

LIBERTY UTILITIES - APPLE VALLEY



JUNE 2021

FINAL DRAFT

2020 URBAN WATER MANAGEMENT PLAN



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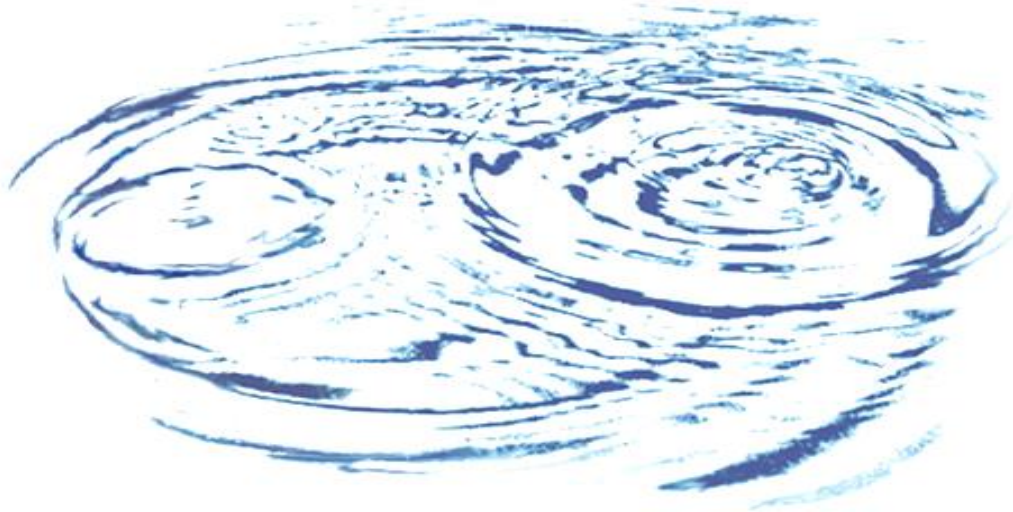
FINAL DRAFT



Liberty Utilities – Apple Valley

2020

Urban Water Management Plan



JUNE 2021



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LIST OF ACRONYMS

AB	Assembly Bill
AF	Acre-Feet
AFY	Acre-Feet per Year
AMR	Automatic Meter Reading
Annual Assessment	Annual Water Supply and Demand Assessment
AWAC	Alliance for Water Awareness and Conservation
AWWA	American Water Works Association
BAP	Base Annual Production
CY	Calendar Year
CIMIS	California Irrigation Management Information System
CPUC	California Public Utilities Commission
CWC	California Water Code
DAC	Disadvantaged Communities
Delta	Sacramento- San Joaquin Delta
DOF	California Department of Finance
DMM	Demand Management Measures
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
ERP	Emergency Response Plan
ETo	Evapotranspiration
FEMA	Federal Emergency Management Agency
FPA	Free Production Allowance
FY	Fiscal Year
GCM	General Circulation Models
GPCD	Gallons per Capita per Day
GIS	Geographical Information Systems
GSP	Groundwater Sustainability Plan
IRWM	MWA's Integrated Regional Water Management Plan
Judgment	Mojave Basin Area 1996 Adjudication
JPA	Joint Exercise of Powers Agreement
kWh	Kilowatt Hours
Liberty Utilities - Apple Valley	Liberty Utilities (Apple Valley Ranchos Water) Corp.
MAF	Million Acre- Feet
MCBA	CPUC Modified Cost Balancing Account
MGD	Million gallons per day
MWA	Mojave Water Agency
NAICS	North American Industry Classification System
Plan	Urban Water Management Plan
PSY	Production Safe Yield

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RCP	Representative Concentration Pathway
RRA	Risk and Resilience Assessment
SB	Senate Bill
SB X7-7	The Water Conservation Act of 2009
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act of 2014
SWRCB-DDW	State Water Resources Control Board - Division of Drinking Water
SWP	State Water Project
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VVWRA	Victor Valley Wastewater Reclamation Authority
Water Code	California Water Code
WRAM	CPUC Water Revenue Adjustment Mechanism
WRCC	Western Regional Climate Center
WSCP	Water Shortage Contingency Plan
WSAP	Water Supply Allocation Plan
WUE	Water Use Efficiency

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CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

LAY DESCRIPTION - INTRODUCTION

An urban water supplier is defined (pursuant to Section 10617 of the California Water Code¹) as “a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.”

Liberty Utilities (Apple Valley Ranchos Water) Corp. (also referred to as Liberty Utilities or Liberty Utilities – Apple Valley within this Urban Water Management Plan) is classified as an urban water supplier because it serves more than 3,000 customers (i.e. individual metered accounts) and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes.

In accordance with the “Urban Water Management Planning Act”, which was enacted by the California Legislature in 1983, every urban water supplier (including Liberty Utilities) is required to prepare and adopt an Urban Water Management Plan (UWMP), periodically review its UWMP, and incorporate updated and new information into an updated UWMP at least once every five years.

Liberty Utilities’ most recent update was its 2015 UWMP (or 2015 Plan) which was submitted to, and approved by, the California Department of Water Resources

1 References to CWC Sections in this 2020 UWMP were obtained from <https://leginfo.ca.gov/>

(DWR). Urban water suppliers (including Liberty Utilities) are required to complete and submit their 2020 UWMPs to DWR by July 1st, 2021.

The current requirements for preparing the UWMP are included in California Water Code (CWC) Sections 10608 through 10657. Liberty Utilities' 2020 UWMP (or 2020 Plan) was prepared consistent with the CWC and the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021.

The UWMP provides urban water suppliers (including Liberty Utilities) with a reliable management action plan for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs. In addition, the 2020 UWMP incorporates water supply reliability determinations resulting from potential prolonged drought, regulatory revisions, and/or changing climatic conditions.

Liberty Utilities' 2020 Plan consists of the following Chapters:

- Chapter 1 Urban Water Management Plan Introduction and Overview
- Chapter 2 Plan Preparation
- Chapter 3 System Description
- Chapter 4 Water Use Characterization
- Chapter 5 SB X7-7 Baselines, Targets, and 2020 Compliance
- Chapter 6 Water Supply Characterization
- Chapter 7 Water Service Reliability and Drought Risk Assessment
- Chapter 8 Water Shortage Contingency Plan
- Chapter 9 Demand Management Measures
- Chapter 10 Plan Adoption, Submittal, and Implementation

A lay description is presented at the beginning of each of these Chapters.

LAY DESCRIPTION – CHAPTER 1**URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW**

Chapter 1 (Urban Water Management Plan Introduction and Overview) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- An overall lay description of the 2020 Plan, including California Water Code and Urban Water Management Plan Act requirements, is provided. Liberty Utilities is required to prepare an Urban Water Management Plan.
- Liberty Utilities’ 2020 Plan was prepared consistent with the recommended organization provided in DWR’s Final “Urban Water Management Plan Guidebook 2020”, dated March 2021. A description regarding the organization of the 2020 Plan, including a summary of each Chapter, is provided. Liberty Utilities’ Water Shortage Contingency Plan (discussed in Chapter 8) is also included in the 2020 Plan.
- The 2020 Plan incorporates DWR’s water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. These tables are included within the respective sections of the 2020 Plan and in Appendix A.
- Liberty Utilities’ coordination efforts with other planning agencies are discussed, including coordination efforts with Mojave Water Agency and the Southern California Association of Governments
- Liberty Utilities’ eligibility to receive grants and loans administered by the State of California and/or DWR, as a result of preparing the 2020 Plan, is discussed.
- Information is discussed which demonstrates Liberty Utilities’ prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta. Liberty Utilities has reduced its reliance on the imported water supplies for Calendar Year 2014 and Calendar

Year 2019. In addition, Liberty Utilities is projected to continue reducing its reliance on imported water supplies through Calendar Year 2045.

- The checklist developed by DWR and used by Liberty Utilities to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix C.

1.1 RECOMMENDED UWMP ORGANIZATION

Liberty Utilities' 2020 UWMP (2020 Plan) was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021. Liberty Utilities' 2020 Plan consists of the following Chapters:

Chapter 1	Urban Water Management Plan Introduction and Overview
Chapter 2	Plan Preparation
Chapter 3	System Description
Chapter 4	Water Use Characterization
Chapter 5	SB X7-7 Baselines, Targets, and 2020 Compliance
Chapter 6	Water Supply Characterization
Chapter 7	Water Service Reliability and Drought Risk Assessment
Chapter 8	Water Shortage Contingency Plan
Chapter 9	Demand Management Measures
Chapter 10	Plan Adoption, Submittal, and Implementation

Pursuant to CWC requirements, Liberty Utilities' 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. DWR's standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. Liberty Utilities also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool.

Liberty Utilities' 2020 Plan also provides supporting documents (appendices) including notification letters of the Plan update, public notice of the Plan hearing, and adoption resolution from Liberty Utilities' governing body. Further discussions regarding these supporting documents are provided within the individual Chapters of Liberty Utilities' 2020 Plan.

1.2 UWMPs IN RELATION TO OTHER EFFORTS

Liberty Utilities' 2020 Plan was prepared in coordination with planning agencies including the San Bernardino County Department of Regional Planning and the Southern California Association of Governments (SCAG). In addition, Liberty Utilities' 2020 Plan was prepared using management documents including the County of San Bernardino's 2017 "Multi-Jurisdictional Hazard Mitigation Plan."

Liberty Utilities is a sub-agency of Mojave Water Agency (MWA), a wholesale water agency. MWA prepared a 2020 Plan which is incorporated by reference in Liberty Utilities' 2020 Plan. In addition, Liberty Utilities provided its 2020 Plan to MWA which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought conditions over the next 25 years.

1.3 UWMPs AND GRANT OR LOAN ELIGIBILITY

Pursuant to DWR's Final 2020 UWMP Guidebook:

"In order for a Supplier to be eligible for any water grant or loan administered by DWR, the Supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP

may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines. Suppliers are encouraged to seek guidance on the specifics of any state funding source from the respective funding agencies. The following sections of the Water Code are pertinent to Suppliers considering pursuit of grants or loans.”

Liberty Utilities’ 2020 Plan has been prepared to meet eligibility requirements for grants and loans administered by the State and/or DWR.

1.4 DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS

Pursuant to DWR, an urban water supplier that anticipates participating in or receiving water from a proposed project (or “covered action”) such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 UWMPs for use in demonstrating consistency with Delta Plan Policy WR P1, “*Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance*”. In addition, pursuant to California Code of Regulations, Title 23, § 5003:

(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and

projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

Liberty Utilities has reduced its reliance on the imported water supplies for CY 2015 and CY 2020. In addition, Liberty Utilities is projected to continue reducing its reliance on the imported water supplies through CY 2045. A further discussion of Liberty Utilities' measurable reduction in imported water reliance and improvement in regional self-reliance has been prepared by MWA and is included in MWA's 2020 Regional UWMP and is provided in Appendix B.

1.5 TIPS FOR UWMP PREPARERS

Liberty Utilities' 2020 Plan (which includes Liberty Utilities' 2020 Water Shortage Contingency Plan (WSCP)) is considered an update to Liberty Utilities' 2015 Plan. However, the 2020 Plan and the WSCP are considered stand-alone documents. As discussed in Section 1.1, Liberty Utilities' 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final 2020 UWMP Guidebook.

A checklist of specific UWMP requirements is included in Appendix C. The checklist includes the page number where the required elements are addressed to assist in DWR's review of the submitted Plan.

CHAPTER 2

PLAN PREPARATION

LAY DESCRIPTION – CHAPTER 2

PLAN PREPARATION

Chapter 2 (Plan Preparation) of Liberty Utilities - Apple Valley's 2020 Plan discusses and provides the following:

- The basis for preparing an Urban Water Management Plan is provided. Liberty Utilities is required to prepare the 2020 Plan because it is an “urban water supplier” (Liberty Utilities serves more than 3,000 customers and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes).
- Liberty Utilities is a “Public Water System” and is regulated by the State Water Resources Control Board - Division of Drinking Water. Liberty Utilities’ Public Water System number is provided in Table 2-1.
- Liberty Utilities’ Plan has been prepared as an “individual” plan rather than a “regional” plan in an effort to provide information specific to Liberty Utilities to best inform its employees, management and customers.
- Information presented in Liberty Utilities’ 2020 Plan is provided on “calendar year” basis which is from January through December 31, 2020.
- Water quantities presented in Liberty Utilities’ 2020 Plan are provided on an “acre-foot” basis.
- Liberty Utilities’ coordination and outreach efforts with wholesale water agencies, other retail water agencies, and the community are described. Liberty Utilities coordinated the preparation of its 2020 Plan with the Golden State Water

Company, MWA, SWRCB – DDW, the Town of Apple Valley, the City of Victorville, and the County of San Bernardino.

- Liberty Utilities’ notification process to the cities and county within which Liberty Utilities provides water supplies is discussed.

2.1 PLAN PREPARATION

As discussed in Section 1.1, Liberty Utilities’ 2020 Plan was prepared consistent with the recommended organization provided in DWR’s Final 2020 UWMP Guidebook. Pursuant to DWR’s Final 2020 UWMP Guidebook:

“The California Water Code (Water Code) specifies several requirements for preparing a UWMP, including who is required to prepare a UWMP; how to prepare a UWMP, depending on whether the Supplier chooses to participate in a regional or individual planning effort; selection of reporting year-type; and coordination, notification, and outreach.”

Pursuant to CWC requirements, Liberty Utilities’ 2020 Plan incorporates DWR’s water use and supply tables (standardized tables) for the reporting and submittal of UWMP data.

2.2 BASIS FOR PREPARING A PLAN

CWC 10617.

"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CWC 10620.

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10621.

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

Liberty Utilities' 2020 Plan was prepared in accordance with the UWMP Act which was established in 1983. The UWMP Act requires every "urban water supplier" to prepare and adopt a Plan, to periodically review its Plan at least once every five years and make any amendments or changes which are indicated by the review. An "Urban Water Supplier" is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually.

Section 10621(a) of the CWC states, *"Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update"*. As a result, DWR requires the 2020 Plans be submitted by July 1, 2021.

Liberty Utilities is an “urban water supplier” pursuant to Section 10617 of the CWC and directly serves potable water to more than 3,000 customers and supplies more than 3,000 acre-feet per year (AFY) at retail for municipal purposes. Liberty Utilities’ 2020 Plan is an update to Liberty Utilities’ 2015 Plan.

2.2.1 PUBLIC WATER SYSTEMS

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department ... shall include any standardized forms, tables, or displays specified by the department.

California Health and Safety Code 116275.

(h) "Public water system" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Pursuant to CWC requirements, Liberty Utilities’ 2020 Plan incorporates DWR’s standardized tables for the reporting and submittal of UWMP data. The standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. Liberty Utilities also submitted the UWMP data (from the standardized tables) electronically through DWR’s Online Submittal Tool.

In addition, Liberty Utilities is a Public Water System and is regulated by the State Water Resources Control Board - Division of Drinking Water (SWRCB-DDW). The SWRCB-DDW requires water agencies to provide the number of connections, water usage, and other information annually. The information provided to SWRCB-DDW indicates Liberty Utilities serves potable water to more than 3,000 customers and supplies more than 3,000 AFY. Table 2-1 provides Liberty Utilities’ Public Water System name and number.

2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

Liberty Utilities is an investor-owned public utility, meeting the definition of a Public Water System. Liberty Utilities provides water service primarily within the Town of Apple Valley. Liberty Utilities has elected to prepare an individual 2020 Plan for this system. Table 2-1 provides the Liberty Utilities' Public Water System name and number.

Liberty Utilities owns a small, geographically separate water system north of Victorville (Public Water System Number 3600010), with approximately 49 customers. In addition, Liberty Utilities owns a small, geographically separate water system in the Town of Yermo (Public Water System Number 3610118), with approximately 315 customers. Each of these two systems serves less than 3,000 customers and less than 3,000 AFY and are not incorporated in Liberty Utilities – Apple Valley's 2020 Plan.

Table 2-1 Public Water Systems

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
<i>Add additional rows as needed</i>			
CA3610003	Liberty Utilities - Apple Valley	20,957	14,979
TOTAL		20,957	14,979
* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.			
NOTES: Source for "Number of Municipal Connections 2020": https://sdwis.waterboards.ca.gov/PDWW/			

2.3 REGIONAL PLANNING

Liberty Utilities has developed its 2020 Plan reporting solely on its service area to address all requirements of the CWC. Liberty Utilities' 2020 Plan was not developed as a Regional Plan.

2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, Liberty Utilities' 2020 Plan is an "Individual UWMP". Liberty Utilities has developed its 2020 Plan reporting solely on its service area to address all requirements of the CWC, including water use targets and baselines pursuant to SB X7-7 Water Conservation Act of 2009 reporting (discussed further in Chapter 5). Liberty Utilities notified and coordinated with appropriate regional agencies and constituents (See Section 2.6).

Table 2-2 Plan Identification Type

Submittal Table 2-2: Plan Identification		
Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable</i> (select from drop down list)
<input checked="" type="checkbox"/>	Individual UWMP	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/> Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
NOTES:		

2.4.1 REGIONAL UWMP

CWC 10620.

(d)(1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

As indicated in Table 2-2, Liberty Utilities' 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Plan.

2.4.2 REGIONAL ALLIANCE

CWC 10608.20.

(a)(1) ...Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28...

CWC 10608.28.

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

- (1) Through an urban wholesale water supplier.*
- (2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).*
- (3) Through a regional water management group as defined in Section 10537.*
- (4) By an integrated regional water management funding area.*
- (5) By hydrologic region.*
- (6) Through other appropriate geographic scales for which computation methods have been developed by the department.*

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

As indicated in Table 2-2, Liberty Utilities' 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Alliance.

2.5 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

CWC 10608.20.

(a)(1) Urban retail water suppliers...may determine the targets on a fiscal or calendar year basis.

2.5.1 FISCAL OR CALENDAR YEAR

The data provided in Liberty Utilities' 2020 Plan is reported on a calendar year (CY) basis, unless noted otherwise, as shown in Table 2-3. A calendar year begins on January 1st of every year.

Table 2-3 Supplier Identification

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesaler
<input checked="" type="checkbox"/>	Supplier is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables are in calendar years
<input type="checkbox"/>	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
01/01	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.	
NOTES:	

2.5.2 REPORTING COMPLETE 2020 DATA

The data provided in Liberty Utilities' 2020 Plan is provided on a CY basis through December 31, 2020.

2.5.3 UNITS OF MEASURE

As shown in Table 2-3, the data provided in Liberty Utilities' 2020 Plan is reported in units of AF, unless noted otherwise.

2.6 COORDINATION AND OUTREACH

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

2.6.1 WHOLESALE AND RETAIL COORDINATION

Liberty Utilities is a sub-agency of MWA, a wholesale agency. As indicated in Table 2-4, Liberty Utilities has provided its 2020 Plan to MWA which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought conditions over the next 25 years.

Table 2-4 Water Supplier Information Exchange

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
<i>Add additional rows as needed</i>
Mojave Water Agency
NOTES:

2.6.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY

CWC 10620.

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan...

Liberty Utilities is a retail water supplier that serves customers in the Town of Apple Valley as well as unincorporated areas of San Bernardino County. Liberty Utilities is required to coordinate the preparation of the Plan with appropriate agencies in the area, including appropriate water suppliers that share a common source. Therefore, Liberty Utilities coordinated the preparation of its 2020 Plan with the Golden State Water Company, MWA, SWRCB – DDW, the Town of Apple Valley, the City of Victorville, and the County

of San Bernardino. As discussed in Section 10.2, Liberty Utilities notified these agencies, as well as the cities and county within which Liberty Utilities provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the 2020 Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

2.6.3 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

As discussed in Section 10.2, notification was provided to the cities and county within which Liberty Utilities provides water supplies that Liberty Utilities was reviewing and considering amendments (updates) to the previous 2015 Plan, and as a result preparing the 2020 Plan. Notification was provided at least 60 days prior to the public hearing (see Appendix D).

CHAPTER 3

SYSTEM DESCRIPTION

LAY DESCRIPTION – CHAPTER 3

SYSTEM DESCRIPTION

Chapter 3 (System Description) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- A description of Liberty Utilities’ service area is provided. Liberty Utilities provides water service to residential (single-family and multi-family), commercial, industrial, institutional, and open space customers in the Town of Apple Valley and unincorporated areas of San Bernardino County.
- Liberty Utilities’ water service area encompasses an area of approximately 50 square miles. Liberty Utilities’ service area is generally bordered by the City of Victorville to the east and the City of Hesperia to the southeast. The location of Liberty Utilities’ water service area is provided in Figure 1.
- A description regarding Liberty Utilities’ water service area climate is provided. The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of Liberty Utilities’ service area is summarized. The sources of the climate information are also discussed.
- The population within Liberty Utilities’ water service area is discussed and projected. The sources of the population information are also discussed. Liberty Utilities provides water service to an area with a current population of 61,444. Liberty Utilities is projected to have a population of 80,334 by Calendar Year 2045.

- A discussion of land use information used by Liberty Utilities to develop the 2020 Plan is provided. Liberty Utilities reviewed the current and projected land uses within its service area. Liberty Utilities also reviewed data provided by the Southern California of Governments, the Department of Finance, and the United States Census Bureau and prepared for counties, cities, and unincorporated areas within Southern California.

3.1 GENERAL DESCRIPTION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

Liberty Utilities is an investor-owned utility created in 1947 by Apple Valley Ranchos Development Company. In 1987, the company was purchased by Park Water Company. In 2016, Apple Valley Ranchos Water Company was purchased by Liberty Utilities (whose parent company is Algonquin Power and Utilities Corp).

Liberty Utilities provides water service to the Town of Apple Valley and unincorporated areas of San Bernardino County. Liberty Utilities' service area encompasses an area of approximately 50 square miles and is located in the "High Desert" region of San Bernardino County. Liberty Utilities' service area is generally bordered by the City of Victorville to the east and the City of Hesperia to the southeast. Figure 1 shows Liberty

Utilities' service area boundaries. The service area consists of residential (single-family and multi-family), commercial, industrial, institutional, and open space land uses.

Liberty Utilities provides domestic water from potable wells within its service area. Liberty Utilities also provides water for agricultural purposes from groundwater wells which are separate from Liberty Utilities' potable water system. All wells are located in the Mojave Basin Area. Groundwater is the only source of water supply for the Liberty Utilities' distribution system.

Liberty Utilities is located within the service area of MWA, a State Water Project (SWP) contractor that serves a portion of the "High Desert" region in the County of San Bernardino. The MWA Board is the Watermaster for the adjudicated Mojave Basin Area.

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, Liberty Utilities' service area covers approximately 50 square miles in the "High Desert" region of San Bernardino County. A service area boundary map is provided on Figure 1. Liberty Utilities' water service area boundary relative to the municipal boundaries of the Cities of Hesperia and Victorville is provided of Figure 2.

Liberty Utilities' service area map was submitted online through DWR's Population Tool in a "KML" file format (i.e. Google Earth format). The KML file was originally created in a Geographical Information Systems (GIS) shape file format and converted into a KML format. To the extent information was available, metadata was included in the KML file (including map projection, contact information, start and end dates for which the map is valid, constraints, attribute table definitions, and digitizing base).

3.3 SERVICE AREA CLIMATE

CWC 10631.

(a) Describe the service area of the supplier, including ... climate...

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration (ETo) in the vicinity of Liberty Utilities' service area is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC) and from DWR's California Irrigation Management Information System (CIMIS).

Service Area Climate Information

Month	Average Temperature (F)	Average Minimum Temperature (F)	Average Maximum Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	44.55	30.14	58.94	0.95	2.22
February	47.79	33.39	62.17	1.01	3.01
March	52.04	37.06	66.98	0.78	4.98
April	58.12	42.01	74.24	0.36	6.48
May	65.18	48.16	82.19	0.11	7.98
June	73.35	54.89	91.81	0.04	9.11
July	79.85	61.47	98.22	0.14	9.53
August	78.95	60.69	97.21	0.19	8.80
September	72.99	54.62	91.35	0.22	6.55
October	62.57	44.91	80.22	0.32	4.52
November	51.21	35.03	67.44	0.48	2.74
December	44.47	29.79	59.22	0.87	2.02
Annual	60.90	44.40	77.38	5.36	67.94

Source:

Historical average monthly precipitation and temperature information was obtained from the Western Regional Climate Center (<http://www.wrcc.dri.edu/>) and is based on data collected from Station 049324 (Victorville Pump Pt) from 1917 through 2015. Historical monthly average ETo information was obtained from the California Irrigation Management Information Systems (<http://www.cimis.water.ca.gov>) and is based on data collected from Station 117 (Victorville).

