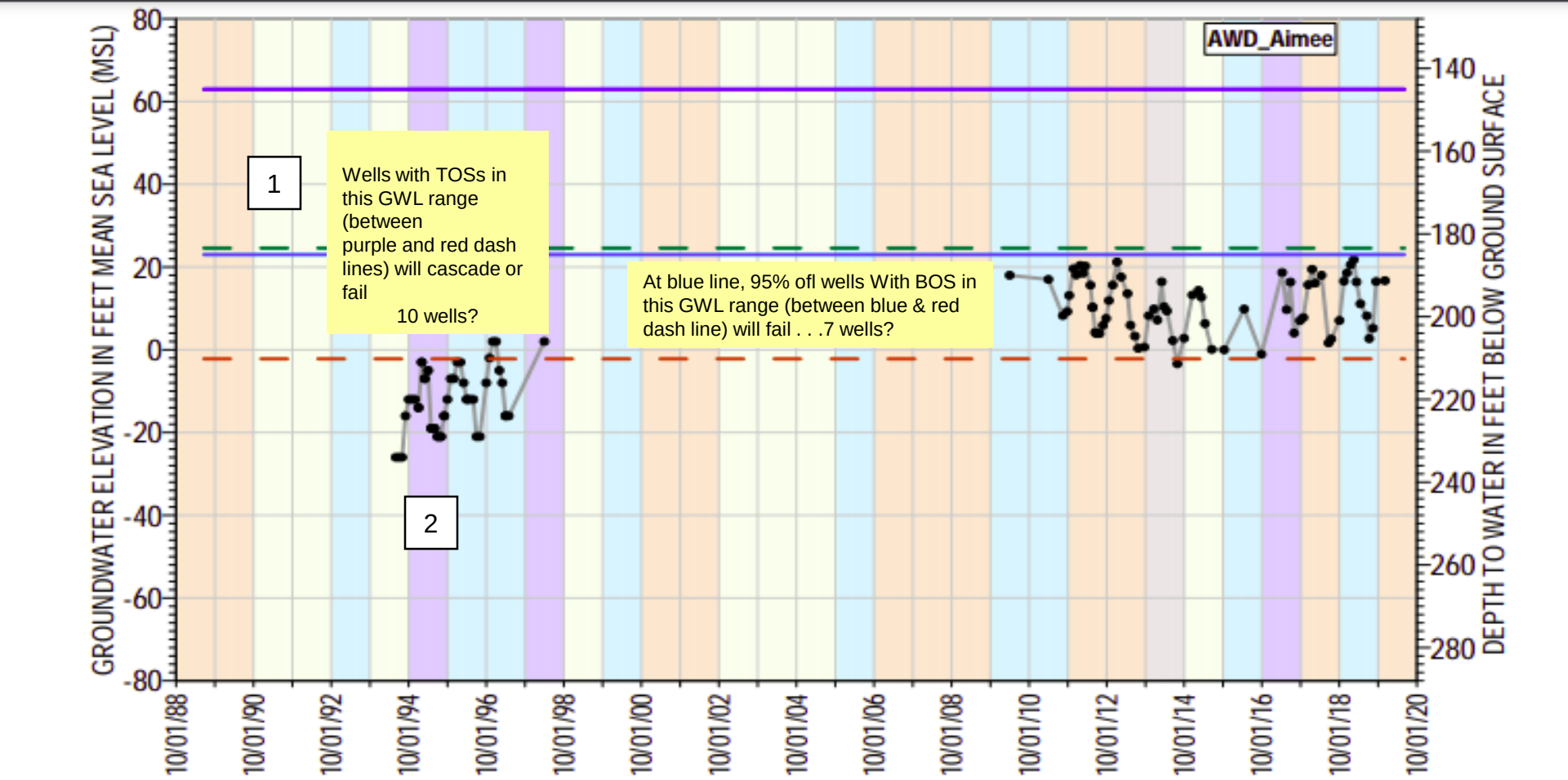
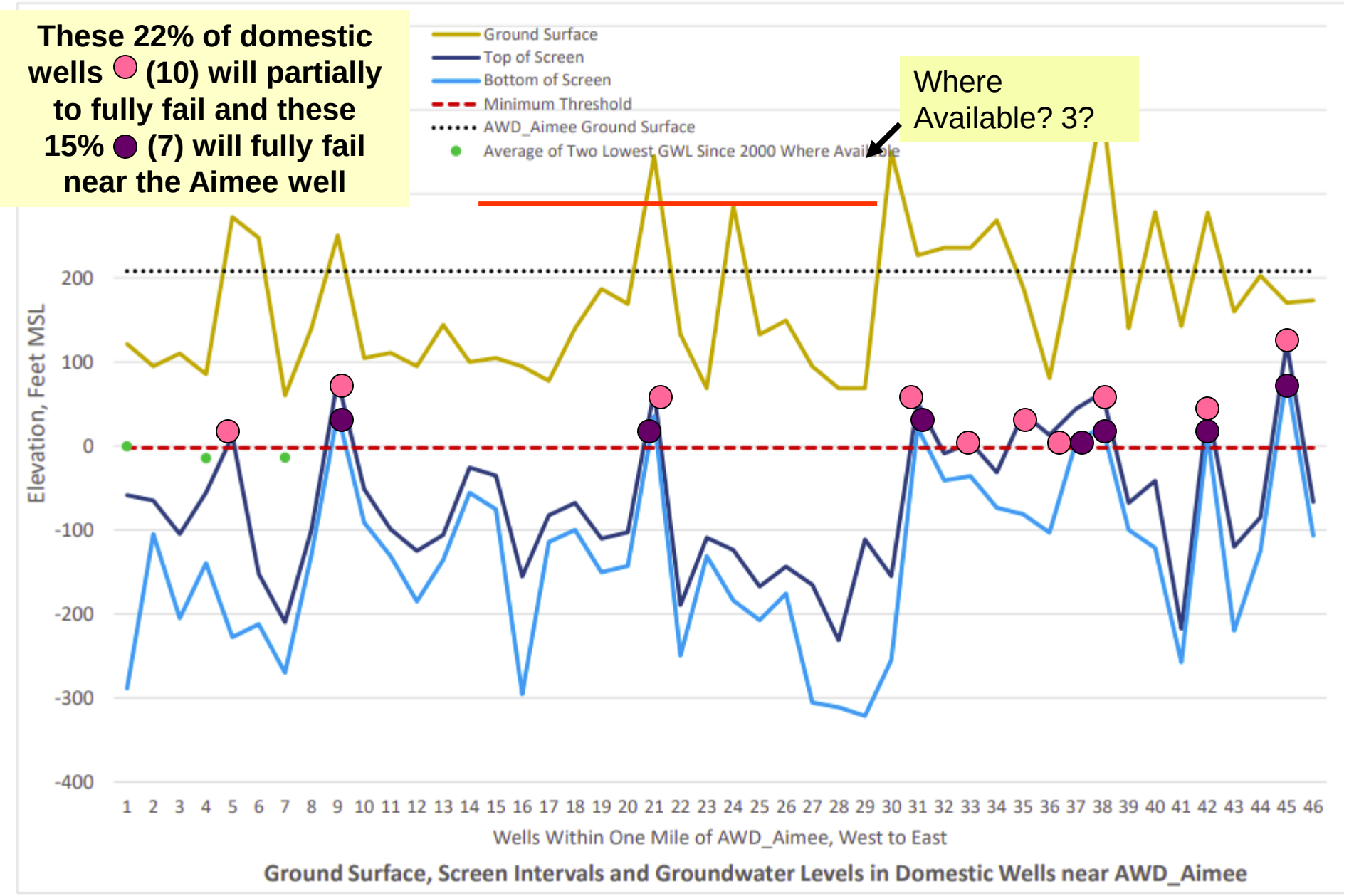
1). Proposed Minimum Thresholds are set at GWLs that will unacceptably impact domestic wells.

