

Cuyama Basin Groundwater Sustainability Agency

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# Set 2019 Meeting Schedule

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# 2019 Meeting Calendar

BOD
  SAC
  Public Workshop
  Adj Date
  Holiday

January						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		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		

February						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					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		

July						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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			

August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				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

March						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					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						

April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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				

September						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
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					

October						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		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		

May						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			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	

June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						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						

November						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					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

December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
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				



Cuyama Basin Groundwater Sustainability Agency

# DWR Grant Agreement Approval





Cuyama Basin Groundwater Sustainability Agency

# DWR TSS Monitoring Well Location Approval



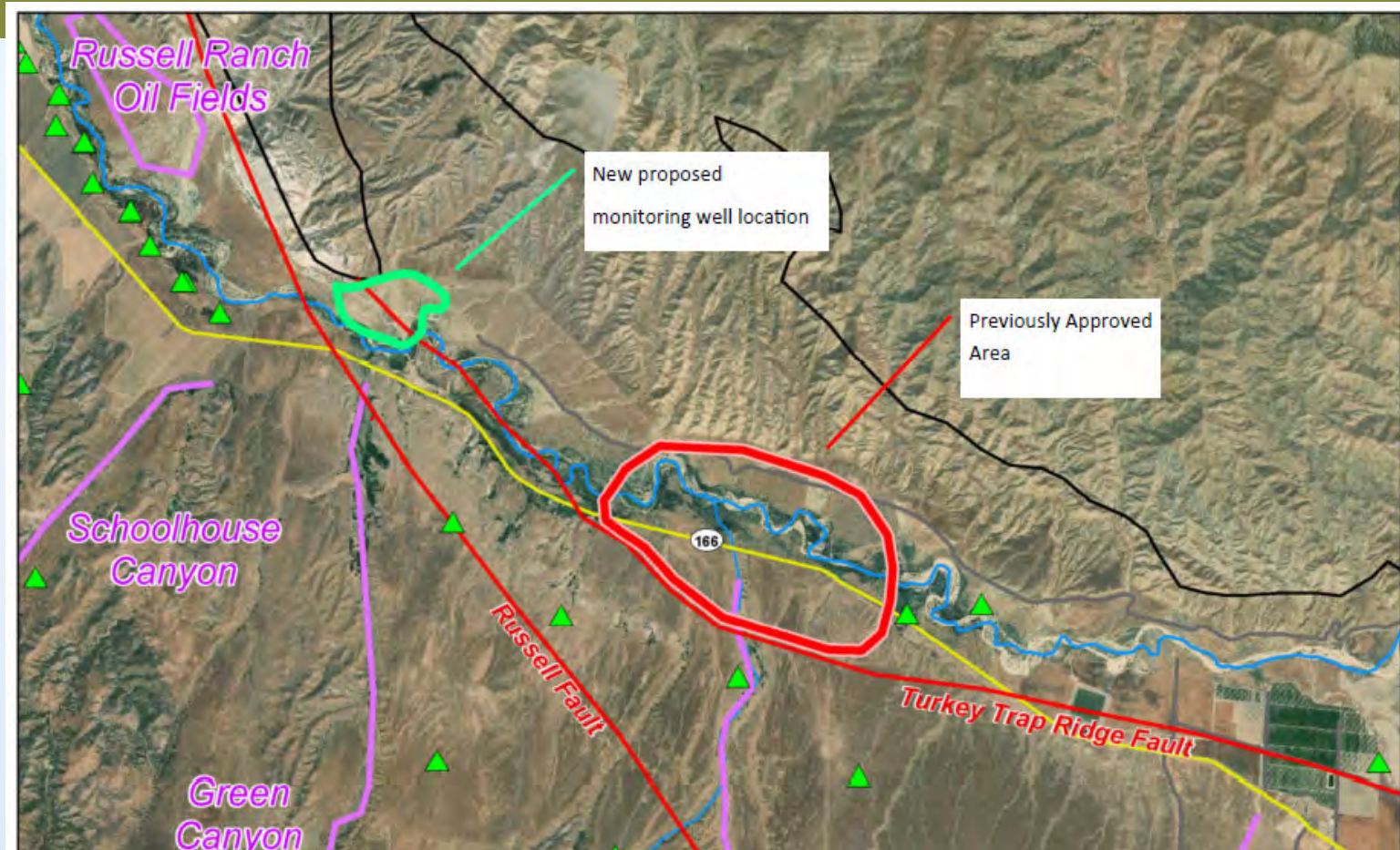


# Russel Fault Area – New Location





# Russel Fault Area – Previous Approved Location





Cuyama Basin Groundwater Sustainability Agency

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# Review of Preliminary Thresholds

