Nov. 15, 2021
Pajaro Valley Water Management Board
Watsonville, CA
RE: Details for Comments on GSU 22 Plan from Rural Residents for Water

Gloria Muruato, Daniel Castillo, Marla Anderson, Brien Sparling, Kim Burdette, Helbard, Julie Garcia, Ann Peden, Mark Garcia, Robert Barminski, Fred Berge, Erin Peck, Chris Favre, Kathy Jorgensen, Roland & Riley Glenn, Leah Levin, Grant Leonard, Kathy Almoslino, Lesley Noble, Larry Abrams, Matthew Garcia, Lewis Henderson, Pat Davidson, Nick Bulich, Rebecca Bozarth, Omar Mohssin, ShannonShaffer, Joe Silva, Valerie Roach, Brenda Wood, Paul Nakimoto, Analia Zavala, Maria Zavala, Lidia Bonilla, Martin Bobby Goodwin, Lawrence Martin, Virginia Kalton, Betty Muruato, Tomiko Edmiston, Olivia Ibarra, Kimberly Guzman, Thom Garcia, Camilla, Maria Sedana, Salvador Herrera, Jose Torres, Marigo De Leon, Richard Muruato, Theodore Green, Jose Garcia, Manual Alvarez, Jesse Fernandez, Michael Catalano, Christine Saling, Manuel Saucedo, Josephine Saucedo, Cesar Muruato, Tom Simmons, Geri Simmons, Guillermo Chavez, Jennifer Ruiz, Dassie Hernandez, Perry Green, Ruby Stiga, Lac Pham, David Nunes, Manuel Ramirez, Miguel Angel

In our efforts to effect changes that will proportionally protect rural residential wells in comparison to other water use sectors, we have submitted several letters over the past several months. We are grateful for two minor changes that have occurred but these changes do not go far enough. **We respectfully request your consideration of the remaining comments below to further revise and improve the quality of the GSU 22 plan towards the best possible outcome for all water use sectors.**

1). Sea Water Intrusions- Section 2- Missing and inaccurate information.

1.a). Historical sea water intrusion information depicting the recent and historical advances in the 100 mg/L needs to be provided in the plan so apples can be compared with apples.

Re-definition of chloride concentrations from 100 mg/L to 250 mg/L does not enable meaningful tracking and/or identification of trends to occur. Quantifiable information for historical incremental advances in SWI needs to be put into the GSU 22 plan to show advances on an annual basis at least from year 2000 through present.

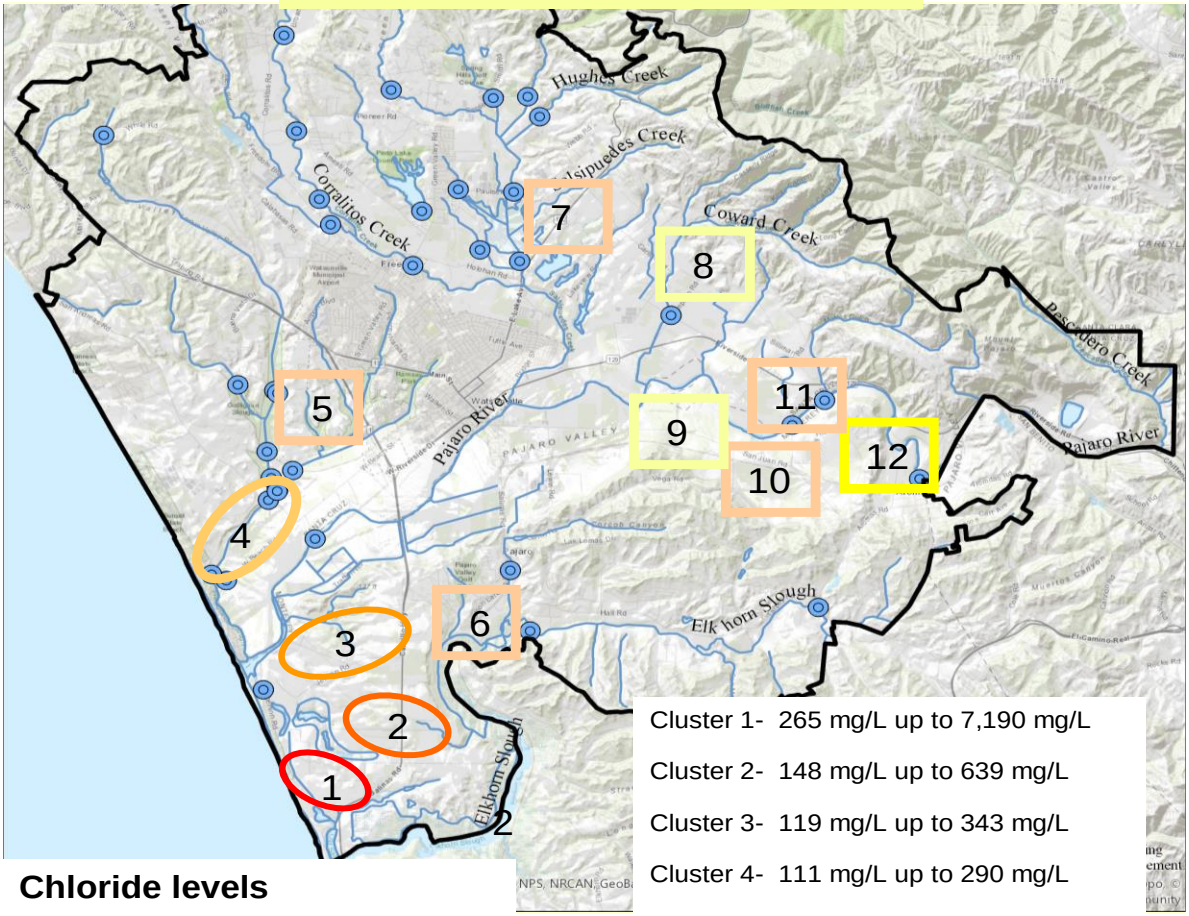
1.b.) Section 2.6- Delete the following inaccurate statement in the "Measurable Objectives" section of the update that says, "seawater intrusion has not been observed at chloride concentrations above 100 mg/L inland of the measurable objective and minimum threshold isocontour (250 mg/L isocontour). This statement is not true. There are several areas outside of the

SWI that are already well over 100 mg/L!! **Data from the State Water Boards geo tracker data base show the information below provided by consultants to be false.** The update needs to be corrected to show the several areas in which clorides levels are being exceeded inland of the SWI zone. The high chlorides levels in **these areas need to be recognized and addressed in the update.**

Click below for

Chloride Levels over 100 mg/L

GAMA Wells 2018-2020



Chloride levels

- Between 265 and 7,190 mg/L
- Between 148 and 639 mg/L
- Between 119 and 343 mg/L
- Between 111 and 130 mg/L
- Between 130 and 150 mg/L
- Between 100 and 125 mg/L
- Data Gaps