The historical average rainfall in the vicinity of Liberty Utilities' service area is 5.4 inches. Liberty Utilities' service area has a dry climate where the average minimum monthly temperature reaches approximately 30 degrees Fahrenheit. The warm, dry summers reach average maximum monthly temperatures of approximately 98 degrees Fahrenheit. Although changes in climatic conditions may have an impact (as discussed in Section 4.5), the projected water supply demands will be based on an average year, a single dry year, and a five consecutive year drought conditions, based on historical data and

projected demands. Precipitation within the vicinity of Liberty Utilities' service area is discussed further in Section 7.2.

A discussion of Liberty Utilities' source of supply, how that source may be impacted by climate change, and the proactive actions Liberty Utilities and other local/regional water managers may take to address the potential climate change on water supplies is provided in Section 4.5.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 SERVICE AREA POPULATION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population... The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

Liberty Utilities provides water service to an area with a current population of 61,444. Table 3-1 presents the current and projected population of the area encompassed by Liberty Utilities' service area from CY 2020 to CY 2045. Liberty Utilities is projected to have a population of 80,334 by CY 2045.

A discussion of the methodology used to calculate the current CY 2020 population within Liberty Utilities' service area is provided in Section 5.4 and is consistent with DWR requirements. This current CY 2020 population was used to determine compliance with Liberty Utilities' SB X7-7 water use target for 2020, as discussed in Section 5.5.

Projected populations in Liberty Utilities' service area were based on growth rate projections obtained from data provided by SCAG. The data provided by SCAG was based on their "The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG", dated September 2020, and incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the Department of Finance (DOF) and the U.S. Census Bureau for counties, cities, and unincorporated areas within Southern California.

Table 3-1 Population – Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045(opt)
	61,444	64,828	68,399	72,166	76,141	80,334
NOTES: The DWR Population Tool was used to estimate the 2020 population (See Section 5.4.1). Growth rates obtained from SCAG data were applied to the 2020 population and projected through 2045 (See Section 3.4.1).						

3.4.2 OTHER SOCIAL, ECONOMIC, AND DEMOGRAPHIC FACTORS

CWC 10631.

(a) Describe the service area of the supplier, including... other social, economic, and demographic factors affecting the supplier's water management planning.

No other demographic factors affect Liberty Utilities' water management planning. However, increased population will have an impact on water demand.

3.5 LAND USES WITHIN SERVICE AREA

Liberty Utilities reviewed the current and projected land uses within its service area during the preparation of this 2020 Plan. Information regarding current and projected land uses is included in the Town of Apple Valley's 2009 "General Plan" (incorporated in this Plan by reference). The existing land uses within Liberty Utilities' service area includes residential (single-family and multi-family), commercial, industrial, institutional, agricultural, and open space. The projected land uses within Liberty Utilities' service area are expected to remain similar to the existing land uses. In addition, although mostly built-out, the projected population within Liberty Utilities' service area is anticipated to increase (as discussed in Section 3.4). A discussion of the existing and projected water uses for the individual water use sectors within Liberty Utilities' service area, which includes the different land uses, is provided in Section 4.2. As discussed in Section 2.6, Liberty Utilities coordinated the preparation of the 2020 Plan with the Town of Apple Valley, the County of San Bernardino, and other agencies.

As discussed in Section 3.4, Liberty Utilities obtained data from the SCAG document entitled "The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG", dated September 2020. Projected populations in Liberty Utilities' service area were based on growth rate projections developed by SCAG. The data provided by SCAG incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the DOF and the U.S. Census Bureau for counties, cities, and unincorporated areas within Southern California.

CHAPTER 4

WATER USE CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 4

WATER USE CHARACTERIZATION

Chapter 4 (Water Use Characterization) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- Liberty Utilities provides water service to individual “water use sectors”. These water use sectors include single-family residential, multi-family, commercial, institutional (and governmental), landscape, agricultural, and industrial. Individual descriptions for these water use sectors are provided in Section 4.2.1.
- Liberty Utilities’ total water demands (including potable and non-potable water) over the past 10 years have ranged from 13,515 AFY to 18,230 AFY, with an average of 15,280 AFY. Liberty Utilities currently measures its water use through meter data and billing records.
- Liberty Utilities conducts an annual water loss audit to identify distribution system water losses. Water losses can result from pipeline leaks and inaccurate metering due to faulty meters. Water loss estimates are incorporated into Liberty Utilities’ projected water demands.
- Liberty Utilities’ current and projected water demands are provided in five-year increments over the next 25 years and are provided (through Calendar Year 2045) as shown on Table 4-3.
- Liberty Utilities’ water demand projections incorporate water savings which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water.

- The projected water demands for lower income households are identified and are included in Liberty Utilities' total projected water demands.
- Liberty Utilities' source of water supply and how this source may be impacted by climate change are discussed. The proactive actions Liberty Utilities and other local/regional water managers may take to address the potential climate change impacts on water supplies are also discussed.
- Liberty Utilities will be able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

The CWC requires a description and quantification of water uses within Liberty Utilities' service area, including both non-potable and potable water. Recycled water (non-potable) uses are addressed in Section 6.2.5; however, Liberty Utilities does not serve recycled water, as shown in Table 4-3. Furthermore, Chapter 4 addresses Liberty Utilities' potable water demands.

4.2 PAST, CURRENT, AND PROJECTED WATER USES BY SECTOR

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following...

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

Liberty Utilities' current and projected water demands are provided in five-year increments over the next 25 years (through CY 2045) in Tables 4-1, 4-2, and 4-3. Liberty Utilities' total water demands were projected based on a review of the SB X7-7 calculations which are discussed in Chapter 5 (including the SB X7-7 water use target for 2020), current water use factors based on recent water demands, and the total population projections based on land use trends within Liberty Utilities.

Liberty Utilities provides water service to individual "water use sectors" as identified by the CWC. The water use sectors supplied by Liberty Utilities are discussed in Section 4.2.1. The water use for each of these sectors during CY 2020 is provided in Table 4-1. The projected water use for each individual water use sector is provided in Table 4-2 and is based on the percentage breakdown of water use from each individual water use sector in CY 2020 (the percentages were then applied to the projected total water use).

Table 4-1 Demands for Potable and Non-Potable Water - Actual

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable ¹ Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume ²
Add additional rows as needed			
Single Family		Drinking Water	6,486
Commercial		Drinking Water	1,736
Industrial		Drinking Water	2
Institutional/Governmental	Public Authority	Drinking Water	517
Landscape		Drinking Water	588
Agricultural irrigation		Raw Water	4,912
Losses		Drinking Water	710
Other	Fire Services and Temporary Meter Services	Drinking Water	28
TOTAL			14,979
¹ Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.			
² Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.			
NOTES:			

Table 4-2 Use for Potable and Non-Potable Water - Projected

Submittal Table 4-2 Retail: Use for Potable and Non-Potable ¹ Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use ² <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> May select each use multiple times These are the only Use Types that will be recognized by the WUdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		7,107	7,579	8,077	8,602	9,156
Commercial		1,837	1,909	1,984	2,064	2,149
Industrial		2	2	2	2	2
Institutional/Governmental	Public Authority	547	568	591	615	640
Landscape		622	646	672	699	727
Agricultural irrigation		4,950	4,950	4,950	4,950	4,950
Losses		751	781	812	844	879
Other	Fire Services and Temporary Meter Services	30	31	32	34	35
TOTAL		15,846	16,466	17,120	17,810	18,538
¹ Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4. Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES:						

Table 4-3 Total Gross Water Use (Potable and Non-Potable)

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable <i>From Tables 4-1R and 4-2 R</i>	14,979	15,846	16,466	17,120	17,810	18,538
Recycled Water Demand ¹ <i>From Table 6-4</i>	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage ²						
TOTAL WATER USE	14,979	15,846	16,466	17,120	17,810	18,538
¹ Recycled water demand fields will be blank until Table 6-4 is complete ² Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier may deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.						
NOTES:						

4.2.1 WATER USE SECTORS LISTED IN WATER CODE

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

- (A) Single-family residential.*
- (B) Multifamily.*
- (C) Commercial.*
- (D) Industrial.*
- (E) Institutional and governmental.*
- (F) Landscape.*
- (G) Sales to other agencies.*
- (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.*
- (I) Agricultural.*
- (J) Distribution system water loss.*

As shown in Table 4-1, Liberty Utilities' service area includes the following water use sectors listed in the CWC:

- Single-family residential
(A single-family dwelling unit is a lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. Single-family residential water demands are included in retail demands.)
- Multi-family residential
(Multiple dwelling units are contained within one building or several buildings within one complex. Multi-family residential water demands are included in retail demands.)

- Commercial
(Commercial users are defined as water users that provide or distribute a product or service.)
- Institutional (and governmental)
(Institutional users are defined as water users dedicated to public service. Institutional users include, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.)
- Landscape
(Landscape connections supply water solely for landscape irrigation. Landscape users may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. Landscape water demands are included in retail demands.)
- Industrial
(Industrial users are defined as water users that are primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Industrial water demands are included in retail demands.)
- Agricultural
(Agricultural connections supply water for commercial agricultural irrigation.)

- Distribution system losses

(Distribution system losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Additional information is discussed in Section 4.2.4)

4.2.2 WATER USE SECTORS IN ADDITION TO THOSE LISTED IN WATER CODE

Liberty Utilities' service area does not include other water demand sectors which are not listed in the CWC (including exchanges, surface water augmentation, transfers, and wetlands or wildlife habitat).

4.2.3 PAST WATER USE

Chapter 6 provides a discussion of the source of water supply Liberty Utilities uses to meet its water demands. Section 6.1 provides a tabulation of Liberty Utilities' historical annual water demands for its water supply source. Over the past ten years, Liberty Utilities' total water demands have ranged from 13,515 AFY to 18,230 AFY, with an average of 15,280 AFY. In addition, Liberty Utilities recently experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. Liberty Utilities also reviewed its historical water demands to determine the projected water demands and water supply reliability (discussed in Chapter 7). Liberty Utilities is able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.2.4 DISTRIBUTION SYSTEM WATER LOSS

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following...

(J) Distribution system water loss.

CWC 10631.

(3)(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Distribution system water losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Sources of distribution system water loss can include inaccurate metering due to faulty meters and water use not metered such as firefighting, flushing of the water system, and pipeline leaks.

The CWC Section 10608.34 requires “On or before October 1, 2017, and on or before October 1 of each year thereafter, each urban retail water supplier shall submit a completed and validated water loss audit report for the previous calendar year or the previous fiscal year...” The water loss audits must follow American Water Works Association (AWWA) guidance and be validated by a certified water audit validator. Liberty Utilities has completed the annual water loss audit process through October 1, 2020, as required by the CWC (i.e. Liberty Utilities has completed water loss audits

representing calendar years 2016, 2017, 2018, and 2019). Liberty Utilities' water loss audits were prepared and validated pursuant to DWR requirements. The annual water loss audit reports submitted by retail water agencies in California, including Liberty Utilities (provided in Appendix E), are available on DWR's website (https://wuedata.water.ca.gov/awwa_plans).

Liberty Utilities' annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). Liberty Utilities' distribution system water losses are based on the sum of the real and apparent water losses and are summarized in Table 4-4 for the past five years. Over the past five years, Liberty Utilities' average distribution system water losses represent approximately 5.7 percent of its total water demands. This average water loss factor was incorporated into Liberty Utilities' total potable water demand projections (Tables 4-2 and 4-3).

The CWC Section 10608.34 directs the SWRCB-DDW to “adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses.” Pursuant to this law, and as discussed above, urban retail water suppliers (including Liberty Utilities) have been submitting water loss audits to DWR annually since October 2017. Pursuant to Assembly Bill (AB) 1668 and Senate Bill (SB) 606, urban retail water suppliers are required to calculate an “urban water use objective” that includes indoor, outdoor, commercial, industrial and institutional irrigation uses, and allowed system water loss by the year 2024. In addition, by CY 2028, urban retail water suppliers are required to comply with individual volumetric standards (based on an economic model) for leak detection and repair actions. The goal of the proposed water loss standards is to reduce collective water losses throughout California by approximately 40 percent. Liberty Utilities will continue to develop its water loss standard and urban water use objective pursuant to SWRCB-DDW requirements.

Table 4-4 12 Month Water Loss Audit Report

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss ^{1,2}
01/2016	653
01/2017	771
01/2018	610
01/2019	1,265
01/2020	710
¹ Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet. ² Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.	
NOTES: The "Volume of Water Loss" quantities for CY 2016 through CY 2019 were obtained from the annual AWWA Water Loss Audits (and based on the combination of apparent losses and real losses). The AWWA Water Loss Audits were reported on a calendar year basis. The AWWA Water Loss Audit for calendar year 2020 will be prepared by October 2021. The "Volume of Water Loss" quantity for CY 2020 was estimated based on metered water production less metered water deliveries to customers.	

4.2.5 CURRENT WATER USE

Liberty Utilities currently measures its water use through meter data and billing records. The water use for Liberty Utilities' individual water use sectors during CY 2020 is provided in Table 4-1. Recycled water uses are addressed separately in Section 6.2.5; however, a Liberty Utilities does not serve recycled water as shown in Table 4-3. Liberty Utilities' total water uses during CY 2020 have been reviewed for compliance with the SB X7-7 water use target for 2020 adopted in Liberty Utilities' 2015 Plan (discussed in Section 5.5).

DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. DWR has deemed the tool as optional and Liberty Utilities is not required by DWR to use the tool. Section 6.1 provides a tabulation of Liberty

Utilities' historical annual water uses for each water supply source. During the past 10 years, Liberty Utilities experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. Historical records indicate Liberty Utilities' annual water demands had been greater prior to CY 2012. Liberty Utilities has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, Liberty Utilities has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of Liberty Utilities' water supply sources is provided in Chapter 7.

4.2.6 PROJECTED WATER USE

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

CWC 10631.

(d)(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(d)(4)(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

- (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.*
 - (ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.*
-

Liberty Utilities' projected water demands are provided in five-year increments over the next 25 years (through CY 2045) in Table 4-3. Liberty Utilities' projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought are provided in Chapter 7. The projected water demands for each of Liberty Utilities' water use sectors are provided in Table 4-2.

Liberty Utilities' water demands were projected based on a review of the SB X7-7 calculations discussed in Chapter 5 (including the SB X7-7 water use target for 2020), existing water use factors based on recent water demands, and the total population projections based on land use trends within Liberty Utilities. The projected water demands for the water use sectors were based on the percentage breakdown of water demands from each individual water use sector in CY 2020 (the percentages were then applied to the projected total water demands). A discussion of Liberty Utilities' water supplies from MWA, a wholesaler, are discussed in Section 6.2. As discussed in Section 2.6, Liberty Utilities has coordinated its water demand projections with MWA for each water use sector.

Liberty Utilities' water demand projections incorporate water savings, or "passive savings", which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water. The California Public Utilities Commission's "Water Conservation and Rationing Plan" which was created through the adoption of Rule 14.1 in June 2014 (discussed in Section 9.2.1), includes methods for current and ongoing reduction in water use and water waste. Prior to the adoption of Rule 14.1, Liberty Utilities' water use rate ranged from approximately 273 gallons per capita

per day (GPCD) to 326 GPCD (from CY 1995 through CY 2006). As identified in Section 5.5, Liberty Utilities' actual water use rate during CY 2020 was 146 GPCD which is a decrease of up to 180 GPCD from the recent historical water use and includes passive savings. Liberty Utilities' projected water demands, incorporate water use targets less than its established SB X7-7 water use target for 2020 and incorporate ongoing water passive savings and reduced water use. As indicated in Table 4-5, estimated future water savings have been considered as part of Liberty Utilities' water use projections.

4.2.7 CHARACTERISTIC FIVE-YEAR WATER USE

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

Liberty Utilities' projected water demands are provided in five-year increments over the next 25 years (and through CY 2045) in Table 4-3. Liberty Utilities' projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought over the next 25 years (and through CY 2045) are provided in Chapter 7.

Liberty Utilities' "Drought Risk Assessment" (DRA) for the next five years (from CY 2020 through CY 2025) is discussed in Section 7.3. The DRA includes Liberty Utilities' projected annual water demands and supplies for each of the next five years and was

prepared based on the five driest consecutive years on record. The DRA provides an assessment of Liberty Utilities' water service reliability during a drought lasting five years. The DRA reflects anticipated water demands and supplies prior to any expected benefits associated with water supply shortage responses included in Liberty Utilities' WSCP (provided in Chapter 8). In addition to historical drought hydrology, Liberty Utilities considered impacts to water supplies and demands based on climate change conditions (discussed in Section 4.5) and anticipated regulatory changes, including the urban water use objectives (discussed in Section 4.2.4).

4.3 WORKSHEETS AND REPORTING TABLES

Liberty Utilities' current and projected water demands, including the water demands for each of Liberty Utilities' water use sectors, are provided in five-year increments over the next 25 years (and through CY 2045) in Tables 4-1, 4-2, and 4-3.

4.3.1 OPTIONAL PLANNING TOOL USE ANALYSIS WORKSHEET

As discussed in Section 4.2.5, DWR has deemed the "Planning Tool Worksheet" as optional and Liberty Utilities is not required by DWR to use the tool. Liberty Utilities has provided sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. Liberty Utilities has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of Liberty Utilities' water supply source is provided in Chapter 7.

4.3.2 DWR 2020 UWMP SUBMITTAL TABLES

Liberty Utilities' current water demands for each of the water use sectors during CY 2020 are provided in Table 4-1. Liberty Utilities' projected water demands for each of the water

use sectors, in five-year increments over the next 25 years (and through CY 2045), are provided in Table 4-2. Liberty Utilities' total projected water demands, including potable and recycled water, in five-year increments over the next 25 years (and through CY 2045), are summarized in Table 4-3. Liberty Utilities' distribution system water losses over the past five years, based on the sum of the real and apparent water losses, are summarized in Table 4-4. Liberty Utilities' annual AWWA water loss audits are provided in Appendix E.

4.4 WATER USE FOR LOWER INCOME HOUSEHOLDS

CWC 10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

California Health and Safety Code 50079.5.

(a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families... In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

Liberty Utilities' water demands projections provided in Table 4-3 include projected water demands for lower income single-family and multi-family households. A lower income household is defined as a household with an income less than 80 percent of the area median income, adjusted for family size. For the purpose of this evaluation the entire San Bernardino County was used for the "area median income". The total number of lower income households within Liberty Utilities' service area was estimated based on billing records provided by Liberty Utilities, a review of the Town of Apple Valley's 2009 "General Plan", a review of median household income range statistics provided by the U.S. Census Bureau (<https://data.census.gov/cedsci/>), and a review of GIS maps of Disadvantaged

Communities² (DACs), including block groups, tracts, and places, provided by DWR. The estimated number of lower income households located within Liberty Utilities' service area is approximately 49.4 percent of the total number of households. As indicated in Table 4-2, the total projected residential water demands within Liberty Utilities in 2045 is estimated at about 9,156 AFY. Based on a 49.4 percent use factor of total residential water demands, the projected water demand for lower income households will be about 4,527 AFY by CY 2045. The projected water demands for lower income households were included in Liberty Utilities' total projected water demands, as indicated in Table 4-5.

Table 4-5 Inclusion in Water Use Projections

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Section 4.2.6 and Chapter 8
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes
NOTES:	

² GIS information for DACs is based on data from the US Census showing census block groups, tracts, and places identified as disadvantaged communities (less than 80 percent of the State's median household income) or severely disadvantaged communities (less than 60 percent of the State's median household income)

4.5 CLIMATE CHANGE CONSIDERATIONS

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following...

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

Climate is defined as “the average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind velocity and precipitation³”. A change in the climate which produces a greater amount of precipitation (i.e. more runoff and/or snowpack) and lower temperatures is generally a benefit to water supplies. However, drought conditions which may result in decreased precipitation, decreased runoff, and increased temperature may adversely affect an urban water supplier’s ability to meet demands by potentially impacting supplies. Consequently, the focus of impacts of climate change is on these adverse consequences.

Section 6.2 of this 2020 Plan, describes Liberty Utilities’ source of water supply, management practices associated with this source, and the long-term reliability of this source. Section 7.3 includes a DRA which considers the potential impacts of climate change to Liberty Utilities’ water supply source. Chapter 8 provides a detailed discussion

³ www.merriam-webster.com

of Liberty Utilities' WSCP, including but not limited to, the six standard water shortage levels in the event climate change results in a reduction to water supplies associated with a periodic drought condition. The following is a discussion of Liberty Utilities' source of supply, how this source may be impacted by climate change, and the proactive actions Liberty Utilities and other local/regional water managers may take to address the potential climate change impacts on water supplies.

Groundwater Supplies

Liberty Utilities relies on groundwater produced from the Mojave Basin Area – Alto Subarea as discussed in Section 6.2.2. The Mojave Basin Area, including the Upper Mojave River Valley (Basin Number 6-042) pursuant to DWR Bulletin 118), has been identified by DWR as a very low-priority groundwater basin partially due to the fact it is adjudicated. In that regard, the Mojave Basin Area is actively managed by the Mojave Water Agency which serves as the Mojave Basin Area Watermaster and those management activities are described in detail in Section 6.2.2.

Recognizing the potential impacts of climate change on the Mojave Basin Area – Alto Subarea groundwater supplies (decreased local runoff and replenishment, along with increased groundwater production which may lead to decreased groundwater levels), Liberty Utilities has used climate tools available on the California' Energy Commission's Cal-Adapt website (<https://cal-adapt.org/>) to identify potential future climate change cycles for the Mojave Basin Area – Alto Subarea. The Cal-Adapt website has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and California Strategic Growth Council.

To address the uncertainty in future greenhouse gas emissions, Cal-Adapt has developed a Representative Concentration Pathway 4.5 (RCP 4.5) scenario and a Representative Concentration Pathway 8.5 (RCP 8.5) scenario. RCP 4.5 represents a scenario in which

greenhouse gas emissions peak around 2040, then decline and stabilize. RCP 8.5 represents a scenario in which emissions continue to strongly rise through 2050 and plateau around 2100. RCP 4.5 is a “medium” emissions scenario that models a future in which there is an effort made by societies to reduce greenhouse gas emissions, whereas RCP 8.5 is a “business-as-usual” scenario. For Liberty Utilities’ climate change analysis, the RCP 4.5 scenario was selected.

The Cal-Adapt climate tools also incorporate several General Circulation Models (GCMs), which represent physical processes in the atmosphere, ocean, and land surface. These GCMs projected future climates under conditions such as warm/dry, cooler/wetter, and average simulations. For Liberty Utilities’ climate change analysis, the average condition GCM (CanESM2) was selected.

The climate tools available on the Cal-Adapt website were to simulate projected annual precipitation and annual average maximum temperature in the Mojave Basin Area – Alto Subarea. An electronic boundary of the Mojave Basin Area – Alto Subarea was submitted online through the Cal-Adapt website in a “KML” file format (i.e. Google Earth format) and data using several of the available climate tools was generated.

Based on the data generated by the Cal-Adapt simulations (see Appendix F), the average annual rainfall in the Mojave Basin Area – Alto Subarea is projected to be 12.27 over the next 25 years (through 2045), inches compared to historical average of 11.29 inches (from 1950 through 2019) within the model. In addition, the average maximum temperature is projected to be 77.5 degrees Fahrenheit compared to a historical average of 73.8 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. The simulation does not denote the duration or intensity of the storms contributing to the annual precipitation. Notwithstanding, the Mojave River watershed (including the area of the Mojave Basin Area – Alto Subarea) has a complex and interconnected series of replenishment basins to capture stormwater runoff. Furthermore, the Mojave River does not drain to the ocean.