a). Data and figures presented for MTs and 95% of TOS and BOS of domestic wells are confusing. It's difficult to tell how the proposed MTs will affect the 3 inland well monitoring areas (outside of the "Delivered Water Zone“) where domestic wells are located.



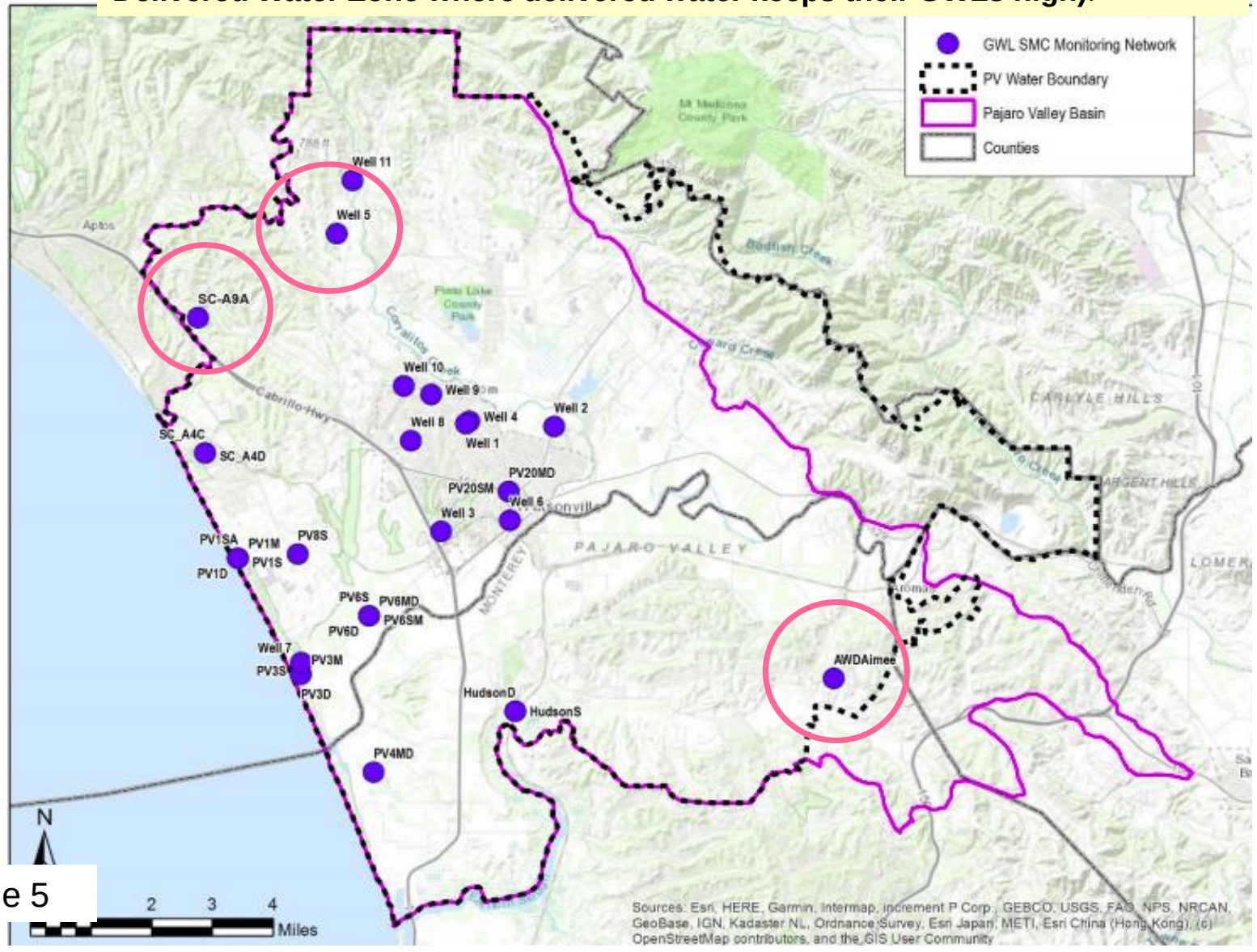
Slide 2

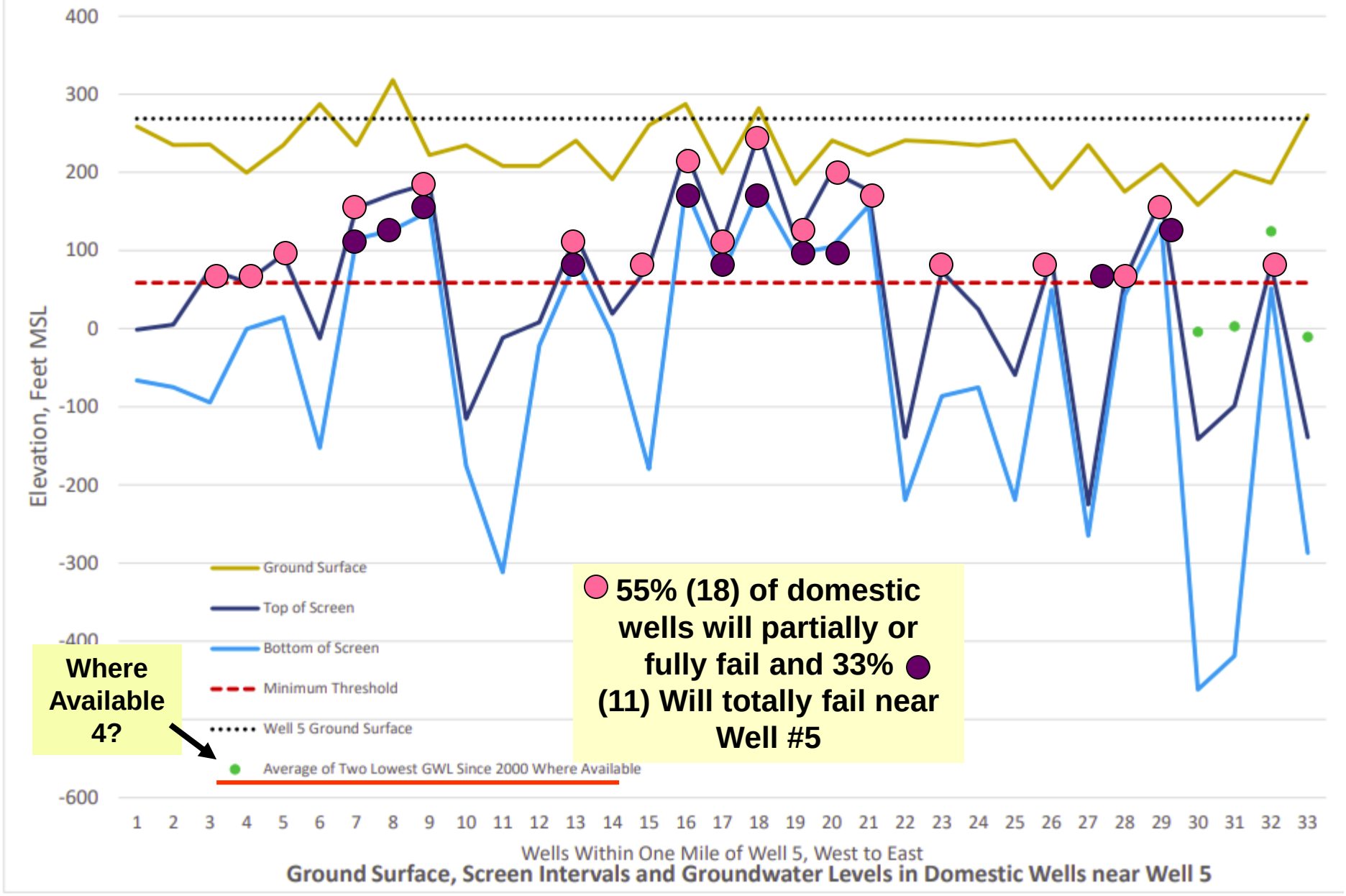
*Note: Pumping measurements and outlier data removed where applicable
Land surface and screening for nearby domestic wells shown on following fi
Screening ranges from -321 to 122 ft amsl
MT higher than 76% of domestic well TOS and 86% of domestic well BOS

