Kings River East GSA

Groundwater Sustainability Plan

Dinuba, CA
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Preliminary Draft

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Key SGMA regulations appear in blue text boxes

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Abbreviations

ac	acres
AB	Assembly Bill
AF	acre-feet
AFY	Acre-feet per year
AFY/AC	Acre feet per year per acre
AID	Alta Irrigation District
AWEP	Agricultural Water Enhancement Program
AWMC	Agricultural Water Management Council
AWMP	Agricultural Water Management Plan
BAP	Basin Advisory Panel
bgs	below ground surface
BMP	Best Management Practices
CALEEMod	California Emissions Estimator monitor
CalEPA	California Environmental Protection Agency
CALFED	CALFED Bay Delta Program
CAML	California Augmented Multisource Landcover
CASGEM	California State Groundwater Elevation Monitoring
CAS	California Aquifer Susceptibility
CDEC	California Data Exchange Center
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CID	Consolidated Irrigation District
CIMIS	California Irrigation Management Information System
COC	constituent of concern
CSA	County Service Area
CSD	Community Services District
CVC	Cross Valley Canal
CVP	Central Valley Project

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CVPIA	Central Valley Project Improvement Act
CV-SALTS	Central Valley salinity Alternatives for Long Term Sustainability
CWAP	California Water Action Plan
CWC	California Water Code
CWP	California Water Action Plan
DAC	disadvantaged community
DBCP	dibromochloropropane
DDW	State Water Resources Control Board, Division of Drinking Water
DFG	Department of Fish and Game
DFW	Department of Fish and Wildlife
DMM	Demand Management Measure
DMS	data management system
DPLA	Division of Planning and Local Assistance
DPR	Department of Pesticide Regulation
DU	Distribution Uniformity
DWR	Department of Water Resources
DWSAP	Drinking Water Source Assessment and Protection
EC	Electroconductivity
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ET	evapotranspiration
EWMP	Efficient Water Management Flood Control District
FEMA	Federal Emergency Management Agency
FID	Fresno Irrigation District
FKC	Friant-Kern Canal
FMFCD	Fresno Metropolitan Flood Control District
FWS	Fish and Wildlife Service
Ft/Day	Feet per day
Ft	Feet per day

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GAMA	Groundwater Ambient Monitoring and Assessment
GAR	groundwater assessment report
General Order	Tulare Lake Basin General Order(R5-2013-0120)
GHG	greenhouse gas
GIS	Geographic Information System
GMP	Ground Water Management Plan
GPM	Gallons per minute
GSA	groundwater sustainability agency
GQMPs	Groundwater quality management plans
GWMP	Groundwater Management Plan
GWPAs	Groundwater Protection Areas
HVAs	High Vulnerability Areas
HVID	Hills Valley Irrigation District
IE	Irrigation Efficiency
IGSM	Integrated Groundwater Surface Water Model
ILRP	Irrigated Lands Regulatory Program
In/Year	Inches per Year
IRWM	Integrated Regional Water Management
IRWMA	Integrated Regional Water Management Authority
JID	James Irrigation District
JPA	Joint Powers Authority
KBWA	Kings Basin Water Authority
KDWCD	Kaweah Delta Water Conservation District
KRE-GSA	Kings River East Groundwater Sustainability Agency
KRCD	Kings River Conservation District
KRWA	Kings River Water Association
KRWD	Kings River Water District
LAFCo	Local Agency Formation Commission
LID	low-impact development

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LGA	Local Groundwater Assistance
MCL	maximum contaminant level
MHI	median household income
MG	million gallons
mg/L	milligrams per liter
MOU	memorandum of understanding
MSL	mean sea level
MSR	municipal service review
MVWA	Mid-Valley Water Authority
NAWQA	National Water Quality Assessment
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NGO	non-governmental organization
NRCS	National Resources Conservation Service
OCID	Orange Cove Irrigation District
O&M	operation and maintenance
PG&E	Pacific Gas & Electric
ppm	parts per million
PUD	Public Utility District
RCD	Resource Conservation District
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCE	Southern California Edison
SDAC	severely disadvantaged community
SDMP	Storm Drain Management Plan
SSJVWQC	South San Joaquin Valley Water Quality Coalition
SWP	State Water Project
TDS	total dissolved solids

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TLB	Tulare Lake Basin
TMDL	total maximum daily load
USBR	United States Bureau of Reclamation
USFS	United States Forestry Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VOC	volatile organic compound
WDL	Water Data Library

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Executive Summary

Figure ES-1 depicts……

Figure ES-1 Project Location

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1 Introduction

[Text here]

1.1 Overview

[Text here]

1.2 Purpose

[Text here]

Figure 1-1: Project Location

1.3 Sustainability Goal

[Text here]

1.3.1.1.1 Section Title

Sample table……

Table 1-1: Summary of Costs

1.4 Background/Technical Studies

[Text here]

1.5 Groundwater Sustainability Plan Organization

[Text here]

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1.6 Agency Information

§354.6(a) The name and mailing address of the Agency

[Text here]

1.6.1 Organization and Management Structure

§354.6(b) The organization and management structure of the Agency, identifying persons with management authority for the implementation of the Plan.

§354.6(c) The name and contact information, including the phone number, mailing address and electronic mail address, and plan manager.

[Text here]

1.6.2 Legal Authority

§354.6(d) The legal authority of the Agency, with specific reference to citation setting fort the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.

§354.6(e) The An estimate of the cost of implementing jthe Plan and a general description of how the Agency plans to meet those costs.

[Text here]

1.7 Notices and Communication

§354.10 The Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties include the following:

(a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interest potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.

(b) A list of public meetings at which the Plan was discussed or considered by the Agency.

(c) Comments regarding the Plan received by the Agency and a summary of any response by the Agency.