Consequently, all of the precipitation in the watershed is retained within the watershed. Most if not all precipitation (whether it is rain or snowfall) likely will be captured and not adversely impacted by a potentially higher average annual temperature.

Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, the Mojave Water Agency has taken proactive actions to anticipate and circumvent the potential impacts of climate change. Descriptions of these actions are provided in Mojave Water Agency's 2020 Regional UWMP, which is incorporated by reference. These actions will enable Liberty Utilities to rely on the Mojave Basin Area – Alto Subarea as a reliable source of supply.

CHAPTER 5

SB X7-7 BASELINE, TARGETS, AND 2020 COMPLIANCE

LAY DESCRIPTION – CHAPTER 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

Chapter 5 (SB X7-7 Baselines, Targets, and 2020 Compliance) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- The Water Conservation Act of 2009 (or SB X7-7) required the State of California achieve a 20 percent reduction in urban water use by the year 2020.
- SB X7-7 required urban water suppliers, including Liberty Utilities, to develop a “2020 Water Use Target” to assist the State of California to achieve the 20 percent reduction. The 2020 Water Use Target represents the amount of water each person should use per day (i.e. gallons per capita per day or GPCD) by the year 2020.
- Liberty Utilities previously determined its 2020 Water Use Target during the preparation of its 2015 Plan by completing standardized tables (or the SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. Liberty Utilities’ SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G. Liberty Utilities’ 2020 Water Use Target is 238 GPCD.
- Liberty Utilities’ 2020 Plan incorporates the 2020 Water Use Target and determines compliance based on actual water use.
- The population within Liberty Utilities’ service area during Calendar Year 2020 is estimated at 61,444. Liberty Utilities’ population was estimated using the California Department of Water Resources’ online “Population Tool” which incorporates United

States Census data in a Geographic Information Systems format to estimate the population within Liberty Utilities' service area.

- Liberty Utilities' "gross water" use represents the total volume of water entering its distribution system from its water supply sources Liberty Utilities' annual gross water during Calendar Year 2020 was 14,979 AF.
- Liberty Utilities' per-capita water use is based on the gross water use divided by the population. Liberty Utilities' per-capita water use during Calendar Year 2019 was 146 GPCD. Liberty Utilities' confirmed 2020 Water Use Target is 238 GPCD. Liberty Utilities' per-capita water use during Calendar Year 2019 meets the 2020 Water Use Target.
- Liberty Utilities has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.1 GUIDANCE FOR WHOLESALE SUPPLIERS

CWC 10608.12.

(l) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Liberty Utilities is not a wholesale agency and is not required by DWR to complete Section 5.1.

5.2 SB X7-7 FORMS AND SUMMARY TABLE

Liberty Utilities previously calculated "Baseline" water uses and a "2020 Water Use Target" in its 2015 Plan. There were two different Baseline periods identified (including a 10-year Baseline period and a 5-year Baseline period). The average water use within these Baseline periods, expressed in GPCD, represents the Baseline water use for each

period. The Baseline water uses were used to determine Liberty Utilities' 2020 Water Use Target (which represents the per capita water use target for 2020 pursuant to SB X7-7).

According to Section 10608.22 of the CWC, if an urban retail water supplier's 5-year Baseline period water use is greater than 100 GPCD, the calculated 2020 Water Use Target may need to be reduced. A 5-year Baseline period was identified by Liberty Utilities and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. The average water use rate during the identified 5-year Baseline period was greater than 100 GPCD. As a result, the 5-year Baseline period was used to determine whether the 2020 Water Use Target required any adjustments.

Liberty Utilities' calculated 2020 Water Use Target was compared with the 95 percent of the average water use within the 5-year Baseline to confirm whether any adjustments were required. Liberty Utilities' confirmed 2020 Water Use Target is 238 GPCD and is summarized in Table 5-1.

5.2.1 SB X7-7 VERIFICATION FORM (BASELINES AND TARGETS)

Liberty Utilities' service area has not changed (i.e. expansion or contraction) since the 2015 Plan was prepared. Liberty Utilities' 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. Liberty Utilities previously prepared standardized tables (SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009 Liberty Utilities in its 2015 Plan, including compliance with Liberty Utilities' 2015 Interim Water Use Target. Liberty Utilities' SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G.

5.2.2 SB X7-7 COMPLIANCE FORM

Liberty Utilities' compliance with its 2020 Water Use Target is summarized in the following sections. Liberty Utilities has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.2.3 SUBMITTAL TABLES 5-1 AND 5-2

Summary information from the SB X7-7 Verification Form and from the SB X7-7 2020 Compliance Form is provided in Tables 5-1 and 5-2 below.

Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form

Submittal Table 5-1 Baselines and Targets Summary				
From SB X7-7 Verification Form				
Retail Supplier or Regional Alliance Only				
Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1995	2004	297	238
5 Year	2003	2007	264	
<i>*All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)</i>				
NOTES:				

Table 5-2 2020 Compliance from SB X7-7 2020 Compliance Form

Submittal Table 5-2: 2020 Compliance From SB X7-7 2020 Compliance Form <i>Retail Supplier or Regional Alliance Only</i>				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* (Adjusted if applicable)		
146	0	146	238	Y
<i>*All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)</i>				
NOTES:				

5.2.4 REGIONAL UWMP/ REGIONAL ALLIANCE

As discussed in Section 2.4, Liberty Utilities' 2020 Plan was not developed as part of a Regional Alliance. Information from Liberty Utilities' 2020 Plan is not required to be reported in a Regional Alliance report.

5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPs

5.3.1 SUPPLIER SUBMITTED 2015 UWMP, NO CHANGE TO SERVICE AREA

The general requirements associated with determining the Baseline periods, Baseline water uses, and 2020 Water Use Target were previously provided by DWR. Based on the requirements, Liberty Utilities calculated the Baseline water uses and 2020 Water Use

Target in its 2015 Plan. Liberty Utilities' service area has not changed (i.e. expansion or contraction) since the 2015 Plan was prepared. Liberty Utilities' 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. Liberty Utilities' SB X7-7 Verification Form is included in Appendix G.

As discussed in Section 5.2.1, Liberty Utilities prepared standardized tables (SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. Liberty Utilities' SB X7-7 Verification Form is provided in Appendix G and includes Baseline water uses and the 2020 Water Use Target. A summary of the Baseline water uses and 2020 Water Use Target is provided below.

The CWC allows an urban water supplier to calculate up to a 15-year Baseline period if at least 10 percent of its 2008 retail water demands were met through recycled water deliveries within its service area, otherwise calculation of a 10-year Baseline period is required. Liberty Utilities did not receive any recycled water deliveries during CY 2008. Consequently, a 10-year Baseline period was identified by Liberty Utilities and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. Water systems could potentially identify their 2020 Water Use Target by calculating 80 percent of the 10-year Baseline water use.

5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE

5.4.1 SERVICE AREA POPULATION

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

CWC 10644.

(a)(2) The plan... shall include any standardized forms, tables, or displays specified by the department.

A discussion regarding Liberty Utilities' compliance with the 2020 Water Use Target is provided in Section 5.5. Compliance with the 2020 Water Use Target is based on the total estimated population within Liberty Utilities' water service during CY 2020. Because U.S. Census 2020 population data was not available during the preparation of the 2020 Plan, Liberty Utilities reviewed the methodologies recommended by DWR to estimate the CY 2020 population. The population methodology used by Liberty Utilities in the 2020 Plan is provided below.

Liberty Utilities initially reviewed the available historical populations within its service area for population growth trends. Liberty Utilities determined historical U.S. Census population within its service area using DWR's Population Tool (<https://wuedata.water.ca.gov/>). Liberty Utilities' service area boundary was uploaded to DWR's Population Tool in a "KML" file format (i.e. Google Earth format). The KML file was originally created in GIS shapefile format and converted into a KML format. The uploaded

KML file represents Liberty Utilities' service area boundary from 1990 to present (2020). DWR's Population Tool utilized U.S. Census data from 1990, 2000, and 2010, along with Liberty Utilities' service area boundary, to estimate the population served by Liberty Utilities in the years 1990, 2000, and 2010.

DWR's Population Tool was also used to estimate the 2020 population within Liberty Utilities' service area. The total number of service connections within Liberty Utilities' service area (including residential, commercial, and industrial connections) in the years 2010 and 2020 were entered into the Population Tool. Based on the historical U.S. Census populations (from 1990, 2000, and 2010) and available data regarding total service connections for those corresponding years, DWR's Population Tool estimated the population within Liberty Utilities' service area for CY 2020 (using the service connection data for CY 2020) to be 61,444. The CY 2020 population is consistent with the historical population growth trends. Liberty Utilities' CY 2020 population is presented in Table 3 of the SB X7-7 2020 Compliance Form.

5.4.2 GROSS WATER USE

CWC 10608.12.

(h) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.*
- (2) The net volume of water that the urban retail water supplier places into long-term storage.*
- (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.*
- (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article 1, Section 596.

(a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

Gross water use represents the total volume of water entering a distribution system (but excludes recycled water deliveries, water placed into long term storage, water conveyed to another supplier, water delivered for agricultural use, and process water if there is a substantial percentage used for industrial purposes) over a 12-month period. Liberty Utilities' annual gross water use amounts are based on the total amount of water entering Liberty Utilities' distribution system from its water supply sources (including groundwater production wells). The annual gross water use by Liberty Utilities during CY 2020 was 14,979 AF.

The annual gross water use amounts within Liberty Utilities for each year of the Baseline periods (discussed in Section 5.2) are provided in SB X7-7 Verification Form, Table 4 (Appendix G). A further discussion of the Baseline periods is provided in Section 5.2.

Liberty Utilities currently does not use indirect recycled water within its service area. Liberty Utilities is not required by DWR to complete SB X7-7 Verification Form, Table 4-B.

Industrial process water is not subtracted from Liberty Utilities' gross water use provided in SB X7-7 Verification Form, Table 4. Liberty Utilities is not required by DWR to complete SB X7-7 Verification Form, Table 4-C.1, Table 4-C.2, Table 4-C.3, Table 4-C.4, and Table 4-D.

5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

CWC 10608.12.

(f) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010... compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

As discussed in Section 5.5, the annual gross water use by Liberty Utilities during CY 2020 was 14,979 AF. As discussed in Section 5.4, the estimated population within Liberty Utilities' service area for CY 2020 is 61,144. As a result, Liberty Utilities' per-capita water use during CY 2020 was 146 GPCD. As discussed in Section 5.2, Liberty Utilities' confirmed 2020 Water Use Target is 238 GPCD. Liberty Utilities' per-capita water use during CY 2020 meets the 2020 Water Use Target and is in compliance. Liberty Utilities has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.5.1 2020 ADJUSTMENTS FOR FACTORS OUTSIDE OF SUPPLIER'S CONTROL

CWC 10608.24.

(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4.

This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers, annexation, and other scenarios that occur between the baseline and compliance years.

Liberty Utilities has determined compliance with the 2020 Water Use Target without adjusting its annual gross water use during CY 2020.

5.5.2 2020 ADJUSTMENTS TO 2020 GROSS WATER USE

Liberty Utilities' 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. There were no special situations that required Liberty Utilities to recalculate the Baseline water uses and 2020 Water Use Target.

5.5.3 IF SUPPLIER DOES NOT MEET 2020 TARGET

Liberty Utilities' per-capita water use during CY 2020 meets the 2020 Water Use Target and is in compliance.

5.6 REGIONAL ALLIANCE

As discussed in Section 2.4, Liberty Utilities' 2020 Plan was not developed as part of a Regional Alliance. Information from Liberty Utilities' 2020 Plan is not required to be reported in a Regional Alliance report.

CHAPTER 6

WATER SUPPLY CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 6

WATER SUPPLY CHARACTERIZATION

Chapter 6 (Water Supply Characterization) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- Liberty Utilities’ water supply source includes groundwater pumped from the Mojave Basin Area.
- A tabulation of Liberty Utilities’ historical water supplies is provided in Section 6.1.
- Liberty Utilities’ proposed future projects to maximize its water supply resources are discussed.
- Liberty Utilities’ “energy intensity” is discussed and represents the quantity of energy consumed, measured in kilowatt hours, divided by the volume of water, measured in acre-feet over a one-year period. The total energy intensity associated with Liberty Utilities’ water management processes was estimated during CY 2019.

In this Chapter, Liberty Utilities will identify and describe its source of water supply. In addition, Liberty Utilities will describe the following:

- Management of its water supply source;
- Current provisions of a basin adjudication or Groundwater Sustainability Plan, as applicable, pertaining to management of groundwater supplies;
- Measures Liberty Utilities is taking to develop potential new sources of water supply (as applicable); and,
- Opportunities for exchanges and transfers on a long- or short-term basis.

The characterization of Liberty Utilities' water supply source will account for the anticipated availability during a normal year, a single dry year, a five consecutive year drought, along with projections through CY 2045.

6.1 WATER SUPPLY ANALYSIS OVERVIEW

CWC 10631.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

Liberty Utilities' water supply source consists of groundwater pumped from the Mojave Basin Area. This is Liberty Utilities' only source of water supply. Liberty Utilities serves raw water for agricultural purposes from two groundwater wells which are separate from Liberty Utilities' potable water system. A tabulation of Liberty Utilities' historical water supplies is provided below.

Liberty Utilities - Apple Valley			
Calendar Year	System Water Supply Sources (AF)		Total
	Mojave Basin Area Groundwater (Potable Use)	Mojave Basin Area Groundwater (Agricultural Irrigation)	
2011	12,479	5,751	18,230
2012	12,475	4,314	16,788
2013	12,255	4,869	17,124
2014	12,275	4,211	16,486
2015	9,582	3,933	13,515
2016	9,257	4,467	13,724
2017	9,470	4,637	14,106
2018	9,541	4,765	14,307
2019	9,367	4,172	13,539
2020	10,067	4,912	14,979

Source: Data provided by Liberty Utilities

6.1.1 SPECIFIC ANALYSIS APPLICABLE TO ALL WATER SUPPLY SOURCES

The section below provides a discussion of the following information to the extent practical:

- Liberty Utilities' existing and planned source of water supply are identified;
- Liberty Utilities' source of supply is quantified in five-year increments through CY 2045;
- The anticipated supply availability under normal, single dry, and five consecutive dry years, and any other water year conditions included in the DRA (see Chapter 7) are described;
- The management of Liberty Utilities' water supply in correlation with other identified supplies is described; and,
- Information pertinent to the reliability analysis, including climate change effects, is considered.

Liberty Utilities historically has relied on groundwater pumped from the Mojave Basin Area. The following descriptions summarize Liberty Utilities' sources of supply (detailed descriptions are provided in Section 6.2).

Existing and Planned Sources of Supply

Purchased Imported Water

Liberty Utilities does not purchase imported water supplies to meet its water demands.

Groundwater

Liberty Utilities has historically pumped groundwater directly from the Mojave Basin Area as described in Section 6.2.2. In addition, Section 6.2.2 provides a detailed discussion of the existing and planned supply of the groundwater, including a description of the management and reliability of those groundwater supplies. Table 6-8 summarizes the actual groundwater supplies for CY 2020. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through CY 2045 under varying water supply conditions.

Surface Water

Liberty Utilities does not use surface water supplies to meet its water demands.

Storm Water

Liberty Utilities has historically received groundwater from the Mojave Basin Area. Management and use of the stormwater runoff from the groundwater basin watershed, which is crucial to groundwater management, is described in Section 6.2.4. However, Liberty Utilities currently does not have its own program to beneficially use stormwater runoff as a direct source of supply.

Wastewater and Recycled Water

Liberty Utilities does not use wastewater and recycled water supplies to meet its water demands.

6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS

A description of Liberty Utilities' water system along with a map of the area which receives water supplies from Liberty Utilities is included in Chapter 3. In addition, the agencies which manage the water supplies treated by Liberty Utilities are identified in Section 6.2.1 (imported water), 6.2.2 (groundwater), 6.2.3 (surface water), 6.2.4 (stormwater), and 6.2.5 (recycled water).

6.1.3 OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and Liberty Utilities is not required by DWR to use the tool. Section 6.1 provides a tabulation of Liberty Utilities' historical annual water uses for each water supply source. During the past 10 years, Liberty Utilities experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. In addition, historical records indicate Liberty Utilities' annual water demands typically have been even greater prior to CY 2012. Liberty Utilities has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, Liberty Utilities has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of Liberty Utilities' water supply sources is provided in Chapter 7.

6.2 NARRATIVE SECTIONS FOR SUPPLIER'S UWMP WATER SUPPLY CHARACTERIZATION

6.2.1 PURCHASED OR IMPORTED WATER

Liberty Utilities does not use purchased imported water supplies to meet its water demands.

6.2.2 GROUNDWATER

CWC 10631.

(b)(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(D) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Mojave Basin Area - Sustainable Groundwater Management Act

The Mojave Basin Area – Alto Subarea is a subbasin of the Upper Mojave River Valley Groundwater Basin pursuant to DWR Bulletin 118, Basin Number 06-42. Pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA), the Upper Mojave River Valley Groundwater Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a Groundwater Sustainability Plan (GSP) and subsequently was designated a very-low-priority basin in DWR’s 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Mojave Basin Area Watermaster (which is the Mojave Water Agency) submits its Annual Report to DWR.

Mojave Basin Area - Adjudication

The Mojave Basin Area was the subject of a court-ordered adjudication in 1993 due to the rapid growth within the area, increased withdrawals, and lowered groundwater levels. DWR Bulletin 118 states that the Mojave Basin Area has experienced a constant state of overdraft since the early 1950s. In January 1996, the Riverside County Superior Court issued a final ruling on the adjudication of the Mojave Basin Area. A copy of the Mojave Basin Area 1996 Adjudication (Judgment) is included as Appendix I. The Judgment directed that Mojave Water Agency must alleviate overdraft through conservation and the purchase of supplemental water. In addition, the Judgment appointed MWA as Watermaster of the Mojave Basin Area.

For management purposes under the Mojave Basin Area Judgment, MWA split the Mojave River watershed and associated groundwater basins into five separate Subareas (Oeste, Este, Alto, Centro, and Baja), with Liberty Utilities being located in the Alto Subarea as shown on Figure 3. Also, for the purposes of implementing the Judgment, the northern part of the Alto Subarea was defined as a sub-management unit – the Alto Transition Zone; this zone was created to acknowledge local geology and to better address the water flow from the Alto Subarea to the Centro Subarea.

The Mojave Basin Area Judgment assigned Base Annual Production (BAP) rights to producers which historically used 10 AFY or more, based on historical production. BAP is defined as the producer's highest annual use verified for the five-year base period from 1986 to 1990. Parties to the Judgment are assigned a variable Free Production Allowance (FPA) by the Watermaster, which is a percentage of BAP set for each Subarea for each year. The allocated FPA represents each producer's share of the water supply available for that Subarea. The current FPA for the Alto Subarea is 55 percent of BAP for municipal and industrial and 70 percent of BAP for agriculture⁴.

Production Safe Yield (PSY) is determined for each Subarea within the Mojave Basin Area. The PSY in each Subarea is assumed to equal the average net natural water supply plus the expected return flow from the previous year's water production. Exhibit H of the Judgment requires that in the event the FPA exceeds the estimated PSY by five percent or more of BAP, Watermaster recommend a reduction in FPA equal to, but not more than, a full five percent of the aggregate Subarea BAP. Any water user that pumps more than their FPA in any year is required to buy "Replacement Water" equal to the amount of production in excess of the FPA. Replacement Obligations can be satisfied either by paying the Watermaster to purchase imported water or by temporarily transferring unused FPA within that Subarea from another party to the Judgment. (If Liberty Utilities pumps more than its FPA, then it must pay the Watermaster to purchase SWP replacement water equal to the amount of production in excess of the FPA. Alternatively, Liberty Utilities may meet its obligation by transferring unused FPA from another party within the Subarea.)

MWA maintains a comprehensive groundwater monitoring program to track groundwater production, storage, elevations, and quality. The program consists of over 900 monitoring wells and tracks water production within each of its five Subareas.

⁴ Mojave Basin Area Watermaster Twenty-Seventh Annual Report, Water Year 2019-20

MWA first prepared a Regional Water Management Plan in 1994 and in February 2005, formally adopted its 2004 Regional Water Management Plan Update (2004 RWMP). The 2004 RWMP both complements and formalizes a number of existing water supply and long-term water resource planning and management activities in the MWA service area that overlies the Alto Subarea of the Mojave Basin Area and several groundwater basins, as defined by DWR in Bulletin 118. MWA prepared an Integrated Regional Water Management Plan (IRWM Plan) in June 2014 as an update to the 2004 RWMP. MWA's 2014 IRWM Plan is incorporated into this Plan by reference.

Mojave Basin Area - Description

The groundwater basin within Liberty Utilities' service area is the Mojave Basin Area. The entire Mojave Basin Area encompasses a total of 1,400 square miles and has an estimated total water storage capacity of nearly 5 million acre-feet (MAF) (Bookman-Edmonston Engineering, Inc., 1994). The Mojave Basin Area has been divided into five Subareas for groundwater management. Subareas within the Mojave River Groundwater Basin include Oeste, Alto, Este, Centro and Baja as defined in the Mojave Basin Judgment⁵ (see Appendix I), and shown on Figure 3. Liberty Utilities' service overlies the Alto Subarea, which is in the southern portion of the Mojave Basin Area.

Groundwater movement occurs between the different Mojave Basin Area Subareas. Groundwater is recharged into the basin predominantly by infiltration of water from the Mojave River, which accounts for approximately 80 percent of the total basin natural recharge. Other sources of recharge include infiltration of storm runoff from the mountains and recharge from human activities such as irrigation return flows, wastewater discharge, and enhanced recharge with imported water. Over 90 percent of the basin groundwater recharge originates in the San Gabriel and San Bernardino Mountains. Groundwater is

⁵ Mojave Basin Area Judgment, 1996. *Judgment After Trial, City of Barstow et al. Vs. City of Adelanto et al.* Superior Court Case No. 208568, Riverside County, CA.

discharged from the basin primarily by well pumping, evaporation through soil, transpiration by plants, seepage into dry lakes where accumulated water evaporates, and seepage into the Mojave River.

Investigations by the MWA, US Geological Survey (USGS), and others have resulted in an improved understanding of the geology and hydrogeology of the Mojave Basin Area, including differentiation between the more permeable Floodplain Aquifer that has a limited extent along the Mojave River and the more extensive but less permeable Regional Aquifer. The aerial extent of the Floodplain and Regional aquifers is shown on Figure 3. In the Mojave Basin Area, the Alto, Centro, and Baja Subareas contain both the Floodplain Aquifer and the Regional Aquifer while Oeste and Este Subareas only contain the Regional Aquifer.

The Floodplain Aquifer is composed of sand and gravel weathered from granitic rocks of the San Gabriel and the San Bernardino Mountains and deposited in a fluvial depositional environment. These highly permeable sediments can yield large quantities of water to wells. The Floodplain Aquifer is directly recharged by infiltration of surface flows from the Mojave River during the winter rainy season. Recharge is greater near the mountain front where surface flows are more frequent.

The Regional Aquifer underlies and surrounds the Floodplain Aquifer with interconnected alluvial fan and basin fill deposits that drain toward the Mojave River. In some areas, permeable deposits from the ancestral Mojave River are present, but overall, the aquifer is much less permeable than the Floodplain Aquifer. The Regional Aquifer is generally recharged by groundwater movement from the Floodplain Aquifer to the Regional Aquifer, infiltration of runoff from the higher altitudes of the San Gabriel and San Bernardino Mountains, and smaller amounts of runoff from local intermittent streams and washes.

Prior to recent population growth, most of the groundwater production occurred in the Floodplain Aquifer. Groundwater production was initially developed along the Mojave

River in the early 1900s. In the mid-1950s, groundwater production had increased to about 190,000 AF, with most of the production still occurring along the river. By 1994, about half of the total basin production came from wells located away from the Mojave River in the Regional Aquifer. The increase in water production and the re-distribution of pumping in the basin have significantly influenced the interaction between the Floodplain and Regional Aquifers. Prior to development in the area, groundwater flowed primarily from the Regional Aquifer into the Floodplain Aquifer. However, vertical groundwater gradients have been reversed in recent years, and downward flow from the Floodplain Aquifer is currently the primary recharge mechanism for the Regional Aquifer.