Cluster 1- 265 mg/L up to 7,190 mg/L

Cluster 2- 148 mg/L up to 639 mg/L

Cluster 3- 119 mg/L up to 343 mg/L

Cluster 4- 111 mg/L up to 290 mg/L

Cluster 5- 84 mg/L up to 130 mg/L

Cluster 6- 140 mg/L

Cluster 7- 140 mg/L

Cluster 8- 100 mg/L up to 124 mg/L

Cluster 9- 108 mg/L up to 110 mg/L

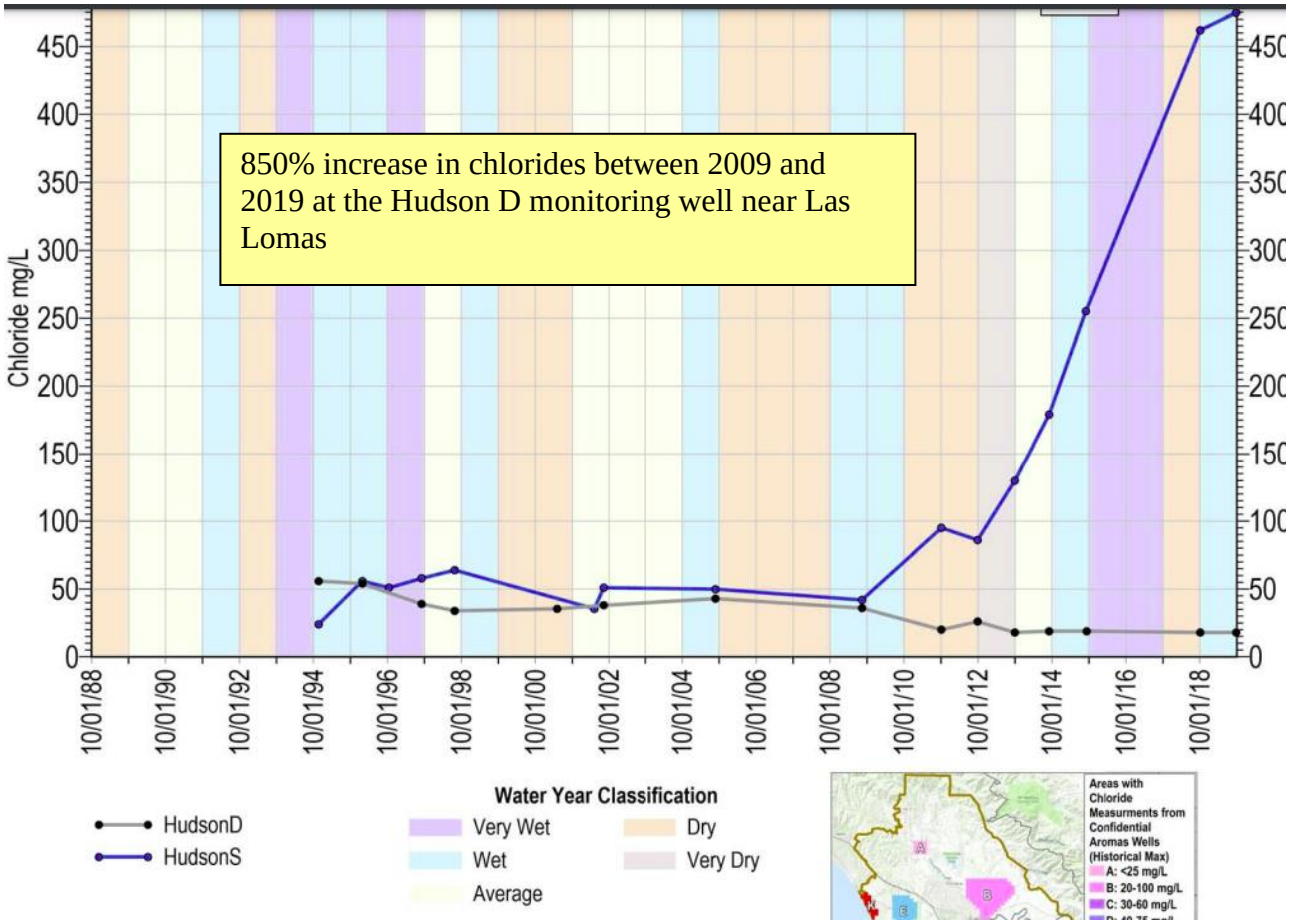
Cluster 10- 132 mg/L

Cluster 11- 144 mg/L

Cluster 12- 110 mg/L

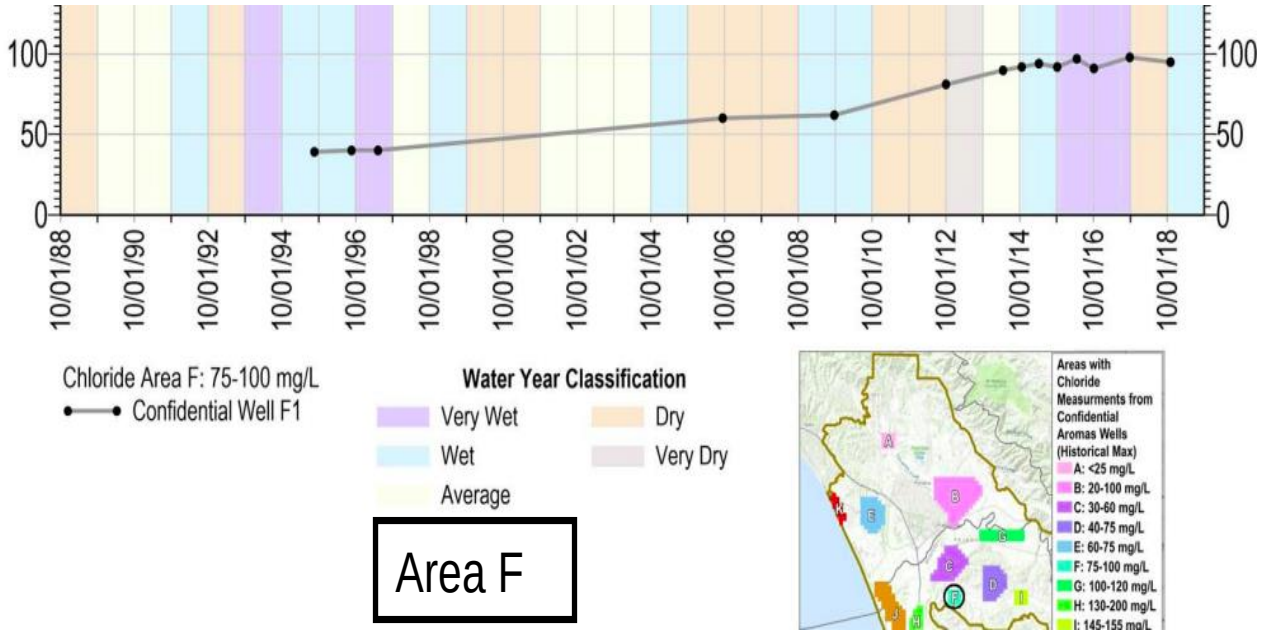
1.c).Provide more detail about what new strategies could be considered to prevent undesirable results since undesirable results are already occurring both in and outside of the coastal zone.: Section 2.6 of GSU22 states : **"If the measurable objective is not being met in the future, PV Water will evaluate its projects and management actions and consider new strategies to prevent undesirable results." The measurable objective is ALREADY NOT BEING ACHIEVED IN SEVERAL AREAS OUTSIDE OF THE SWI ZONE. Potential management actions need to be described in this section, not just alluded to as the undesirable results are already occurring.**

CLICK BELOW FOR FIGURE



Chlorides in area F east of Las Lomas from increased 60 to 100 mg/L 2008 - 2018 shows steady sea water intrusion into the area.

CLICK BELOW FOR FIGURE



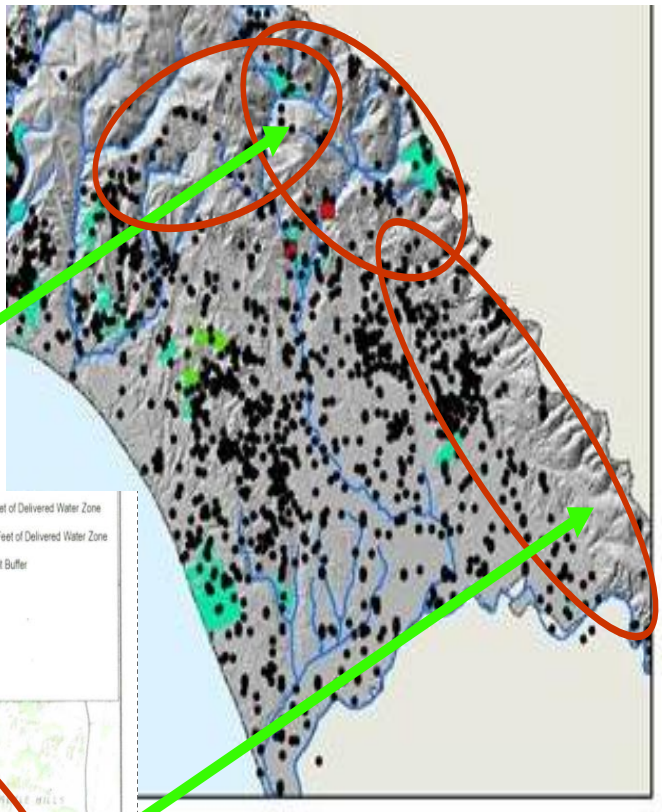
2).–Chronic Lowering of Groundwater Level- Section 3- Inadequate justification for minimum thresholds, exceedance criteria that do not equally protect rural residential wells, RMP network that doesn't portionately detect impacts for the rural residential sector.

