# <u>Technical Coordination – List of Requirements per SGMA Regulations,</u> Coordination Agreement, Common Chapter, and Technical Memorandums

## **COMMON CHAPTER**

- 1) General Information
  - a. Decision Making and Governance
- 2) Plan Area / Description
  - a. Compile Individual GSP Physical Settings and Characteristics
  - b. Communication Section and Outreach Discussion

#### OUTREACH REQUIREMENTS OF THE REGS OR IMPLEMENTED TOOLS

- A. Communication Section of GSP Regs (Section 354.10)
  - An explanation of the decision making process (Coordination Committee, maybe include decision tree / flow chart under development January 2019)
  - Identification of opportunities for public engagement and discussion of how public input was/will be used
    - Delta-Mendota Subbasin public workshops
      - April 2018
      - October 2018
      - February 2019
      - Spring 2019
      - Summer 2019 confirm: based on timing of public draft release
      - Fall 2019
    - Additional public meetings/workshops
  - Method GSA (or Committee) shall follow to inform the public about progress implementing the Plan, including status of actions
- B. Public Workshops Compile Agendas, describe noticing, dates, and participation
- C. Subbasin-Wide website
- D. Monthly Newsletter; Describe purpose, structure, and distribution
- E. Consider Beneficial Uses and users of groundwater when describing undesirable results, thresholds, projects and actions (GSP Prep Section 10727.8 and 10723.3)
  - Public Notice of Proposed Adoption (Adopting Common Section(s)) (Section 10728.4)
- 3) Cost and Funding
  - a. Cost Sharing Agreement and Coordinated Expenses (Executed 12/12/18)

## **BASIN SETTING**

- 1) Hydrogeologic Conceptual Model Development
  - a. Visual (Maps) and Narrative Description
    - i. High-level Basin Description discuss general basin boundaries, primary aquifers and Corcoran Clay, bottom of basin, presence of A-Clay in southern portion of basin
    - ii. Recharge and Discharge Areas

- iii. Water Level Contour Maps
- iv. Hydrographs at representative monitoring sites
- b. Cross Sections
  - *i.* Two from USGS. Ensure depth to Corcoran and base to freshwater are shown.
- c. Lateral Boundaries and Definable Bottom
- d. High-level Summary of Aquifer Properties and Groundwater Conditions
  - *i.* California Code of Regulations: Groundwater Conditions (Section 354.16)
    - 1. Description of current (2013) and historical (2003-2012) groundwater conditions in the basin
      - a. Groundwater elevation contour maps with groundwater table or potentiometric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin
        - *i. Current seasonal high:* [February-April 2013]
        - ii. Current seasonal low: [September-October 2013]
        - *iii.* Principal aquifers within the basin: [Upper and lower aquifers relative to the Corcoran Clay layer]
- e. Identification of Subbasin-wide (Coordinated) Management Areas, if any [none]
  - i. Woodard & Curran to compile GSP management areas into one map
- 2) Water Budgets (Section 10727.2)
  - a. Historic, Current, and Projected Timeframes
  - b. Wet, Dry, Normal year designations
  - c. Methodology
  - d. Assumptions
  - e. Confirm Boundary Flows and Change in Storage
  - f. Datasets
    - i. Land Surface Budget
      - 1. Inflows
        - a. Precipitation
        - b. Surface Water Inflows
        - c. Applied Water Groundwater
        - d. Applied Water Imported Surface Water
        - e. Other Direct Recharge
      - 2. Outflows
        - a. Runoff
        - b. Evapotranspiration
        - c. Surface Water Outflows
        - d. Deep Percolation
    - *ii.* Groundwater Budget
      - 1. Inflows
        - a. Deep Percolation
          - i. Precipitation Infiltration
          - ii. Surface Water Infiltration
          - iii. Applied Water Infiltration
        - b. Subsurface Groundwater Inflows

- i. Upper Aquifer
- ii. Lower Aquifer
- c. Other Direct Recharge
- 2. Outflows
  - a. Groundwater Extraction from Upper Aquifer
  - b. Groundwater Extraction from Lower Aquifer
  - c. Subsurface Groundwater Outflows
    - i. Upper Aquifer
    - ii. Lower Aquifer
- g. Well Inventory
- h. Cross-Check (Subbasin wide contouring)
- 3) Management Areas
  - a. Common Terminology

