



## **SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY**

Thursday, November 16, 2017 - 7:00 p.m.

Simpkins Family Swim Center

979 17th Avenue, Santa Cruz, California

### **AGENDA**

- 1. Call to Order**
- 2. Roll Call**
- 3. Public Comments**
- 4. Consent Agenda**
  - 4.1 Approve Minutes from September 21, 2017 Board Meeting (No Memo) p.3-35
  - 4.2 Approve Meeting Dates for 2018 (No Memo) p.36
  - 4.3 Approve Appointment of Allyson Violante as County Representative to the Groundwater Sustainability Plan Advisory Committee p.37
  - 4.4 Designate a Joint Powers Insurance Authority Director Representative and Alternate Representative to Complete Insurance Coverage Process p.38
- 5. Presentation**
  - 5.1 Presentation by Russ McGlothlin Regarding the Sustainable Groundwater Management Act Statutory Framework, Governance & Tools p.39
- 6. Informational Updates**
  - 6.1 Treasurer's Report p.40-44
  - 6.2 Santa Cruz Mid-County Groundwater Basin Semi-Annual Groundwater Monitoring Report through Water Year 2017 p.45-72
  - 6.3 Outreach Reports (Oral Report)
  - 6.4 Board Member Reports (Oral Reports)
  - 6.5 Staff Reports (Oral Reports)
- 7. Future Agenda Items**
- 8. Adjournment**

### **Guidance for Public Input during MGA Board Meetings**

All information furnished to the MGA Board of Directors with this agenda is provided on the MGA website located here: <http://www.midcountygroundwater.org/committee-meetings>.

### **Submittal of Written Correspondence and Informational Materials**

Submittal of written correspondence and/or informational materials (e.g., handouts) must be received by 5:00 pm on the Monday of the week prior to the scheduled board meeting (10 days prior to the meeting) to be included in the meeting materials for board review (commonly referred to as the board packet). Due to holidays and other factors there may be instances when even the above deadline is not adequate. Submittals received after the deadline but prior to the start of the board meeting will be included in the meeting materials for the next board meeting. Submittals received after the deadline may not have time to reach board members or be read by them prior to the consideration of an item. Materials may also be submitted in-person immediately preceding the start of a board meeting by giving those materials directly to the Board Chair. Organized groups wishing to make a presentation are asked to contact Julia Townsend at [jtownsend@cfscc.org](mailto:jtownsend@cfscc.org) or 831.662.2051 prior to the board meeting. Soquel Creek Water District serves as the designated administrative headquarters of the MGA. Written correspondence and materials may be directed to: Santa Cruz Mid-County Groundwater Agency, c/o Soquel Creek Water District, Attention: Karen Reese, 5180 Soquel Drive, Soquel, CA 95073.

### **Public Comments**

At the outset of the meeting during the time set aside for public comment, members of the public can comment on any item not on the agenda as long as it is related to the subject matter of the MGA. Each speaker will be limited to a single presentation of up to three minutes. The maximum time set aside for public comment will be 15 minutes total for all speakers. Time limits may be increased or decreased at the Board Chair's discretion. Comments may also be given during the remainder of the meeting pertaining to each agenda item. Each speaker will be limited to up to three minutes per agenda item. The maximum time set aside for public comment will be 15 minutes total for all speakers. Time limits may be increased or decreased at the Board Chair's discretion. Those wishing to speak should come to the front of the room and be recognized by the Board Chair. Speakers must address the entire board: dialogue will not be permitted either between speakers and board members or amongst board members. For items listed on the agenda, the board will deliberate and take action after speakers have concluded their remarks. Additional comments may be given at the Board Chair's discretion related to specific items listed on the agenda. Additional public comment will not be allowed during the board's deliberation unless the Board Chair specifically calls on someone in the audience.

### **Disability Access**

The meeting room is wheelchair accessible. Please contact Julia Townsend at [jtownsend@cfscc.org](mailto:jtownsend@cfscc.org) or 831.662.2051 if you need assistance in order to participate in a public meeting or if you need the agenda and public documents modified as required by Section 202 of the Americans with Disabilities Act.



**SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY**  
**Draft Meeting Minutes**  
**September 21, 2017**

**1. Call to Order**

The meeting was called to order at 7:01 p.m. by Chair Marani.

**2. Roll Call**

Board Members Present: Mr. Jaffe, Dr. LaHue, Mr. Benich, Mr. Marani, Ms. Mathews, Mr. Baskin, Mr. Abramson, Mr. Kerr, Mr. Ricker (Alternate), Mr. Schultz (Alternate)

Board Members Absent: Mr. Leopold, Mr. Friend, Mr. Kennedy

Staff Present: Mr. Bracamonte, Ms. Menard, Mr. Duncan, Ms. Pruitt, Ms. Townsend, Ms. Schumacher, Ms. Strohm, Ms. Ryan

Others Present: There were approximately 16 members of the public in attendance & the following water professionals: Mr. Williams from HydroMetrics WRI, Mr. Lockwood from the Pajaro Valley Water Management Agency, Mr. Poncelet from Kearns & West.

**3. Public Comments**

Becky Steinbruner, resident of Aptos and Pure Source Water Customer, mentioned that she is working with group of citizens called Water for Santa Cruz to hosting a water forum. The forum will be held next Monday at 7:00 p.m. at the Aptos library. She welcomed everyone and left a flyer (Exhibit A).

Brian Lockwood, General Manager of the Pajaro Valley Water Management Agency, reported that their board of directors met last night and provided guidance to staff to submit an application to use water from College Lake as an alternative to groundwater pumping. They are in the process of conducting an Environmental Impact Report, and will host scoping meetings during the second week of December. He encouraged participation in the process and feedback, and invited the group and members of the public to their board meetings. He looks forward to collaborating with this group.

**4. Presentation**

**4.1 HydroMetrics Water Resources Inc. on Defining Sustainability Under the Sustainable Groundwater Management Act**

Derrik Williams presented on behalf of HydroMetrics WRI.

Sustainability is defined locally. Each basin will define what success is

going to look like. See the attached presentation slides (Exhibit B) for reference. Mr. Schultz arrived at 7:24 p.m. Mr. Williams mentioned that the legal standard for meeting sustainability is based upon avoiding undesirable results. Measurable objectives are a point of contention in terms of legal accountability. The Department of Water Resources will release a document on best management practices. However, coming up with sustainable management criteria is anticipated to be an iterative process. No questions from the public. Questions from the board:

Is there a way to substitute groundwater levels for other indicators (e.g. the relationship between groundwater levels and saltwater intrusion)? Mr. Williams responded yes, as long as the relationship has been well defined.

When should the process begin?

There is not penalty for starting early. Mr. Williams recommended that the group start as soon as possible, namely once they feel comfortable about existing conditions and have knowledge of users and uses.

Ms. Menard commented that staff have collaborated with a consultant to outline an iterative process that begins in January 2018 for 18 months and includes three iterations. The plan is to build the knowledge base between now and the end of the year to launch in the new year.

What boundaries exist on this group's discretion?

The plan must meet the needs of local users and uses, and sustainability must be maintained for 50 years.

What do we know about the Department of Water Resources' process?

The Department of Water Resources (DWR) is currently developing the review process, and hosted a meeting in Clovis yesterday. Each basin will have a point of contact to help with the process. The MGA's contact will be Amanda Peisch-Derby.

Mr. Williams introduced a couple of additional terms. Undesirable Results must not be "significant and unreasonable," which the basin gets to define. Additionally, the plan has to "substantially comply" with the regulations. Ms. Pruitt reported from the meeting in Clovis that a DWR representative mentioned that they will be comparing the models of neighboring basins. Mr. Ricker added that other agencies will be able to help define what is reasonable (e.g. the city and streamflow depletion).

**5. Consent Agenda**

**5.1 Approve Minutes from July 20, 2017 Board Meeting (No Memo)**

Dr. LaHue caught a few typos that he will send to staff.

MOTION: Ms. Mathews; Second: Mr. Baskin. To approve the meeting minutes from July 20, 2017 with the edits mentioned above. Motion passed with one abstention (Mr. Marani).

**6. General Business**

**6.1 Recommendation from the Groundwater Sustainability Plan Advisory Nominating Committee**

Chair Marani thanked the MGA staff (Ms. Pruitt in particular), and applicants. He emphasized that everyone that applied is welcome to attend future public meetings and provide input. Ms. Pruitt provided an overview of the process. Out of the 32 applications received, the Nominating Committee has made 9 recommendations. Ms. Pruitt read the names of the nominees, noting that the nominee for the Soquel Creek Water District is Mr. Jaffe. Board questions, none.

Public Comment: Becky Steinbruner, asked for feedback about the process, noting that at the last meeting there was discussion about leaving the names redacted which was left up to the committee. Has the committee considered alternates? Will the meetings be public? How can the public get on the notification lists? She then noted that one nominee appears to live outside of the basin boundaries.

MOTION: Ms. Mathews; Second: Dr. LaHue. To approve the nominating committee's recommendation as is, and install the GSP Advisory Committee as recommended. Motion passed unanimously.

The Chair asked those nominees present to introduce themselves. Mr. Ricker noted that the meetings will be public and advertised, and encouraged applicants that were not selected to continue to be active in the process and attend. Ms. Pruitt will inform all applicants of the meeting schedule once the dates have been set. Ms. Mathews mentioned that there was a discussion of alternates, but that the committee decided not to include them at this time.

**6.2 Recommendation to Approve Resolution on Grant Application for the 2017 Sustainable Groundwater Planning Grant Program**

Ms. Pruitt provided some background on the grant opportunity. The MGA is eligible to apply for \$1.5 million in funding from Proposition 1. Matching funds can go back to January 1, 2015. The application is due

in November before the next board meeting. A resolution is required in the packet submittal.

How competitive is the grant?

Mr. Duncan responded that the amount available divided by number of basins equals the maximum amount.

No public comments received.

MOTION: Mr. Jaffe; Second: Mr. Kerr. To adopt Resolution No. 17-01 to submit an application and execute an agreement with the State of California for a 2017 Sustainable Groundwater Planning Grant. Motion passed unanimously by roll call vote.

AYES: Jaffe, LaHue, Benich, Marani, Mathews, Baskin, Abramson, Kerr, Ricker (Alternate), Schultz (Alternate)

NOES: None

ABSENT: Leopold, Friend, Kennedy

### **6.3 Recommendation to Approve Budget Adjustment for Grant Application Development by the Regional Water Management Foundation**

Mr. Duncan reviewed the need for the grant funding, and noted that the remaining amount not previously budgeted is approximately \$11,000. As a backup plan, the MGA treasurer could cover if need be. No board questions.

Public Comment: Becky Steinbruner, asked why this requires additional funding since Mr. Carson's time is already being funded? She expressed her opinion that the grant is not very competitive, and urged the board to use this funding for other needs (e.g. for small water companies).

Mr. Kerr asked about Disadvantaged Community (DAC) funding related to the grant. Mr. Ricker clarified that while the region has pieces of disadvantaged neighborhoods, it does not currently have any DACs as defined by the state.

MOTION: Dr. LaHue; Second: Ms. Mathews. To approve budget adjustment for grant application development by the Regional Water Management Foundation. Motion passed unanimously.

**6.4 Recommendation to Approve Contracts with HydroMetrics Water Resources Inc. and Kearns & West for Technical and Process Support for the Santa Cruz Mid-County Basin Groundwater Sustainability Plan**

Ms. Menard presented this item, and framed it as providing the support necessary to achieve the goals of the group that have been established. Eric Poncelet, principal at Kearns & West, introduced himself and said he was happy to be selected and welcomed any questions. Derrik Williams, from HydroMetrics WRI applauded the selection of Kearns & West, and commented that the division of labor between consultants and staff has been well thought out by Ms. Menard.

Public Comment: Becky Steinbruner expressed her support for local jobs and asked if any local facilitators were considered in the process.

Ms. Mathews noted that having gone through the Water Supply Advisory Committee process with the City of Santa Cruz, she is pleased to have adequate technical and process support. The group discussed the contingency fee. Mr. Williams confirmed that if that money is not spent the MGA will receive it back. Ms. Menard spoke about the uncertainties related to the number of meetings and other aspects of the process that merit having flexibility. Contingencies will only be allocated if the Executive Team feels it is necessary with financial reports being shared with the board along the way if so desired. If the grant funding is not received, the budget will have to be adjusted. The group discussed the uncertainties related to facilitation costs. Mr. Poncelet noted that the current budget is based on the number of meetings assumed. An agreement focused process is more time consuming than simply receiving input. He acknowledged the difficulty of estimating the work required to identify and progress towards areas of agreement. Ms. Townsend repeated the motion.

MOTION: Ms. Mathews; Second: Dr. LaHue. To authorize the general manager of the Soquel Creek Water District to finalize the contracts, and authorize the board chair to execute said contracts in the amount of \$508,100 with HydroMetrics WRI, and \$420,492.64 with Kearns & West for the scope of work described in the attachments for this item. To authorize the general manager of Soquel Creek Water District to sign purchase orders for the work to be performed by HydroMetrics WRI and Kearns & West in the amounts indicated above. Motion passed unanimously.

**6.5 Groundwater Model Update from HydroMetrics Water Resources Inc. and Recommendation to Approve HydroMetrics Water Resources Inc. Scope of Work and Associated Budget for Fiscal Year 2017-2018**

Mr. Duncan presented an overview of the scope of work, and reviewed the work of SkyTem which recently tried to apply a tool from Denmark to locate saltwater intrusion offshore. No board comments or questions.

Public Comment: Becky Steinbruner heard about a new climate change model being used by the City of Santa Cruz at a recent county Water Advisory Commission meeting. Is this model different from what HydroMetrics WRI is using? If so, would it produce different results? She asked to include this topic on a future board agenda.

Mr. Williams responded that HydroMetrics WRI will be using global climate change models similar to the City of Santa Cruz, and that all analysis done in the basin will be based on the same assumptions. Ms. Menard noted that each agency is planning to use the model for various needs, and added that having different models can be useful for understanding modeling assumptions for future scenarios.

Does this scope of work include work for the City of Santa Cruz and Pure Water Soquel?

No. It includes the impact of coastal pumping versus inland pumping.

Mr. Jaffe noted that although this is a large amount of money, it is not unwarranted. He appreciates that the Technical Advisory Committee is involved for guidance.

MOTION: Mr. Baskin; Second: Mr. Jaffe. To approve the FY 2017/2018 scope of work and budget as presented; authorize the general manager of Soquel Creek Water District and the board chair to finalize and execute the contract agreement as outlined; and authorize the general manager of the Soquel Creek Water District to sign a purchase order for the work to be performed. Motion passed unanimously.

**6.6 Recommendation on Audio Recording**

Mr. Duncan provided an overview of the recommendations from staff, and noted that the MGA could also utilize Community Television of Santa Cruz County to film future learning sessions if so desired. No comments from the board.

Public Comment: Becky Steinbruner, thanked the group for considering this topic as an agenda item. She also thanked Bruce Tanner for



donating his time for filming recently, and mentioned that she has made the videos available on YouTube for public viewing. She encouraged the group to record all future meetings.

Anonymous, would like to see the group invest funding in recording the meetings and making them available to everyone. Suggested that the MGA consider buying equipment to be self sufficient.

Mr. Baskin suggested that staff provide user friendly links on the website so that individuals can view past presentation slides while listening to the audio recording.

MOTION: Mr. Baskin; Second: Mr. Kerr. To direct staff to purchase the Marantz Ultimate Meeting Recorder Package and use at subsequent meetings. Motion passed unanimously.

#### **6.7 Recommendation to Accept Draft Communication & Engagement Plan**

Ms. Pruitt reported that the state released communication guidance in June that has since been reviewed by staff. Board questions:

How will we know that the plan is working? What are we measuring? Ms. Pruitt responded that attendance and asking people how they heard about the meetings will be a couple of the metrics for success. Other metrics could include checking for understanding about general water related concepts. Ms. Ryan added that she is consistently tracking online visits (both new and existing), and distributed a copy of the brochure that went out recently to private well owners (Exhibit C). The brochure was sent to households that do not receive municipal water, which includes small water systems. Out of the over 2,000 brochures sent, 43 survey responses were received.

Mr. Baskin and Ms. Mathews suggested adjusting the current language related to the predominant drinking water supply in the county to “the majority of our drinking water supply is groundwater.” Mr. Jaffe suggested involving students and interns in the communication process. Outreach efforts will be supported by the city of Santa Cruz and Soquel Creek Water District as well. Ms. Mathews said she would be happy to contribute further, and sees some places to do more. The group agreed that the Advisory Committee will play an important role in providing input on the communication process. Finally, this will be a living plan that will be adjusted over time.

Public Comment: Becky Steimbruner, commented that she likes road signs, although she suggested making the logo smaller so that the date and time are easier to read.

MOTION: Ms. Mathews; Second: Mr. Kerr. To accept the Draft Communication & Engagement Plan with the minor changes suggested above. To direct staff to finalize and publish the plan. Motion passed unanimously.

#### **6.8 Recommendation to Approve Resolution to Join Joint Powers Insurance Authority & Association of California Water Agencies**

Mr. Bracamonte provided background, namely that the MGA needs liability insurance coverage. Membership in the Association of California Water Agencies is a bonus considering their conferences and forums on sustainability. Soquel Creek Water District and Central Water District already have coverage with the JPIA and have been satisfied with their experience.

Does this include directors and officers insurance?  
Yes.

Public Comment: Martin Mills Pure Source Water, Aptos. Did you look into the California Rural Water Association? Their Utility Resource Insurance Services provides insurance to small water companies and might be another option to look into.

MOTION: Dr. LaHue; Second: Ms. Mathews. To adopt Resolution No. 17-02 to join the Joint Powers Insurance Authority/Association of California Water Agencies Liability Program. To authorize the board chair to sign the Joint Powers Insurance Authority Agreement. Motion passed unanimously by roll call vote.

AYES: Jaffe, LaHue, Benich, Marani, Mathews, Baskin, Abramson, Kerr, Ricker (Alternate), Schultz (Alternate)

NOES: None

ABSENT: Leopold, Friend, Kennedy

### **7. Informational Updates from Directors and Staff**

#### **7.1 Treasurer's Report for the Period Ending August 31, 2017**

Board Treasurer, Ms. Strohm shared the the MGA will undergo its first audit during the first week of October. She has already provided the auditors with the information requested. She shared her report and welcomed questions. No questions.

## **7.2 Outreach Reports**

Ms. Ryan shared a brochure that has been posted to the website. The Outreach Committee is still working on developing a brief overview for those who are less likely to read a two pager. There are four public orientation sessions planned for the GSP Advisory Committee. Ms. Mathews expressed her hope that the group can cast a wide net of invites, and mentioned that it might be worth getting letters of support on the record politically. The orientation sessions will be facilitated, and include a presentation format with time for questions and answers. Ms. Mathews suggested creating a cheat sheet for acronyms for those sessions and other future events. The group also agreed that it would be best to use fewer acronyms in general as much as possible.

## **7.3 Board Member Reports**

Mr. Benich spoke about Senator Monning's recent proposal, and requested that the group send a letter denouncing it publicly if they are opposed. Mr. Duncan filled in some of the background, and shared that ACWA recently wrote a letter to legislators. Dr. LaHue commended staff on their work getting budget and advisory committee together. Chair Marani hoped that people will continue to come out to meetings.

## **7.4 Staff Reports**

No further reports provided.

## **8. Future Agenda Items**

Mr. Jaffe requested that outreach be a continuing report.  
Ms. Mathews requested upcoming meetings as part of future agenda packets.  
Mr. Benich requested an item pertaining to Senator Monning's recent bill.

## **9. Adjournment**

The group adjourned at 9:17 p.m.