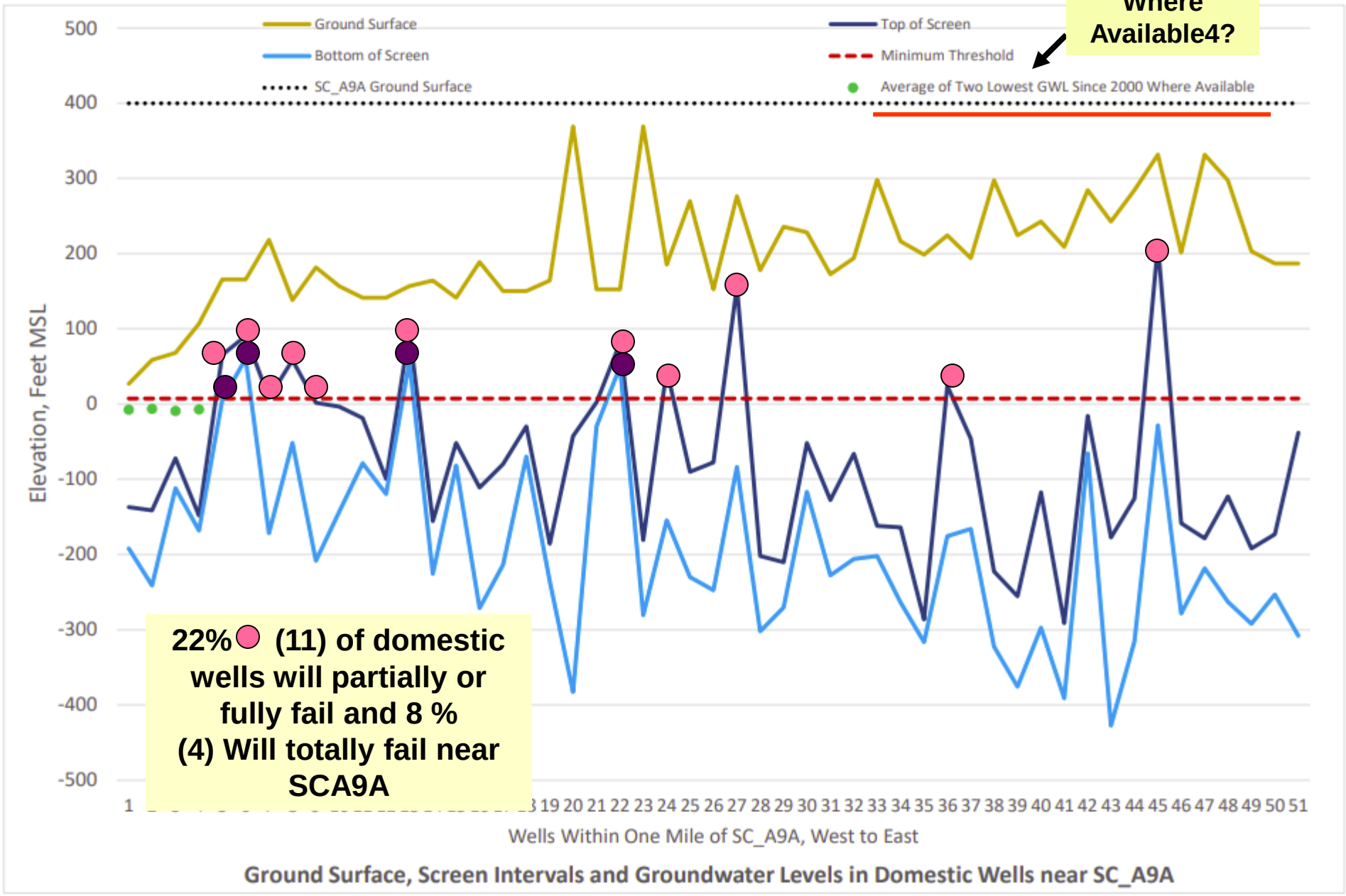

These 22% of domestic wells (10) will partially to fully fail and these 15% (7) will fully fail near the Aimee well
Ground Surface
Top of Screen
Bottom of Screen
Minimum Threshold
AWD_Aimee Ground Surface
Average of Two Lowest GWL Since 2000 Where Available
Where Available? 3?
Elevation, Feet MSL
200
100
0
-100
-200
-300
-400
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
Wells Within One Mile of AWD_Aimee, West to East
Ground Surface, Screen Intervals and Groundwater Levels in Domestic Wells near AWD_Aimee

1. b). The 3 areas that will be FIRST TO FAIL according to criteria and diagrams provided by PV Water are in the Aimee, Well #5 and SCA9A monitoring wells areas. These are the only 3 monitoring well areas outside of the Delivered Water Zone that have domestic wells nearby. It appears that PV Water criteria is targeting domestic well areas for failure while there are no risks of failure near agricultural monitoring areas.

These are the 3 of the 20 well monitoring areas that will be FIRST TO FAIL using PV Water's GWL criteria. They also happen to be the ONLY areas in which domestic wells are located (except the 4 located inside the Coastal Delivered Water Zone where delivered water keeps their GWLs high).




400
300
200
100
0
-100
-200
-300
-400
-600
Elevation, Feet MSL
Ground Surface
Top of Screen
Bottom of Screen