[Text here]

1.7.1 Beneficial Users and Uses

[Text here]

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1.7.2 Decision-making Process

§354.10(d) A communication section fo the Plan that include the following:

(1) An explanation of the Agency's decision-making process.

1.7.3 Outreach

§354.10(d)(2) The Identification of opportunities for public engagement and a discussion of how public input and response will be used.

§354.10(d)(3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of population with the basin**.**

§354.10(d)(4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions**.**

1.8 Data Management Systems

§352.6 Data Management Systems

Each plan shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the Plan and monitoring of the basin.

[Text here]

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1.9 Technical and Reporting Standards

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§354.4. Data and Reporting Standards

(a) The following reporting standards apply to all categories of information required of a Plan, unless otherwise indicated:

(1) Water volumes shall be reported in acre-feet.

(2) Surface water flow shall be reported in cubic feet per second and groundwater flow shall be reported in acre-feet per year.

(3) Field measurements of elevations of groundwater, surface water, and land surface shall be measure and reported in feet to an accuracy of at least 0.1 feet relative to NAVD88, or other national standard that is convertible to NAVD88, and the method of measurement is described.

(4) Reference point elevations shall be measure and reported in feet to an accuracy of at least 0.5 feet, or the best available information, relative to NAVD88, or another national standard that is convertible to NAVD88, and the method of measurement described.

(5) Geographic locations shall be reported in GPS coordinates by latitude and longitude in decimal degree to five decimal places, to a minimum accuracy of 20 feet, relative to NAD83, or another national standard that is convertible to NAD83.

(b) Monitoring sites shall include the following information:

(1) A unique site identification number and narrative description the site location.

(2) A description of the type of monitoring, type of measurement taken, and monitoring frequency.

(3) Location, elevation of the ground surface, and identification and description of the reference point.

(4) A description of the standards used to install the monitoring site. Sites that do not conform to best management practices shall be identified and the nature of the divergence from best management practices described.

(c) The following standards apply to wells:

(1) Wells used to monitor groundwater conditions shall be constructed according to applicable construction standards, and shall provide the following information in both tabular and geodatabase-compatible shapefile form:

(A) CASGEM well identification number. If a CASGEM well identification number has not been issued, appropriate well information shall be entered on forms made available by the Department, as described in Section 353.2.

(B) Well location, elevation of the ground surface and reference point, including a description of the reference point.

(C) A description of the well use, such as public supply, irrigation, domestic, monitoring, or other type of well, whether the well is active or inactive, and whether the well is a single, clustered, nested, or other type of well.

(D) Casing perforations, borehole depth, and total well depth.

(E) Well completion reports, if available, from which the names of private owners have been redacted.

(F) Geophysical logs, well construction diagrams, or other relevant information, if available.

(G) Identification of principal aquifers monitored.

(H) Other relevant well construction information, such as well capacity, casing diameter, or casing modifications, as available.

(2) If an Agency relies on wells that lack casing perforations, borehole depth, or total well depth information to monitor groundwater conditions as part of a Plan, the Agency shall describe a schedule for acquiring monitoring wells with the necessary information, or demonstrate to the Department that such information is not necessary to understand and manage groundwater in the basin.

(3) Well information used to develop the basin setting shall be maintained in the Agency's data management system.

(d) Maps submitted to the Department shall meet the following requirements:

(1) Data layers, shapefiles, geodatabases, and other information provided with each map, shall be submitted electronically to the Department in accordance with the procedures described in Article 4.

(2) Maps shall be clearly labeled and contain a level of detail to ensure that the map is informative and useful.

(3) The datum shall be clearly identified on the maps or in an associated legend.

(e) Hydrographs submitted to the Department shall meet the following requirement:

(1) Hydrographs shall be submitted electronically to the Department in accordance with the procedures described in Article 4.

(2) Hydrographs shall include a unique site identification number and the ground surface elevation for each site

(3) . Hydrographs shall use the same datum and scaling to the greatest extent practical.

[Text here]

1.10Basin Coordination

[Text here]

1.10.1 Coordination Agreement

§357.4. Coordination Agreement

(a) Agencies intending to develop and implement multiple Plans pursuant to Water Code Section 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies, and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting.

(b) Coordination agreements shall describe the following:

(1) A point of contact with the Department

(2) The responsibilities of each Agency for meeting the terms of the agreement, the procedures for the timely exchange of information between Agencies, and procedures for resolving conflicts between Agencies.

(3) How the Agencies have used the same data and methodologies for assumptions described in Water Code Section 10727.6 to prepare coordinated Plans, including the following:

(A) Groundwater elevation data, supported by the quality, frequency, and spatial distribution of data in the monitoring network and the monitoring objectives as described in Subarticle 4 of Article 5.

(B) A coordinated water budget for the basin, as described in Section 354.18, including groundwater extraction data, surface water supply, total water use, and change in groundwater in storage.

(C) Sustainable yield for the basin, supported by a description of the undesirable results for the basin, and an explanation of how the minimum thresholds and measurable objectives defined by each Plan relate to those undesirable results, based on information described in the basin setting.

(c) The coordination agreement shall explain how the Plans implemented together, satisfy the requirements of the Act and are in substantial compliance with this Subchapter.

(d) The coordination agreement shall describe a process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations.

(e) The coordination agreement shall describe a coordinated data management system for the basin, as described in Section 352.6.

(f) Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department. If an Agency forms in a basin managed by an Alternative, the Agency shall evaluate the agreement with the Alternative prepared pursuant to Section 358.2 and determine whether it satisfies the requirements of this Section.

(g) The coordination agreement shall be submitted to the Department together with the Plans for the basin and, if approved, shall become part of the Plan for each participating Agency.

