

Turlock Management Zone Pilot Study

Steering Committee Meeting

Turlock Irrigation District

July 29, 2019



MEETING AGENDA

- Introductions
- Status of State Board Approval of Basin Plan Amendment/ Nitrate Control Program Adoption Update
 - Formalization of Steering Committee
- Early Action Plan – Revised Draft
- Preliminary Management Zone Proposal
 - Proposal Outline
 - Section 2 - Proposed Management Zone
 - Section 3 - Initial Groundwater Assessment
- Other Business
- Schedule Next Meeting

STATUS OF NITRATE CONTROL PROGRAM ADOPTION

- State Water Board Action
- Formalization of Steering Committee



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NITRATE CONTROL PROGRAM STATUS

- **State Water Resources Control Board**
 - July 2 - Public Workshop on CV-SALTS Basin Plan Amendments
 - September 17 - Tentative Date for Public Hearing on Adoption
- **Next Steps If State Water Board Approves**
 - Office of Administrative Law Notice of Approval (= Effective Date)
 - Central Valley Regional Water Quality Control Board – Issues Notice to Comply with Nitrate Control Program to Dischargers in Priority 1 Groundwater Subbasins

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EARLY ACTION PLAN

- Revised Draft – July 26, 2019

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EARLY ACTION PLAN – REVISED DRAFT HIGHLIGHTS

- Section 1 - Background and Purpose (**Revised**)
 - Section 1.5 – Early Action Plan Review – added annual review (opportunity for adaptive management)
- Section 2 – Identification of Potentially Impacted Users (**New**)
 - Public Water Supply System Data
 - Treatment Water Systems with Nitrate-Impacted Wells
 - Identification of Areas with Potentially Impacted Domestic Wells (**Revised Map – Discussion Topic Later in Meeting**)
- Section 3 – Existing Safe Drinking Water Programs in Area (**New**)
 - DAC Needs Assessment
 - East San Joaquin State Water Board Order Implementation

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EARLY ACTION PLAN – REVISED DRAFT HIGHLIGHTS

- Section 4 - Process to Identify Potentially Affected Residents (**Minor Revisions**)
- Section 5 – Temporary Drinking Water Provisions (**Significant Revision**)
- Section 6 – Early Action Plan Implementation (**Revised**)
 - Revised per changes to Section 5
 - Updated costs estimate – but still work in progress

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SECTION 5 – TEMPORARY WATER PROVISIONS: KEY PROGRAM COMPONENTS

- Public Water Access Facility (PAWF) Program
 - Water Filling Stations – Concept Similar June Draft
 - Vendor-supplied Water Facilities – New Option Added
- Alternative Water Program (AWP)
 - Bottled Water Delivery – Concept Similar June Draft
 - Point of Use Treatment System – New Option Added
- Community Outreach - Greatly expanded section
- Monitoring section added

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SECTION 5 – TEMPORARY WATER PROVISIONS: PAWFS

- **Public Water Access Facility (PAWF) Program**
 - Water Filling Stations – Concept Similar June Draft
 - Vendor-supplied Water Facilities – New Option Added
 - Identify business, government office, community center or other location to be supplied by a bottled water vendor. Residents pick up full bottles; drop off empties; usage monitored so that adequate storage available and supply available for pickup
- **Access Issue** – Document states goal is 24/7 access is the goal for any PAWF, but has language that recognizes this may not be possible in all locations

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SECTION 5 – TEMPORARY WATER PROVISIONS: AWP

- **Alternative Water Program Options**
 - Bottled Water Delivery – Concept similar to June draft
 - Point of Use Treatment System – New option added
 - Open to any approved participant, as long as no limitation due to high nitrate
- **Qualifications to Participate**
 - Removed criterion regarding participation in another alternative water program
 - Removed residency documentation requirement
 - Water testing – included annual re-testing option
 - Include baseline water delivery volume but can be revised (50 gallons/month per household of 4)

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SECTION 5 – TEMPORARY WATER PROVISIONS: COMMUNITY OUTREACH

- Management Zone Website
- Informational Materials
- Non-Discharger and Outreach (formerly separate Section 5 in June Draft)
 - Identify opportunities to work collaboratively, including workshops, community meetings, trade group meetings, etc.
 - Identify and develop materials tailored to constituents of non-dischargers
 - Seek participation by non-dischargers in community outreach meetings
 - Keep Central Valley Water Board/DDW informed
 - Other or more tailored activities to be decided later
 - Added Table 5-1 – identifies key non-dischargers