Minimum Threshold
Well 5 Ground Surface
Average of Two Lowest GWL Since 2000 Where Available
Where Available 4?
55% (18) of domestic wells will partially or fully fail and 33% (11) Will totally fail near Well #5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Wells Within One Mile of Well 5, West to East
Ground Surface, Screen Intervals and Groundwater Levels in Domestic Wells near Well 5

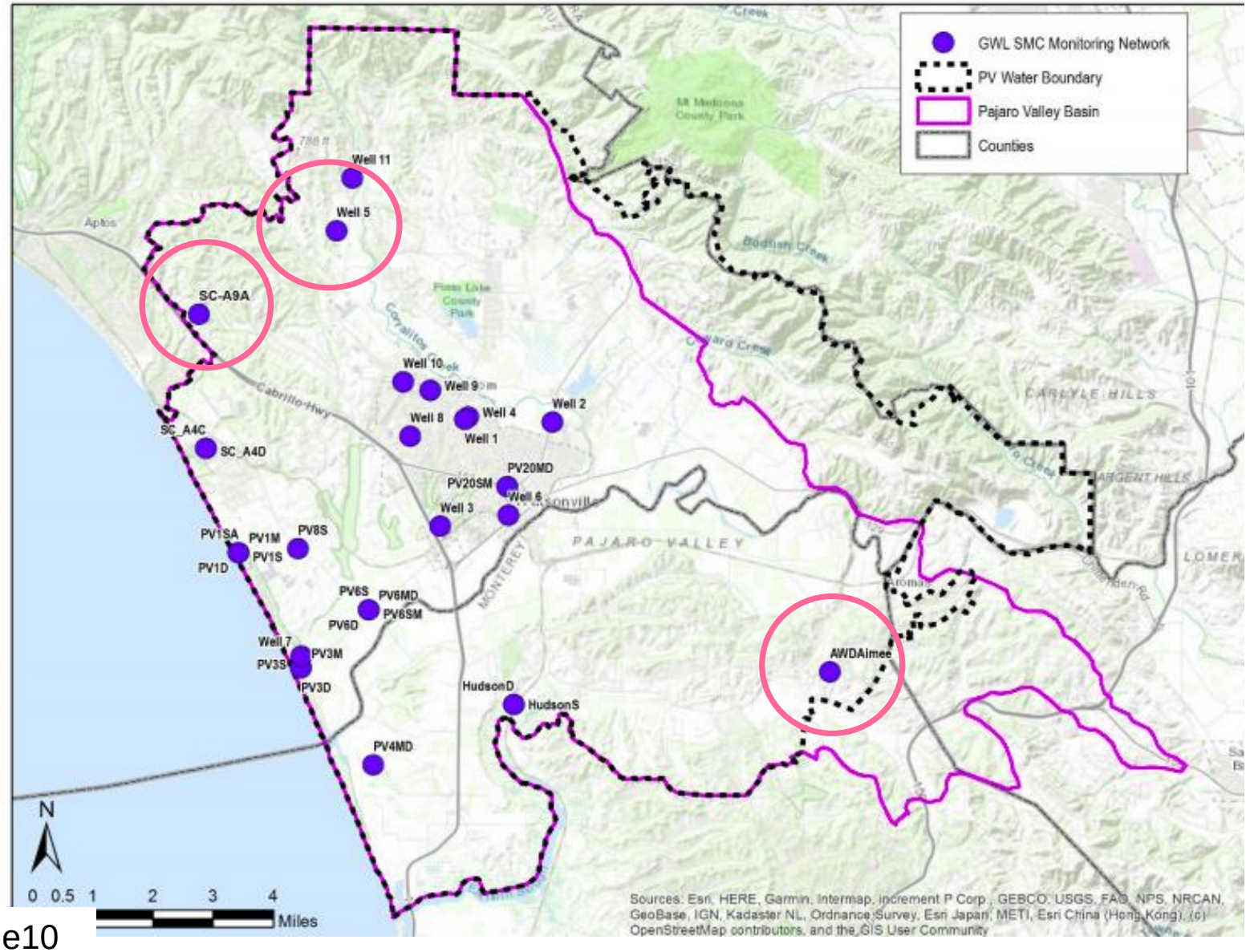

Where Available4?
Ground Surface
Top of Screen
Bottom of Screen
Minimum Threshold
SC_A9A Ground Surface
Average of Two Lowest GWL Since 2000 Where Available
500
400
300
200
100
0
-100
-200
-300
-400
-500
Elevation, Feet MSL
22% (11) of domestic wells will partially or fully fail and 8 %
(4) Will totally fail near SCA9A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51
Wells Within One Mile of SC_A9A, West to East
Ground Surface, Screen Intervals and Groundwater Levels in Domestic Wells near SC_A9A

1.c). PV Water has not done sufficient research to understand drought impacts on domestic wells and groundwater quality during recent droughts (1990-1995, 2000-2015): 1). How many domestic well owners had to deepen their wells or truck in water (water delivery companies would likely know),2). What adverse impacts occurred to groundwater quality during earlier drought periods (chlorides from sea water intrusion, TDS, etc.)?