2.a). The number and locations of proposed RMPs is not adequate to detect impacts and protect rural residential wells.

Groundwater levels for hundreds of domestic wells and small water systems, especially those located above the 200 ft. elevation level, will not be monitored by the proposed RMP network. Well owners in these areas wil be impacted especially those tapping into the Purisima aquifer and into pockets without detection when GWL are allowed to drop to the proposed minimum thresholds and allowed to remain below those levels for as many as 4 years.

Click for Figure Below

Look at small water systems that are considered to be outside of the basin.The monitoring plan shows these areas as vacant



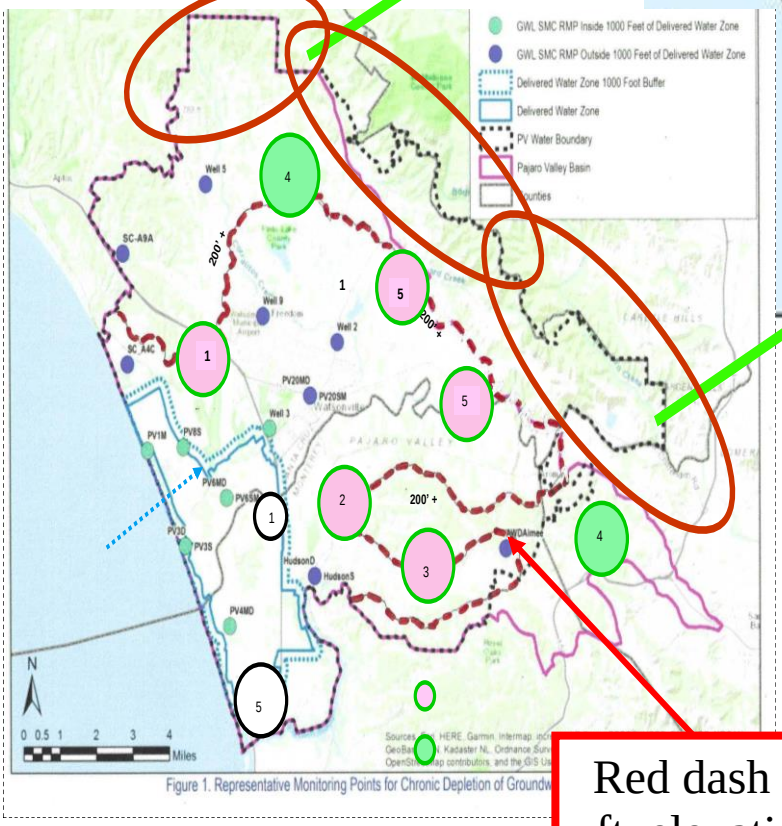


Figure 1. Representative Monitoring Points for Chronic Depletion of Groundw

Red dash line shows 200 ft. elevation contour line above which almost no monitoring will be done

Consultants state that SGMA only requires consideration of the "primary" aquifer. It's likely that these upper level areas draw from smaller sub-aquifers. However, these smaller aquifers are 100% impacted by chronic lowering of groundwater level in "downhill" aquifers.

2.b). RMPs planned in non- alluvial areas are low priority. This further exacerbates the inadequacy of the RMP network and the <u>further skews the calculation of exceedances for GWL-SMCs to the detriment of rural residents .</u> This makes is even more important for exceedances to be revised so that GWLs and RMPs do not go below the minimum threshold for more then 2 years. . . not 4 years.

