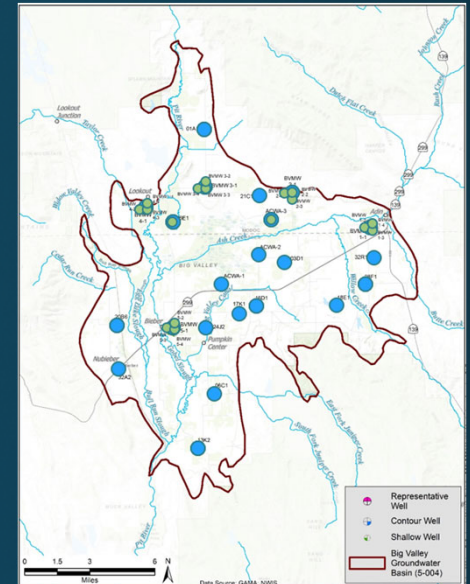


Advisory Committee Meeting 9

Lowering GW Levels Reduction of Storage Seawater Intrusion Degraded Quality Land Subsidence Surface Water Depletion



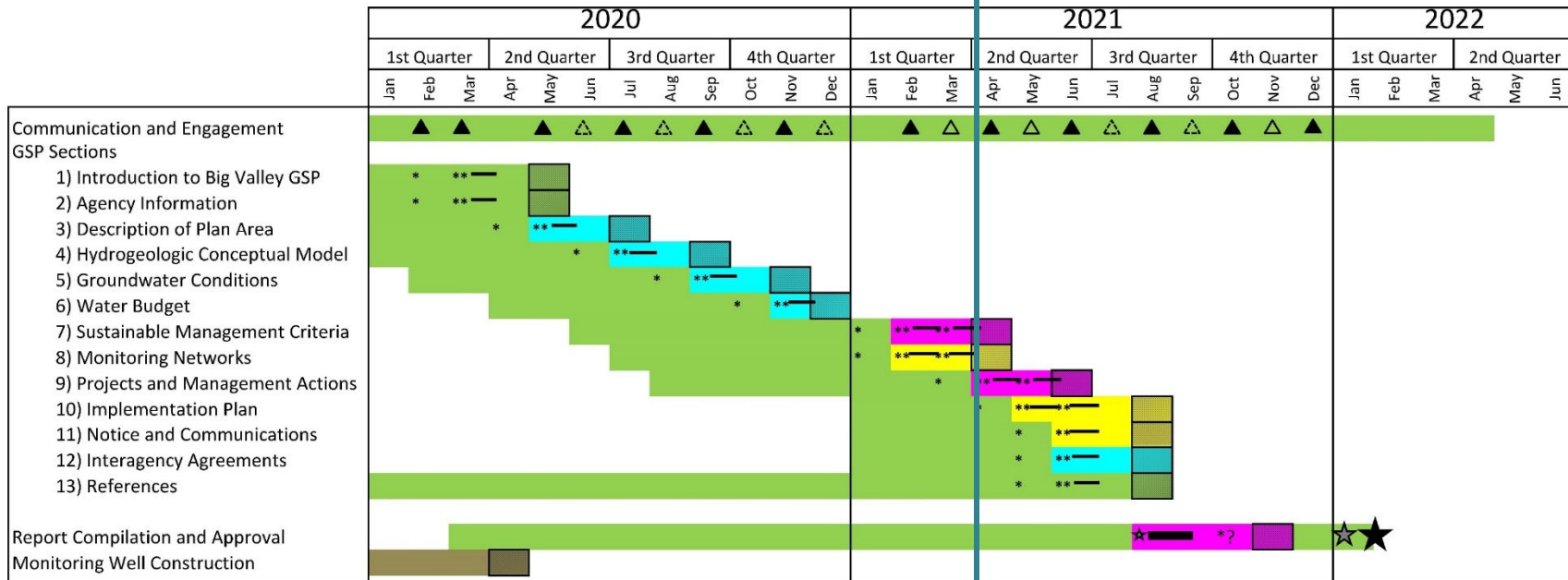
Groundwater Management in the Big Valley Groundwater Basin



GENERAL UPDATES AND SCHEDULE

TODAY

Tentative Schedule



Schedule Key

- | | |
|------------------------------------|----------------------|
| Minimal input from stakeholders | Public Review |
| Low input from stakeholders | GSP Public Draft |
| Moderate input from stakeholders | Approved Final GSP |
| High input from stakeholders | GSP Submitted to DWR |
| Field Task Activities | |
| Final Draft Chapter or Deliverable | |
| ▲ BVAC Regular Meeting | |
| △ BVAC Potential Special Meeting | |

Updated 12/1/2020

AGENDA

- Subject #1: Introduction of Draft Executive Summary for Chapters 1-6
- Subject #2: Continued discussion on Revised Draft Chapter 7 (Sustainable Management Criteria and preparation for Draft Chapter 8 (Monitoring Networks)
- Subject #3 Discussion on Projects and Management Actions in preparation for Draft Chapter 9 (Projects and Management Actions)

SUBJECT #1: DRAFT EXECUTIVE SUMMARY

DRAFT EXECUTIVE SUMMARY

NOW

1 Introduction

2 Agency Information

3 Description of Plan Area

4 Hydrogeologic Conceptual Model

5 Groundwater Conditions

6 Water Budget

7 Sustainable Management Criteria

8 Monitoring Networks

9 Projects and Management Actions

10 Implementation Plan

11 Notice and Communications

12 Interagency Agreements

13 Reference List

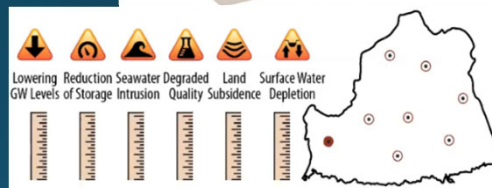
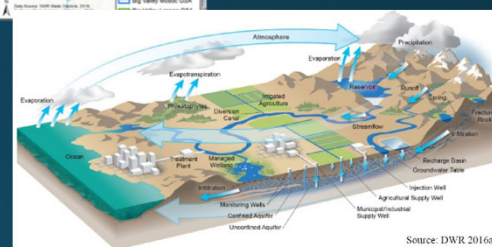
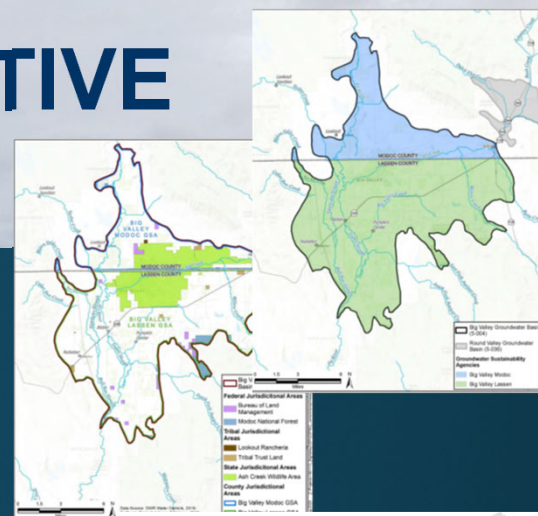
“Background”

“Science”

“Planning”

“Implementation”

“This plan is based on the best available information and science”



Source: UCANR Andrew Brown



Source: Westlands Water District

SUBJECT #1: EXECUTIVE SUMMARY

• Summarizes Chapters 1-6

- 7 pages of text
- 15 figures
- 3 tables

1 Executive Summary

2 ES.1. Introduction

3 The Big Valley Groundwater Sustainability Agencies (GSA) are developing this Groundwater
4 Sustainability Plan (GSP) after enduring an administrative challenge to the California Department of
5 Water Resources (DWR) determination that Big Valley qualifies as a medium-priority basin.
6 Development of this GSP by the GSAs, in partnership with the Big Valley Advisory Committee and
7 members of the community, does not constitute agreement with DWR's classification as a medium-
8 priority basin – nor does it preclude the possibility of other actions by the GSAs or by individuals within
9 the basin seeking regulatory relief.