Essentially all water supplies within MWA are pumped from the local groundwater basins and groundwater levels have generally declined over the past 50 years or more. Adjudication proceedings were initiated due to concerns that rapid population growth would lead to further overdraft. The resulting Mojave Basin Area Judgment, previously discussed, requires that additional surface water be imported to help balance the basins.

Alto Subarea water levels near the Mojave River are relatively stable exhibiting seasonal fluctuations with rising levels in winter and declining levels in summer. Water levels in the western portion of the Alto Subarea show a consistent decline with heavy groundwater production and lack of recharge. Water levels in the eastern portion show similar trends, but to a lesser extent. It is expected that under current pumping conditions and long-term average flows in the river, water levels in the Floodplain Aquifer will generally remain stable.

Mojave Basin Area - Historical and Projected Basin Production

Groundwater from the Mojave Basin Area – Alto Subarea is used for potable and non-potable purposes. Liberty Utilities' BAP to the Alto Subarea is 13,610 AFY. During FY 2019-20, Liberty Utilities' allocated FPA was 10,294 AF. Liberty Utilities production over the past five years has been tabulated in Section 6.1. Over the past five years, the Liberty

Utilities has produced 13,539 AFY to 14,979 AFY, with an average of 14,131 AFY from the Mojave Basin Area – Alto Subarea. Liberty Utilities’ projected production from the Mojave Basin Area, over the next 25 years in five-year increments, is provided in Table 6-9.

Table 6-1 Groundwater Volume Pumped

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
<input type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
<input type="checkbox"/>	All or part of the groundwater described below is desalinated.					
Groundwater Type Drop Down List <i>May use each category multiple times</i>	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
<i>Add additional rows as needed</i>						
Alluvial Basin	Mojave Basin Area	13,724	14,106	14,307	13,539	14,979
TOTAL		13,724	14,106	14,307	13,539	14,979
* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES:						

6.2.3 SURFACE WATER

Liberty Utilities does not use surface water supplies to meet its water demands.

6.2.4 STORMWATER

Liberty Utilities does not use stormwater supplies to meet its water demands.

6.2.5 WASTEWATER AND RECYCLED WATER

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Discussion of wastewater collection, treatment, and recycled water use is included in this chapter. Municipal recycled water is municipal wastewater that has been treated at a municipal wastewater facility in a manner specified by the SWRCB-DDW to a specified quality to enable it to be used again for a beneficial purpose. Municipal wastewater must meet two requirements; it must be reused beneficially pursuant to Title 22 of the California Code of Regulations and it must be reused in accordance with a Regional Water Quality

Control Board permit. Title 22 of the California Code of Regulations defines beneficial reuse of recycled water as “...the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to water of the State...”

Liberty Utilities does not currently utilize recycled water because recycled water infrastructure is not currently available. However, Victor Valley Wastewater Reclamation Authority (VWVRA), which provides wastewater collection and treatment services to Liberty Utilities, has constructed facilities to serve recycled water within Liberty Utilities’ service area in the future. This facility is currently being tested and sending recycled water to a percolation pond at the Apple Valley Golf Course. Additional discussion regarding potential recycled water use is provided below.

6.2.5.1 RECYCLED WATER COORDINATION

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier’s service area...

Within the Liberty Utilities service area VWVRA, which provides wastewater treatment services through the collection system owned and operated by the Town of Apple Valley Liberty Utilities, has constructed facilities to serve recycled water within Liberty Utilities’ service area. This facility is currently being tested and sending recycled water to a percolation pond at the Apple Valley Golf Course. Liberty Utilities continues to coordinate with VWVRA and the Town of Apple Valley regarding the potential use of recycled water within the Liberty Utilities service area.

6.2.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CWC 10633.

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

VVWRA is a Joint Powers Authority (JPA) that provides treatment and distribution of recycled water for its entities, which includes the Town of Apple Valley, the Cities of Hesperia and Victorville, the Southern California Logistics Airport, and San Bernardino County Services Areas 42 (Oro Grande) and 64 (Spring Valley Lake). Wastewater generated within Liberty Utilities' service area is treated by VVWRA.

VVWRA's wastewater treatment plant, the Westside Regional Water Reclamation Plant, is located outside of Liberty Utilities' service area in Victorville and currently treats approximately 13 MGD of wastewater. The Westside Regional Water Reclamation Plant is currently undergoing an expansion to increase the capacity to 18 MGD. Secondary effluent generated by the treatment plant can be discharged to one of six percolation ponds. The treatment plant can also perform tertiary treatment (filtration and ultraviolet disinfection) to generate recycled water. Recycled water is primarily released into the Mojave River for groundwater recharge but can also be used as irrigation and industrial process water.

Wastewater is collected within the Town of Apple Valley's sewer collection system, within the Liberty Utilities service area. The Town of Apple Valley's sewer collection system ties into VVWRA's regional sewer lines, which delivers water to the Westside Regional Water Reclamation Plant. It is estimated approximately 60 gallons of wastewater is generated per person per day within the Liberty Utilities service area. Based on a 2020 population of 61,444 within the Liberty Utilities service area, the estimated amount of wastewater collected within Liberty Utilities' service area is approximately 3.7 MGD (or 4,100 AFY),

as shown in Table 6-2. As indicated previously and in Table 6-3, wastewater is not treated or disposed within Liberty Utilities' service area.

Table 6-2 Wastewater Collected Within Area in 2020

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system <i>(optional)</i>					
	Percentage of 2020 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
Town of Apple Valley	Estimated	4,100	Victor Valley Wastewater Reclamation Authority	Westside Regional Water Reclamation Plant	No	No
Total Wastewater Collected from Service Area in 2020:		4,100				
<i>* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3 .</i>						
NOTES:						

Table 6-3 Wastewater Treatment and Discharge within Service Area in 2020

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
<input checked="" type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.											
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional) ²	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area? <i>Drop down list</i>	Treatment Level <i>Drop down list</i>	2020 volumes ¹				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Total							0	0	0	0	0

¹ Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.

² If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility>

NOTES:

6.2.5.3 RECYCLED WATER SYSTEM DESCRIPTION

CWC 10633.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

Liberty Utilities currently does not use recycled water within its service area. However, VVWRA is currently testing the Apple Valley Subregional WRP which is within Liberty Utilities' service area which will incorporate membrane bioreactor technology with a treatment capacity of 1 MGD. Recycled water generated from the Apple Valley Subregional WRP is currently being tested at the Apple Valley Course. (The Golf Course is located within Liberty Utilities' service area but has its own source of supply). VVWRA

anticipates potential additional uses for recycled water generated from the Apple Valley Subregional WRP will include irrigation and landscaping projects.

6.2.5.4 POTENTIAL, CURRENT, AND PROJECTED RECYCLED WATER USES

CWC 10633.

(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use. A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Liberty Utilities currently does not use recycled water within its service area. However, VVWRA is currently testing the Apple Valley Subregional WRP within Liberty Utilities' service area at the Apple Valley Golf Course. VVWRA anticipates potential additional uses for recycled water generated from the Apple Valley Subregional WRP will include irrigation and landscaping projects. Current and projected recycled water direct uses are shown in Table 6-4. Table 6-5 is intentionally blank as Liberty Utilities did not project recycled water use for 2020 in its 2015 Plan.

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area										
<input checked="" type="checkbox"/> Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.										
Name of Supplier Producing (Treating) the Recycled Water:										
Name of Supplier Operating the Recycled Water Distribution System:										
Supplemental Water Added in 2020 (volume) <i>Include units</i>										
Source of 2020 Supplemental Water										
Beneficial Use Type <i>Insert additional rows if needed.</i>	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity) <i>Include volume units¹</i>	General Description of 2020 Uses	Level of Treatment <i>Drop down list</i>	2020 ¹	2025 ¹	2030 ¹	2035 ¹	2040 ¹	2045 ¹ (opt)
Agricultural irrigation										
Landscape irrigation (exc golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
Total:					0	0	0	0	0	0
2020 Internal Reuse										

¹ Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.

NOTES:

Table 6-5 2015 Recycled Water Use Projection Compared to 2020 Actual

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
<input checked="" type="checkbox"/>	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	2015 Projection for 2020 ¹	2020 Actual Use ¹
<i>Insert additional rows as needed.</i>		
Agricultural irrigation		
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	0	0
¹ Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.		
NOTE:		

6.2.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

As the owner and operator of the Westside Regional Water Reclamation Plant, VVWRA is responsible for determining the technical and economic feasibility of supplying recycled water to the potential users in the Town of Apple Valley, including within Liberty Utilities' service area. As discussed above and shown in Table 6-6, VVWRA is currently testing the Apple Valley Subregional WRP which will generate recycled water for use at the Apple Valley Golf Course.

Table 6-6 Methods to Expand Future Recycled Water Use

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.2.5	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
<i>Add additional rows as needed</i>			
Total			0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.			
NOTES: VVWRA is currently testing the Apple Valley Subregional WRP which will generate recycled water for use at the Apple Valley Golf Course. However, it is not anticipated a significant quantity of recycled water will be available for use within Liberty Utilities' service area.			

6.2.6 DESALINATED WATER OPPORTUNITIES

CWC 10631.

(g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Liberty Utilities has evaluated opportunities for using desalinated water in future supply options. However, at this time, none of the opportunities are practical or economically feasible for Liberty Utilities and Liberty Utilities has no current plans to pursue them. Therefore, desalinated supplies are not included in the supply summaries in this Plan. However, should a future opportunity emerge for Liberty Utilities to consider development of desalination, these potential future supply opportunities are described in the following section, including opportunities for desalination of brackish water.

Liberty Utilities' groundwater supplies are not considered brackish in nature, and desalination is not required. However, the potential exists for Liberty Utilities and MWA to team with other SWP contractors and provide financial assistance to construct other regional groundwater desalination facilities in exchange for additional SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to Liberty Utilities and MWA from the SWP contractor.

6.2.7 WATER EXCHANGES AND TRANSFERS

CWC 10631.

(c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

6.2.7.1 EXCHANGES

Pursuant to DWR's 2020 Final Guidebook, *"Water exchanges are typically water delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or it can include payment and the return of water."*

MWA has, on behalf of its sub-agencies (including Liberty Utilities), participated in significant SWP Table A water transfers and exchanges, thus augmenting local water supplies. It is assumed that MWA will continue to participate in such programs.

6.2.7.2 TRANSFERS

Pursuant to DWR's 2020 Final Guidebook, "*The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.*"

An opportunity available to Liberty Utilities to increase water supplies is to participate in voluntary water transfer programs. According to DWR⁶, approximately 34 million AF of water is delivered for agricultural use every year. Much of this water is used in the Central Valley and is in the vicinity of SWP and Central Valley Project (CVP) conveyance facilities. This proximity to existing water conveyance facilities could allow for the voluntary transfer of water to MWA on behalf of Liberty Utilities. The costs of a water transfer would vary depending on the type, term, and location of the transfer. The most likely voluntary water transfer programs would probably involve the Sacramento or southern San Joaquin Valley areas.

With recent developments in conjunctive use and groundwater banking, significant opportunities exist to improve water supply reliability for Liberty Utilities. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. Most conjunctive use concepts are based on storing groundwater supplies in times of surplus for use during dry periods and drought when surface water supplies would likely be reduced. Groundwater banking programs involve storing available SWP surface water supplies during wet years in groundwater basins. Water would be stored either directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in lieu of their intended groundwater pumping. During water shortages, the stored water could be pumped out and conveyed through the California Aqueduct through MWA to Liberty Utilities as the banking partner. Several conjunctive use and groundwater banking opportunities are available to Liberty Utilities. MWA utilizes

⁶ <https://water.ca.gov/Water-Basics/Agriculture>

its own conjunctive use program when MWA SWP supply is greater than the demand in the service area. MWA is able to store this water for future use when SWP supplies are not available. This activity also allows MWA to take advantage of wet year supplies because of the abundant groundwater storage available in the Basins. In 2006, MWA adopted a “Water Banking Policy” to guide in determining where water will be “banked.” Banking targets (maximums) were established for each Mojave Basin Area Subarea where banking may occur under this Policy and to prioritize where available water will be banked. The targets are generally based on the calculation of three times the nonagricultural water demand (production) within a Subarea.

As discussed in Section 6.2.2, the Mojave Basin Area Judgment allows a party to transfer unused FPA to another party within a Subarea. Liberty Utilities is able to utilize the transfer opportunities available for Mojave Basin Area water when necessary.

6.2.7.3 EMERGENCY INTERTIES

Emergency interties (or interconnections) are distribution system interconnections between water agencies for use during critical situations where one system or the other is temporarily unable to provide sufficient potable water to meet its water demands and/or fire protection needs. An emergency interconnection will allow a water system to continue serving water during critical situations such as local water supply shortages as a result of earthquakes, fires, prolonged power outages, and droughts.

Liberty Utilities currently does not have emergency interconnections with the ability to receive water from other water agencies that serve as short-term emergency exchange opportunities.

6.2.8 FUTURE WATER PROJECTS

CWC 10631.

(f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

Liberty Utilities obtains water from local groundwater supplies. Although this water supply source allows Liberty Utilities to provide sufficient water service, currently and in the future, there are potential water supply projects and programs that may allow Liberty Utilities to enhance and augment existing water supplies. These water supply projects and programs include water transfer opportunities (Section 6.2.7) and recycled water beneficial uses (Section 6.2.5) and are summarized in Table 6-7. These water supply projects and programs may increase Liberty Utilities' water supply reliability and increase new water supply sources. In addition, these water supply projects and programs may decrease vulnerability of water outages during drought periods and other emergency water supply situations.

Table 6-7 Expected Future Water Supply Projects or Programs

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input checked="" type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Section 6.2.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Supplier* <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Supplier Name</i>				
<i>Add additional rows as needed</i>						
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES:						

6.2.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

CWC 10631.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following...

(b)(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.2.9.1 DESCRIPTION OF SUPPLIES

As discussed in Section 6.2, Liberty Utilities' water supply sources consist of groundwater from the Mojave Basin (see Section 6.2.2). The actual quantities of the water supply source available to Liberty Utilities during CY 2019 are summarized in Table 6-8. The reliable quantities of projected water supply source available to Liberty Utilities in five-year increments through CY 2044 during normal or average years are summarized in Table 6-9. The reliability of this source of supply is addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

The order of use of Liberty Utilities' projected reliable water supplies from CY 2020 through CY 2044 in five-year increments is based on historical practices, water supply availability, and the cost of water. It is anticipated Liberty Utilities will use groundwater produced from the Mojave Basin Area. It is important to note that the Mojave Basin Area is adjudicated (as discussed in Section 6.2.2) and that there is no limit to the amount of groundwater which can be produced annually.

6.2.9.2 QUANTIFICATION OF SUPPLIES

The actual quantities of the water supply source available to Liberty Utilities during CY 2019 are summarized in Table 6-8. The reliable quantities of projected water supply source available to Liberty Utilities in five-year increments through CY 2044 during average years are summarized in Table 6-9. The reliability of this source of supply is addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

Liberty Utilities' projected quantities of groundwater supplies from the Mojave Basin Area are based on historical long-term averages and available supplies during previous dry year conditions. As noted in Section 6.2.2 Liberty Utilities has the flexibility to increase

groundwater production from the Mojave Basin Area. Consequently, it is anticipated Liberty Utilities will have sufficient water supplies available to meet projected demands.

Table 6-8 Water Supplies - Actual

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Groundwater (not desalinated)	Mojave Basin Area (Potable)	10,067	Drinking Water	
Groundwater (not desalinated)	Mojave Basin Area (Agricultural)	4,912	Other Non-Potable Water	
Total		14,979		0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.				
NOTES:				

Table 6-9 Water Supplies - Projected

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUData online submittal tool		2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Groundwater (not desalinated)	Mojave Basin Area (Potable)	11,256		11,876		12,530		13,220		13,948	
Groundwater (not desalinated)	Mojave Basin Area (Agricultural)	4,590		4,590		4,590		4,590		4,590	
Total		15,846	0	16,466	0	17,120	0	17,810	0	18,538	0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.											
NOTES											

6.2.10 SPECIAL CONDITIONS

Liberty Utilities has considered the issues described below when developing its planned source of water supply.

6.2.10.1 CLIMATE CHANGE EFFECTS

Climate change has the possibility of impacting the availability of planned water supplies, particularly during a drought period. Section 4.5 of this Plan provides a discussion regarding climate change effects on Liberty Utilities' source of supply.

6.2.10.2 REGULATORY CONDITIONS AND PROJECT DEVELOPMENT

Liberty Utilities has considered the implications of changing regulatory conditions and project development on the availability of planned water supplies. Section 1.4 provides a discussion regarding the reduced reliance on imported water supplies.

6.2.10.3 OTHER LOCALLY APPLICABLE CRITERIA

There are no locally applicable criteria which applies to Liberty Utilities.

6.3 SUBMITTAL TABLES COMPLETION USING THE OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and Liberty Utilities is not required by DWR to use the tool. Section 6.1 provides a tabulation of Liberty Utilities' historical annual water uses for its water supply source. During the past 10 years, Liberty Utilities experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. In addition,

historical records indicate Liberty Utilities' annual water demands typically have been even greater prior to CY 2012. Liberty Utilities has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, Liberty Utilities has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of Liberty Utilities' water supply source is provided in Chapter 7.

6.4 ENERGY USE

CWC 10631.2.

(a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

- (1) An estimate of the amount of energy used to extract or divert water supplies.*
- (2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.*
- (3) An estimate of the amount of energy used to treat water supplies.*
- (4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.*
- (5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.*
- (6) An estimate of the amount of energy used to place water into or withdraw from storage.*
- (7) Any other energy-related information the urban water supplier deems appropriate.*

"Energy intensity" is defined as the quantity of energy consumed, measured in kilowatt hours (kWh), divided by the volume of water, measured in AF for a water management process over a one-year period. The information used to calculate the estimated energy intensity associated with Liberty Utilities' water system is provided below. The energy

intensity information is based on readily obtainable energy and water use data for the following water management processes: 1) extraction or diversion of water supplies; 2) placement into storage; 3) conveyance to distribution; 4) treatment; and 5) water system distribution.

Liberty Utilities has tabulated its energy intensity using readily obtainable energy consumption data obtained from monthly electricity bills from Southern California Edison (SCE) for the whole water system and the corresponding water use data obtained from available water meter readings. Liberty Utilities has reported the energy intensity associated with the water management processes which occur within its operational control. Because Liberty Utilities does not track individual energy usage for each water management process identified above, Liberty Utilities has estimated the energy intensity using a “total utility approach” (i.e. sum of all water management processes). The total energy consumed was approximately 6,754,860 kWh during Calendar Year 2020. Although the total energy consumption reported includes electricity usage for general administration (e.g. at the Liberty Utilities’ headquarters) which is not associated with any water management processes, the general administration energy usage is considered negligible compared to overall water system use and has not been netted out.

The total volume of water entering the potable water system was approximately 14,979 AF during Calendar Year 2020 and is consistent with the total volume of water provided in Table 4-1.

The total energy intensity associated with Liberty Utilities’ water management processes is estimated at 451 kWh/AF. The energy intensity data and calculations based on the “total utility approach” are provided in Table O-1B below.

Liberty Utilities’ water management processes do not include “consequential hydropower generation” where the energy generation is a direct consequence of water delivery (i.e. all water passing through the energy generation devices is delivered to users). Liberty

Utilities' water management processes do not include "non-consequential hydropower generation" where the energy generation is not a direct consequence of water delivery (i.e. energy could be generated even if no water was being delivered to water users). In addition, Liberty Utilities' water management processes do not include any substantial "self-generated energy sources" including solar, wind, geothermal, biomass, co-generation, and diesel generator sources.

Table O-1B. Recommended Energy Reporting — Total Utility Approach
Urban Water Supplier:
Liberty Utilities - Apple Valley
Water Delivery Product (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

Table O-1B: Recommended Energy Reporting - Total Utility Approach				
Enter Start Date for Reporting Period	1/1/2020	Urban Water Supplier Operational Control		
End Date	12/31/2020			
<input type="checkbox"/> Is upstream embedded in the values reported?		Sum of All Water Management Processes	Non-Consequential Hydropower	
<i>Water Volume Units Used</i>	<i>AF</i>	Total Utility	Hydropower	Net Utility
<i>Volume of Water Entering Process (volume unit)</i>		14,979	0	14979
<i>Energy Consumed (kWh)</i>		6,754,860	0	6754860
<i>Energy Intensity (kWh/volume)</i>		451.0	0.0	451.0
Quantity of Self-Generated Renewable Energy <div>0 kWh</div>				
Data Quality (<i>Estimate, Metered Data, Combination of Estimates and Metered Data</i>) <i>Combination of Estimates and Metered Data</i>				
Data Quality Narrative: The total energy consumed was identified based on Southern California Edison (SCE) billing records. Although the total energy consumed includes electricity usage for general administration (which is not an identified water management process), general administration energy use is considered to be negligible compared to overall water system use and has not been netted out.				
Narrative: The total energy consumption includes energy associated with operating groundwater production wells and booster pumps to deliver water in the distribution system. Energy consumption is also associated with plant lighting and air conditioning, and operating the Supervisory Control and Data Acquisition (SCADA) system and chlorination injection pumps.				

CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

LAY DESCRIPTION – CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Chapter 7 (Water Service Reliability and Drought Risk Assessment) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- Calendar Year 2020 represents an “average” or “normal” water year for Liberty Utilities in which the total amount of rainfall was similar to the historical average rainfall.
- A “single dry” year for Liberty Utilities was represented in Calendar Year 2017, in which the total amount of rainfall was below the historical average rainfall.
- A “five consecutive year drought” period for Liberty Utilities is represented from Calendar Year 2011 to Calendar Year 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall.
- Liberty Utilities’ current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through Calendar Year 2045) as shown on Table 7-2.
- Liberty Utilities’ current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through Calendar Year 2045) as shown on Table 7-3.
- Liberty Utilities’ current and projected water supplies available during each year of a five consecutive year drought in five-year increments over the next 25 years are provided (through Calendar Year 2045) as shown on Table 7-4.
- The reliability of Liberty Utilities’ water supply source, including a review of water supply constraints, is provided. A single dry year or a five consecutive year drought

period will not compromise Liberty Utilities' ability to provide a reliable supply of water to its customers.

- A Drought Risk Assessment is provided which includes an assessment of Liberty Utilities' water supply reliability over a five consecutive year drought period. Liberty Utilities' DRA assumes a five consecutive year drought from Calendar Year 2021 through Calendar Year 2025 and includes a review of water supplies, water uses, and water supply reliability for the water supply source during this period. Liberty Utilities' water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. Liberty Utilities has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.1 INTRODUCTION

This section of Liberty Utilities' UWMP describes Liberty Utilities' ability to meet retail customer water demands by analyzing a variety of factors which affect Liberty Utilities' water supply. This section assesses Liberty Utilities' water service reliability during average years, single dry years, and during a five consecutive year drought period to meet the water needs of its customers. This section also includes the discussion of a Drought Risk Assessment which provides a mechanism for Liberty Utilities to evaluate the risk to its water supply under a drought lasting for the next five consecutive years.

7.2 WATER SERVICE RELIABILITY ASSESSMENT

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Information regarding the reliability of Liberty Utilities' water supplies is based on the historical precipitation data in the "High Desert" region. Historical annual precipitation in the "High Desert" region is discussed in Section 3.3 and is based on historical data collected from Station 049324 (Victorville Pump Pt, California). Furthermore, Section 4.5 of this Plan notes that potential future climate change impacts may result in an increase in the average annual precipitation within Liberty Utilities' service area, thus indicating use of historical data is a reasonable and conservative approach. As indicated in Section 3.3, the historical average rainfall in the vicinity of Liberty Utilities' service area is 5.4 inches. Calendar year 2020 represents an average or normal water year for the City in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for Liberty Utilities was represented in CY 2017, in which the total amount of rainfall was below the historical average rainfall. A five consecutive year drought period for Liberty Utilities is represented from CY 2011 to CY 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for average, single dry, and five consecutive year drought and provides the total amount of water supplies available to Liberty Utilities during those base years. The following discussion assesses the water service reliability of Liberty Utilities' water supply source.

