18	Provide Anchors	0.29	0.46	0.29	10.72	10.72	3	4103	3392.715	OK	0.25
SCWD	Tank 32	-	16742 Placerita Canyon Rd.	34.37487	-118.42567	1995	73	970,015		Unknown	31	3	2.5	iii	1.5	1.009	1.928	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.826	3287	38207	4013059	18	0.210	842	15176	3393	41110	2086	2897	399	3.18	Provide Anchors	0.29	0.46	0.29	10.72	10.72	3	4103	3392.715	OK	0.25
SCWD	Tank 33	-	Golden Valley Road before Robert C Lee Pkwy	34.39537	-118.49296	2003	104	1,968,791		Unknown	31	3	2.5	iii	1.5	1.055	1.994	6.58	0.24	3.355	1.094	263341	16432470	5622265	12	65039	106378	65039	0.855	5007	58203	10122208	17	0.172	1738	29337	5300	65178	2086	4127	425	2.47	Provide Anchors	0.24	0.29	0.24	12.50	12.50	3	8171	5299.745	OK	0.25
SCWD	Tank 34	-	15126 Live Oak Springs Cyn Rd	34.40035	-118.39916	1999	73	970,015		Unknown	31	3	2.5	iii	1.5	0.9632	1.769	5.15	0.28	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.758	3016	35056	4013059	18	0.200	804	14487	3121	37931	2086	2897	399	2.93	Provide Anchors	0.28	0.44	0.28	10.23	10.23	3	4144	3120.814	OK	0.25
SCWD	Tank 35	-	20092 Avenue of the Oaks (inside gated community)	34.40261	-118.48959	1973	80	1,240,124		Unknown	33	3	2.5	iii	1.5	1.035	1.986	5.42	0.29	2.424	1.514	165876	10350668	4784457	12	38485	87841	38485	0.851	4213	52130	5238155	19	0.205	1072	20444	4347	55996	2153	3379	426	3.48	Provide Anchors	0.29	0.42	0.29	11.46	11.46	3	5213	4346.88	OK	0.25
SCWD	Tank 36	-	20092 Avenue of the Oaks (inside gated community)	34.40261	-118.48959	1985	80	1,240,124		Unknown	33	3	2.5	iii	1.5	1.035	1.986	5.42	0.29	2.424	1.514	165876	10350668	4784457	12	38485	87841	38485	0.851	4213	52130	5238155	19	0.205	1072	20444	4347	55996	2153	3379	426	3.48	Provide Anchors	0.29	0.42	0.29	11.46	11.46	3	5213	4346.88	OK	0.25
SCWD	Tank 37	-	18623 Cedar Valley Way (inside private gate next to house overlooking 14fwy)	34.40154	-118.45923	1979	60	486,185		Unknown	23	3	2.5	iii	1.5	1.012	1.938	4.75	0.32	2.609	1.407	65031	4057932	1757473	9	21648	46470	21648	0.831	1534	13233	2159193	13	0.228	493	6455	1612	14723	1797	1766	304	2.02	Provide Anchors	0.32	0.54	0.32	9.60	9.60	3	2053	1611.63	OK	0.25
SCWD	Tank 38	-	25529 Mountain Pass Rd.	34.38984	-118.48236	1980	73	970,015		Unknown	31	3	2.5	iii	1.5	1.056	1.969	5.15	0.31	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.844	3356	39019	4013059	18	0.220	881	15882	3470	42128	2086	2897	399	3.26	Provide Anchors	0.31	0.48	0.31	11.22	11.22	3	4092	3470.213	OK	0.25
SCWD	Tank 39	-	25529 Mountain Pass Rd.	34.38984	-118.48236	1987	73	970,015		Unknown	31	3	2.5	iii	1.5	1.056	1.969	5.15	0.31	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.844	3356	39019	4013059	18	0.220	881	15882	3470	42128	2086	2897	399	3.26	Provide Anchors	0.31	0.48	0.31	11.22	11.22	3	4092	3470.213	OK	0.25
SCWD	Tank 40	-	Oak Crest Dr.	34.38585	-118.45845	2005	90	1,474,409		Unknown	31	3	2.5	iii	1.5	1.035	1.982	5.93	0.26	2.903	1.264	197213	12306121	4830963	12	48707	92459	48707	0.849	4265	49579	7002741	17	0.187	1310	22635	4461	54501	2086	3571	413	2.76	Provide Anchors	0.26	0.35	0.26	11.78	11.78	3	6152	4461.463	OK	0.25
SCWD	Tank 41	-	Oak Crest Dr.	34.38585	-118.45845	2005	90	1,474,409		Unknown	31	3	2.5	iii	1.5	1.035	1.982	5.93	0.26	2.903	1.264	197213	12306121	4830963	12	48707	92459	48707	0.849	4265	49579	7002741	17	0.187	1310	22635	4461	54501	2086	3571	413	2.76	Provide Anchors	0.26	0.35	0.26	11.78	11.78	3	6152	4461.463	OK	0.25
SCWD	Tank 42	-	Benison Dr. (West cul-de-sac)	34.45475	-118.47522	2007	73	970,015		Unknown	31	3	2.5	iii	1.5	0.872	1.604	5.15	0.25	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.687	2734	31786	4013059	18	0.181	728	13115	2829	34385	2086	2897	399	2.65	Provide Anchors	0.25	0.39	0.25	9.26	9.26	3	4186	2829.434	OK	0.25
SCWD	Tank 43	-	Benison Dr. (West cul-de-sac)	34.45475	-118.47522	2007	73	970,015		Unknown	31	3	2.5	iii	1.5	0.872	1.604	5.15	0.25	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.687	2734	31786	4013059	18	0.181	728	13115	2829	34385	2086	2897	399	2.65	Provide Anchors	0.25	0.39	0.25	9.26	9.26	3	4186	2829.434	OK	0.25
SCWD	Tank 44	-	26833 Cherry Willow Dr.	34.40100	-118.43500	2006	60	486,185		Unknown	23	3	2.5	iii	1.5	0.983	1.877	4.75	0.31	2.609	1.407	65031	4057932	1757473	9	21648	46470	21648	0.804	1486	12816	2159193	13	0.222	479	6270	1561	14268	1797	1766	304	1.96	Provide Anchors	0.31	0.52	0.31	9.32	9.32	3	2061	1561.329	OK	0.25
SCWD	Tank 45	-	26833 Cherry Willow Dr.	34.40100	-118.43500	2006	60	486,185		Unknown	23	3	2.5	iii	1.5	0.983	1.877	4.75	0.31	2.609	1.407	65031	4057932	1757473	9	21648	46470	21648	0.804	1486	12816	2159193	13	0.222	479	6270	1561	14268	1797	1766	304	1.96	Provide Anchors	0.31	0.52	0.31	9.32	9.32	3	2061	1561.329	OK	0.25
SCWD	Tank 46	-	17705 Heron Ln above Lower Fair Oaks Tanks (continue on access road)	34.39692	-118.44510	1998	73	970,015		Unknown	31	3	2.5	iii	1.5	1.004	1.923	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.824	3278	38108	4013059	18	0.209	838	15100	3383	40990	2086	2897	399	3.17	Provide Anchors	0.29	0.45	0.29	10.67	10.67	3	4104	3383.424	OK	0.25
SCWD	Tank 47	-	17705 Heron Ln above Lower Fair Oaks Tanks (continue on access road)	34.39692	-118.44510	1998	73	970,015		Unknown	31	3	2.5	iii	1.5	1.004	1.923	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.824	3278	38108	4013059	18	0.209	838	15100	3383	40990	2086	2897	399	3.17	Provide Anchors	0.29	0.45	0.29	10.67	10.67	3	4104	3383.424	OK	0.25
SCWD	Tank 48	-	25198 Karie Ln	34.39044	-118.51254	1981	73	970,015		Unknown	31	3	2.5	iii	1.5	0.985	1.974	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.846	3365	39118	4013059	18	0.205	822	14815	3464	41830	2086	2897	399	3.24	Provide Anchors	0.29	0.45	0.29	10.47	10.47	3	4091	3463.926	OK	0.25
SCWD	Tank 49	-	25198 Karie Ln	34.39044	-118.51254	1987	73	970,015		Unknown	31	3	2.5	iii	1.5	0.985	1.974	5.15	0.29	2.355	1.558	129747	8096212	3837911	12	32044	75558	32044	0.846	3365	39118	4013059	18	0.205	822	14815	3464	41830	2086	2897	399	3.24	Provide Anchors	0.29	0.45	0.29	10.47	10.47	3	4091	3463.926	OK	0.25
VWD	Hasley Canyor	I	Firebrand, between 27840 & 27902, Castaic	34.45906	-118.62423	1988	104	2,473,202		Unknown	39	3	2.5	iii	1.5	0.912	1.561	6.27	0.22	2.664	1.378	330620	20630695	8767237	15	64905	133696	64905	0.669	6042	88358	11129044	22	0.156	1735	38336	6286	96316	2340	5186	509	3.20	Provide Anchors	0.22	0.28	0.22	11.34	11.34	3	10597	6285.813	OK	0.25
VWD	ound Mountai	I	Access end of Anza Drive, Valencia	34.42930	-118.58067	1989	116	2,451,341		Unknown	31	3	2.5	iii	1.5	0.984	1.862	7.16	0.21	3.742	0.981	327698	20448337	6290151	12	80933	118322	80933	0.798	5243	60951	13259642	17	0.147	1953	32487	5595	69069	2086	4603	436	2.09	Provide Anchors	0.21	0.23	0.21	11.96	11.96	3	10223	5595.109	OK	0.25
VWD	Post Office	I	Franklin Pkwy., west of Post Office, Valencia	34.43023	-118.63321	1992	95	1,918,317		Unknown	36	3	2.5	iii	1.5	0.981	1.856	5.99	0.25	2.645	1.387	256443	16002014	6843363	14	54539	113416	54539	0.795	5620	75875	8593111	20	0.175	1507	30777	5819	81880	2248	4388	470	3.41	Provide Anchors	0.25	0.33	0.25	11.69	11.69	3	8080	5818.935	OK	0.25
VWD	agic Mountain	II A- North	26975 Westridge Pkwy., Valencia	34.40646	-118.59633	2001	118	3,095,237		Unknown	38	3	2.5	iii	1.5	1.045	2.035	6.88	0.23	3.099	1.184	413774	25819521	9532636	14	83367	147150	83367	0.872	8588	122373	15251333	21	0.163	2484	52028	8940	132974	2310	5727	510	3.50	Provide Anchors	0.23	0.27	0.23	13.42	13.42	3	12808	8939.507	OK	0.25
VWD	Northbridge	II A- North	rwick Place, between 27659 & 27663, Valen	34.44964	-118.54338	1989	130	3,864,378		Unknown	39	3	2.5	iii	1.5	0.917	1.672	7.34	0.19	3.330	1.102	516594	32235460	11108780	15	101415	166182	101415	0.717	8225	120286	19781978	21	0.134	2647	56270	8640	132796	2340	6483	532	2.81	Provide Anchors	0.19	0.20	0.19	12.16	12.16	3	16320	8640.022	OK	0.25
VWD	Rye Canyon	II A- North	25112 Rye Canyon Loop, Valencia	34.45933	-118.58156	2003	106	2,441,622		40	37.25	3	2.5	iii	1.5	0.924	1.686	6.39	0.22	2.836	1.294	326398	20367265	8172953	14	67087	129766	67087	0.723	6096	85157	11426700	21	0.155	1770	36902	6348	92809	2287	5036	492	3.07	Provide Anchors	0.22	0.27	0.22	11.45	11.45	3	10360	6347.913	OK	0.25
VWD	Cal Arts	II A-South	25841 Tournament Rd., Valencia	34.38944	-118.56244	1996	109	1,538,141		Unknown	22	3	2.5	iii	1.5	1.04	2.041	7.59	0.21	4.959	0.740	205620	12830702	2986873	8	71558	79084	71558	0.875	2807	23158	9207468	11	0.147	1351	15507	3115	27871	1758	3072	335	1.15	Uplift but Stable	0.21	0.22	0.21	11.21	11.21	3	6319	3115.336	OK	0.25
VWD	Villa	II B	ucca Place, between 30563 & 30568, Castai	34.47530	-118.62553	1990	61	673,261		Unknown	31.2	3	2.5	iii	1.5	0.933	1.577	4.60	0.30	1.942	1.889	90002	5616138	3115427	12	22086	63642	22086	0.676	2178	25488	2396973	19	0.217	521	9917	2240	27349	2093	2420	392	3.06	Provide Anchors	0.30	0.53	0.30	9.23	9.23	3	2949	2239.96	OK	0.25
VWD	Presley	II C	30016 Hamlet Wy., Castaic (changed 1/06)	34.46341	-118.62582	1989	61	673,261		Unknown	31.2	3	2.5	iii	1.5	0.915	1.536	4.60	0.30	1.942	1.889	90002	5616138	3115427	12	22086	63642	22086	0.658	2122	24825	2396973	19	0.213	511	9726	2183	26662	2093	2420	392	2.98	Provide Anchors	0.30	0.52	0.30	9.05	9.05	3	2957	2182.54	OK	0.25
VWD	mmerce Cente	II D	28636 Livingston Ave., Valencia	34.44301	-118.64083	1999	81	1,155,236		Unknown	30.33	3	2.5	iii	1.5	1.022	1.933	5.51	0.28	2.655	1.382	154433	9636626	4108103	11	38984	81237	38984	0.828	3535	40208	5186700	17	0.199	1030	17710	3682	43935	2064	3126	398	2.82	Provide Anchors	0.28	0.40	0.28	11.19	11.19	3	4852	3682.162	OK	0.25
VWD	mmerce Cente	II D	28636 Livingston Ave., Valencia	34.44301	-118.64083	1999	81	1,155,236		Unknown	30.33	3	2.5	iii	1.5	1.022	1.933	5.51	0.28	2.655	1.382	154433	9636626	4108103	11	38984	81237	38984	0.828	3535	40208	5186700	17	0.199	1030	17710	3682	43935	2064	3126	398	2.82	Provide Anchors	0.28	0.40	0.28	11.19	11.19	3	4852	3682.162	OK	0.25
VWD	Seco I	III A	28400 Copper Hill, Saugus	34.46276	-118.54011	1996	102	2,115,513		Unknown	34.5	3	2.5	iii	1.5	0.892	1.615	6.34	0.21	2.961	1.239	282804	17646963	6800452	13	62760	116354	62760	0.692	4874	63061	10159298	19	0.151	1531	29340	5109	69553	2201	4511	460	2.56	Provide Anchors	0.21	0.27	0.21	10.78	10.78	3	9009	5109.071	OK	0.25
VWD	Seco II	III A	28400 Copper Hill, Saugus	34.46276	-118.54011	1998	107	2,336,119		36	34.5	2	2.5	iii	1.5	0.8692	1.615	6.57	0.20	3.112	1.179	312295	19487191	7165698	13	69305	122102	69305	0.692	5140	66501	11537915	19	0.142	1635	31077	5394	73404	2201	4741	465	2.44	Provide Anchors	0.20	0.24	0.20	10.65	10.65	2	9932	5393.948	OK	0.25
VWD	Benz	III A	28820 Bellows Ct., Valencia	34.46251	-118.57125	2008	99	1,888,670		Unknown	33	3	2.5	iii	1.5	0.912	1.657	6.25	0.22	2.991	1.227	252479	15754708	6014615	12	58577	107630	58577	0.710	4431	54832	9122346	18	0.156	1427	26113	4655	60733	2153	4169	442	2.46	Provide Anchors	0.22	0.28	0.22	10.81	10.81	3	8023	4654.979	OK	0.25
VWD	4 Million	III B	Access road end of Oakview Estates Drive, Valencia	34.39490	-118.58269	2006	125	2,693,888		32	29.5	3	2.5	iii	1.5	1.034	2.043	7.69	0.20	4.226	0.868	360122	22471590	6131884	11	93464	120788	93464	0.876	5638	62374	15302189	16	0.144	2204	34402	6054	71232	2035	4708	428	1.92	Provide Anchors	0.20	0.21	0.20	12.57	12.57	3	11079	6053.621	OK	0.25
VWD	Westridge	III B	25774 Oak Meadow Drive., Valencia	34.39760	-118.58555	2001	123	2,619,577		32	29.5	3	2.5	iii	1.5	1.043	2.046	7.61	0.21	4.167	0.881	350188	21851711	6045862	11	90886	119149	90886	0.877	5565	61565	14802746	16	0.147	2175	34002	5975	70331	2035	4642	426	1.95	Provide Anchors	0.21	0.22	0.21	12.64	12.64	3	10775	5975.053	OK	0.25
VWD	Hillcrest 1	III C	30400 Vineyard Ln., Castaic	34.46812	-118.63578	1996	69	859,632		Unknown	30.5	3	2.5	iii	1.5	0.885	1.485	5.00	0.27	2.271	1.616	114916	7170787	3506246	11	28847	70683	28847	0.636	2313	26457	3460907	18	0.190	657	11748	2405	28948	2070	2704	391	2.50	Provide Anchors	0.27	0.43	0.27	9.20	9.20	3	3744	2404.652	OK	0.25
VWD	Hillcrest 2	III C	30400 Vineyard Ln., Castaic	34.46812	-118.63578	1999	69	845,539		Unknown	30	3	2.5	iii	1.5	0.885	1.485	5.01	0.27	2.309	1.590	113032	7053228	3400670	11	28847	69524	28847	0.636	2245	25259	3446044	18	0.189	653	11437	2338	27728	2052	2660	386	2.42	Provide Anchors	0.27	0.42	0.27	9.18	9.18	3	3680	2338.2	OK	0.25
VWD	Mtn. View 1	IV A	29238 Black Pine Wy., Saugus	34.48081	-118.53213	2001	69	831,447		32	29.5	3	2.5	iii	1.5	1.533	0.857	5.02	0.46	2.348	1.563	111149	6935677	3296175	11	28847	68366	28847	0.367	1257	13905	3430444	17	0.327	1123	19276	1686	23768	2035	2615	380	2.07	Provide Anchors	0.46	0.73	0.46	15.87	15.87	3	3754	1685.519	OK	0.25
VWD	Mtn. View 2	IV A	29238 Black Pine Wy., Saugus	34.48081	-118.53213	2001	69	831,447		32	29.5	3	2.5	iii	1.5	1.533	0.857	5.02	0.46	2.348	1.563	111149	6935677	3296175	11	28847	68366	28847	0.367	1257	13905	3430444	17	0.327	1123	19276	1686	23768	2035	2615	380	2.07	Provide Anchors	0.46	0.73	0.46	15.87	15.87	3	3754	1685.519	OK	0.25
VWD	Poe	IV B	26024 Kavenaugh Ln., Stevenson Ranch	34.39184	-118.59197	1989	79	1,130,517		Unknown	31	3	2.5	iii	1.5	1.004	2.031	5.41	0.28	2.541	1.444	151129	9430427	4181024	12	37325	81310	37325	0.870	3775	43885	4930940	18	0.199	980	17368	3900	47197	2086	3126	404	3.14	Provide Anchors	0.28	0.41	0.28	10.96	10.96	3	4728	3900.069	OK	0.25
VWD	Sunset Pointe	IV B (a)	25101 Sagecrest Cir., Stevenson Ranch	34.37405	-118.57363	1995	88	1,397,438		Unknown	30.5	3	2.5	iii	1.5	0.991	2.07	5.87	0.25	2.895	1.268	186811	11657001	4587710	11	46894	89314	46894	0.887	4232	48408	6622702	17	0.181	1198	20379	4399	52523	2070	3448	406	2.80	Provide Anchors	0.25	0.35	0.25	11.18	11.18	3	5797	4398.698	OK	0.25
VWD	West Hills 1	IV D	28834 Bellows Ct., Valencia	34.46299	-118.57431	2008	48	290,020		23	21	2	2.5	iii	1.5	0.913	1.66	4.19	0.33	2.309	1.590	38770	2419258	1166430	8	14135	34673	14135	0.711	875	6888	1181994	12	0.234	276	3386	917	7675	1717	1303	274	2.12	Provide Anchors	0.33	0.62	0.33	7.93	7.93	2	1257	917.1428	OK	0.25
VWD	West Hills 2	IV D	28834 Bellows Ct., Valencia	34.46299	-118.57431	2008	48	290,020		23	21	2	2.5	iii	1.5	0.913	1.66	4.19	0.33	2.309	1.590	38770	2419258	1166430	8	14135	34673	14135	0.711	875	6888	1181994	12	0.234	276	3386	917	7675	1717	1303	274	2.12	Provide Anchors	0.33	0.62	0.33	7.93	7.93	2	1257	917.1428	OK	0.25
VWD	tevenson Ranc	V	26748 Sandburn, Stevenson Ranch	34.38734	-118.60671	1999	104	1,923,390		Unknown	30.33	3	2.5	iii	1.5	0.976	2.041	6.61	0.22	3.425	1.071	257121	16044332	5380049	11	64905	103975	64905	0.875	4911	55851	9985842	16	0.158	1579	25995	5158	61604	2064	4033	418	2.36	Provide Anchors	0.22	0.27	0.22	11.50	11.50	3	7951	5158.02	OK	0.25

1. Design spectral response acceleration parameters, S_{D1} and S_{DS}, have been determined using the Applied Technology Council's (ATC) web based hazard maps in accordance with the American Society of Civil Engineers Standard 7, Minimum Design Loads for Buildings and Other Structures (ASCE 7-10)
2. The Design spectrum for impulsive components, Sai and the Design Spectrum for convective components, Sac have been determined in accordance with Chapter 13 of the AWWA D100-11, Welded Carbon Steel Tnaks for Water Storage. These parameters are expressed as a percentage of the accelration due to gravity, g.
3. Facility list indicates that these facilities conatain 0 gallons and does not provide the overflow height, therefore we were not apple to determine the seismic demands on these structures.