#### SUSTAINABLE MANAGEMENT CRITERIA

- 1) Sustainability Indicators at Representative Monitoring Sites
  - a. Determination of Subbasin Management Areas and;
    - *i.* Indicators/Minimum Thresholds (sum of the parts?)
    - ii. Interim Milestone
    - *iii.* Undesirable Results
    - iv. Sustainability Goals (2040 goal and 5-year interim goals)

#### **MONITORING NETWORKS**

- 1) Determination of Subbasin Monitoring Network
  - a. Locations, Depths, Frequency, type, completion report, screened intervals, aquifer info, reference point elevation
  - b. Compilation of all relevant data for Representative Monitoring Sites i. Coordination of Criteria
  - c. Data Gaps Assessment, Identification and Improvements/Timeframes to fill
  - d. Describe how network is capable of collecting data to demonstrate short term, Seasonal Highs & Lows, long-term trends in gw and sw conditions, and yield representative info about conditions necessary to evaluate plans
  - e. Indicators for network for WL/WQ/Subsidence/Surface Water/change in storage
  - f. Objectives, Protocols, Data Reporting Requirement
    - *i.* If Management Areas are used, description of level of monitoring and analysis appropriate for each management area

#### MANAGEMENT ACTIONS AND PROJECTS

- 1) Development and Review of Individual GSP Group Projects and Management Actions
- 2) Discussion and Development of Coordinated Projects and Management Actions
- 3) Common Section Development
- 4) Permitting, Legal Authority, Cost, and Management

#### PLAN IMPLEMENTATION

- 1) Annual Report Standard Format
- 2) Management Structure supporting GSP Implementation (not required but necessary)
- 3) Determine Coordination, Cost, and Schedule of Implementation
- 4) Funding Sources Identification

## COORDINATED DATA MANAGEMENT SYSTEM DEVELOPMENT

- 1) Coordinated Data Management System (Coordination Agreement Section 11)
  - a. Data Compilation with description of sources, types, management
  - b. QA/QC of data to support GSP
  - c. DMS Setup
  - d. Coordinate Data Management System
  - e. Compile Data Management System
- 2) Capable of storing and reporting information relevant to reporting requirements and/or implementation of the GSPs and monitoring network of the Subbasin
- 3) Must ensure annual reporting requirements to DWR are met (11.2)

# SUBBASIN COORDINATION

- 1) Intrabasin Coordination (Required, Section 357.4)
  - a. Determine other 'Plans' to be submitted in the subbasin
  - b. Establish a 'Submitting Agency' to be single point of contact with DWR
  - c. Develop Coordination Agreement, Executed Coordination Agreement 12/12/2018
  - d. Develop Cost Sharing Mechanism, Executed Cost Sharing Agreement 12/12/2018
- 2) Interbasin Coordination (Optional, but advised Section 357.2) (lower priority; document as occurred)
  - a. Stantec Facilitation and GSP Group participation
    - i. Meet and compare results with all neighboring subbasins
    - ii. Meet and develop Dispute Resolution language, as necessary
    - *iii.* Create Data Sharing Agreements, as necessary

## **DEVELOP TECHNICAL MEMORANDUMS**

- 1) Technical Memorandum on "data and methodologies" (Coordination Agreement Section 8.3)
  - a. Common Methodologies for GSP Development / Coordination
  - b. Subbasin Wide Monitoring Network (Coordination Agreement Section 9)
    - *i.* Objectives, Protocols, and Data Reporting Requirements specific to enumerated sustainability indicators (Coordination Agreement Section 9.1)
  - c. Coordinated Water Budget (Coordination Agreement Section 10)
    - i. Total Annual Volume (inflow/outflow), including historical, current, projected water budget conditions, and change in storage, and safe/**sustainable** yield for differing aquifers (10.1)
  - d. Coordinated Data Management System (Coordination Agreement Section 11)
    - *i.* Capable of storing and reporting information relevant to reporting requirements and/or implementation of the GSPs and monitoring network of the Subbasin
    - *ii.* Must ensure annual reporting requirements to DWR are met (11.2)