Water Service Reliability - Groundwater

Mojave Basin

The Mojave Basin Area groundwater supplies are managed by the Mojave Basin Watermaster, as discussed in Section 6.2.2. During a normal year (CY 2020), Liberty Utilities met 100 percent of its total demands with supplies from the Mojave Basin Area. During a single dry year (CY 2017), Liberty Utilities met 100 percent of its total demands with supplies from the Mojave Basin Area. During a five consecutive year drought (CY 2011 to CY 2015), Liberty Utilities met 100 percent of its total demands with supplies from the Mojave Basin Area.

Water Service Reliability Summary

Table 7-1 shows the water supplies during the base years (for average year, single dry year and a five consecutive year drought). As noted in Section 6.2.2 Liberty Utilities has the flexibility to increase groundwater production from the Mojave Basin Area. As a result of Liberty Utilities' water supply portfolio, water supplies are expected to be sufficient during a five consecutive year drought to meet Liberty Utilities' water demands.

7.2.1 SERVICE RELIABILITY - CONSTRAINTS ON WATER SOURCES

CWC 10631.

(b)(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

Liberty Utilities has not experienced water supply constraints or deficiencies. Management of Liberty Utilities' primary groundwater supply from the Mojave Basin Area is based on an adjudication, which is described in Section 6.2.2.

Liberty Utilities currently obtains potable groundwater supplies from 20 active wells in the Mojave Basin Area. According to Liberty Utilities' annual Consumer Confidence Reports, potable groundwater quality within Liberty Utilities' service area currently meets all the regulatory requirements. There have been no contaminants detected that exceed any federal or state drinking water standards. Hundreds of samples analyzed every month and thousands every year by Liberty Utilities contract certified laboratories assure that all primary (health related) and secondary (aesthetic) drinking water standards are met.

The quality of water dictates numerous management strategies a water purveyor will implement, including, but not limited to, the selection of raw water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. Maintaining and utilizing high quality sources of water simplifies management strategies by increasing water supply alternatives, water supply reliability, and decreasing the cost of treatment. The source water supplies are of good quality for Liberty Utilities. Maintaining high quality source water allows for efficient management of water resources by minimizing costs.

Currently, water quality does not affect water supply reliability in the Liberty Utilities service area. Therefore, no anticipated change in reliability or supply due to water quality is anticipated based on the present data.

MWA monitors water levels within each of the Subareas of the Mojave Basin Area. The Mojave Basin Area - Alto Subarea water levels near the Mojave River are relatively stable, exhibiting seasonal fluctuations with rising levels in winter and declining levels in summer, as shown in hydrographs for the Western Portion of the Alto Subarea provided in the MWA Watermaster's Annual Report for Water Year 2019-20. Water levels in the western portion of the Alto Subarea exhibit declines consistent with heavy pumping and limited local recharge, with lesser declines in the eastern portion. The MWA Watermaster has indicated that continued heavy pumping in depleted areas of the Mojave Basin Area may

result in long-term local negative impacts such as declining yields and water quality problems. The Mojave Basin Area Watermaster has assigned Liberty Utilities with an FPA of 55 percent of its BAP for municipal and industrial use. It is anticipated Liberty Utilities' projected FPA will continue to be 55 percent of the BAP for municipal and industrial use (and 60 percent of the BAP for agricultural).

7.2.2 SERVICE RELIABILITY - YEAR TYPE CHARACTERIZATION

7.2.2.1 TYPES OF YEARS

Liberty Utilities' base years for an average year, a single dry year, and a five consecutive year drought are discussed in Section 7.2 and are summarized in Table 7-1. As indicated in Chapter 6, Liberty Utilities' water supplies sources have been sufficient in meeting Liberty Utilities' historical water demands during an average year, a single dry year, and a five consecutive year drought. An average year was based on a historical year during the past 10 years with a total precipitation similar to the historical average precipitation in the vicinity of Liberty Utilities' service area. Because a single dry year or a five consecutive year drought period will not compromise Liberty Utilities' ability to provide a reliable supply of water to its customers, a single dry year in this Plan was selected based one of the driest years during the past 10 years. The five consecutive year drought period was based on a period of five consecutive dry years during the past 10 years.

As indicated in Section 3.3, the historical average rainfall in the vicinity of Liberty Utilities' service area is 5.4 inches. CY 2020 represents an average or normal water year for Liberty Utilities in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for Liberty Utilities was represented in CY 2017, in which the total amount of rainfall was less than the historical average rainfall. A five consecutive year drought period for Liberty Utilities is represented from CY 2011 to CY 2015, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for an average year, a single dry year

and a five consecutive year drought period and provides the total amount of water supplies available to Liberty Utilities during those base years.

Table 7-1 Basis of Water Year Data (Reliability Assessment)

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Average Year	2020	14,979	100%
Single-Dry Year	2017	14,106	94.2%
Consecutive Dry Years 1st Year	2011	18,230	121.7%
Consecutive Dry Years 2nd Year	2012	16,788	112.1%
Consecutive Dry Years 3rd Year	2013	17,124	114.3%
Consecutive Dry Years 4th Year	2014	16,486	110.1%
Consecutive Dry Years 5th Year	2015	13,515	90.2%
<p><i>Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.</i></p>			
<p>*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</p>			
<p>NOTES:</p>			

7.2.2.2 SOURCES OF WATER DATA

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly ETo in the vicinity of Liberty Utilities' service area are discussed in Section 3.3 Historical climate information was obtained from the WRCC and from DWR's CIMIS.

7.2.3 WATER SERVICE RELIABILITY – SUPPLY AND DEMAND COMPARISON

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Liberty Utilities primarily obtains its water supply from groundwater wells located in the Mojave Basin Area. As discussed in Section 7.3 and shown in Table 7-2, Table 7-3, and Table 7-4, each of Liberty Utilities' water supply source shares the same base years. As previously discussed in Section 7.2.1, a single dry year or a five consecutive year drought period will not compromise Liberty Utilities' ability to provide a reliable supply of water to its customers.

As previously discussed in Section 4.2.6, Liberty Utilities' projected normal year water demands over the next 25 years, in five-year increments, were based on Liberty Utilities' 2020 Water Use Target of 238 GPCD for potable water demands. The ratio of total water supplies (including potable and non-potable water supplies) available to Liberty Utilities during a historical average year in CY 2020 (or 14,979 AF) and during a historical single

dry year in CY 2017 (or 14,106 AF) was used to estimate Liberty Utilities' projected water demands during single dry years. The ratio of total water supplies available to Liberty Utilities during a historical average year in CY 2020 (or 14,979 AF) and a historical five consecutive year drought period from CY 2011 to CY 2015 (or 18,230 AF, 16,788 AF, 17,124 AF, 16,486 AF, and 13,515 AF, respectively) was used to estimate Liberty Utilities' projected water demands during a five consecutive year drought period. Liberty Utilities' projected dry year water supplies over the next 25 years were based on the minimum supplies needed by Liberty Utilities to meet projected single-dry year demands. Table 7-2, Table 7-3, and Table 7-4 summarize Liberty Utilities' projected water demands and supplies over the next 25 years in five-year increments, including during normal years, single dry years, and a five consecutive year drought periods. These tables indicate Liberty Utilities can meet water demands during normal years, single dry years, and a five consecutive year drought period over the next 25 years.

7.2.3.1 WATER SERVICE RELIABILITY – NORMAL YEAR

Table 7-2 summarizes Liberty Utilities' projected water demands and supplies over the next 25 years in five-year increments during normal years. Table 7-2 indicates Liberty Utilities can meet water demands during normal years over the next 25 years.

Table 7-2 Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)	15,846	16,466	17,120	17,810	18,538
Demand totals (autofill from Table 4-3)	15,846	16,466	17,120	17,810	18,538
Difference	0	0	0	0	0
NOTES:					

7.2.3.2 WATER SERVICE RELIABILITY – SINGLE DRY YEAR

Table 7-3 summarizes Liberty Utilities' projected water demands and supplies over the next 25 years in five-year increments during single dry years. Table 7-3 indicates Liberty Utilities can meet water demands during single dry years over the next 25 years.

Table 7-3 Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	14,922	15,506	16,122	16,772	17,458
Demand totals*	14,922	15,506	16,122	16,772	17,458
Difference	0	0	0	0	0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.					
NOTES:					

7.2.3.3 WATER SERVICE RELIABILITY – FIVE CONSECUTIVE DRY YEARS

Table 7-4 summarizes Liberty Utilities' projected water demands and supplies over the next 25 years in five-year increments during five consecutive year drought periods. Table 7-4 indicates Liberty Utilities can meet water demands during five consecutive year drought periods over the next 25 years.

Table 7-4 Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	19,285	20,039	20,835	21,675	22,561
	Demand totals	19,285	20,039	20,835	21,675	22,561
	Difference	0	0	0	0	0
Second year	Supply totals	17,760	18,454	19,188	19,961	20,777
	Demand totals	17,760	18,454	19,188	19,961	20,777
	Difference	0	0	0	0	0
Third year	Supply totals	18,114	18,823	19,571	20,360	21,192
	Demand totals	18,114	18,823	19,571	20,360	21,192
	Difference	0	0	0	0	0
Fourth year	Supply totals	17,440	18,122	18,842	19,602	20,403
	Demand totals	17,440	18,122	18,842	19,602	20,403
	Difference	0	0	0	0	0
Fifth year	Supply totals	14,296	14,856	15,446	16,069	16,726
	Demand totals	14,296	14,856	15,446	16,069	16,726
	Difference	0	0	0	0	0
Sixth year (optional)	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES:						

7.2.4 DESCRIPTION OF MANAGEMENT TOOLS AND OPTIONS

CWC 10620.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

As noted in Section 6.2.2, the Mojave Basin Area is managed by the Mojave Basin Watermaster. During the period of management under the Judgment, significant drought events have occurred. In each drought cycle the Mojave Basin Area has been managed to maintain water levels. Therefore, based on historical and on-going management practices, Liberty Utilities will be able to rely on the Mojave Basin Area for adequate supply over the next 25 years under single dry years and five consecutive year drought periods.

Section 6.2.2 provides a description of the management of groundwater resources in the Mojave Basin Area, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Mojave Basin Area provides a reliable source of groundwater supply for Liberty Utilities during a normal year, a single-dry year and a five consecutive year drought. Historical data indicates the Mojave Basin Area has been well managed for the full period of the adjudication, resulting in a stable and reliable water supply. Therefore, the groundwater supplies in the Mojave Basin are deemed reliable.

7.3 DROUGHT RISK ASSESSMENT

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

Liberty Utilities' source of supplies consist of groundwater from the Mojave Basin (which is managed by the Mojave Basin Watermaster). The following discussion provides a DRA which assesses Liberty Utilities' water supply reliability over a five consecutive year drought period. Liberty Utilities' DRA incorporates a five consecutive year drought from CY 2021 through CY 2025 and includes a review of water supplies, water uses, and water supply reliability.

7.3.1 DRA DATA, METHODS, AND BASIS FOR WATER SHORTAGE CONDITION

Liberty Utilities' DRA was prepared using historical production data from Liberty Utilities' water supply source. The following assumptions were considered during the preparation of Liberty Utilities' DRA for each year of the five consecutive year drought.

- The five consecutive year drought period associated with the 2020 UWMP is based on five consecutive dry years from CY 2021 through CY 2025.
- The projected water supplies available during each year of this five consecutive year drought are assumed to be identical to the water supplies produced during each year between CY 2011 and CY 2015 (which represents the most recent and historical five consecutive year drought).
- The projected demands during this five consecutive year drought are based on water demands from CY 2020 (a normal year) which were adjusted based on projected population over the next five years along with the ratio of the normal year demands to actual demands over each year of the most recent and historical five consecutive year drought period (from CY 2011 and CY 2015).
- The projected demands were compared to the projected supplies to identify potential water supply deficits which may require implementation of the Water Shortage Contingency Plan (discussed further in Chapter 8).

The following hypothetical methodologies were considered during the preparation of Liberty Utilities' DRA during for each year of the five consecutive year drought:

- Drought Year 1: The region had experienced an average to above average year of precipitation in the prior year. Water use in the prior year had been below average due to a reduce need for outdoor water use, the groundwater basin had been replenished from above average local stormwater runoff, and imported water supplies were not restricted.
- Drought Year 2: The region experienced a second year of below average precipitation and runoff. Retail customers increase water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted.
- Drought Year 3: The region experienced a third year of below average precipitation and runoff. Retail customers increase water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted. However, there is an increased demand on groundwater.
- Drought Year 4: The region experienced a fourth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater.
- Drought Year 5: Fifth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater.

7.3.2 DRA INDIVIDUAL WATER SOURCE RELIABILITY

Liberty Utilities' DRA incorporates a five consecutive year drought based on five consecutive dry years commencing in CY 2021. The quantity of water supplies available for each year during this five consecutive year drought period included in Liberty Utilities' DRA is assumed to be the same as the quantity of water supplies produced by Liberty Utilities (i.e. demands) during the most recent and historical five consecutive year drought which occurred from CY 2011 through CY 2015. Production data for those years have been tabulated in Section 6.1. The following describes the anticipated reliability of its

water source for each year of the five consecutive year drought based on recent experience.

Liberty Utilities' water system has experienced a prior five consecutive year drought with no limitation to its water supplies. However, the cost of those water supplies may have increased based on the mix of supplies which are used. Consequently, Liberty Utilities has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.3.3 DRA TOTAL WATER SUPPLY AND USE COMPARISON

Gross water use for the projected five consecutive year drought is shown on Table 7-5. Section 7.3.2 describes the water source reliability for its source of supply Liberty Utilities will rely on during a five consecutive year drought. The annual quantities are the summed and are also provided on Table 7-5. The most important aspect of Liberty Utilities' water supplies is the groundwater which can be produced from a managed groundwater basin without restriction on the amount Liberty Utilities is allowed to produce. However, for the purposes of Liberty Utilities' DRA, as a worst-case scenario, Liberty Utilities has considered no water supply augmentation (as indicated in Table 7-5) from its groundwater supplies. When necessary, Liberty Utilities can implement various water shortage levels of its Water Shortage Contingency Plan (as discussed in Chapter 8) in order to reduce its water demands. The total water supplies available to Liberty Utilities in Table 7-5 are based on the quantity of supplies available to Liberty Utilities (i.e. demands) during the most recent historical five consecutive year drought period (from CY 2011 through CY 2015). As shown in Table 7-5, assuming no additional water supply benefits will be available from groundwater supplies, Liberty Utilities will implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during years 1, 2, 3, 4, and 5 of the projected five consecutive year drought.

Table 7-5 Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	Total
Total Water Use	18,441
Total Supplies	18,230
Surplus/Shortfall w/o WSCP Action	(211)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	211
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	1%
2022	Total
Total Water Use	17,177
Total Supplies	16,788
Surplus/Shortfall w/o WSCP Action	(389)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	389
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	2%
2023	Total
Total Water Use	17,718
Total Supplies	17,124
Surplus/Shortfall w/o WSCP Action	(594)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	594
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	3%
2024	Total
Total Water Use	17,249
Total Supplies	16,486
Surplus/Shortfall w/o WSCP Action	(763)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	763
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	4%
2025	Total
Total Water Use	14,296
Total Supplies	13,515
Surplus/Shortfall w/o WSCP Action	(781)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	781
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	5%

7.3.4 OPTIONAL PLANNING TOOL WORKBOOK

DWR has deemed the “Planning Tool Worksheet” as optional and Liberty Utilities is not required by DWR to use the tool. Liberty Utilities has provided sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. Liberty Utilities has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. Liberty Utilities obtains its water supplies from a managed groundwater basin which is not subject to seasonal fluctuation. Consequently, an evaluation regarding water supplies on a monthly basis was not considered.

CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

LAY DESCRIPTION – CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

Chapter 8 (Water Shortage Contingency Plan) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- Liberty Utilities’ Water Shortage Contingency Plan is a detailed approach which presents how Liberty Utilities intends to act, or respond, in the case of an actual water shortage contingency.
- Preparation of Liberty Utilities’ “Annual Water Supply and Demand Assessment” (or Annual Assessment) is discussed. Commencing July 1, 2022, Liberty Utilities is required to submit the Annual Assessment. The Annual Assessment will include a review of Liberty Utilities’ “unconstrained” water demands for the current year and for a potential upcoming single dry year. Unconstrained water demands represent Liberty Utilities’ water demands prior to any “response actions” Liberty Utilities may invoke pursuant to Liberty Utilities’ Water Shortage Contingency Plan.
- Liberty Utilities will manage water supplies to minimize the adverse impacts of water shortages. Liberty Utilities’ plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels corresponding to progressive ranges from up to a 10, 20, 30, 40, and 50 percent shortage, and greater than a 50 percent shortage.
- For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level.

- For each declared water supply shortage level, Liberty Utilities has established response actions to reduce demand on water supplies and to reduce any shortage gaps in water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions.
- The operational changes Liberty Utilities will consider in addressing water shortages on a short-term basis are discussed and include improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- Liberty Utilities' Emergency Response Plan is summarized. The Emergency Response Plan provides the management, procedures, and designated actions Liberty Utilities and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures, and other unforeseen circumstances.
- The preparation of Liberty Utilities' seismic risk assessment and mitigation plan is discussed. The locations of earthquake faults in the vicinity of Liberty Utilities' water service area are provided.
- The effectiveness of the shortage response actions for each of Liberty Utilities' standard water shortage levels is presented. Liberty Utilities has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands.
- The communication protocols implemented by Liberty Utilities when it declares any water shortage level are presented.
- The compliance and enforcement procedures associated with Liberty Utilities' standard water shortage levels are presented.
- The legal authorities associated with Liberty Utilities' standard water shortage levels are presented.
- The financial consequences associated with Liberty Utilities' standard water shortage levels are presented.

- Liberty Utilities will evaluate the need for revising the Water Shortage Contingency Plan in order to resolve any water shortage gaps, as necessary. The steps necessary for Liberty Utilities to adopt and amend its Water Shortage Contingency Plan are presented.

The following Water Shortage Contingency Plan includes references to Chapters and Sections from Liberty Utilities – Apple Valley’s 2020 Urban Water Management Plan:

8.1 WATER SUPPLY RELIABILITY ANALYSIS

CWC 10632.

(a)(1) The analysis of water supply reliability conducted pursuant to Section 10635.

Liberty Utilities receives groundwater from the Mojave Basin Area, as discussed in Section 6.2 of the 2020 UWMP. The Mojave Basin Area is adjudicated and groundwater supplies are managed. The reliability of this source of supply is discussed in Chapter 7 of this UWMP.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

CWC 10632.

(a)(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

CWC 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

Commencing July 1, 2022, Liberty Utilities is required to submit an “Annual Water Supply and Demand Assessment” (Annual Assessment) in accordance with DWR’s guidance and requirements. The Annual Assessment will include a review of Liberty Utilities’ unconstrained water demands (i.e. water demands prior to any projected response

actions Liberty Utilities may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. Liberty Utilities will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the Liberty Utilities' WSCP.

For each Annual Assessment, Liberty Utilities plans to prepare a preliminary assessment which evaluates the adequacy of its water supplies for the current and upcoming years by April of each year. The preliminary assessment will include a review of water supplies for at least a single dry year.

The components of an Annual Assessment consist of the following:

- A written decision-making process
- Key data inputs and assessment methodology

8.2.1 DECISION MAKING PROCESS

Liberty Utilities produces groundwater from the Mojave Basin Area as its primary source of water supply and this basin is managed on a fiscal year basis. Consequently, during the third quarter of each fiscal year Liberty Utilities will review its water demands from the initial six months along with the current groundwater basin conditions and local hydrology. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be circulated internally within Liberty Utilities for peer review and comment. Based on comments received, a redraft will be prepared and provided to Liberty Utilities managers during the Spring of each year. The draft subsequently will be provided to the General Manager for final review. Subsequently, a final draft of the Annual Assessment will be provided to the Liberty Utilities' Board of Directors for review and included in the agenda as part of a Board meeting such that it can be approved and any

recommended specific shortage response actions may be enacted. The final Annual Assessment will be provided to DWR no later than July 1 of each year.

The Annual Assessments will be instrumental in providing guidance to Liberty Utilities for decisions regarding potential declarations of a water supply shortage and implementation of water reduction stages, instituting mandatory water restrictions, promoting water use efficiency and conservation programs, water rates and drought rate surcharges, and the necessity of pursuing alternative water supplies. This process will help ensure adequate water supplies resources are available to Liberty Utilities.

8.2.2 DATA AND METHODOLOGIES

The key data inputs and methodologies which will be evaluated by Liberty Utilities during the preparation of the preliminary assessment will include the following:

- 1) Evaluation Criteria: The locally applicable evaluation criteria used to prepare the Annual Assessment will be identified. The evaluation criteria will include, but is not limited to, an analysis of current local hydrology (including rainfall and groundwater levels), current water demands, a review of water system improvement plans which may impact infrastructure availability, and water quality regulations which may impact groundwater availability.
- 2) Water Supply: A description of the available water supply source will be provided. The descriptions will include a quantification of the available water supply source and will be based on review of current production capacities, historical production, UWMPs, and prior water supply studies (including Water Supply Assessments and/or Master Plans).
- 3) Unconstrained Water Demand: The potential unconstrained water demands during the current year and the upcoming (potential single dry) year, prior to any special

shortage response actions, will be reviewed. The review will include factors such as weather, existing and projected land uses and populations, actual customer consumption and water use factors, monthly Urban Water Supplier Monthly Reports, existing water shortage levels (see Section 8.3), and existing water conservation ordinances (see Section 9.2.1).

- 4) Planned Water Use for Current Year Considering Dry Subsequent Year: The water supplies available to meet the demands during the current year and the upcoming (potential single dry) year will be considered. The evaluation will include factors such as estimated water demands, weather, groundwater basin operating safe yields, water quality results, existing available pumping capacities, contractual obligations, regulatory issues, use of emergency interconnections, and the costs associated with producing the water supply source.
- 5) Infrastructure Considerations: The capabilities of the water distribution system infrastructure to meet the water demands during the current year and the upcoming (potential single dry) year will be considered. Available production capacities (e.g. groundwater well capacities) and distribution system water losses (see Section 4.2.4) will be reviewed. In addition, capital improvement and replacement projects, as well as potential projects which may increase water system and production capacities (see Section 6.2.8), will be considered.
- 6) Other Factors: Additional local considerations, if any, which can affect the availability of water supplies will be described.

8.3 SIX STANDARD WATER SHORTAGE LEVELS

CWC 10632.

(a)(3)(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(a)(3)(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross reference relating its existing categories to the six standard water shortage levels.

Liberty Utilities will manage water supplies prudently to minimize the adverse impacts of water shortages. Liberty Utilities' plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels corresponding to progressive ranges from up to 10, 20, 30, 40, and 50 percent shortages, and greater than 50 percent shortage.

For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level. The required percentage reduction for each customer will be based on water usage during the same billing period in the last calendar year during which there were no declared water shortages.

CPUC's Rule 14.1 ("Water Conservation and Rationing Plan"), updated in September 2015, and the Apple Valley Ranchos Water Company Schedule 14.1 ("Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions and Drought Surcharges") adopted June 2015, previously established four (4) water shortage levels. A copy of Rule 14.1 and Apple Valley Ranchos Water Company Schedule 14.1 is

provided in Appendix J. In accordance with CWC in which urban water suppliers are required to define six (6) standard water shortage levels, Liberty Utilities has developed the crosswalk illustrated below that translates Liberty Utilities' previously established shortage levels to the mandated standard shortage levels.

Corresponding Relationships Between Supplier's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Established Level		2020 Standard Level	Shortage Level
1	→	1	≤10%
2	→	2	10 to 20%
3	→	3	20 to 30%
4	→	4	30 to 40%
	→	5	40 to 50%
	→	6	> 50%

Table 8-1 provides a description of the six water shortage levels, which may be triggered by a shortage in Liberty Utilities' water supply source, depending on the severity of the shortage and its anticipated duration.