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SECTION 5 – TEMPORARY WATER PROVISIONS: COMMUNITY OUTREACH

- Community Outreach Meetings
 - Initial Meeting – 3 locations with Management Zone within first six months of EAP implementation
 - Second Meeting – 3 locations after at least two PAWFs operational
 - Third Meeting – 3 locations after more than four PAWFs operational
- Public Notice Activities
 - Notice of upcoming community outreach meetings within 30 days of meeting
 - Notice within 30 days after each PAWF becomes operational
- Targeted Outreach
 - Direct mailout to residents with areas identified as likely impacted by high nitrate (list generated per Section 4 of EAP)

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SECTION 5 – TEMPORARY WATER PROVISIONS: OTHER

- **Monitoring and Data Management**
 - PAWF: Monitor volumes of water dispensed; date and times water picked up/dispensed
 - Determine patterns of usage
 - Evaluate need for additional PAWFs in high demand locations or Determine need for additional water at vendor-supplied water facilities
 - Provide basis for land/property owner compensation for water usage if needed
 - Automated monitoring to the extent practicable, but site monitoring may be implemented at PAWFs to evaluate congestion
 - AWP: Document resident participation; similar to previous draft
- **Reporting – expanded to include adaptive management element**

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SECTION 6 – IMPLEMENTATION OF EAP

- **Table 6-1 updated**
 - Reflect changes Temporary Water Provisions Section
 - Add Community Outreach Provisions
- **Table 6-2 – Estimated Cost of Implementation - Work in Progress**
 - Additional costs for community outreach activities
 - Costs for PAWF
 - Water Filling Stations – continue to use \$50K/station estimate
 - Vendor-supplied Water Facilities – this could be expensive depending on usage
 - Costs for AWP
 - Bottled Water Delivery vs. POU-Treatment Systems

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Period	Key Activities	Estimated Cost
Startup – First Six Months	<ul style="list-style-type: none"> Identify Residents for Targeted Outreach PAWFs: (a) Finalize PAWF Locations; (b) Complete Design/Development of 2 PAWFs Outreach: (a) Initial Public Meeting; (b) Outreach Materials Development; (c) Non-discharger Coordination Monitoring & Reporting 	\$236,800
Second Six Months	<ul style="list-style-type: none"> PAWFs: (a) Complete design/development of 4 additional PAWFs; (b) Implement 2 PAWFs Outreach: (a) Public Notice of Operational PAWFs; (b) Non-discharger Coordination AWP Implementation: (a) Initiate Bottled Water/POU Installation; (b) Targeted Outreach; (c) Water Testing Monitoring & Reporting 	\$316,450
Year 2	<ul style="list-style-type: none"> Complete Design/Development of 2 PAWFs Implement 6 PAWFs Outreach: (a) 2nd & 3rd Public Meetings; (b) Public Notice of Operational PAWFs AWP Implementation: (a) Water Delivery/POU Installation; (b) Continue Water Testing; (c) Continued Outreach; (d) Program Follow-up Monitoring & Reporting 	\$712,200
Annual Cost Post-Year 2	<ul style="list-style-type: none"> PAWF O&M Manage AWP Implementation Follow-up Well Testing Monitoring & Reporting 	\$425,000

Preliminary – For Discussion Purposes Only

BOTTLED WATER COST ESTIMATES					Preliminary – For Discussion Purposes Only
	Salinas	Comment	Alhambra	SHE	Comment ¹
Cost per 5-gallon Bottle	\$9.50	\$8.00	8.15		3.5
No. of 5-gallon Bottles/Household of 4/Month	10	10	10		10
Delivery Charges	1.05	1	1		1
Delivery Cost/Household	\$99.75	\$80.00	\$81.50		\$35.00
Credit per Returned Bottle	\$6.00	\$0.00	\$0.00		0
No. of Returned Bottles	10	0	0		0
Cost for Bottles with Credit/Household/Month	\$39.75	\$80.00	\$81.50		\$35.00
Estimate Cost/Household w/ Delivery	NA	NA	NA	\$1,031	NA
No. of Households	250	250	250	250	250
Cost/Month	\$9,937	\$20,000	\$20,375	\$21,479	\$8,750
Annual Cost	\$119,250.00	\$240,000	\$244,500	\$257,750	\$105,000
Cost/Household/Year ²	\$477.00	\$960.00	\$978.00	\$1,031.00	\$420.00
¹ Comment provided cost with a “or more” caveat of “or more” ² Removed highest/lowest; average of remaining values = \$805.00					