Unfortunately, well service providers were not required to get a permit to deepen a well in emergency situations until around 2016.

1. **d).** PV Water has not estimated the number of domestic wells which could partially or fully fail within the network monitoring system. For example, the figure for the Aimee Well shows data for 46 of wells. Clearly, there are many more than 46 domestic wells within a one mile radius of the Aimee well. If the potential 22% failure rate shown on slide 3 was applied to a more likely number of 100 domestic wells, perhaps as many as 22 domestic wells would partially of fully fail in that well area alone. PV Water has not done enough to estimate the number of wells that could fail in each of the 3 inland monitoring areas in which domestic wells exist.

Review slides 3, 6 and 7

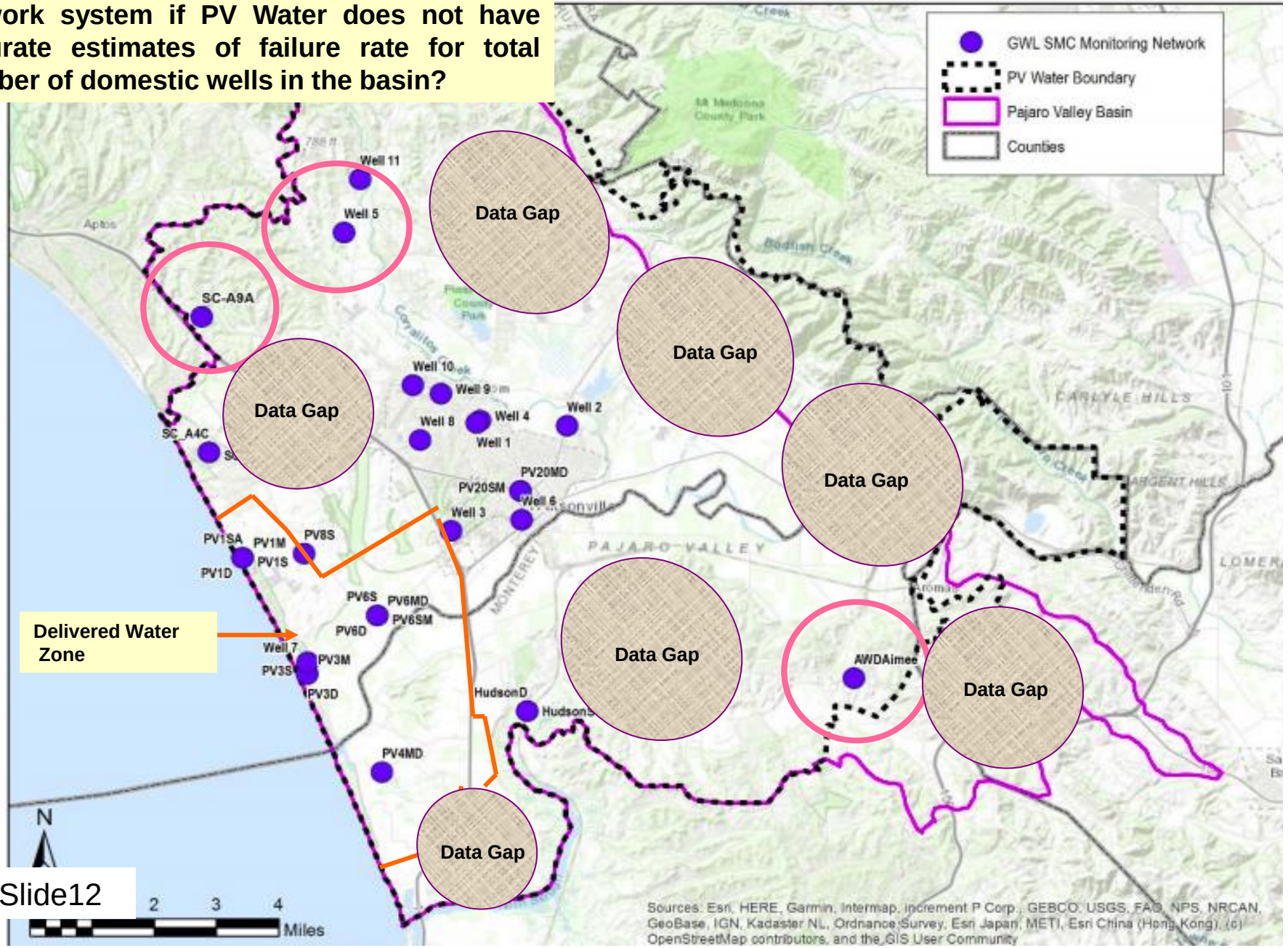

GWL SMC Monitoring Network
PV Water Boundary
Pajaro Valley Basin
Counties
Well 11
Well 5
SC-A9A
Well 10
Well 9
Well 8
Well 4
Well 1
Well 2
SC_A4C
SC_A4D
PV20MD
PV20SM
Well 6
Well 3
PV1SA
PV1M
PV8S
PV1S
PV1D
PV6S
PV6MD
PV6SM
PV6D
Well 7
PV3M
PV3S
PV3D
HudsonD
HudsonS
PV4MD
AWDAimee
PAJARO VALLEY
Aptos
Cabrillo Hwy
Corralitos
Bodfish Creek
CARLYLE HILLS
N
0 0.5 1 2 3 4
Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Slide10