<u>Click Below</u>

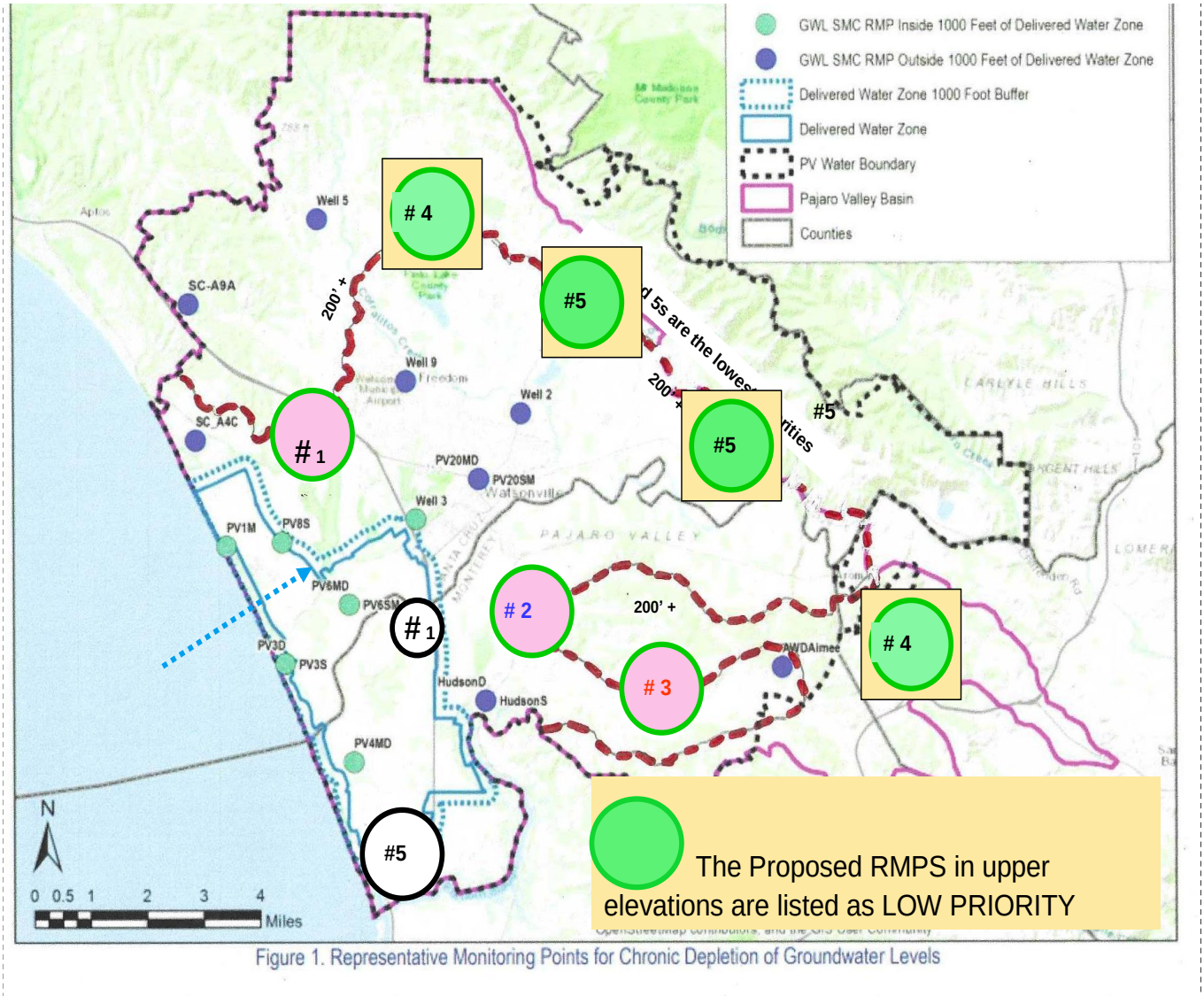


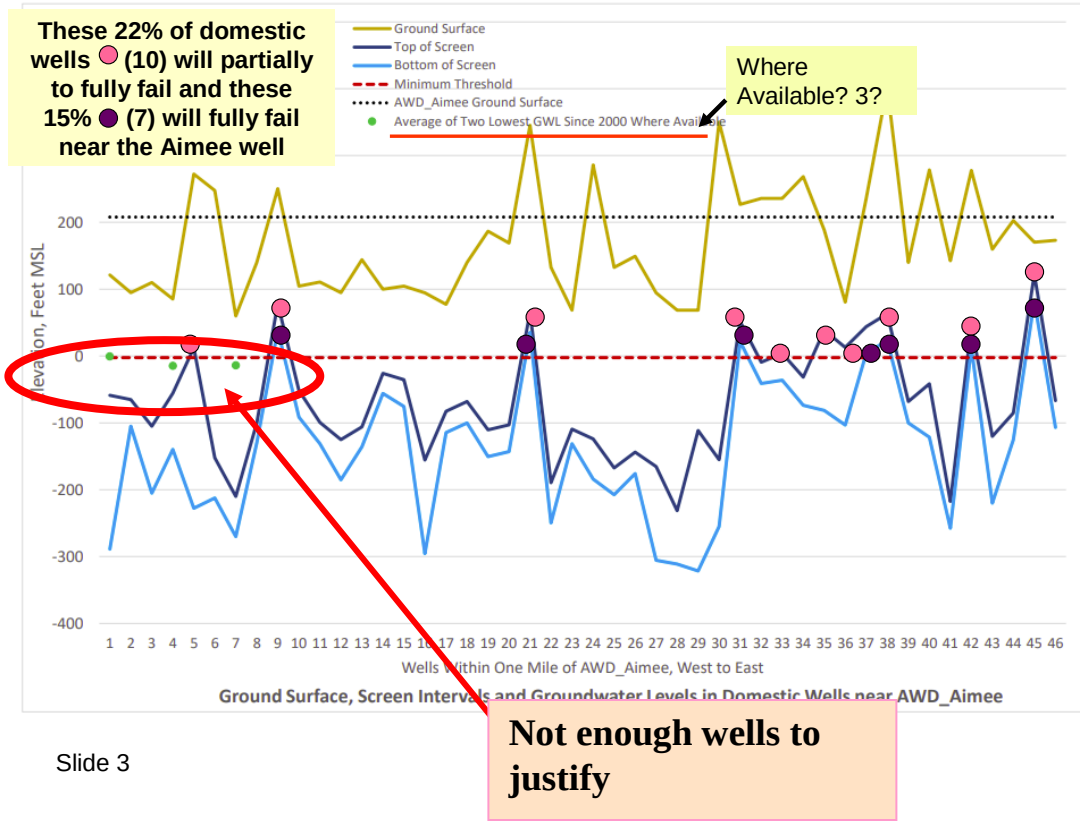
Figure 1. Representative Monitoring Points for Chronic Depletion of Groundwater Levels

2.c). Section 3–Chronic Lowering of Groundwater Level- The statement that there is adequate "Justification" for proposed minimum thresholds needs to be stricken from the GSU22 plan. Minimum thresholds need to be raised and/or proposed years allowed for exceedances to occur needs to reduced to no more than 20% for one year and 10% for two years.

There is not justification for the 3 inland RMPs that are near domestic wells. Aimee Well- 4 of 51 nearby wells (8%) used as justification- NOT ENOUGH WELLS. Well 5- 4 of 33 nearby wells (12%) used as justification- NOT ENOUBH WELLS. SCA 9A- 4 out of 51 (8%)

Consultant response states "The selection and justification of RMPs is based on best available information and the nearby wells used are the wells that have been monitored to provide data." The best available data is not sufficient to show justification. The claim of justification is not based on adequate data.

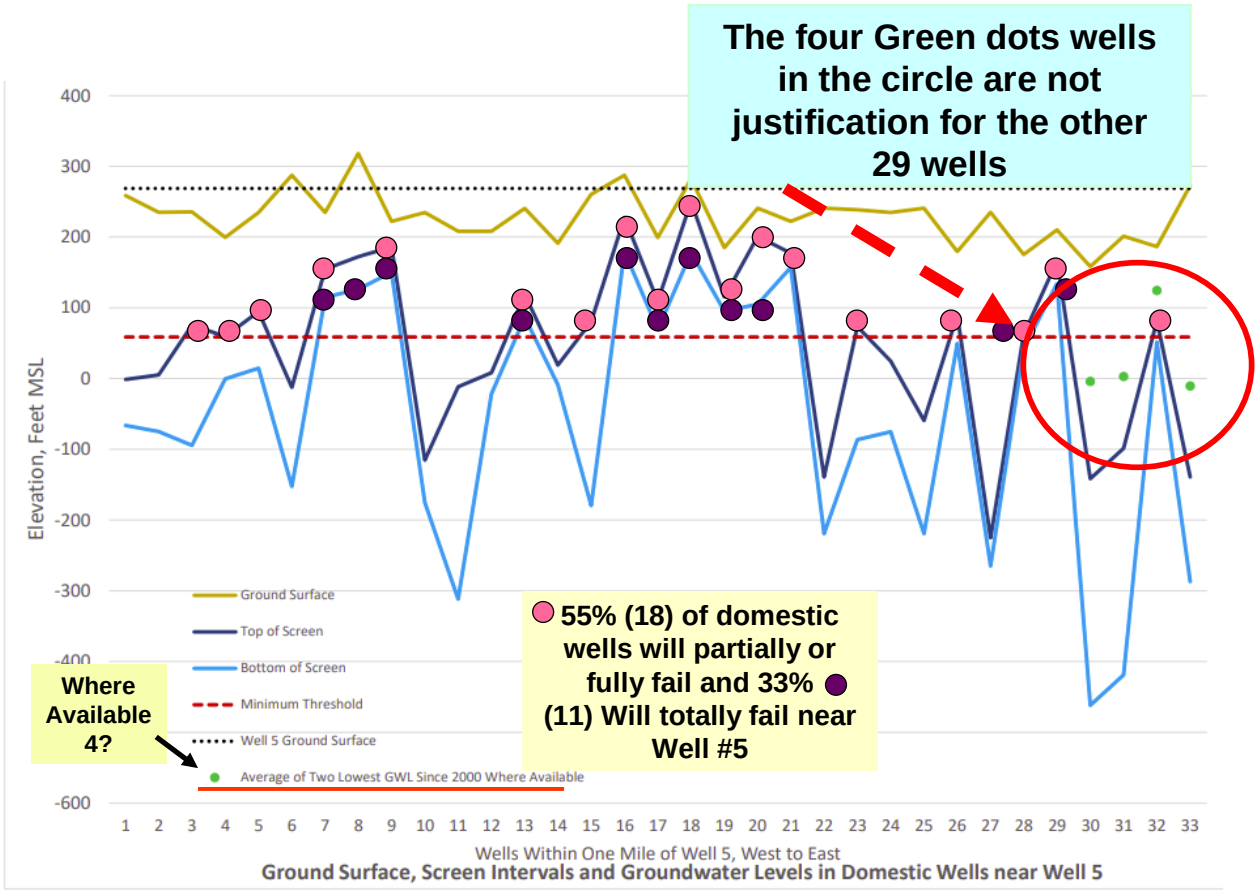
Look at how many pink and purple dots (TOS and BOS) are above the proposed minimum threshold for the Well #5. Click below for figure



Slide 3

Look at how many pink and purple dots (TOS and BOS) are above the proposed minimum threshold for the Well #5.