(h) The Department shall evaluate a coordination agreement for compliance with the procedural and technical requirements of this Section, to ensure that the agreement is binding on all parties, and that provisions of the agreement are sufficient to address any disputes between or among parties to the agreement.

(i) Coordination agreements shall be reviewed as part of the five-year assessment, revised as necessary, dated, and signed by all parties.

[Text here]

1.10.2 Inter-basin Agreement

§357.2. Inter-basin Agreement

Two or more Agencies may enter into an agreement to establish compatible sustainability goals and understanding regarding fundamental elements of the Plans of each Agency as they relate to sustainable groundwater management. Interbasin agreements may be included in the Plan to support a finding that implementation of the Plan will not adversely affect an adjacent basin's ability to implement its Plan or impede the ability to achieve its sustainability goal. Interbasin agreements should facilitate the exchange of technical information between Agencies and include a process to resolve disputes concerning the interpretation of that information. Interbasin agreements may include any information the participating Agencies deem appropriate, such as the following:

(a) General information:

(1) Identity of each basin participating in and covered by the terms of the agreement.

(2) A list of the Agencies or other public agencies or other entities with groundwater management responsibilities in each basin.

(3) A list of the Plans, Alternatives, or adjudicated areas in each basin.

(b) Technical information:

(1) An estimate of groundwater flow across basin boundaries, including consistent and coordinated data, methods and assumptions.

(2) An estimate of stream-aquifer interactions at boundaries.

(3) A common understanding of the geology and hydrology of the basins and the hydraulic connectivity as it applies to the Agency's determination of groundwater flow across basin boundaries and description of the different assumptions utilized by different Plans and how the Agencies reconciled those differences.

(4) Sustainable management criteria and a monitoring network that would confirm that no adverse impacts result from the implementation of the Plans of any party to the agreement. If minimum thresholds or measurable objectives differ substantially between basins, the agreement should specify how the Agencies will reconcile those differences and manage the basins to avoid undesirable results. The Agreement should identify the differences that the parties consider significant and include a plan and schedule to reduce uncertainties to collectively resolve those uncertainties and differences.

(c) description of the process for identifying and resolving conflicts between Agencies that are parties to the agreement.

(d) Interbasin agreements submitted to the Department shall be posted on the Department's website.

[Text here]

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2 Plan Area

§354.8 Each Plan shall include a description of the geographic areas covered, including the following information:

(a) One or more maps of the basin that depict the following, as applicable:
- **(1)** The area covered by the Plan, delineating areas managed by the Agency as an exclusive Agency and any areas for which the agency is not an exclusive Agency, and the name and location of any adjacent basins.
- **(2)** Adjudicated areas, other Agencies within the basin, and areas covered by an Alterative.
- **(3)** Jurisdictional boundaries of federal or state land (including the identity of the agency within jurisdiction over that land), tribal land, cities, counties, agencies with water management responsibilities, and area covered by relevant general plans.
- **(4)** Existing land use designations and the identification of water use sector and water source types.
- **(5)** The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including *de minimis* extractors, and the location and extend of communities dependent upon groundwater, utilizing data provided by the department, as specified in section 353.2 or best available information.

[Text here]

2.1 Description of Plan Area

§354.8(b) The organization and management structure of the Agency, identifying persons with management authority for the implementation of the Plan.

§354.8(c) The name and contact information, including the phone number, mailing address and electronic mail address, and plan manager.

[Text here]

2.2 Jurisdictional Areas and Other Features

§354.8(b) A written description of the Plan area, including a summary of the jurisdictional areas and other features depicted on the map.

[Text here]

2.3 Water Resources Monitoring and Management Programs

§354.8(c) Identification of existing water resource monitoring and management programs, and description of any such programs the Agency plans to incorporate in its monitoring network or in development of its Plan. The Agency may coordinate with existing water resource monitoring and management program to incorporate and adopt that program as part of the Plan. organization and management structure of the Agency, identifying persons with management authority for the implementation of the Plan.

§354.8(d) A description of how exist9ng water resources monitoring or management programs may limit operational flexibility in the basin, and how the Plan has been developed to adapt to those limits.

§354.8(e) A description of conjunctive use programs in the basin.

[Text here]

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2.4 Impacts to General Plans

[Text here]

2.4.1 Summary of General Plans

§354.8(f) A plain language description of the land use elements or topic categories of applicable general plans that include the following:

(1) A summary of general plans and other land use plans governing the basin.

[Text here]

2.4.2 Impacts to Water Use

§354.8(f)(2) A general description of how implementation of exiting land use plans may change water demands within the basin in affect the ability of the Agency to achieve sustainable groundwater management over the planning and implementation horizon, and how the Plan address those potential effects.

[Text here]

2.4.3 Impacts to Land Use

§354.8(f)(3) A general description of how implementation of the Plan may affect the water supply assumption of relevant land use plans over the planning and implementation horizon.

[Text here]

2.4.4 Permitting New or Replacement Wells

§354.8(f)(4) A summary of the process for permitting new or replacement wells in the basin, including adopted standards in local well ordinances, zoning codes, and policies contained in adopted land use plans.

[Text here]

2.4.5 Land Use Outside of Basin

§354.8(f)(4) To the extent known, the Agency may include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management.

[Text here]

2.5 Land Use Planning

§354.8(f)(4) Ito the extent know, the Agency man include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management

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[Text here]

2.6 Additional GSP Components

2.6.1 Saline Water Intrusion

[Text here]

2.6.2 Wellhead Protection

[Text here]

2.6.3 Migration of Contaminated Groundwater

[Text here]

2.6.4 Well Abandonment/Destruction Program

[Text here]

2.6.5 Replenishment of Groundwater Extractions

[Text here]

2.6.6 Conjunctive Use

[Text here]

2.6.7 Well Construction Polices

[Text here]

2.6.8 Groundwater Projects

[Text here]

2.6.9 Efficient Water Management Practices

[Text here]

2.6.10 Relationships with State and Federal Agencies

[Text here]

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2.6.11 Land Use Planning

[Text here]

2.6.12 Impacts on Groundwater Dependent Ecosystems

[Text here]

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3 Basin Setting

3.1 Hydrologic Conceptual Model

3.1.1 Introduction

§354.14(a) Each Plan shall include a descriptive hydrogeologic conceptual model of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin.