10 The Big Valley Groundwater Basin (BVGB or Basin) is one of many small, isolated basins in the north-
11 eastern volcanic region of California and has been assigned number 5-004 according to the California
12 Department of Water Resources (DWR) Bulletin 118 (2016). The basin boundary was drawn by DWR,
13 using a 1:250,000 scale geologic map and does not contain accurate detail in places. The GSAs
14 submitted a basin boundary modification request in 2016 which was denied by DWR. The GSAs have
15 plans to submit another request in the future.

16 The Basin, shown on Figure ES-1, encompasses an area of approximately 144 square miles with Modoc
17 County comprising 40 square miles (28%) on the north and Lassen County comprising 104 square miles
18 (72%) on the south. The Basin includes the towns of Adin and Lookout in Modoc County and the towns of
19 Bieber and Nishan in Lassen County. The Ash Creek State Wildlife Area is located in both counties
20 and occupies 23.5 square miles in the center of the basin in the marshy swampy areas along Ash Creek.

21 Lassen County and Modoc County each formed a separate Groundwater Sustainability Agency (GSA)
22 for its respective portion of the Basin and the counties are working together to manage the Basin under a
23 single Groundwater Sustainability Plan (GSP). The counties assumed this responsibility because there
24 were no other agencies with the authority and ability to take on the task of developing a GSP. The
25 purpose of the GSP is to develop quantifiable management criteria that accounts for the interests of the
26 Basin's beneficial groundwater users and identifies projects and management actions to ensure
27 sustainability.

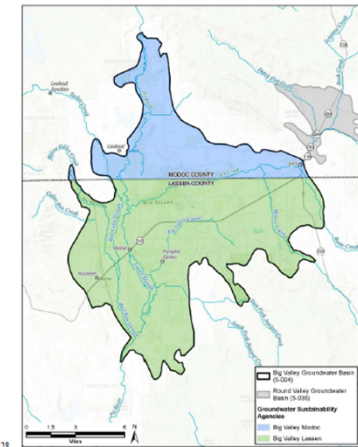


Figure ES-1 Groundwater Sustainability Agencies in Big Valley Groundwater Basin

Big Valley Groundwater Basin
Groundwater Sustainability Plan
ES-1
GSI Consultants, Inc.
DRAFT March 21, 2021

Big Valley Groundwater Basin
Groundwater Sustainability Plan
ES-2
GSI Consultants, Inc.
DRAFT March 21, 2021

31 ES.2. Administrative Information

32 Agency Information (Ch1-2)

33 The two Big Valley GSAs were established for the entire Big Valley Groundwater Basin to jointly
34 develop, adopt, and implement a single mandated GSP for the BVGB pursuant to SGMA and other
35 applicable provisions of law.
36 In 2019, the two GSAs established the Big Valley Groundwater Basin Advisory Committee (BVAC)
37 through a Memorandum of Understanding (MOU), included in Appendix 1B. The plan manager is from
38 Lassen County and can be contacted at:

39 Gayleen Norwood
40 Assistant Director
41 Lassen County Department of Planning and Building Services
42 707 Nevada Street, Suite 5
43 Susanville, CA 96130
44 (530) 251-4249
45 gnnorwood@lcsos.ca.us
46

47 ES.3. Plan Area

48 The Big Valley Groundwater Basin is a broad, flat plain extending about 13 miles north to south and
49 15 miles east to west. Located within Modoc and Lassen Counties and is approximately 92,000 acres
50 (144 square miles). BVGB was most recently described by the DWR in the 2016 update of Bulletin 118
51 (DWR 2016):

52 "The basin is bounded to the north and south by Pleistocene and Pliocene basalt and Tertiary pyroclastic
53 rocks of the Turner Creek Formation, to the west by Tertiary rocks of the Big Valley Mountains volcanic
54 series, and to the east by the Turner Creek Formation.

55 In addition to the GSAs, several other agencies have water management authority or planning
56 responsibilities in the Basin. A map of the jurisdictional areas within the Basin is shown on Figure ES-
57 2. Agencies with water management responsibilities include Regional Water Management Group
58 (RWMG), Lassen-Modoc County Flood Control and Water Conservation District (LMFCWCD) or
59 District, Lassen County Waterworks District #1, and Adin Community Services District. The RWMG
60 developed the Upper Pit Integrated Regional Water Management Plan (RWMP), which is managed by
61 the North California Resource Conservation and Development Council (NCRCDC). The RWMG is
62 comprised of 28 stakeholders, including NCRCDC, community organizations, environmental stewards,
63 water purveyors, municipal local, county, state, and federal agencies, industry, the University of
64 California, and the Pit River Tribe. The LMFCWCD covers all of the Lassen County portion of the
65 Basin and a much of the Modoc County portion, extending from the common boundary southwest
66 beyond Colby and Adin. Lassen County Waterworks District #1 provides water and sewer services to
67 Bieber, and Adin Community Services District provides wastewater services to Adin.

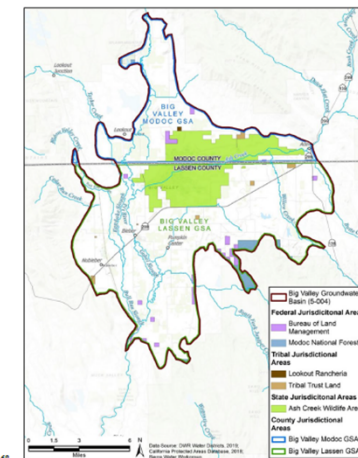


Figure ES-2 Jurisdictional Areas

Big Valley Groundwater Basin
Groundwater Sustainability Plan
ES-3
GSI Consultants, Inc.
DRAFT March 21, 2021

Big Valley Groundwater Basin
Groundwater Sustainability Plan
ES-4
GSI Consultants, Inc.
DRAFT March 21, 2021

- Upcoming: GSP Summary Brochure

- Via email/mail first
- Presented at next BVAC meeting



SUBJECT #2: CHAP 7 SUSTAINABLE MANAGEMENT CRITERIA

Sustainability Goal

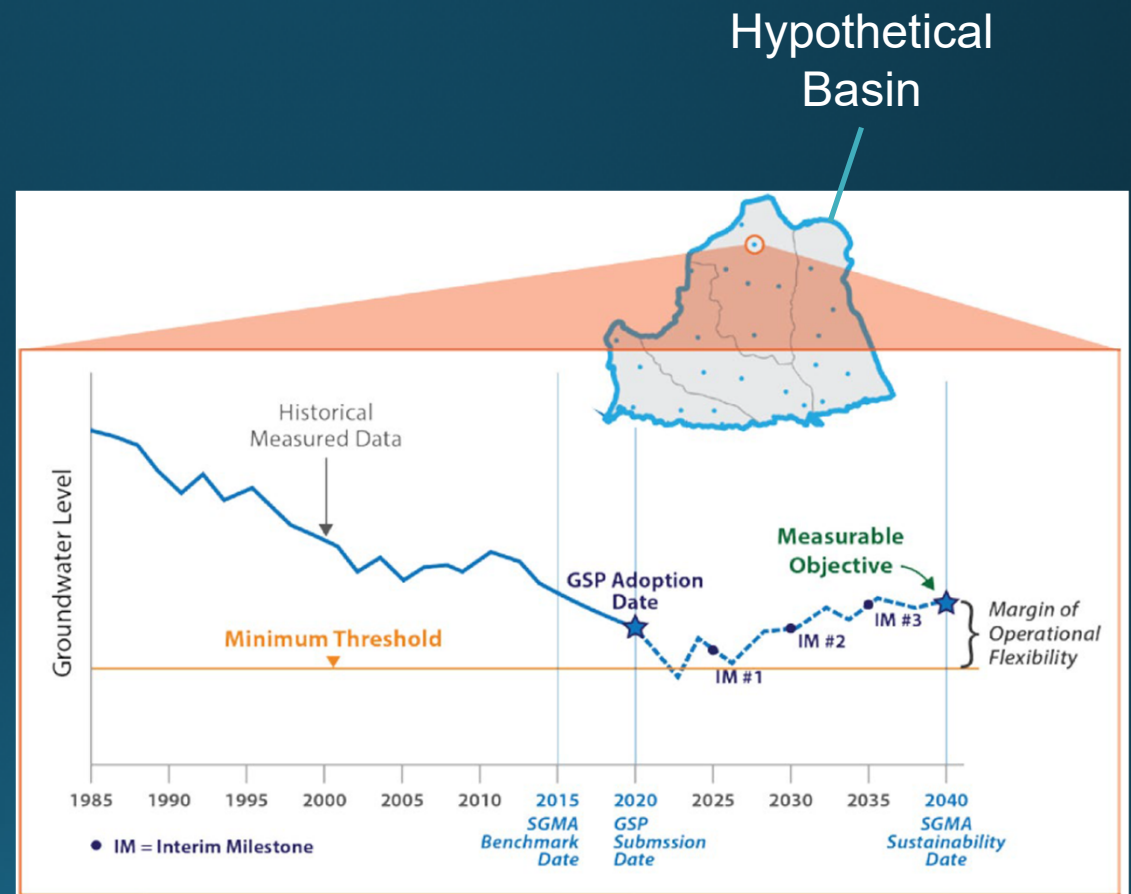
What does the GSP seek to achieve and/or protect?