- e. Description of how respective GSPs implemented together satisfy requirements of SGMA and are in substantial compliance of SGMA
  - *i.* Description of Physical Setting and Characteristics of the separate aquifer systems within the Subbasin,
  - *ii.* Sustainability Goal (supported by locally-defined minimum thresholds and undesirable results)
  - iii. Measurable Objectives for each such GSP
  - iv. Interim Milestones
  - v. Monitoring Protocols
- 2) All Technical Memoranda are subject to the unanimous approval of the Coordination Committee (Coordination Agreement Section 8.3)
  - a. Together these are to provide a detailed description of how the Basin as a whole will be sustainably managed

## **COMPILE FINAL GSP SECTIONS**

- 1) Distribute draft GSP to basin stakeholders (CWC Section 10728.4)
- 2) Release public draft and 90-day public review
- 3) Hold public hearing(s) to adopt Plan(s) at least 90 days after providing notice to a city or county within the area of the proposed plan, to receive feedback and revise (if necessary)
- 4) Submit all plans and common sections / plan to DWR after which DWR is to establish a period of at least 60 days to receive comments on the adopted Plan (23 –CCR Section 355.2)

## Water Budget Evaluation

- Quantify Water Budget Components (Inflows/Outflows)
  - Provide Description of Individual GSP Group Water Budget Components
- Identify Boundary Type and Locations
- Calculate Change in Storage
- Quantify Overdraft over average conditions
- Estimate Sustainable Yield
- Comparison amongst GSP Groups

#### GSP Group to Provide Datasets to be Coordinated: (Tabulated in a common format)

- Grower Data Source(s)
- Groundwater Extraction Data
- ET Values and Data Source(s)
- Inflow by source type (precip., applied water, canals, rivers, inflow) and Data Sources
  - Recharge Rates and Data Source(s)
  - Streamflow Recharge Contribution
  - Boundary inflow from other subbasins
- Gaging Station, Estimated Losses, Allocation, etc.
  - Water Year Type (San Joaquin Valley Designation)
  - Aquifer Characteristics/Properties; Transmissivity, Storage Coefficient, etc.
  - o Description of Total Surface Water entering or leaving by water source type

• Water Use info (County Users for example)

#### Parameters to be Coordinated:

- Compare Seasonal Contour/Water Level Map(s); Upper and Lower Aquifer as data permits

- Spring 2003: Upper Aquifer (above the Corcoran Clay)
- Spring 2013: Upper Aquifer (above the Corcoran Clay)
- Intervening years as data permits

- Agree on Ten Year Water Budget Information Period – [WY 2003 to WY 2012] Agreed 7/16/18

- Agree on Year Designating "Current Water Conditions" [2013] Agreed on 8/8/18
- Compare Boundary Flows (Inflow/Outflow Map(s))

- Determine by year type (Dry, Average, and Wet); each GSP region decides on representative year(s) for each WY type based on available data. Use San Joaquin River Index but consider Shasta Critical Index for surface water deliveries

- Calculate Change in Storage between seasonal highs (WY2003-2013) for Upper Aquifer (insufficient data for Lower Aquifer calcs): *Ongoing-Jan2019* 

- Calculated change in storage in Lower Aquifer as a result of inelastic land subsidence

- Defining Bottom of Usable Basin: Completed
- Corcoran Clay Map(s); Depth and thickness: Completed

- If overdraft occurs, quantify overdraft over a period of years during which water year and water supply conditions approximate average conditions.

- GSP Groups to provide evaluation of accuracy and uncertainty associated with individual water budget components.

- Determine if those adjacent to other subbasins will be drafting "Interbasin" agreements (as time allows)

- Share information re: how coordinating agencies (across the San Joaquin River, for example) have taken steps to ensure each GSP developer utilized similar data and compatible methodologies for applicable budget components (as time allows)