Hazards by Location

Search Information

Address: 17705 Heorn Lane

Coordinates: 34.39692, -118.4451

Elevation: 1752 ft

Timestamp: 2021-03-05T04:52:01.694Z

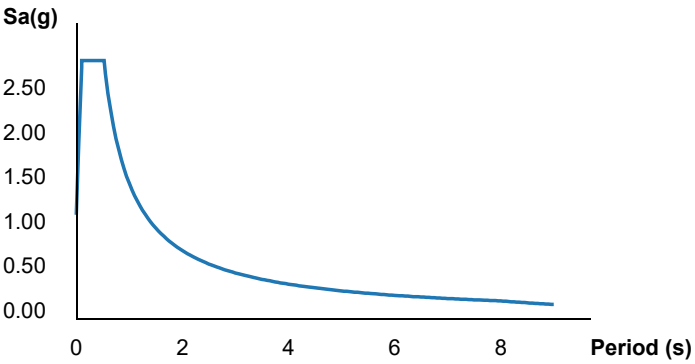
Hazard Type: Seismic

Reference Document: ASCE7-10

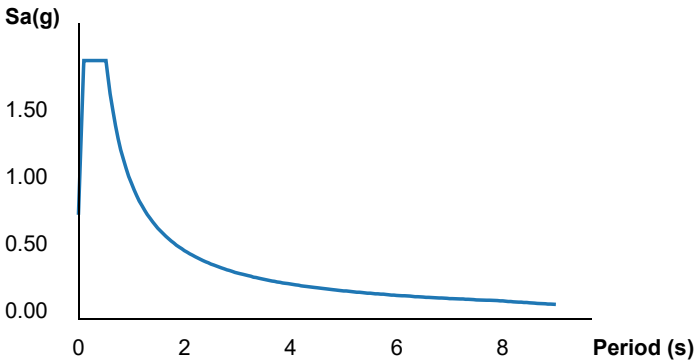
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.884	MCE_R ground motion (period=0.2s)
S_1	1.004	MCE_R ground motion (period=1.0s)
S_{MS}	2.884	Site-modified spectral acceleration value
S_{M1}	1.507	Site-modified spectral acceleration value
S_{DS}	1.923	Numeric seismic design value at 0.2s SA
S_{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.947	Coefficient of risk (0.2s)

CR_1	0.965	Coefficient of risk (1.0s)
PGA	1.065	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.065	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.884	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.047	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.023	Factored deterministic acceleration value (0.2s)
S1RT	1.004	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.041	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.218	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 18623 Cedar Valey Way

Coordinates: 34.40154, -118.45923

Elevation: 1668 ft

Timestamp: 2021-03-05T04:45:26.113Z

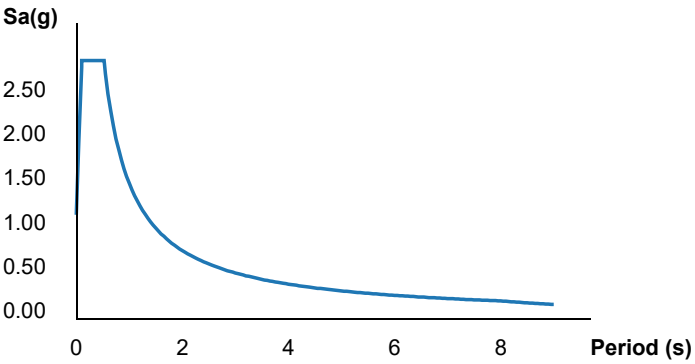
Hazard Type: Seismic

Reference Document: ASCE7-10

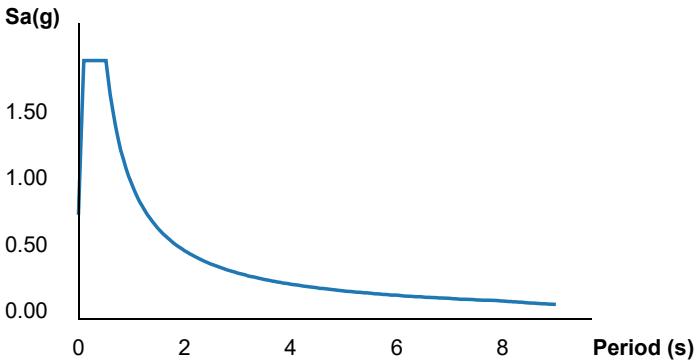
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.907	MCE_R ground motion (period=0.2s)
S_1	1.012	MCE_R ground motion (period=1.0s)
S_{MS}	2.907	Site-modified spectral acceleration value
S_{M1}	1.517	Site-modified spectral acceleration value
S_{DS}	1.938	Numeric seismic design value at 0.2s SA
S_{D1}	1.012	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.947	Coefficient of risk (0.2s)

CR_1	0.965	Coefficient of risk (1.0s)
PGA	1.073	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.073	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.907	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.071	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	1.012	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.048	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.224	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.36479, -118.53706

Elevation: 1552 ft

Timestamp: 2021-03-05T03:59:58.630Z

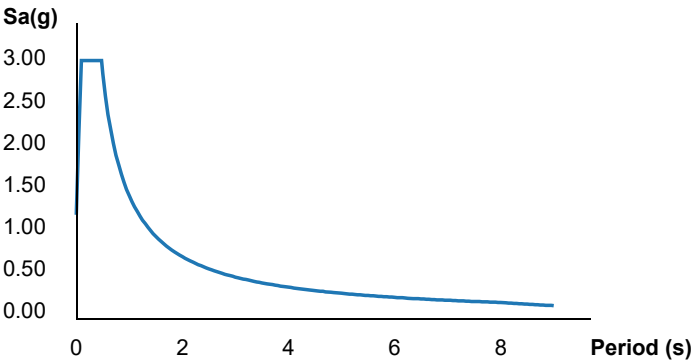
Hazard Type: Seismic

Reference Document: ASCE7-10

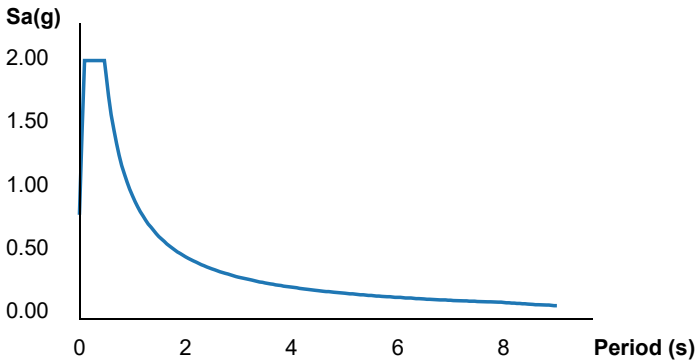
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.055	MCE_R ground motion (period=0.2s)
S_1	0.966	MCE_R ground motion (period=1.0s)
S_{MS}	3.055	Site-modified spectral acceleration value
S_{M1}	1.449	Site-modified spectral acceleration value
S_{DS}	2.037	Numeric seismic design value at 0.2s SA
S_{D1}	0.966	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.925	Coefficient of risk (0.2s)

CR_1	0.947	Coefficient of risk (1.0s)
PGA	1.147	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.147	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.17	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.426	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.055	Factored deterministic acceleration value (0.2s)
S1RT	1.099	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.161	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.966	Factored deterministic acceleration value (1.0s)
PGAd	1.147	Factored deterministic acceleration value (PGA)

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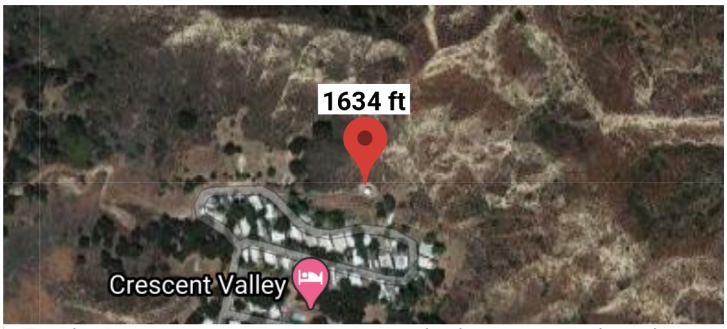
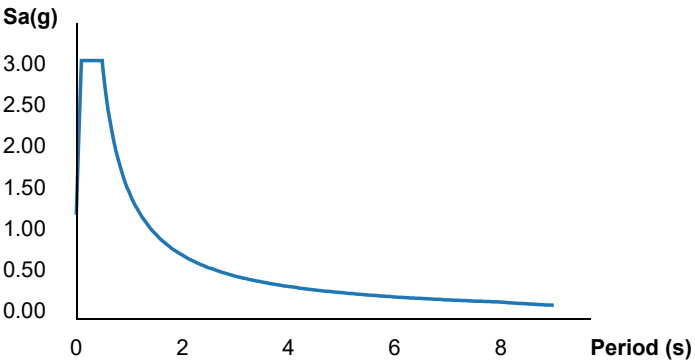
Hazards by Location

Search Information

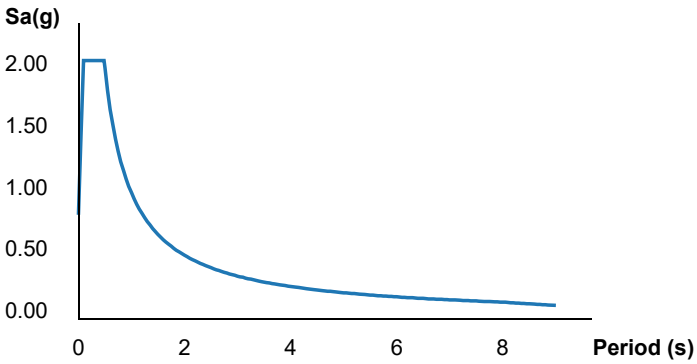
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.35243, -118.5387
Elevation:	1634 ft
Timestamp:	2021-03-05T04:04:18.366Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.126	MCE_R ground motion (period=0.2s)
S_1	1.012	MCE_R ground motion (period=1.0s)
S_{MS}	3.126	Site-modified spectral acceleration value
S_{M1}	1.519	Site-modified spectral acceleration value
S_{DS}	2.084	Numeric seismic design value at 0.2s SA
S_{D1}	1.012	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.919	Coefficient of risk (0.2s)

CR_1	0.941	Coefficient of risk (1.0s)
PGA	1.187	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.187	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.229	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.513	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.126	Factored deterministic acceleration value (0.2s)
S1RT	1.122	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.192	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.012	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.36752, -118.52048

Elevation: 1460 ft

Timestamp: 2021-03-05T03:55:58.049Z

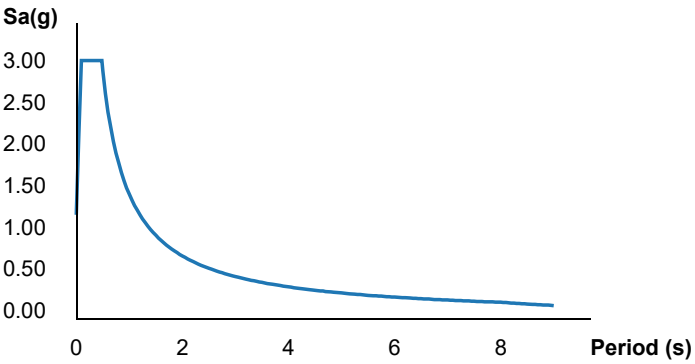
Hazard Type: Seismic

Reference Document: ASCE7-10

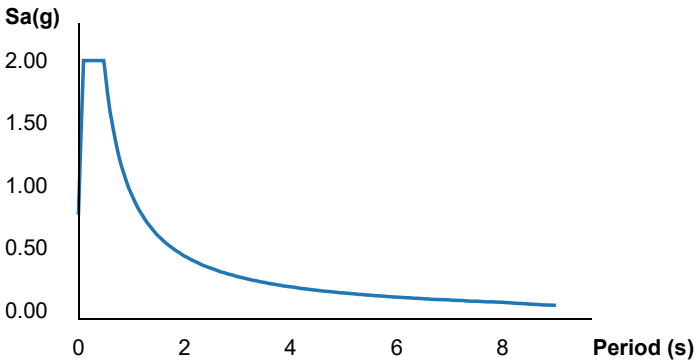
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.086	MCE_R ground motion (period=0.2s)
S_1	0.988	MCE_R ground motion (period=1.0s)
S_{MS}	3.086	Site-modified spectral acceleration value
S_{M1}	1.481	Site-modified spectral acceleration value
S_{DS}	2.057	Numeric seismic design value at 0.2s SA
S_{D1}	0.988	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.926	Coefficient of risk (0.2s)

CR_1	0.946	Coefficient of risk (1.0s)
PGA	1.166	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.166	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.174	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.426	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.086	Factored deterministic acceleration value (0.2s)
S1RT	1.108	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.171	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.988	Factored deterministic acceleration value (1.0s)
PGAd	1.166	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.35801, -118.54226

Elevation: 1713 ft

Timestamp: 2021-03-05T04:02:39.962Z

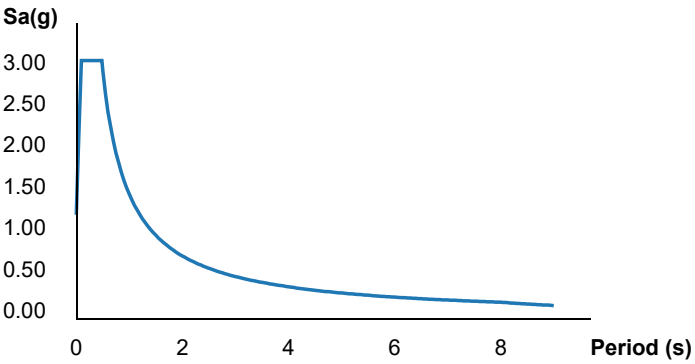
Hazard Type: Seismic

Reference Document: ASCE7-10

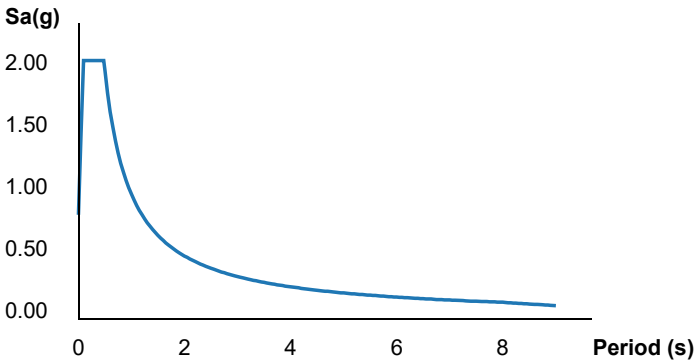
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.106	MCE_R ground motion (period=0.2s)
S_1	0.995	MCE_R ground motion (period=1.0s)
S_{MS}	3.106	Site-modified spectral acceleration value
S_{M1}	1.492	Site-modified spectral acceleration value
S_{DS}	2.071	Numeric seismic design value at 0.2s SA
S_{D1}	0.995	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.922	Coefficient of risk (0.2s)

CR_1	0.944	Coefficient of risk (1.0s)
PGA	1.174	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.174	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.198	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.469	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.106	Factored deterministic acceleration value (0.2s)
S1RT	1.108	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.173	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.995	Factored deterministic acceleration value (1.0s)
PGAd	1.174	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.36908, -118.54735

Elevation: 1555 ft

Timestamp: 2021-03-05T04:01:23.610Z

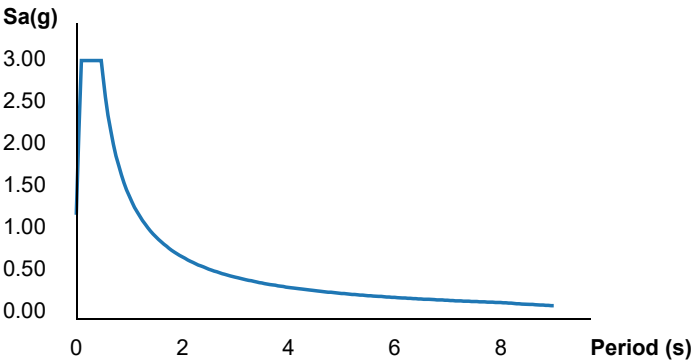
Hazard Type: Seismic

Reference Document: ASCE7-10

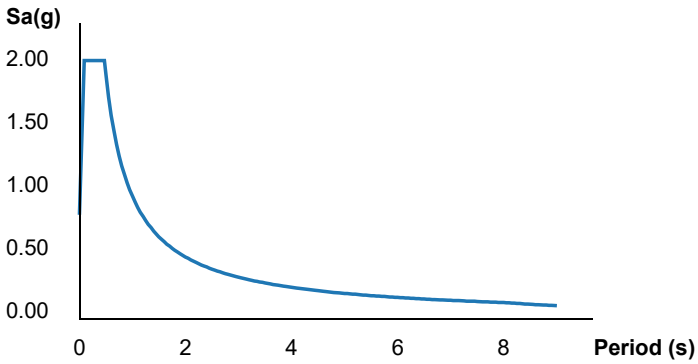
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.065	MCE_R ground motion (period=0.2s)
S_1	0.965	MCE_R ground motion (period=1.0s)
S_{MS}	3.065	Site-modified spectral acceleration value
S_{M1}	1.447	Site-modified spectral acceleration value
S_{DS}	2.043	Numeric seismic design value at 0.2s SA
S_{D1}	0.965	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.928	Coefficient of risk (0.2s)

CR_1	0.951	Coefficient of risk (1.0s)
PGA	1.148	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.148	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.138	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.383	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.065	Factored deterministic acceleration value (0.2s)
S1RT	1.082	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.138	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.965	Factored deterministic acceleration value (1.0s)
PGAd	1.148	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 25101 Sagecrest Cir

Coordinates: 34.37405, -118.57363

Elevation: 1693 ft

Timestamp: 2021-03-05T05:21:48.982Z

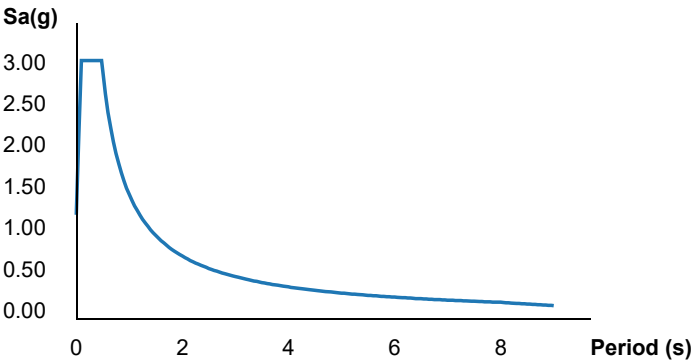
Hazard Type: Seismic

Reference Document: ASCE7-10

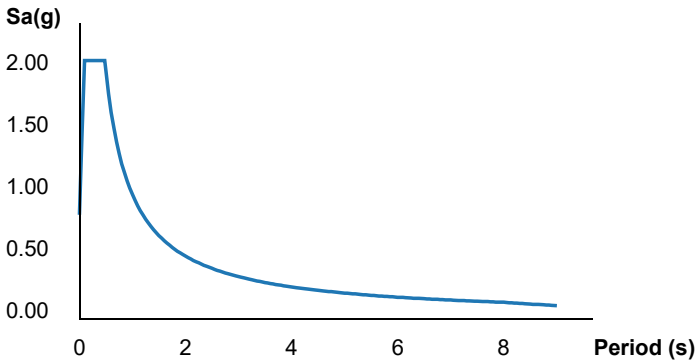
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.105	MCE_R ground motion (period=0.2s)
S_1	0.991	MCE_R ground motion (period=1.0s)
S_{MS}	3.105	Site-modified spectral acceleration value
S_{M1}	1.487	Site-modified spectral acceleration value
S_{DS}	2.07	Numeric seismic design value at 0.2s SA
S_{D1}	0.991	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.929	Coefficient of risk (0.2s)