Undesirable Results

What is “significant and unreasonable” for each Sustainability Indicator based on the sustainability goal?

Minimum Thresholds
Measurable Objectives
Interim Milestones

What are the measured values that will determine if the basin is sustainable?



SUBJECT #2: CHAP 7 SUSTAINABILITY GOAL

Sustainability Goal:

Introductory text added emphasizing the unique nature of BVGB

- Population and population growth
- Climate and short growing season
- Economy
 - Timber industry diminished
 - Agriculture consistent industry supporting community

SUBJECT #2: CHAP 7 SUSTAINABILITY GOAL

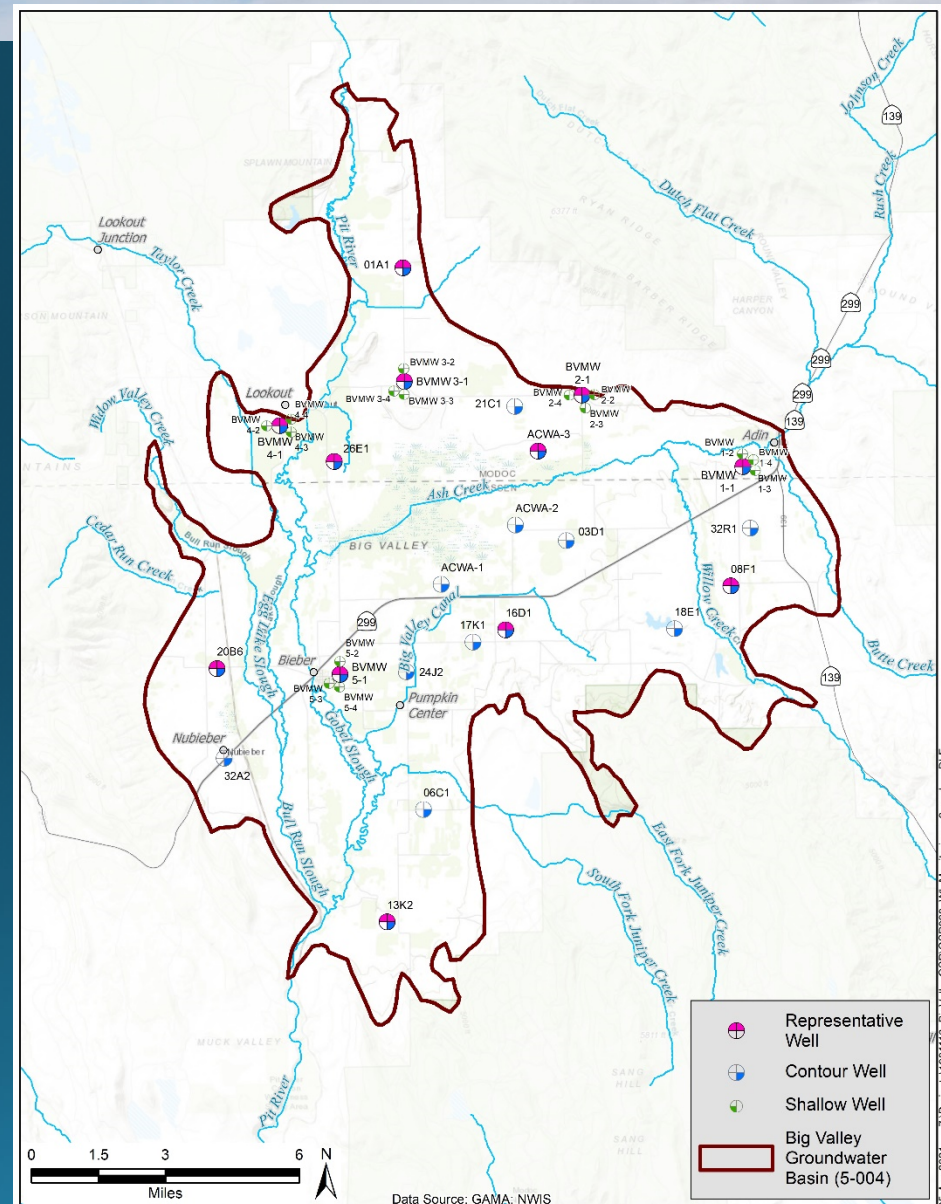
Sustainability Goal:

“The sustainability goal for the Big Valley groundwater basin is to maintain a locally governed, economically feasible, sustainable groundwater basin and surrounding watershed for existing and future legal beneficial uses with a concentration on agriculture. Sustainable management will be conducted in context with the unique culture of the basin, character of the community, quality of life of the Big Valley residents, and the vested right of agricultural pursuits through the continued use of groundwater and surface water.”