ESTIMATED COST OF POINT OF USE SYSTEMS

Preliminary – For
Discussion
Purposes Only

- Estimated costs for under-the-sink RO unit
- Used \$600/household installation; \$150/year maintenance
- Other administrative costs to manage the program not included above

Source	Install	Annual O&M
Self-Help Enterprises Project	\$800	\$237
LG NanoH2O	\$650	\$100
Performance Water Enterprises	\$225	\$60
Arvin (Arsenic)	\$250	\$60

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PRELIMINARY MANAGEMENT ZONE PROPOSAL



- Proposal Outline
- Section 2 – Proposed Management Zone
- Section 3 – Initial Groundwater Assessment

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OUTLINE FOR PRELIMINARY MANAGEMENT ZONE PROPOSAL

1.0 Background and Purpose

- 1.1 Nitrate Control Program
- 1.2 Notice to Comply
- 1.3 Process to Establish Management Zone
 - 1.3.1 Technical Basis
 - 1.3.2 Area Outreach
 - 1.3.2 Steering Committee Formation

2.0 Proposed Management Zone

- 2.1 Proposed Preliminary Boundary
- 2.2 Characterization of Proposed Management Zone
 - 2.2.1 Geography (SW/GW, hydrology, etc.)
 - 2.2.2 Jurisdictions (cities, counties)
 - 2.2.3 Groundwater Sustainability Agencies
 - 2.2.4 Water Management Entities
 - 2.2.5 Drinking Water Systems (Public Water Systems, State Small Water Systems, Local Small Water Systems)
 - 2.2.6 DACS/DUCS
 - 2.2.7 Land Use

3.0 Initial Assessment of Groundwater Conditions

- 3.1 Hydrogeology
- 3.2 Groundwater Elevations and Flow
- 3.3 Upper Zone Delineation
- 3.4 Nitrate Water Quality

4.0 Management Zone Participants

- 4.1 Identification of Potential Participants
 - 4.1.1 Permitted Dischargers
 - 4.1.2 Other Entities (GSAs, Water Districts, DACs/DUCs, etc.)
- 4.2 Identification of Initial Participants
 - 4.2.1 Permitted Dischargers
 - 4.2.2 Non-discharger Participants

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OUTLINE FOR PRELIMINARY MANAGEMENT ZONE PROPOSAL

5.0 Current Treatment and Control Efforts or Management Practices of Management Zone Participants

- 5.1 Irrigated Lands Program
- 5.2 Dairy Program
- 5.3 Poultry Program
- 5.4 Individual Permitted Dischargers
 - 5.4.1 Subsection for each participating discharger

6.0 Early Action Plan Development (Plan itself is an Attachment)

- 6.1 Development Approach
- 6.2 Key Early Action Plan Elements (Executive Summary of EAP)
- 6.3 Community Outreach

7.0 Plan to Finalize Management Zone Proposal

- 7.1 Identification of Additional Participants
- 7.2 Boundary Refinement
- 7.3 Groundwater Assessment Updates
- 7.4 Management Zone Governance & Funding
- 7.5 Submittal of Deliverables

8.0 References

Attachments

- Attachment A – Letters of Participation from Management Zone Participants
- Attachment B – GSA Information
- Attachment C – Early Action Plan
- Attachment D – Outreach Documentation
- Others as needed*

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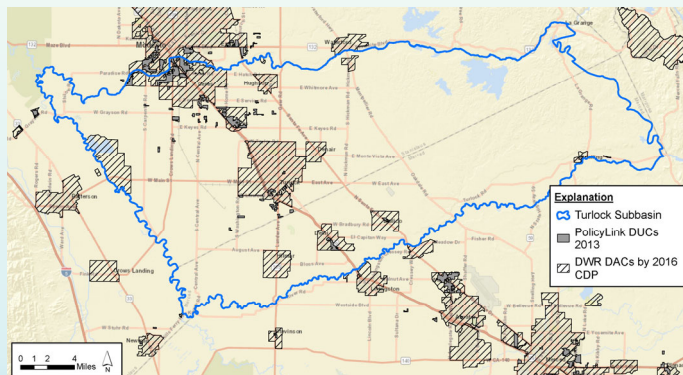
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SECTION 2 – PROPOSED MANAGEMENT ZONE