Table 8-1 Water Shortage Contingency Planning Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	Percent Shortage Range	Shortage Response Actions (Narrative description)
1	Up to 10%	Outdoor irrigation is restricted to no more than three (3) days per week, no more than 10 minutes per day per station, with no watering between 8:00 a.m. and 7:00 p.m. All leaks, breaks, or other malfunction must be repaired within five (5) days of written notification.
2	Up to 20%	In addition to Shortage Level 1; Outdoor irrigation is restricted to no more than two (2) days per week. All leaks, breaks, or other malfunction must be repaired within three (3) days of written notification. All usage in excess of the residential customer's allocation will be charged at the regular Schedule No. 1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 1.0. All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.15.
3	Up to 30%	In addition to Shortage Level 2, Liberty Utilities - Apple Valley may add actions if conditions warrant.
4	Up to 40%	In addition to Shortage Level 3; All usage in excess of the residential customer's allocation will be charged at the regular Schedule No. 1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 1.5. All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.30.
5	Up to 50%	In addition to Shortage Level 4, Liberty Utilities - Apple Valley may add actions if conditions warrant.
6	>50%	In addition to Shortage Level 5; All usage in excess of residential customer's allocation will be charged at the regular Schedule No.1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 2.0. All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.45
NOTES:		

8.4 SHORTAGE RESPONSE ACTIONS

CWC 10632.

(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Shortage response actions are dependent on the severity of a declared shortage level. Response actions implement varying improvements and regulations of system infrastructure and operations, water supply augmentation, demand reduction initiatives and other water use functions to conserve water supplies.

Liberty Utilities is an investor-owned Supplier and is subject to CPUC approval to establish and activate necessary shortage response actions and corresponding water shortage levels pursuant to CPUC Rule 14.1 (“Water Conservation and Rationing Plan”). Liberty Utilities may express a need for customers to practice voluntary or mandatory conservation measures. If Liberty Utilities finds it necessary, Liberty Utilities may request to activate a water shortage level which would implement fines and surcharges in addition to mandatory conservation measures after establishing Apple Valley Ranchos Water Company Schedule 14.1 (“Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions and Drought Surcharges”). Copies of these CPUC documents are in Appendix J.

8.4.1 DEMAND REDUCTION

Liberty Utilities may establish water shortage response actions to reduce demand on water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions. Depending on the percent reduction in Liberty Utilities' water supply and corresponding water shortage level, regulations are made to conserve water and reduce the shortage gap in normal supply levels. Many demand reduction actions, identified as voluntary or mandatory conservation measures, are applicable to all levels of water shortages. The structure of water shortage levels are designed to strongly encourage customers with high per capita usage to achieve proportionally greater reduction than those with low usage. Violations of these demand reduction actions will be considered waste and an unreasonable use of water. Table 8-2 describes each demand reduction action and its effect on reducing the shortage gap.

If water supplies are projected to be insufficient to meet normal customer demand, and are beyond control of Liberty Utilities, Liberty Utilities may elect to activate voluntary conservation using the following demand reduction actions:

- Use of potable water for more than minimal landscaping, as defined in the landscaping regulation of the jurisdiction or as described in Article 10.8 of the California Government Code in connection with new construction.
- Excessive use of water Liberty Utilities has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering, or irrigation system and the customer has failed to effect such repairs within five (5) business days.
- Use of potable water which results in flooding or runoff in gutters or streets.
- Individual private washing of cars with a hose except with the use of a positive action shut-off nozzle. Use of potable water for washing commercial aircraft, cars, buses, boats, trailers, or other commercial vehicles at any time, except at

commercial or fleet vehicle or boat washing facilities operated at a fixed location where equipment using water is properly maintained to avoid wasteful use.

- Use of potable water washing buildings, structures, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas, except in the cases where health and safety are at risk.
- Use of potable water to irrigate turf lawns, gardens, or ornamental landscaping by means other than drip irrigation, or hand watering without quick acting positive action shut-off nozzles, on a specific schedule, for example: 1) before 9:00 a.m. and after 5:00 p.m.; 2) every other day; or 3) selected days of the week.
- Use of potable water for street cleaning with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
- Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
- Use of potable water for construction purposes unless no other source of water or method can be used.
- Use of potable water for street cleaning.
- Operation of commercial car washes without recycling at least 50 percent of the potable water used per cycle.
- Use of potable water for watering outside plants, lawn, landscape, and turf areas during certain hours if and when specified in Schedule 14.1 when the schedule is in effect.
- Use of potable water for decorative fountains of the filling or topping off of decorative lakes or ponds which utilize recycled water.
- Use of water by any restaurant except upon the request of a patron.
- Use of potable water to flush hydrants, except where required for public health or safety.

The following demand reduction actions are effective in times of mandatory conservation and apply to all water shortage levels:

- The application of potable water to outdoor landscapes in a manner that causes runoff such that water flow onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures,
- The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.
- The use of potable water for washing buildings, structures, sidewalks, walkways, patios, tennis courts, or other hard-surfaced, non-porous areas.
- The use of potable water in a fountain or other decorative water feature, except where the water is part of recirculating system.
- The use of potable water for watering outside plants, lawn, landscape, and turf area during certain hours prohibited by applicable laws, during and up to 48 hours after measurable rainfall (0.1" or more).
- Liberty Utilities will promptly notify customers when aware of leaks within the customer's control. The failure to promptly repair leaks, breaks, or other malfunction resulting in water waste in a customer's domestic or outdoor water system after notification by Liberty Utilities, unless other, specific arrangements are made with and agreed to by Liberty Utilities.
- The serving of water, other than upon request, in eating and drinking establishments, including but not limited to restaurants, hotels, cafes, bars, or other public places where food or drink are served and/or purchased.
- Hotels/ motels must provide guests with the option of choosing not to have towels and linens laundered daily and prominently display notice of this option in each guestroom.
- The use of potable water for irrigation of ornamental turf on public street medians.

- The use of potable water for irrigation outside of newly constructed homes and buildings that is not delivered by drip or micro spray systems.
- Commercial, industrial, and institutional properties, such as campuses, golf courses, and cemeteries, immediately implement water efficiency measures to reduce potable water use in an amount consistent with the mandated reduction.
- Further reduction in or the complete prohibition of any other use of water declared non-essential, unauthorized, prohibited, or unlawful by an unauthorized government or regulatory agency or official.
- Use of potable water for watering streets with trucks, or other vehicles, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.

The following stages will be implemented as needed to achieve reduction in the shortage gap. Liberty Utilities may implement Water Supply Shortage Level 2 and the associated Drought Emergency Surcharge without first implementing Water Supply Shortage Level 1 if warranted by the mandated reduction in the shortage gap.

Water Supply Shortage Level 1

The following restrictions are in effect during Water Supply Shortage Level 1:

- Outdoor irrigation is restricted to no more than three (3) days per week:

Addresses Ending In:	Watering Days
Even Numbers (0, 2, 4, 6, 8)	Monday, Wednesday, and Saturday
Odd Numbers (1, 3, 5, 7, 9)	Tuesday, Thursday, and Sunday

Additional restrictions:

- Watering or outdoor irrigation of outside plants, lawn, landscape, and turf areas with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than 10 minutes of watering per day per station, with no watering between 8:00 a.m. and 7:00 p.m. This provision does not apply to landscape irrigation zones that exclusively use drip-type irrigation

systems that use less than 1.0 inch per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive shut-off nozzle or device that causes it to cease dispensing water immediately when not in use, or for the express purpose of adjusting or repairing an irrigation system. However, no irrigation can occur regardless of method that results in runoff.

- Apart from the above outdoor irrigation restrictions, when a city, county, or other public agency in Liberty Utilities' service area adopts restrictions on the number of days or hours of that day that customers may irrigate that are different than those adopted by Liberty Utilities, Liberty Utilities may adopt the city, county, or other local public agency's restrictions.
- All leaks, breaks, or other malfunction in the customer's plumbing fixtures and/or irrigation system must be repaired within five (5) days of written notification by Liberty Utilities, unless other arrangements are made with Liberty Utilities.
- Failure to comply with these restrictions may result in the installation of a flow restrictor device along with associated fees for installation and removal.
- Failure to comply with these restrictions may result in the installation of a real time measurement device on the customer's service line to provide the customer and Liberty Utilities with access to information from the device. The cost of the device, including installation, shall be billed to the customer, and nonpayment may result in discontinuance of service.
- If conditions warrant, Liberty Utilities will change the number of watering days and the specific days of watering after first notifying its customers in accordance with Rule 14.1.
- If conditions warrant, Liberty Utilities will change the number of days allowed for a customer to fix leaks, breaks, or other malfunction after first notifying its customers in accordance with Rule No. 14.1.

Water Supply Shortage Level 2

In addition to the restrictions identified in Water Supply Shortage Level 1, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 2:

- Outdoor irrigation is restricted to no more than two (2) days per week for non-residential customers. Watering or outdoor irrigation of outside plants, lawn, landscape, and turf areas with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than 10 minutes of watering per day per station.
- All leaks, breaks, or other malfunction in the customer's plumbing fixtures and/or irrigation system must be repaired within three (3) days of written notification by Liberty Utilities, unless other arrangements are made with Liberty Utilities.
- The use of potable water to refill residential swimming pools or outdoor spas more than one foot or initial filling with potable water except when existing pools are drained to repair leaks.
- All customers will have their baseline established by using the system wide average use for 2013.
- The customer's allocation will be based on the 2013 baseline less 28%.
- Residential customer's allocation will be set at nine (9) Ccf per month for the months of November, December, January, February, March, April, and May. For the months of June, July, August, September, and October the allocation will be set at sixteen (16) Ccf per month.
- All usage in excess of the residential customer's allocation will be charged at the regular Schedule No.1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 1.0.
- All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.15.

- If feasible, the customer's allocation may be based on a customer's consumption during a historical base period and will include a percentage reduction designed to meet necessary water use reductions. In addition to the normal rate paid of the unit of water, a drought surcharge will be charged to the customer for each unit of water used over the established allocation for the billing period.

Water Supply Shortage Level 3

In addition to the restrictions identified in Water Supply Shortage Level 2, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 3:

- If conditions warrant, Liberty Utilities may add additional demand reduction actions.

Water Supply Shortage Level 4

In addition to the restrictions identified in Water Supply Shortage Level 3, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 4:

- Outdoor irrigation is restricted to no more than one (1) day per week. Watering or outdoor irrigation of outside plants, lawn, landscape, and turf areas with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than five (5) minutes of watering per day per station.
- All usage in excess of residential customer's allocation will be charged at the regular Schedule No.1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 1.5.
- All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.30.
- If conditions warrant, Liberty Utilities may add additional demand reduction actions.

Water Supply Shortage Level 5

In addition to the restrictions identified in Water Supply Shortage Level 4, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 5:

- If conditions warrant, Liberty Utilities may add additional demand reduction actions.

Water Supply Shortage Level 6

In addition to the restrictions identified in Water Supply Shortage Level 5, the following allocations and drought emergency surcharges are in effect during Water Supply Shortage Level 6:

- Outdoor irrigation is restricted to no more than one (1) day per week. Watering or outdoor irrigation of outside plants, lawn, landscape, and turf areas with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than five (5) minutes of watering per day per station.
- All usage in excess of residential customer's allocation will be charged at the regular Schedule No.1 quantity rate plus a drought emergency surcharge rate that is calculated from the Tier 1 quantity rate multiplied by a factor of 2.0.
- All usage for non-residential customers served under Tariff Schedule No. 3 will be charged at the regular Schedule No. 3 quantity rate plus a drought emergency surcharge rate that is calculated as the quantity rate multiplied by a factor of 0.45.
- If conditions warrant, Liberty Utilities may add additional demand reduction actions.

Table 8-2 Demand Reduction Actions

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.</i>	How much is this going to reduce the shortage gap? <i>Include units used (volume type or percentage)</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>For Retail Suppliers Only</i> <i>Drop Down List</i>
Add additional rows as needed				
1	Landscape - Limit landscape irrigation to specific days	Collective reduction from all Shortage Level 1 actions is up to 1,336 AFY	Maximum 2 days a week.	Yes
1	Landscape - Limit landscape irrigation to specific times	Collective reduction from all Shortage Level 1 actions is up to 1,336 AFY	between 9 a.m. or after 5 p.m.	Yes
2	Other	Collective reduction from Shortage Level 1 plus all Shortage Level 2 actions is up to 2,672 AFY	All actions under Shortage Level 1	Yes
2	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 1 actions is up to 2,672 AFY	All users in excess of allocation will be charged regular rate plus surcharge.	Yes
3	Other	Collective reduction from Shortage Level 2 plus all Shortage Level 3 actions is up to 4,008 AFY	All actions under Shortage Level 2	Yes
4	Other	Collective reduction from Shortage Level 3 plus all Shortage Level 4 actions is up to 5,344 AFY	All actions under Shortage Level 3	Yes
4	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from all Shortage Level 4 actions is up to 5,344 AFY	All users in excess of allocation will be charged regular rate plus surcharge.	Yes
5	Other	Collective reduction from Shortage Level 4 plus all Shortage Level 5 actions is up to 6,680 AFY	All actions under Shortage Level 4	Yes
6	Other	Collective reduction from Shortage Level 5 plus all Shortage Level 6 actions is greater than 6,680 AFY	All actions under Shortage Level 5	Yes
6	Implement or Modify Drought Rate Structure or Surcharge	Collective reduction from Shortage Level 6 actions is greater than 6,680 AFY	All users in excess of allocation will be charged regular rate plus surcharge.	Yes
NOTES:				

8.4.2 SUPPLY AUGMENTATION

Liberty Utilities does not plan to add a new source of water supply to address customer demands, but instead will consider increased supplies from its existing source. Table 8-3 reflects this approach and does not identify any new supplies. Instead, Liberty Utilities will focus on demand reduction measures in the event existing source of supply are not sufficient to meet customer demands. As discussed in Chapter 6, Liberty Utilities' source

of water supply is groundwater produced from the Mojave Basin Area. As noted in Section 8.2, beginning July 1, 2022, Liberty Utilities will prepare and submit an Annual Assessment which will include a review of water supplies available to meet water demands for the current and upcoming years. If Liberty Utilities is currently in, or considers entering into, one of the standard water shortage levels identified in Section 8.3, Liberty Utilities will consider the water supply (augmentation) actions described below.

Table 8-3 Supply Augmentation and Other Actions

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUdata online submittal tool</i>	How much is this going to reduce the shortage gap? <i>Include units used (volume type or percentage)</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>			
1	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	
NOTES: Liberty Utilities - Apple Valley will consider increased production from the Mojave Basin Area using existing facilities to address increased demands. As noted on Table 8-2, Liberty Utilities - Apple Valley plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.			

8.4.3 OPERATIONAL CHANGES

During a water supply shortage situation, Liberty Utilities will manage its water supply resources to provide sufficient water supplies capable of meeting the demands of its customers. Section 8.4.2 describes Liberty Utilities' water supply source and water supply augmentation actions available. Section 8.4.1 describes Liberty Utilities' standard water shortage levels and associated demand reduction measures. The supply augmentation actions and demand reduction measures, when implemented, may potentially result in short-term operational changes which are necessary to allow Liberty

Utilities to utilize all available water supply sources in response to water shortage situations.

As noted in Section 8.2, beginning July 1, 2022, Liberty Utilities will prepare and submit an Annual Assessment which will include a review of the water supplies available to meet water demands for the current and upcoming years. Preparation of the Annual Assessment will assist Liberty Utilities in determining any potential operational changes. In addition, Liberty Utilities' standard water shortage levels and the associated demand reduction measures, in conjunction with Liberty Utilities' existing Demand Management Measures (DMM) (discussed in Chapter 9), will be essential to Liberty Utilities in reducing water demands during any water shortage period. The operational changes Liberty Utilities will consider in addressing non-catastrophic water shortages on a short-term basis include the following:

- Improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- Optimized production from the existing available water supply source.
- Potential use of emergency supply sources, including emergency interconnections.
- Potential blending of water supply resources.
- Improved monitoring, maintenance, and repairs to reduce water distribution system losses.

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

The mandatory restrictions which are implemented by Liberty Utilities to reduce customer demands are discussed in Section 8.4.1. There are no additional mandatory restrictions planned at this time.

8.4.5 EMERGENCY RESPONSE PLAN

Catastrophic water shortages are incorporated in Liberty Utilities' standard water shortage levels (identified in Section 8.3) and the associated demand reduction measures (described in Section 8.4.1). In addition to the water supply augmentation actions (Section 8.4.2) and potential operational changes (Section 8.4.3) which Liberty Utilities may consider in order to continue providing sufficient water supplies, Liberty Utilities will review and implement any necessary steps included in its "Emergency Response Plan".

As part of the "America's Water Infrastructure Act of 2018", community water systems serving a population greater than 3,300 people, including Liberty Utilities, are required to review and update their "Risk and Resilience Assessment" (RRA) and the associated "Emergency Response Plan" (ERP) every five (5) years. However, due to security concerns regarding the submitting of these reports, water systems are required to submit certifications to the United States Environment Protection Agency (USEPA), from March 31, 2020 and December 30, 2021, confirming the current RRA and ERP have been reviewed and updated.

Liberty Utilities' RRA, prepared in 2021, evaluates the vulnerabilities, threats, and consequences from potential hazards to Liberty Utilities' water system. Liberty Utilities' RRA is being prepared by evaluating the following items:

- Natural hazards and malevolent acts (i.e., all hazards);
- Resilience of water facility infrastructure (including pipes, physical barriers, water sources and collection, treatment, storage and distribution facilities, and electronic, computer and other automated systems);
- Monitoring practices;
- Financial systems (e.g., billing systems);
- Chemical storage and handling; and
- Operation and maintenance.

Liberty Utilities' RRA evaluates a series of potential malevolent acts, natural hazards, and other threats in order to estimate the potential "monetized risks" (i.e. associated economic consequences to both the water system and surrounding region, and the likelihood of occurrence) associated with Liberty Utilities' water facility assets. The cost-effectiveness of implementing potential countermeasures to reduce risks is also under review.

Liberty Utilities' ERP, prepared in 2021, provides the management, procedures, and designated actions Liberty Utilities and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures, and other unforeseen circumstances. Liberty Utilities' ERP (which is incorporated by reference) provides the guidelines for evaluating an emergency situation, procedures for activating an emergency response, and details of the different response phases in order to ensure that customers receive a reliable and adequate supply of potable water. The scope of the ERP includes emergencies which directly affect the water system and the ability to maintain safe operations (such as a chlorine release, and earthquake, or a threat of contamination). The ERP also incorporates the results of Liberty Utilities RRA and includes the following:

- Strategies and resources to improve resilience, including physical and cybersecurity.
- Plans and procedures for responding to a natural hazard or malevolent act.
- Actions and equipment to lessen the impact of a natural hazard or malevolent act.
- Strategies to detect natural hazards or malevolent act.

Liberty Utilities will review the ERP for procedures regarding the utilization of alternative water supply sources in response to water supply shortages, including during the standard water shortage levels. Liberty Utilities will also review applicable procedures described in the ERP regarding any necessary temporary shutdown of water supply facilities, including appropriate regulatory and public notifications.

8.4.6 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC 10632.5.

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

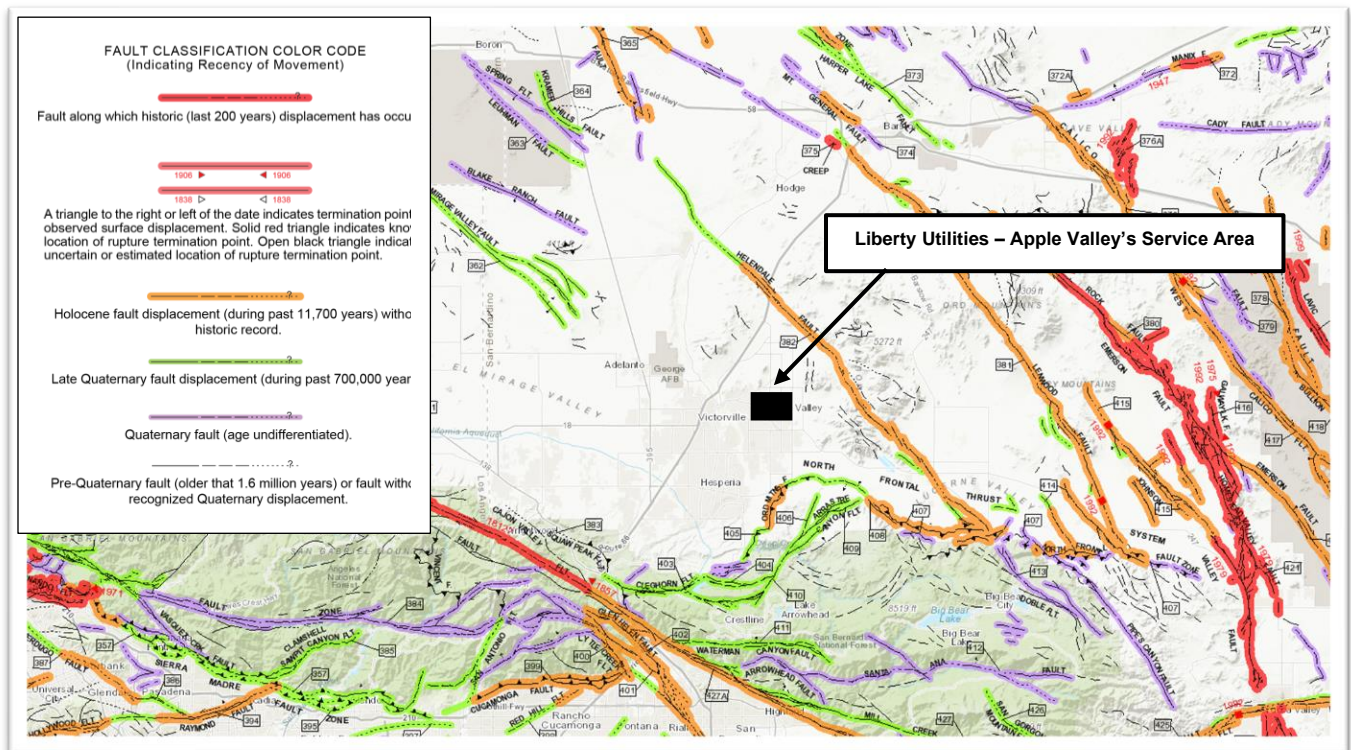
The Town of Apple Valley prepared a 2017 update of the “Local Hazard Mitigation Plan” which was approved by the Federal Emergency Management Agency (FEMA) in 2017. The “Local Hazard Mitigation Plan” identifies effective ways to assess the significant natural hazards (including earthquakes) that may affect the Town of Apple Valley and its residents. The “Local Hazard Mitigation Plan” provides resources, information, and strategies to reduce the Town of Apple Valley’s vulnerability to these hazards, while providing guidance for the coordination of mitigation activities throughout the Town of Apple Valley. The “Local Hazard Mitigation Plan” includes mitigation projects necessary to reduce seismic risk to the Town of Apple Valley’s water distribution system facilities (including its distribution system pipelines, groundwater wells, booster pumps, and storage reservoirs) and potential disruptions in providing water service. The Town of Apple Valley’s “Local Hazard Mitigation Plan” is provided in Appendix K.

The County of San Bernardino prepared a “Multi-Jurisdictional Hazard Mitigation Plan” which was approved by FEMA in June 2017. The County’s Multi-Jurisdictional Hazard Mitigation Plan identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout San Bernardino County, and the mitigation

strategies necessary to reduce risks, including seismic risk. The County's Multi-Jurisdictional Hazard Mitigation Plan is provided in Appendix L.

The California Geological Survey has published the locations of numerous faults which have been mapped in the Southern California region. Although the San Andreas fault is the most recognized and is capable of producing an earthquake with a magnitude greater than 8 on the Richter scale, some of the lesser-known faults have the potential to cause significant damage. The locations of these earthquake faults in the vicinity of Liberty Utilities' water service area are provided in the figure below. The faults that are located in close proximity to and could potentially cause significant shaking in Liberty Utilities' water service area include the San Andreas fault, the Helendale Fault, the Ocotillo Fault, the Arrastre Canyon Fault, and the Ord Mountains Fault.