3.1.2 Lateral Basin Boundaries

§354.14(b)(2) The hydrogeologic conceptual model shall be summarized in a written description that includes lateral basin boundaries, including major geologic features that significantly affect groundwater flow.

3.1.3 Regional Geology and Structural Setting

§354.14(b)(1) The hydrogeologic conceptual model shall be summarized in a written description that includes the regional geologic and structural setting of the basin including the immediate surrounding area, as necessary for geologic consistency.

§354.14(b)(3) The hydrogeologic conceptual model shall be summarized in a written description that includes the definable bottom of the basin

3.1.4 Topographic Information

§354.14(d)(1) Physical characteristics of the basin shall be represented on one or more maps that depict topographic information derived from the U.S. Geological Survey or another reliable source.

3.1.5 Surficial Geology

§354.14(d)(2) Physical characteristics of the basin shall be represented on one or more maps that depict surficial geology derived from a qualified map including the locations of cross-sections required by this Section.

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3.1.6 Soil Characteristics

§354.14(d)(3) Physical characteristics of the basin shall be represented on one or more maps that depict soil characteristics as described by the appropriate Natural Resource Conservation Service soil survey or other applicable studies.

3.1.6.1 Grangeville-Chino Association

3.1.6.2 Hanford-Tujunga Association

3.1.6.3 Greenfield=-Atwater Association

3.1.6.4 San Joaquin-Exeter -Ramona Association

3.1.6.5 Cibo-Porterville Association

3.1.6.6 Vista Fallbrook Association

3.1.6.7 San Emigdio-Yettum Honcut Unit

3.1.6.8 San Joaquin -Exeter Unit

3.1.6.9 Centerville-Porterville Unit

3.1.7 Cross-sections

§354.14(c) The hydrogeologic conceptual model shall be represented graphically by at least two scaled cross-sections that display the information required by this section and are sufficient to depict major stratigraphic and structural features in the basin.

3.1.7.1 Cross-section A-A'

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3.1.7.2 Cross-section B-B'

3.1.7.3 Cross-section C-C'

3.1.8 Aquifer Systems

§354.14(b)(4) The hydrogeologic conceptual model shall be summarized in a written description that includes the principal aquifers and aquitards.

§354.14(b)(4)(c) Structural properties of the basin that restrict groundwater flow within the principal aquifers, including information regarding stratigraphic changes, truncation of units, or other features.

3.1.8.1 Aquifer Characteristics and Properties

§354.14(b)(4)(b) Physical properties of aquifers and aquitards, including the vertical and lateral extent, hydraulic conductivity, and storativity, which may be based on existing technical studies or other best available information.

3.1.8.2 Aquifer Uses

§354.14(b)(4)(e) Identification of the primary use or uses of each aquifer, such as domestic, irrigation, or municipal water supply.

3.1.8.3 Geologic Formations

§354.14(b)(4)(a) Formation names, if defined.

3.1.8.4 Confining Beds

3.1.9 General Groundwater Quality

§354.14(b)(4)(d) General water quality of the principal aquifers, which may be based on information derived from existing technical studies or regulatory programs.

3.1.10 Surface Water Features

§354.14(d)(5) Physical characteristics of the basin shall be represented on one or more maps that depict surface water bodies that are significant to the management of the basin.

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3.1.11 Source and Point of Delivery of Imported Water

§354.14(d)(6) Physical characteristics of the basin shall be represented on one or more maps that depict the source and point of delivery for imported water supplies.

3.1.12 Recharge and Discharge Areas

§354.14(d)(4) Physical characteristics of the basin shall be represented on one or more maps that depict delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas, including significant active springs, seeps, and wetlands within or adjacent to the basin.

3.2 Current and Historical Groundwater Conditions

3.2.1 Introduction

§354.16 Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information.

3.2.2 Groundwater Elevation

§354.16(a)(1) Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including: Groundwater elevations contour maps depicting the groundwater table or potential metric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin.

§354.16(a)(2) Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including: Hydrographs depicting long-term groundwater elevations, historical highs and lows, and hydraulic gradients between principal aquifers.

3.2.2.1 Depths to Water Supply Wells

3.2.2.2 Depth to Water

3.2.2.3 Water-Level Elevations and Direction of Groundwater Flow

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3.2.2.4 Water-Level Fluctuations

3.2.3 Groundwater Storage

§354.16(b) A graph depicting estimates of the change in groundwater in storage, based on data, demonstrating the annual and cumulative change in the volume of groundwater in storage between seasonal high groundwater conditions, including the annual groundwater use and water year type.

3.2.4 Seawater Intrusion

§354.16(c) Seawater intrusion conditions in the basin, including maps and cross-sections of the seawater intrusion front for each principal aquifer.

3.2.5 Groundwater Quality

§354.16(d) Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.

3.2.5.1 Salinity

3.2.5.2 Nitrates

3.2.5.3 Dibromo-chloropropane

3.2.6 Land Subsidence

§354.16(e) The extent, cumulative total, and annual rate of land subsidence, including maps depicting total subsidence, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

3.2.7 Interconnected Surface Water Systems

§354.16(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

Preliminary Draft

3.2.8 Groundwater Dependent Ecosystems

§354.16(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

3.3 Water Budget

3.3.1 Introduction

§354.18(a) Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.