Click below for figure

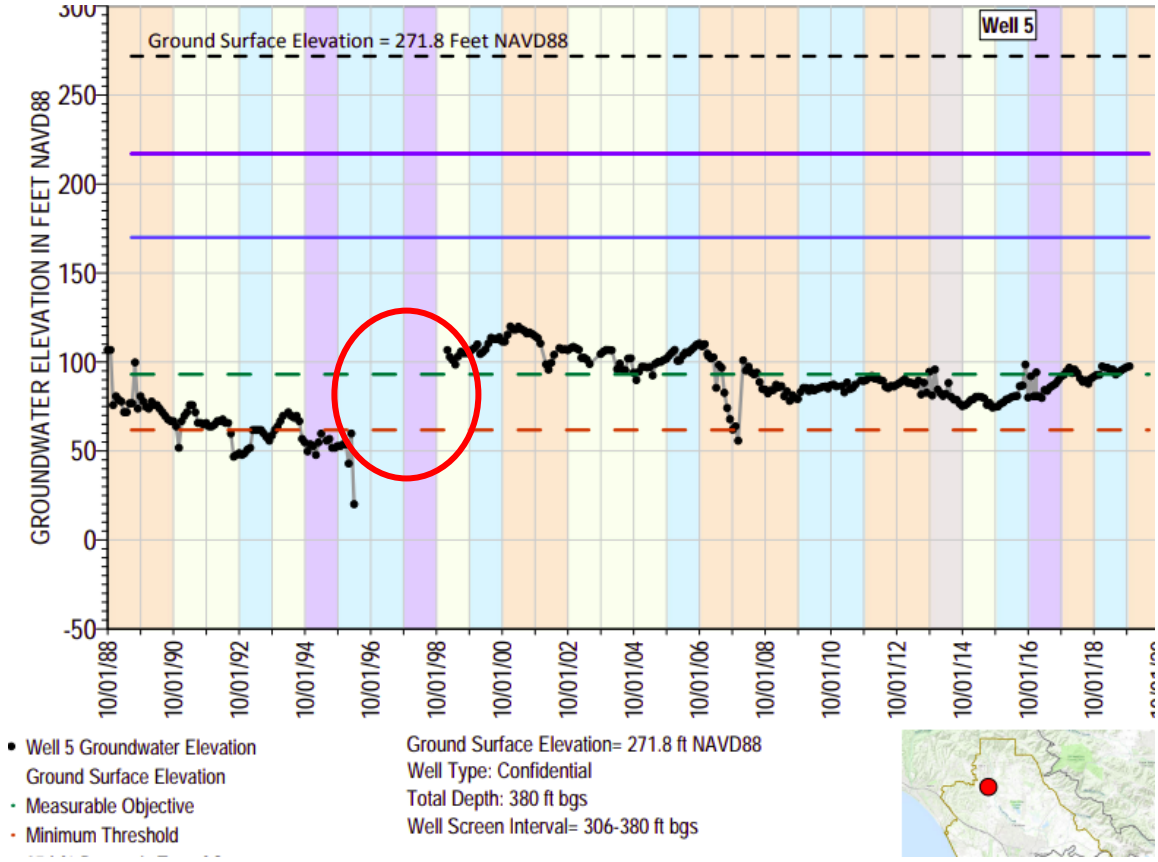


2.d). The statement in the GSU 22 plan that says that historical data exists to support the proposed minimum thresholds is not true and needs to be stricken from the section 3.5

Historical data does not support the claim of justification for minimum thresholds in Section 3.5 of the draft GSU 22 plan.

There are data gaps for Well 5, Well 9, and Aimee during the late 1990s according to hydrographs suggesting that these wells were likely: 1). Deepened 2). More screen height was added or 3). An extension of a water line from City of Watsonville occurred to decrease water demand on a faltering well

Well #5- Click below



The figure on the following page shows that 18 out of 18 of the wells shown below as justification for minimum thresholds do not provide justification. Gaps of NO DATA for 7 wells: AWD Aimee, PV 20 MD and MS, SCA4C, SCA9A, Well 2, Well 3. Nine wells are in the Delivered Water Zone which receive supplemental water so these don't count as justification.Two wells were modified in the late 1990s according to hydrographs for Well 5 and well 9 so these don't count either.

CLICK ON the following page for figure.

18 RMP Wells- CLICK BELOW

Table 11. Summary of Chronic Lowering of Groundwater Levels Minimum Thresholds and Minimum Groundwater Levels over Time

	Well Name	Minimum Threshold	Pre-Water Year 2000 Minimum	Water Year 2000-2009 Minimum	Water Year 2010-2016 Minimum	Water Year 2017-2020 Minimum
		Groundwater Elevation in feet NAVD88				
	AWD_Aimee	0.7	-13.0	No Data	-0.4	4.6
Delivered water zone	HudsonD	-19.8	-19.0	-20.0	-19.1	-15.6
	HudsonS	-3.9	-5.8	-3.9	-2.1	-0.7
	PV1M	2.2	No Data	1.8	4.7	5.1
	PV20MD	-12.0	No Data	No Data	-13.0	-10.9
	PV20SM	-7.1	No Data	No Data	-8.0	-6.2
Delivered water zone	PV3D	-16.1	-20.9	-16.3	-11.3	-8.8
	PV3S	-5.8	-6.5	-7.9	-1.3	1.1
	PV4MD	0.2	-2.1	-0.4	3.3	4.5
	PV6MD	-18.4	-19.3	-20.2	-13.8	-9.0
	PV6SM	-19.4	-27.1	-21.1	-13.3	-8.4
	PV8S	1.7	3.0	0.9	3.1	4.2
	SC_A4C	6.0	No Data	No Data	6.0	6.6
	SC_A9A	10.3	No Data	No Data	10.2	10.4
	Well 2	-6.1	No Data	No Data	-7.5	1.6
	Well 3	-18.9	No Data	No Data	-18.9	-14.2
	Well 5	61.8	20.1	55.8	74.4	79.8
	Well 9	-9.5	-19.1	-3.2	-12.4	-5.6

Elevations below Minimum Threshold are underlined

Data breaks in the 1990s suggest well improvements had to be made

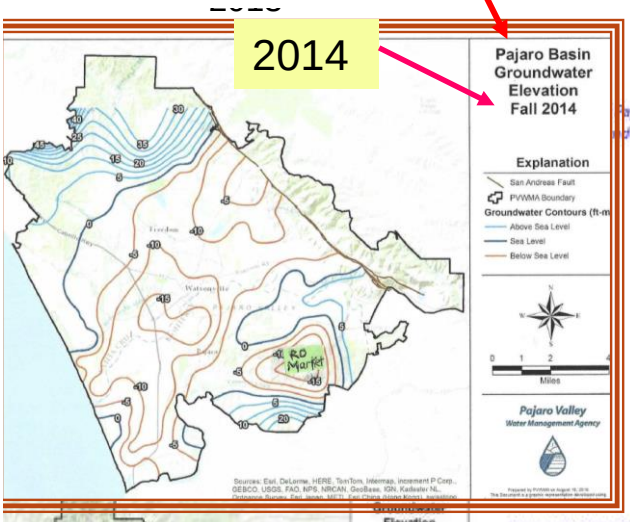
Out of 18 wells, there are no reliable wells with sufficient data to justify the proposed minimum thresholds

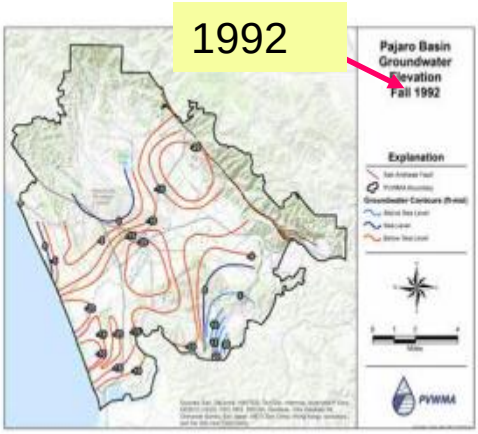
Section 3.5 needs to be revised to strike out the claim that the proposed minimum thresholds are justified by historical data.

2.e). The statement in the GSU22 that the minimum thresholds are set at GWLs that are higher than previous drought periods is not true and needs to be deleted. This is not substantiated by the following figures from in the 2014 Basin Management Plan shown below. Look at the footprint of groundwater below sea water in 2014. This is a larger footprint than the two of the prior droughts years (1988-1992 and 1995-1998).