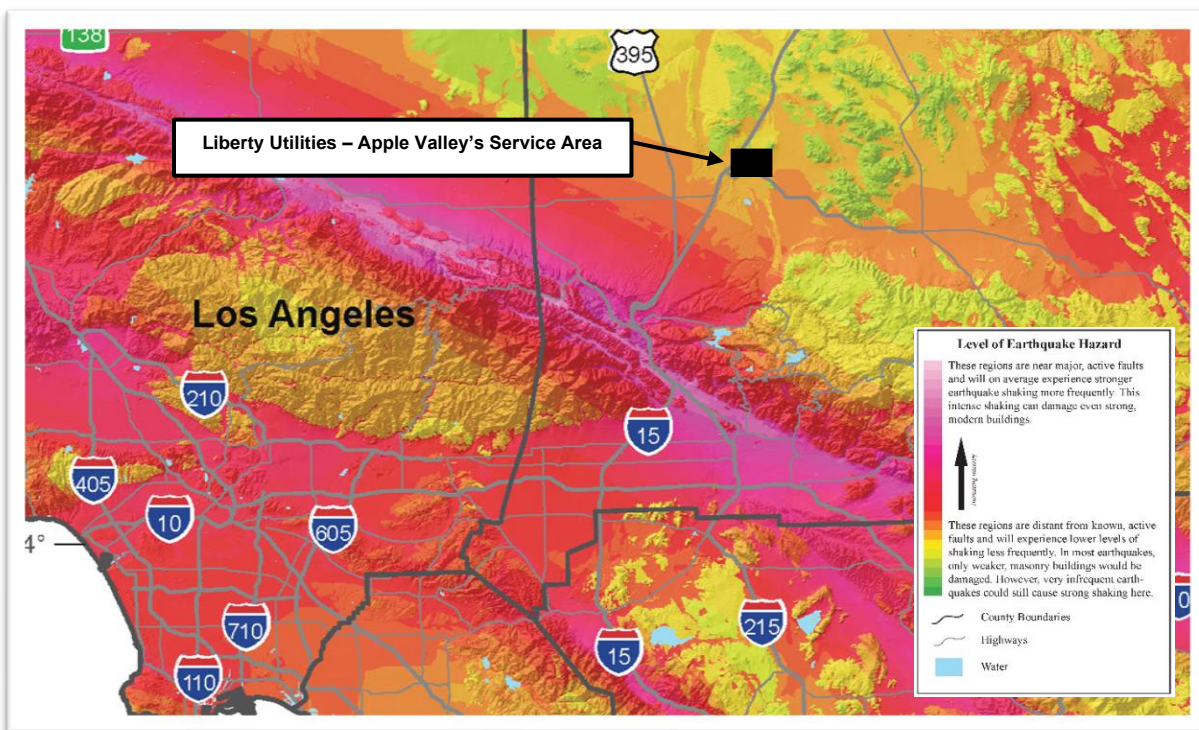
Location of Earthquake Faults



Source: <https://maps.conservation.ca.gov/cgs/fam/App/>

The following figure provides the relative intensity of ground shaking in the vicinity of Liberty Utilities' service area from anticipated future earthquakes. The locations of relatively long-period (1.0 second) earthquake shaking, including Liberty Utilities' service area, are provided. Long-period shaking affects tall, relatively flexible buildings, but also correlates with earthquake damage. The shaking potential is calculated based on the level of ground motion that has a 2 percent chance of being exceeded in 50 years (or the level of ground-shaking with an approximate 2,500-year average repeat time). As discussed in Section 8.4.5, Liberty Utilities has prepared an Emergency Response Plan which provides the management, procedures, and designated actions Liberty Utilities and its employees will implement during emergency situations resulting from natural disasters, including during earthquakes, to ensure that customers receive a reliable and adequate supply of potable water. Liberty Utilities ERP is incorporated by reference.

Earthquake Shaking Potential



Source: "Earthquake Shaking Potential for California", 2016, California Geological Survey and United States Geological Survey

8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS

The effectiveness of the shortage response actions for each of the standard water shortage levels identified in Section 8.3 is evident in Liberty Utilities' historical ability to meet its customer's water demands in response to a water supply shortage. In addition, Liberty Utilities imposes water consumption regulations and restrictions, and supports local agencies in efforts to enforce regulations and prohibitions on water use. The effectiveness of each of Liberty Utilities' shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction provided in Table 8-2 and Table 8-3.

Section 6.1 provides a tabulation of Liberty Utilities' historical annual water demands for its water supply source. During the past 10 years, Liberty Utilities experienced a five consecutive year drought within its service area from CY 2011 to CY 2015. Throughout this extended dry year period, Liberty Utilities annual water production ranged from 13,515 AF to 18,230 AF, with an average of approximately 16,429 AF. In addition, historical records indicate Liberty Utilities previously produced a maximum of up to 18,230 AF during CY 2011. Liberty Utilities has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, Liberty Utilities has been able to provide water service to meet maximum day water demands for these years, including during the summer months.

Liberty Utilities' water demands during the most recent five years (from CY 2016 to CY 2020) averaged approximately 14,131 AFY. Due to conservation efforts and demand management measures (discussed in Chapter 9), Liberty Utilities' recent water demands have been significantly less than its historical water demands, including during long-term droughts. Liberty Utilities' projected water demands (during a normal year, a single dry year, and a five consecutive year drought conditions) are provided in Section 7.2.3 and are anticipated to incorporate similar reductions in water use rates as a result of the shortage response actions, ongoing conservation efforts, and demand management

measures. Because Liberty Utilities' projected water demands are similar to its historical water demands, it is anticipated Liberty Utilities will be able to continue providing sufficient water supplies to its customers to meet projected water demands, including during long-term droughts. In addition, as discussed in Section 8.4.2, based on historical and on-going management practices, Liberty Utilities will be able to continue relying on its water supply source from the Mojave Basin Area for adequate supply augmentation in response to each of the standard water shortage levels identified in Section 8.3.

Based on Liberty Utilities' demonstrated ability to meet water demands during past water supply shortages, the adopted water shortage levels, the adjusted operating safe yields, and water supplies during long-term droughts, it is anticipated that Liberty Utilities will be able to provide sufficient water supplies to its customers during each of its standard water shortage levels. Although adequate supplies are anticipated, the cost of those water supplies may become incrementally more expensive. Liberty Utilities will enact varying levels of its WSCP to encourage retail customers to reduce water consumption and at the same time reduce the need to use the more expensive water supplies. Notwithstanding, the effectiveness of each of Liberty Utilities' shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction section provided in Table 8-2 and Table 8-3. The effectiveness of Liberty Utilities' shortage response actions is based on Liberty Utilities' water demands prior to 2015 (unconstrained demands). Liberty Utilities reduced its water demands in 2015 in response to the Governor's April 1, 2015 Executive Order B-29-15 which mandated statewide reduction in water use of 25 percent. Liberty Utilities' actual water demand reduction during this period was used to estimate the extent of water use reductions for Liberty Utilities' Water Shortage Levels. Liberty Utilities' Water Shortage Levels 1, 2, 3, 4, 5, and 6 are expected to reduce water demands by up to 10%, 20%, 30%, 40%, 50%, and greater than 50%, respectively.

8.5 COMMUNICATION PROTOCOLS

CWC 10632.

(a)(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Commencing July 1, 2022, Liberty Utilities is required to submit an Annual Assessment in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of Liberty Utilities' unconstrained water demands (i.e. water demands prior to any projected response actions Liberty Utilities may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. Liberty Utilities will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the Liberty Utilities' WSCP. Please see Section 8.2 for further discussion the Annual Assessment.

Wasteful water use practices constitute prohibited, non-essential, or unauthorized water use are declared to be a waste of water, subject to the terms and conditions of Rule No.11, which allow Liberty Utilities to discontinue service after due notice to the customer of wasteful or negligent use of water on the customer's premises. Liberty Utilities' customers shall be notified of these conservation measures through a bill insert of a direct mailing, and/or through electronic communications, pursuant to the direction of the CPUC.

If water supplies are projected to be insufficient to meet normal customer demand for reasons beyond the control of Liberty Utilities, or if directed under an emergency regulation by an authorized government agency, commission, or official, Liberty Utilities may implement additional water-saving conservation measures and mandatory restrictions. As directed by CPUC, Liberty Utilities' customers shall be notified of the applicable mandatory restrictions or conservation measures through newspaper inserts, website, or other electric communications, bill inserts, or direct mailings, as appropriate, as long as the declaration of emergency is in effect.

Should supply conditions or government directives dictate, prior to, or in response to, executive orders, state agency-promulgated emergency regulations, or a declaration of emergency issued by a water wholesaler or a government agency, Liberty Utilities may request permission from CPUC to add a Schedule 14.1 ("Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions, and Drought Surcharges"), via a Tier 2 advice letters. Liberty Utilities may also request a lost revenue memorandum account at this time without a full decoupling Revenue Adjusting Mechanism (WRAM) balancing account in one or more ratemaking areas.

When Schedule 14.1 is in effect, but Liberty Utilities determines that water supplies are again sufficient to meet normal demands, and mandatory restrictions are no longer necessary, or if Liberty Utilities wants to implement a lower stage of mandatory restrictions, Liberty Utilities shall seek CPUC approval via a Tier 1 advice letter to deactivate the particular stage of mandatory reductions or allocations that had been authorized.

The Tier 2 advice letter to establish Schedule 14.1 shall include but not be limited to:

- Applicability,
- Territory applicable,
- A detailed description of each water shortage level,
- A detailed description of the trigger that activates each water shortage level,
- A detailed description of each water use restriction for each water shortage level,
- Water use violation levels, written warning levels, associated fines, if applicable, and exception procedures.
- Conditions for installation of a flow restrictor,
- Charges for removal of flow restrictors, and
- Special conditions.

The Tier 2 advice letter requesting activation of the established Schedule 14.1 shall include but not be limited to justification for activating a particular water shortage level, as well as the period during which the water shortage level will be in effect.

When Liberty Utilities requests the addition of Schedule 14.1, via a Tier 2 advice letter, it shall provide notice of the Tier 2 advice letter and associated public hearing, if necessary. Notice will be provided to customers through bill inserts or direct mailing, and it shall comply with all the requirements of Section 350-358 of CWC, including but not limited to the following:

- In order to be in compliance with both General Order 96-B and CWC, AVR shall provide notice via both newspaper and bill insert/direct mailing.
- Liberty Utilities shall file one notice for each advice letter filed, that includes both notice of the filing of the Tier 2 advice letter as well as the details of the public hearing (date, time, place, etc.).

- The public meeting shall be held after Liberty Utilities files the Tier 2 advice letter, and before the Commission authorizes the addition of Schedule 14.1 to the tariff except in cases of emergency water shortages approved by the Division of Water and Audits.
- Liberty Utilities shall consult with the Division of Water and Audits staff prior to filing the advice letter, in order to determine the details of the public meeting.

In the event that Schedule 14.1 is triggered and Liberty Utilities requests activation through the filing of a Tier 2 advice letter, Liberty Utilities shall notify its customers and provide each customer with a summary of Schedule 14.1 by means of bill insert or direct mailing. Notification shall take place prior to imposing any fines associated with this plan. If activation of Schedule 14.1 occurs one year or more since the public hearing associated with adding Schedule 14.1 to its tariffs, then Liberty Utilities shall conduct a public hearing pursuant to CWC Section 351 prior to activating the rationing stage.

During the period that a stage of Schedule 14.1 is activated, Liberty Utilities shall provide customers with updates in at least every other bill, regarding its water supply status, and the results of customers' conservation and water use reduction efforts.

Liberty Utilities may, after one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use. After removal of the device, if any non-essential or unauthorized use of water continues, the utility may install another flow-restricting device without any written notice.

Any customer who seeks variance from any of the provisions of this WSCP shall notify Liberty Utilities in writing using the appeals form, explaining in detail the reason for such a variation. Liberty Utilities shall respond to each request in writing. The appeals form is available on Liberty Utilities' website or at Liberty Utilities' customer service office. If the

customer disagrees with such disposition, the customer may contact CPUC. No person shall have any right or claim in law or in equity, against Liberty Utilities or any of its employees, or CPUC because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of the WSCP.

8.6 COMPLIANCE AND ENFORCEMENT

CWC 10632.

(a)(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

Any violation of this WSCP is considered a waste and an unreasonable use of water. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined by this WSCP, Liberty Utilities may charge a water use violation fine in accordance with Schedule 14.1.

Liberty Utilities may, after one written warning, install a flow restricting device on the service line of any customer observed by Liberty Utilities personnel to be using water in violation of the WSCP. A flow-restricting device shall not restrict water delivery by greater than 50% of normal flow and shall be capable of providing the property with a minimum of 3ccf/person/month. The restricting device may be removed only by Liberty Utilities staff, after a three-day period has elapsed, and upon payment of the appropriate removal charge as set forth in Schedule 14.1.

After removal of the restricting device, if any nonessential or unauthorized use of water continues, Liberty Utilities may install another flow restricting device without written notice. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to Liberty Utilities.

Any tampering with a flow restricting device by a customer can result in discontinuation of water use at Liberty Utilities' discretion.

8.7 LEGAL AUTHORITIES

CWC 10632.

(a)(7)(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Division 1, Section 350

The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

Liberty Utilities is an investor-owned Supplier and is subject to CPUC approval to establish and/or activate necessary shortage response actions and corresponding water shortage levels, pursuant to CPUC Rule 14.1. Liberty Utilities is then responsible for implementing and enforcing the water shortage response actions. Liberty Utilities may update current water shortage condition response measures based on CPUC approvals and direction, state policy directives, emergency conditions, or to improve customer response.

Liberty Utilities may declare a water shortage emergency and implement any shortage response action deemed necessary, upon CPUC approval. Upon declaration of a water shortage emergency, Liberty Utilities shall coordinate with the local cities and counties within their service area for the possible proclamation of a local emergency.

8.8 FINANCIAL CONSEQUENCES OF WSCP

CWC 10632.

(a)(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

In 2008, CPUC approved the establishment of a WRAM Balancing Account and a Modified Cost Balancing Account (MCBA). These two regulatory accounts monitor the difference between actual and adopted water sales and production costs as part of a water conservation program. Liberty Utilities' WRAM, MCBA, and other balancing account surcharges provide protection to Liberty Utilities and its customers from unforeseen changes and ensure water rates accurately reflect the cost of providing service. By March 31st of each year, Liberty Utilities provides CPUC's Division of Water and Audit a written report on the status of the WRAM and MCBA. The report includes a section on the net accumulated balance as of December 31st of the preceding calendar year. If the combined net accumulated balance for the WRAM and MCBA exceeds 2.0 percent of the total recorded revenue requirement for the prior calendar year, Liberty Utilities will file an advice letter within 30 days that amortizes the balance of both accounts. Recovery of the

under-collections and refunds of over collections will be passed on to ratepayers through volumetric surcharges and surcredits.

A tiered rate structure has been implemented for residential customers to meet service costs and discourage high water use. In addition, as discussed in Section 8.1, water use in excess of residential or non-residential customer's seasonal allocation may be charged at the regular rate plus a drought emergency surcharge rate. Drought surcharge funds collected by Liberty Utilities can be used towards payment of future non-drought surcharges.

Liberty Utilities maintains financial reserves, which may be used for water system expenditures to make up for the shortfalls in water revenue. Financial reserves are listed in Liberty Utilities' Annual Reports submitted to the CPUC.

8.9 MONITORING AND REPORTING

CWC 10632.

(a)(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

Commencing July 1, 2022, Liberty Utilities is required to submit an Annual Assessment in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of Liberty Utilities' unconstrained water demands (i.e. water demands prior to any projected response actions Liberty Utilities may trigger under this WSCP) for the current year and the upcoming (potential single dry) year. Liberty Utilities will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the

Liberty Utilities' WSCP. Please see Section 8.2 for further discussion the Annual Assessment.

Additional monitoring and reporting requirements are approved by CPUC.

8.10 WSCP REFINEMENT PROCEDURES

CWC 10632.

(a)(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

Liberty Utilities' WSCP has been prepared as an adaptive management plan. As discussed in Section 8.9, Liberty Utilities will monitor and report on the implementation of the WSCP. Liberty Utilities will review the implementation results for any current or potential shortage gaps between water supplies and demands. Liberty Utilities will evaluate the need for revising the WSCP in order to resolve any shortage gaps, as necessary. Liberty Utilities will consider the following potential revisions in the event of a potential shortage gap:

- Implementation of additional public outreach, education, and communication programs (in addition to the programs discussed in Chapter 9).
- Implementation of more stringent water use restrictions under the standard water shortage levels (discussed in Section 8.4.1).
- Implementation of stricter enforcement actions and penalties (discussed in Section 8.6).

- Improvements to the water supply augmentation responses (discussed in Section 8.4.2), as well as any associated operational changes (discussed in Section 8.4.3) which may be required.
- Incorporation of additional actions recommended by Liberty Utilities staff or other interested parties.

Liberty Utilities will use the monitoring and reporting data to evaluate the ability for these potential revisions to resolve any shortage gaps which may occur within the standard water shortage levels.

This WSCP is adopted as part of Liberty Utilities' 2020 UWMP adoption process discussed in Section 10.3. It is anticipated Liberty Utilities will review, revise, and adopt an updated WSCP as part of preparing its 2025 UWMP as necessary. However, Liberty Utilities will continue to review the monitoring and reporting data, and if needed, update the WSCP more frequently. Any updates to Liberty Utilities' WSCP will include a public hearing and adoption process by the Liberty Utilities' Board (see Section 8.12).

8.11 SPECIAL WATER FEATURE DISTINCTION

CWC 10632.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

Liberty Utilities' WSCP defines "decorative water features" as water features which are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, but excluding pools and spas. In general, there are additional health and safety considerations in the water supplied to pools and spas compared to decorative water

features. As a result, Liberty Utilities' WSCP has reviewed the response actions, enforcement actions, and monitoring and reporting programs separately for decorative water features and for pools and spas, as applicable.

Please see Section 8.4.1. for demand reduction actions in relation to special water features.

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

CWC 10632.

(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

Liberty Utilities' WSCP is adopted as part of Liberty Utilities' 2020 UWMP adoption process discussed in Chapter 10. The process for adopting Liberty Utilities' WSCP includes the following:

- Liberty Utilities will conduct a public hearing and make the WSCP available for public inspection.
- Liberty Utilities will provide notification of the time and place of the public hearing to any city or county in which water is provided.
- Liberty Utilities will publish notice of public hearing in a newspaper once a week, for two successive weeks (with at least five days between publication dates).
- Liberty Utilities' Board will adopt the 2020 UWMP and the WSCP.
- As part of submitting the 2020 UWMP to DWR, Liberty Utilities will also submit the WSCP (electronically through DWR's online submittal tool) within 30 days of adoption and by July 1, 2021. Liberty Utilities will submit a copy of the WSCP to

the California State Library and to any city or county in which water is provided within 30 days of adoption. In addition, Liberty Utilities will make the WSCP available for public review within 30 days of adoption.

If there are any subsequent amendments required, the process for adopting an amended WSCP includes the following:

- Liberty Utilities will conduct a public hearing and make the amended WSCP available for public inspection.
- Liberty Utilities' Board will adopt the amended WSCP.
- Liberty Utilities will submit the amended WSCP to DWR (electronically through DWR's online submittal tool) within 30 days of adoption.

Additional information regarding the adoption, submittal, and availability of Liberty Utilities' WSCP (and 2020 UWMP) is provided in Chapter 10.

CHAPTER 9

DEMAND MANAGEMENT MEASURES

LAY DESCRIPTION – CHAPTER 9

DEMAND MANAGEMENT MEASURES

Chapter 9 (Demand Management Measures) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- Liberty Utilities has implemented “Demand Management Measures” to reduce its water demands and achieve its water use targets (discussed in Chapter 5)
- Liberty Utilities’ Demand Management Measures include metering of all its water supply connections with its retail member agencies.
- Liberty Utilities’ Demand Management Measures include public education and outreach programs regarding water conservation.
- Liberty Utilities’ Demand Management Measures include staffing of its water conservation program.
- Additional Demand Management Measures including rebate, conservation, asset management, and wholesale supplier assistance programs are discussed.
- A summary of the Demand Management Measures Liberty Utilities has implemented over the past five (5) years is provided.
- Liberty Utilities’ Demand Management Measures include adoption of ordinances and rules to prevent water waste.
- Liberty Utilities’ Demand Management Measures include metering of all customer connections, including separate metering for single-family residential, commercial, industrial, large landscape and institutional/governmental facilities.

- Liberty Utilities' Demand Management Measures include conservation pricing. Liberty Utilities' current water rate structure is tiered to promote water conservation by customers.
- Liberty Utilities' Demand Management Measures include public education and outreach programs regarding water conservation.
- Liberty Utilities' Demand Management Measures include various actions to assess and manage water distribution system losses.
- Additional Demand Management Measures including rebate, conservation, and educational programs are discussed.
- A summary of the Demand Management Measures Liberty Utilities has implemented over the past five (5) years is provided. Liberty Utilities met the 2020 Water Use Target (discussed in Chapter 5) through the implementation of these Demand Management Measures.

9.1 DEMAND MANAGEMENT MEASURES FOR WHOLESALE SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(ii) Metering.

(iv) Public education and outreach.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

Liberty Utilities is not a wholesale agency and is not required by DWR to complete Section 9.1.

9.2 EXISTING DEMAND MANAGEMENT MEASURES FOR RETAIL SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

9.2.1 WATER WASTE PREVENTION ORDINANCES

Liberty Utilities supports local agencies and cities in efforts to adopt ordinances which will reduce water waste. Such ordinances include the Town of Apple Valley's Ordinances No. 58 and No. 479, pertaining to regulations on water conservation. Liberty Utilities also implements CPUC-approved rules including Rule No. 14.1 ("Water Shortage Contingency

Plan”), Schedule 14.1 (“Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions and Drought Surcharges”), and Rule No. 20 (“Water Conservation”), which prohibit water waste. Copies of these ordinances and the CPUC rules and schedule are attached as Appendix J.

The Town of Apple Valley adopted Ordinance No. 58 (“Water Conservation Plan”) in July 1990 to reduce water consumption by establishing water use restrictions including limitations on watering hours, watering duration, excessive runoff, washing down of hard surfaces, excessive pipeline leaks, and washing vehicles. Ordinance No. 479 was adopted in March 2016 to establish water efficient landscape regulations and includes provisions for water management and water waste prevention for existing landscapes.

CPUC’s Rule No. 14.1, when in effect, sets forth the procedures to implement the following water conservation restrictions:

- Use of potable water for more than minimal landscaping.
- Use through a broken or defective water meter.
- Use of potable water which results in flooding or runoff in gutters or streets.
- Use of potable water for washing private cars or commercial aircrafts, cars, buses, boats, or trailers, except at a fixed location where water is properly maintained to avoid wasteful use.
- Use of potable water for washing buildings, structures, driveways, street cleaning, or other hard-surfaced areas.
- Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping.
- Use of potable water for construction purposes.
- Use of potable water for filling or refilling of swimming pools.

Schedule 14.1, when activated, imposes the mandatory conservation restrictions above and/or declares a level of water shortage which allows customer surcharges and reductions in water use (as discussed in Section 8.4).

CPUC's Rule No. 20 discourages wasteful use of water and promotes the use of water saving devices. The stated purpose of the rule is to "ensure that water resources available to the utility are put to a reasonable beneficial use and that the benefits of the utility's water supply and service extend to the largest number of persons."

9.2.2 METERING

CWC 526.

(a) Notwithstanding any other provision of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract... shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.

CWC 527.

(a) An urban water supplier that is not subject to Section 526 shall do both of the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

Liberty Utilities meters all customer connections, including separate metering for single-family residential, commercial, industrial, and landscape customers. Furthermore, if there is new development within Liberty Utilities, each facility is individually metered. Liberty Utilities implements an Automatic Meter Reading (AMR) system which supports conservation efforts through improved meter reading accuracy and allows Liberty Utilities to effectively monitor and manage water supplies.

Service charges for Liberty Utilities are based on the customers' connection size. Further information regarding Liberty Utilities' service fees and conservation pricing is provided in Section 9.2.3.