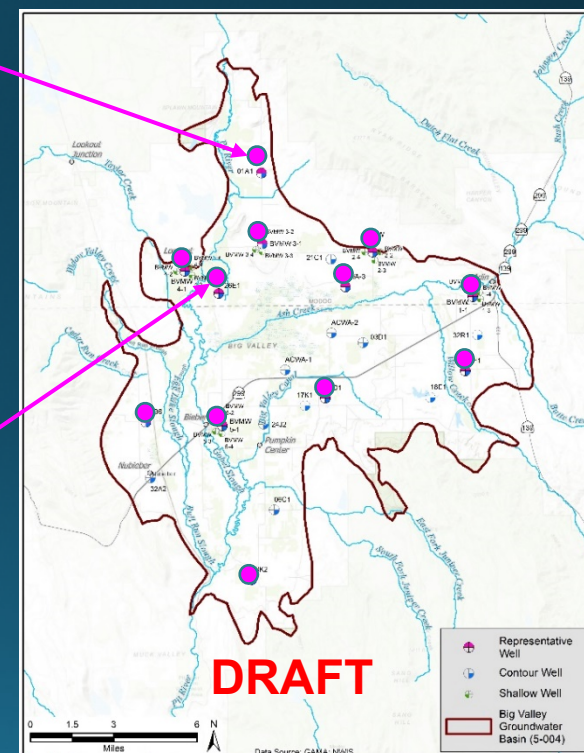
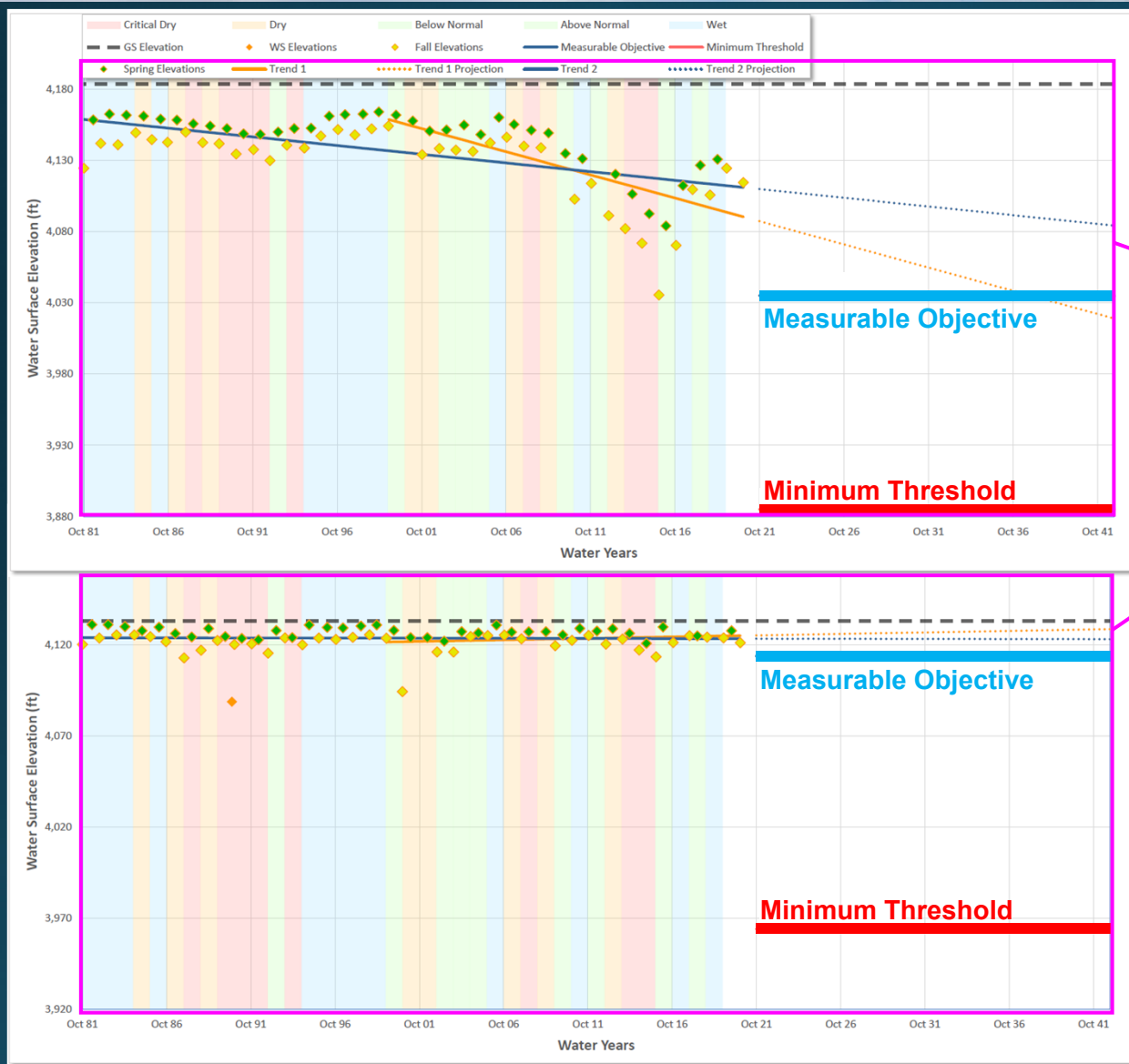
SUBJECT #2: CHAP 7 WATER LEVELS AND STORAGE

Key Points:

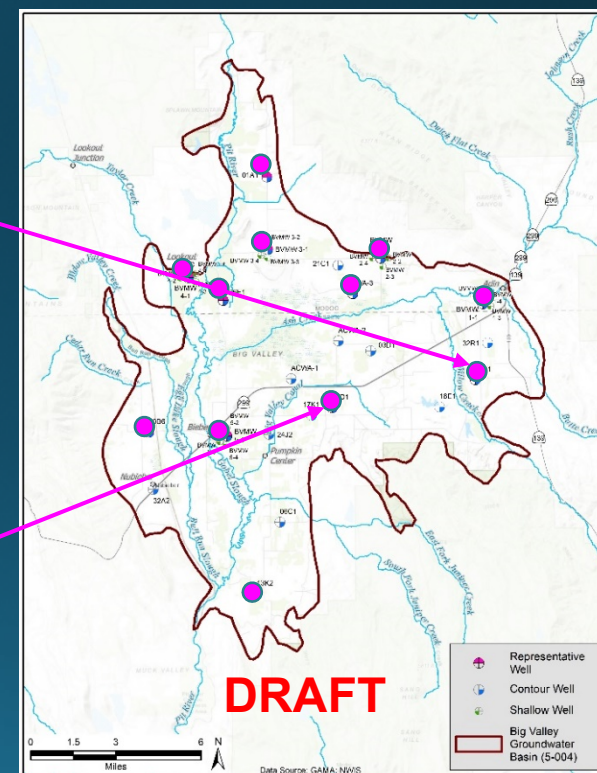
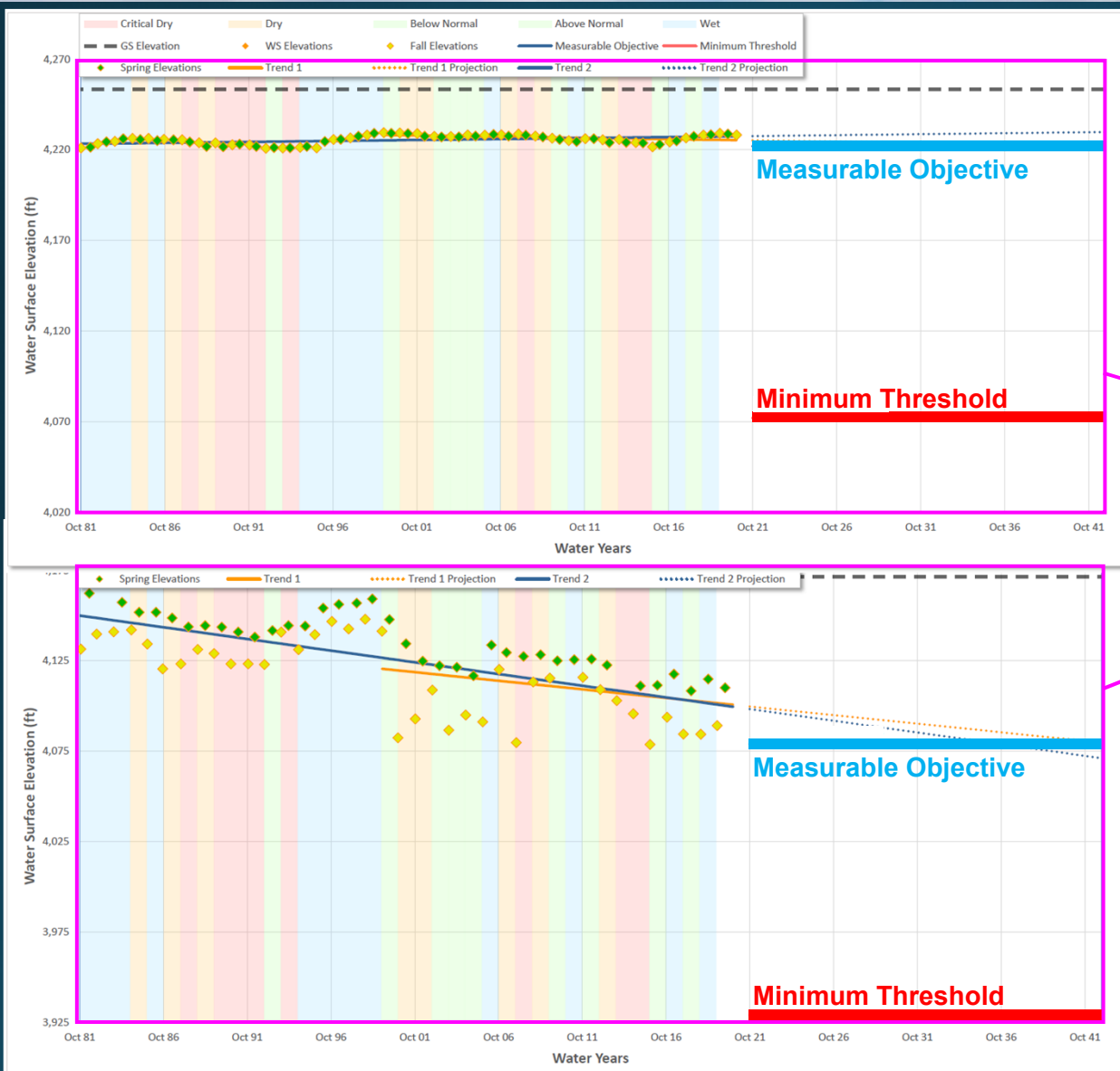
- Water level fluctuations
 - Are natural cycles
 - Water level declines are not widespread
 - No widespread reports of wells becoming inoperable
 - Mitigation of impacts to domestic wells being considered
- Thresholds
 - Measurable Objective: Fall 2015
 - Minimum Threshold: 150 feet below Fall 2015