- 2.1 - Proposed Preliminary Boundary
- 2.2 - Characterization of Proposed Management Zone

Highlights

- Groundwater Basins and GSAs
- Surface Waters
- Cities and Counties
- Water Management-related Districts
- Public Water Systems, State Small Water Systems
- Land Use (including septic systems)



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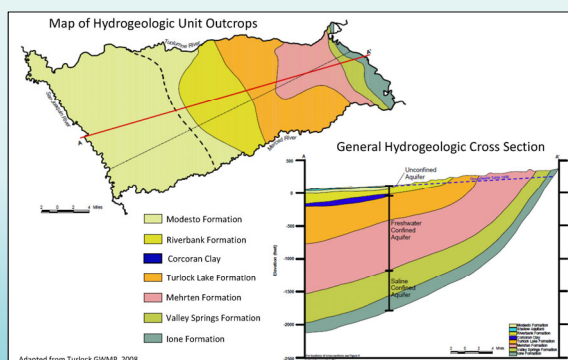
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SECTION 3 – INITIAL ASSESSMENT OF GROUNDWATER CONDITIONS

- 3.1 Hydrogeology
- 3.2 Groundwater Elevations and Flow
- 3.3 Upper Zone Delineation
- 3.4 Nitrate Water Quality

Highlights

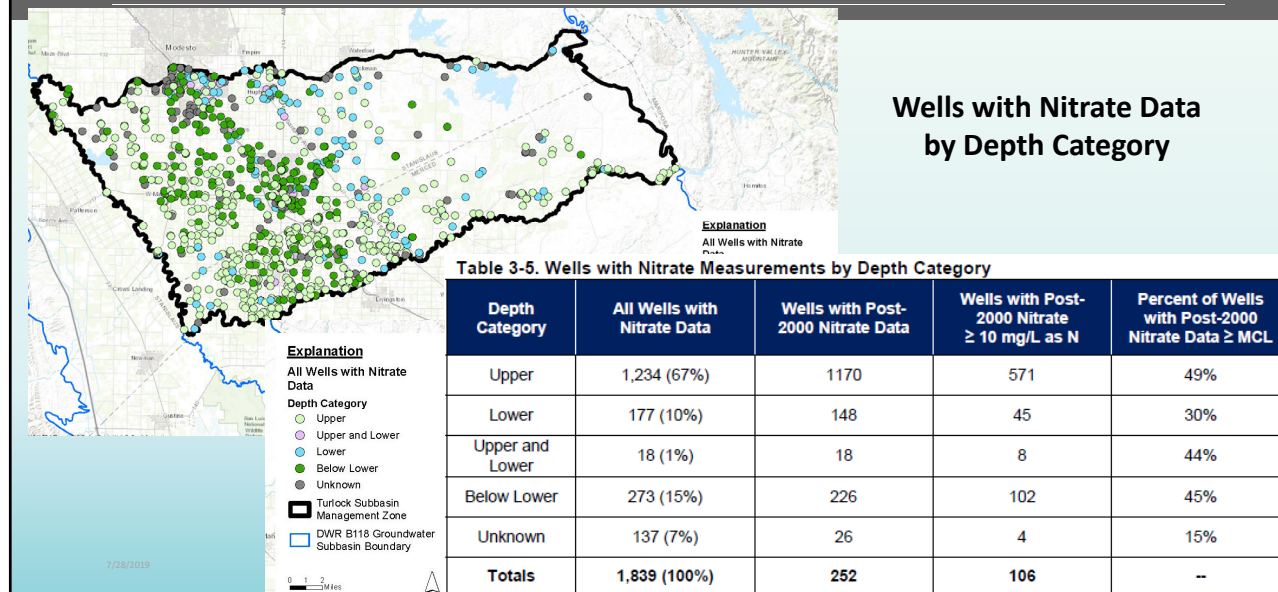
- Hydrogeology – Geologic outcrops and generalized cross section, extent of Corcoran Clay, nitrate high vulnerability priority map
- Groundwater Elevations – Spring 2018 contour map (DWR)
- Upper Zone Delineation – Map with depth to bottom of Upper Zone
- Nitrate Water Quality
 - Updated nitrate dataset
 - Refined high resolution coverage of Upper Zone: Identifies “gap areas” where data insufficient to interpolate ambient Upper Zone nitrate