3.3.2 Description of Water Budget Model

§354.18(e) Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow. If a numerical groundwater and surface water model is not used to quantify and evaluate the projected water budget conditions and the potential impacts to beneficial uses and users of groundwater, the Plan shall identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions.

§354.18(f) The Department shall provide the California Central Valley Groundwater-Surface Water Simulation Model (C2VSIM) and the Integrated Water Flow Model (IWFM) for use by Agencies in developing the water budget. Each Agency may choose to use a different groundwater and surface water model, pursuant to Section 352.4.

3.3.3 Description of Inflows, Outflows, and Change in Storage

§354.18(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:

§354.18(b)(1) Total surface water entering and leaving a basin by water source type.

§354.18(b)(2) Inflow to the groundwater system by water sources types, including subsurface groundwater inflow and infiltration of precipitation, applied water, and surface water systems, such as lakes, streams, rivers, canals, springs, and conveyance systems.

§354.18(b)(3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.

Preliminary Draft

3.3.4 Estimation of Overdraft and Sustainable Yield

§354.18(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:

§354.18(b)(4) The change in the annual volume of groundwater in storage between seasonal high conditions.

§354.18(b)(5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.

§354.18(b)(6) The water year type associated with the annual supply, demand, and change in groundwater stored.

§354.18(b)(7) An estimate of sustainable yield for the basin.

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3.3.5 Current, Historical, and Projected Budgets

§354.18

(c) Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:

(1) Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, water demand, and land use information.

(2) Historical water budget information shall be used to evaluate availability or reliability of past surface water supply deliveries and aquifer response to water supply and demand trends relative to water year type. The historical water budget shall include the following:

(A) A quantitative evaluation of the availability or reliability of historical surface water supply deliveries as a function of the historical planned versus actual annual surface water deliveries, by surface water source and water year type, and based on the most recent ten years of surface water supply information.

(B) A quantitative assessment of the historical water budget, starting with the most recently available information and extending back a minimum of 10 years, or as is sufficient to calibrate and reduce the uncertainty of the tools and methods used to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon.

(C) A description of how historical conditions concerning hydrology, water demand, and surface water supply availability or reliability have impacted the ability of the Agency to operate the basin within sustainable yield. Basin hydrology may be characterized and evaluated using water year type.

(3) Projected water budgets shall be used to estimate future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:

(A) Projected hydrology shall utilize 50 years of historical precipitation, evapotranspiration, and streamflow information as the baseline condition for estimating future hydrology. The projected hydrology information shall also be applied as the baseline condition used to evaluate future scenarios of hydrologic uncertainty associated with projections of climate change and sea level rise.

(B) Projected water demand shall utilize the most recent land use, evapotranspiration, and crop coefficient information as the baseline condition for estimating future water demand. The projected water demand information shall also be applied as the baseline condition used to evaluate future scenarios of water demand uncertainty associated with projected changes in local land use planning, population growth, and climate.

(C) Projected surface water supply shall utilize the most recent water supply information as the baseline condition for estimating future surface water supply. The projected surface water supply shall also be applied as the baseline condition used to evaluate future scenarios of surface water supply availability and reliability as a function of the historical surface water supply identified in Section 354.18(c)(2)(A), and the projected changes in local land use planning, population growth, and climate.

(d) The Agency shall utilize the following information provided, as available, by the Department pursuant to Section 353.2, or other data of comparable quality, to develop the water budget:

(1) Historical water budget information for mean annual temperature, mean annual precipitation, water year type, and land use.

(2) Current water budget information for temperature, water year type, evapotranspiration, and land use.

(3) Projected water budget information for population, population growth, climate change, and sea level rise.

3.4 Management Areas

3.4.1 Introduction

§354.20(a) Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin.

3.4.2 Reason for Creation

§354.20(b)(1) Describe the reason for the creation of each management area.

§354.20(b)(2) The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.

3.4.3 Description of Management Areas

§354.20(c) If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.

3.4.4 Monitoring and Analysis

§354.20(b)(3) The level of monitoring and analysis appropriate for each management area.

§354.20(b)(4) An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.

Preliminary Draft

4 Sustainable Management Criteria

§354.22 This Subarticle describes criteria by which an Agency defines conditions in its Plan that constitute sustainable groundwater management for the basin, including the process by which the Agency shall characterize undesirable results, and establish minimum thresholds and measurable objectives for each applicable sustainability indicator.

[Text here]

4.1 Groundwater Levels

[Text here]

4.1.1 Sustainability Goal

§354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon.

[Text here]

4.1.2 Undesirable Results

[Text here]

4.1.2.1 Criteria to Define Undesirable Results

§354.26(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

[Text here]

4.1.2.2 Causes of Groundwater Conditions that Lead to Undesirable Results

§354.26(b) The description of undesirable results shall include the following:

§354.26(b)(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

§354.26(b)(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

§354.26(b)(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results..

[Text here]

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4.1.2.3 Evaluation of Minimum Thresholds

§354.26(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

4.1.3 Minimum Thresholds

§354.28(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

§354.28(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

[Text here]

4.1.3.1 Description of Minimum Thresholds

§354.28(b) The description of minimum thresholds shall include the following:

§354.28(d)(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

§354.28(d)(2) The relationship between the minimum thresholds for each sustainability indictor, including and explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

§354.28(d)(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

§354.28(d)(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

§354.28(d)(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

§354.28(d)(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

[Text here]

4.1.3.2 Relationship for each Sustainability Indicator

§354.28(c) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability ind(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

§354.28(c)(1) Chronic Lowering of Groundwater Levels. The minimum threshold for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results. Minimum thresholds for chronic lowering of groundwater levels shall be supported by the following:

§354.28(c)(1)(A) The rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin.

§354.28(c)(1) (B) Potential effects on other sustainability indicators.