SUBMITTED BY:

APPROVED BY:

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Julia Townsend  
Program Associate  
Regional Water Management Foundation

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Cynthia Mathews  
Board Secretary  
City of Santa Cruz



# WATER FOR SANTA CRUZ

## **Perspectives on Regional Water Supply Solutions: A Public Forum**

**September 25, 2017 | 7 to 9 p.m.  
Aptos Branch Library, 7695 Soquel Dr., Aptos**

Water for Santa Cruz presents a forum on regional water supplies. Eleven agencies have been invited to participate along with the organizers. Each participant will have five minutes to present an overview of the regional water supply solution. Questions from the public will follow. The event will be moderated by the Womens' International League for Peace and Freedom.

The goal of this forum is to present differing viewpoints on regional water supply solutions and to allow the public to ask questions and follow up questions without restriction.

Agencies and citizens invited to participate:

1. Soquel Creek Water district – Melanie Mow Schumacher
2. Santa Cruz Water Department – Rosemary Menard
3. Scotts Valley Water District – Pieret Harmon
4. Mid County Ground Water Agency – Rob Marani
5. Resource Conservation District – Chris Coburn
6. Santa Marguerita Water Conservation – Chris Beri
7. Lochquifer – Jerry Paul
8. Pajaro Water Management district – Brian Lockwood
9. SC County Water Resources Division Director – John Ricker
10. Private Well Owners in Purisima aquifer
11. Water Supply Advisory Committee (WSAC) – Doug Engfer
12. Water For Santa Cruz – Scott McGilvray
13. Central Water District – Ralph Bracamonte
14. San Lorenzo Valley Water District – Brian Lee

# Introduction to Sustainable Management Criteria for SGMA

SCMGA Board of Directors  
September 21, 2017

# Purpose

*Understand how the Santa Cruz Mid-County GSA will define sustainability under SGMA*

- Definitions
- How concepts interrelate
- What is still unclear

These thoughts are my own, and do not represent the opinions or policies of the State of California

# Why Talk About Sustainable Management Criteria (SMC)?

Sustainable Management Criteria are the Means of Defining Sustainability Under SGMA

- Your GSP must use SMCs to clearly state how your basin looks like when it is managed sustainably
  - Quantitative
  - Reflect needs of local users
  - Define what is undesirable

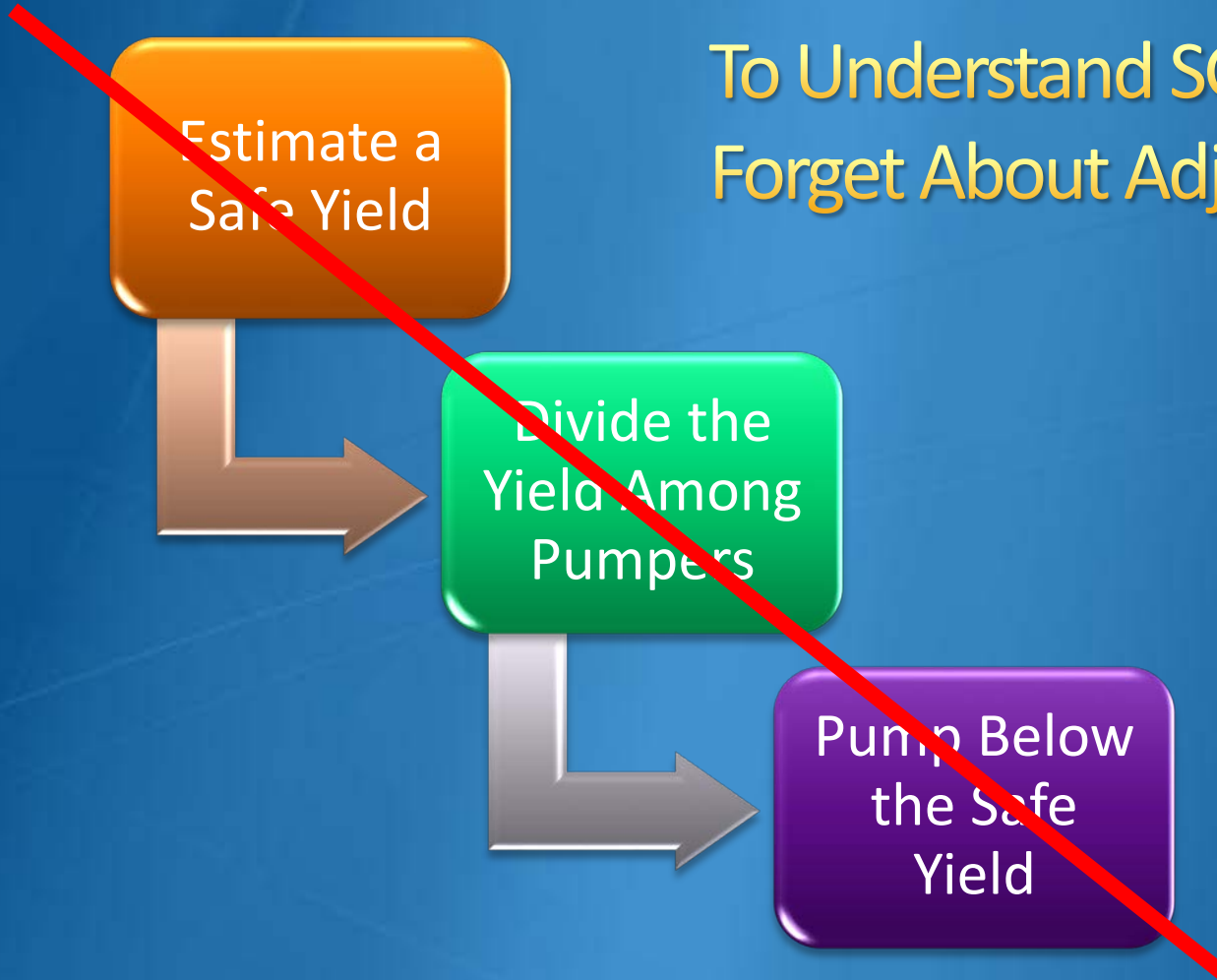
Defining Sustainability with SMCs is One of the Core Activities in GSP Development

# Sustainability Under SGMA is Different than Under Adjudications



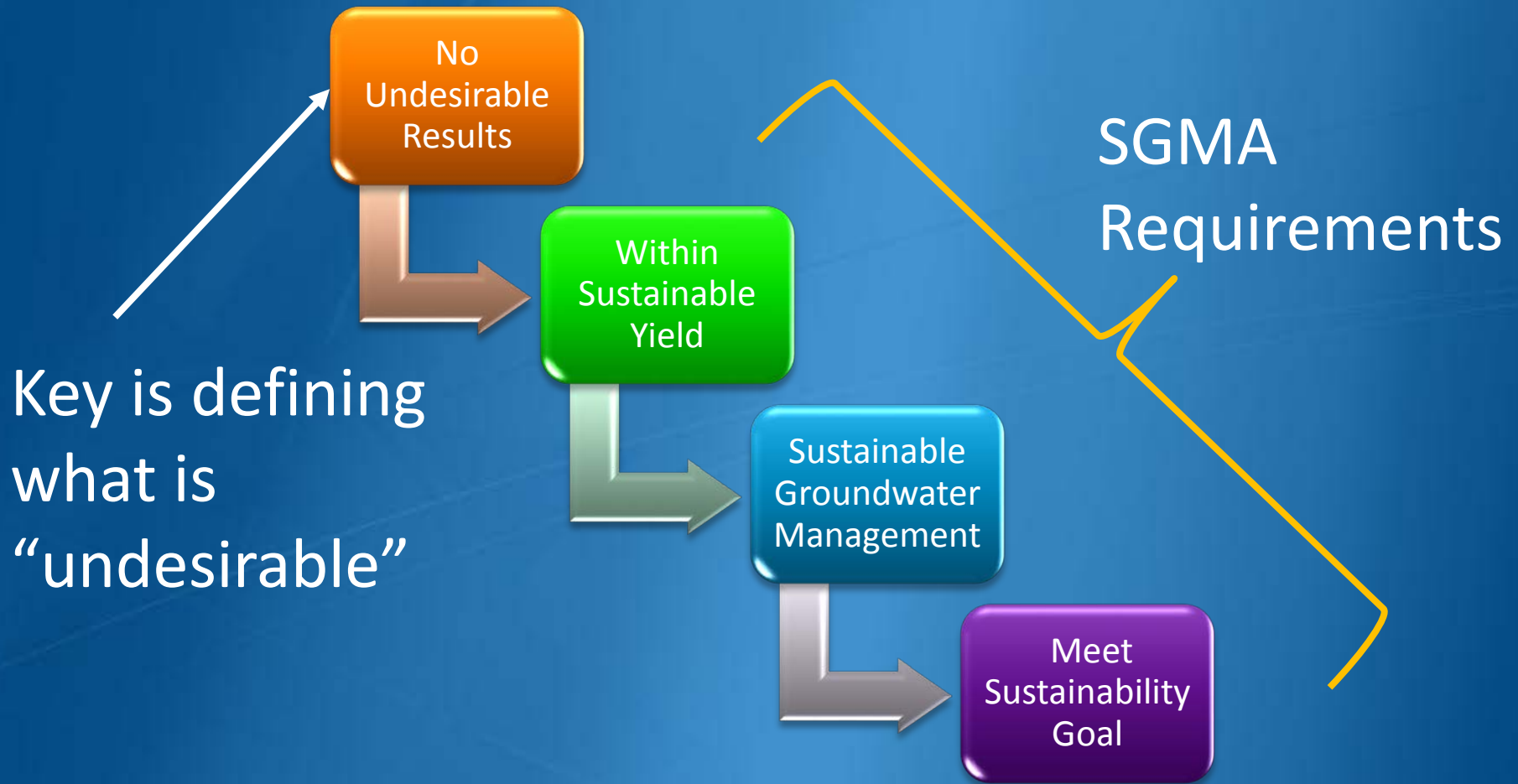
# Adjudication Sustainability Approach

To Understand SGMA  
Forget About Adjudications



Sustainability based on amount pumped

# SGMA View of Sustainability



Sustainability based on aquifer condition

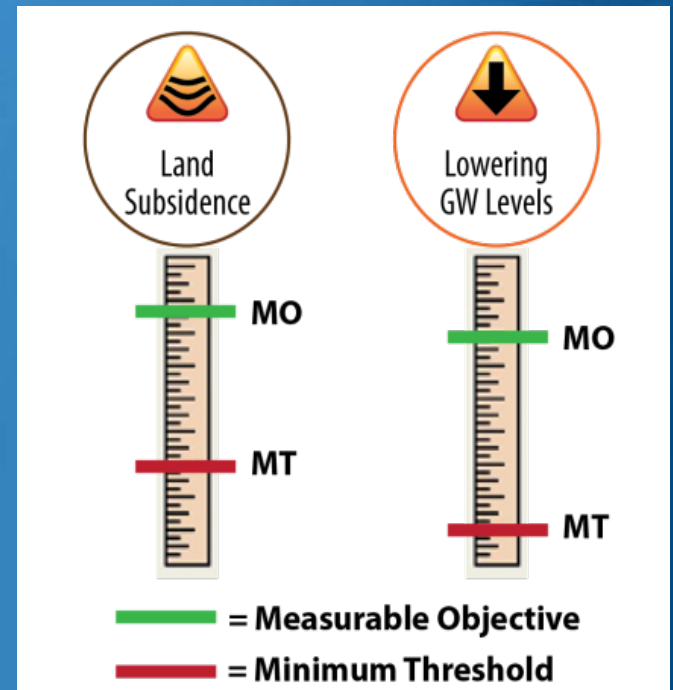
# Terms and Definition

Getting to Undesirable

# Definitions

- Minimum Threshold - a numeric value (think “groundwater level”) that you don’t want to fall below
- Measurable Objective - specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions. This is what you shoot for to avoid exceeding your MT.

Both concepts must be quantifiable

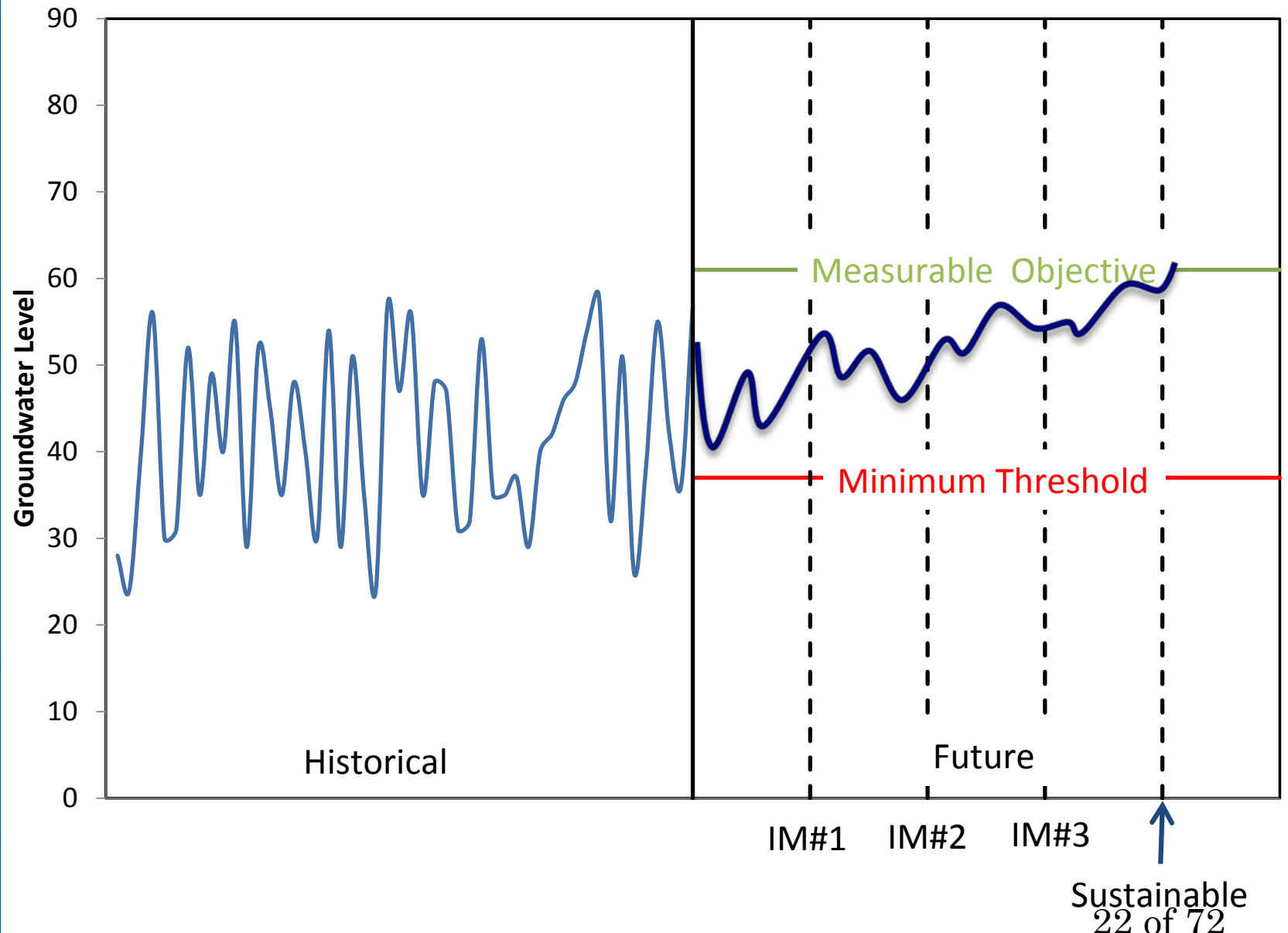


# Thresholds

- Minimum Thresholds set at every Representative Monitoring Point (RMP, think “well”)
- Measurable Objectives are set with safety factor on Minimum Thresholds
- At five-year interim milestones, you want to show that you’re headed towards your Measurable Objectives

# Thresholds

Item 4.1 - Exhibit B



Sustainable  
22 of 72

# Sustainability Indicators

Item 4.1 - Exhibit B



Lowering  
GW Levels



Reduction  
of Storage



Seawater  
Intrusion



Degraded  
Quality



Land  
Subsidence



Surface Water  
Depletion

Your GSP Must Address all Six  
Sustainability Indicators

# The Key Definition is Undesirable Result

- An undesirable result is when any one of the six sustainability indicators reach the level of being significant and unreasonable
- “...undesirable results ... shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.”



# Undesirable Results are a Combination of Min. Thresholds

- Example 1: An undesirable result occurs when 10% of your groundwater elevations drop below the Minimum Thresholds.

This might be an example definition of Undesirable Results for groundwater storage.

# Undesirable Results are a Combination of Min. Thresholds

- Example 2: An undesirable result occurs when groundwater elevations at any Representative Monitoring Point drops below the Minimum Thresholds.

This might be an example definition of Undesirable Results for seawater intrusion

# Sustainability

- The fundamental principle is that groundwater sustainability is achieved by avoiding undesirable results for all six indicators.
- Notice that you do not have to necessarily meet your measurable objectives to be managing sustainably
  - This may still be a point of contention. You may not be meeting your sustainability goal if you don't meet your objectives

# So How Do We Implement This?

Note – there is no one way to do this.

# How Is This Implemented?

- Assess which of the six sustainability indicators are applicable
- Develop draft descriptions of what is significant and unreasonable.
- Draft your Sustainability Goal
- Set minimum thresholds at each representative monitoring point

# How Is This Implemented?

- Decide how to combine Minimum Thresholds into six Undesirable Results. This is likely iterative
  - How does this undesirable result affect beneficial uses and users of groundwater;
  - How does this undesirable result affect land uses and property interests.
  - Does the undesirable result adequately characterizes conditions that are significant and unreasonable

# How Is This Implemented?

- Set Measurable Objectives, based on the agreed to Minimum Thresholds
  - Quantify a margin of operational flexibility to each RPM
  - Objective is to ensure that meeting the Measurable Objective safely avoids Minimum Thresholds
- Set Interim Milestones
- Finalize your Sustainability Goal

# Crucial Message

- Plan on substantial, iterative discussions
  - Discussions among GSA members
  - Discussions with the public, stakeholders, and other groundwater users
  - Discussions of what constitutes an undesirable result
  - Discussions of whether the minimum thresholds adequately reflect the undesirable result
  - Discussions of whether measurable objectives are reasonable



# Questions

# SHARING & SUSTAINING



## MID-COUNTY GROUNDWATER

**WHAT IS GROUNDWATER?** Groundwater is the water that is stored beneath the land surface and moves slowly through geologic formations of soil, sand and rocks called aquifers. It originates locally from rain and is the source of water for our streams, springs and wells. The water that we pull from underground comes from the same aquifer as our neighbors. Residents of Live Oak, Capitola, Soquel and Aptos get our water from the Mid-County Groundwater Basin, which is made up of several aquifers layers.

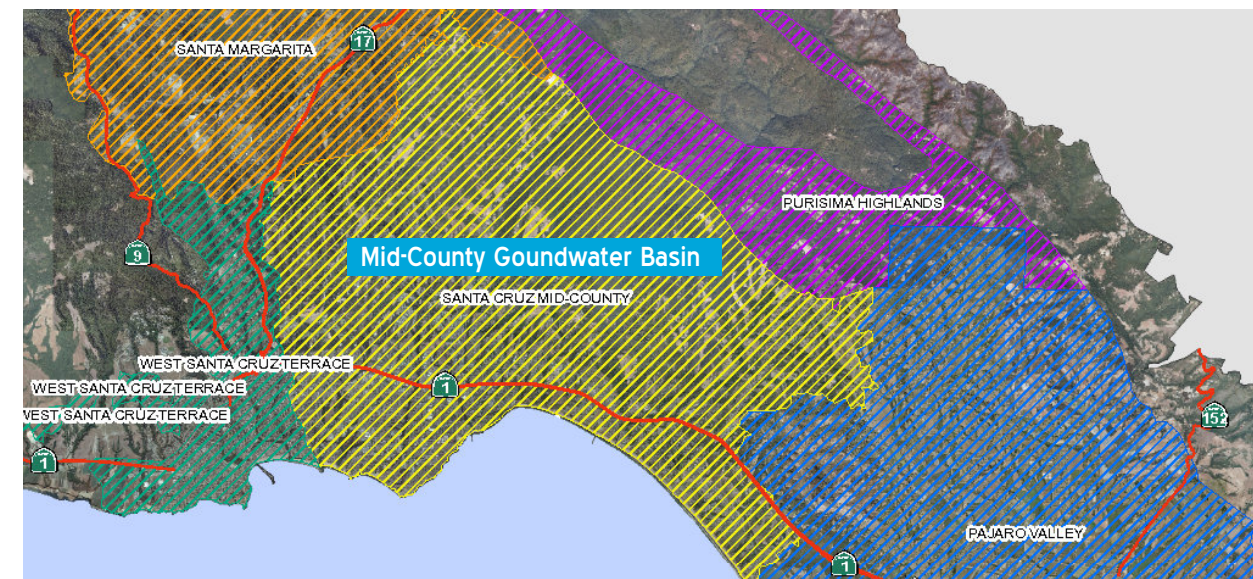
**WHAT IS THE ISSUE?** The basin is in a state of overdraft. More water has been pumped from the ground than has been naturally replenished, resulting in lowered groundwater levels, reduced streamflow, and seawater intrusion.