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December 18, 2018

# Board Direction on Minimum Thresholds

Approved Motion from December 3, 2018 Board Meeting

*Direct Woodard & Curran to use Option D to develop preliminary threshold numbers.*



# Why Minimum Thresholds?

- Required by SGMA
- Establish Range of Operation in Groundwater Basin
- Protect other Groundwater Pumpers
  
- For Example:
  - Keep Groundwater Levels High Enough to:
    1. Ensure adjacent pumpers have access to groundwater
    2. Protect access to groundwater in Community Services District well

# Principals for Today's Discussion

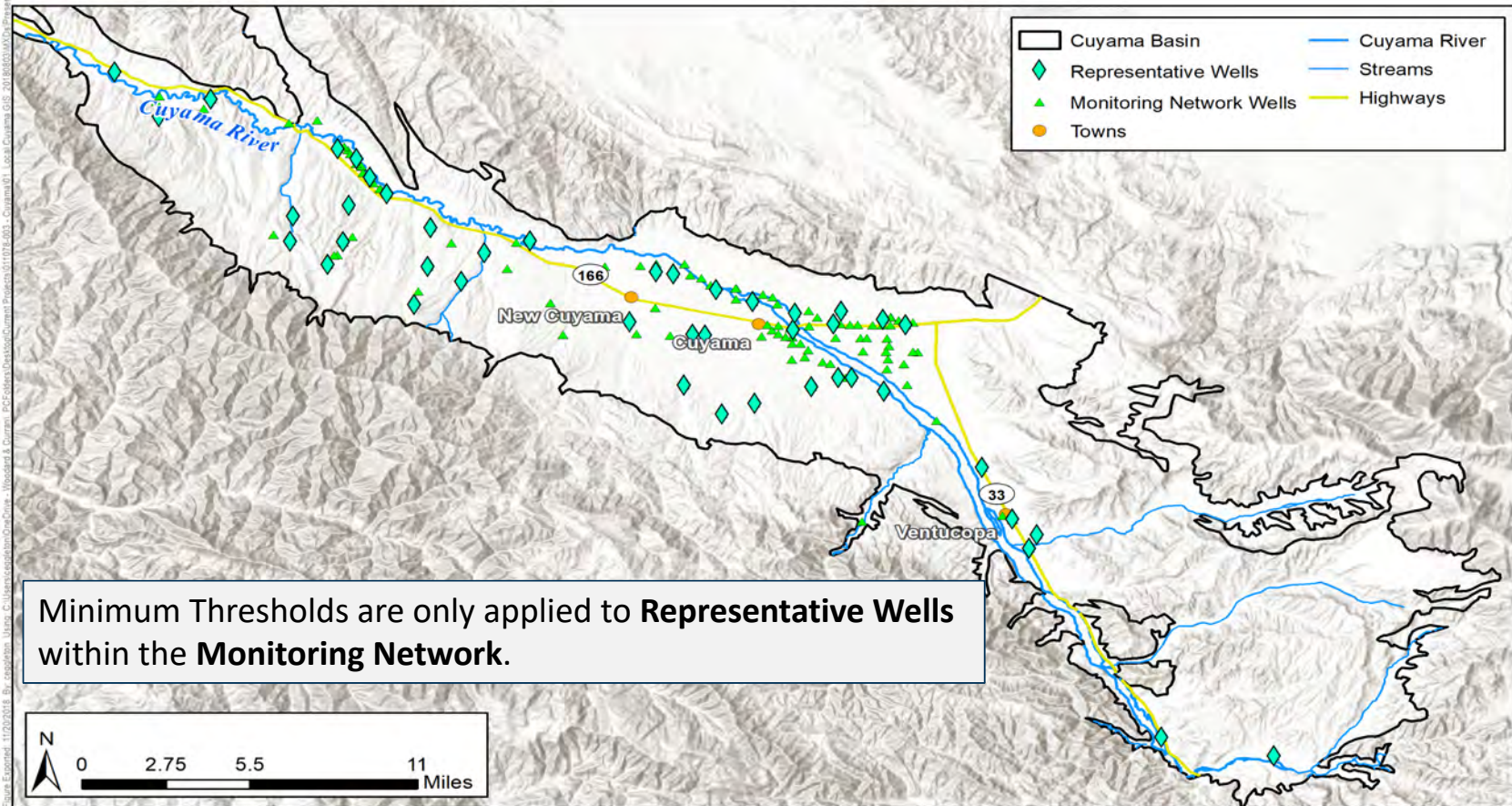
- Thresholds are required to complete and submit the GSP by January 2020
- Only establishing rationale for establishing initial thresholds
- Initial threshold numbers will be discussed in January
- Initial threshold numbers are only a starting point.
- Initial threshold numbers will likely be modified as we gain greater understanding of the Basin.