[Text here]

4.1.3.3 Selection of Minimum Thresholds

[Text here]

4.1.3.4 Potential Effect on Users and Water Use

[Text here]

4.1.3.5 Measurement of Minimum Threshold

[Text here]

4.1.4 Measurable Objective

§354.30(a) Each Agency Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin with 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

§354.30(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

§354.30(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

§354.30(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

§354.30(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

§354.30(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

§354.30(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for finding of inadequacy of the Plan..

[Text here]

4.1.4.1 Description of Measurable Objective

[Text here]

4.1.4.2 Margin of Safety

[Text here]

4.1.4.3 Achieving Measurable Objective

[Text here]

4.2 Groundwater Storage

Preliminary Draft

4.2.1 Sustainability Goal

§354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon..

[Text here]

4.2.2 Undesirable Results

4.2.2.1 Criteria to Define Undesirable Results

§354.26(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

[Text here]

4.2.2.2 Causes of Groundwater Conditions that Lead to Undesirable Results

§354.26(b) The description of undesirable results shall include the following:

§354.26(b)(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

§354.26(b)(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

§354.26(b)(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

4.2.2.3 Evaluation of Minimum Thresholds

§354.26(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

4.2.3 Minimum Thresholds

§354.28(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

§354.28(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

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4.2.3.1 Description of Minimum Thresholds

§354.28(b) The description of minimum thresholds shall include the following:

§354.28(b)(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

§354.28(b)(2) The relationship between the minimum thresholds for each sustainability indictor, including and explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

§354.28(b)(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

§354.28(b)(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

§354.28(b)(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

§354.28(b)(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

[Text here]

4.2.3.2 Relationship for each Sustainability Indicator

§354.28(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

§354.28(c)(2) Reduction of Groundwater Storage. The minimum threshold for reduction of groundwater storage shall be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.

[Text here]

4.2.3.3 Selection of Minimum Thresholds

[Text here]

4.2.3.4 Potential Effect on Users and Water Use

[Text here]

4.2.3.5 Measurement of Minimum Threshold

[Text here]

Preliminary Draft

4.2.4 Measurable Objective

§354.30(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin with 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

§354.30(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

§354.30(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

§354.30(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

§354.30(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

§354.30(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

§354.30(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for finding of inadequacy of the Plan.

[Text here]

4.2.4.1 Description of Measurable Objective

[Text here]

4.2.4.2 Margin of Safety

[Text here]

4.2.4.3 Achieving Measurable Objective

[Text here]

4.3 Seawater Intrusion

§354.26(d) An Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators.

§354.28(e) An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish minimum thresholds related to those sustainability indicators.

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4.4 Groundwater Quality

4.4.1 Sustainability Goal

§354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon..

4.4.2 Undesirable Results

4.4.2.1 Criteria to Define Undesirable Results

§354.26(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

4.4.2.2 Causes of Groundwater Conditions that Lead to Undesirable Results

§354.26(b) The description of undesirable results shall include the following:

§354.26(b)(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

§354.26(b)(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

§354.26(b)(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

4.4.2.3 Evaluation of Minimum Thresholds

§354.26(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

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4.4.3 Minimum Thresholds

§354.28(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

§354.28(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

4.4.3.1 Description of Minimum Thresholds

§354.28(b) The description of minimum thresholds shall include the following:

§354.28(b)(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

§354.28(b)(2) The relationship between the minimum thresholds for each sustainability indictor, including and explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

§354.28(b)(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

§354.28(b)(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

§354.28(b)(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

§354.28(b)(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

[Text here]

4.4.3.2 Relationship for each Sustainability Indicator

§354.28(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

§354.28(c)(4) Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be used on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.

[Text here]

4.4.3.3 Selection of Minimum Thresholds

[Text here]

4.4.3.4 Potential Effect on Users and Water Use

[Text here]

4.4.3.5 Measurement of Minimum Threshold

[Text here]

4.4.4 Measurable Objective

§354.30(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin with 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

§354.30(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

§354.30(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

§354.30(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

§354.30(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

§354.30(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

§354.30(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for finding of inadequacy of the Plan.

[Text here]

4.4.4.1 Description of Measurable Objective

[Text here]

4.4.4.2 Margin of Safety

[Text here]

4.4.4.3 Achieving Measurable Objective

[Text here]

4.5 Land Subsidence

[Text here]

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4.5.1 Sustainability Goal

§354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon..

[Text here]

4.5.2 Undesirable Results

[Text here]

4.5.2.1 Criteria to Define Undesirable Results

§354.26(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

[Text here]

4.5.2.2 Causes of Groundwater Conditions that Lead to Undesirable Results

§354.26(b) The description of undesirable results shall include the following:

§354.26(b)(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

§354.26(b)(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

§354.26(b)(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

[Text here]

4.5.2.3 Evaluation of Minimum Thresholds

§354.26(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

[Text here]

4.5.3 Minimum Thresholds

§354.28(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

§354.28(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

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[Text here]

4.5.3.1 Description of Minimum Thresholds

§354.28(b) The description of minimum thresholds shall include the following:

§354.28(b)(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

§354.28(b)(2) The relationship between the minimum thresholds for each sustainability indictor, including and explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

§354.28(b)(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

§354.28(b)(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

§354.28(b)(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

§354.28(b)(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

[Text here]

4.5.3.2 Relationship for each Sustainability Indicator

§354.28(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

§354.28(c)(5) Land Subsidence. The minimum threshold for land subsidence shall be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results. Minimum thresholds for land subsidence shall be supported by the following:

§354.28(c)(5)(A) Identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including and explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects.

§354.28(c)(5)(B) Maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum threshold and measurable objectives.