CR_1	0.951	Coefficient of risk (1.0s)
PGA	1.172	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.172	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.153	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.395	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.105	Factored deterministic acceleration value (0.2s)
S1RT	1.089	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.145	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.991	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 25112 Rye Canyon Loop

Coordinates: 34.45933, -118.58156

Elevation: 1402 ft

Timestamp: 2021-03-05T05:01:58.635Z

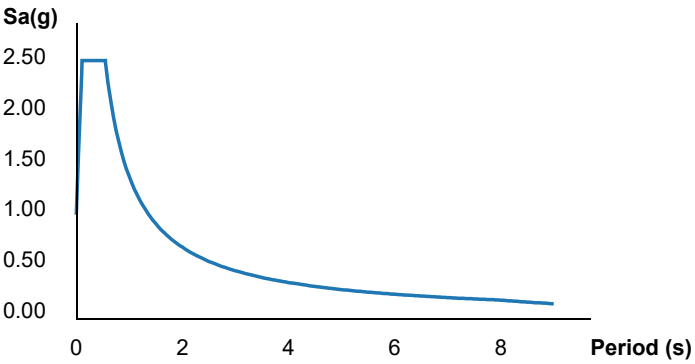
Hazard Type: Seismic

Reference Document: ASCE7-10

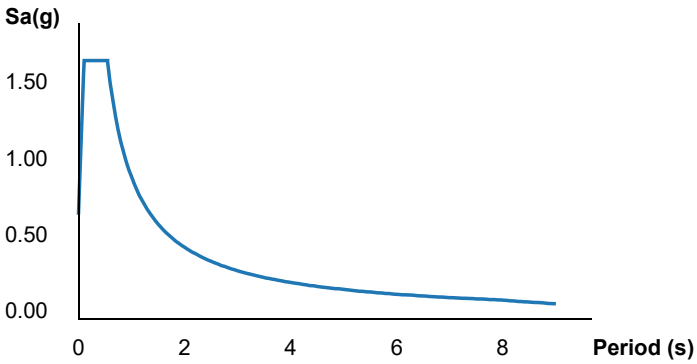
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.53	MCE_R ground motion (period=0.2s)
S_1	0.924	MCE_R ground motion (period=1.0s)
S_{MS}	2.53	Site-modified spectral acceleration value
S_{M1}	1.386	Site-modified spectral acceleration value
S_{DS}	1.686	Numeric seismic design value at 0.2s SA
S_{D1}	0.924	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.998	Coefficient of risk (0.2s)

CR_1	0.997	Coefficient of risk (1.0s)
PGA	0.887	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.887	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.536	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.96	Factored deterministic acceleration value (0.2s)
S1RT	0.924	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.926	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.261	Factored deterministic acceleration value (1.0s)
PGAd	1.151	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 25198 Karie Lane

Coordinates: 34.39044, -118.51254

Elevation: 1452 ft

Timestamp: 2021-03-05T04:53:29.726Z

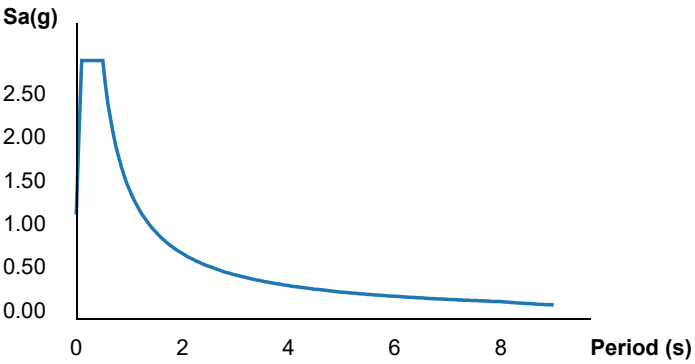
Hazard Type: Seismic

Reference Document: ASCE7-10

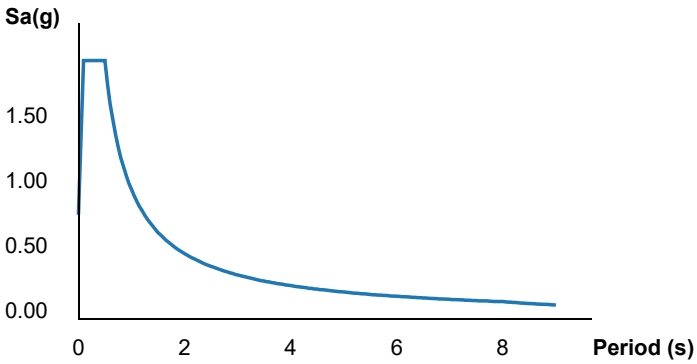
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.961	MCE_R ground motion (period=0.2s)
S_1	0.985	MCE_R ground motion (period=1.0s)
S_{MS}	2.961	Site-modified spectral acceleration value
S_{M1}	1.477	Site-modified spectral acceleration value
S_{DS}	1.974	Numeric seismic design value at 0.2s SA
S_{D1}	0.985	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.935	Coefficient of risk (0.2s)

CR_1	0.956	Coefficient of risk (1.0s)
PGA	1.094	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.094	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.069	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.281	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.961	Factored deterministic acceleration value (0.2s)
S1RT	1.065	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.114	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.985	Factored deterministic acceleration value (1.0s)
PGAd	1.094	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 25774 Oak Meadow Drive

Coordinates: 34.3976, -118.58555

Elevation: 1531 ft

Timestamp: 2021-03-05T05:13:50.309Z

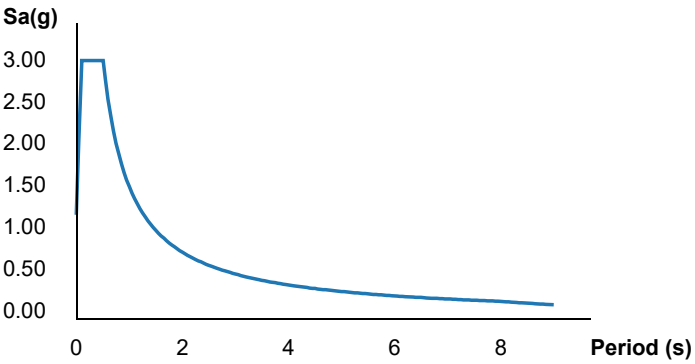
Hazard Type: Seismic

Reference Document: ASCE7-10

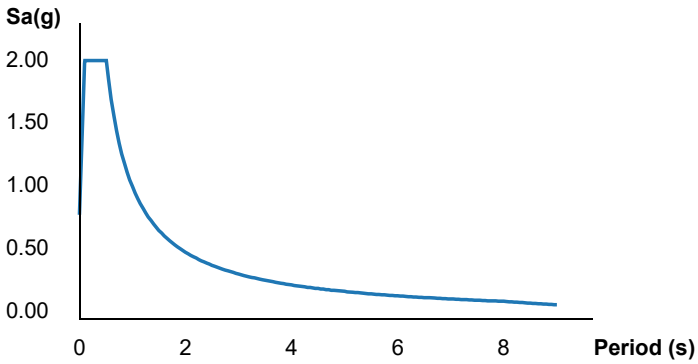
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.07	MCE_R ground motion (period=0.2s)
S_1	1.043	MCE_R ground motion (period=1.0s)
S_{MS}	3.07	Site-modified spectral acceleration value
S_{M1}	1.564	Site-modified spectral acceleration value
S_{DS}	2.046	Numeric seismic design value at 0.2s SA
S_{D1}	1.043	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.939	Coefficient of risk (0.2s)

CR_1	0.964	Coefficient of risk (1.0s)
PGA	1.149	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.149	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.089	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.291	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.07	Factored deterministic acceleration value (0.2s)
S1RT	1.055	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.094	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.043	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Coordinates: 34.389446676720965, -118.56244267672118

Elevation: 1276 ft

Timestamp: 2021-03-05T05:04:00.419Z

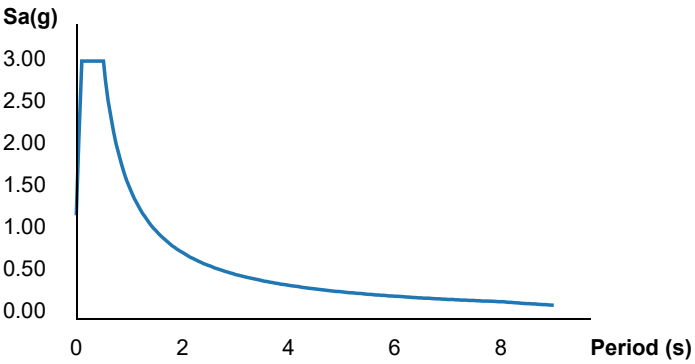
Hazard Type: Seismic

Reference Document: ASCE7-10

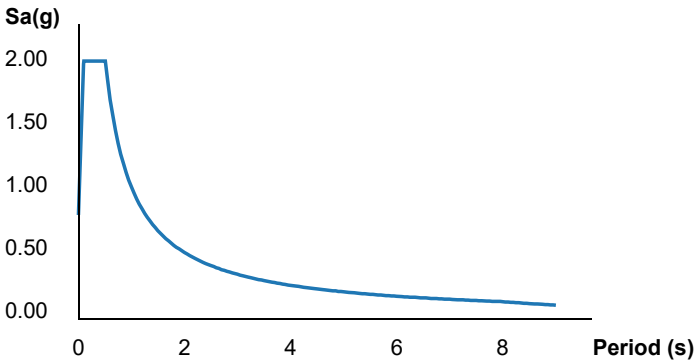
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.062	MCE_R ground motion (period=0.2s)
S_1	1.04	MCE_R ground motion (period=1.0s)
S_{MS}	3.062	Site-modified spectral acceleration value
S_{M1}	1.561	Site-modified spectral acceleration value
S_{DS}	2.041	Numeric seismic design value at 0.2s SA
S_{D1}	1.04	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.937	Coefficient of risk (0.2s)
CR_1	0.961	Coefficient of risk (1.0s)

PGA	1.146	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.146	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.062	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.267	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.071	Factored deterministic acceleration value (0.2s)
S1RT	1.051	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.094	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.04	Factored deterministic acceleration value (1.0s)
PGAd	1.187	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 26024 Kavenaugh Lane

Coordinates: 34.39184, -118.59197

Elevation: 1694 ft

Timestamp: 2021-03-05T05:20:23.018Z

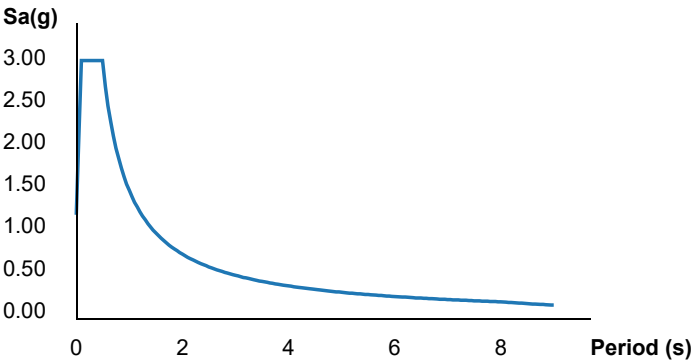
Hazard Type: Seismic

Reference Document: ASCE7-10

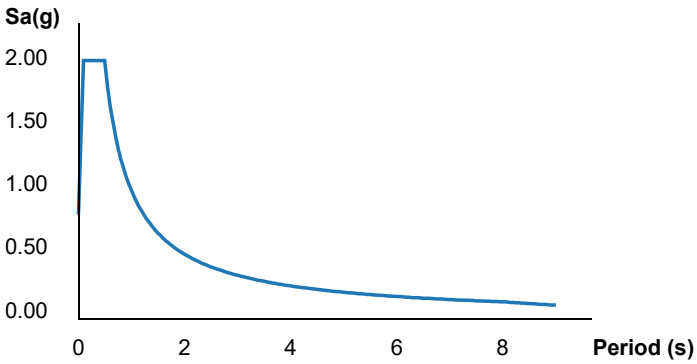
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.047	MCE_R ground motion (period=0.2s)
S_1	1.004	MCE_R ground motion (period=1.0s)
S_{MS}	3.047	Site-modified spectral acceleration value
S_{M1}	1.506	Site-modified spectral acceleration value
S_{DS}	2.031	Numeric seismic design value at 0.2s SA
S_{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.935	Coefficient of risk (0.2s)

CR_1	0.96	Coefficient of risk (1.0s)
PGA	1.169	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.169	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.127	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.343	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.047	Factored deterministic acceleration value (0.2s)
S1RT	1.071	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.115	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.004	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 26833 Cherry Willow Dr

Coordinates: 34.401, -118.435

Elevation: 1822 ft

Timestamp: 2021-03-05T04:50:28.656Z

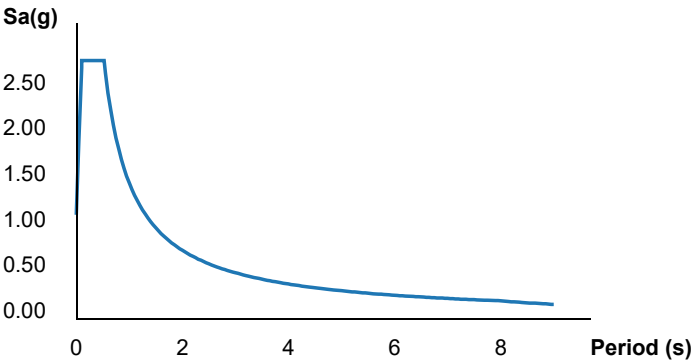
Hazard Type: Seismic

Reference Document: ASCE7-10

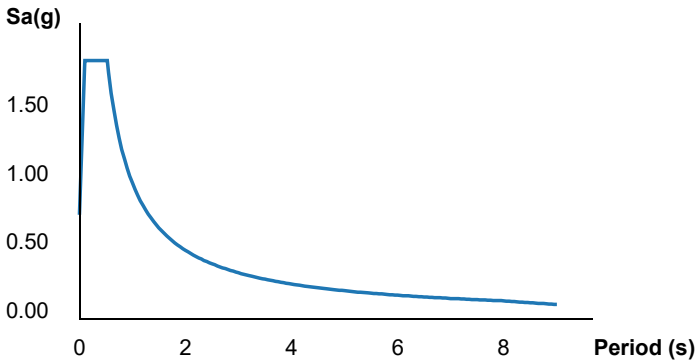
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.816	MCE_R ground motion (period=0.2s)
S_1	0.983	MCE_R ground motion (period=1.0s)
S_{MS}	2.816	Site-modified spectral acceleration value
S_{M1}	1.475	Site-modified spectral acceleration value
S_{DS}	1.877	Numeric seismic design value at 0.2s SA
S_{D1}	0.983	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.95	Coefficient of risk (0.2s)

CR_1	0.969	Coefficient of risk (1.0s)
PGA	1.037	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.037	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.816	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.965	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.013	Factored deterministic acceleration value (0.2s)
S1RT	0.983	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.015	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.18	Factored deterministic acceleration value (1.0s)
PGAd	1.171	Factored deterministic acceleration value (PGA)

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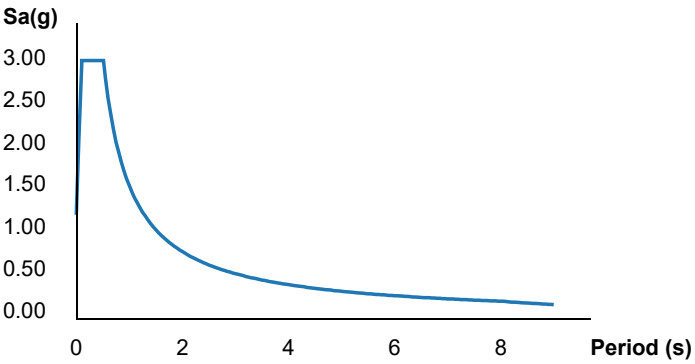
Hazards by Location

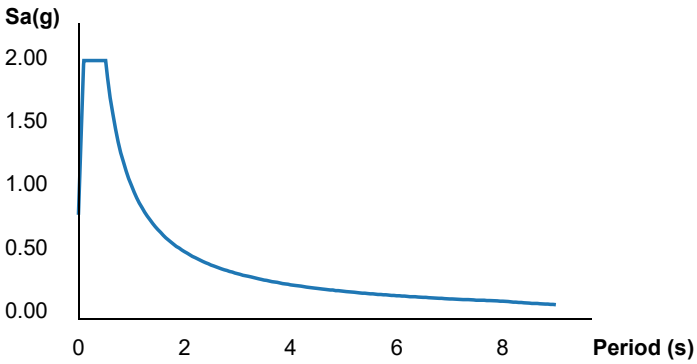
Search Information

Address:	26975 Westridge Pkwy Valencia
Coordinates:	34.40646, -118.59633
Elevation:	1403 ft
Timestamp:	2021-03-05T04:59:29.113Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.053	MCE_R ground motion (period=0.2s)
S_1	1.045	MCE_R ground motion (period=1.0s)
S_{MS}	3.053	Site-modified spectral acceleration value
S_{M1}	1.567	Site-modified spectral acceleration value
S_{DS}	2.035	Numeric seismic design value at 0.2s SA
S_{D1}	1.045	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.945	Coefficient of risk (0.2s)

CR_1	0.968	Coefficient of risk (1.0s)
PGA	1.125	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.125	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.053	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.23	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.078	Factored deterministic acceleration value (0.2s)
S1RT	1.045	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.079	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.069	Factored deterministic acceleration value (1.0s)
PGAd	1.193	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 28400 Copper Hill Saugus

Coordinates: 34.46276, -118.54011

Elevation: 1508 ft

Timestamp: 2021-03-05T05:09:59.697Z

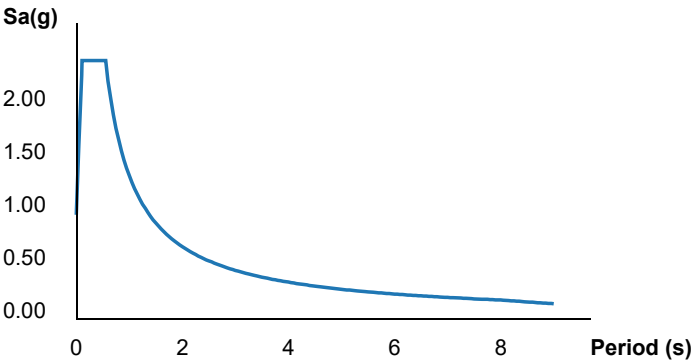
Hazard Type: Seismic

Reference Document: ASCE7-10

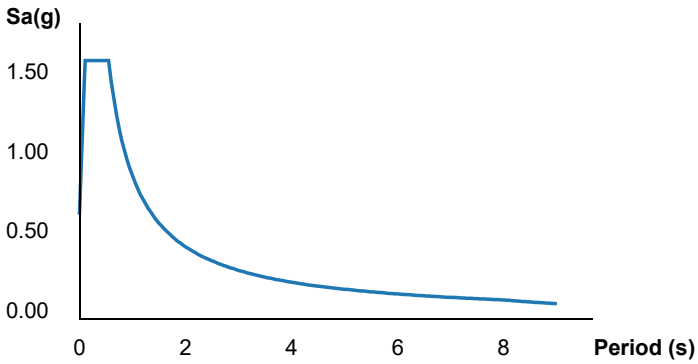
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.423	MCE_R ground motion (period=0.2s)
S_1	0.892	MCE_R ground motion (period=1.0s)
S_{MS}	2.423	Site-modified spectral acceleration value
S_{M1}	1.338	Site-modified spectral acceleration value
S_{DS}	1.615	Numeric seismic design value at 0.2s SA
S_{D1}	0.892	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.002	Coefficient of risk (0.2s)

CR_1	1.004	Coefficient of risk (1.0s)
PGA	0.855	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.855	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.423	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.419	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.005	Factored deterministic acceleration value (0.2s)
S1RT	0.892	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.888	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.15	Factored deterministic acceleration value (1.0s)
PGAd	1.166	Factored deterministic acceleration value (PGA)