**FINDING SOLUTIONS:** The basin is shared by public agencies and private well users. The Mid-County Groundwater Agency (MGA) is charged with preparing a Groundwater Sustainability Plan to restore the critically overdrafted basin. The solution will likely involve a combination of water conservation, groundwater recharge, and supplemental supply,

**Item 4.1 - Exhibit C**  
with implementation costs distributed to users based on their impact on the groundwater basin.

The MGA is a Joint Powers Authority governed by an 11-member board comprised of two elected officials from each of its member organizations (Central Water District, City of Santa Cruz, County of Santa Cruz, and Soquel Creek Water District) and three private well owner representatives.

The Sustainable Groundwater Management Act gives the MGA the authority to require meters on wells using more than two acre-feet per year and wells for non-domestic uses. The average household uses approximately half an acre-foot per year. So, most private residential wells in the Mid-County basin (those that serve fewer than five homes) are not subject to metering. Under the act, it is possible to levy a fee assessment on small and larger volume users alike. It's still unknown who would be subject to a fee and how much those fees might be for the Mid-County Basin. **Any use fees would have to be justified and would ultimately be subject to approval pursuant to Proposition 218**





# WORKING TOGETHER TOWARD A SUSTAINABLE WATER SUPPLY



## RURAL LANDOWNERS

### WATER CONSERVATION

#### Outside

- ☐ Plant a drought tolerant landscape and use mulch to retain moisture.
- ☐ Use drip irrigation or hand watering.
- ☐ Ensure all hoses have a shut off nozzle.
- ☐ Install soil moisture meters to determine need for watering.
- ☐ Use irrigation timers and avoid watering from 10am-5pm.
- ☐ Collect rainwater for outdoor irrigation.
- ☐ Modify drainage to promote infiltration of rainwater
- ☐ Use a pool cover.
- ☐ Consider washing your animals, including horses, less frequently.

#### Inside

- ☐ Install efficient toilets, washing machines and shower heads.
- ☐ Keep showers to 5 minutes or under.
- ☐ Use buckets to collect warm up water or install a circulation pump.
- ☐ Avoid flushing the toilet unnecessarily.
- ☐ Turn off the sink when brushing teeth or rinsing dishes.

### WELL MANAGEMENT

- ☐ Consider installing a meter on your well so you know how much water you are using and track progress of conservation efforts
- ☐ Check for and repair water leaks to avoid water waste and to extend the life of your well pump and equipment (installing a meter can help you quickly detect leaks)
- ☐ Perform basic well maintenance
- ☐ Request a well sounding measurement to monitor groundwater levels in your well (these can be done as part of a free water efficiency evaluation offered through the Resource Conservation District and the County of Santa Cruz).

### FREE WATER EVALUATION

The Resource Conservation District is offering free water efficiency evaluations for all well users in the Mid-County Groundwater basin. The evaluation will provide recommendations for indoor and outdoor water conservation options. Well soundings are also available upon request if your well can accommodate the sounder. **Call us at 831-464-2950 x 22 to schedule.**

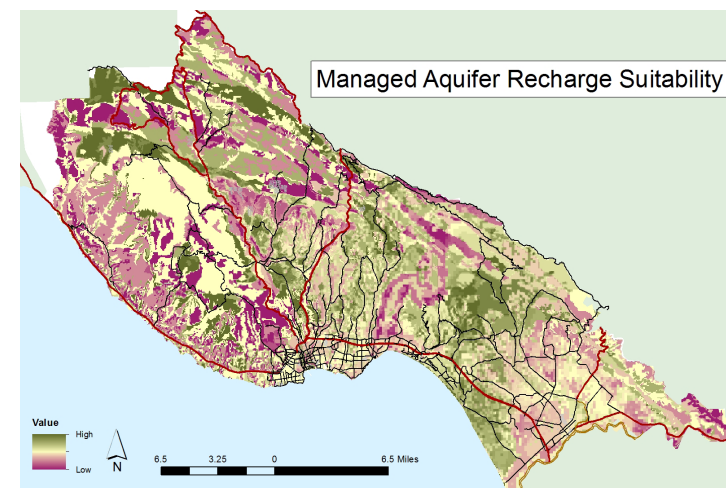


## AGENCIES AND COMMERCIAL USERS

Water agencies within the Mid-County Groundwater basin have worked hard to heavily promote water conservation through a combination of incentives and penalties. As a result, agency customers in the basin have some of the lowest per capita water usage in the state.

There are also opportunities for agricultural and commercial users to implement various conservation practices to reduce water use. The Natural Resources Conservation Service (NRCS) and the Resource Conservation District of Santa Cruz County (RCD) offer technical assistance and cost-share for water conservation efforts.

With funding through the California Coastal Conservancy, the Resource Conservation District of Santa Cruz County (RCD) partnered with the University of California at Santa Cruz to develop detailed groundwater recharge maps and identify public and private parcels particularly suited for recharging aquifers throughout the County. The RCD is working with landowners to complete voluntary recharge projects on their properties. Interested landowners can contact the RCD at **(831) 464-2950** to see if your parcel is in a high priority area and discuss possible funding opportunities for project implementation.



Map detailing areas suitable for high value recharge

**YOUR INPUT MATTERS!** Please share your concerns by filling out the confidential Private Well Owner online survey. [www.surveymonkey.com/r/MGAWellowner](http://www.surveymonkey.com/r/MGAWellowner)  
The survey takes 10-15 minutes and hearing from you is an integral part of developing the Groundwater Sustainability Plan.



**SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY  
MEETING DATES 2018**

Thursday, January 18<sup>th</sup> 7:00-9:00 p.m.

Thursday, March 15<sup>th</sup> 7:00-9:00 p.m.

Thursday, May 17<sup>th</sup> 7:00-9:00 p.m.

Thursday, July 19<sup>th</sup> 7:00-9:00 p.m.

Thursday, September 20<sup>th</sup> 7:00-9:00 p.m.

Thursday, November 15<sup>th</sup> 7:00-9:00 p.m.

November 16, 2017

**MEMO TO THE MGA BOARD OF DIRECTORS**


Subject: Agenda Item 4.3

Title: Approve Appointment of Allyson Violante as County Representative to the Groundwater Sustainability Plan Advisory Committee

On October 24, 2017, the County Board of Supervisors adopted a resolution appointing Allyson Violante as the alternate County representative on the MGA Board, to represent the County in the event one or both of the other designated County representatives are unable to attend an MGA meeting. Ms. Violante has also been designated by the County MGA Board Members as the County representative on the GSP Advisory Committee.

Possible Board Actions:

1. By MOTION, Approve appointment of Allyson Violante as the County representative to the GSP Advisory Committee.
2. Take no action.

By   
\_\_\_\_\_  
John Ricker  
Water Resources Division Director  
County of Santa Cruz

November 16, 2017

## MEMO TO THE MGA BOARD OF DIRECTORS

Subject: Agenda Item 4.4

Title: Designate a Joint Powers Insurance Authority Director Representative and Alternate Representative to Complete Insurance Coverage Process

On September 21, 2017, the MGA Board approved a resolution to join the Joint Powers Insurance Authority. In order to complete the insurance on-boarding process, the MGA must designate a Director Representative and Alternate Representative. As excerpted from the ACWA JPIA Board of Directors' Manual:

Each JPIA Director or Alternate shall serve until a successor is appointed. They shall serve at the pleasure of the Member by which they have been appointed. When the Member appoints a new JPIA Director Representative or alternate, they should notify the JPIA so the JPIA's database may be updated.

Possible Board Actions:

1. By MOTION, Designate a Director Representative & Alternate Representative.
2. Take no action.

By



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Tim Carson  
Program Director  
Regional Water Management Foundation

November 16, 2017

## MEMO TO THE MGA BOARD OF DIRECTORS

Subject: Agenda Item 5.1

Title: Presentation by Russ McGlothlin Regarding the Sustainable Groundwater Management Act Statutory Framework, Governance & Tools

Russ McGlothlin will present at the November 16th board meeting regarding the legal and governance framework for the Sustainable Groundwater Management Act (SGMA). Understanding the legal/governance framework, tools, and constraints is important to provide a common foundation for moving forward in an efficient and productive manner. Mr. McGlothlin is a lawyer with Brownstein Hyatt Farber Schreck, LLP and was instrumental in the creation of SGMA and much of the language in the Act.

Mr. McGlothlin will address the governance relationship between Groundwater Sustainability Agencies (GSAs) and other local agencies with land use and permitting authority (e.g., cities and counties) and between GSAs and other state laws and regulations (e.g., the Urban Water Management Planning Act). This discussion will help everyone understand how the various pieces fit together.

Also presented will be the various tools that SGMA provides to GSAs, as well as the boundaries/constraints of the various authorities given the larger governance context in which they operate. For example, SGMA provides that GSAs can raise money, but the provisions of Prop 218 must still be complied with for revenue measures that are contemplated. Another example is that state growth projections will still be allocated to the regions in their existing way (in our case through the Association of Monterey Bay Area Governments), and SGMA does not authorize GSA's to "just say no."

Possible Board Actions:

1. Informational, no action necessary.

By



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Ron Duncan  
General Manager  
Soquel Creek Water District

November 16, 2017

## MEMO TO THE MGA BOARD OF DIRECTORS

Subject: Agenda Item 6.1

Title: Treasurer's Report

### Attachments

1. Treasurer's Report for the Period Ending October 31, 2017

Attached is the Treasurer's Report for September and October 2017. The report contains three sections:

- Statement of Changes in Revenues, Expenses and Net Position
  - This interim financial statement provides information on the revenue that has been invoiced to the member agencies and the expenses that have been recorded as of October 31, 2017.
- Statement of Net Position
  - This interim financial statement details the cash balance at Wells Fargo Bank, the depository institution for the Santa Cruz Mid-County Groundwater Agency (MGA), and the resulting net income as reported on the Statement of Changes in Revenues, Expenses and Net Position from the preceding page. Not all membership revenue has been collected, resulting in an outstanding membership receivable of \$57,859. Prepaid expenses include liability insurance premiums paid through October 2018.
- Warrants
  - The list of warrants reflects all payments made by the MGA, either by check or electronic means, for the period covered by the Treasurer's Report.
  -

The Treasurer's Report is provided on a monthly basis according to statutory requirement and to promote transparency of the agency's financial transactions.

### Possible Board Actions:

1. Informational, no motion necessary.

By



Leslie Strohm

Treasurer

Santa Cruz Mid-County Groundwater Agency



# Treasurer's Report

Santa Cruz Mid-County Groundwater Agency  
For the period ended October 31, 2017



Prepared on  
November 3, 2017

## Statement of Revenues, Expenses and Changes in Net Position

September - October, 2017

	Total
<b>INCOME</b>	
<b>Total Income</b>	
<b>GROSS PROFIT</b>	<b>0.00</b>
<b>EXPENSES</b>	
5100 Groundwater Management Services	387.50
5110 Grndwtr Mgmt - Groundwater Monitoring	1,346.25
5120 Grndwtr Mgmt - Groundwater Model	6,281.78
5340 Computer Services	100.00
5355 Insurance	312.08
5415 Outreach Services	375.00
5510 GSP Consulting Services	5,549.20
<b>Total Expenses</b>	<b>14,351.81</b>
<b>NET OPERATING INCOME</b>	<b>-14,351.81</b>
<b>NET INCOME</b>	<b>\$ -14,351.81</b>

## Statement of Net Position

As of October 31, 2017

	Total
<b>ASSETS</b>	
<b>Current Assets</b>	
<b>Bank Accounts</b>	
1100 Wells Fargo Business Checking	1,004,094.35
<b>Total Bank Accounts</b>	<b>1,004,094.35</b>
<b>Accounts Receivable</b>	
1200 Accounts Receivable - Membership Revenue	57,859.00
<b>Total Accounts Receivable</b>	<b>57,859.00</b>
<b>Other Current Assets</b>	
1400 Prepaid Expenses	843.75
<b>Total Other Current Assets</b>	<b>843.75</b>
<b>Total Current Assets</b>	<b>1,062,797.10</b>
<b>TOTAL ASSETS</b>	<b>\$1,062,797.10</b>
<b>LIABILITIES AND EQUITY</b>	
<b>Liabilities</b>	
<b>Total Liabilities</b>	
<b>Equity</b>	
Retained Earnings	502,957.69
Net Income	559,839.41
<b>Total Equity</b>	<b>1,062,797.10</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>\$1,062,797.10</b>

## Warrants

September - October, 2017

Date	Transaction Type	Num	Name	Memo/Description	Clr	Amount
<b>Bill Payment (Check)</b>						
10/30/2017	Bill Payment (Check)	10051	Community Television of Santa Cruz County			-375.00
						-375.00
10/30/2017	Bill Payment (Check)	10050	Hydrometrics Water Resources, Inc.			-9,555.97
						-9,555.97
10/30/2017	Bill Payment (Check)	10049	Soquel Creek Water District (2)	0000260		-50.00
						-50.00
10/17/2017	Bill Payment (Check)	10048	ACWA/JPIA	Member# S073		-1,155.83
						-1,155.83
09/25/2017	Bill Payment (Check)	10047	Hydrometrics Water Resources, Inc.			-4,008.76
						-4,008.76
09/15/2017	Bill Payment (Check)	10046	Soquel Creek Water District (2)	0000260	R	-367.33
						-367.33



1814 Franklin Street  
Suite 501  
Oakland, CA 94612

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Mr. Ron Duncan  
General Manager  
Soquel Creek Water District  
On behalf of Santa Cruz Mid-County Groundwater Agency  
PO Box 1550  
Capitola, CA 95010-1550

November 6, 2017

Subject: Santa Cruz Mid-County Groundwater Basin Semi-Annual  
Groundwater Monitoring Report through Water Year 2017

Mr. Duncan:

This is the semi-annual groundwater monitoring report for the Santa Cruz Mid-County Groundwater Basin (Basin) with updates through Water Year 2017 on the attached groundwater level and salt concentration plots at the City of Santa Cruz (City) and Soquel Creek Water District's (SqCWD) coastal monitoring wells where target and protective elevations have been defined. These wells, as shown on Figure 1, include three City wells in the Purisima area (Moran Lake Medium, Soquel Point Medium, and Pleasure Point Medium), five wells in the Purisima area (SC-1A, SC-3A, SC-5A, SC-9C, and SC-8D) and five well clusters in the Aromas area (SC-A1A and B, SC-A8A and B, SC-A2A and B, SC-A3A and B, and SC-A4A and B). These wells are the key wells for assessing risk of seawater intrusion and the status of basin recovery in the Basin. Protective elevations<sup>1</sup>

<sup>1</sup> Target elevations for non-critically dry years for the City's wells and SC-1A were listed in the cooperative monitoring/adaptive groundwater management agreement between the City and SqCWD (2015). They are based on the generalized and conservative Ghyben-Herzberg relationship as seaward cross-sectional models have not been developed for the City wells. The target elevations for non-critically dry years represent the long-term recovery goals for that part

estimated to protect productive aquifer units from seawater intrusion and secondary drinking water standards (MCLs) for chlorides and total dissolved solids (TDS) are shown on the plots. Groundwater level data through September 2017 are included, which includes groundwater level soundings at least quarterly at the wells. At the City wells and SC-1A, sampling for chlorides and TDS is quarterly with the last sampling event occurring in October 2017. Sampling at the other SqCWD Purisima area monitoring wells occurs semi-annually with the last sampling event occurring in October. Sampling at the Aromas area wells occurs quarterly with the last sampling event included in the report occurring in September.

### **GROUNDWATER LEVEL LOGGER AVERAGES**

Groundwater level loggers are also installed in these monitoring wells recording groundwater levels at least hourly. This report includes calculations of averages for the latest 90 days of data and Water Year 2017 data at each well. Logger data are used for these calculations where available with manual soundings used to fill in gaps in logger data. Using logger data to calculate averages better represents average conditions over the time period than using averages of manual soundings during the time period. Manual sounding data can be skewed by the timing of the measurement especially in coastal wells that show tidal variation.

The Water Year 2017 averages are compared with protective groundwater elevations. Protective elevations are calculated as the long-term groundwater levels for protecting the productive aquifers of the basin from seawater intrusion. Therefore, the full water year average is more appropriate for comparison to protective elevations in evaluating recovery. Table 1 shows the calculated averages for the coastal wells. Only the results from the A or B screen with lower annual averages are shown for the Aromas wells.

As discussed in the biennial report for Water Years 2015-2016 (HydroMetrics WRI, 2017), SqCWD set protective elevations at its monitoring wells (names beginning with "SC") based on cross-sectional models of density dependent flow to simulate the long term seawater interface resulting from the groundwater

of the basin. Protective elevations for the other SqCWD wells representing long-term recovery goals are based on seaward cross-sectional models. In the remainder of this quarterly report, protective elevations refer to both target elevations and protective elevations.

level set at each monitoring well (HydroMetrics LLC, 2009, and HydroMetricsWRI, 2012). Due to lack of offshore data for calibration, an uncertainty analysis was performed using runs of each cross-sectional model with 100 different sets of hydrologic parameters within documented ranges. SqCWD based its protective elevations on groundwater levels that protect against seawater intrusion in at least 70 percent of the runs. As this is a policy decision that needs to be revisited by the Santa Cruz Mid-County Groundwater Agency when setting measurable objectives in its Groundwater Sustainability Plan for the Basin, Table 1 shows the percentage of the runs that protect against seawater intrusion based on available modeling for the observed Water Year 2017 average for groundwater levels presented below.

*Table 1. Groundwater Level Averages Calculated from Logger Data at Coastal Monitoring Wells*

<b>Well</b>	<b>Data Through</b>	<b>90 Day Avg (ft msl)</b>	<b>365 Day Avg (ft msl)</b>	<b>Protective Elevation (ft msl)</b>	<b>Percent Runs Protective</b>
Moran Lake Medium	9/30/2017	6.6	6.0	5.0	>GH <sup>1</sup>
Soquel Point Medium	9/30/2017	6.2	5.9	6.0	<GH
Pleasure Point Medium	9/30/2017	9.7	7.7	6.1	>GH
SC-1A	9/30/2017	10.7	10.0	6.2 (4 <sup>2</sup> )	>99%
SC-3A	9/30/2017	11.2	13.3	10	>99%
SC-5A	7/18/2017	13.5	12.7	13	<70%
SC-9C	9/30/2017	9.6	13.8	10	>99%
SC-8D	10/17/2017 <sup>3</sup>	17.9	15.8	10	>99%
SC-A1B	9/30/2017	7.2	8.0	3	>99%
SC-A8A	9/30/2017	5.1	5.6	6	<70%
SC-A2A	9/30/2017	6.1	6.4	3	>99%
SC-A3A	9/30/2017	3.0	3.2	3	>80%
SC-A4A <sup>4</sup>	9/30/2017	1.9	1.9	3	<50%

<sup>1</sup> Protective elevations at City of Santa Cruz wells based on Ghyben-Herzberg (GH) relationship not 100 sets of cross-sectional model runs so percentage runs protective. Whether 365 day average is greater or less than Ghyben-Herzberg calculation is noted.