# Next Steps in Developing Sustainability Plan

- Board approves draft sustainability thresholds
- Identify projects and actions to achieve sustainable groundwater levels
- Use numerical model to determine:
  - Long-term sustainable groundwater pumping levels that maintain groundwater levels above minimum thresholds
  - Planned reductions in pumping between now and 2040 to achieve sustainable pumping levels (i.e. glide path)
- Develop long-term implementation plan
  - Includes response plan if levels fall below minimum thresholds

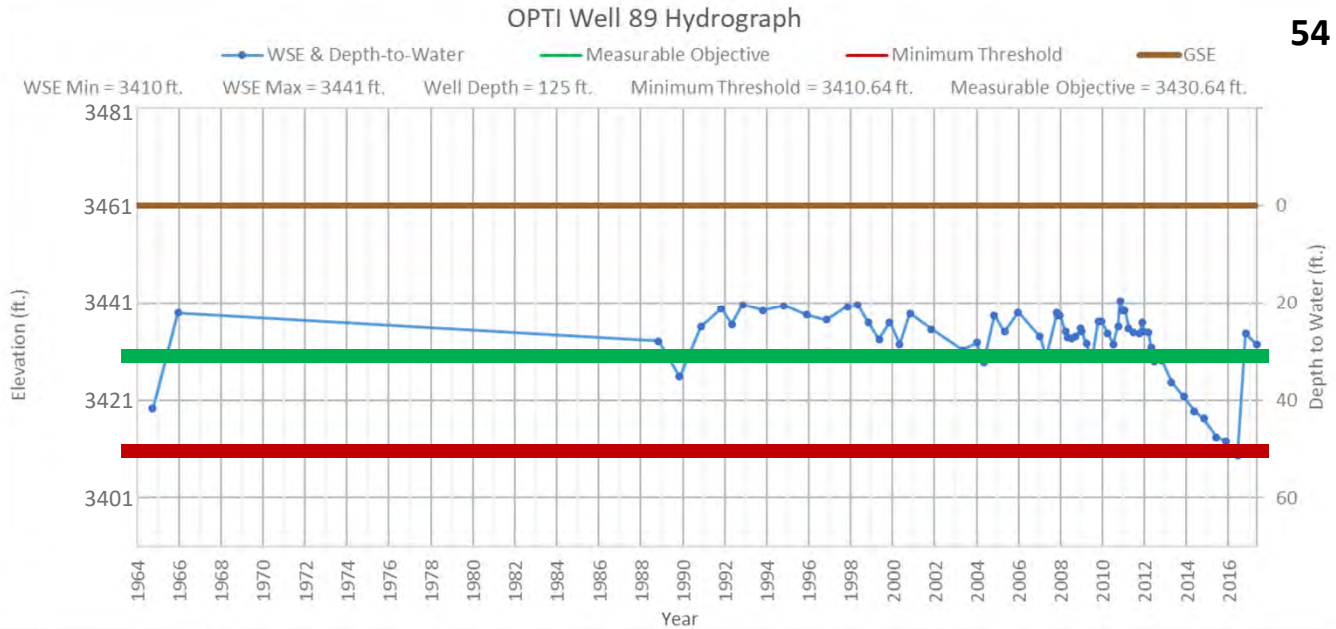
# Where are Thresholds Applied?