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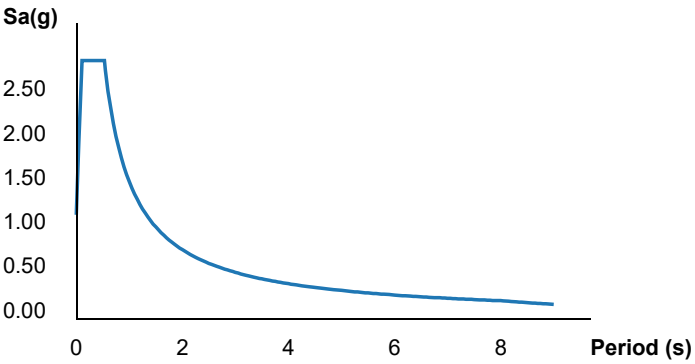
Hazards by Location

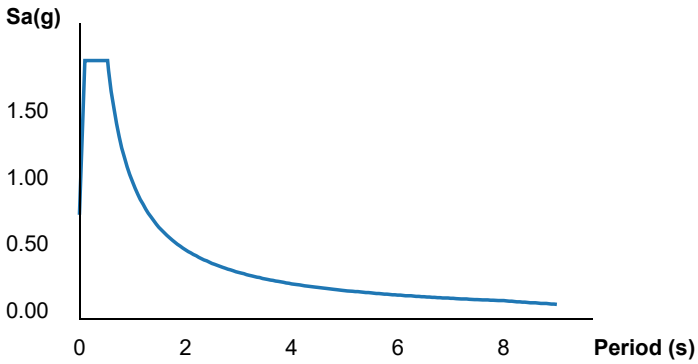
Search Information

Address:	28636 Livingston Ave
Coordinates:	34.44301, -118.64083
Elevation:	1409 ft
Timestamp:	2021-03-05T05:08:35.378Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.899	MCE_R ground motion (period=0.2s)
S_1	1.022	MCE_R ground motion (period=1.0s)
S_{MS}	2.899	Site-modified spectral acceleration value
S_{M1}	1.533	Site-modified spectral acceleration value
S_{DS}	1.933	Numeric seismic design value at 0.2s SA
S_{D1}	1.022	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.975	Coefficient of risk (0.2s)

CR_1	0.987	Coefficient of risk (1.0s)
PGA	1.031	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.031	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.899	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.973	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	1.022	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.035	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.141	Factored deterministic acceleration value (1.0s)
PGAd	1.17	Factored deterministic acceleration value (PGA)

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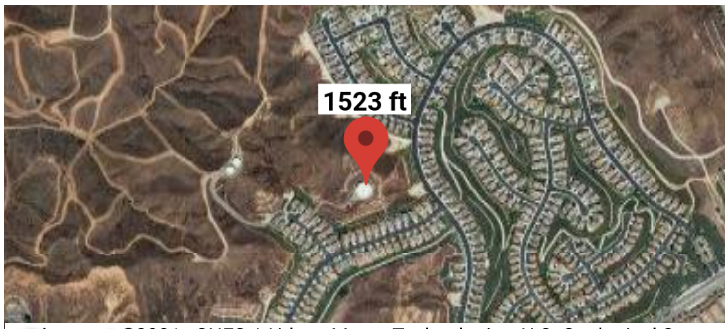
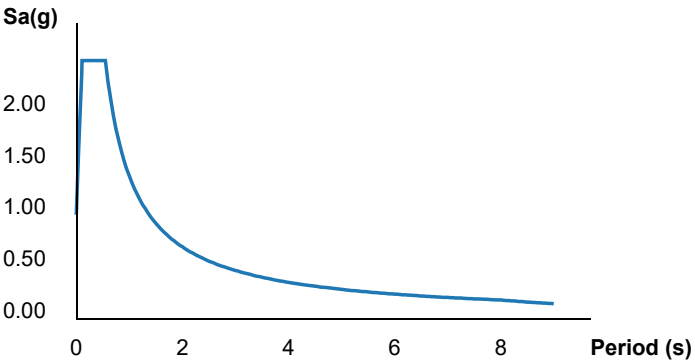
Hazards by Location

Search Information

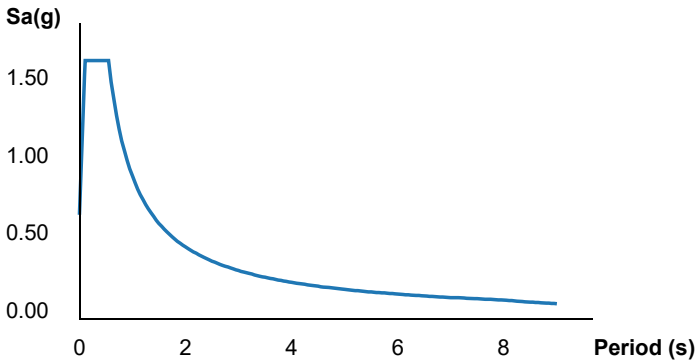
Address:	28820 Bellows CT
Coordinates:	34.46251, -118.57125
Elevation:	1523 ft
Timestamp:	2021-03-05T05:11:45.366Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.485	MCE_R ground motion (period=0.2s)
S_1	0.912	MCE_R ground motion (period=1.0s)
S_{MS}	2.485	Site-modified spectral acceleration value
S_{M1}	1.368	Site-modified spectral acceleration value
S_{DS}	1.657	Numeric seismic design value at 0.2s SA
S_{D1}	0.912	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1	Coefficient of risk (0.2s)

CR_1	1	Coefficient of risk (1.0s)
PGA	0.873	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.873	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.485	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.484	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.013	Factored deterministic acceleration value (0.2s)
S1RT	0.912	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.912	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.251	Factored deterministic acceleration value (1.0s)
PGAd	1.174	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 28834 Bellows Ct

Coordinates: 34.46299, -118.57431

Elevation: 1620 ft

Timestamp: 2021-03-05T05:22:43.199Z

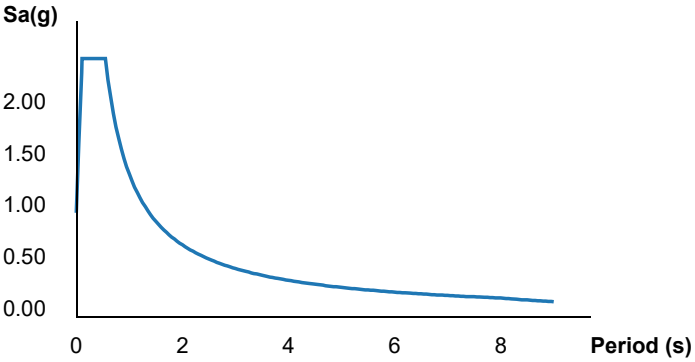
Hazard Type: Seismic

Reference Document: ASCE7-10

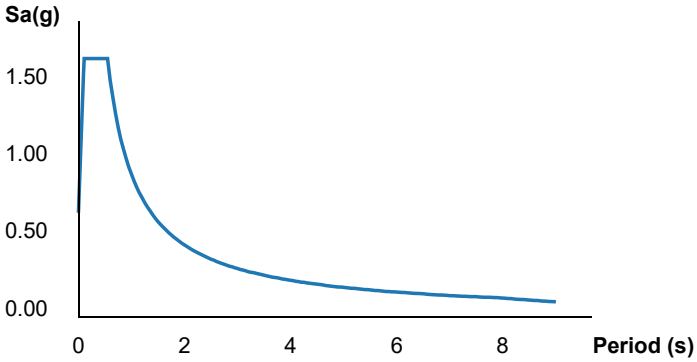
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.489	MCE_R ground motion (period=0.2s)
S_1	0.913	MCE_R ground motion (period=1.0s)
S_{MS}	2.489	Site-modified spectral acceleration value
S_{M1}	1.37	Site-modified spectral acceleration value
S_{DS}	1.66	Numeric seismic design value at 0.2s SA
S_{D1}	0.913	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.001	Coefficient of risk (0.2s)

CR_1	1	Coefficient of risk (1.0s)
PGA	0.874	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.874	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.489	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.488	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.01	Factored deterministic acceleration value (0.2s)
S1RT	0.913	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.913	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.257	Factored deterministic acceleration value (1.0s)
PGAd	1.172	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 209238 Black Pine Way

Coordinates: 34.48081, -118.53213

Elevation: 1685 ft

Timestamp: 2021-03-05T05:18:49.049Z

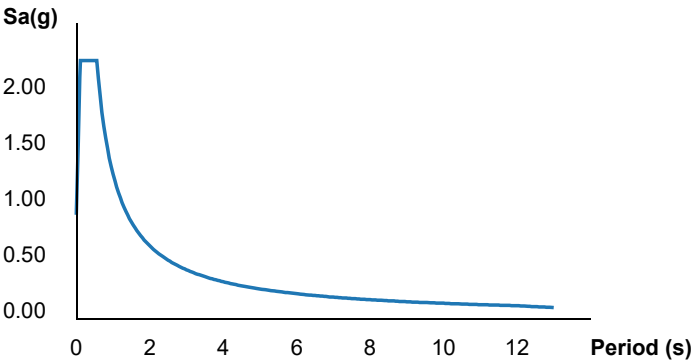
Hazard Type: Seismic

Reference Document: ASCE7-10

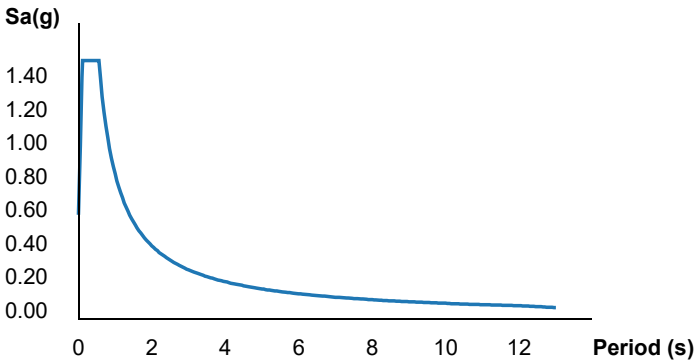
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.299	MCE_R ground motion (period=0.2s)
S_1	0.857	MCE_R ground motion (period=1.0s)
S_{MS}	2.299	Site-modified spectral acceleration value
S_{M1}	1.285	Site-modified spectral acceleration value
S_{DS}	1.533	Numeric seismic design value at 0.2s SA
S_{D1}	0.857	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.019	Coefficient of risk (0.2s)

CR_1	1.016	Coefficient of risk (1.0s)
PGA	0.807	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.807	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.299	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.256	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.948	Factored deterministic acceleration value (0.2s)
S1RT	0.857	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.843	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.061	Factored deterministic acceleration value (1.0s)
PGAd	1.131	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 30016 Hamlet Way, Castaic, CA 91384, USA

Coordinates: 34.46341, -118.62582

Elevation: 1408 ft

Timestamp: 2021-03-05T05:07:32.495Z

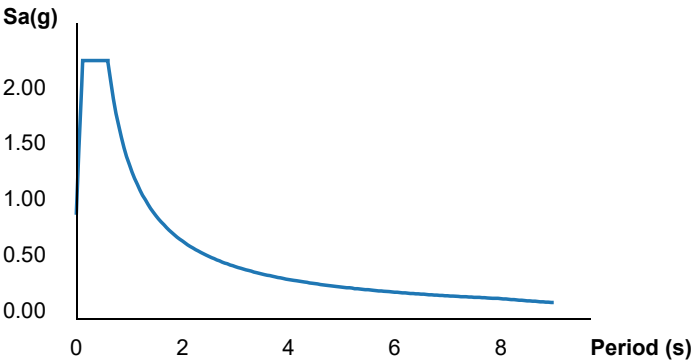
Hazard Type: Seismic

Reference Document: ASCE7-10

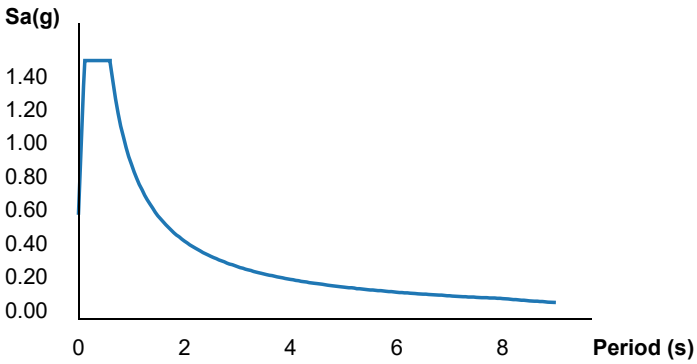
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.304	MCE_R ground motion (period=0.2s)
S_1	0.915	MCE_R ground motion (period=1.0s)
S_{MS}	2.304	Site-modified spectral acceleration value
S_{M1}	1.373	Site-modified spectral acceleration value
S_{DS}	1.536	Numeric seismic design value at 0.2s SA
S_{D1}	0.915	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.996	Coefficient of risk (0.2s)

CR_1	0.998	Coefficient of risk (1.0s)
PGA	0.879	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.879	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.649	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.66	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.304	Factored deterministic acceleration value (0.2s)
S1RT	0.958	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.959	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.915	Factored deterministic acceleration value (1.0s)
PGAd	0.879	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 30400 Vineyard LAne

Coordinates: 34.46812, -118.63578

Elevation: 1630 ft

Timestamp: 2021-03-05T05:17:07.165Z

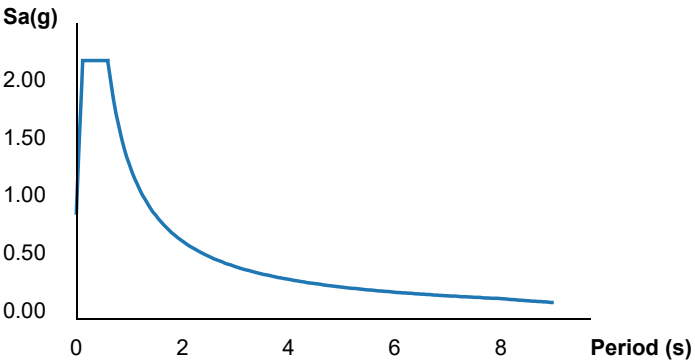
Hazard Type: Seismic

Reference Document: ASCE7-10

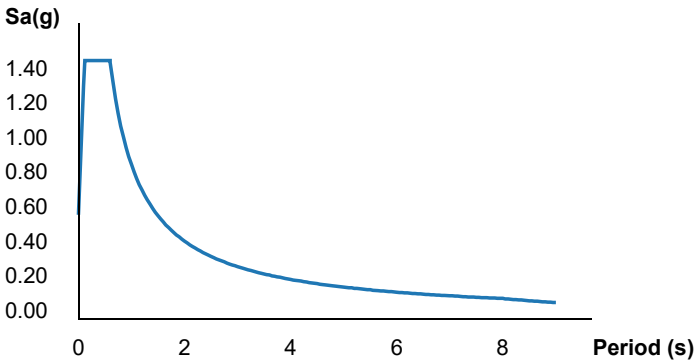
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.228	MCE_R ground motion (period=0.2s)
S_1	0.885	MCE_R ground motion (period=1.0s)
S_{MS}	2.228	Site-modified spectral acceleration value
S_{M1}	1.327	Site-modified spectral acceleration value
S_{DS}	1.485	Numeric seismic design value at 0.2s SA
S_{D1}	0.885	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.999	Coefficient of risk (0.2s)

CR_1	1.001	Coefficient of risk (1.0s)
PGA	0.849	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.849	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.646	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.65	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.228	Factored deterministic acceleration value (0.2s)
S1RT	0.958	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.957	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.885	Factored deterministic acceleration value (1.0s)
PGAd	0.849	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.51362, -118.63064

Elevation: 1631 ft

Timestamp: 2021-03-05T04:06:03.046Z

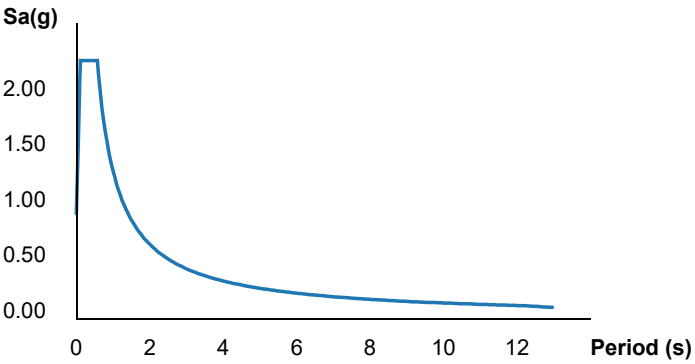
Hazard Type: Seismic

Reference Document: ASCE7-10

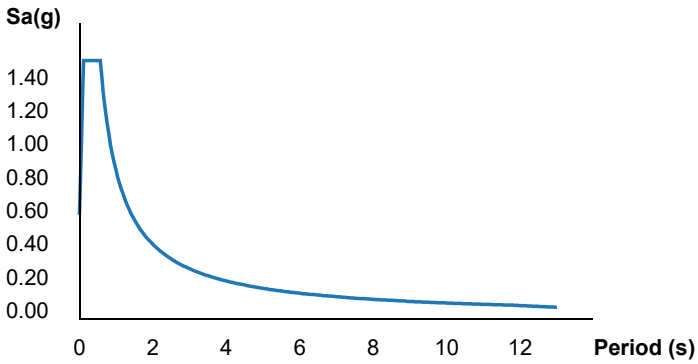
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.314	MCE_R ground motion (period=0.2s)
S_1	0.881	MCE_R ground motion (period=1.0s)
S_{MS}	2.314	Site-modified spectral acceleration value
S_{M1}	1.321	Site-modified spectral acceleration value
S_{DS}	1.543	Numeric seismic design value at 0.2s SA
S_{D1}	0.881	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.029	Coefficient of risk (0.2s)

CR_1	1.017	Coefficient of risk (1.0s)
PGA	0.805	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.805	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.314	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.248	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.007	Factored deterministic acceleration value (0.2s)
S1RT	0.881	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.866	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.263	Factored deterministic acceleration value (1.0s)
PGAd	1.171	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Access Road at Oakview Estates Drive

Coordinates: 34.3949, -118.58269

Elevation: 1533 ft

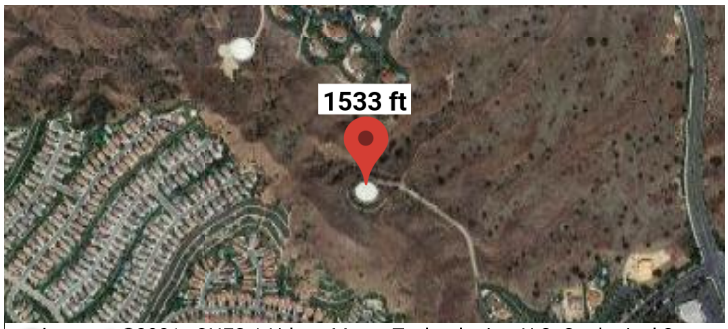
Timestamp: 2021-03-05T05:12:47.247Z

Hazard Type: Seismic

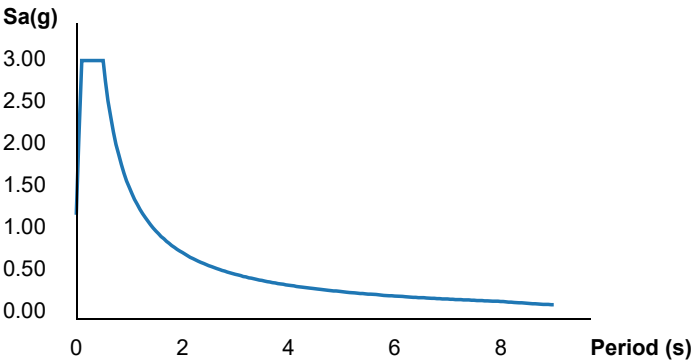
Reference Document: ASCE7-10

Risk Category: III

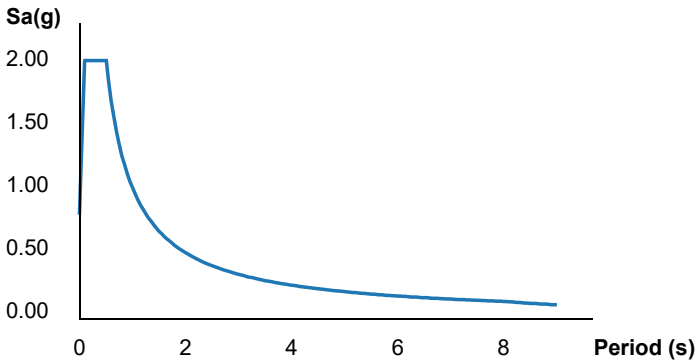
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	3.065	MCE_R ground motion (period=0.2s)
S_1	1.034	MCE_R ground motion (period=1.0s)
S_{MS}	3.065	Site-modified spectral acceleration value
S_{M1}	1.551	Site-modified spectral acceleration value
S_{DS}	2.043	Numeric seismic design value at 0.2s SA
S_{D1}	1.034	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.938	Coefficient of risk (0.2s)