<sup>2</sup> The protective elevation based on 70<sup>th</sup> percentile of cross-sectional models at SC-1A is 4 feet msl.

<sup>3</sup> Date of last logger recording February 2, 2017 so April, August, and October manual measurements used.

<sup>4</sup> SC-A4A is in the Pajaro Valley Subbasin, not the Santa Cruz Mid-County Basin.

The coastal monitoring wells in the Purisima with Water Year 2017 averages above the protective elevations set by the City of Santa Cruz and SqCWD are Moran Lake, Pleasure Point, SC-1A, SC-3A, SC-9C and SC-8D. The coastal monitoring wells in the Aromas with Water Year 2017 averages above the protective elevations set by SqCWD are SC-A1, SC-A2, and SC-A3. However, Water Year 2017 averages are below protective elevations at SC-5A and SC-A8A within the Basin so we do not consider the Basin to be fully recovered and the Basin continues to be in overdraft.

### GROUNDWATER LEVEL TRENDS

The groundwater level trend descriptions described in the biennial report for Water Years 2015-2016 (HydroMetrics WRI, 2017) generally continue to apply when data for Water Year 2017 are included.

- At the City's coastal monitoring wells and SqCWD's SC-1A in the western Purisima area, there has been a slight increasing trend in groundwater levels over the last three water years after declines from Water Years 2012 to 2015.
- Further east, SqCWD's monitoring wells SC-3A and SC-5A show an acceleration in recovery over the last two water years after declines from Water Years 2012 to 2014.
- In the central Purisima area, SqCWD's monitoring wells SC-9C and SC-8B show an increasing trend since Water Year 2008, but groundwater levels at these wells dropped over Water Year 2017.
- In the Aromas area, SqCWD's monitoring wells SC-A1, SC-A8, and SC-A2 showed higher levels over the last three water years than previous years.
- In the Aromas area, SqCWD's monitoring wells SC-A3 and SC-A4 showed slightly lower levels over the last three water years than previous years.

Overall, groundwater levels have been recovering in the Basin related to decreases in pumping in the Basin (Figure 2). In Water Year 2016, municipal pumping in the Basin dropped to the lowest annual total since 1977 corresponding with increased public awareness about the importance of sustained water conservation due to programs by local water agencies and drought related actions by the state of California. Although Water Year 2017 was a wet year, municipal pumping in the Basin showed only a 1% increase from Water Year 2016 and ranks as the second lowest annual total since 1977 .



## RAINFALL AND RECHARGE

Figure 3 shows rainfall totals for the NOAA Cooperative station in Santa Cruz (station number 047916). Rainfall in Water Year 2017 at the Santa Cruz station was 51.1 inches, the highest total since Water Year 1998. A relationship between rainfall at this station and deep recharge in the Basin area has been derived from the calibrated PRMS simulation of Water Years 1984-2009 (HydroMetrics WRI, 2011) based on a best fit of rainfall and simulated deep recharge (HydroMetrics WRI, 2013). Although estimated for a slightly different area than the Basin, the annual and biennial reports present these recharge estimates to evaluate changes to recharge over time. Figure 3 shows how average recharge for the period since Water Year 1984 has been updated based on annual rainfall at the Santa Cruz station for each year since Water Year 2009. After several years of low rainfall and recharge, the high rainfall of Water Year 2017 increased the estimate of average annual recharge enough to nearly equal the average for Water Years 1984-2009 derived from the PRMS simulation.

## SALT CONCENTRATION TRENDS

In Water Year 2017, trends of salt concentrations indicating seawater intrusion have not changed from the descriptions in the biennial report for Water Years 2015- 2016.

- TDS and chloride concentrations in one of the City of Santa Cruz's monitoring wells indicate seawater intrusion in the westernmost Purisima area (Purisima A-unit), but concentrations in this Soquel Point Medium monitoring well show a decreasing trend. Concentrations in the Moran Lake Medium monitoring well indicated seawater intrusion in the past but show a decreasing trend and no longer suggest seawater intrusion. (Purisima A Unit)
- TDS and chloride concentrations do not suggest seawater intrusion at the City of Santa Cruz's Pleasure Point Medium monitoring well and SqCWD's monitoring wells SC-1A, SC-3A, and SC-5A in the western Purisima area (Purisima A Unit).
- TDS and chloride concentrations do not suggest seawater intrusion at SqCWD's monitoring wells SC-9C and SC-8D in the central Purisima area (Purisima BC and DEF-units).
- TDS and chloride concentrations continue to indicate seawater intrusion in deep monitoring wells SC-A8A, SC-A2A, SC-A3A, and SC-A4A installed

- below the freshwater-saltwater interface in the Aromas area but concentrations are stable or decreasing.
- At the Aromas area monitoring wells SC-A2B and SC-A3B that were installed above the saltwater interface but the saltwater interface has since risen into, concentrations continue to indicate intrusion but are stable or decreasing (Purisima F-unit and Aromas Red Sands).
  - At other Aromas area monitoring wells SC-A1A, SC-A1B, SC-A8B, and SC-A4B where TDS and chloride concentrations have not indicated seawater intrusion, concentrations are stable (Purisima DEF-unit, F-unit and Aromas Red Sands).

### SUMMARY

In summary, progress continues to be made towards groundwater level recovery during Water Year 2017 as a result of historically low groundwater pumping. Groundwater levels are at protective elevations established by SqCWD and the City at a majority of coastal monitoring wells. However full groundwater level recovery will not be achieved until groundwater levels are at protective elevations at all coastal monitoring wells. Therefore, the basin continues to be in a state of overdraft.

Groundwater quality trends do not indicate new seawater intrusion or an increase in seawater intrusion. Coastal well locations where seawater intrusion has not been observed continue to show no indication of seawater intrusion. Seawater intrusion where it has been observed is either stable or decreasing.

Sincerely,



Cameron Tana, Vice President  
HydroMetrics Water Resources Inc.

cc: Isidro Rivera, City of Santa Cruz Water Department  
Ralph Bracamonte, Central Water District  
John Ricker, Santa Cruz County Environmental Health

Attachment: City of Santa Cruz and Soquel Creek Water District coastal monitoring well hydrographs and chemographs (page numbers for these plots

are consistent with the biennial figure sections 3B, 4B, and 5B, and therefore are not in consecutive order)

## REFERENCES

HydroMetrics LLC, 2009, *Groundwater levels to protect against seawater intrusion and store freshwater offshore*, prepared for Soquel Creek Water District, January.

HydroMetrics WRI, 2011, *Estimation of Deep Groundwater Recharge Using a Precipitation-Runoff Watershed Model*, prepared for Soquel Creek Water District, Central Water District, and the City of Santa Cruz, August.

———, 2012, *Revised Protective Groundwater Elevations and Outflows for Aromas Area and Updated Water Balance for Soquel-Aptos Groundwater Basin*, letter to Laura Brown, Soquel Creek Water District, March 30.

———, 2013, *Rainfall-Recharge Relationship Based on PRMS Model Results*, Technical Memorandum to Taj Dufour, Soquel Creek Water District, from C. Tana and G. King, April 12.

———, 2017, *Santa Cruz Mid-County Basin Groundwater Management Biennial Review and Report Water Years 2015-2016*, prepared for Santa Cruz Mid-County Groundwater Agency, July.



Figure 1. Locations of Coastal Monitoring Wells where Target or Protective Groundwater Elevations Have Been Estimated

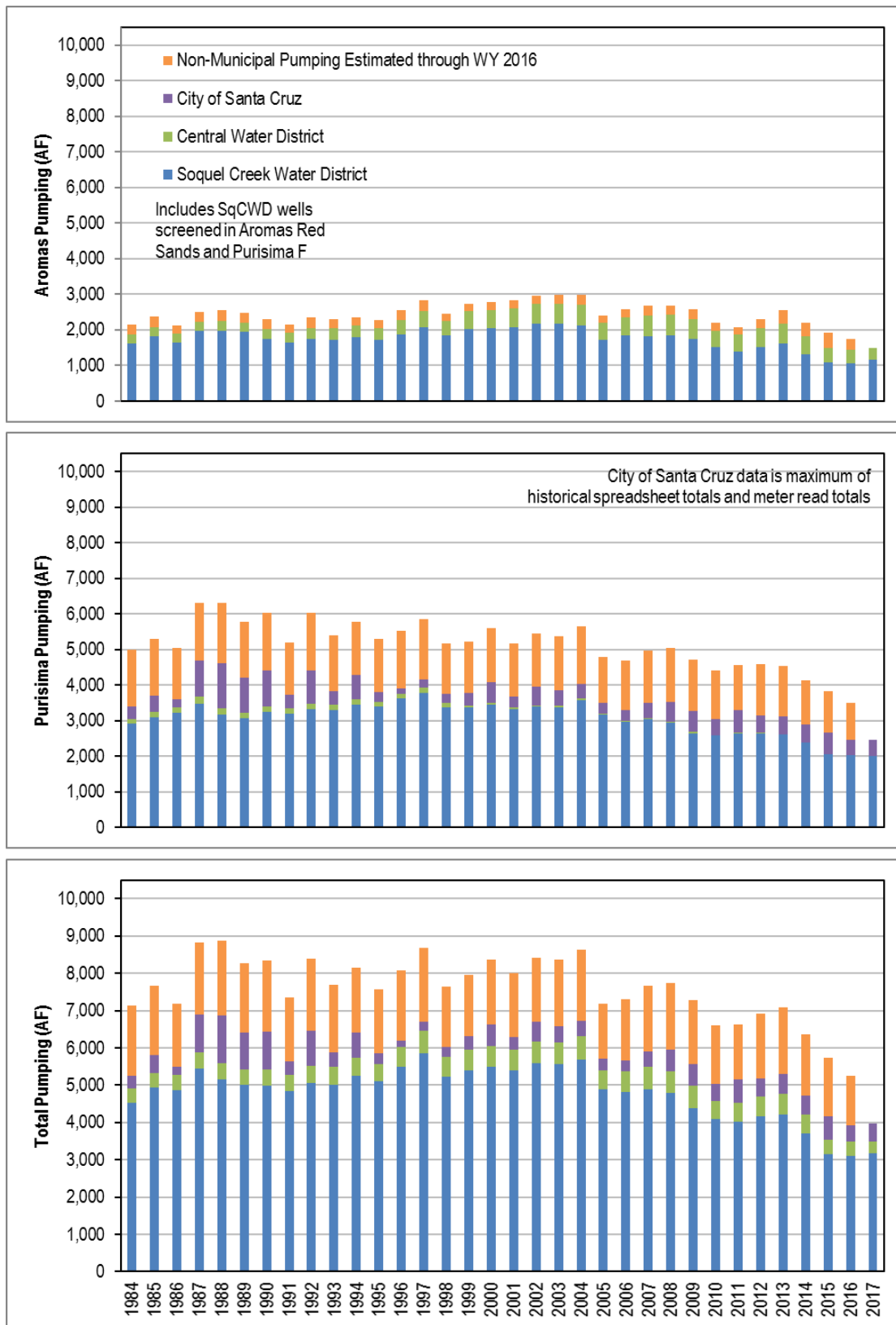


Figure 2. Santa Cruz Mid-County Basin Pumping by Water Year in Acre-Feet

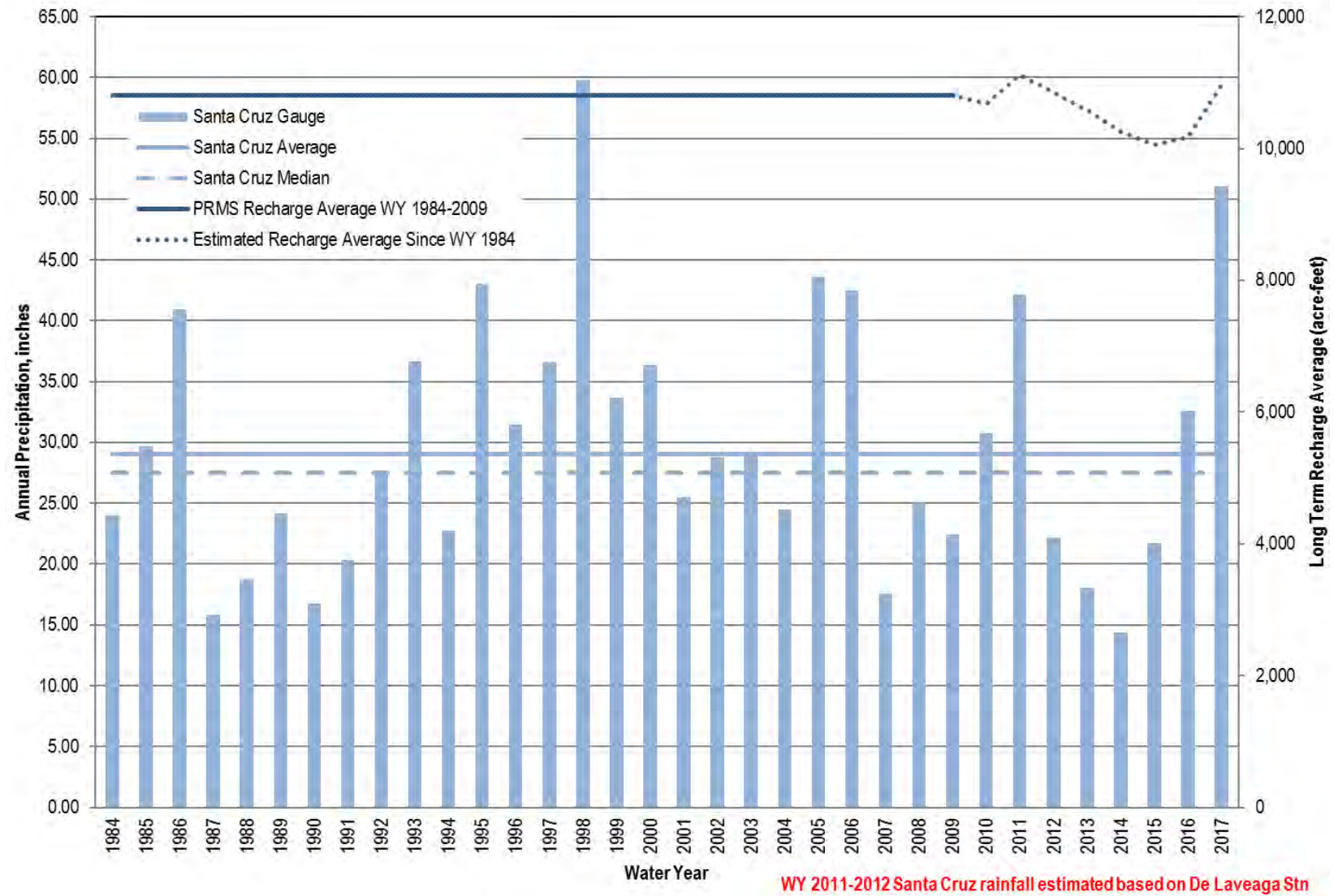
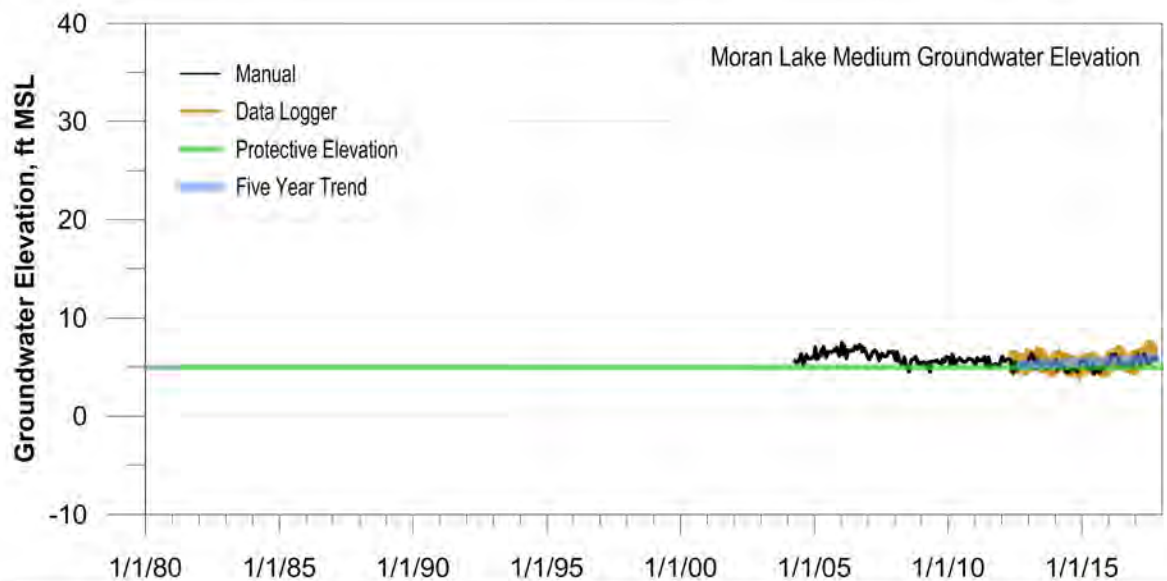
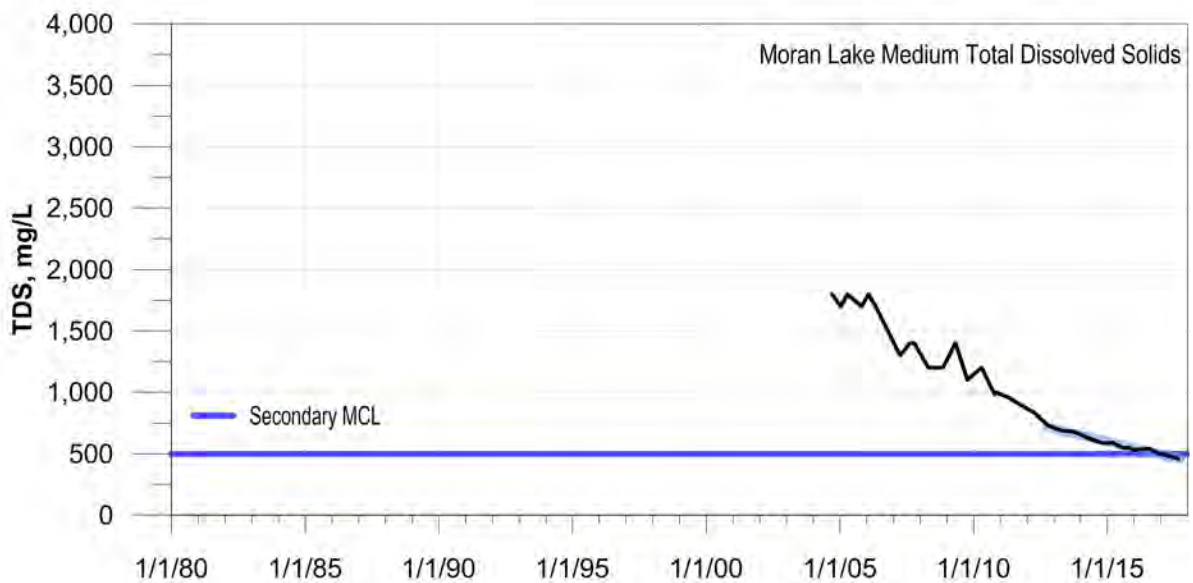
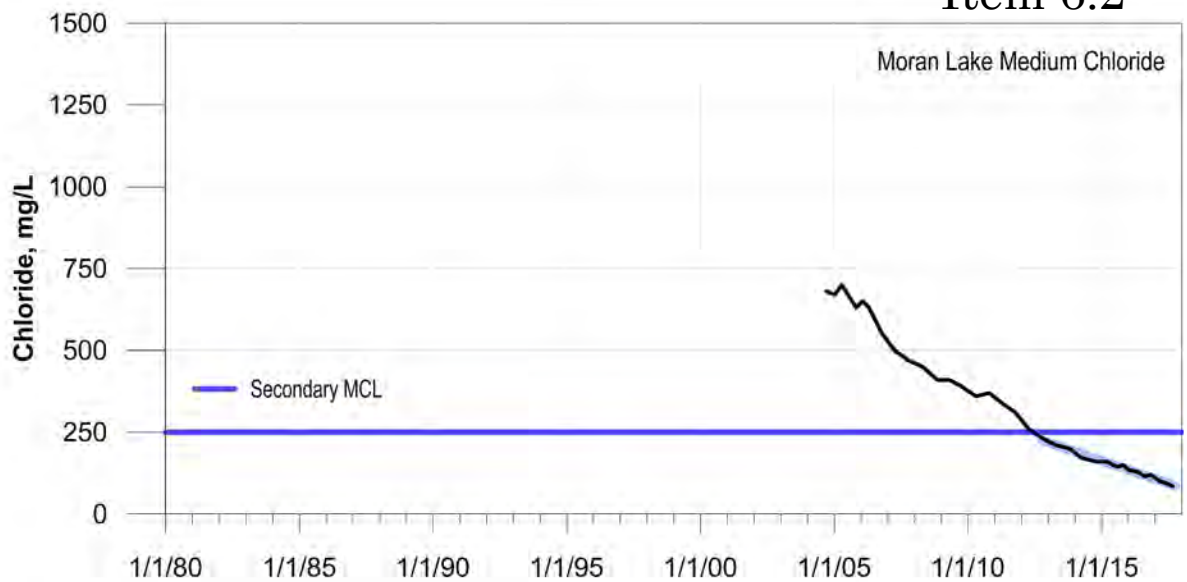