Proposed min. thresholds by PVGSA is approx. the same level as the 2014 GWL

Click Below for figure





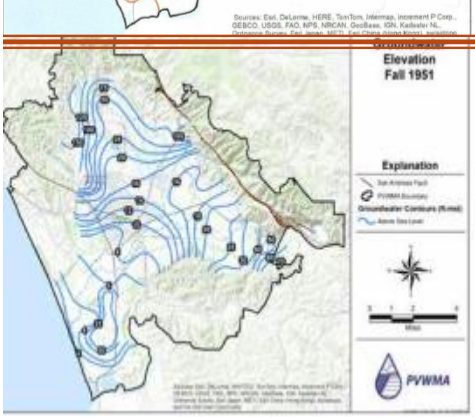
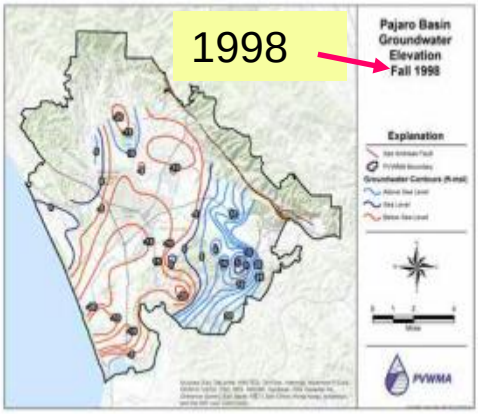


Figure 2-9. 1951 Pajaro Basin Composite Groundwater Contour Map



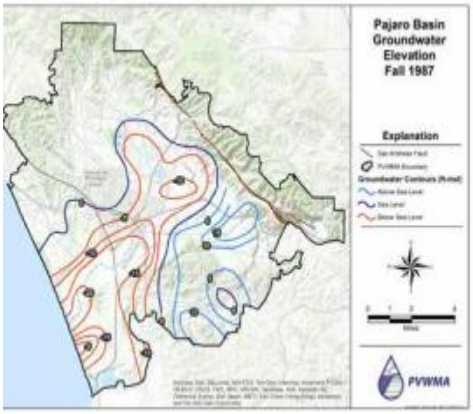
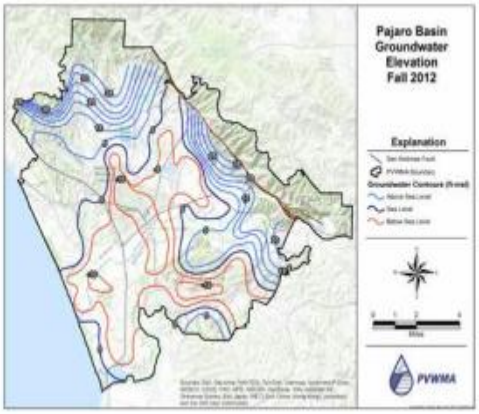


Figure 2-10. 1987 Pajaro Basin Composite Groundwater Contour Map



2.f). Section 3–Chronic Lowering of Groundwater Level- proposed exceedances for SMCs - GWL are TOO GREAT !! Proposed GWL exceedances are far out of line with other GSAs in the Central Coast region. PVGSA is proposing 15% of RMPS can go below the MT for as many as 4 years. THIS IS NOT ACCEPTABLE!!! It does not protect Rural residential wells but fully protects much deeper agricultural, municipal, industrial, and large water systems (100 + connections).

WHY DOES PVWMA WANT EXCEEDANCES THAT ARE SO MUCH GREATER THAN NEARBY OTHER GSAS?

How Do PV Water's "exceedances" compare to those of other GSAs?

PV Water proposes to allow exceedances To continue for up to 4 years and at significantly higher percentages than other GSAs

	Salinas Valley Groundwater Sustainability Agency	Mid- Santa Cruz County Groundwater Sust. Agency	Oxnard Groundwater Sustainability Agency	Castac Groundwater Sustainability Agency	PVWMA- revised April 20
Year 1	15%	any one well for one month or more	none	any two wells	unlimited wells
Year 2	0% < and < 15%	none	none	any two wells	25%
Year 3	none	none	none	none	20%
Year 4	none	none	none	none	15%
Year 5	none	none	none	none	none

Why are PV Waters so much higher than other GSAs ? ?

Slide17

We have requested on numerous occasions for the exceedance allowances to be revised so that:
1). No more than 20% of RMPs can go below the minimum threshold for more than 1 year and, 2). No more than 10% of RMPS can go below the minimum threshold for more than 2 years. So far, there has been no willingness to compromise on the part of PV Water's various decision makers. The claim of "stakeholder" representation is dramatically skewed towards those stakeholders who have or facilitate the interests of the deep well owners and high use water pumpers rather than people who depend on groundwater for every day living and does not protect rural residents!!

2.g). The exceedance criteria potentially sets up a scenario equal to a 7-year drought which has not even occurred in recorded history for the Pajaro Valley Basin (3 years to MT + 4 yrs exceedances = 7 yrs.). The proposed minimum threshold is already set at a level equal to a typical 3 years drought. GSU 22 criteria proposes to allow exceedances to go below the minimum threshold for as many as 4 additional years. This causes hardship for people with domestic wells and small water systems. People can bring in trucked water, they can put up with slow filling water tanks, etc for a year or two**. Four years below the MT is too long for any RMP area to go below when the is already set at a 3 year drought level.!!**

2.h). One of most cited reasons used by PV Water decision makers to justify allowing exceedances for GWL to go below the minimum threshold for 4 years date, stated verbally and in writing, is to "protect PVWMA agency from State intervention". Isn't the purpose of sustainability criteria to protect water users? Avoiding state intervention should not be the driving reason behind allowing 4 years of exceedances before an Undesirable Result occurs. Management actions need to start the first year GWLs drop below the minimum threshold. The purpose of exceedance criteria should be to signal that at least a "tier 1" level of water pumping reductions needs to be put into place the first year the GWL drops below the MT and a "tier 2" level of response put into place during the second year the GWL drops below the MT. The GSU 22 plan needs to provide a description of such a tiered contingency plan. Four years of exceedances IS NOT ACCEPTABLE and should not be approved in this GSU 22 plan. **Click below for figure**

Survey Proposed Changes	GSU22 Team Response
The MT exceedance percentages for Option 2 should be reduced	Yes, the percentages in the Survey Monkey for Option 2 did make UR less likely under Option 2 than Option 1. The percentages are revised to be reduced, but requires at least two RMPs have MT exceedances for URs
The time periods should be reduced.	To be consistent with proposed statement of significant and unreasonable conditions that MT exceedances represent a long term reduction in groundwater supply, requiring multiple years is appropriate.
	Increasing the number of years for fewer RMPs with MT exceedances is appropriate because do not want to risk state intervention for single area having low groundwater levels that may be temporary and not chronic. To avoid risk of state intervention, action should be taken before there are undesirable results.

Keeping groundwater levels sustainable to the Min. Threshold should be the main purpose, not the avoidance of state intervention

ICK

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2.i). The 4 year exceedances is not necessary and builds in too fat of a cushion for large groundwater pumpers to keep doing what they've been doing while other water use sectors are put at uneven risk of well failure. This is not protective of rural residents and it does not accomplish reasonable groundwater management for the 2022 - 2027 period. This causes undue risk for people with domestic wells and small water systems.

PV Water has yet to build two projects which will provide additional groundwater supplementation.

- College Lake Project: The proposed project would provide a yield of approximately 2,100 to 2,400 AFY page 59, 2014 Basin Plan
- Watsonville Slough Project- The proposed project would yield approximately 1,200 AFY- Page 56, 2014 Basin Plan

According the information provided by PV Water to Rural Residents on Nov. 10, 2021, groundwater levels are about a year above the minimum threshold (fall 2014 GWL). With the completion of the remaining projects, there is already approx. two years of cushion to help maintain gwls at or above the minimum threshold (cushion to year 2024). If this is the case, why does PV Water need an additional 4 years going out to 2028 to ease their concerns about state intervention? This is not protective of rural residents and it does accomplish reasonable groundwater management for the 2022 - 2027 period. This causes undue risk to people with domestic wells and small water systems.

3). –Groundwater Storage- data is missing and assumption(s) are inaccurate

3.a) Section 7.7 and Figures 49 and 50 of the GSU plan needs to be revised. Sea Water Intrusion needs to be admitted to and quantified as propping up groundwater levels. Changing the definition of sea water intrusion from 100 mg/L to 250 mg/L does not change the reality that chlorides have increased significantly in the basin in recent and historical periods. This fact was lost when groundwater storage loss was masked by changing the definition for sea water intrusion from 100 mg/L to 250 mg/L. Apples need to be compared with apples.