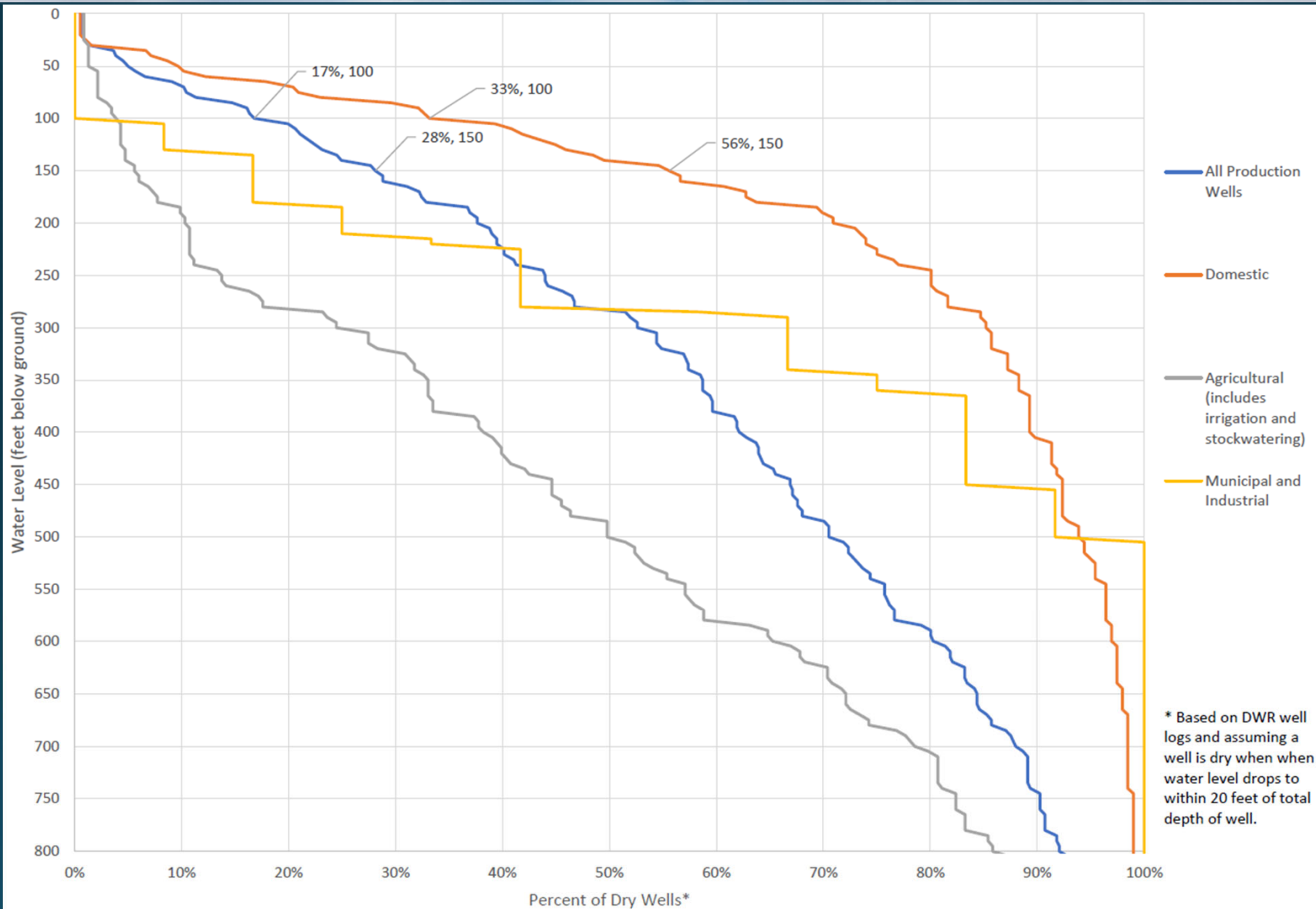
SUBJECT #2: CHAP 7 WATER LEVELS AND STORAGE REPRESENTATIVE WELLS



SUBJECT #2: CHAP 7 WATER LEVELS AND STORAGE REPRESENTATIVE WELLS



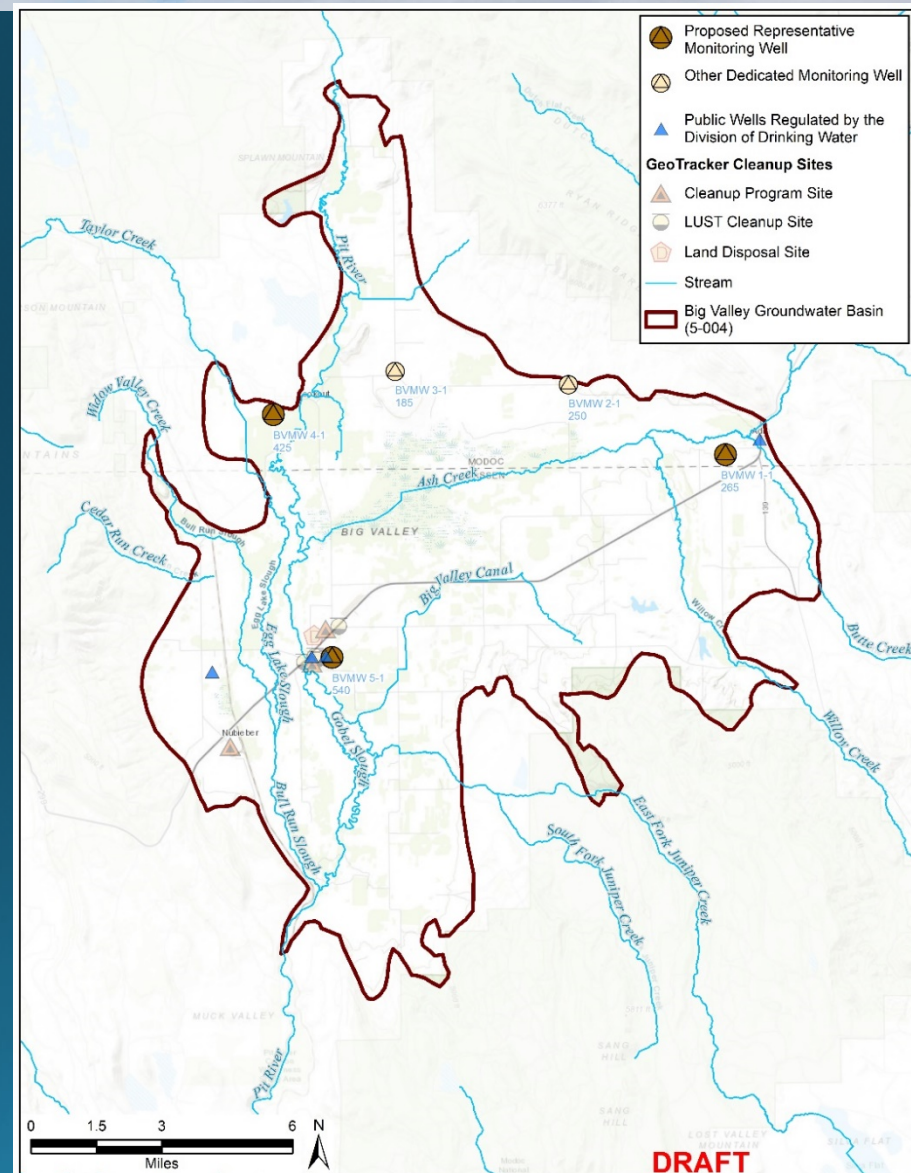
SUBJECT #2: CHAP 7 WATER LEVELS AND STORAGE: WELL DEPTH ANALYSIS



SUBJECT #2: CHAP 7 GROUNDWATER QUALITY

Key Points:

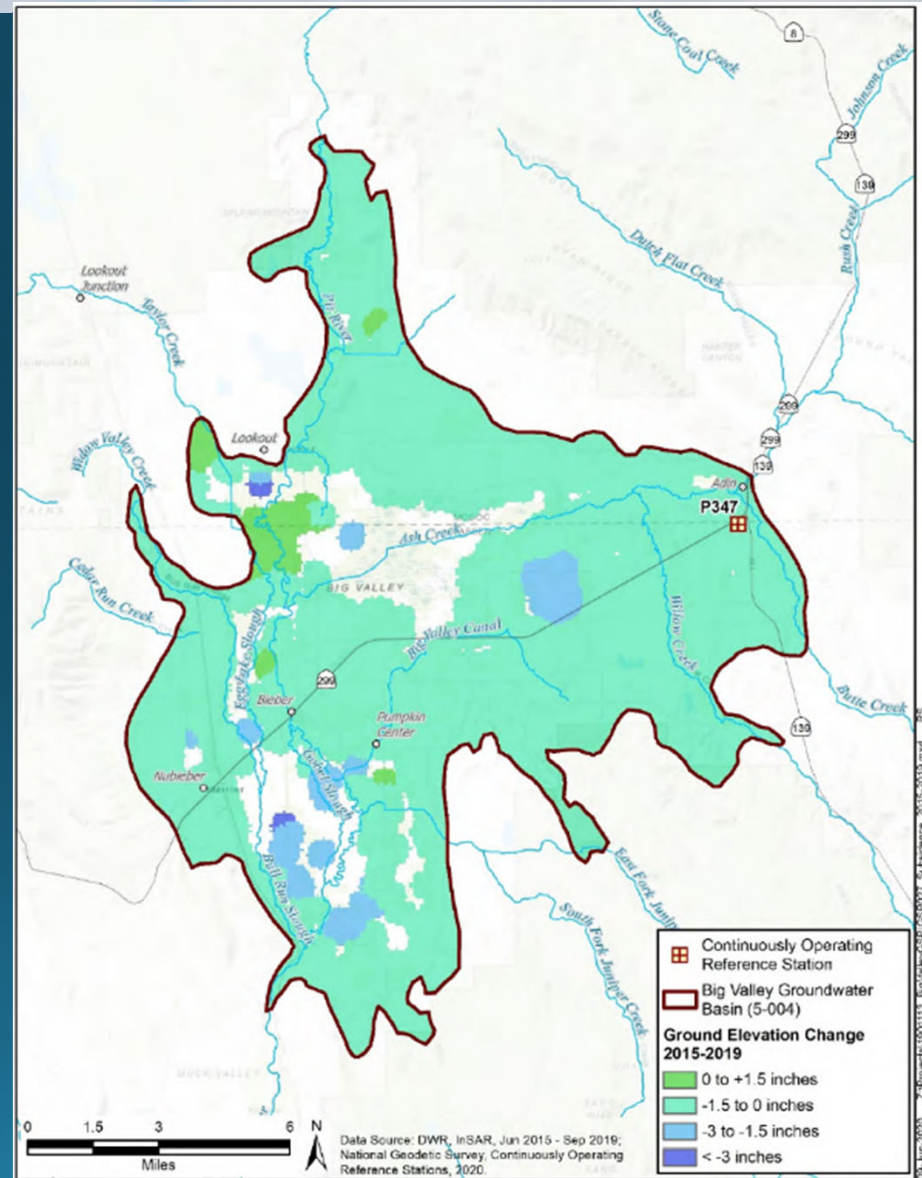
- Agricultural land use is low intensity, low value
- Excellent water quality
- All elevated constituents are naturally occurring
- No increase evident over time
- Discussion of water quality programs in place
- SMCs not established due to excellent water quality continuing to be maintained