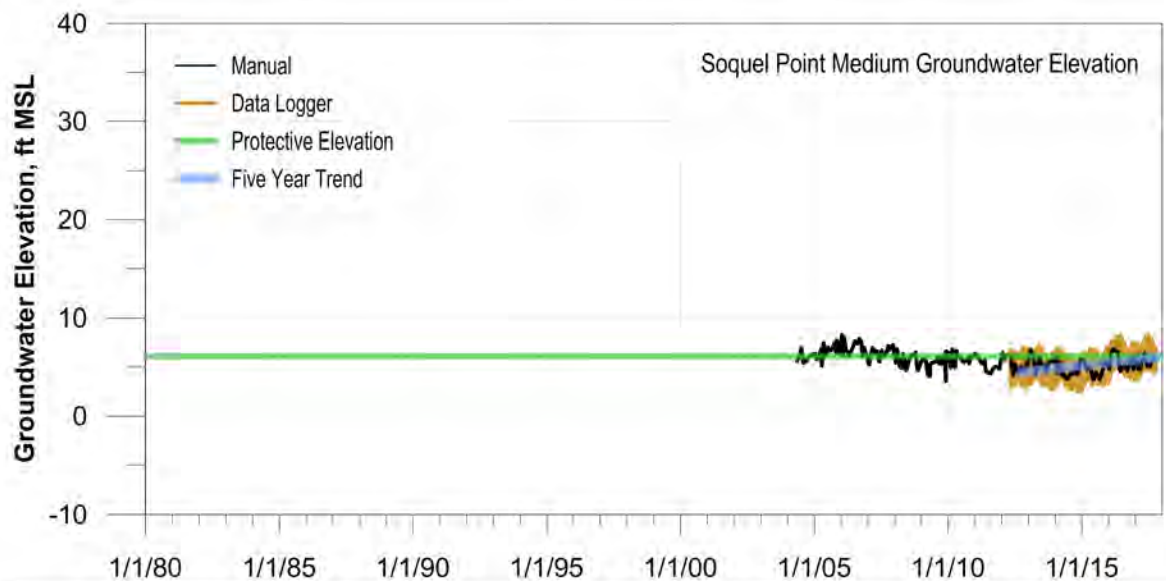
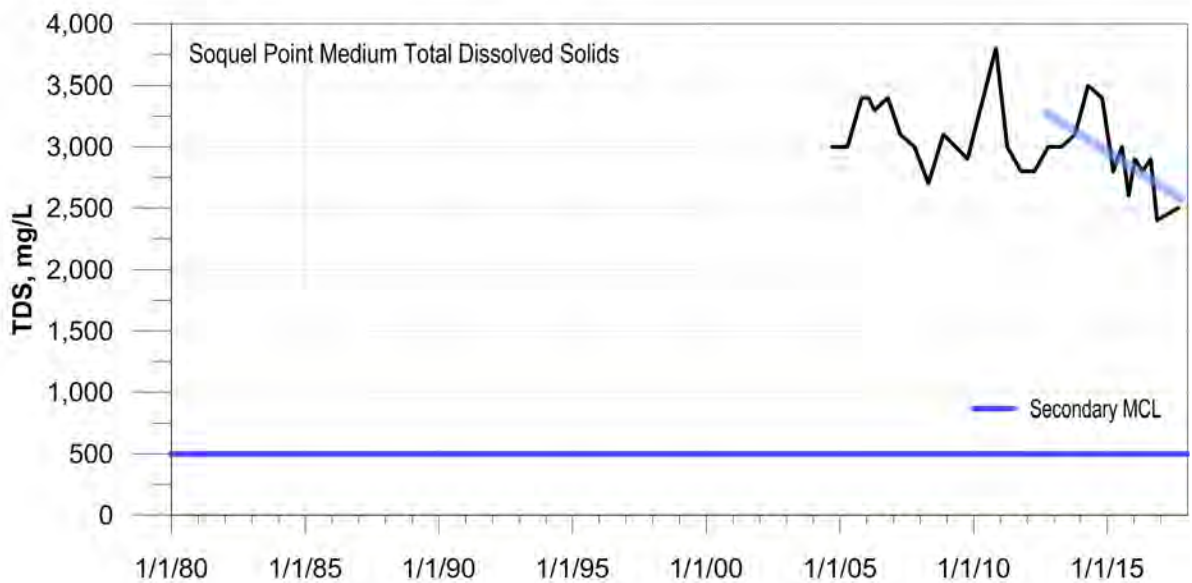
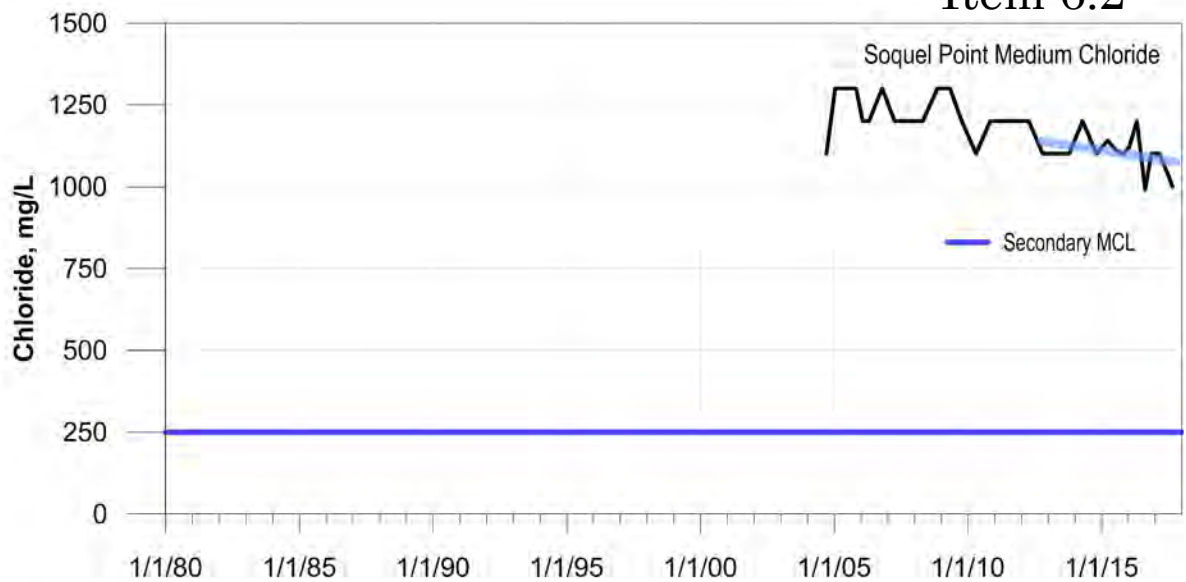
Figure 3. Rainfall at Santa Cruz Co-op Station and Estimated Long-Term Recharge



## Item 6.2

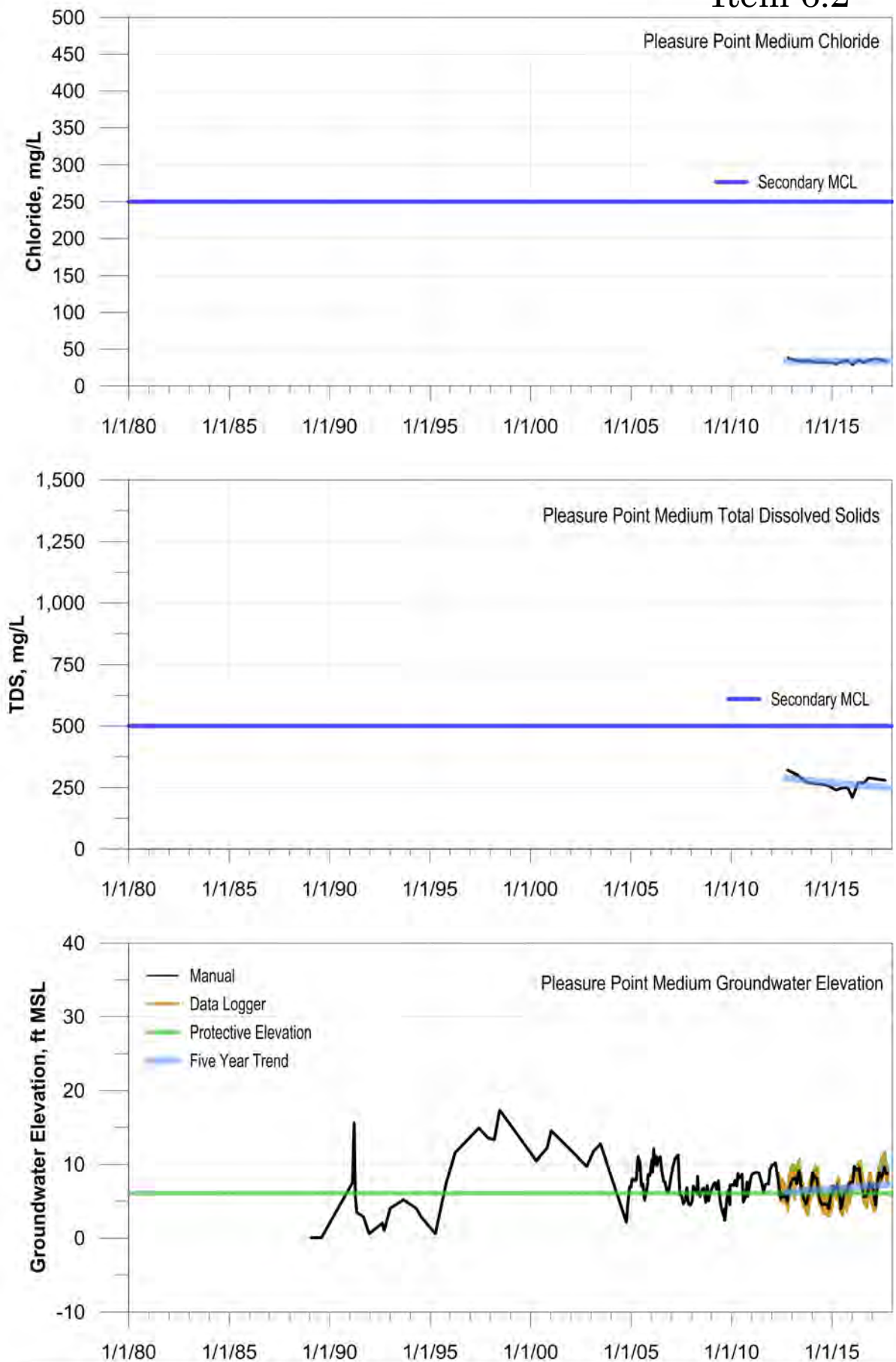


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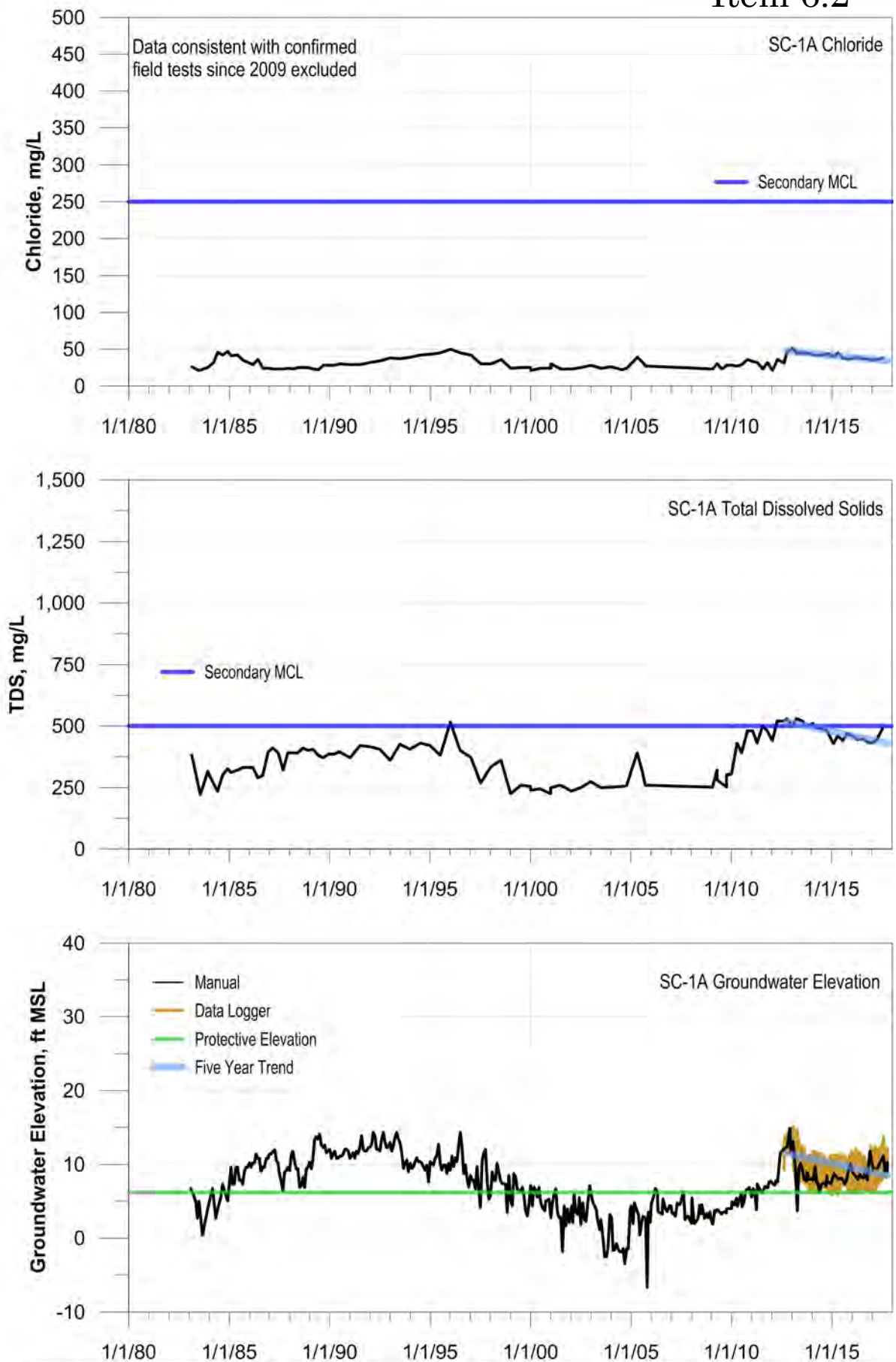