# From Last Meeting

## Propose 20% of Range



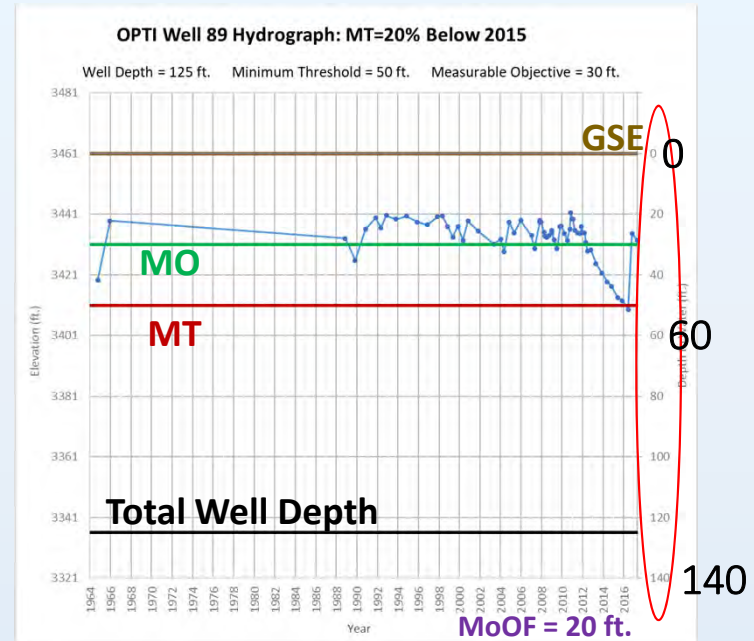
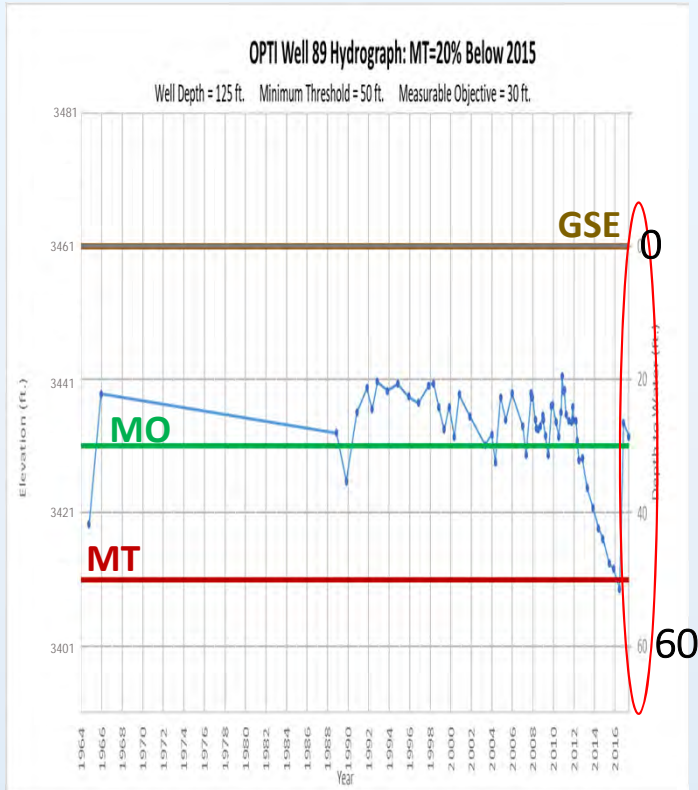
Measurable Objective – 5-years of Storage