Click on following page for figure

Click below

HUGE JUMP IN CHLORIDES BETWEEN TOP FIGURE PERIOD AND BOTTOM FIGURE PERIOD IN BOTH ZONE 1 AND ZONE 2

OF COURSE SEA WATER INTRUSION IS ENTERING INTO INLAND AREAS AND PROPPING OF GROUNDWATER LEVELS!!

Salt and Nutrient Plan-Chapter 7.1, the existing chloride groundwater concentrations in each zone was assessed using the average chloride data from 308 groundwater wells sampled from **2002 to 2011**

2002- 2011

Table 7.4: *Assimilative capacity for groundwater chloride.*

Chloride (Cl) Assimilative Capacity (AC) Threshold = 150 (mg/L)				
	% of PVGB Area	Average Concentration (mg/L)	Remaining AC* (mg/L)	Remaining AC (%)
Zone 1 (inland)	77%	46	104	69%
Zone 2 (coastal)	23%	198	-48	-32%
PVGB Average	100%	83	67	45%

*Remaining AC is the difference between the AC Threshold and the average concentration. Negative values suggest AC Threshold has been exceeded.

2016- 2020

Table 2. Water Quality Minimum Thresholds and 2016-2020 Average Concentrations by SNMP Zone

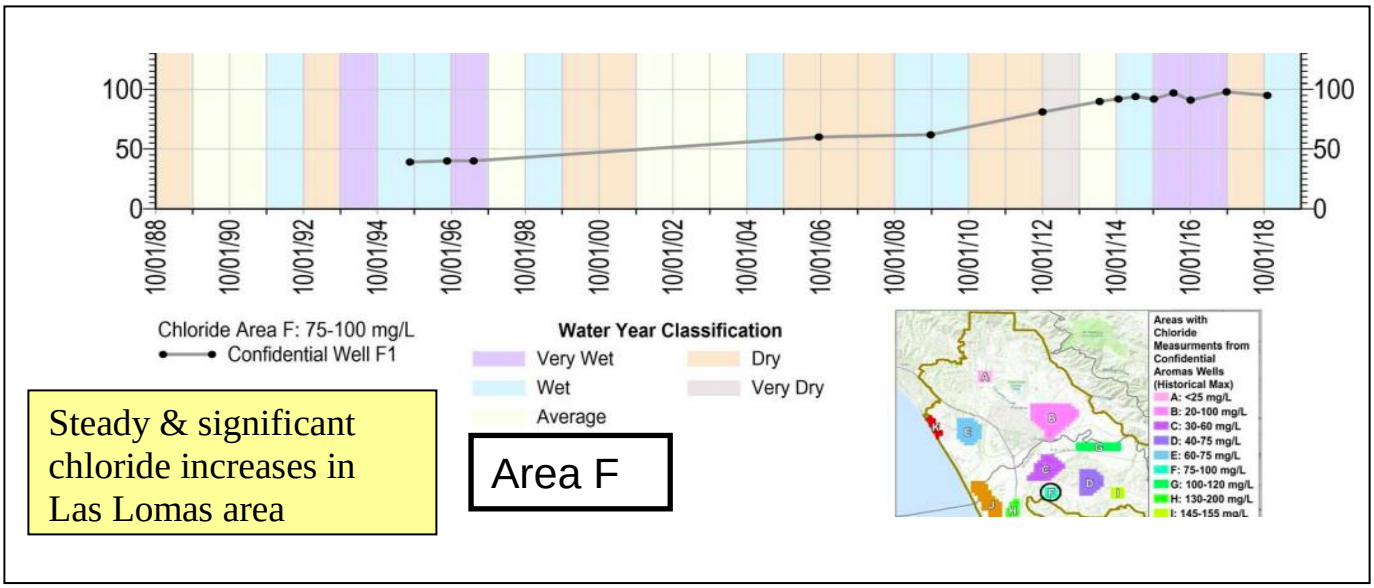
Constituent	Minimum Threshold (mg/L)	SNMP Inland Zone (Zone 1) and Non-Jurisdictional Area[1]	SNMP Coastal Zone (Zone 2)
TDS	1,000	475	816
Chloride	150	61	273*
Nitrate (NO_3)	45	24	52

[1] Combined area is area of Basin inland of Zone 2

* Chloride concentrations above the minimum threshold in the coastal zone are due to seawater intrusion, which is evaluated with the seawater intrusion SMC. Therefore, this is not a water quality undesirable result.

Red denotes water quality undesirable result.

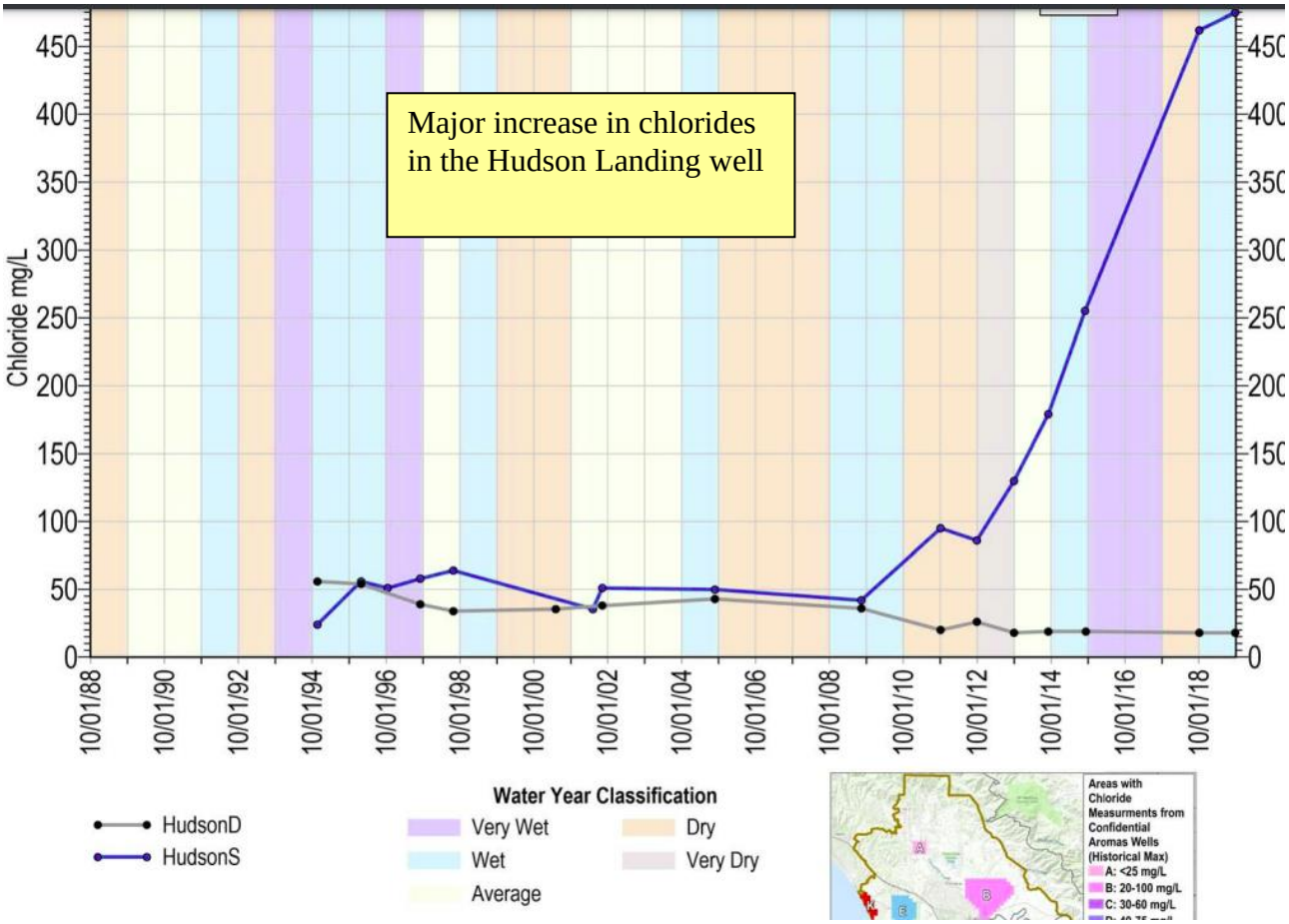
THE ABOVE SHOWS CLEAR EVIDENCE THAT SWI HAS HELPED TO PROP UP GWLS. THIS NEEDS TO BE ADMITTED TO IN BOTH SECTIONS 3 AND SECTIONS 7.7 IN THE GSU 22 PLAN



Steady & significant chloride increases in Las Lomas area

Area F

Click above and below for figures



3.b) Groundwater water storage information shown in figures 49 and figure 50 is inconsistent and inaccurate. Figure 49 shows an increase in groundwater storage from 2019 to 2020. This is despite a significant increase in groundwater pumping from the previous year shown in figure 50 and a dry precipitation year in 2019-2020. These figures are not consistent and do not represent an accurate depiction of groundwater storage. A more accurate graph and calculation for groundwater storage needs to be provided.