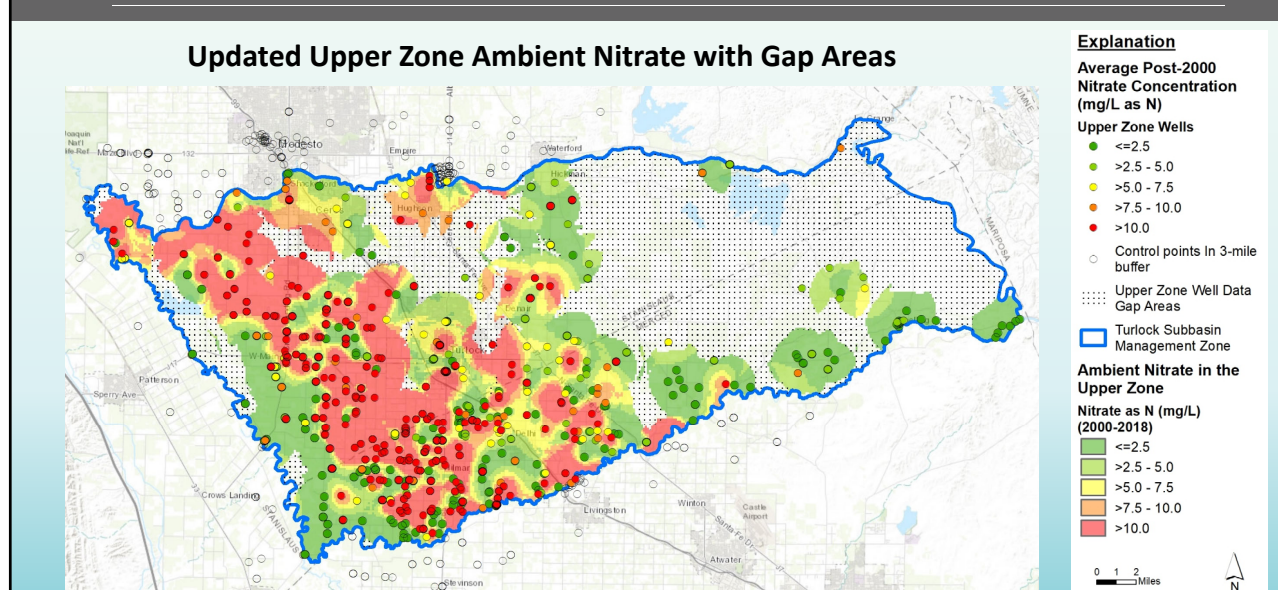
Adapted from Turlock GWMF, 2008

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SECTION 3 – INITIAL ASSESSMENT OF GROUNDWATER CONDITIONS

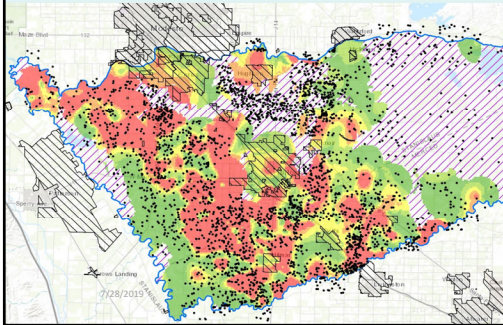


SECTION 3 – INITIAL ASSESSMENT OF GROUNDWATER CONDITIONS



SECTION 3 – AMBIENT NITRATE DATA TO SUPPORT EAP

Summary of Domestic Wells and Population with Estimated Upper Zone Nitrate Area Categories Located Outside PWS Boundaries



Estimated Upper Zone Ambient Nitrate (as N) (2000-2018)	DWR Domestic Well Count by Township/Range-Section		2010 Census Block Analysis
	Domestic Well Count Outside PWS Boundaries	% of Total Domestic Wells Outside PWS	Population Outside PWS Boundaries
≤ 2.5 mg/L	473	14%	10,447
> 2.5 - 5.0 mg/L	519	15%	15,638
> 5.0 - 7.5 mg/L	608	18%	6,898
> 7.5 - 10 mg/L	394	12%	6,048
> 10 mg/L as N	1,017	30%	12,885
Unknown*	406	12%	5,435
Total (Outside PWS Boundaries)	3,417	100%	57,351
*Domestic wells or Census Blocks located in a "Gap Area", where insufficient Upper Zone data exist for spatial interpolation of ambient nitrate conditions.			



FINAL AGENDA ITEMS

- Other Business
- Next Meeting