	GSP Coordination and Development	1/15/2019																							
ltem No.	Task	Due		2018										2019											
1	Coordinated Activities		an	eb	Jar	pr	۸aγ	une	uly	gn	ept	ct	lov	an	eb	/ar	pr	ſay	une	uly	gny	ept	ct	0	
2	Common Chapter	7/21/2010	Ë	<u> </u>	2	4	2	ň	-	A	S	0		Ë	<u> </u>	2	<	2	5	5	<	S		2	
2	General Information	7/21/2019																		X		—			
1	a. Decision Making and Governance	12/12/2018												X						~		_	-+-		
-+ -	Plan Area / Description	6/21/2010												~						V	—	+	—		
5	2. Compile Individual GCR Devoiced Settings and Characteristics	6/21/2019														V			v	^		_	-+-		
о 7	b. Communications Section / Outreach Discussion	2/17/2019														^ V		_	^	Y	$\rightarrow$	+	+		
/	Cost and Funding	12/12/2019											V			^			-	^		_	-+-		
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9	Basin Setting	2/12/2018									_		~						_			_	-+-		
10	Hudrogeologic Concentual Medal Development	3/8/2019														V			_		<b></b>	_	-		
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13	c. Lateral Roundaries and Definable Rottom	11/1/2018									_	_	v			^			_		$\rightarrow$	+	+		
14	d. Summary of Aquifer Properties and Groundwater Conditions	11/1/2018										_	^ V						_		$\rightarrow$	+	-		
15	e. Identifiation of Subbasin-wide (Coordinated) Management Areas. if any	N/A										_	^	_					_		-+	+	+	—	
10	Water Budgets (Section 10727.2)	N/A												-		Y					-+-	+	+		
17		10/21/2019										-	v			^				-	—	$\rightarrow$	_		
18	h Wet Dry Normal Year Designations	1/21/2010								-		_	^	v					_		$\rightarrow$	+	+		
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21	e Confirm Boundary Flows and Change in Storage	3/1/2019												^		Y			_		$\rightarrow$	+	-		
22	f. Develop and Compile all GSP Group Datasets (Land Surface and Groundwater Budget for Historic, Current and	3/1/2019									_					^			_		$\rightarrow$	+	+		
23	Projected Water Budgets)	1/26/2019														Х									
24	g. Well Inventory	3/16/2019														Х									
25	h. Cross-Check with Subbasin-wide Contouring and Change in Storage from historical water level measurements	1/17/2019												Х											
26	Management Areas	N/A																							
27	a. Common Terminology	N/A																							
28	Sustainable Management Criteria	4/1/2019																							
29	Sustainability Indicators at Representative Monitoring Sites																Х								
30	a. Determination of Subbasin Management Areas	3/1/2019															Х								
31	b. Miminum Thresholds and Sustainability Indicators (Sum of the parts and Cross-Check)	4/1/2019															Х								
32	c. Interim Milestones	4/1/2019															Х								
33	d. Undesirable Results Definition	4/1/2019															Х								
34	e. Sustainability Goals	4/1/2019															Х								
35	Monitoring Networks	7/21/2019																							
36	Determination of Subbasin Monitoring Network	7/21/2019																	Х						
37	a. Locations, Depths, Frequency, Type, Completion report, RP Elevation, etc.	4/1/2019															Х								
38	b. Compilation of relevation data for Represenative Monitoring Sites and Coordination of 'Site' Criteria	4/1/2019															Х								
39	c. Data Gap Assessment	5/1/2019																Х							
40	d. Description of how network will meet requirements of SGMA	5/1/2019																	Х						
41	e. Indicators for network for each of the applicable undesirable results	5/1/2019																	Х						
42	f. Objectives, Protocols, Data Reporting Requirements	5/1/2019																	Х						
43	g. Finalize Monitoring Network Plan	6/10/2019																	Х						
44	Management Actions and Projects	7/1/2019																							
45	Development and Review of Individual GSP Group Projects and Management Actions	4/15/2019														Х									
46	Discussion and Development of Coordinated Projects and Managament Actions	5/6/2019															Х			T	Τ				