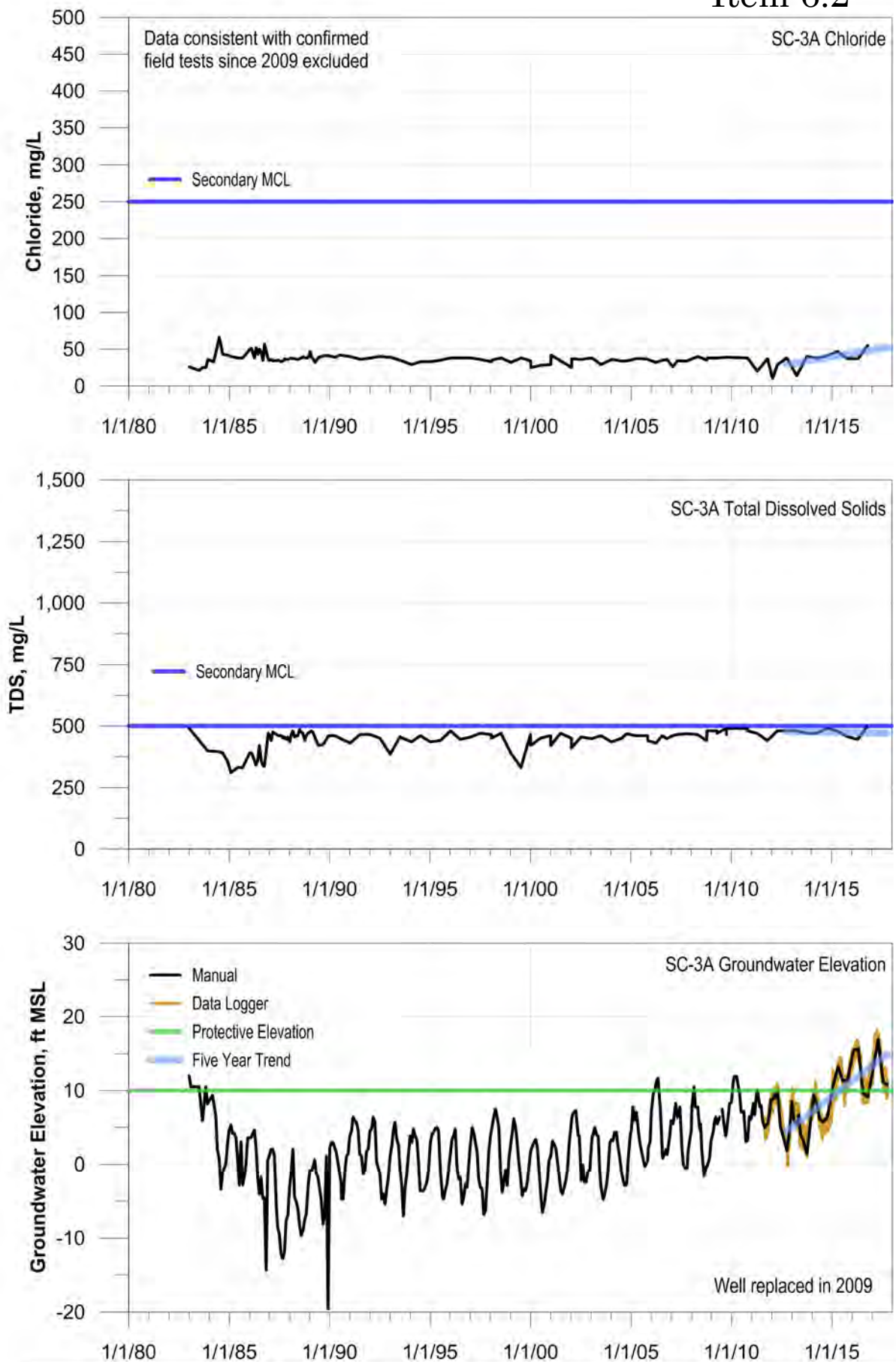
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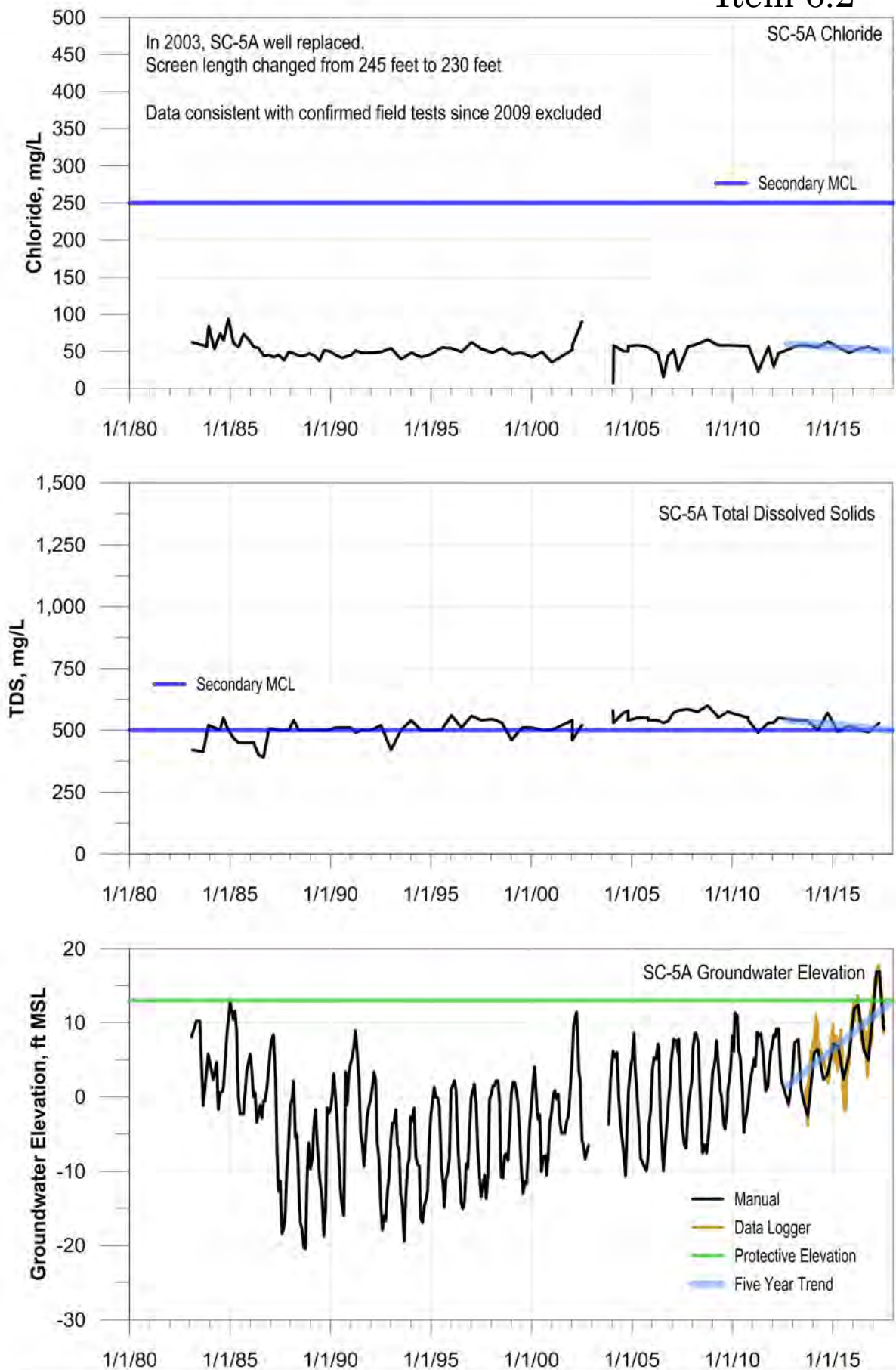
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## Item 6.2

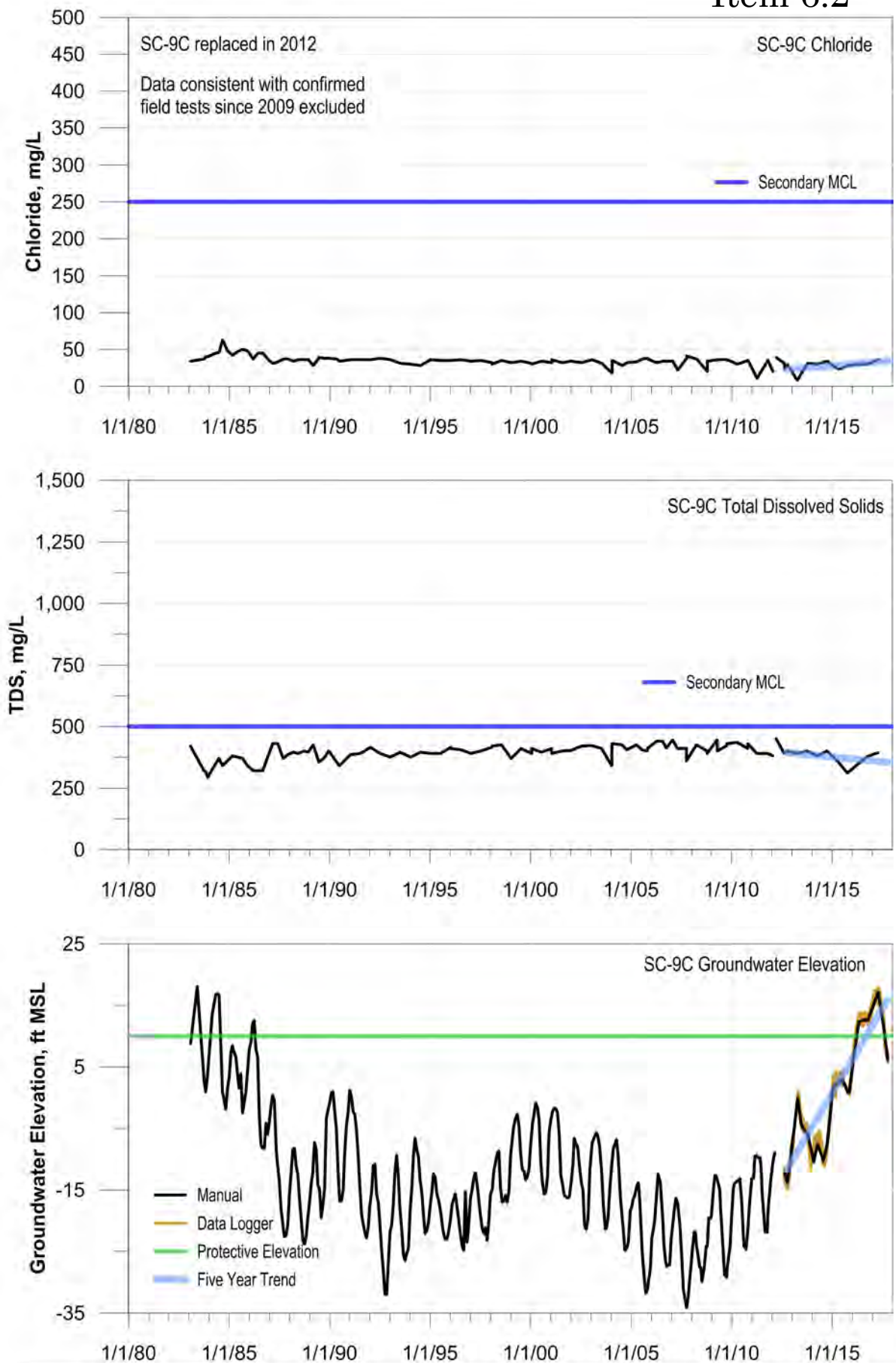


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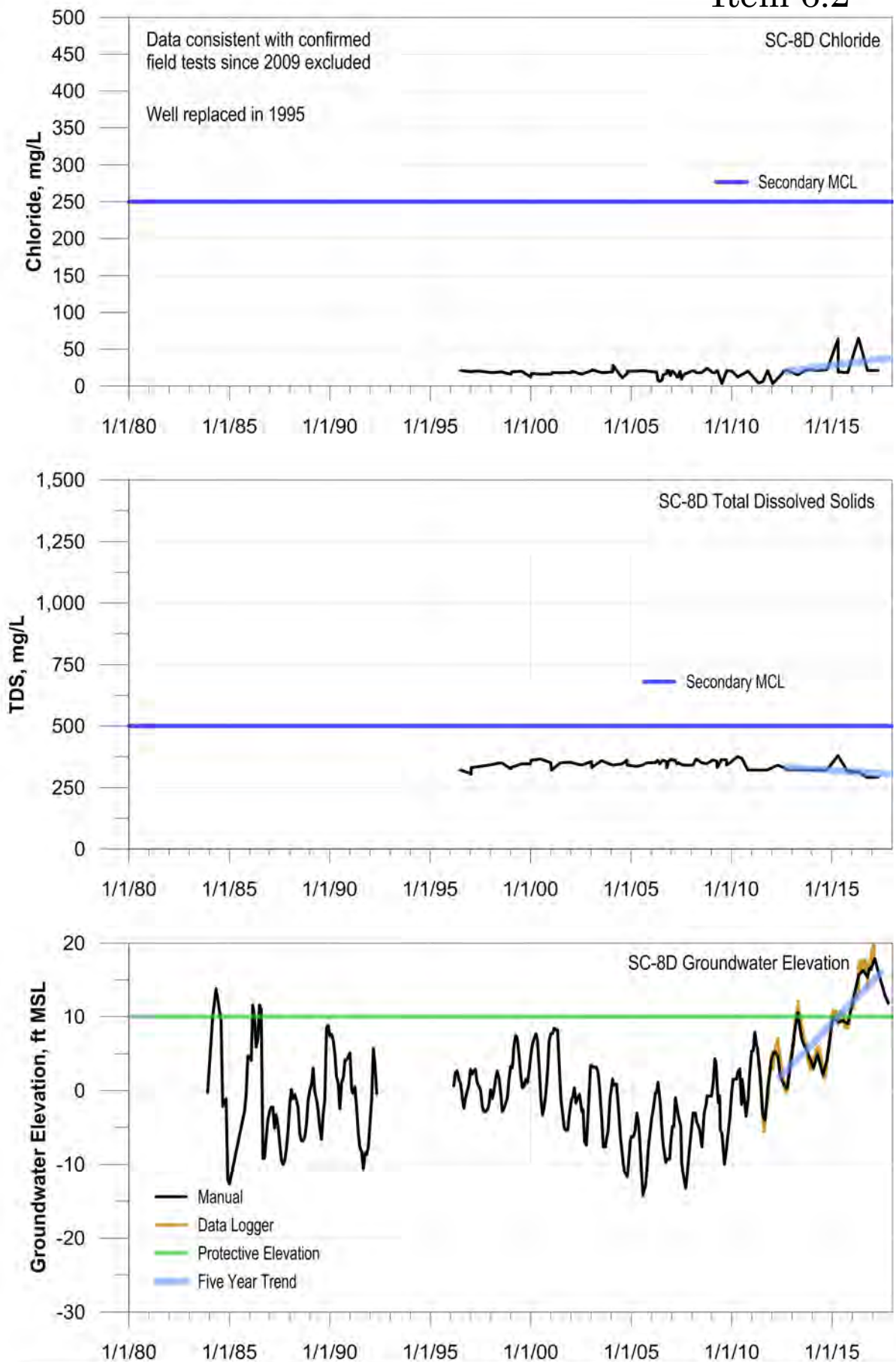




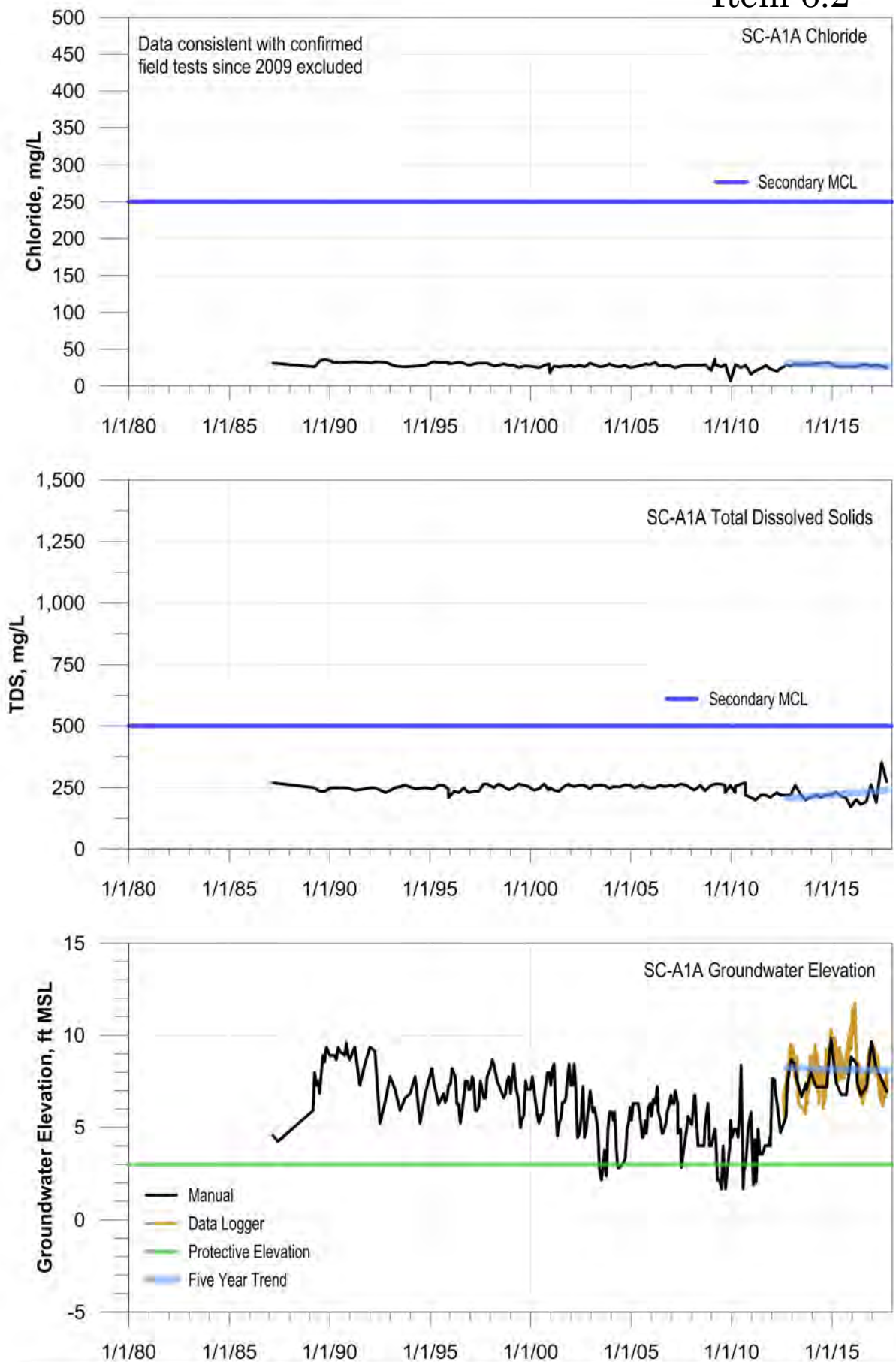
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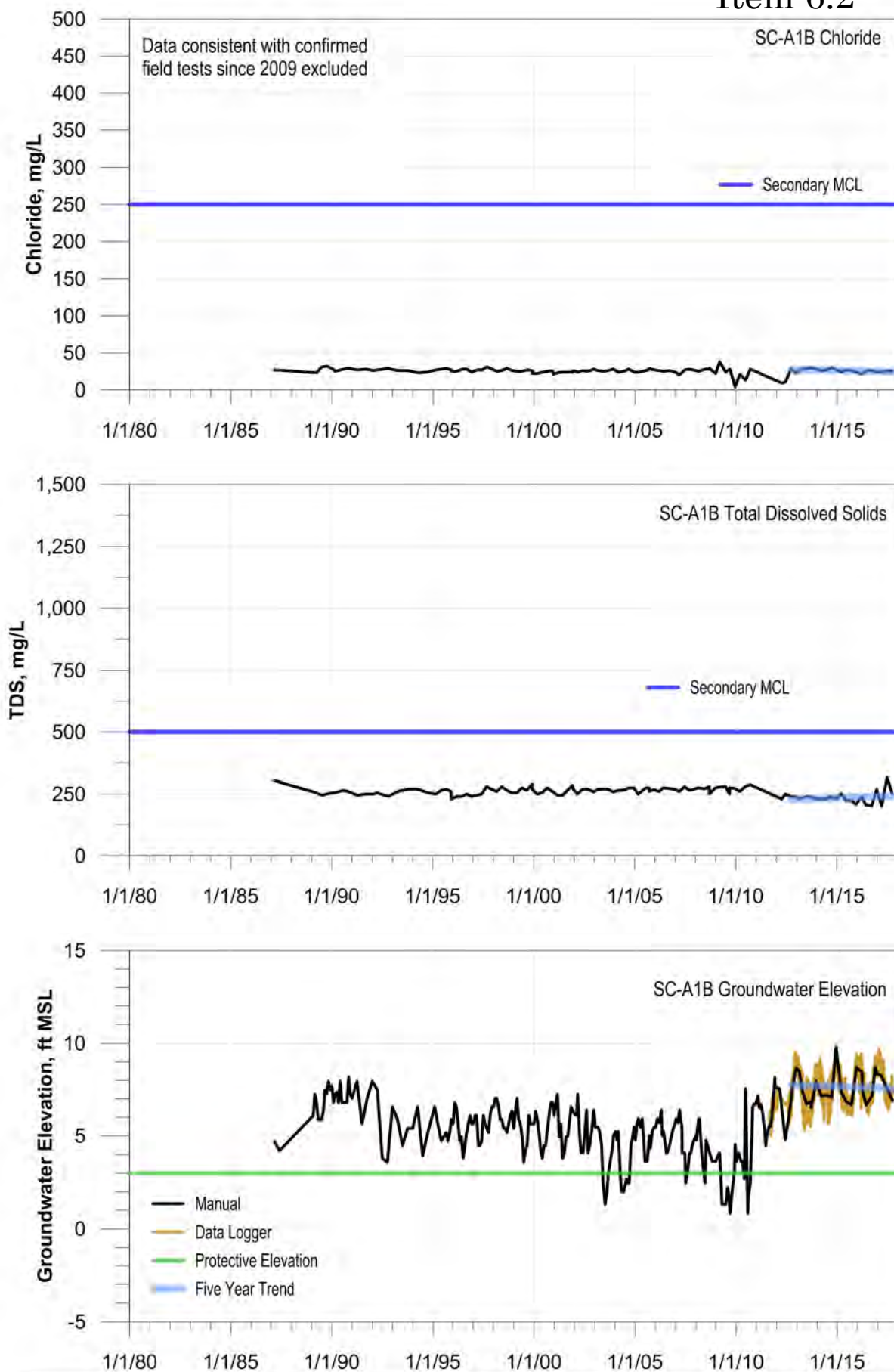
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## Item 6.2