[Text here]

4.5.3.3 Selection of Minimum Thresholds

[Text here]

4.5.3.4 Potential Effect on Users and Water Use

[Text here]

4.5.3.5 Measurement of Minimum Threshold

[Text here]

Preliminary Draft

4.5.4 Measurable Objective

§354.30(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin with 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

§354.30(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

§354.30(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

§354.30(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

§354.30(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

§354.30(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

§354.30(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for finding of inadequacy of the Plan.

[Text here]

4.5.4.1 Description of Measurable Objective

[Text here]

4.5.4.2 Margin of Safety

[Text here]

4.5.4.3 Achieving Measurable Objective

[Text here]

4.6 Interconnected Surface Water and Groundwater

[Text here]

4.6.1 Sustainability Goal

§354.24 Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon..

[Text here]

Preliminary

4.6.2 Undesirable Results

[Text here]

4.6.2.1 Criteria to Define Undesirable Results

§354.26(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

[Text here]

4.6.2.2 Causes of Groundwater Conditions that Lead to Undesirable Results

§354.26(b) The description of undesirable results shall include the following:

§354.26(b)(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

§354.26(b)(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

§354.26(b)(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

[Text here]

4.6.2.3 Evaluation of Minimum Thresholds

§354.26(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

[Text here]

4.6.2.4 Sustainability Indicators Not Present In Basin

§354.26(d) An Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators..

[Text here]

4.6.3 Minimum Thresholds

§354.28(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

§354.28(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

§354.28(e) An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish minimum thresholds related to those sustainability indicators.

Preliminary Draft

[Text here]

4.6.3.1 Description of Minimum Thresholds

§354.28(b) The description of minimum thresholds shall include the following:

§354.28(b)(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

§354.28(b)(2) The relationship between the minimum thresholds for each sustainability indictor, including and explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

§354.28(b)(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

§354.28(b)(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

§354.28(b)(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

§354.28(b)(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

[Text here]

4.6.3.2 Relationship for each Sustainability Indicator

§354.28(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

§354.28(c)(6) Depletions of Interconnected Surface Water. The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results. The minimum threshold established for depletions of interconnected surface water shall be supported by the following:

§354.28(c)(6)(A) The location, quantity, and timing of depletions of interconnected surface water.

§354.28(c)(6)(B) description of the groundwater and surface model used to quantify surface water depletion. If a numerical groundwater and surface water model is not used to quantify surface water depletion, the Plan shall identify and describe an equally effective method, tool, or analytical model to accomplish the requirements of this Paragraph.

[Text here]

4.6.3.3 Selection of Minimum Thresholds

[Text here]

4.6.3.4 Potential Effect on Users and Water Use

[Text here]

4.6.3.5 Measurement of Minimum Threshold

[Text here]

Preliminary Draft

4.6.4 Measurable Objective

§354.30(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin with 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

§354.30(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

§354.30(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

§354.30(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

§354.30(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

§354.30(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

§354.30(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for finding of inadequacy of the Plan.

[Text here]

4.6.4.1 Description of Measurable Objective

[Text here]

4.6.4.2 Margin of Safety

[Text here]

4.6.4.3 Achieving Measurable Objective

[Text here]

Preliminary

5 Monitoring Network

[Text here]

5.1 Introduction

[Text here]

5.2 Description of Monitoring Network

§354.34(d) The monitoring network shall be designed to ensure adequate coverage of sustainability indicators. If management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the basin setting and sustainable management criteria specific to that area.

§354.34(g)(1) Scientific rationale for the monitoring site selection process.

§354.34(g)(3) For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.

§354.34(h) The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used.

[Text here]

5.2.1 Monitoring Network Objectives

§354.34(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

[Text here]

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5.2.2 Sustainability Indicators

§354.34(g)(3) For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.

§354.34(c)(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:

§354.34(c)(1)(A) A sufficient density of monitor wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.

§354.34(c)(1)(B) Static groundwater elevation measurements shall be collected at least two times per year, to represent seasonal low and seasonal high groundwater conditions.

§354.34(c)(2) Reduction of Groundwater Storage. Provide an estimate of the change in annual groundwater in storage.

§354.34(c)(3) Seawater Intrusion. Monitor seawater intrusion using chloride concentrations, or other measurements convertible to chloride concentrations, so that the current and projected rate and extent of seawater intrusion for each applicable principal aquifer may be calculated.

§354.34(c)(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.

§354.34(c)(5) Land Subsidence. Identify the rate and extent of land subsidence, which may be measured by extensometers, surveying, remote sensing technology, or other appropriate method.

§354.34(c)(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:

§354.34(c)(6)(A) Flow conditions including surface water discharge, surface water head, and baseflow conditions.

§354.34(c)(6)(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.

§354.34(c)(6)(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.

§354.34(c)(6)(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.

[Text here]

5.2.3 Monitoring Site Density and Frequency of Measurement

§354.34(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:

§354.30(f)(1) Amount of current and projected groundwater use.

§354.30(f)(2) Aquifer characteristics, including confined or unconfined aquifer conditions, or other physical characteristics that affect groundwater flow.

§354.30(f)(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

§354.30(f)(4) Whether the Agency has adequate long-term existing monitoring results or other technical information to demonstrate an understanding of aquifer response.

[Text here]

5.2.4 Data and Reporting Standard Consistency

§354.34(g)(2) Consistency with data and reporting standards described in Section 352.4. If a site is not consistent with those standards, the Plan shall explain the necessity of the site to the monitoring network, and how any variation from the standards will not affect the usefulness of the results obtained.

[Text here]

5.3 Monitoring Protocol

§354.34(i) The monitoring protocols developed by each Agency shall include a description of technical standards, data collection methods, and other procedures or protocols pursuant to Water Code Section 10727.2(f) for monitoring sites or other data collection facilities to ensure that the monitoring network utilizes comparable data and methodologies.