CR_1	0.962	Coefficient of risk (1.0s)
PGA	1.153	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.153	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	3.091	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.296	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.065	Factored deterministic acceleration value (0.2s)
S1RT	1.057	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.099	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.034	Factored deterministic acceleration value (1.0s)
PGAd	1.184	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Anza Drive, Valencia, CA

Coordinates: 34.4293, -118.58067

Elevation: 1276 ft

Timestamp: 2021-03-05T04:57:13.901Z

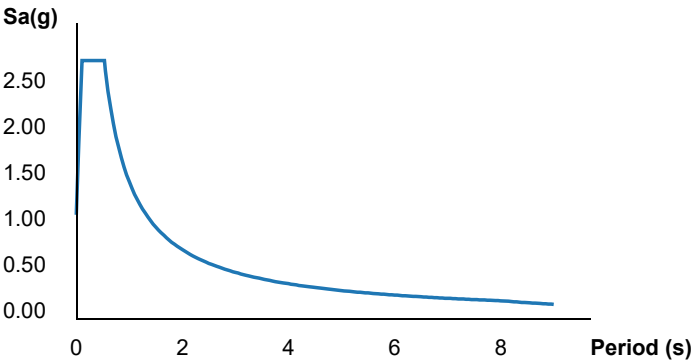
Hazard Type: Seismic

Reference Document: ASCE7-10

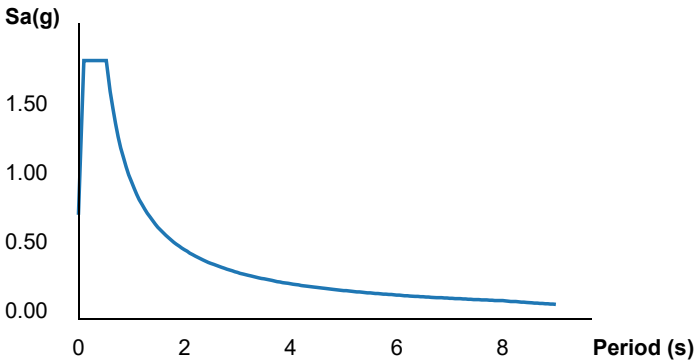
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.793	MCE_R ground motion (period=0.2s)
S_1	0.984	MCE_R ground motion (period=1.0s)
S_{MS}	2.793	Site-modified spectral acceleration value
S_{M1}	1.475	Site-modified spectral acceleration value
S_{DS}	1.862	Numeric seismic design value at 0.2s SA
S_{D1}	0.984	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.97	Coefficient of risk (0.2s)

CR_1	0.981	Coefficient of risk (1.0s)
PGA	1.003	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.003	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.793	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.88	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.918	Factored deterministic acceleration value (0.2s)
S1RT	0.984	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.002	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.12	Factored deterministic acceleration value (1.0s)
PGAd	1.128	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Appaloosa Rd

Coordinates: 34.40957, -118.40853

Elevation: 1753 ft

Timestamp: 2021-03-05T04:38:20.109Z

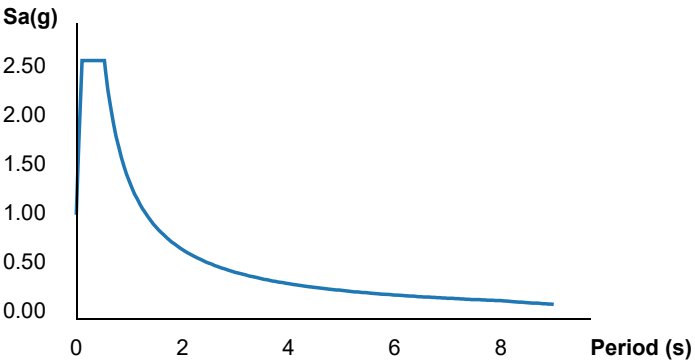
Hazard Type: Seismic

Reference Document: ASCE7-10

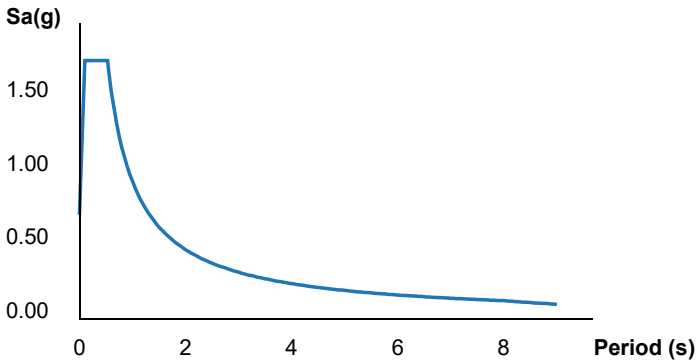
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.62	MCE_R ground motion (period=0.2s)
S_1	0.926	MCE_R ground motion (period=1.0s)
S_{MS}	2.62	Site-modified spectral acceleration value
S_{M1}	1.389	Site-modified spectral acceleration value
S_{DS}	1.746	Numeric seismic design value at 0.2s SA
S_{D1}	0.926	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.963	Coefficient of risk (0.2s)

CR_1	0.982	Coefficient of risk (1.0s)
PGA	0.956	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.956	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.62	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.721	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.968	Factored deterministic acceleration value (0.2s)
S1RT	0.926	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.942	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.086	Factored deterministic acceleration value (1.0s)
PGAd	1.143	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.47829, -118.40689

Elevation: 2087 ft

Timestamp: 2021-03-05T04:21:27.552Z

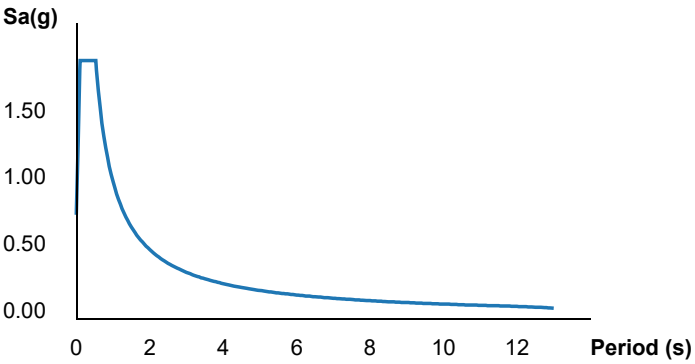
Hazard Type: Seismic

Reference Document: ASCE7-10

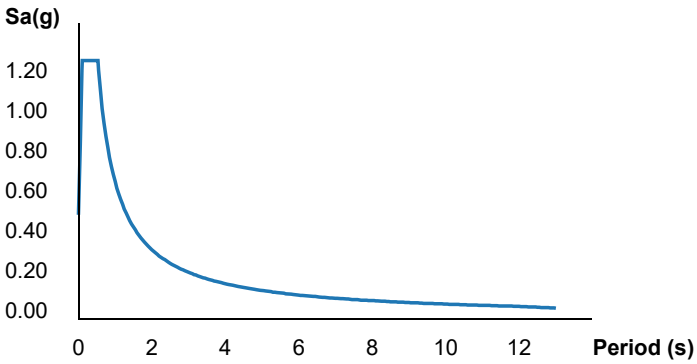
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	1.928	MCE_R ground motion (period=0.2s)
S_1	0.681	MCE_R ground motion (period=1.0s)
S_{MS}	1.928	Site-modified spectral acceleration value
S_{M1}	1.021	Site-modified spectral acceleration value
S_{DS}	1.286	Numeric seismic design value at 0.2s SA
S_{D1}	0.681	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.037	Coefficient of risk (0.2s)

CR_1	1.023	Coefficient of risk (1.0s)
PGA	0.718	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.718	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.118	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.043	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.928	Factored deterministic acceleration value (0.2s)
S1RT	0.81	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.792	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.681	Factored deterministic acceleration value (1.0s)
PGAd	0.718	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Avenue of The Oaks

Coordinates: 34.40261, -118.48959

Elevation: 1670 ft

Timestamp: 2021-03-05T04:44:12.292Z

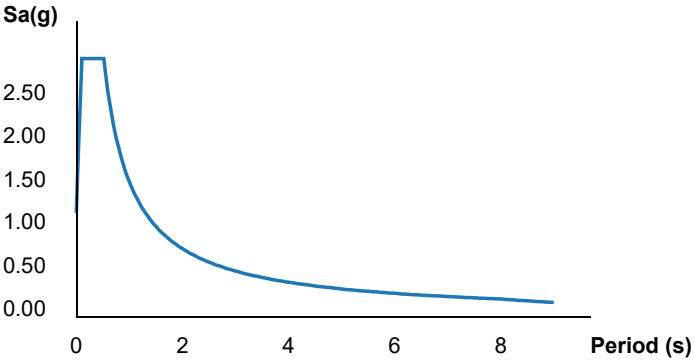
Hazard Type: Seismic

Reference Document: ASCE7-10

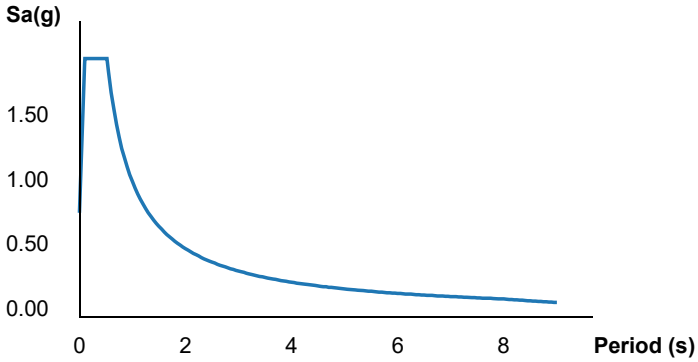
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.979	MCE_R ground motion (period=0.2s)
S_1	1.035	MCE_R ground motion (period=1.0s)
S_{MS}	2.979	Site-modified spectral acceleration value
S_{M1}	1.552	Site-modified spectral acceleration value
S_{DS}	1.986	Numeric seismic design value at 0.2s SA
S_{D1}	1.035	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.942	Coefficient of risk (0.2s)

CR_1	0.962	Coefficient of risk (1.0s)
PGA	1.105	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.105	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.979	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.162	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.005	Factored deterministic acceleration value (0.2s)
S1RT	1.035	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.075	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.269	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.45818, -118.52358

Elevation: 1610 ft

Timestamp: 2021-03-05T04:25:30.403Z

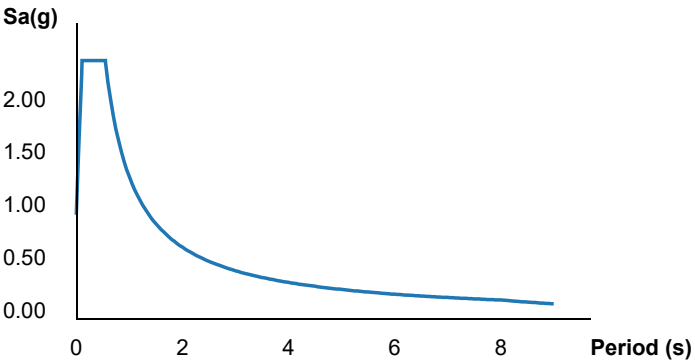
Hazard Type: Seismic

Reference Document: ASCE7-10

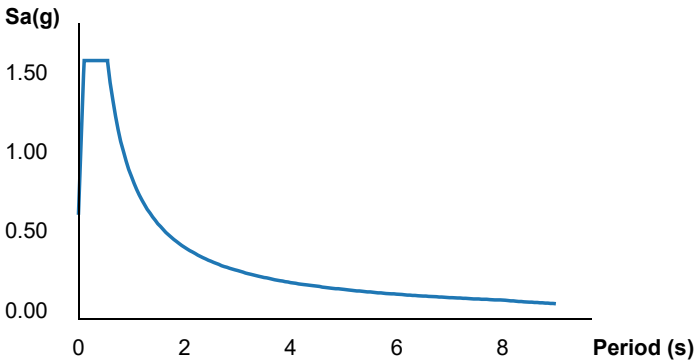
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.433	MCE_R ground motion (period=0.2s)
S_1	0.89	MCE_R ground motion (period=1.0s)
S_{MS}	2.433	Site-modified spectral acceleration value
S_{M1}	1.334	Site-modified spectral acceleration value
S_{DS}	1.622	Numeric seismic design value at 0.2s SA
S_{D1}	0.89	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.998	Coefficient of risk (0.2s)

CR_1	1.004	Coefficient of risk (1.0s)
PGA	0.858	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.858	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.433	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.437	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.993	Factored deterministic acceleration value (0.2s)
S1RT	0.89	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.886	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.122	Factored deterministic acceleration value (1.0s)
PGAd	1.157	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Benison Dr

Coordinates: 34.45475, -118.47522

Elevation: 2019 ft

Timestamp: 2021-03-05T04:49:23.613Z

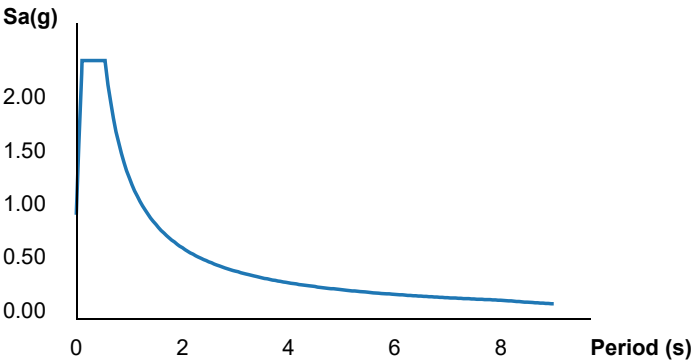
Hazard Type: Seismic

Reference Document: ASCE7-10

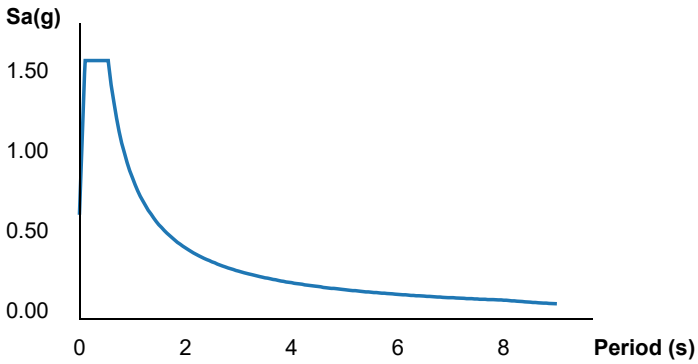
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.406	MCE_R ground motion (period=0.2s)
S_1	0.872	MCE_R ground motion (period=1.0s)
S_{MS}	2.406	Site-modified spectral acceleration value
S_{M1}	1.307	Site-modified spectral acceleration value
S_{DS}	1.604	Numeric seismic design value at 0.2s SA
S_{D1}	0.872	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.996	Coefficient of risk (0.2s)

CR_1	1.006	Coefficient of risk (1.0s)
PGA	0.845	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.845	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.406	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.417	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.905	Factored deterministic acceleration value (0.2s)
S1RT	0.872	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.866	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.022	Factored deterministic acceleration value (1.0s)
PGAd	1.107	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Coordinates: 34.49857558191984, -118.60213

Elevation: 1441 ft

Timestamp: 2021-03-29T18:23:23.628Z

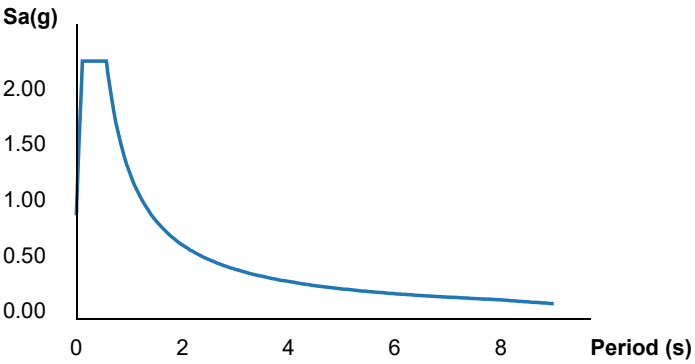
Hazard Type: Seismic

Reference Document: ASCE7-10

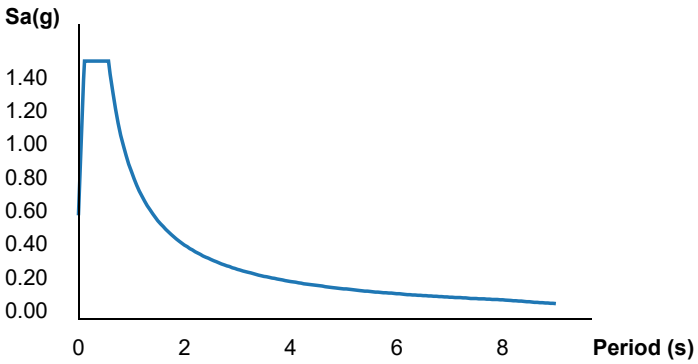
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.311	MCE_R ground motion (period=0.2s)
S_1	0.876	MCE_R ground motion (period=1.0s)
S_{MS}	2.311	Site-modified spectral acceleration value
S_{M1}	1.315	Site-modified spectral acceleration value
S_{DS}	1.541	Numeric seismic design value at 0.2s SA
S_{D1}	0.876	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.024	Coefficient of risk (0.2s)
CR_1	1.014	Coefficient of risk (1.0s)

PGA	0.812	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.812	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.311	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.257	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	0.876	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.864	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.23	Factored deterministic acceleration value (1.0s)
PGAd	1.176	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Firebrand

Coordinates: 34.45906, -118.62423

Elevation: 1282 ft

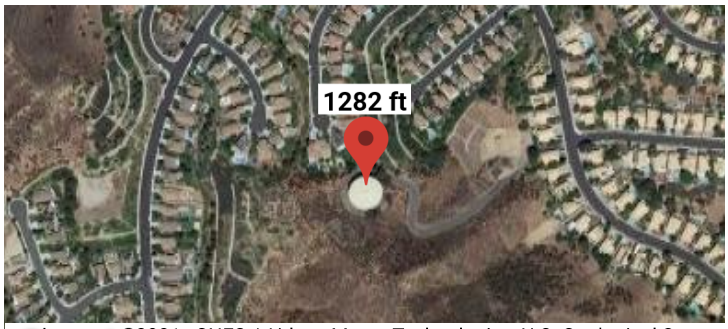
Timestamp: 2021-03-05T04:54:40.174Z

Hazard Type: Seismic

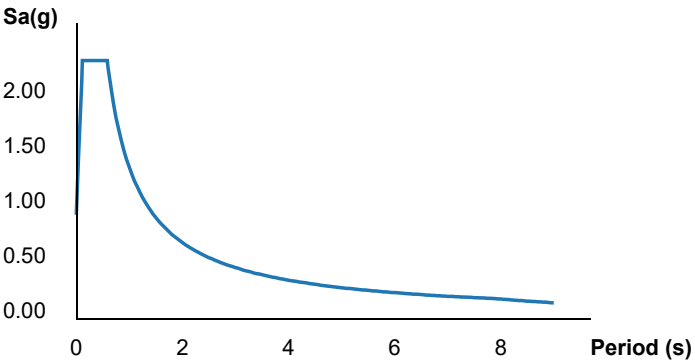
Reference Document: ASCE7-10

Risk Category: III

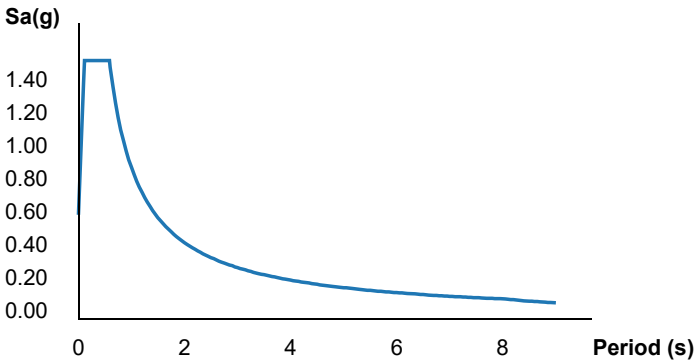
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.341	MCE_R ground motion (period=0.2s)
S_1	0.912	MCE_R ground motion (period=1.0s)
S_{MS}	2.341	Site-modified spectral acceleration value
S_{M1}	1.368	Site-modified spectral acceleration value
S_{DS}	1.561	Numeric seismic design value at 0.2s SA
S_{D1}	0.912	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.993	Coefficient of risk (0.2s)