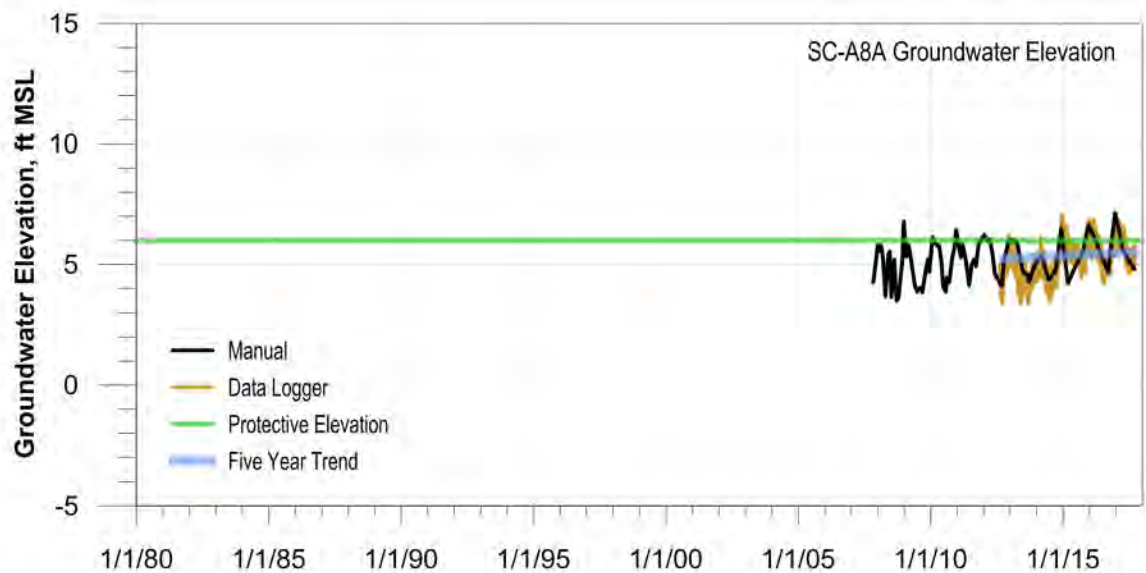
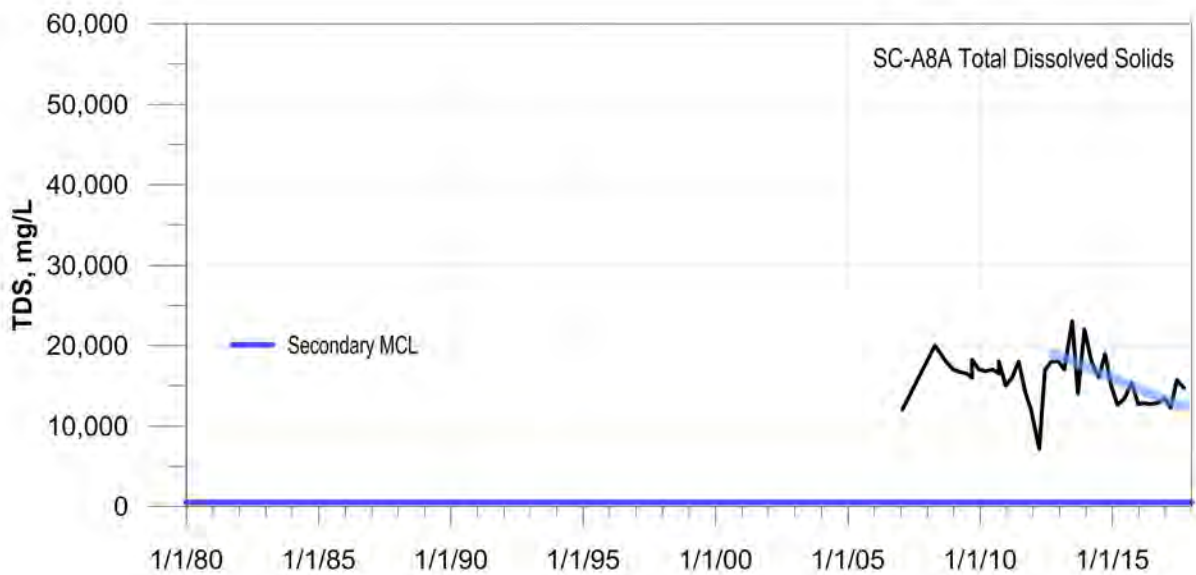
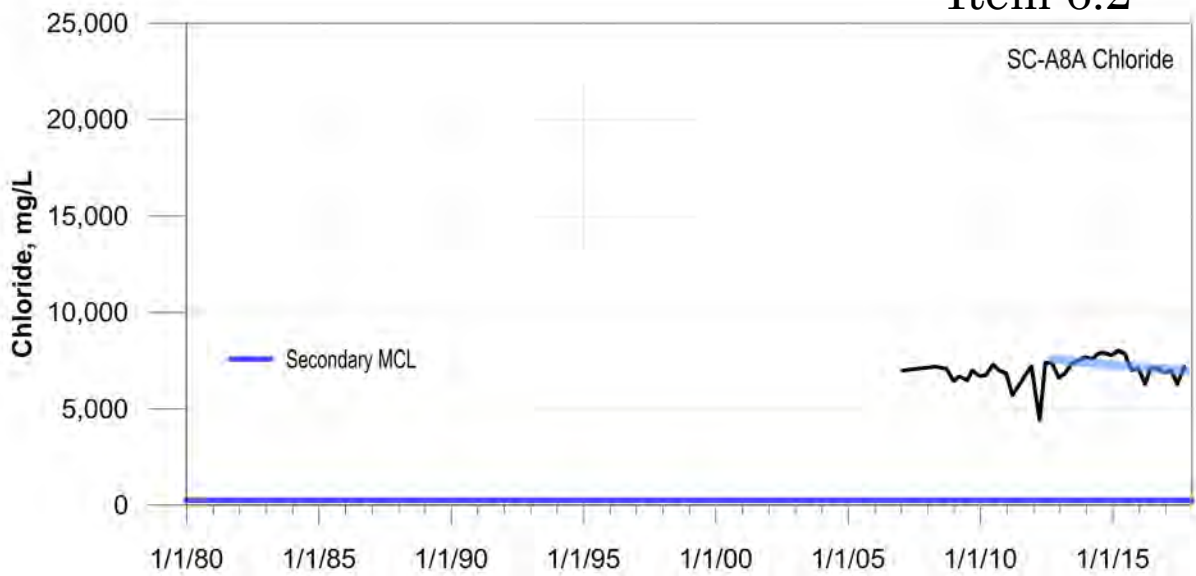


## Item 6.2

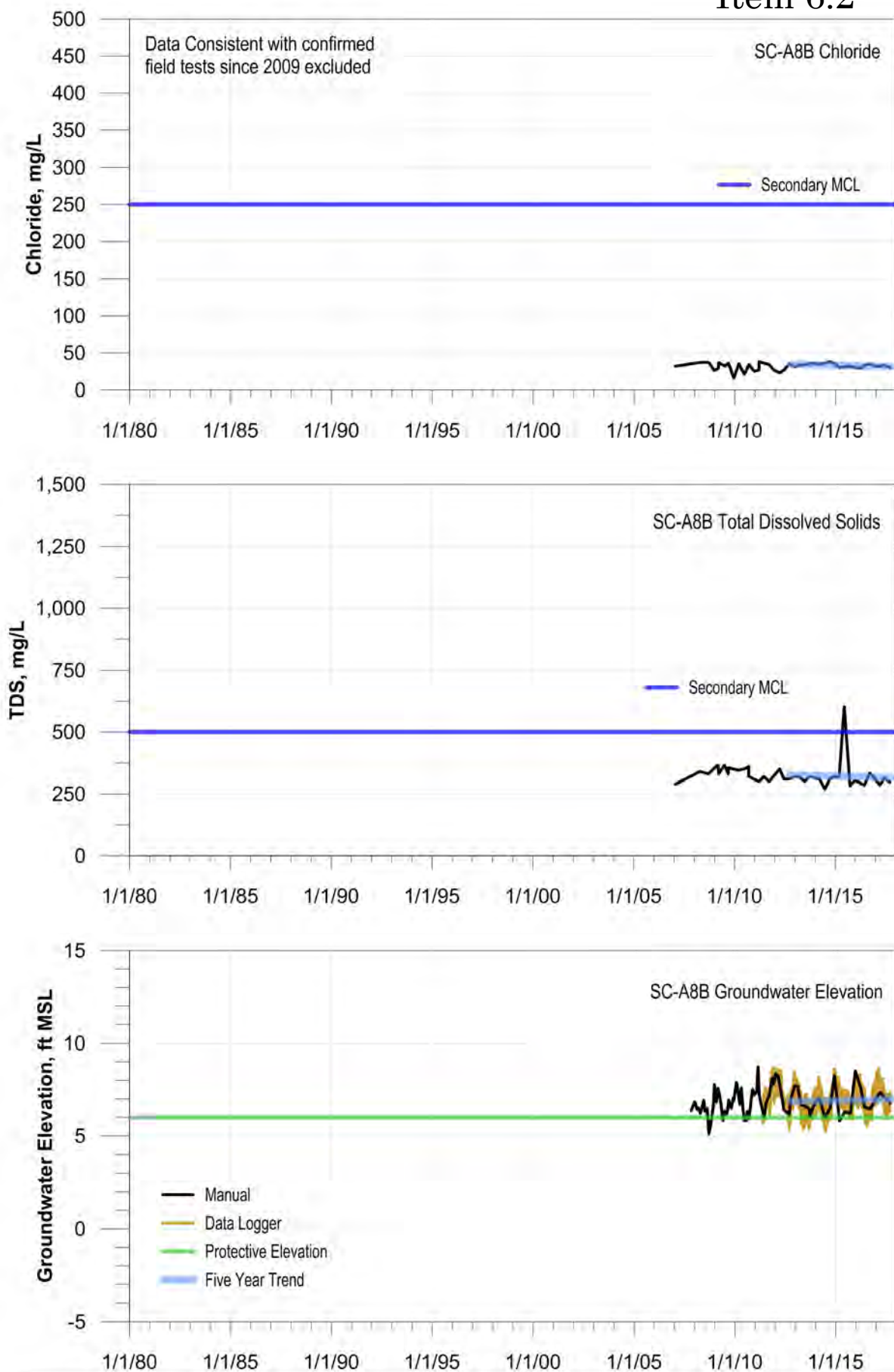




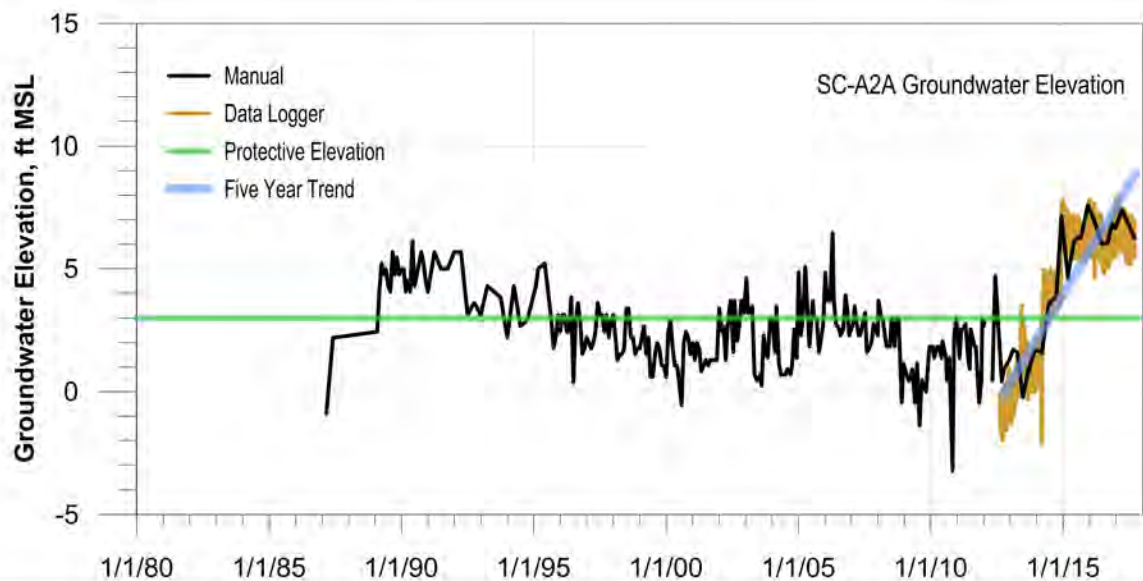
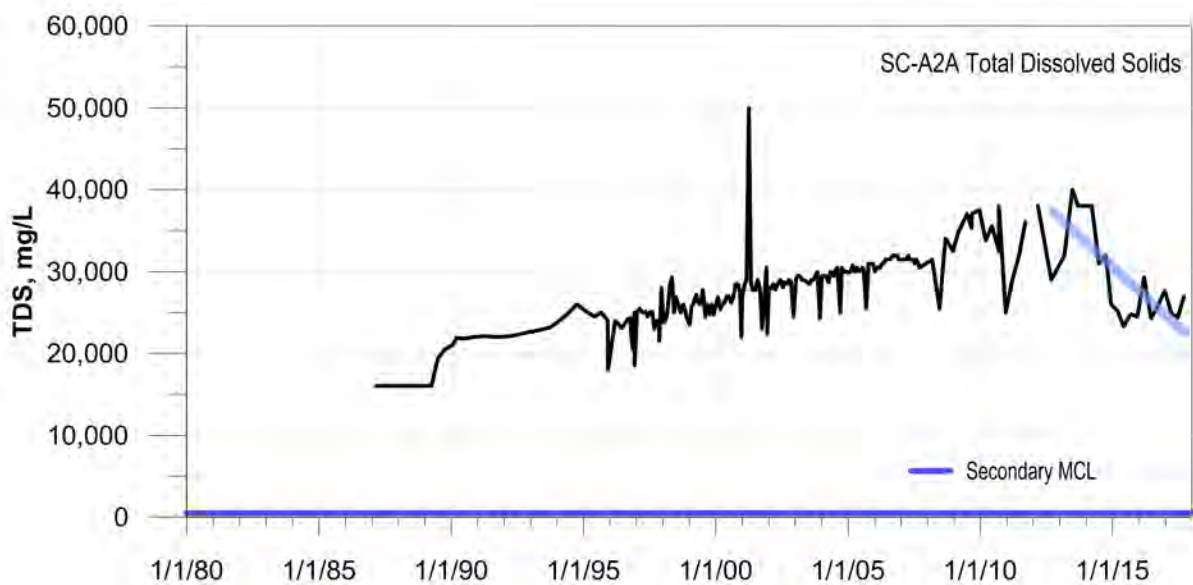
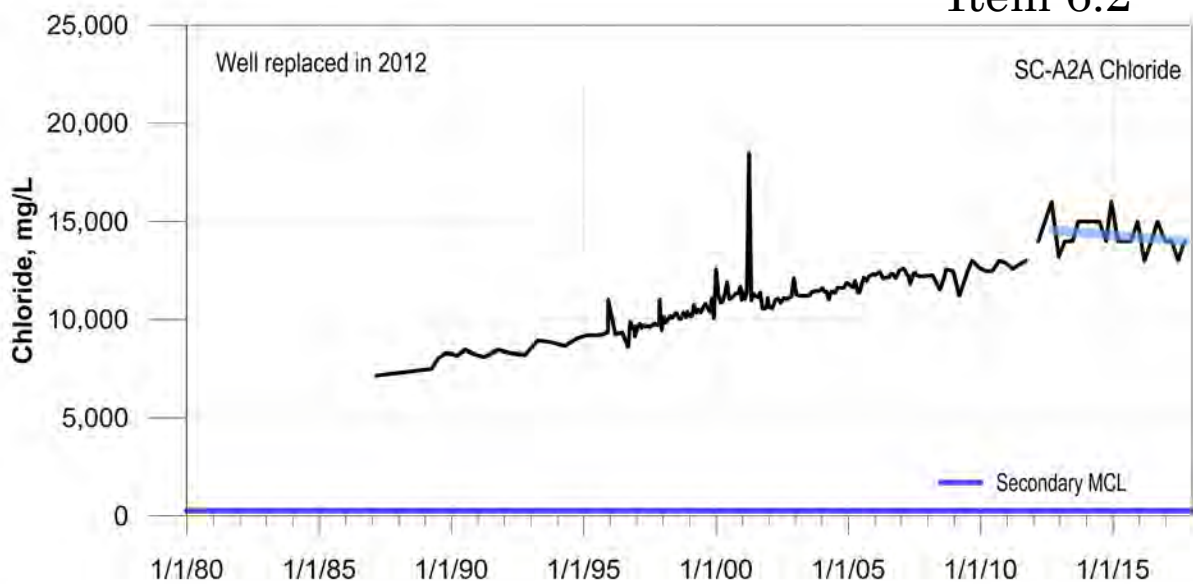
## Item 6.2