Minimum Threshold – 20% of Range below 1/1/2015 Measurement

# Hydrograph Types – Squished to fit 3 across a single slide

Same As Before, But Squished

Vertical Scale Reaches TD of Monitoring Well





# Option D

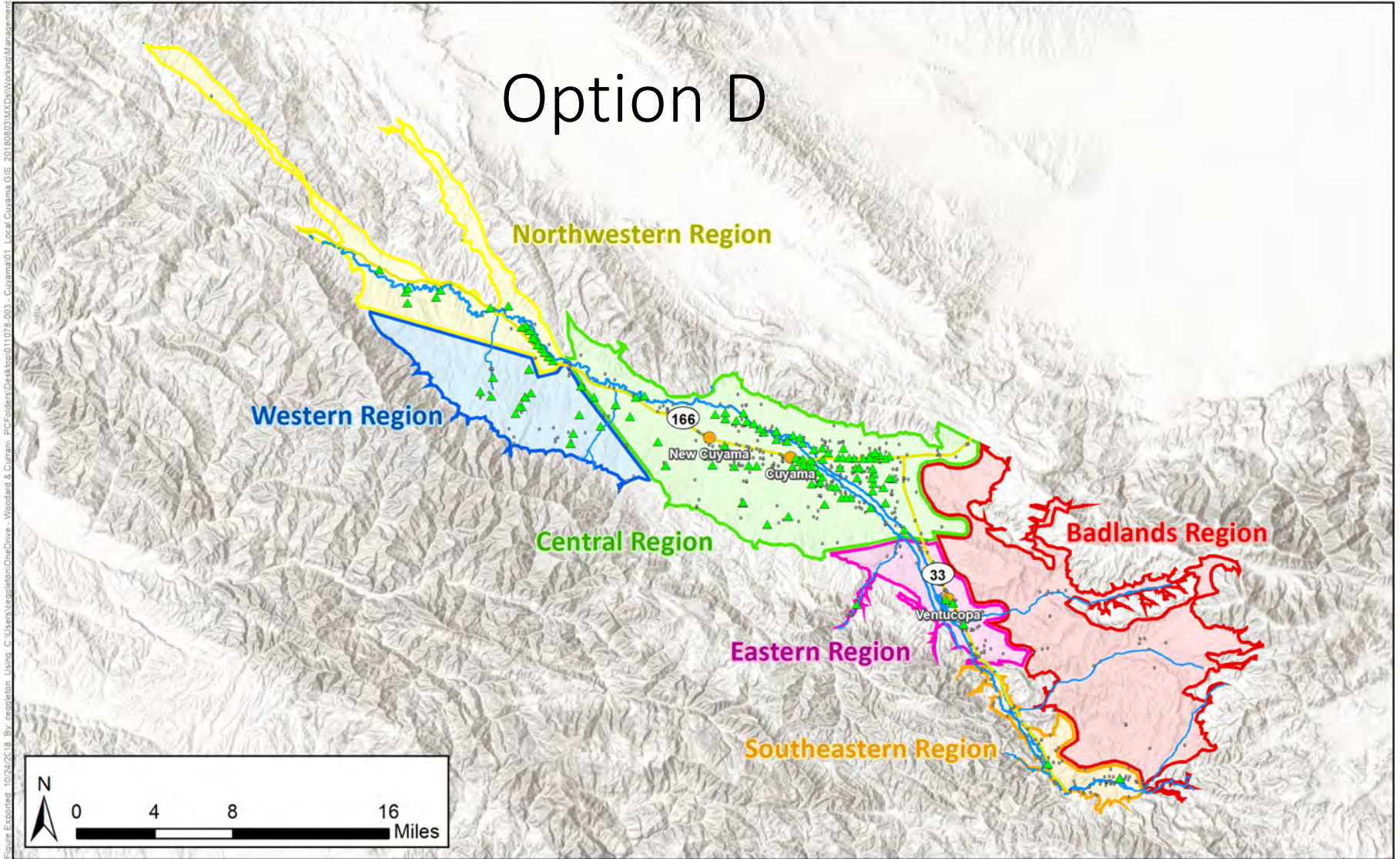


Figure Exposed: 10/24/2018 By: ceapl@plm.Usrsr C:\Users\ceapl@plm\OneDrive - Woodard & Curran - PC\Folders\Desktop\011078-003 - Cuyama\01 - Cuyama\01 - Local Cuyama GIS 2018\01\01\MXDs\Workshop\Map\MapAreaB