CR_1	0.996	Coefficient of risk (1.0s)
PGA	0.891	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.891	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.679	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.699	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.341	Factored deterministic acceleration value (0.2s)
S1RT	0.965	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.969	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.912	Factored deterministic acceleration value (1.0s)
PGAd	0.891	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Franklin Pkwy

Coordinates: 34.43023, -118.58067

Elevation: 1230 ft

Timestamp: 2021-03-05T04:58:17.886Z

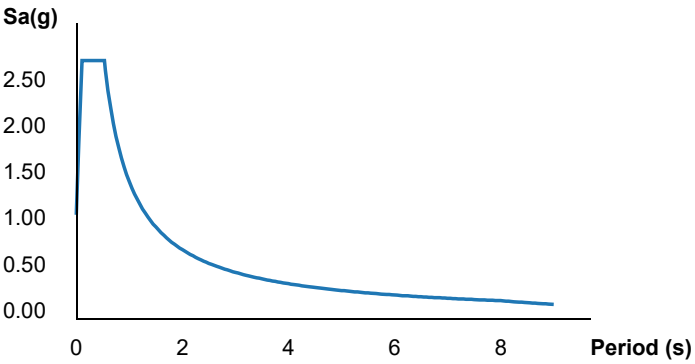
Hazard Type: Seismic

Reference Document: ASCE7-10

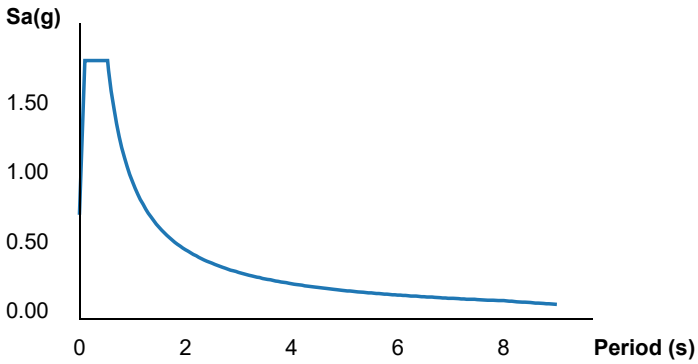
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.784	MCE_R ground motion (period=0.2s)
S_1	0.981	MCE_R ground motion (period=1.0s)
S_{MS}	2.784	Site-modified spectral acceleration value
S_{M1}	1.472	Site-modified spectral acceleration value
S_{DS}	1.856	Numeric seismic design value at 0.2s SA
S_{D1}	0.981	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.971	Coefficient of risk (0.2s)

CR_1	0.982	Coefficient of risk (1.0s)
PGA	0.999	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.999	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.784	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.868	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.897	Factored deterministic acceleration value (0.2s)
S1RT	0.981	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.116	Factored deterministic acceleration value (1.0s)
PGAd	1.12	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.46892, -118.51875

Elevation: 1827 ft

Timestamp: 2021-03-05T04:26:43.552Z

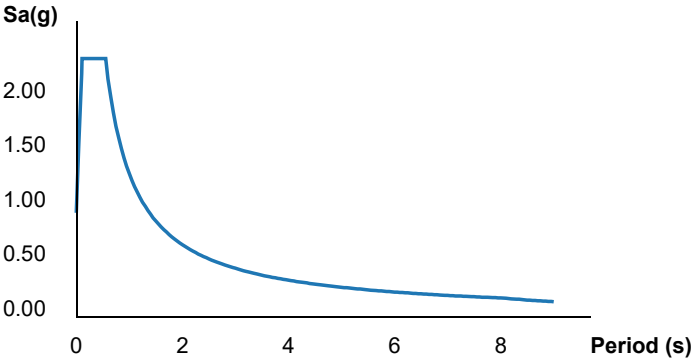
Hazard Type: Seismic

Reference Document: ASCE7-10

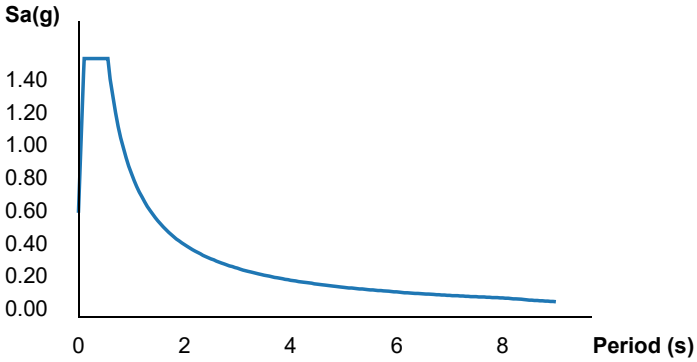
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.36	MCE_R ground motion (period=0.2s)
S_1	0.869	MCE_R ground motion (period=1.0s)
S_{MS}	2.36	Site-modified spectral acceleration value
S_{M1}	1.304	Site-modified spectral acceleration value
S_{DS}	1.573	Numeric seismic design value at 0.2s SA
S_{D1}	0.869	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.009	Coefficient of risk (0.2s)

CR_1	1.011	Coefficient of risk (1.0s)
PGA	0.829	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.829	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.36	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.339	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.952	Factored deterministic acceleration value (0.2s)
S1RT	0.869	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.86	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.064	Factored deterministic acceleration value (1.0s)
PGAd	1.133	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.48329, -118.63962

Elevation: 1722 ft

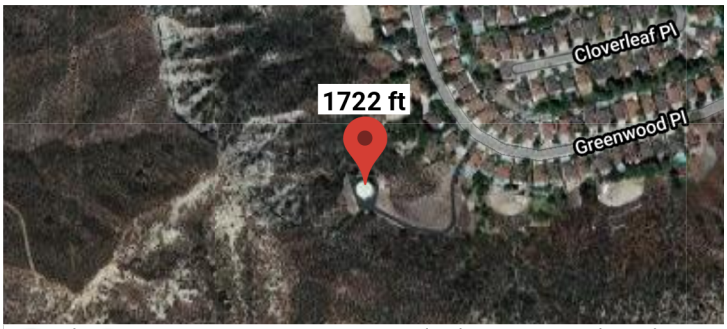
Timestamp: 2021-03-05T04:13:11.309Z

Hazard Type: Seismic

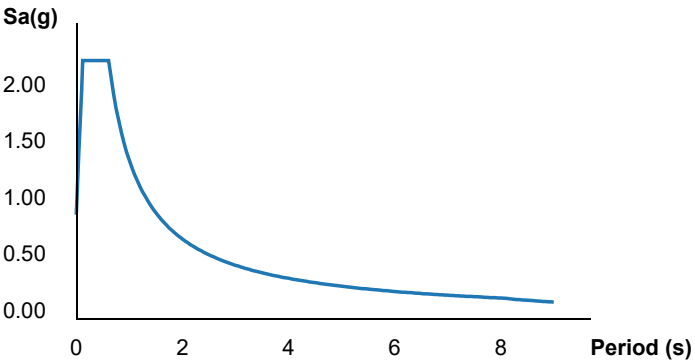
Reference Document: ASCE7-10

Risk Category: III

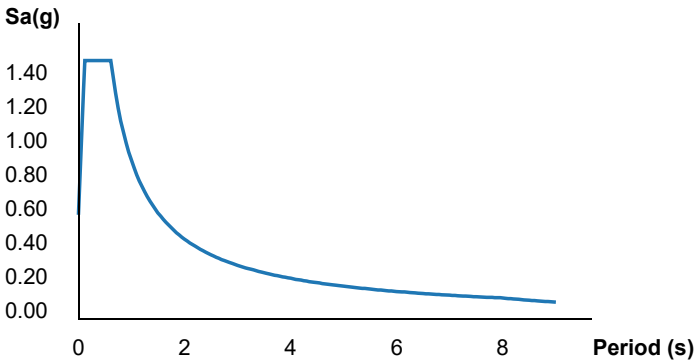
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.271	MCE_R ground motion (period=0.2s)
S_1	0.927	MCE_R ground motion (period=1.0s)
S_{MS}	2.271	Site-modified spectral acceleration value
S_{M1}	1.39	Site-modified spectral acceleration value
S_{DS}	1.514	Numeric seismic design value at 0.2s SA
S_{D1}	0.927	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.012	Coefficient of risk (0.2s)

CR_1	1.01	Coefficient of risk (1.0s)
PGA	0.872	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.872	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.515	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.485	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.271	Factored deterministic acceleration value (0.2s)
S1RT	0.927	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.917	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.948	Factored deterministic acceleration value (1.0s)
PGAd	0.872	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Harwick Place

Coordinates: 34.44964, -118.54338

Elevation: 1402 ft

Timestamp: 2021-03-05T05:00:37.308Z

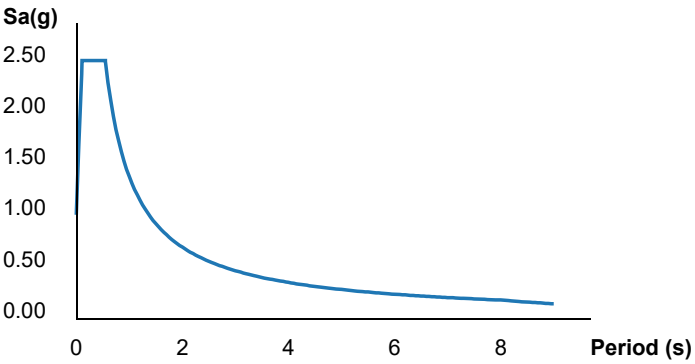
Hazard Type: Seismic

Reference Document: ASCE7-10

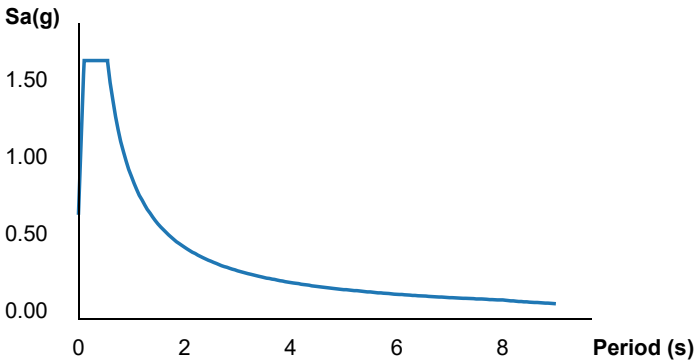
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.508	MCE_R ground motion (period=0.2s)
S_1	0.917	MCE_R ground motion (period=1.0s)
S_{MS}	2.508	Site-modified spectral acceleration value
S_{M1}	1.375	Site-modified spectral acceleration value
S_{DS}	1.672	Numeric seismic design value at 0.2s SA
S_{D1}	0.917	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.99	Coefficient of risk (0.2s)

CR_1	0.996	Coefficient of risk (1.0s)
PGA	0.889	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.889	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.508	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.534	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.018	Factored deterministic acceleration value (0.2s)
S1RT	0.917	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.92	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.213	Factored deterministic acceleration value (1.0s)
PGAd	1.176	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.44116, -118.46717

Elevation: 1824 ft

Timestamp: 2021-03-05T04:29:21.407Z

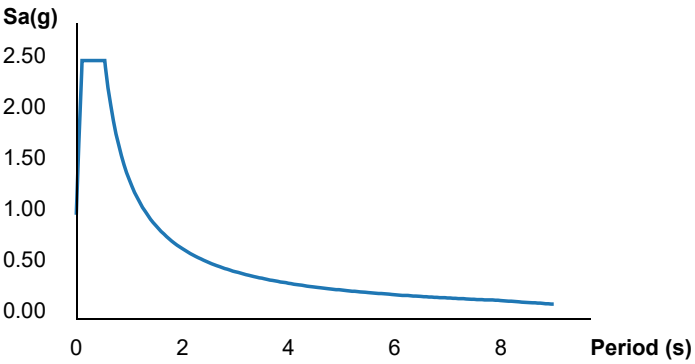
Hazard Type: Seismic

Reference Document: ASCE7-10

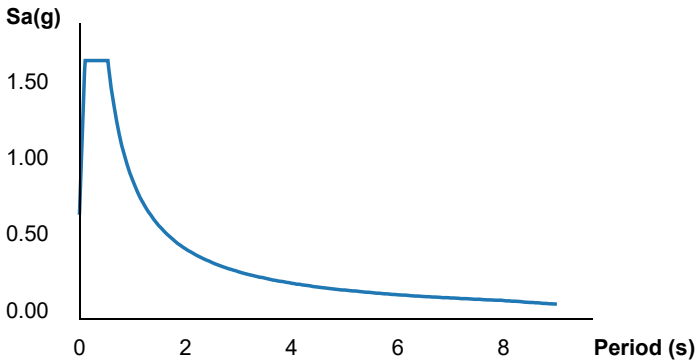
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.525	MCE_R ground motion (period=0.2s)
S_1	0.903	MCE_R ground motion (period=1.0s)
S_{MS}	2.525	Site-modified spectral acceleration value
S_{M1}	1.354	Site-modified spectral acceleration value
S_{DS}	1.683	Numeric seismic design value at 0.2s SA
S_{D1}	0.903	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.982	Coefficient of risk (0.2s)

CR_1	0.997	Coefficient of risk (1.0s)
PGA	0.896	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.896	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.525	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.572	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.944	Factored deterministic acceleration value (0.2s)
S1RT	0.903	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.906	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.056	Factored deterministic acceleration value (1.0s)
PGAd	1.128	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 17705 Heron Lane

Coordinates: 34.39691, -118.444505

Elevation: 1770 ft

Timestamp: 2021-03-05T04:35:15.866Z

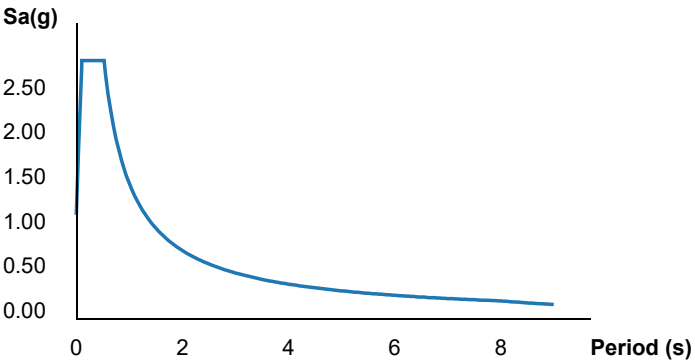
Hazard Type: Seismic

Reference Document: ASCE7-10

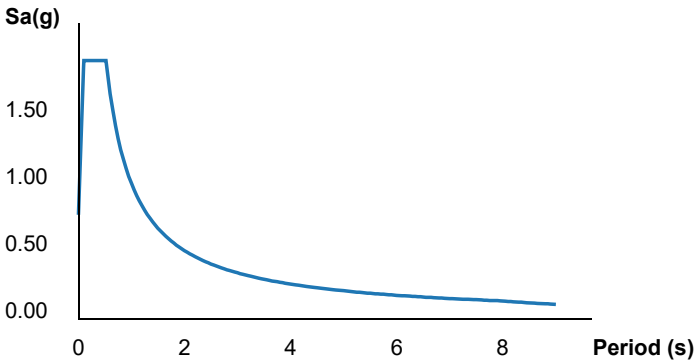
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.881	MCE_R ground motion (period=0.2s)
S_1	1.004	MCE_R ground motion (period=1.0s)
S_{MS}	2.881	Site-modified spectral acceleration value
S_{M1}	1.505	Site-modified spectral acceleration value
S_{DS}	1.921	Numeric seismic design value at 0.2s SA
S_{D1}	1.004	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.947	Coefficient of risk (0.2s)

CR_1	0.965	Coefficient of risk (1.0s)
PGA	1.064	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.064	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.881	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.044	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.024	Factored deterministic acceleration value (0.2s)
S1RT	1.004	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.04	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.217	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.45456, -118.39626

Elevation: 2103 ft

Timestamp: 2021-03-05T04:18:31.170Z

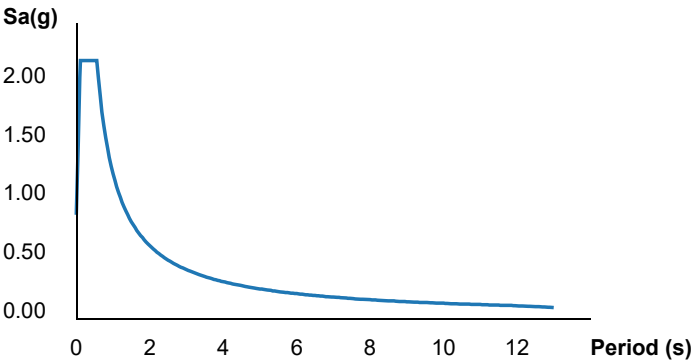
Hazard Type: Seismic

Reference Document: ASCE7-10

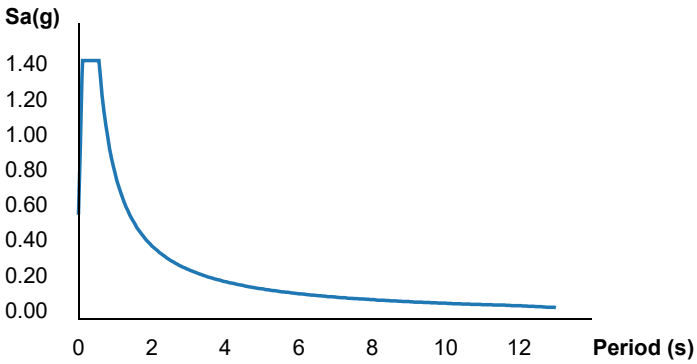
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.191	MCE_R ground motion (period=0.2s)
S_1	0.818	MCE_R ground motion (period=1.0s)
S_{MS}	2.191	Site-modified spectral acceleration value
S_{M1}	1.227	Site-modified spectral acceleration value
S_{DS}	1.461	Numeric seismic design value at 0.2s SA
S_{D1}	0.818	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.019	Coefficient of risk (0.2s)

CR_1	1.022	Coefficient of risk (1.0s)
PGA	0.767	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.767	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.191	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.151	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.366	Factored deterministic acceleration value (0.2s)
S1RT	0.818	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.801	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.819	Factored deterministic acceleration value (1.0s)
PGAd	0.879	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.43109, -118.49236

Elevation: 1512 ft

Timestamp: 2021-03-05T04:31:17.511Z

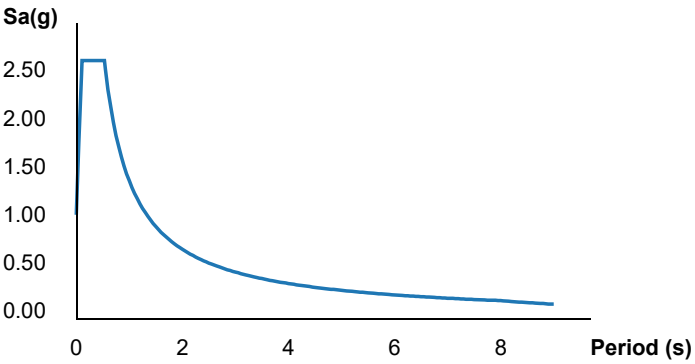
Hazard Type: Seismic

Reference Document: ASCE7-10

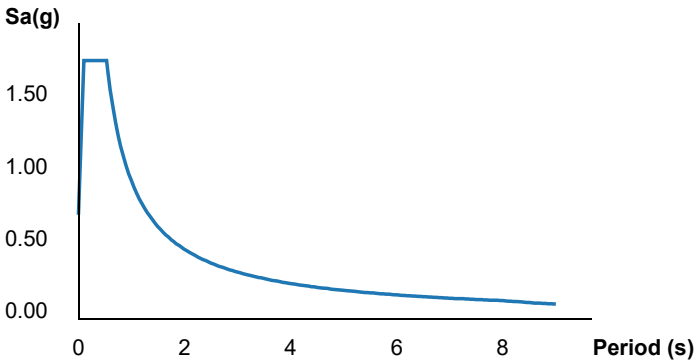
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.672	MCE_R ground motion (period=0.2s)
S_1	0.947	MCE_R ground motion (period=1.0s)
S_{MS}	2.672	Site-modified spectral acceleration value
S_{M1}	1.421	Site-modified spectral acceleration value
S_{DS}	1.781	Numeric seismic design value at 0.2s SA
S_{D1}	0.947	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.971	Coefficient of risk (0.2s)