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	GSP Coordination and Development	1/15/2019																								
ltem No.	Task	Due	2018											2019												
1	Coordinated Activities		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	. הפר	Jan Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan Fak
47	Common Section Development	7/1/2019																		Х						
48	Permitting, Legal Authority, Cost, and Management	Ongoing																		Х			C	DNGO	ING	
49	Plan Implementation	6/24/2019																								
50	Annual Report Standard Format	5/10/2019																Х								
51	Determine Coordination, Cost, and Schedule of Implementation	6/24/2019																	Х							
52	Funding Sources Identification	12/12/2018											>	<						ON	IGOIN	١G				
53	Coordinated Data Management System (Required, § 352.6)	6/30/2019																								
54	Development of Coordinated DMS	6/30/2019																	Х							
55	a. Data Compilation with description of sources, type, managemnet	3/1/2019														Х									1	
56	b. QA/CQ of data to support GSP	4/1/2019															Х									
57	c. DMS Setup	5/1/2019																Х								
58	d. Coordinate DMS Permissions, Pages, Capabilities	5/30/2019																	Х							
59	e. Ensure Annual Reporting Requirements can be met	6/30/2019																	Х							
60	Subbasin Coordination	2/1/2020																		ON	IGOIN	١G				
61	Intrabasin Coordination (Required, § 357.4)	12/12/2018											)	<	Т		T		1							
62	a. Determine other Plans to be submitted	2/1/2018		Х																					-	
63	b. Establish a submitting agency to be single point of contact and report submittal to DWR	6/1/2018						Х																	-	
64	c. Develop Coordination Agreement	12/12/2018											)	(						ON	IGOIN	١G	1			
65	d. Develop Cost Sharing Mechanism	12/12/2018												<		1	Τ	T	Ι	<b>[</b>			1		T	
66	Interbasin Coordination (Optional but advised, § 357.2)																Ì								-	
67	a. Meet and Compare Results	7/1/2019																		Х					-	
68	b. Develop Dispute Resolution Processes	2/1/2020																	<u> </u>							x
69	c. Develop Data Sharing Agreements, as necessary	2/1/2020																								x
70	Development of Technical Memorandums	7/1/2019																								
71	Development of 5 Coordinated Technical Memorandums	6/15/2019																	Х						-	<u> </u>
72	a. Commonon Methodologies for GSP Development	5/1/2019																Х								
73	b. Subbasin Wide Monitoring Network	6/1/2019																	x						-	-
74	c. Coordinated Water Budget	4/1/2019															X								-	-
75	d. Coordinated Data Management System	6/1/2019																	X						-	-
76	e. Description of how respective GSPs implemented together will meet the requirements of SGMA	6/15/2019																	X						-	-
77	Review and Unanimous Approval of Technical Memorandums by Coordination Committee	7/1/2019																		Х	Х				-+-	
78	Compile Final GSP Sections	8/15/2019																							-+-	
79	Distribute draft GSP to basin stakeholders (Section 10728.4)	8/15/2019																			Х				-	-
80	90-Day Public Review Period	0,10,2017												╉											╋	+
01	Finalize GSPs and distribute for final review										-+	+		╉		-	+	-							+	+
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82	Hold Public Hearing to adopt plan(s) at least 90 days after notice to city/county to receive feedback																									
83	Submit all plans and Common sections / plan to DWR	1/31/2020												╈				1	1							Х
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# January 15, 2019 Technical Working Group – Documentation of Common Chapter Structure and Assignments

#### Common Chapter Outline

ES-1 Introduction – Woodard & Curran will prepare

ES-2 Subbasin Governance – Woodard & Curran will prepare

- Description of basin coordination and governance, include Coordination Committee, Technical Working Group, and Communications Working Group
- ES-3 Subbasin Setting stamped by Woodard & Curran with disclaimer
  - HCM Woodard & Curran will prepare independent of individual GSPs
  - o Groundwater conditions Woodard & Curran will prepare independent of individual GSPs
  - Water budget: sum of parts (table and graph)
  - Cross-sections (at least two required): pull from USGS (Page and Croft) Woodard & Curran will prepare from USGS documents
  - Management actions: sum of parts
  - Hydrographs sum of the parts. Individual GSP hydrographs provided by GSP groups and summed for representative monitoring points once available
  - Basin contour maps using 2013 seasonal high and low by principal aquifer
    - Seasonal high: spring 2013 (February April 2013)
    - Seasonal low: fall 2013 (September October 2013)
    - Principal aguifers: upper aguifer and lower aguifer
  - GDE mapping: Use basin level mapping; to be finalized
  - Change in storage calculation
    - Upper aquifer: calculated from 2013-2003 WSE maps x Specific yield as provided by GSP region x area. Compare against change in storage provided by GSP in historiccurrent water budgets
    - Lower aquifer: calculated from change in land surface (inelastic land subsidence) and local subsidence values x areas
  - o Gains and losses along San Joaquin River: sum of parts

ES-4 Subbasin-wide Monitoring Program: sum of parts

ES-5 Subbasin Data Management System: sum of parts

ES-6 The GSPs: Executive summary from each GSP group – extracted from each GSP and stamped/signed by respective GSP group preparer

Appendices: Common TMs and signed coordination agreement

Notes: Sum of the parts = compilation of individual GSP sections to the subbasin level