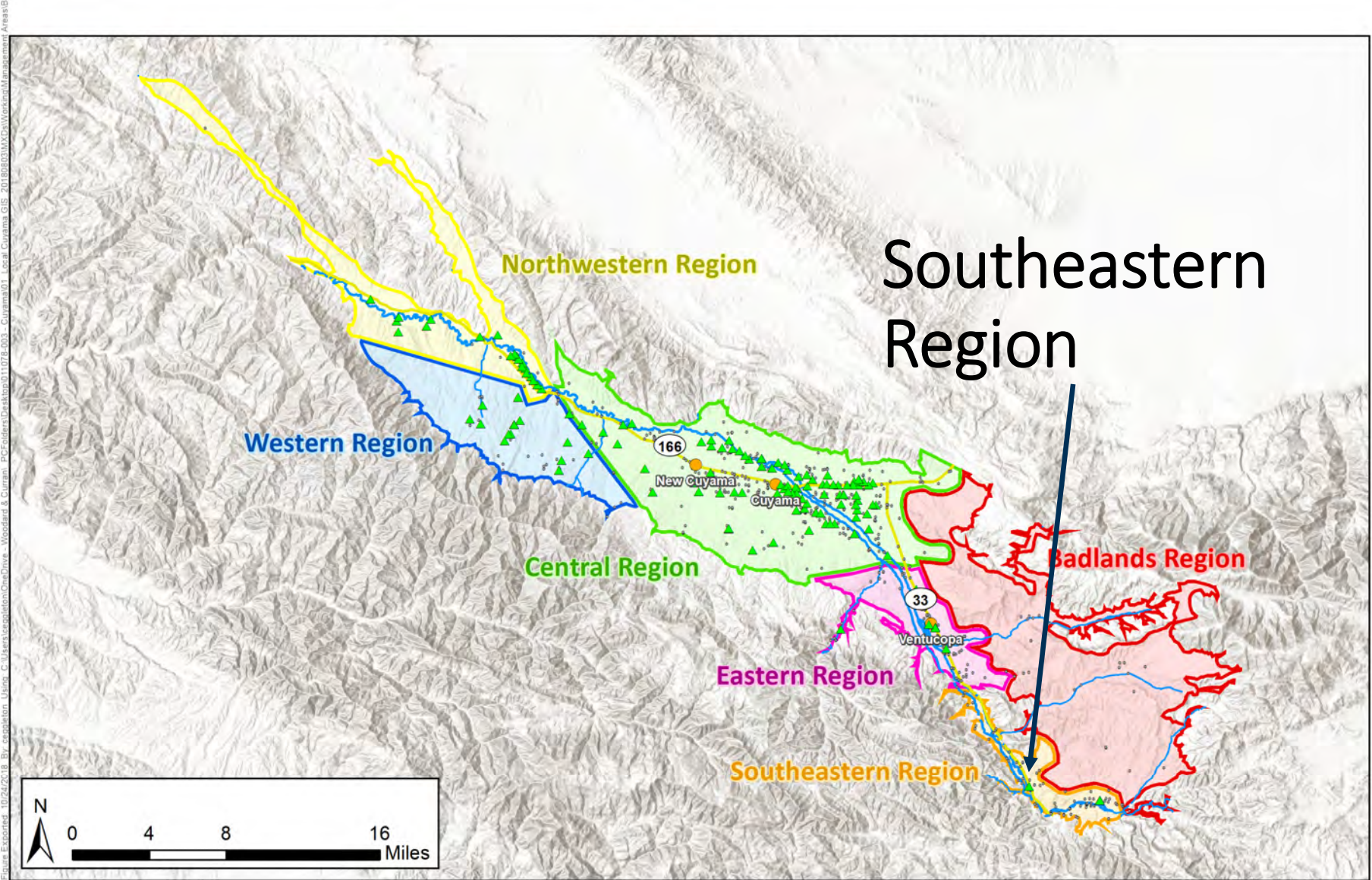


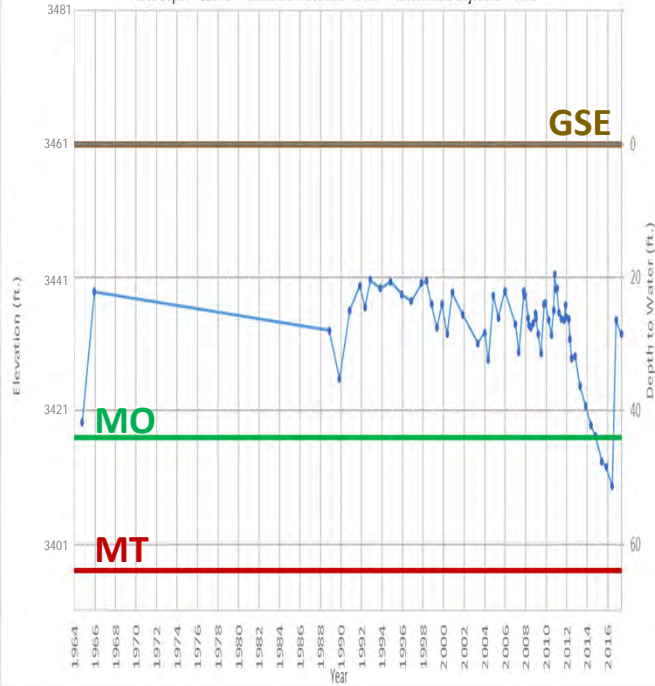
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# Opti Well 89

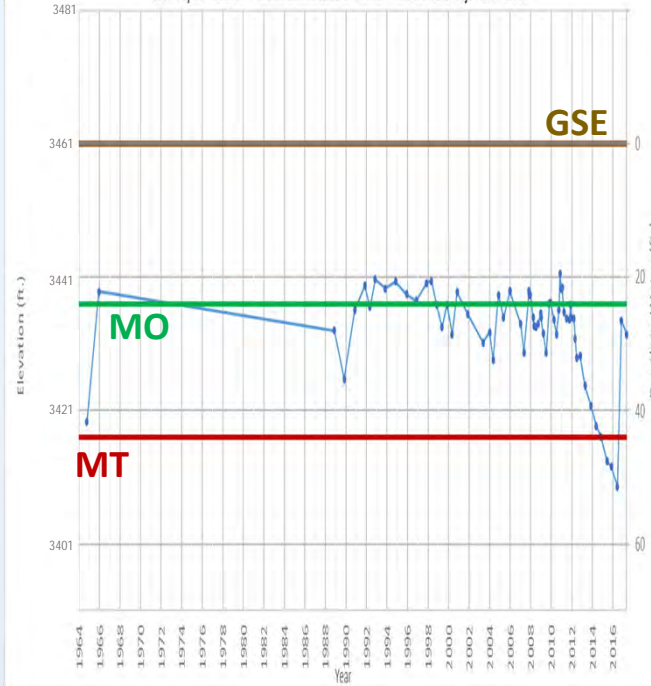
OPTI Well 89 Hydrograph: MO=2015

Well Depth = 125 ft. Minimum Threshold = 64 ft. Measurable Objective = 44 ft.