CR_1	0.986	Coefficient of risk (1.0s)
PGA	0.961	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.961	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.672	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.752	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.01	Factored deterministic acceleration value (0.2s)
S1RT	0.947	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.96	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.163	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

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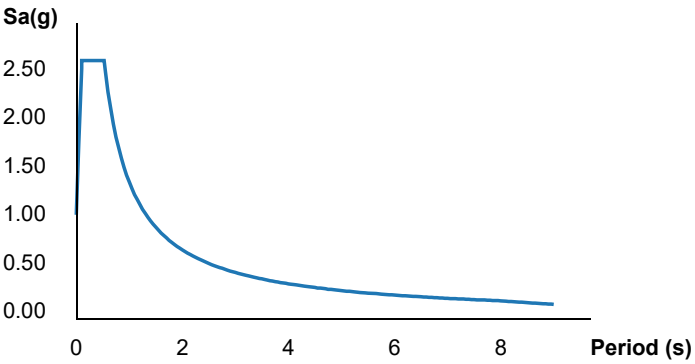
Hazards by Location

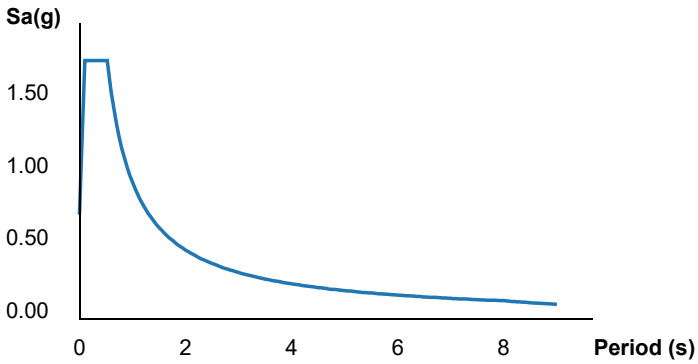
Search Information

Address:	Live Oak Springs Cyn Rd
Coordinates:	34.40035, -118.39916
Elevation:	1949 ft
Timestamp:	2021-03-05T04:43:11.961Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.653	MCE_R ground motion (period=0.2s)
S_1	0.932	MCE_R ground motion (period=1.0s)
S_{MS}	2.653	Site-modified spectral acceleration value
S_{M1}	1.399	Site-modified spectral acceleration value
S_{DS}	1.769	Numeric seismic design value at 0.2s SA
S_{D1}	0.932	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.954	Coefficient of risk (0.2s)

CR_1	0.976	Coefficient of risk (1.0s)
PGA	0.977	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.977	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.653	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.782	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.986	Factored deterministic acceleration value (0.2s)
S1RT	0.932	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.955	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.115	Factored deterministic acceleration value (1.0s)
PGAd	1.154	Factored deterministic acceleration value (PGA)

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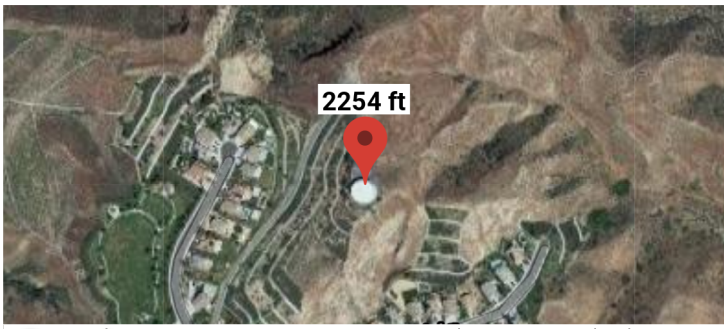
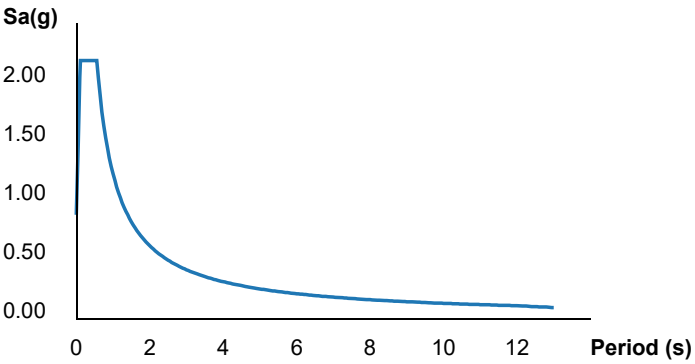
Hazards by Location

Search Information

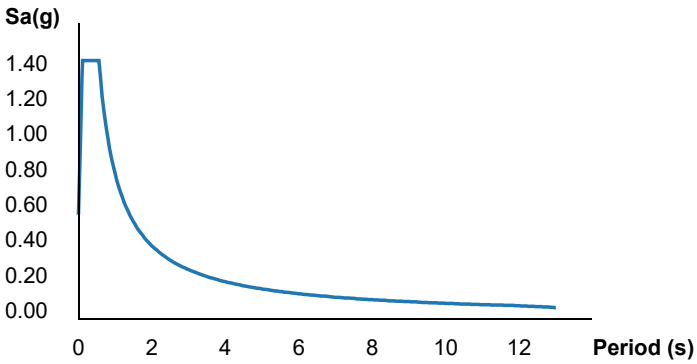
Address:	N Pine St, Orange, CA, USA
Coordinates:	34.44763, -118.38085
Elevation:	2254 ft
Timestamp:	2021-03-05T04:19:35.515Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.184	MCE_R ground motion (period=0.2s)
S_1	0.815	MCE_R ground motion (period=1.0s)
S_{MS}	2.184	Site-modified spectral acceleration value
S_{M1}	1.222	Site-modified spectral acceleration value
S_{DS}	1.456	Numeric seismic design value at 0.2s SA
S_{D1}	0.815	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.021	Coefficient of risk (0.2s)

CR_1	1.022	Coefficient of risk (1.0s)
PGA	0.763	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.763	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.184	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.14	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.384	Factored deterministic acceleration value (0.2s)
S1RT	0.815	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.798	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.825	Factored deterministic acceleration value (1.0s)
PGAd	0.885	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.44483, -118.40689

Elevation: 2051 ft

Timestamp: 2021-03-05T04:20:38.580Z

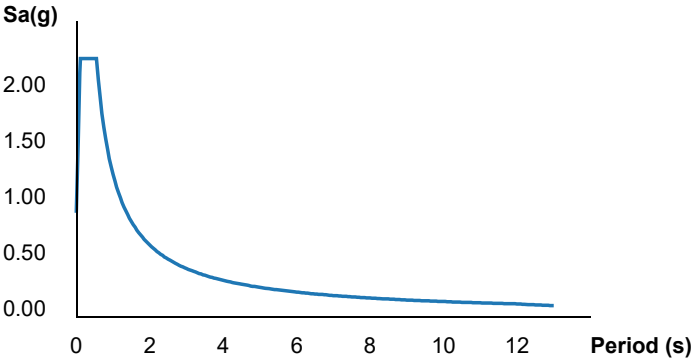
Hazard Type: Seismic

Reference Document: ASCE7-10

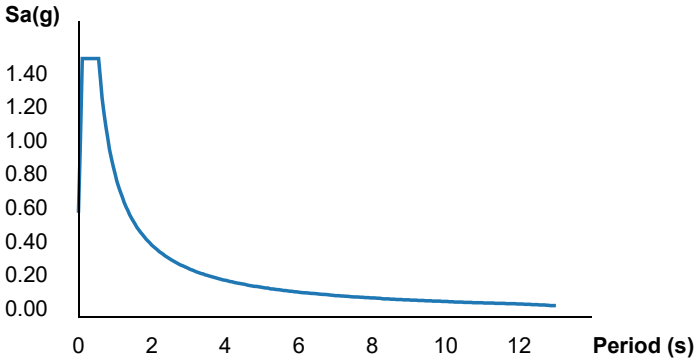
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.297	MCE_R ground motion (period=0.2s)
S_1	0.842	MCE_R ground motion (period=1.0s)
S_{MS}	2.297	Site-modified spectral acceleration value
S_{M1}	1.263	Site-modified spectral acceleration value
S_{DS}	1.531	Numeric seismic design value at 0.2s SA
S_{D1}	0.842	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.004	Coefficient of risk (0.2s)

CR_1	1.014	Coefficient of risk (1.0s)
PGA	0.81	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.81	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.297	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.288	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.705	Factored deterministic acceleration value (0.2s)
S1RT	0.842	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.831	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.925	Factored deterministic acceleration value (1.0s)
PGAd	1.015	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Oakl Crest Dr

Coordinates: 34.38585, -118.45845

Elevation: 1960 ft

Timestamp: 2021-03-05T04:47:45.298Z

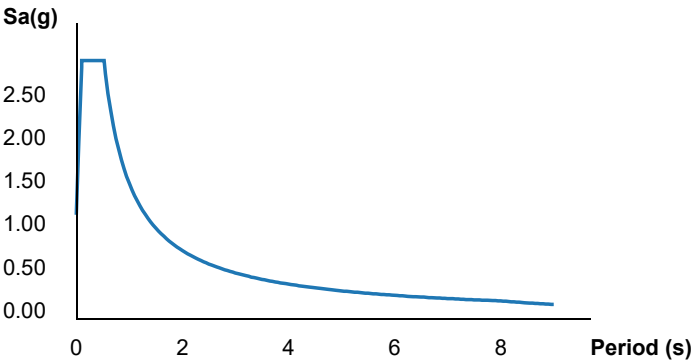
Hazard Type: Seismic

Reference Document: ASCE7-10

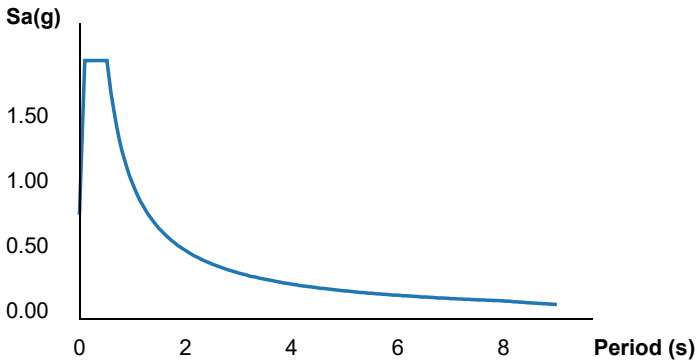
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.973	MCE_R ground motion (period=0.2s)
S_1	1.035	MCE_R ground motion (period=1.0s)
S_{MS}	2.973	Site-modified spectral acceleration value
S_{M1}	1.553	Site-modified spectral acceleration value
S_{DS}	1.982	Numeric seismic design value at 0.2s SA
S_{D1}	1.035	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.941	Coefficient of risk (0.2s)

CR_1	0.96	Coefficient of risk (1.0s)
PGA	1.105	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.105	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.973	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.159	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.997	Factored deterministic acceleration value (0.2s)
S1RT	1.035	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.078	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.244	Factored deterministic acceleration value (1.0s)
PGAd	1.14	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 18501 Olympian Ct

Coordinates: 34.42394, -118.45715

Elevation: 1749 ft

Timestamp: 2021-03-05T04:33:12.331Z

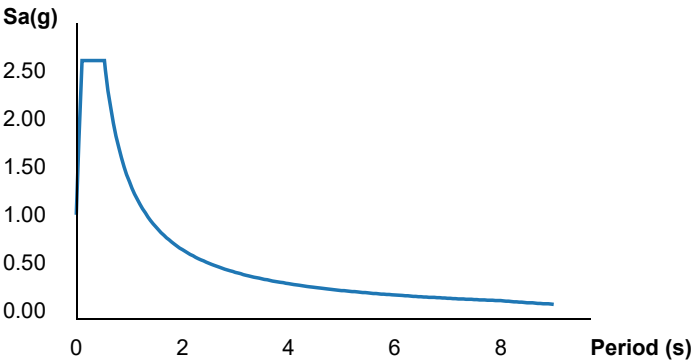
Hazard Type: Seismic

Reference Document: ASCE7-10

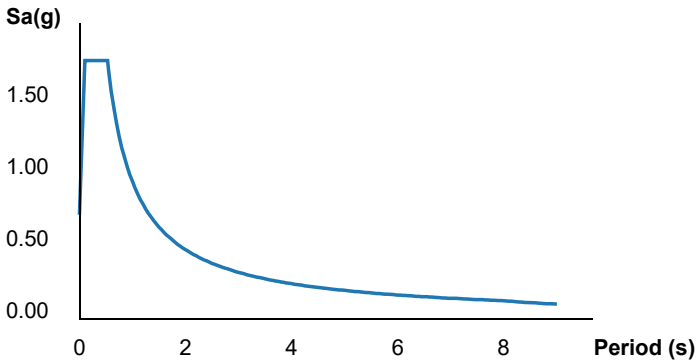
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.686	MCE_R ground motion (period=0.2s)
S_1	0.948	MCE_R ground motion (period=1.0s)
S_{MS}	2.686	Site-modified spectral acceleration value
S_{M1}	1.422	Site-modified spectral acceleration value
S_{DS}	1.791	Numeric seismic design value at 0.2s SA
S_{D1}	0.948	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.967	Coefficient of risk (0.2s)

CR_1	0.984	Coefficient of risk (1.0s)
PGA	0.969	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.969	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.686	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.779	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.983	Factored deterministic acceleration value (0.2s)
S1RT	0.948	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.964	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.109	Factored deterministic acceleration value (1.0s)
PGAd	1.152	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.44958, -118.52516

Elevation: 1616 ft

Timestamp: 2021-03-05T04:23:39.915Z

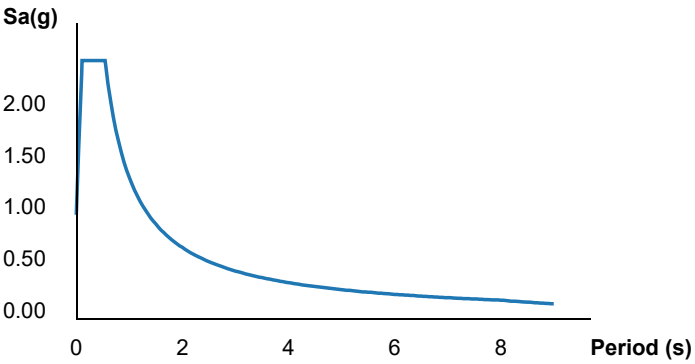
Hazard Type: Seismic

Reference Document: ASCE7-10

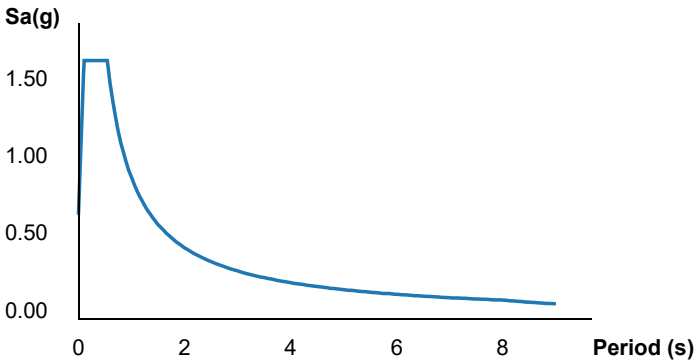
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.489	MCE_R ground motion (period=0.2s)
S_1	0.905	MCE_R ground motion (period=1.0s)
S_{MS}	2.489	Site-modified spectral acceleration value
S_{M1}	1.357	Site-modified spectral acceleration value
S_{DS}	1.659	Numeric seismic design value at 0.2s SA
S_{D1}	0.905	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.99	Coefficient of risk (0.2s)

CR_1	0.998	Coefficient of risk (1.0s)
PGA	0.88	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.88	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.489	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.514	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.011	Factored deterministic acceleration value (0.2s)
S1RT	0.905	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.906	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.165	Factored deterministic acceleration value (1.0s)
PGAd	1.169	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Pacerita Canyon Rd

Coordinates: 34.37487, -118.42567

Elevation: 2046 ft

Timestamp: 2021-03-05T04:40:52.877Z

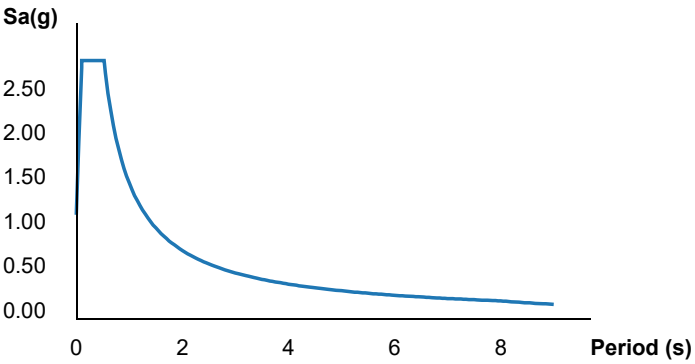
Hazard Type: Seismic

Reference Document: ASCE7-10

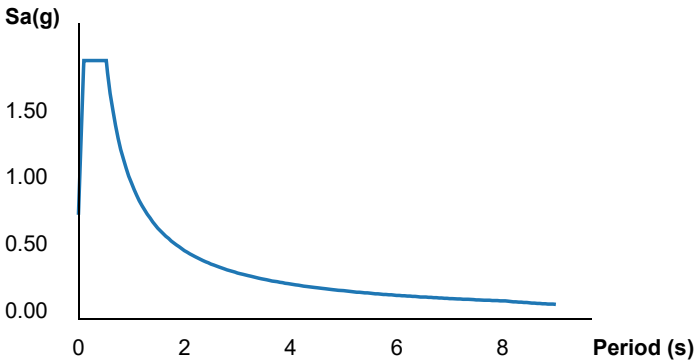
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.892	MCE_R ground motion (period=0.2s)
S_1	1.009	MCE_R ground motion (period=1.0s)
S_{MS}	2.892	Site-modified spectral acceleration value
S_{M1}	1.513	Site-modified spectral acceleration value
S_{DS}	1.928	Numeric seismic design value at 0.2s SA
S_{D1}	1.009	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.94	Coefficient of risk (0.2s)

CR_1	0.961	Coefficient of risk (1.0s)
PGA	1.081	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.081	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.892	Probabilistic risk-targeted ground motion (0.2s)
SsUH	3.075	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.251	Factored deterministic acceleration value (0.2s)
S1RT	1.009	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.05	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.261	Factored deterministic acceleration value (1.0s)
PGAd	1.189	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.44275, -118.39835

Elevation: 1873 ft

Timestamp: 2021-03-05T04:16:40.927Z

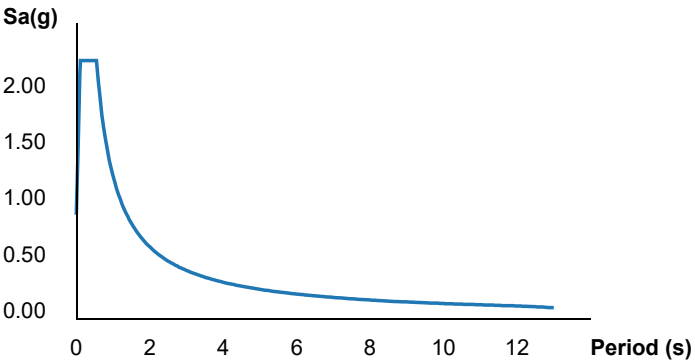
Hazard Type: Seismic

Reference Document: ASCE7-10

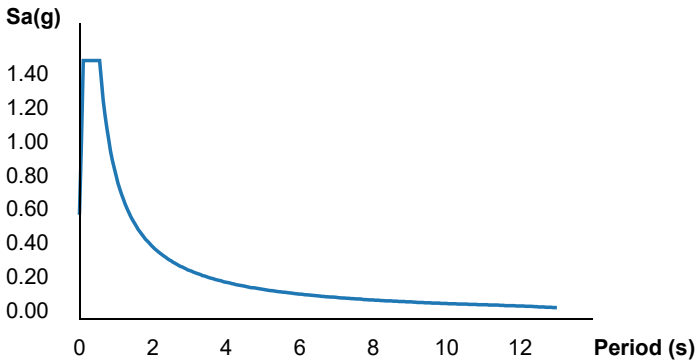
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.283	MCE_R ground motion (period=0.2s)
S_1	0.839	MCE_R ground motion (period=1.0s)
S_{MS}	2.283	Site-modified spectral acceleration value
S_{M1}	1.258	Site-modified spectral acceleration value
S_{DS}	1.522	Numeric seismic design value at 0.2s SA
S_{D1}	0.839	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.005	Coefficient of risk (0.2s)