4. Groundwater Quality- The GSU 22 plan does not adequately address several issues.

4.a The GSU 22 plan contains groundwater quality objectives and assimilative policies that are pro-degradatory instead of nondegradatory. The groundwater quality objectives are inconsistent with Resolution No. 68-15, a "Statement of Policy With Respect to Maintaining High Quality of Water in California". It allows more than doubling of chlorides which renders thousands of acre-feet of groundwater unsuitable for agriculture. It also allows more than doubling of TDS which also renders thousands of acre feet of groundwater as unsuitable for agriculture**.** It allows almost a doubling of nitrates which will cause already unsafe drinking water to become even more unsafe to drink.

Click following page for figure

The figure below shows that the Min. Threshold for TDS and chlorides is more than double the current average. The Min. Threshold for nitrates is almost double the current average. CLICK BELOW FOR FIGURE

One EXAMPLE of Gross Pro-degradation Policies

Table 15. Water Quality Minimum Thresholds and 2016-2020 Average Concentrations by SNMP Zone

Constituent	Minimum Threshold (mg/L)	SNMP Inland Zone (Zone 1) and Non-Jurisdictional Area[1]	SNMP Coastal Zone (Zone 2)
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Chloride	150	61	273*
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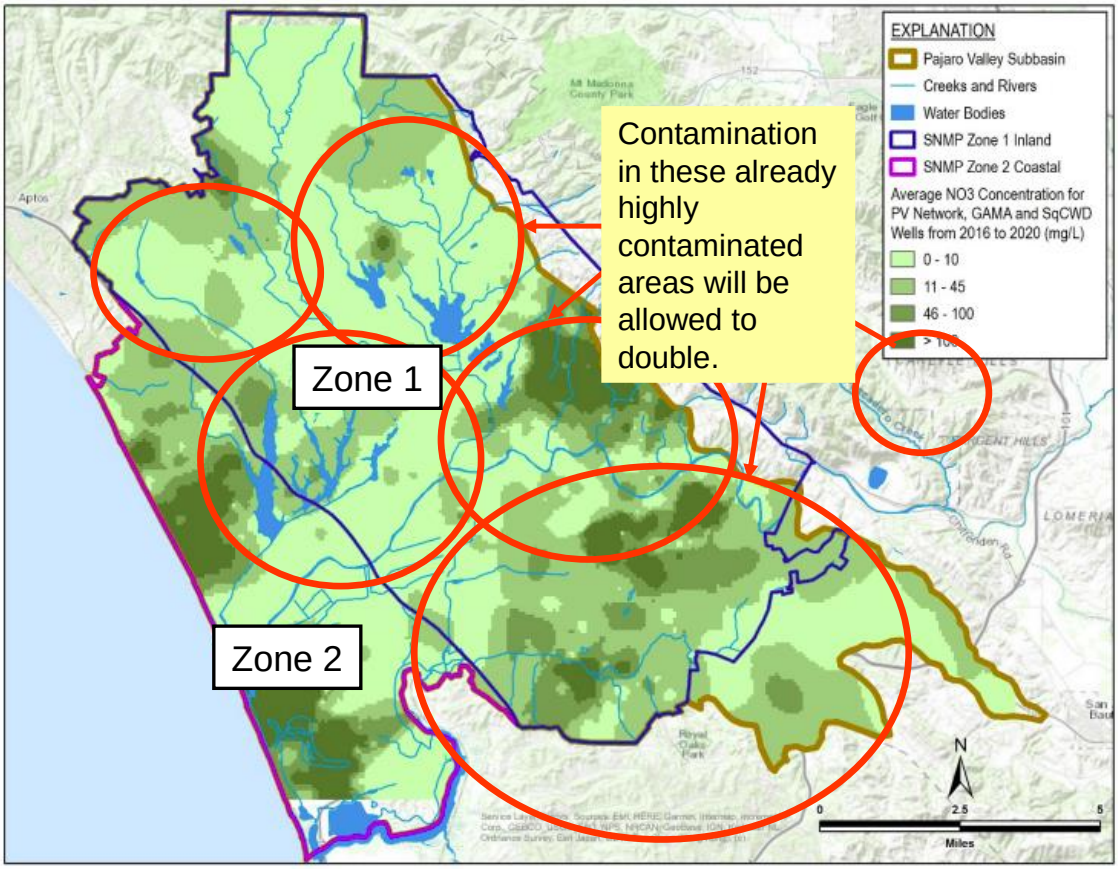

Figur -2020

THIS IS NOT ACCEPTABLE AS ASSIMILATIVE CRITERIA!!

Rural Residents requested in two different letters with two additional follow-up phone calls to the Central Regional Water Quality Control Board to request an explanation why groundwater quality objectives were allowed to be set at levels more than double the current median level for constituents. No response or explanation was given.

4.b). The Salt and Nutrient Plan and the GSU22 plan needs to be revised to reduce groundwater quality objectives closer to the average existing levels and to provide for a better assimilation policy to provide for an assimilation policy which does not allow a doubling of contaminats. We asked in two different letters for PV Water to revise their groundwater quality objectives and assimilation policy to limit the increase in average levels of constituents not to exceed 20 % between years 2020 and 2039. **We did not receive a response to either request. We requested**:

- **by 2027- average concentration not to increase above the 2020 level by more than 10%**
- **by 2033- average concentration not to increase above the 2027 level by more than 5%**
- **by 2039- average concentration not to increase above the 2033 level by more than 5%**

PV Water can set an example of a much better assimilation policy by adopting a reasonable assimilative policy such as shown above. . . . . an assimilation policy that provides better protection of groundwater quality. . . an example we hope DWR and CCRWQCB will implement in establishing better criteria for GSA's groundwater quality objectives and assimilation policies

4.c). Section 7 needs to be revised to show that the level of nitrates in the Coastal Zone is already in exceedance of the chloride threshold according to the definition of chloride exceedance. GSU 22 needs to include a description of the measures that will be put into place to curb further exceedances on chlorides both in and out of the swi boundary.

The average chloride level in the Coastal zone is 273 mg/L which is higher than the 250 mg/L min. threshold for sea water intrusion. The GSU 22 needs to address how this exceedance is going to be remediated.

Click following page for figure.

CLICK BELOW FOR FIGURE

This exceedance needs to be stated and a remediation plan described in Section 7

Table 15. Water Quality Minimum Thresholds and 2016-2020 Average Concentrations by SNMP Zone

Constituent	Minimum Threshold (mg/L)	SNMP Inland Zone (Zone 1) and Non-Jurisdictional Area[1]	SNMP Coastal Zone (Zone 2)
TDS	1,000	475	816
Chloride	150	61	273*
Nitrate (NO_3)	45	24	52

This exceeds the min. threshold for chloride in the Coastal Zone (250 mg/L)

Thank you for your consideration of our above comments. We hope the best for all water use sectors in reaching an equitable allocation of our precious and limited water resources.

Sincerely,

Gloria Muruato, Daniel Castillo, and Marla Anderson