OPTI Well 89 Hydrograph: MT=2015

Well Depth = 125 ft. Minimum Threshold = 44 ft. Measurable Objective = 24 ft.



OPTI Well 89 Hydrograph: MT=20% Below 2015

Well Depth = 125 ft. Minimum Threshold = 50 ft. Measurable Objective = 30 ft.



Southeastern Region

# Opti Well 89

Initially  
Recommended

**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

OPTI Well 89 Hydrograph: MO=2015

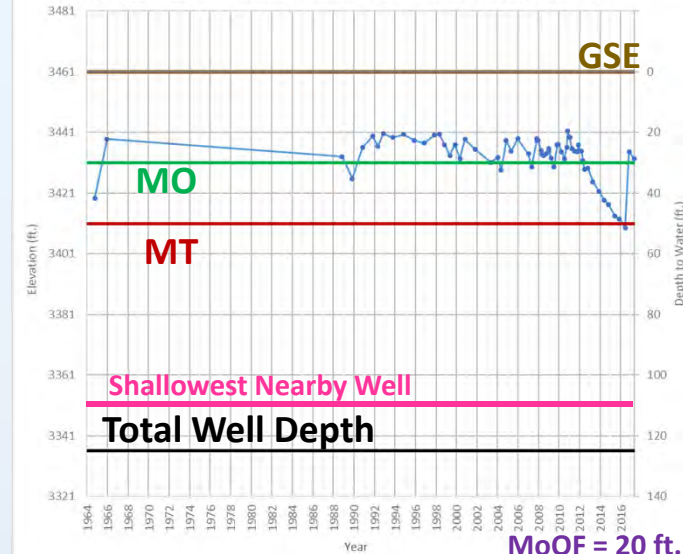
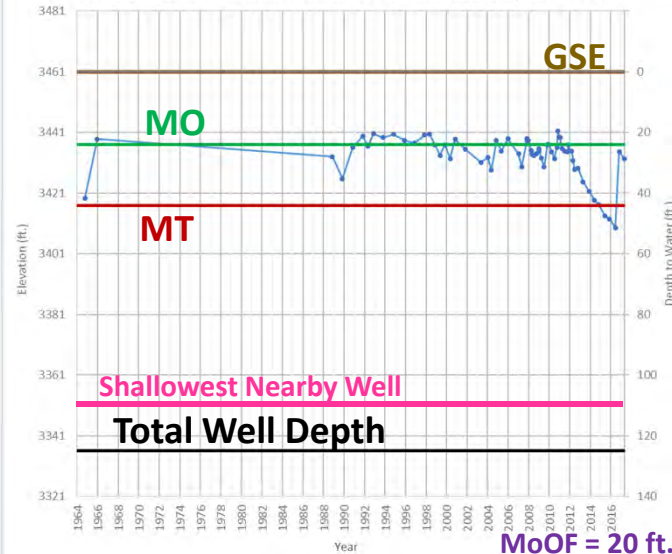
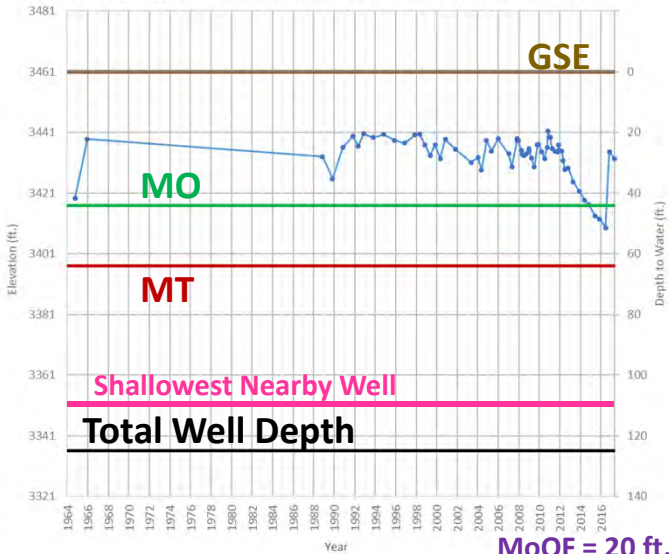
OPTI Well 89 Hydrograph: MT=2015

OPTI Well 89 Hydrograph: MT=20% Below 2015

Well Depth = 125 ft. Minimum Threshold = 64 ft. Measurable Objective = 44 ft.

Well Depth = 125 ft. Minimum Threshold = 44 ft. Measurable Objective = 24 ft.