CR_1	1.015	Coefficient of risk (1.0s)
PGA	0.806	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.806	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.283	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.272	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.694	Factored deterministic acceleration value (0.2s)
S1RT	0.839	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.827	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.92	Factored deterministic acceleration value (1.0s)
PGAd	1.01	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.51084, -118.5387

Elevation: 1484 ft

Timestamp: 2021-03-05T04:11:44.365Z

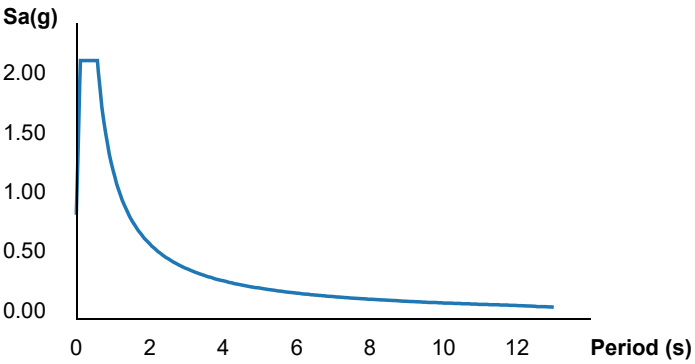
Hazard Type: Seismic

Reference Document: ASCE7-10

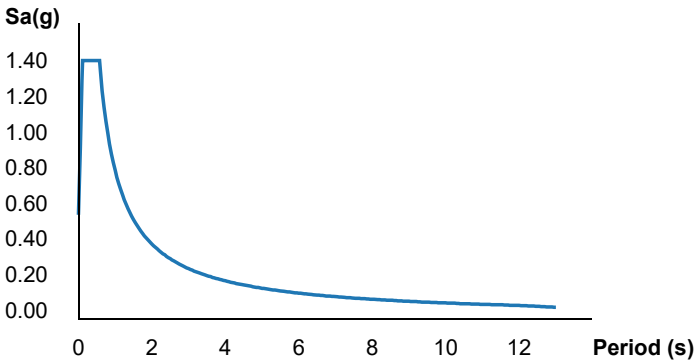
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.164	MCE_R ground motion (period=0.2s)
S_1	0.827	MCE_R ground motion (period=1.0s)
S_{MS}	2.164	Site-modified spectral acceleration value
S_{M1}	1.24	Site-modified spectral acceleration value
S_{DS}	1.442	Numeric seismic design value at 0.2s SA
S_{D1}	0.827	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.039	Coefficient of risk (0.2s)

CR_1	1.024	Coefficient of risk (1.0s)
PGA	0.758	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.758	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	2.164	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.082	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.86	Factored deterministic acceleration value (0.2s)
S1RT	0.827	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.807	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.988	Factored deterministic acceleration value (1.0s)
PGAd	1.084	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Coordinates: 34.428466, -118.515572

Elevation: 1431 ft

Timestamp: 2021-03-29T18:31:04.138Z

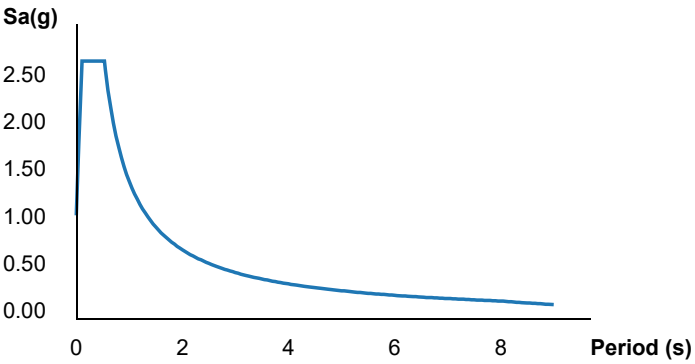
Hazard Type: Seismic

Reference Document: ASCE7-10

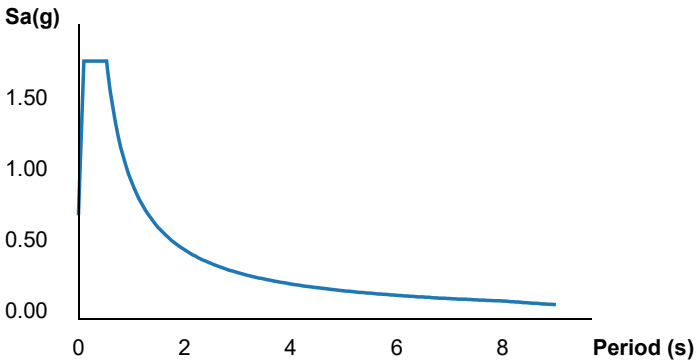
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.716	MCE_R ground motion (period=0.2s)
S_1	0.961	MCE_R ground motion (period=1.0s)
S_{MS}	2.716	Site-modified spectral acceleration value
S_{M1}	1.442	Site-modified spectral acceleration value
S_{DS}	1.811	Numeric seismic design value at 0.2s SA
S_{D1}	0.961	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.969	Coefficient of risk (0.2s)
CR_1	0.983	Coefficient of risk (1.0s)

PGA	0.981	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.981	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.716	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.805	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.017	Factored deterministic acceleration value (0.2s)
S1RT	0.961	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.978	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.232	Factored deterministic acceleration value (1.0s)
PGAd	1.175	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: 27200 Sand Canyon Rd

Coordinates: 34.40309, -118.41687

Elevation: 1752 ft

Timestamp: 2021-03-05T04:36:33.700Z

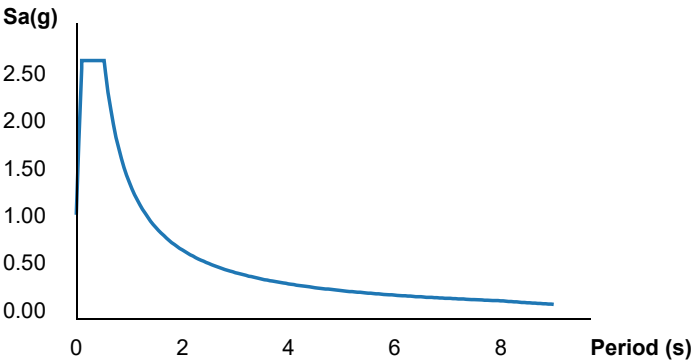
Hazard Type: Seismic

Reference Document: ASCE7-10

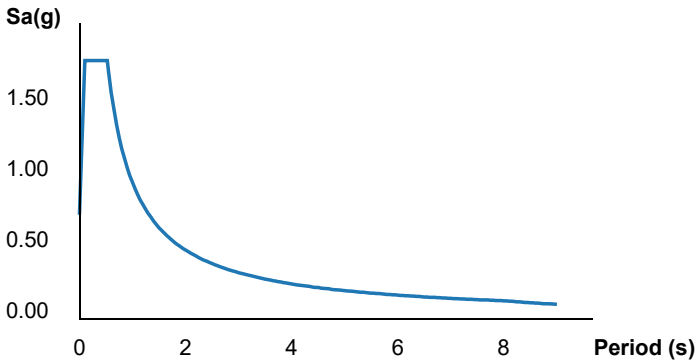
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.713	MCE_R ground motion (period=0.2s)
S_1	0.952	MCE_R ground motion (period=1.0s)
S_{MS}	2.713	Site-modified spectral acceleration value
S_{M1}	1.428	Site-modified spectral acceleration value
S_{DS}	1.809	Numeric seismic design value at 0.2s SA
S_{D1}	0.952	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.954	Coefficient of risk (0.2s)

CR_1	0.975	Coefficient of risk (1.0s)
PGA	0.997	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.997	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.713	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.843	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.996	Factored deterministic acceleration value (0.2s)
S1RT	0.952	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.977	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.133	Factored deterministic acceleration value (1.0s)
PGAd	1.16	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.4551, -118.48029

Elevation: 1823 ft

Timestamp: 2021-03-05T04:30:20.539Z

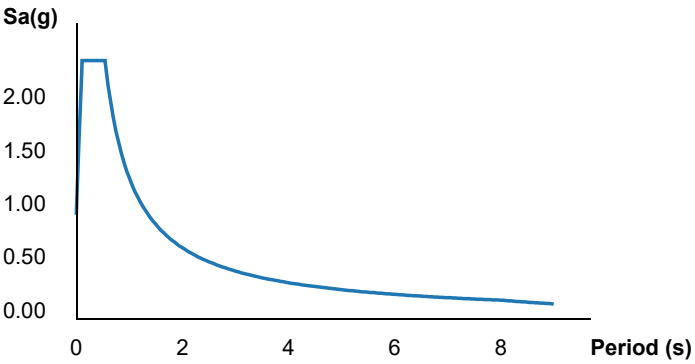
Hazard Type: Seismic

Reference Document: ASCE7-10

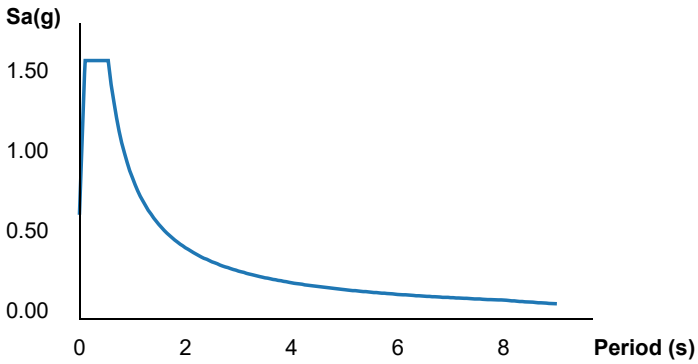
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.408	MCE_R ground motion (period=0.2s)
S_1	0.873	MCE_R ground motion (period=1.0s)
S_{MS}	2.408	Site-modified spectral acceleration value
S_{M1}	1.309	Site-modified spectral acceleration value
S_{DS}	1.605	Numeric seismic design value at 0.2s SA
S_{D1}	0.873	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.996	Coefficient of risk (0.2s)

CR_1	1.006	Coefficient of risk (1.0s)
PGA	0.846	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.846	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.408	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.418	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.917	Factored deterministic acceleration value (0.2s)
S1RT	0.873	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.867	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.031	Factored deterministic acceleration value (1.0s)
PGAd	1.114	Factored deterministic acceleration value (PGA)

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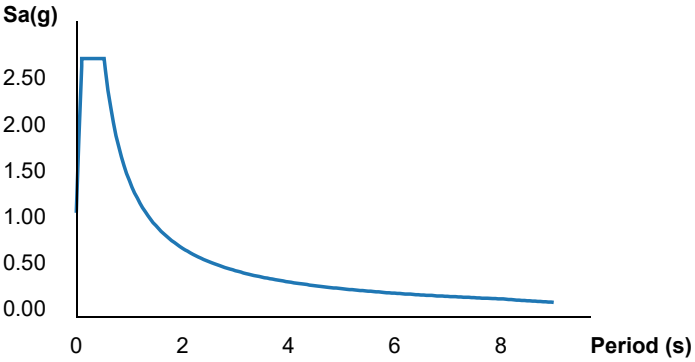
Hazards by Location

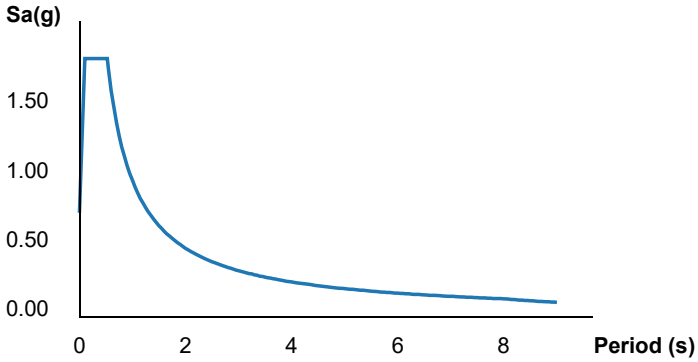
Search Information

Address:	21575 Deputy Jakes Way
Coordinates:	34.4115746, -118.4497603
Elevation:	1447 ft
Timestamp:	2021-03-04T20:28:23.975Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.788	MCE_R ground motion (period=0.2s)
S_1	0.977	MCE_R ground motion (period=1.0s)
S_{MS}	2.788	Site-modified spectral acceleration value
S_{M1}	1.465	Site-modified spectral acceleration value
S_{DS}	1.859	Numeric seismic design value at 0.2s SA
S_{D1}	0.977	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.957	Coefficient of risk (0.2s)

CR_1	0.974	Coefficient of risk (1.0s)
PGA	1.017	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.017	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.788	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.914	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.006	Factored deterministic acceleration value (0.2s)
S1RT	0.977	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.002	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.156	Factored deterministic acceleration value (1.0s)
PGAd	1.167	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: N Pine St, Orange, CA, USA

Coordinates: 34.43882, -118.47974

Elevation: 1825 ft

Timestamp: 2021-03-05T04:27:56.668Z

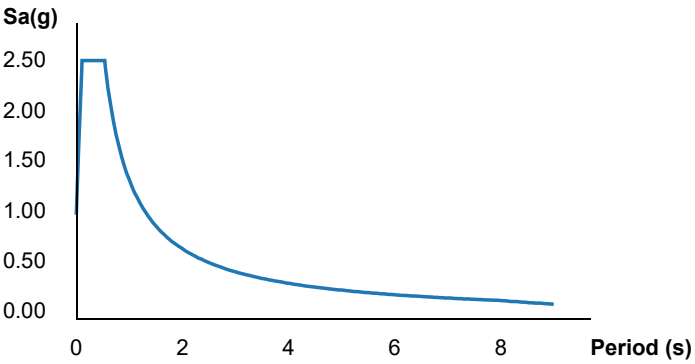
Hazard Type: Seismic

Reference Document: ASCE7-10

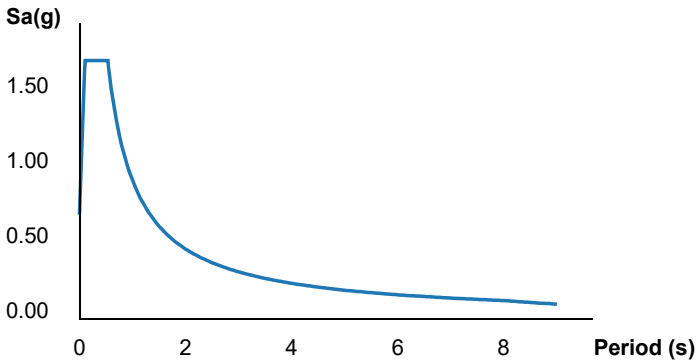
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.566	MCE_R ground motion (period=0.2s)
S_1	0.916	MCE_R ground motion (period=1.0s)
S_{MS}	2.566	Site-modified spectral acceleration value
S_{M1}	1.374	Site-modified spectral acceleration value
S_{DS}	1.711	Numeric seismic design value at 0.2s SA
S_{D1}	0.916	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.979	Coefficient of risk (0.2s)

CR_1	0.994	Coefficient of risk (1.0s)
PGA	0.914	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.914	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.566	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.621	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.978	Factored deterministic acceleration value (0.2s)
S1RT	0.916	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.921	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.096	Factored deterministic acceleration value (1.0s)
PGAd	1.148	Factored deterministic acceleration value (PGA)

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Hazards by Location

Search Information

Address: Winterdale dr

Coordinates: 34.43161, -118.43327

Elevation: 1963 ft

Timestamp: 2021-03-05T04:39:19.511Z

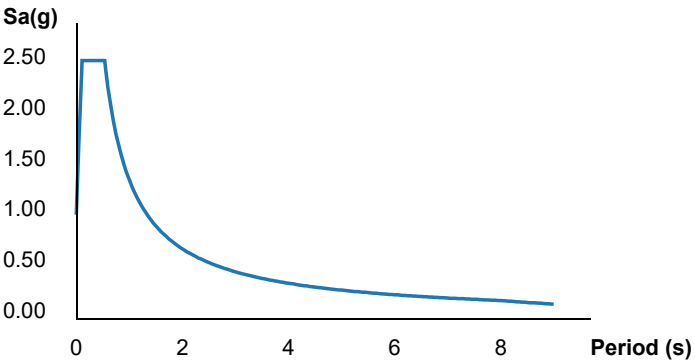
Hazard Type: Seismic

Reference Document: ASCE7-10

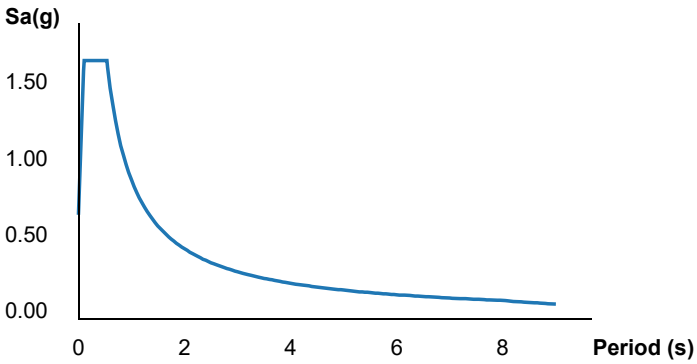
Risk Category: III

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.53	MCE_R ground motion (period=0.2s)
S_1	0.903	MCE_R ground motion (period=1.0s)
S_{MS}	2.53	Site-modified spectral acceleration value
S_{M1}	1.355	Site-modified spectral acceleration value
S_{DS}	1.686	Numeric seismic design value at 0.2s SA
S_{D1}	0.903	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	0.98	Coefficient of risk (0.2s)

CR_1	0.995	Coefficient of risk (1.0s)
PGA	0.904	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.904	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.582	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.915	Factored deterministic acceleration value (0.2s)
S1RT	0.903	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.908	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.031	Factored deterministic acceleration value (1.0s)
PGAd	1.113	Factored deterministic acceleration value (PGA)

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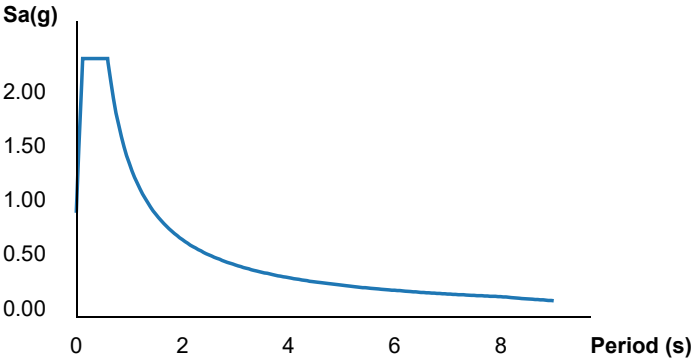
Hazards by Location

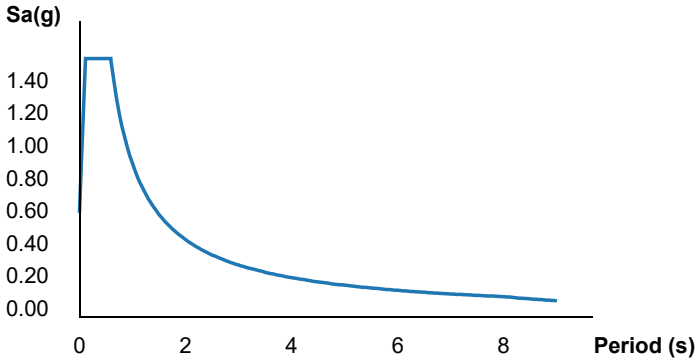
Search Information

Address:	Yucca Place
Coordinates:	34.4753, -118.62553
Elevation:	1422 ft
Timestamp:	2021-03-05T05:06:07.895Z
Hazard Type:	Seismic
Reference Document:	ASCE7-10
Risk Category:	III
Site Class:	D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.366	MCE_R ground motion (period=0.2s)
S_1	0.933	MCE_R ground motion (period=1.0s)
S_{MS}	2.366	Site-modified spectral acceleration value
S_{M1}	1.4	Site-modified spectral acceleration value
S_{DS}	1.577	Numeric seismic design value at 0.2s SA
S_{D1}	0.933	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s
CR_S	1.006	Coefficient of risk (0.2s)

CR_1	1.005	Coefficient of risk (1.0s)
PGA	0.889	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.889	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.548	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.533	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.366	Factored deterministic acceleration value (0.2s)
S1RT	0.933	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.929	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.992	Factored deterministic acceleration value (1.0s)
PGAd	0.91	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

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