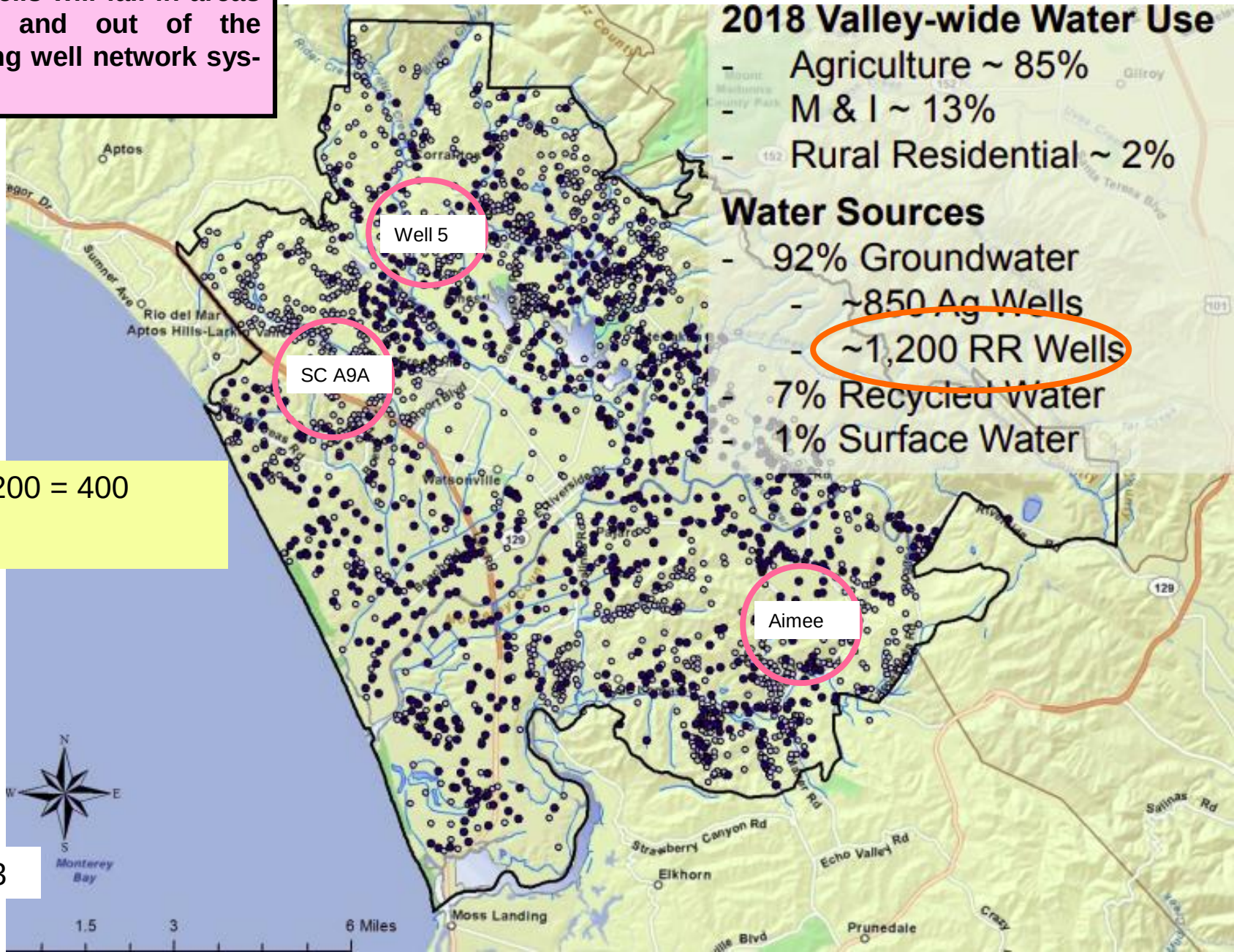
1. **e).** PV Water has not estimated the number of domestic wells which could partially or fully fail **outside** of the network monitoring system. In looking at Slide 1.e you can see that there is a vast amount of unmonitored area outside of the proposed network monitoring system. If the average potential failure rate of 33% (22%+55% + 22% / 3= 33%) for domestic wells shown near the Aimee, Well#5 and SCA9A monitoring wells was applied as a percentage to all 1,200 domestic wells, could this mean that as many as 400 domestic wells could fail?

Review slides 3, 6 and 7

How many domestic wells will fail both inside and outside of the proposed monitoring well network system if PV Water does not have accurate estimates of failure rate for total number of domestic wells in the basin?



How many of 1,200 +/- domestic wells will fail in areas both in and out of the monitoring well network system?



33% x 1,200 = 400

wells

2. PV Water's proposed monitoring network is not adequate, MTs need to be significantly raised, and exceedances need to be revised to reflect the revised monitoring network

.

a). A minimum of 4 more monitoring wells need to be added to monitor groundwater levels in higher elevation areas where domestic wells are located and 2 in the Elkhorn Slough/Carneros Creek sub-basin.

b). Because it is not possible to add enough monitoring wells to fully monitor higher GWLs of domestic wells due to variability of terrain and aquifer configurations, PV Water should be much more conservative and set the MTs for the Aimee, Well 5, SCA9A wells and future monitoring wells in domestic areas to a significantly higher GWL.

c). Exceedances should not be established until the number and locations of monitoring wells in the revised monitoring network is approved. For example: 15 % of 20 monitoring wells is 3 wells. . .however. . . 15% of 25 monitoring wells is 4 wells

Concern #3

3.a). Exceedances leading to undesirable results are excessive. They undermine the concept of a Minimum Threshold by allowing the exceedances to continue for as many as 4 years. The proposed exceedances are far out of line with other GSAs.

.

This is what PV Water is proposing as “allowable exceedances” (only beyond that does an “undesirable result” occur)

SMC	Proposal	
Significant and Unreasonable Conditions…	…chronic lowering of groundwater levels occurs when groundwater levels decline such that there is a long-term reduction in groundwater supply for domestic, agricultural, or municipal use.	…agement …roundwater supply
Minimum Threshold (MT)	The average of the 2 lowest annual minimum groundwater elevations from water year (WY) 2000-2020.	Current conditions are not significant and unreasonable for GWL SMC.
Undesirable Results	when any of the following occurs in either the area within 1,000 feet of the Delivered Water Zone or in the area outside 1,000 feet of the Delivered Water Zone : >**15%** of RMPs with MT exceedances during **4 out of 5 consecutive years**, or >**20%** of RMPs wells with MT exceedances during **3 out of 5 consecutive years**, or >**25%** of RMPs with MT exceedances during **2 out of 5 consecutive years**.	Long-term declines over small areas, and shorter term declines over widespread areas are undesirable
Measurable Objective (MO)	The average of 2016-2020 spring (March-May) groundwater measurements, plus the projected rise in average spring elevations between 2015-2018 and 2035-2040 as simulated by th… Ba…	Seasonal highs illustrate operational flexibility, and incorporation of rise from BMP projects represent …goals

Long-term or permanent?