- Data will be assessed at 5-year update
 - Public (DDW) wells
 - Electrical Conductivity (EC) Transducers



SUBJECT #2: CHAP 7 SUBSIDENCE

Key Points:

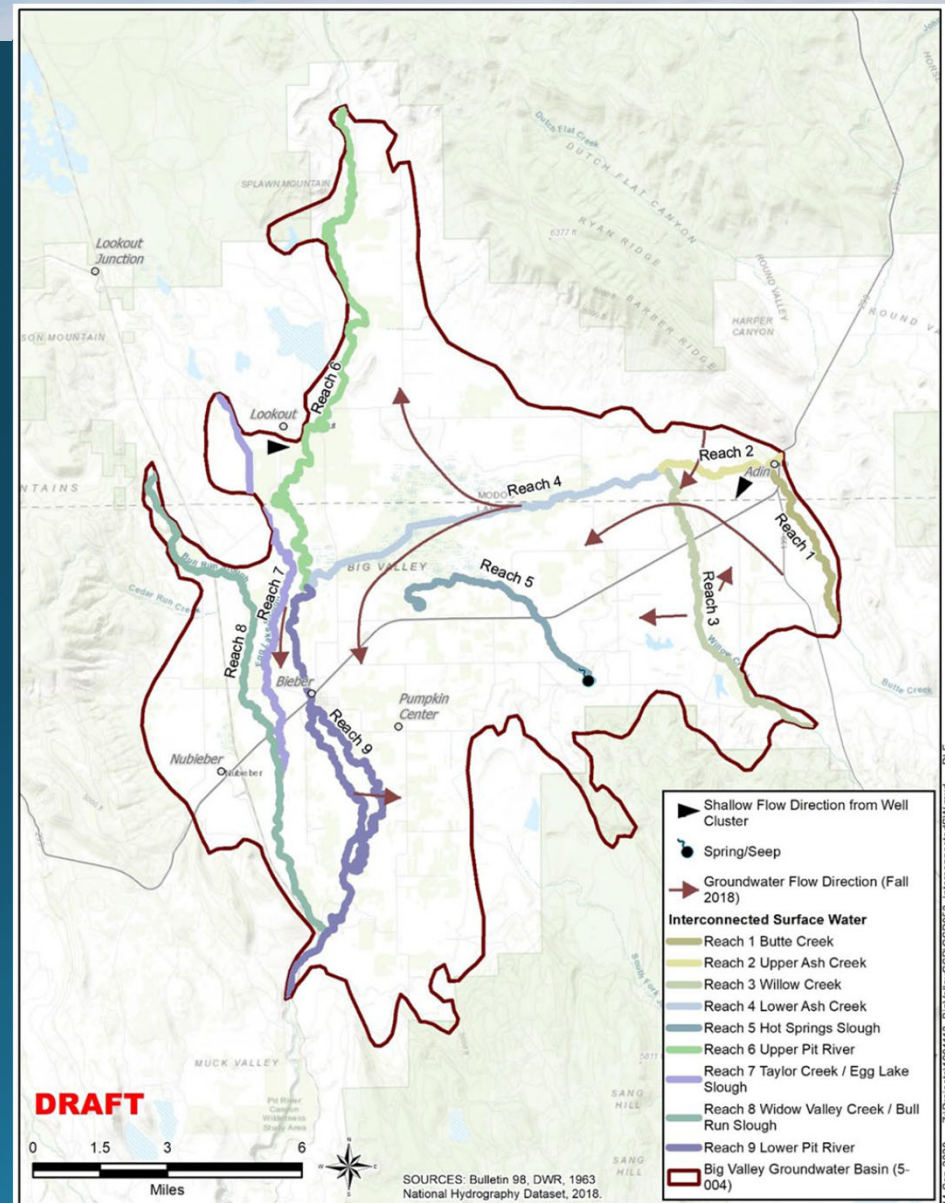
- Cause of subsidence shown on InSAR is uncertain and could be from field leveling or other causes
- Amount of subsidence is minimal (up to 3 inches)
- Minor additional subsidence is acceptable in absence of impacts on infrastructure or flooding
- Additional subsidence expected is also minimal
- SMCs not established due to unlikelihood of significant subsidence
- Data will be assessed at 5-year update
 - Continuous GPS (P307)
 - InSAR