9.2.3 CONSERVATION PRICING

Liberty Utilities implements a tiered conservation pricing rate structure for residential and non-residential customers as approved by the CPUC. Liberty Utilities' current water rates structure is tiered to promote water conservation by customers. Residential customers are billed on an inclining block rate structure, with a fixed service charge based on meter size to encourage water conservation and discourage waste. The rate structure includes three tiers. Liberty Utilities' current rate structure showing conservation pricing is provided in Appendix M. Liberty Utilities also has an inclining drought emergency surcharge pursuant to Schedule 14.1 ("Water Shortage Contingency Plan with Staged Mandatory Reductions, Restrictions and Drought Surcharges") when activated upon CPUC approval. CPUC Schedule 14.1 is provided in Appendix J.

9.2.4 PUBLIC EDUCATION AND OUTREACH

Liberty Utilities offers public information programs for its customers. Liberty Utilities provides marketing and outreach materials to its customers by issuing press releases, newsletters, and bill inserts. Customers learn about rebates and additional programs through Liberty Utilities' website.

Liberty Utilities promotes water conservation through public information programs that offer brochures, posters, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts. Liberty Utilities raises awareness through paid advertising, press releases, news ads, media events, and through the Speaker's Bureau.

Liberty Utilities offers education and outreach programs directly to its customers. Liberty Utilities' staff members attend special assemblies or class presentation opportunities to present water conservation information and collateral materials. Liberty Utilities has a Spring Conservation Fair, which includes free conservation workshops, educational presentations, and plumbing retrofit demonstrations. Liberty Utilities offers free conservation devices and water audits, a High-Efficiency Toilet delivery program, and a rebate for the purchase and installation of a hot water recirculating pump. As a member of the Alliance for Water Awareness and Conservation (AWAC), Liberty Utilities offers speakers for community groups, water smart landscaping information, water saving tips, and a plant of the month program. AWAC sponsors water conservation and water- smart landscaping workshops for landscape professionals.

9.2.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

Liberty Utilities' system is comprised mainly of single-family and multi-family dwellings. Liberty Utilities estimates water system losses at approximately 5.7 percent, as discussed in Section 4.2.4. Liberty Utilities has water conservation literature that alerts customers to be on the lookout for water system leaks and to correct them promptly. Liberty Utilities is available to assist customers in answering questions regarding system leaks or higher than expected water usage and also offers free water audits for customers.

Liberty Utilities' annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). Liberty Utilities also implements an AMR system which supports conservation efforts through improved meter reading accuracy and allows Liberty Utilities to effectively monitor and manage water supplies.

9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

Liberty Utilities has had a full-time conservation coordinator since 2008. In conjunction with MWA, Liberty Utilities also provides water conservation program coordination and staffing support. MWA's water conservation coordinator and support staff provide coordination and oversight of conservation programs and DMM implementation, preparation of reports, promotion of water conservation issues to Liberty Utilities, coordination of MWA programs with operations and planning staff, preparation of annual conservation budgets, and preparation of the conservation elements of MWA's 2020 UWMP.

9.2.7 OTHER DEMAND MANAGEMENT MEASURES

Liberty Utilities implements additional DMM programs using both Liberty Utilities-only programs and programs in collaboration with regional partners.

Liberty Utilities provides an audit program for high-use single-family and multi-family residential customers. These customers are identified through billing data and AMR, and then contacted to offer free audits. Audits are also offered to walk-in customers at the local customer service area office.

As a member of AWAC, Liberty Utilities offers speakers for community groups, water smart landscaping information, water saving tips, and a plant of the month program. AWAC sponsors water conservation and water- smart landscaping workshops for landscape professionals. Liberty Utilities also participates in AWAC rebate programs including Cash for Grass, a turf removal rebate for residential and commercial projects over 20,000 SF.

Liberty Utilities plans to continue implementation of the programs described above to promote water conservation.

9.3 REPORTING IMPLEMENTATION

9.3.1 IMPLEMENTATION OVER THE PAST FIVE YEARS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) ...a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

Liberty Utilities is committed to implementing water conservation programs and works collaboratively with regional partners to provide water conservation programs for its customers. The highlights of DMM implementation over the past five years are described below.

As discussed in Section 9.2.1, Liberty Utilities supports local agencies and cities in efforts to adopt ordinances which will reduce water waste. Such ordinances include the Town of Apple Valley's Ordinances No. 58 and No. 479, pertaining to regulations on water conservation. CPUC's Rule 14.1, Schedule 14.1, and Rule No. 20, when in effect, are also designed to prevent water waste. These ordinances and rules have been in effect within the last five years.

As discussed in Section 9.2.2, Liberty Utilities meters all customer connections, including separate metering for single-family residential, commercial, industrial, and landscape customers. Furthermore, if there is new development within Liberty Utilities, each facility is individually metered. Liberty Utilities implements an AMR system which supports

conservation efforts through improved meter reading accuracy and allows Liberty Utilities to effectively monitor and manage water supplies.

As discussed in Section 9.2.3, Liberty Utilities implements a three-tiered conservation pricing rate structure for residential and non-residential customers as approved by the CPUC. Liberty Utilities' current water rates structure is tiered to promote water conservation by customers. Residential customers are billed on an inclining block rate structure, with a fixed service charge based on meter size to encourage water conservation and discourage waste.

As discussed in Section 9.2.4, Liberty Utilities offers public information programs for its customers. Liberty Utilities provides marketing and outreach materials to its customers by issuing press releases, newsletters, and bill inserts. Customers learn about rebates and additional programs through Liberty Utilities' website. Liberty Utilities promotes water conservation through public information programs that offer brochures, posters, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts. Liberty Utilities offers education and outreach programs directly to its customers. Liberty Utilities' staff members attend special assemblies or class presentation opportunities to present water conservation information and collateral materials. Liberty Utilities has a Spring Conservation Fair, which includes free conservation workshops, educational presentations, and plumbing retrofit demonstrations. As a member of AWAC, Liberty Utilities offers speakers for community groups, water smart landscaping information, water saving tips, and a plant of the month program. AWAC sponsors water conservation and water- smart landscaping workshops for landscape professionals.

As discussed in Section 9.2.5, Liberty Utilities' annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). Liberty Utilities also implements an AMR system which

supports conservation efforts through improved meter reading accuracy and allows Liberty Utilities to effectively monitor and manage water supplies.

As described in Section 9.2.6, Liberty Utilities has had a full-time conservation coordinator since 2008. In conjunction with MWA, Liberty Utilities also provides water conservation program coordination and staffing support. MWA's water conservation coordinator and support staff provide coordination and oversight of conservation programs and DMM implementation, preparation of reports, promotion of water conservation issues to Liberty Utilities, coordination of MWA programs with operations and planning staff, preparation of annual conservation budgets, and preparation of the conservation elements of MWA's 2020 UWMP.

In addition to the above DMMs, other DMMs employed by Liberty Utilities are discussed in Section 9.2.7. and include the following: As a member of AWAC, Liberty Utilities offers speakers for community groups, water smart landscaping information, water saving tips, and a plant of the month program. AWAC sponsors water conservation and water- smart landscaping workshops for landscape professionals. Liberty Utilities also participates in AWAC rebate programs including Cash for Grass, a turf removal rebate for residential and commercial projects over 20,000 SF.

9.3.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

(F)(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

The Demand Management Measures implemented by Liberty Utilities are discussed in Section 9.2 Descriptions regarding the nature and extent of these Demand Management

Measures implemented by Liberty Utilities over the past five years are discussed in Section 9.3. Liberty Utilities will continue to implement these Demand Management Measures and other water conservation programs and work collaboratively with MWA to provide water conservation programs for its residents.

As discussed in Section 5.5, Liberty Utilities' per-capita water use during CY 2020 was 146 GPCD. Liberty Utilities' confirmed 2020 Water Use Target is 238 GPCD. Liberty Utilities' per-capita water use during CY 2020 meets the 2020 Water Use Target and is in compliance. Liberty Utilities met the 2020 Water Use Target through the implementation of the Demand Management Measures discussed in Section 9.2. Continued implementation of these Demand Management Measures will assist Liberty Utilities in meeting water use targets and objectives.

9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

Liberty Utilities is currently working with DWR to develop Water Use Objectives pursuant to AB 1668 and SB 606. Beginning in 2024, water agencies, including Liberty Utilities, are required to begin reporting compliance of their Water Use Objectives consisting of indoor residential water use, outdoor residential water use, commercial, industrial and institutional, irrigation with dedicated meters, water loss, and other unique local uses. Liberty Utilities plans to meet its Water Use Objectives through continued implementation of the Demand Management Measures discussed in Section 9.2.

CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

LAY DESCRIPTION – CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Chapter 10 (Plan Adoption, Submittal, and Implementation) of Liberty Utilities – Apple Valley’s 2020 Plan discusses and provides the following:

- The steps Liberty Utilities has performed to adopt and submit its 2020 Plan are detailed.
- The steps Liberty Utilities has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- Liberty Utilities coordinated the preparation of its 2020 Plan with the Town of Apple Valley, the City of Victorville, and the County of San Bernardino, and other agencies. Liberty Utilities notified these agencies at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited these agencies to participate in the development of the 2020 Plan.
- Liberty Utilities provided a notice of the public hearing to the same agencies regarding the time, date, and place of the public hearing.
- Liberty Utilities published a newspaper notification of the public hearing, once a week for two successive weeks
- Liberty Utilities conducted a public hearing to discuss and adopt Liberty Utilities’ 2020 Plan and Liberty Utilities’ Water Shortage Contingency Plan.
- Within 30 days of adoption, Liberty Utilities submitted the 2020 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.

- Within 30 days of adoption, Liberty Utilities submitted all data tables associated with the 2020 Plan to the California Department of Water Resources.
- Within 30 days of adoption, Liberty Utilities submitted a copy of the 2020 Plan to the State of California Library.
- Within 30 days of adoption, Liberty Utilities submitted a copy of the 2020 Plan (and Water Shortage Contingency Plan) to the County of San Bernardino Assessor-Recorder/ Clerk's office and the CPUC.
- Within 30 days after submittal of the 2020 Plan to the California Department of Water Resources, Liberty Utilities made the 2020 Plan (including the Water Shortage Contingency Plan) available at on Liberty Utilities' website.
- The steps Liberty Utilities will perform to amend the 2020 Plan and/or the Water Shortage Contingency Plan, if necessary, are provided.

10.1 INCLUSION OF ALL 2020 DATA

The data provided in Liberty Utilities' 2020 Plan is provided on a CY basis through December 31, 2020 (as discussed in Section 2.4.2).

10.2 NOTICE OF PUBLIC HEARING

Liberty Utilities' public hearing notification process for its 2020 Plan and the WSCP is discussed below.

10.2.1 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642.

...The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies. Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area...

10.2.1.1 60 DAY NOTIFICATION

As discussed in Section 2.6.2., Liberty Utilities coordinated the preparation of the 2020 Plan with Golden State Water Company, Mojave Water Agency, the Town of Apple Valley, the City of Victorville, and the County of San Bernardino. Liberty Utilities notified these agencies, as well as the cities and county within which Liberty Utilities provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

10.2.1.2 NOTICE OF PUBLIC HEARING

Liberty Utilities provided a notice of the public hearing to the Golden State Water Company, Mojave Water Agency, the Town of Apple Valley, the City of Victorville, and the County of San Bernardino. The notice includes the time and place of the public hearing. To ensure the Plan and the WSCP were available for review, Liberty Utilities placed a copy of the draft 2020 Plan and the draft WSCP at the Liberty Utilities customer

service office and made a copy available for review on its website. Copies of the notice of the public hearing are provided in Appendix D.

10.2.1.3 SUBMITTAL TABLES

Table 10-1 summarizes the agencies which were provided notifications by Liberty Utilities.

Table 10-1 Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Town of Apple Valley	Yes	Yes
City of Victorville	Yes	Yes
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
San Bernardino County	Yes	Yes
NOTES:		

10.2.2 NOTICE TO THE PUBLIC

CWC 10642.

...Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies.

Government Code 6066.

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Liberty Utilities encouraged the active involvement of the population within its service area prior to and during the preparation of the Plan. Pursuant to Section 6066 of the Government Code, Liberty Utilities published a notice of public hearing in the newspaper during the weeks of June 10, 2021 and June 17, 2021. A notice of public hearing was also provided to Liberty Utilities' customers and on Liberty Utilities' website. A copy of the published notice is provided in Appendix D. To ensure the draft 2020 Plan and the draft WSCP were available for review, Liberty Utilities placed a copy of at the Liberty Utilities customer service office and made a copy available for review on its website.

10.3 PUBLIC HEARING AND ADOPTION

CWC 10642.

...Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon.

CWC 10608.26.

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

10.3.1 PUBLIC HEARING

Prior to adopting the draft 2020 Plan and the draft WSCP, Liberty Utilities held a public hearing on June 24, 2021 which included input from the community regarding Liberty Utilities' draft 2020 Plan and the draft WSCP. As part of the public hearing, Liberty Utilities adopted a method to determine its water use targets through selection of Target Method 1 (see Appendix G and Section 5.2.1). In addition, Liberty Utilities considered the economic impacts of meeting these water use targets; including measures described in Section 8.8.

10.3.2 ADOPTION

CWC 10642.

... After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

Following the public hearing, Liberty Utilities adopted both the draft 2020 Plan and the draft WSCP (included in Chapter 8). A copy of the resolution adopting the 2020 Plan and the WSCP is provided in Appendix N.

10.4 PLAN SUBMITTAL

CWC 10621.

(e) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

CWC 10644.

(a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

CWC 10635.

(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

Liberty Utilities' submittal process for its 2020 Plan and the WSCP is discussed below.

10.4.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR

Liberty Utilities' Board of Directors adopted the draft 2020 Plan on June 24, 2021 and within 30 days of adoption, Liberty Utilities submitted the adopted 2020 Plan (including the WSCP) to DWR. The 2020 Plan and WSCP were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

DWR developed a checklist which was used by Liberty Utilities to assist DWR with its determination that Liberty Utilities' 2020 Plan has addressed the requirements of the CWC. Liberty Utilities has completed the DWR checklist by indicating where the required CWC elements can be found within Liberty Utilities' 2020 Plan (See Appendix C).

10.4.2 ELECTRONIC DATA SUBMITTAL

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department ...shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

Within 30 days of adoption of the 2020 Plan, Liberty Utilities submitted all data tables associated with the 2020 Plan through DWR's "Water Use Efficiency Data Portal" website.

10.4.3 SUBMITTING A UWMP, INCLUDING WSCP, TO THE CALIFORNIA STATE LIBRARY

Within 30 days of adoption of the 2020 Plan by Liberty Utilities' Board of Directors, a copy (CD or hardcopy) of the 2020 Plan was submitted to the State of California Library. A copy of the letter to the State Library will be maintained in Liberty Utilities' file. The 2020 Plan will be mailed to the following address if sent by regular mail:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

The 2020 Plan will be mailed to the following address if sent by courier or overnight carrier:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
900 N Street
Sacramento, CA 95814

10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2020 Plan (including the WSCP) by Liberty Utilities' Board of Directors, a copy of the 2020 Plan was submitted to the County of San Bernardino Registrar / Records office and CPUC. A copy of the letter to the County of San Bernardino will be maintained in Liberty Utilities' file.

10.5 PUBLIC AVAILABILITY

CWC 10645.

(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Within 30 days after submittal of the 2020 Plan to DWR, Liberty Utilities made the 2020 Plan (including the WSCP) available at the Liberty Utilities customer service office during normal business hours and on Liberty Utilities' website.

10.6 NOTIFICATION TO PUBLIC UTILITIES COMMISSION

CWC 10621.

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

Liberty Utilities will submit the 2020 Plan (and WSCP) to the California Public Utilities Commission as part of its general rate case filings.

10.7 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN

CWC 10621.

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

CWC 10644.

(a)(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

Liberty Utilities amendment process for its 2020 Plan is discussed below.

10.7.1 AMENDING A UWMP

If Liberty Utilities amends the adopted 2020 Plan, the amended Plan will undergo adoption by Liberty Utilities' governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the County of San Bernardino Registrar / Records office, and the CPUC.

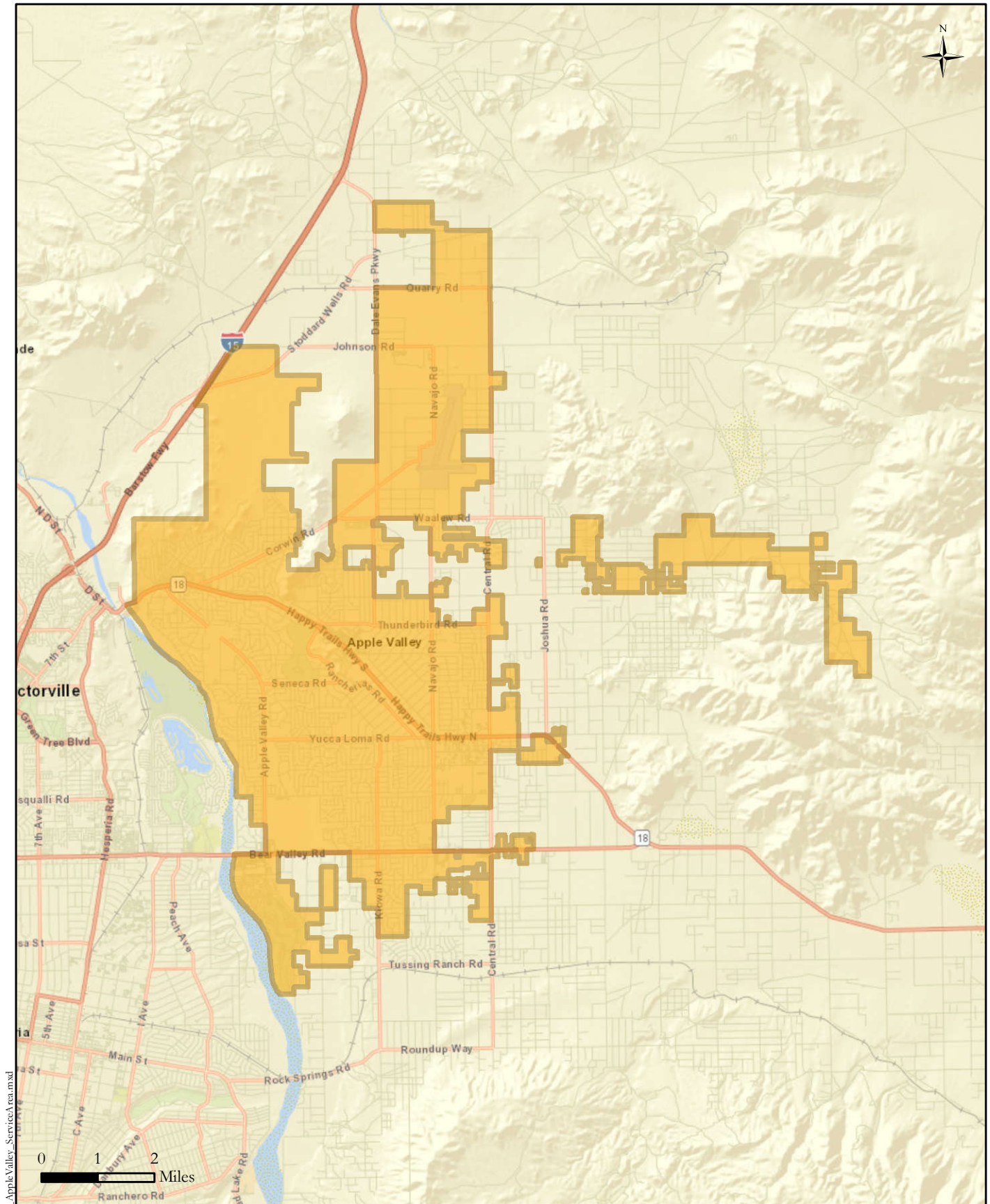
10.7.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN

CWC 10644.

(b) If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared pursuant to subdivision (a) of Section 10632 no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

If Liberty Utilities amends the adopted 2020 Plan (including the WSCP), the amended Plan (and WSCP) will undergo adoption by Liberty Utilities' governing board. Within 30 days of adoption, the amended Plan (and WSCP) will then be submitted to DWR, the State of California Library, the County of San Bernardino Registrar / Records office, and the CPUC.

FIGURE 1

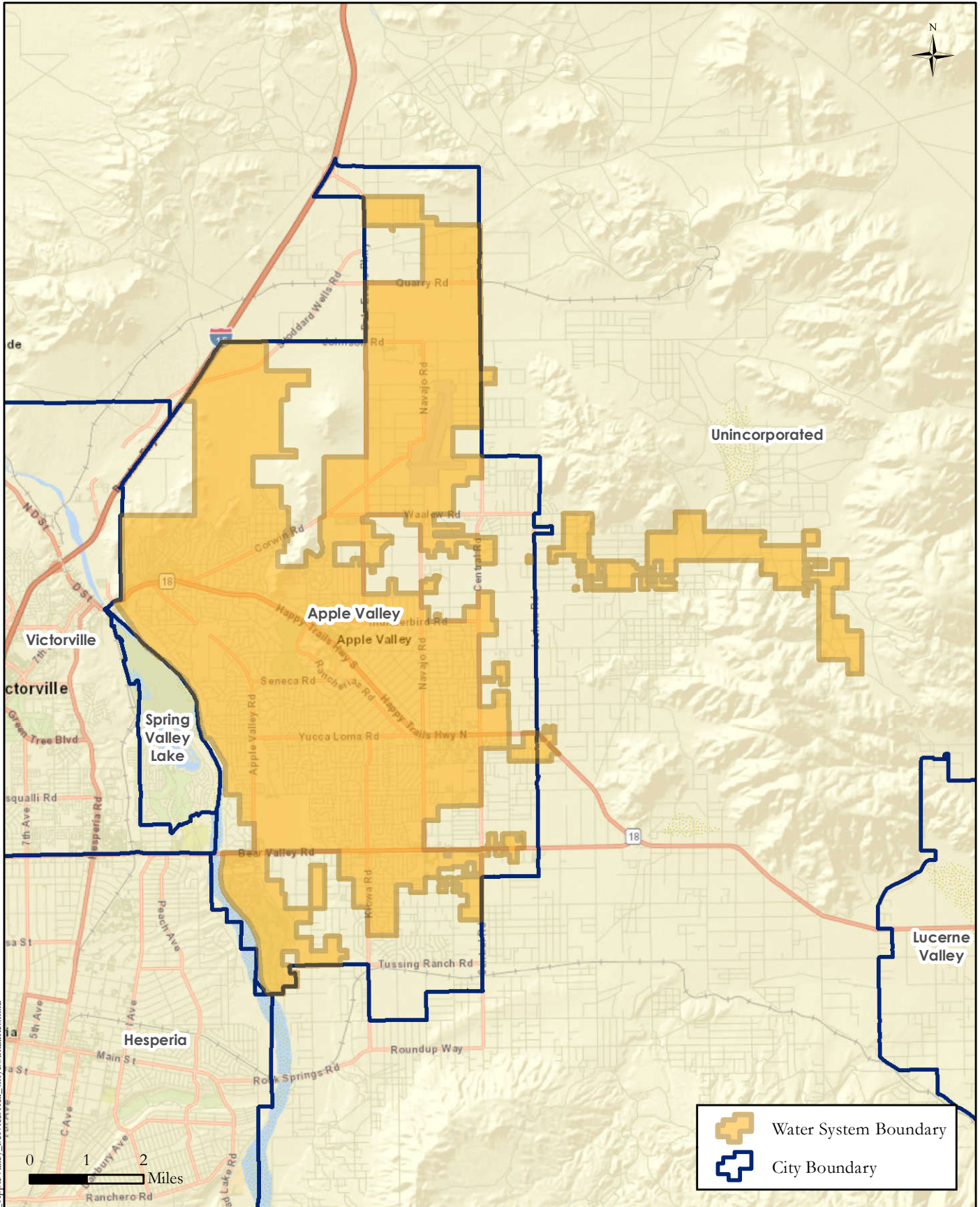


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LIBERTY UTILITIES - APPLE VALLEY WATER SERVICE AREA

FIGURE 2



**LIBERTY UTILITIES - APPLE VALLEY
WATER SERVICE AREA
AND CITY BOUNDARIES**

FIGURE 3