Planned well failures domestic wells constitutes PERMANENT reduction, not long-term. How does PV Water plan to provide water to to the owners of failed wells?“

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

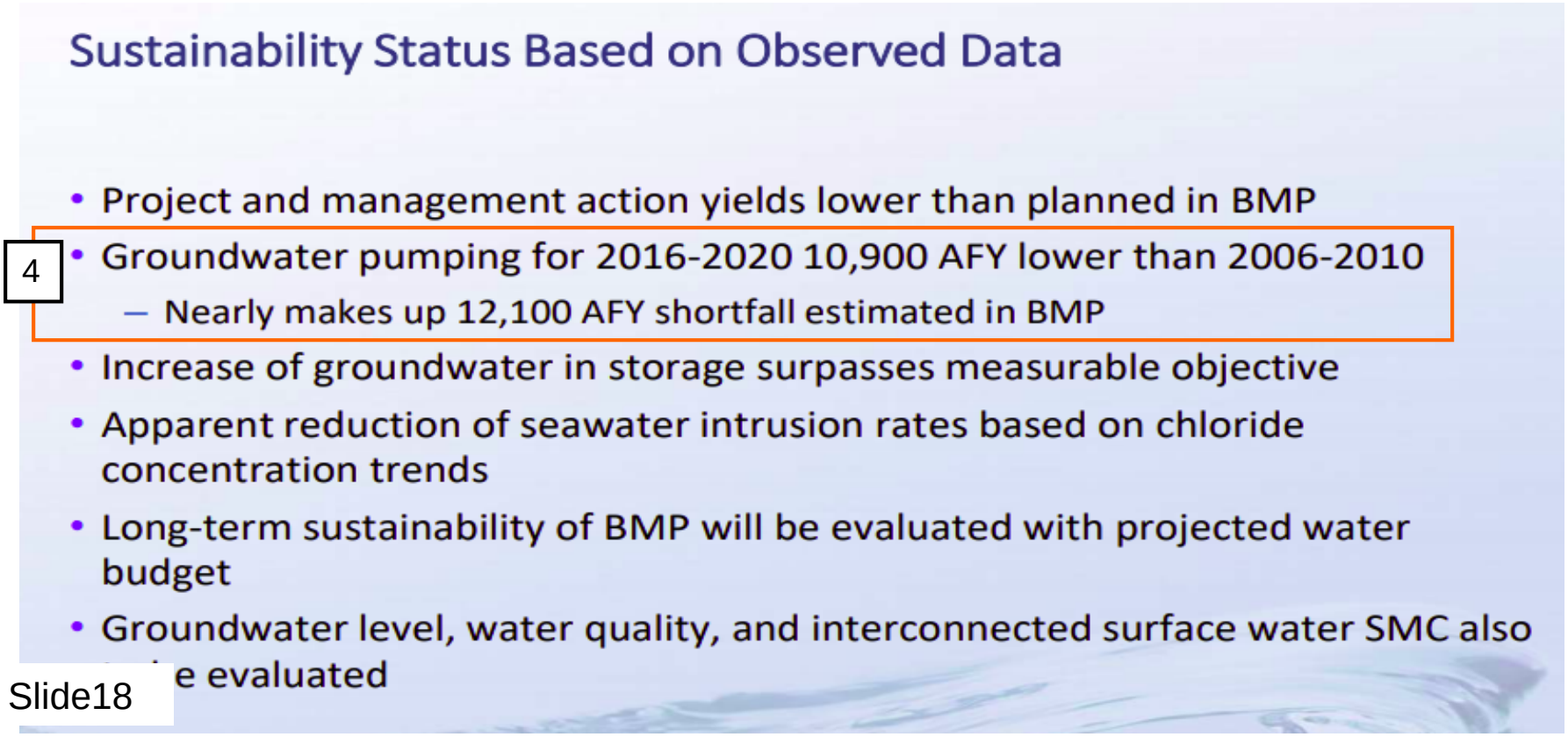
PV Water proposes to allow exceedances To continue for up to 4 years and at significantly higher percentages than other GSAs

	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 ? ?

4). PV Water is not extending it's "cushion of protection" to the most vulnerable monitoring well areas

According to a slide presented to the Advisory Committee on July 8, nearly all of the 12,100 AF/yr shortfall in groundwater has already been replaced by conservation in agricultural pumping. This is before the remaining 3 projects have been constructed. Why is this newly found cushion not being extended to the most vulnerable of monitoring well areas? Instead, those areas are being asked to endure exceedances for as long as 4 years. The percentages and length of time for exceedances absolutely has to be reduced to provide greater protection for domestic wells.