[Text here]

5.4 Representative Monitoring

§354.36 Each Agency may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin, as follows:.

[Text here]

5.4.1 Description of Sites

§354.36(a) Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.

[Text here]

5.4.2 Groundwater Elevations as a Proxy for Sustainability Indicators

§354.36(b) Groundwater elevations may be used as a proxy for monitoring other sustainability indicators if the Agency demonstrates the following:

§354.38(b)(1) Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy.

§354.38(b)(2) Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy.

[Text here]

5.4.3 Comparison of Monitoring Results to General Area Conditions

[Text here]

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5.5 Assessment and Improvement of Monitoring Network

[Text here]

5.5.1 Evaluation of Monitoring Network

§354.38(a) Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.

[Text here]

5.5.2 Data Gaps

§354.38(b) Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.

§354.38(c) If the monitoring network contains data gaps, the Plan shall include a description of the following:

§354.38(c)(1) The location and reason for data gaps in the monitoring network.

§354.38(c)(2) Local issues and circumstances that limit or prevent monitoring.

§354.38(d) Each Agency shall describe steps that will be taken to fill data gaps before the next five-year assessment, including the location and purpose of newly added or installed monitoring sites.

[Text here]

5.5.3 Monitoring Frequency and Site Density

§354.38(e) Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:

§354.38(e)(1) Minimum threshold exceedances.

§354.38(e)(2) Highly variable spatial or temporal conditions.

§354.38(e)(3) Adverse impacts to beneficial uses and users of groundwater.

§354.38(e)(4) The potential to adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of sustainability goals in an adjacent basin..

[Text here]

5.6 Reporting of Monitoring Data to DWR

§354.40 Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department..

[Text here]

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Sample table……

Table 5-1: Summary of Cost to Fully Implement Program

Preliminary Draft

6 Project and Management Actions

[Text here]

6.1 Introduction

§354.44. Projects and Management Actions

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(c) Projects and management actions shall be supported by best available information and best available science.

(**d)** An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

[Text here]

6.2 Project 1 – Name

[Text here]

Figure 6-1: Project 1 Location Map

6.2.1 Measurable Objective

§354.44(b)(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

[Text here]

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6.2.2 Implementation

§354.44(b)(1)(A) description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

§354.44(b)(1)(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

§354.44(b)(2) If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

§354.44(b)(6) An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.

[Text here]

6.2.3 Project Benefits

§354.44(b)(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated..

[Text here]

6.2.4 Permitting and Regulatory Process

§354.44(b)(3) A summary of the permitting and regulatory process required for each project and management action.

[Text here]

6.2.5 Schedule

§354.44(b)(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

[Text here]

6.2.6 Legal Authority

§354.44(b)(7) description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

[Text here]

6.2.7 Project Cost and Financing Strategy

§354.44(b)(8) description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

[Text here]

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6.2.8 Management of Groundwater Extractions and Recharge

§354.44(b)(9) description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

[Text here]

6.2.8.1.1 Section Title

[Text here]

6.3 Project N – Name

[Text here]

6.4 Management Action

[Text here]

6.4.1 Action 1

Repeat subheadings from Project 1

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7 Plan Implementation

[Text here]

Figure 7-1: Map

7.1 Estimated GSP Implementation Costs

[Text here]

7.2 Implementation Schedule

[Text here]

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7.3 Annual Reporting

§356.2. Annual Reports

Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:

(a) General information, including an executive summary and a location map depicting the basin covered by the report.

(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:

(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:

(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year**.**

(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

(5) Change in groundwater in storage shall include the following:

(A) Change in groundwater in storage maps for each principal aquifer in the basin. (B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

[Text here]

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7.4 Periodic Evaluations

§354.4. Periodic Evaluations by Agency

Each Agency shall evaluate its Plan at least every five years and whenever the Plan is amended, and provide a written assessment to the Department. The assessment shall describe whether the Plan implementation, including implementation of projects and management actions, are meeting the sustainability goal in the basin, and shall include the following:

(a) A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones and minimum thresholds.

(b) A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.

(c) Elements of the Plan, including the basin setting, management areas, or the identification of undesirable results and the setting of minimum thresholds and measurable objectives, shall be reconsidered and revisions proposed, if necessary.

(d) An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes. If the Agency's evaluation shows that the basin is experiencing overdraft conditions, the Agency shall include an assessment of measures to mitigate that overdraft.

(e) A description of the monitoring network within the basin, including whether data gaps exist, or any areas within the basin are represented by data that does not satisfy the requirements of Sections 352.4 and 354.34(c). The description shall include the following:

(1) An assessment of monitoring network function with an analysis of data collected to date, identification of data gaps, and the actions necessary to improve the monitoring network, consistent with the requirements of Section 354.38.

(2) If the Agency identifies data gaps, the Plan shall describe a program for the acquisition of additional data sources, including an estimate of the timing of that acquisition, and for incorporation of newly obtained information into the Plan.

(3) The Plan shall prioritize the installation of new data collection facilities and analysis of new data based on the needs of the basin.

(f) A description of significant new information that has been made available since Plan adoption or amendment, or the last five-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.

(g) A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.

(h) Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.

(i) A description of completed or proposed Plan amendments

(j) Where appropriate, a summary of coordination that occurred between multiple Agencies in a single basin, Agencies in hydrologically connected basins, and land use agencies.

(k) Other information the Agency deems appropriate, along with any information required by the Department to conduct a periodic review as required by Water Code Section 10733.

[Text here]

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8 Title

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Appendix

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1. Kings River East GSA MOU
2. SB 37 (Vidak)
3. List of Public Meetings
4. Comments on GSP
5. Technical Reports/Studies
    a. Kings Basin GAR
    b. Upper Kings Integrated Water Resources Management Plan
    c. AID Ag Water Management Plan

Preliminary Draft