SUBJECT #2: CHAP 7 SURFACE WATER DEPLETION

Key Points:

- Need for better understanding of
 - Upland recharge
 - Conclusive evidence for interconnection of surface water and groundwater
 - Evidence for depletion of surface water
- Partnership with agencies to improve riparian areas
- No SMCs established due to data gaps and unlikelihood of significant and unreasonable depletions occurring
- Monitoring will be evaluated at 5-year update



SUBJECT #2: CHAP 8 MONITORING NETWORKS

Monitoring Networks

- Water levels
 - Representative Wells
 - Contour Wells
 - Shallow Wells (surface water depletion)
- Water Quality
- Subsidence
- Streamflow and weather

SUBJECT #2: CHAP 8 WATER LEVEL MONITORING NETWORKS

1. Representative Network

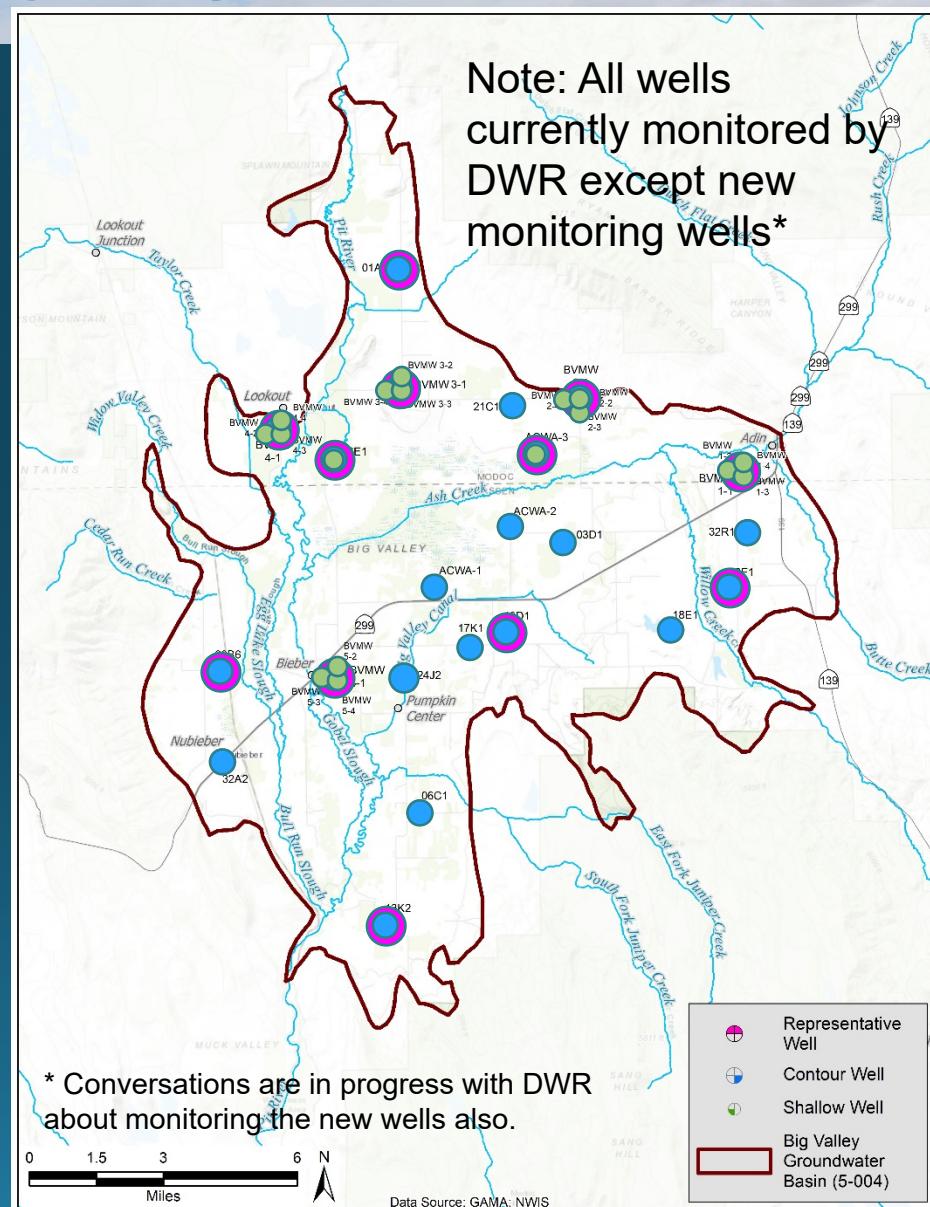
- Lowering groundwater levels
- Reduction in storage
 - 12 wells

2. Groundwater Contour Network (recommended wells shown)

- Annual reports
 - 21 wells
 - 3 CASGEM wells not used

3. Shallow Network

- Surface water depletions
 - New shallow monitoring wells
 - 26E1
 - ACWA-3
 - Others?