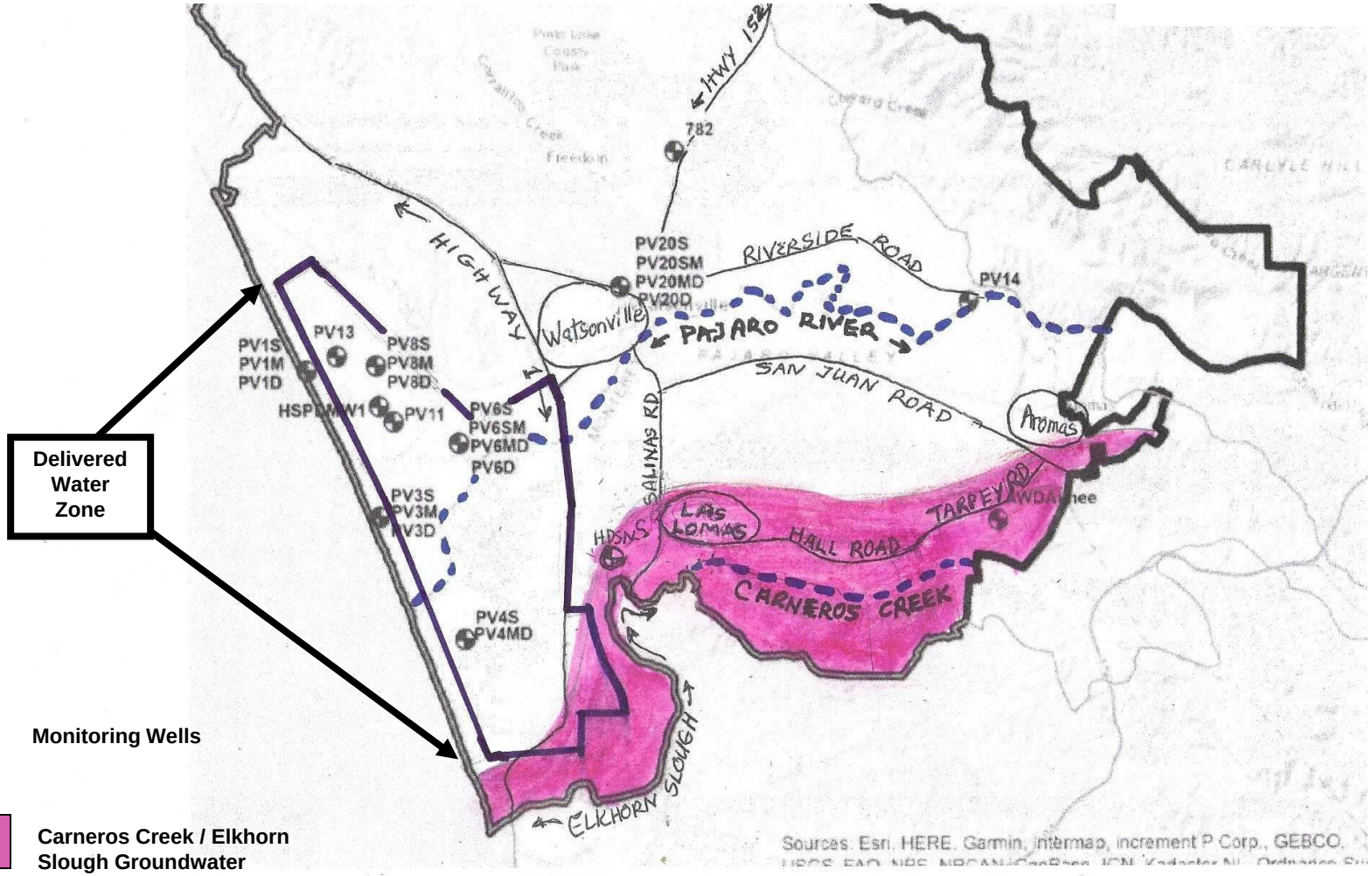


4

Slide18

5). PV Water needs to develop sufficient monitoring wells near Elkhorn Slough and in the Carneros Creek Sub-Basin to track the extent of sea water intrusion, especially as there are no projects approved that will reduce intrusion in those areas. A management plan needs to be developed to reduce pumping in the Carneros Creek /Elkhorn Slough sub-basin if chlorides continue to increase beyond agricultural suitability level (150mg/L)

- **Inadequate monitoring wells for Elkhorn Slough and Carneros Creek sub-basin**
- **Need contingency management plan as no projects have been approved to protect this area**

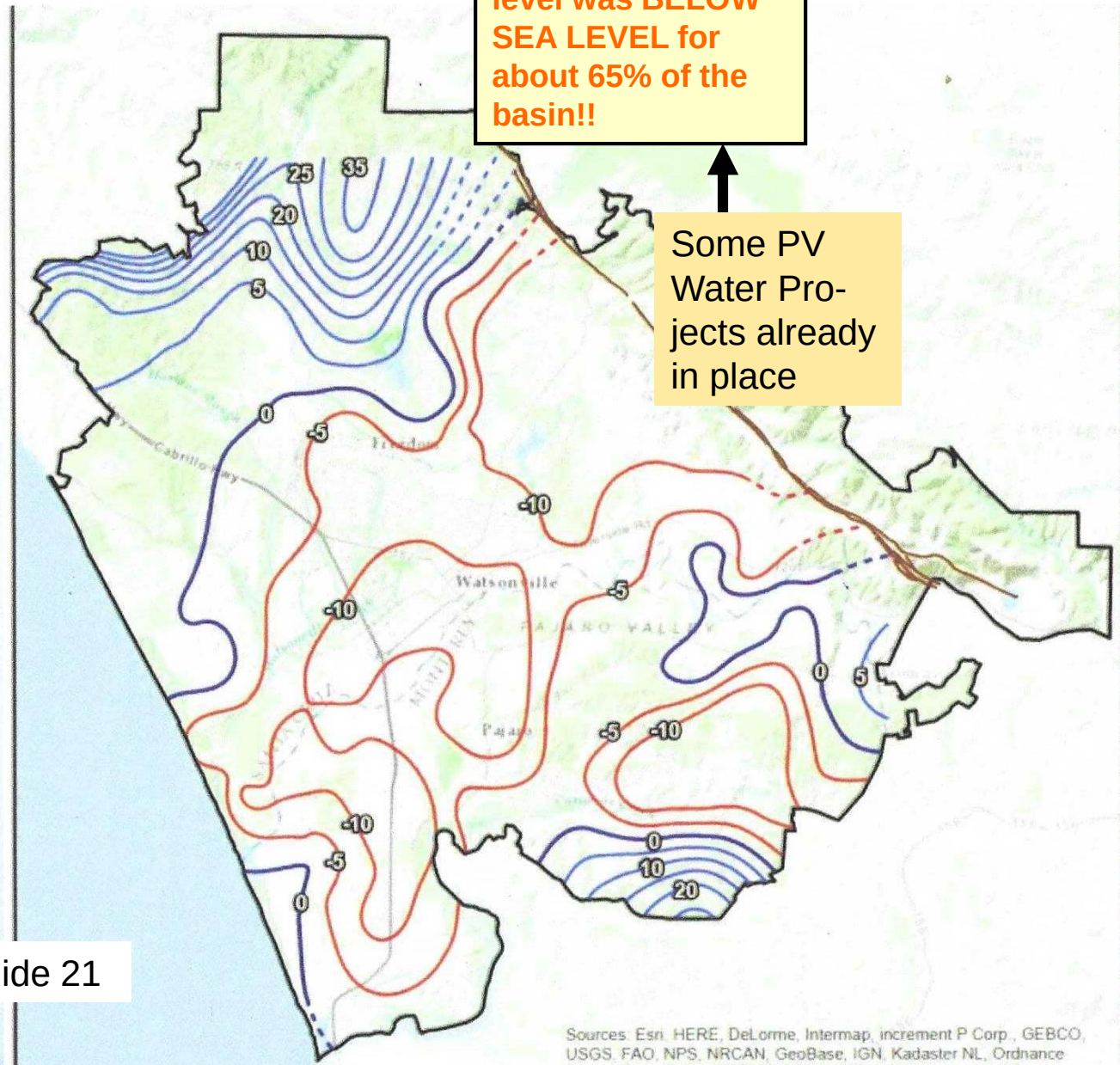


Is our groundwater truly safe??

IN 2015, after 4 years of drought, the ground-water level was BELOW SEA LEVEL for about 65% of the basin!!

Same footprint

This is almost the same contours as in 1992, which was a much more significant drought



Some PV Water Pro-jects already in place

No PV Water Projects in place in 1992