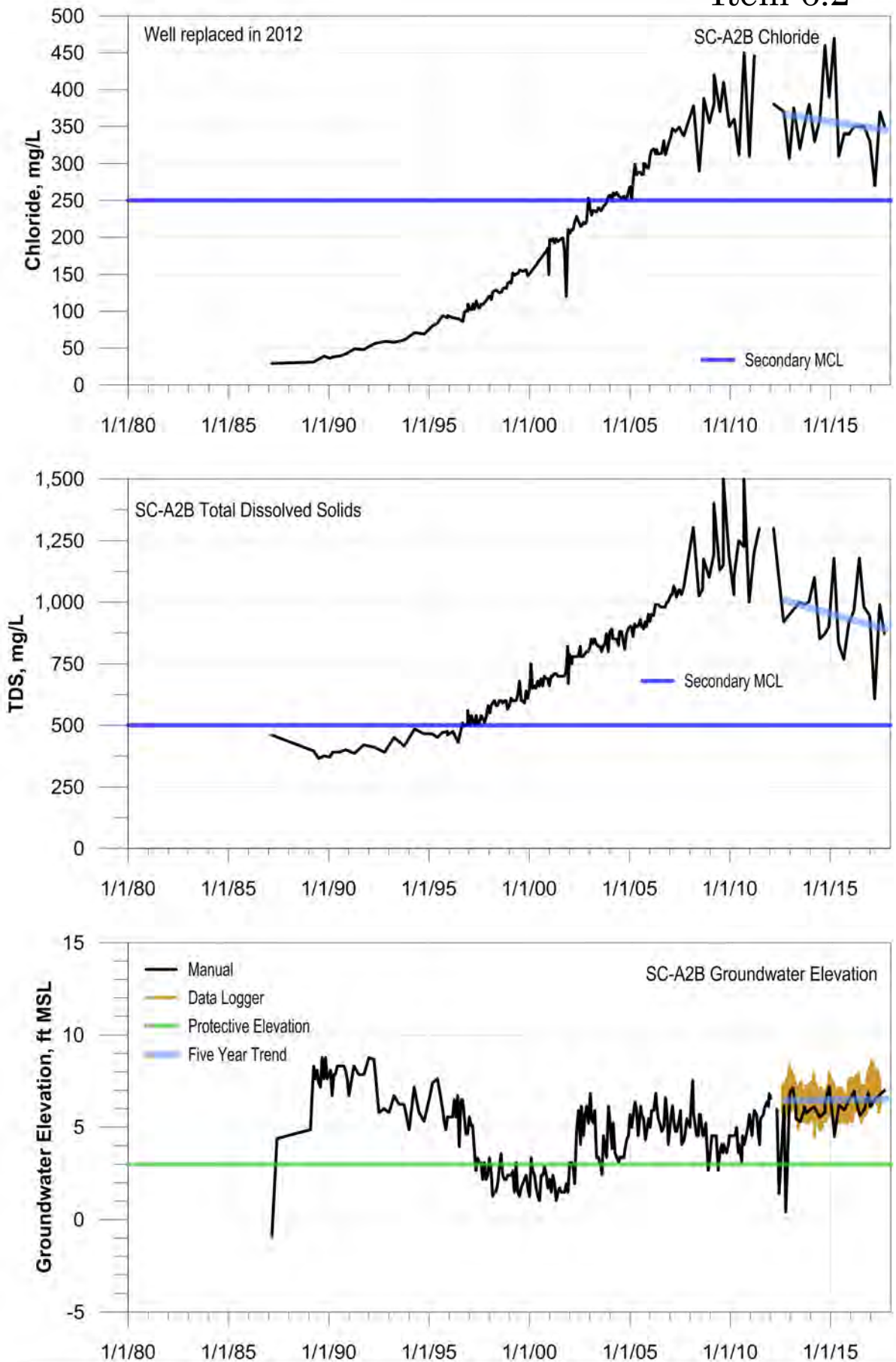
## Item 6.2



## Item 6.2

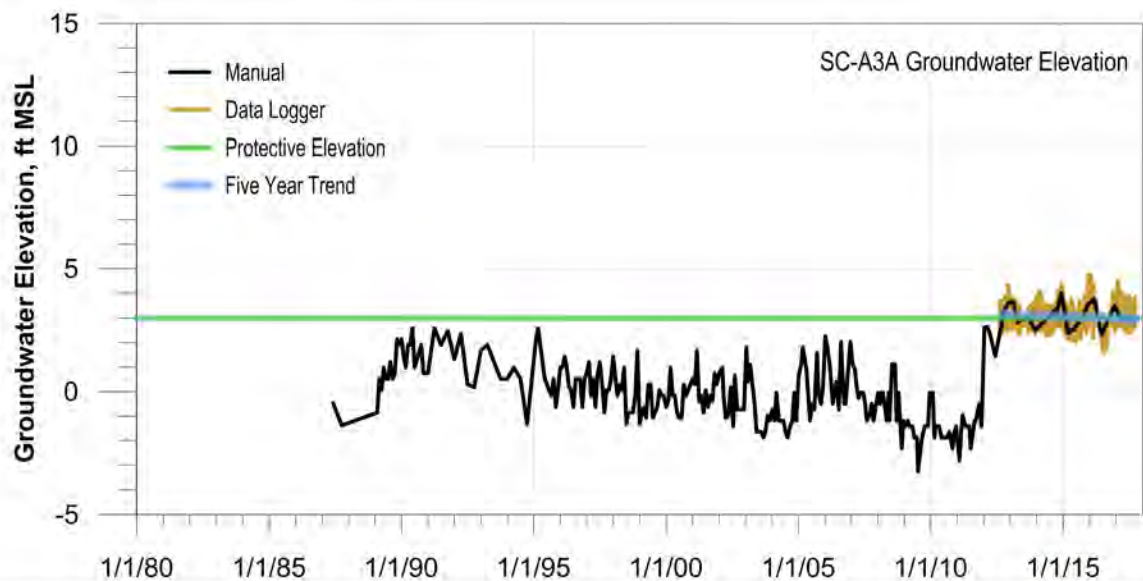
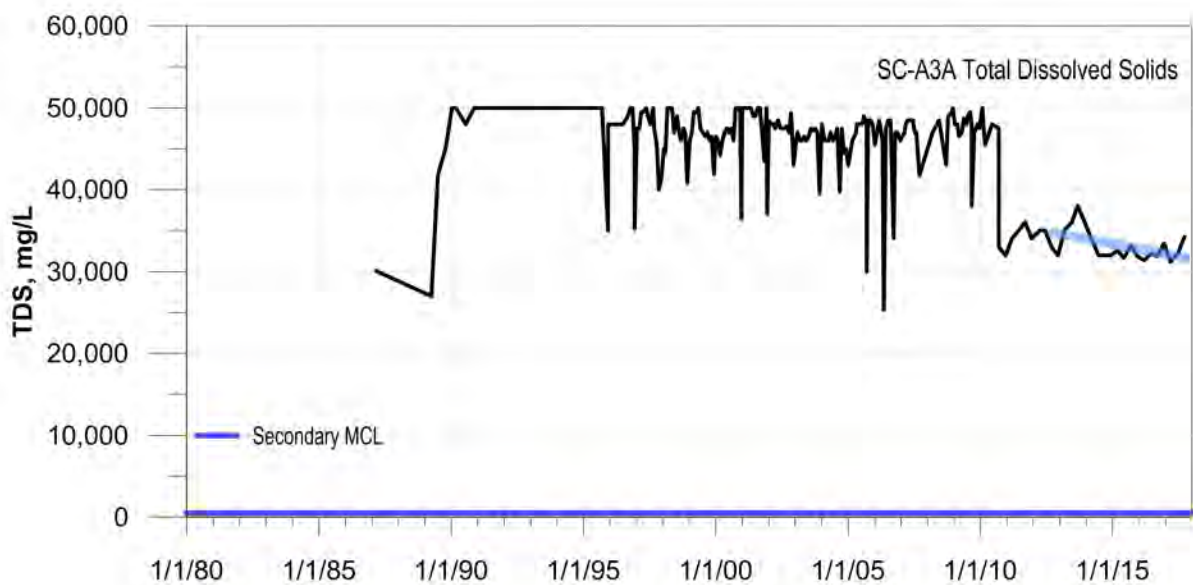
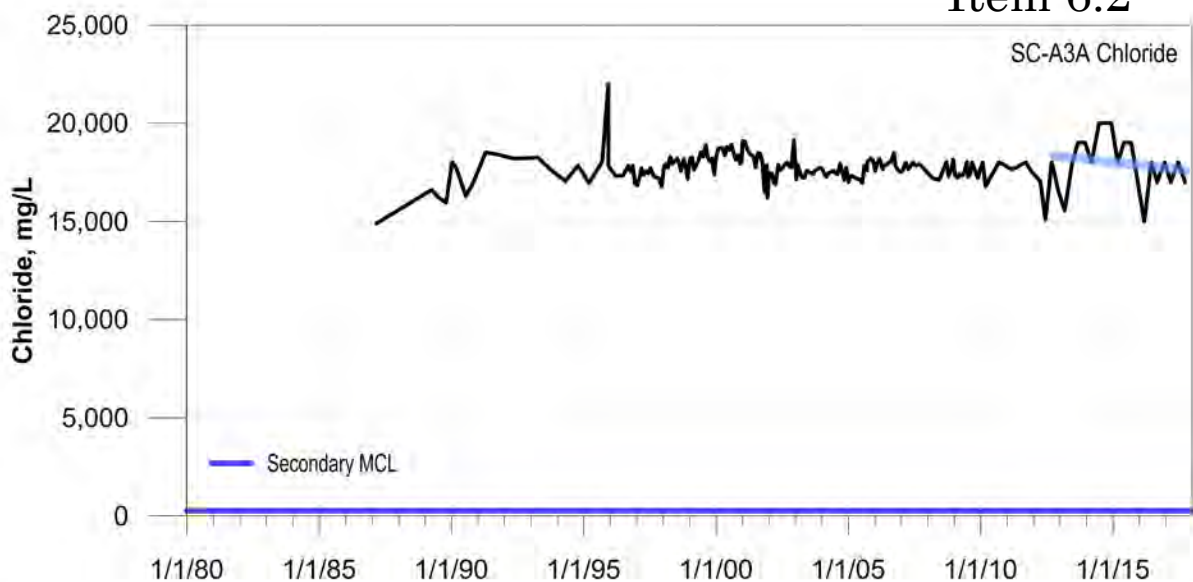


## Item 6.2

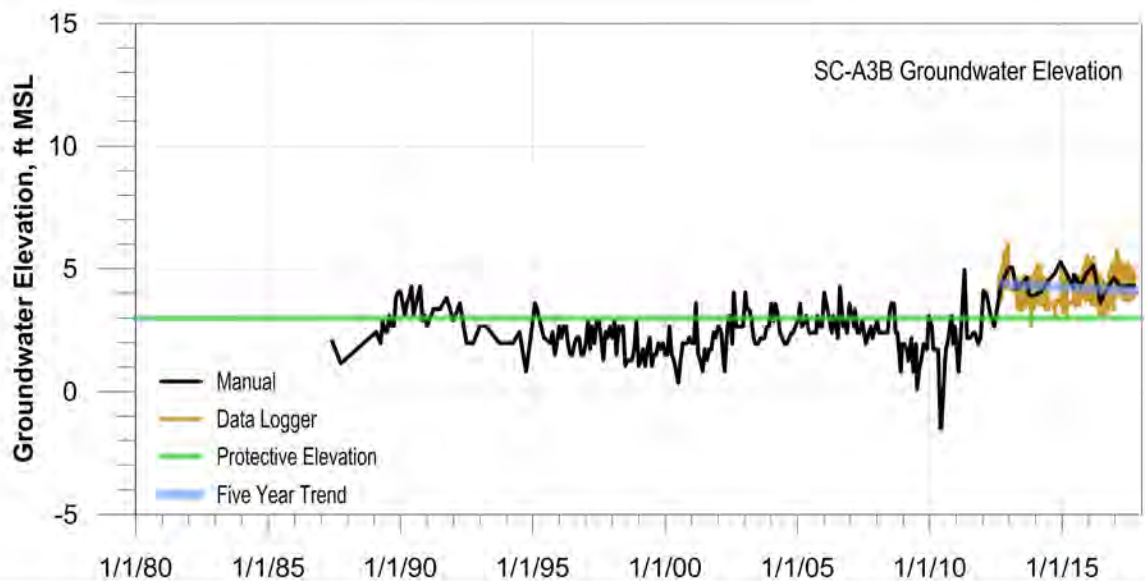
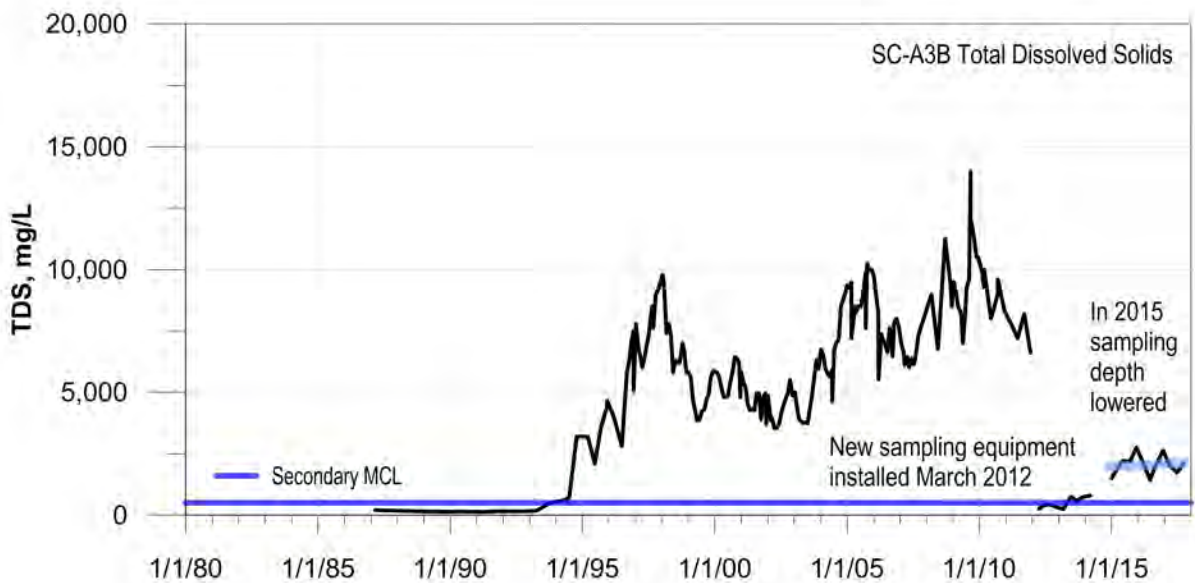
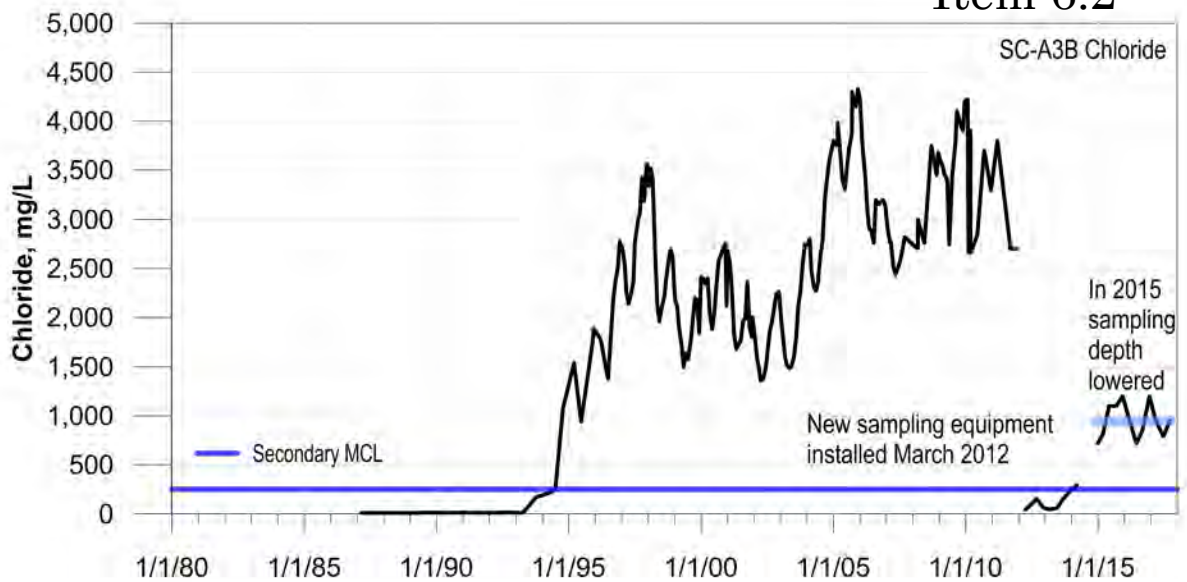




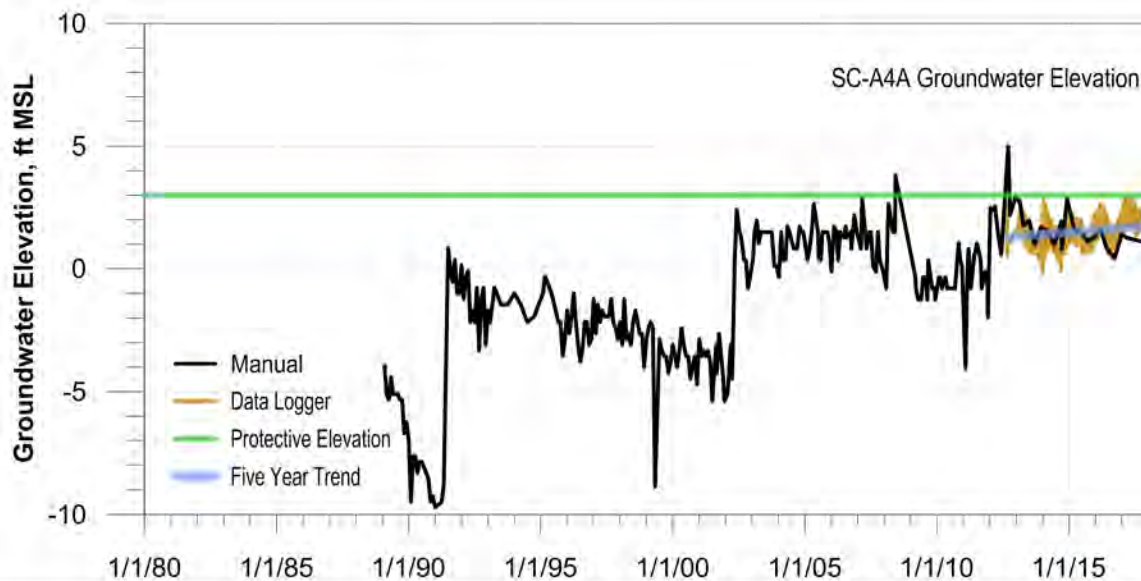
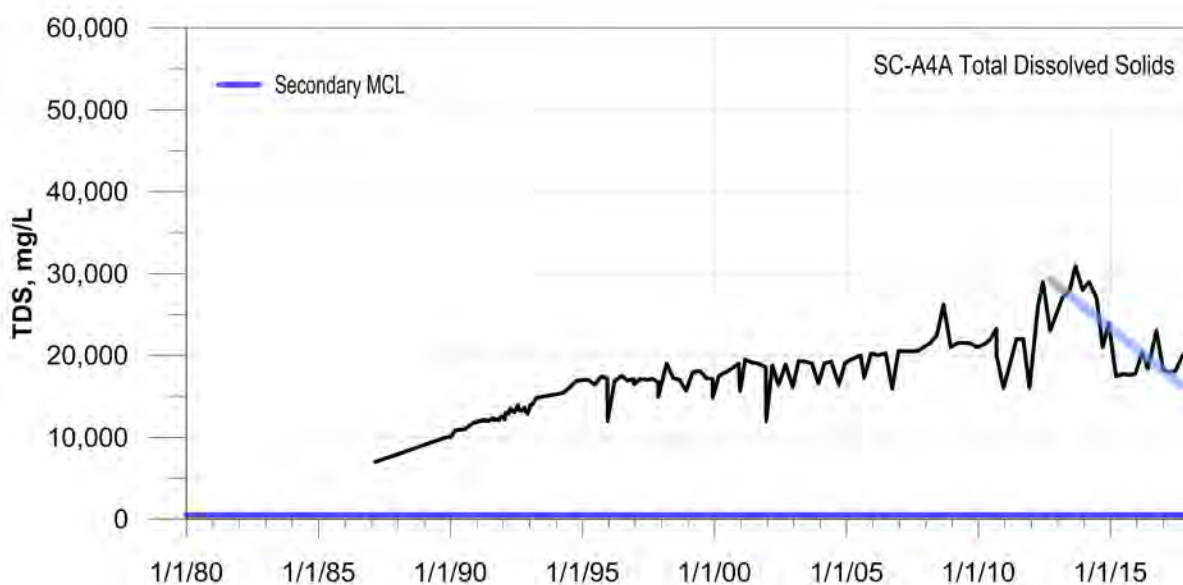
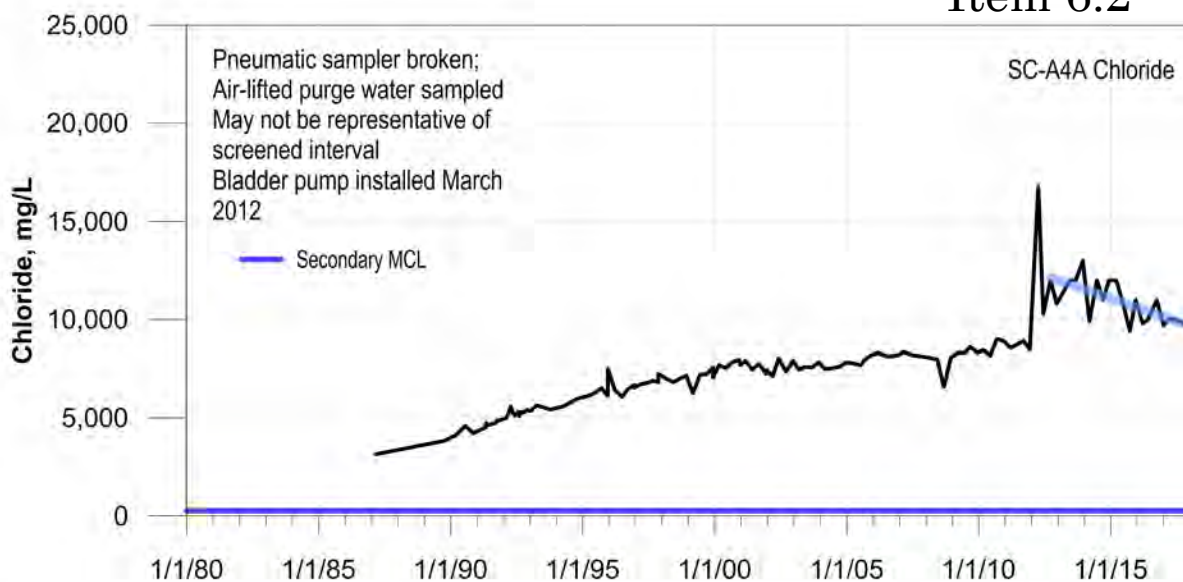
## Item 6.2



## Item 6.2



## Item 6.2



## Item 6.2