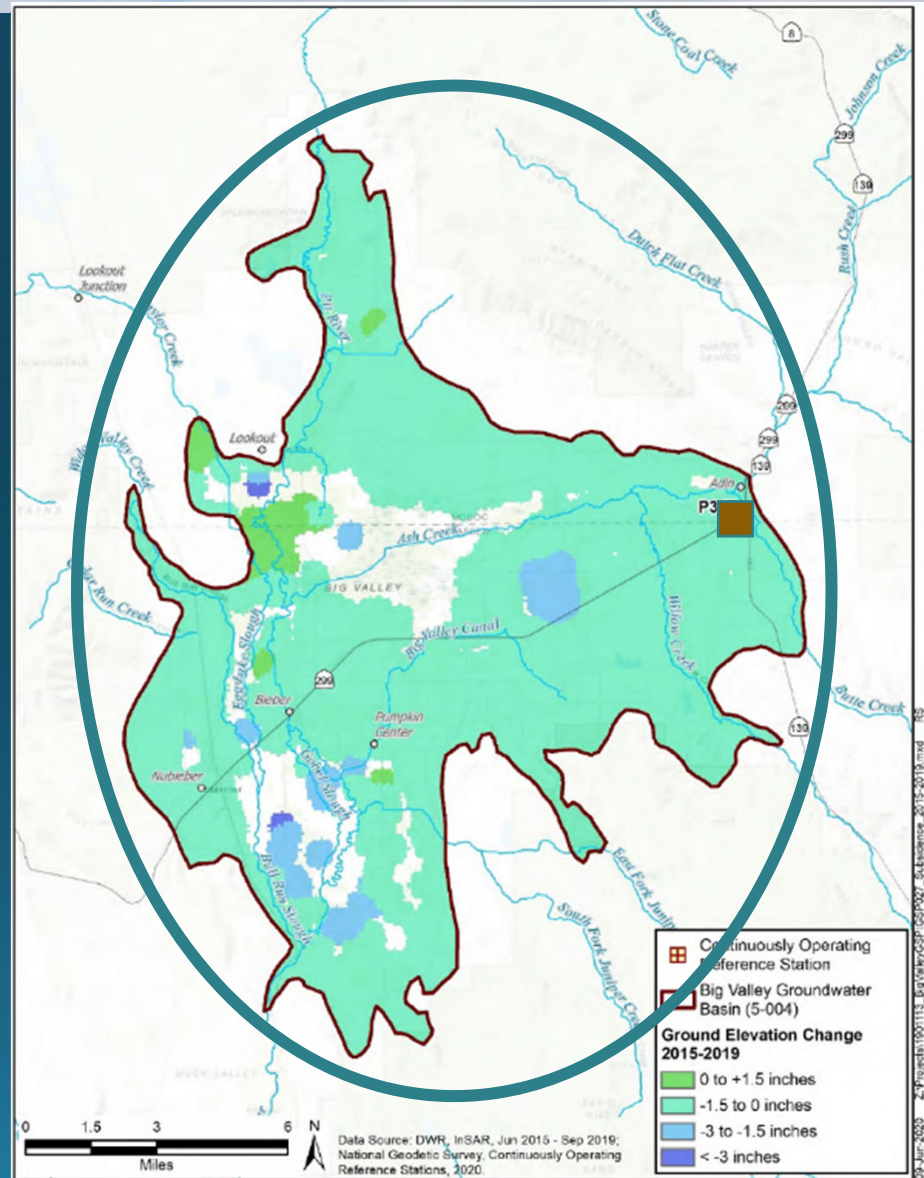


- Division of Drinking Water (Title 22)

-

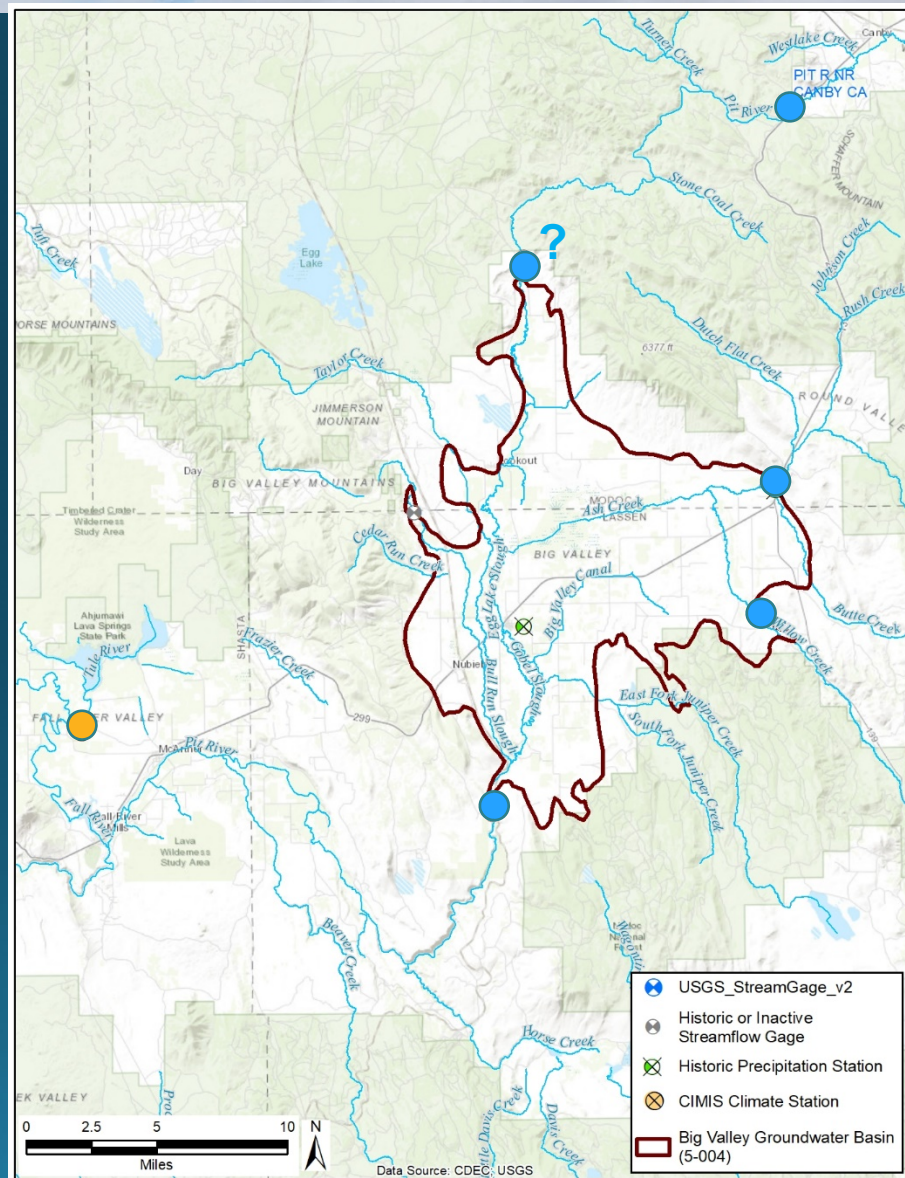
SUBJECT #2: CHAP 8 SUBSIDENCE MONITORING NETWORK

- Continuous GPS Station (P347)
- InSAR



SUBJECT #2: CHAP 8 STREAMFLOW AND WEATHER MONITORING NETWORK

- Streamflow and Weather Monitoring
 - Needed for annual update of water budget
- Precipitation and Evapotranspiration
 - CIMIS Station in Fall River Valley
 - Spatial CIMIS
- Streamflow
 - Pit River at Canby
 - Ash Creek at Adin
 - Willow Creek
 - Pit River at Muck Valley Diversion
 - Pit River north of Lookout (proposed)



SUBJECT #3: CHAPTER 9 PROJECTS AND MANAGEMENT ACTIONS

Identified Projects:

Feasibility Level I

- Winter Recharge
- Stream Gages
- Voluntary Installation of Well Meters
- Conservation Easement
- Irrigation Efficiency
- Educational Outreach
- Best Management Practices
- Drainage Recharge Research
- Additional Agroclimate Station
- Refine Water Budget

Feasibility Level II

- Expanding Roberts Reservoir
- Proper recharge hydrogeological Forest Management
- Pond and Plug
- Juniper Removal
- Beaver Dam Analog
- Extra water allocation of PG&E
- Drainage Recharge
- Survey of Deliverable Water Rights on Pit River watershed for off-season recharge

Feasibility Level III

- Allen Camp Dam

SUBJECT #3: CHAPTER 9 PROJECTS AND MANAGEMENT ACTIONS

Regulatory Requirements:

- Project or Management Action (P or MA) description
- Circumstance(s) under which it will be implemented
- How it will be noticed to public
- Permitting and regulatory process needed
- Explanation of benefits (quantitative and qualitative)
- How P or MA will be accomplished (e.g. water supply)
- Legal authority required
- Estimated cost
- How it will offset supply needed during drought

AD HOC COMMITTEES

Planning for Upcoming Ad Hoc Committee Meetings

- Sustainability Goal and Projects
- Water Levels
- Subsidence
- Surface water depletion
- Mapping
- Basin Boundary

QUESTIONS OR COMMENTS FOR ITEMS NOT ON THE AGENDA



- GSA Staff and Consultants will be available after the meeting to talk, answer questions, and hear your concerns.