Well Depth = 125 ft. Minimum Threshold = 50 ft. Measurable Objective = 30 ft.



Southeastern Region

SAC  
Recommended  
General Board  
Agreement



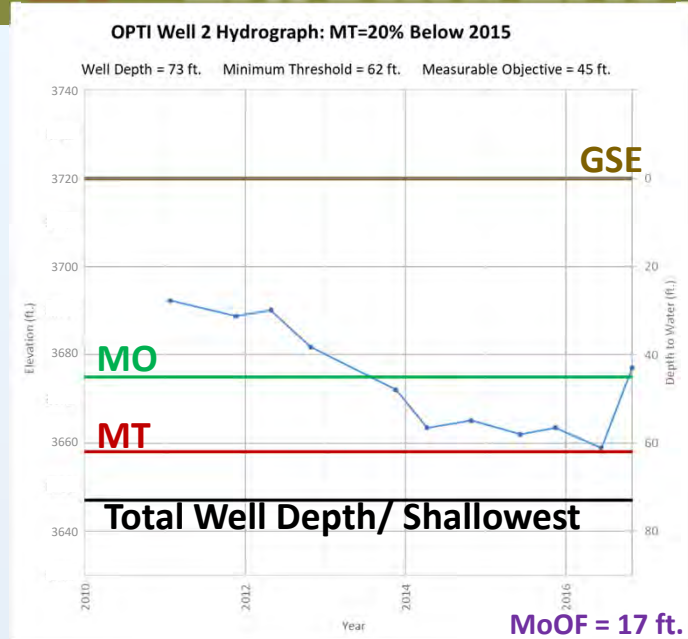
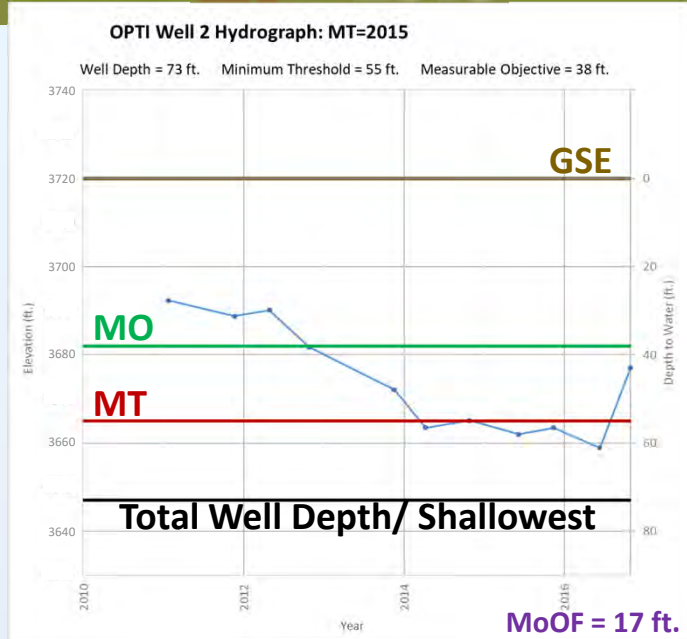
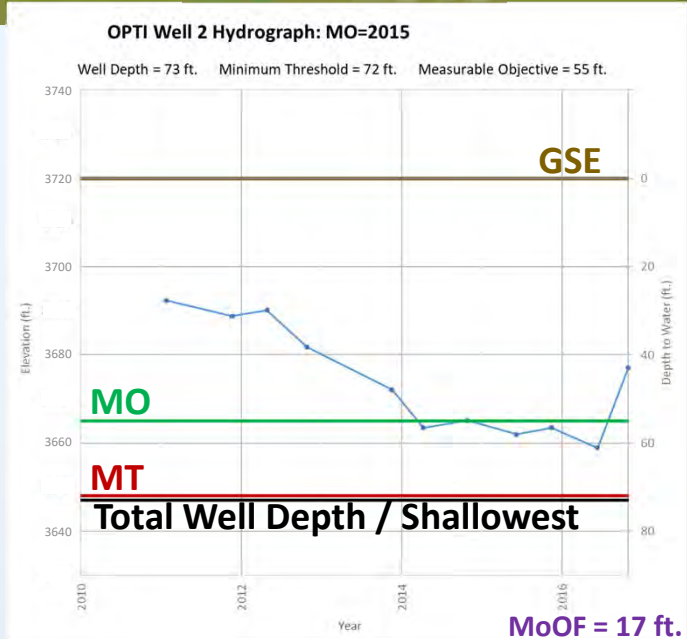
# OPTI Well 2

Initially  
Recommended

**MO = 2015**

**MT = 2015**

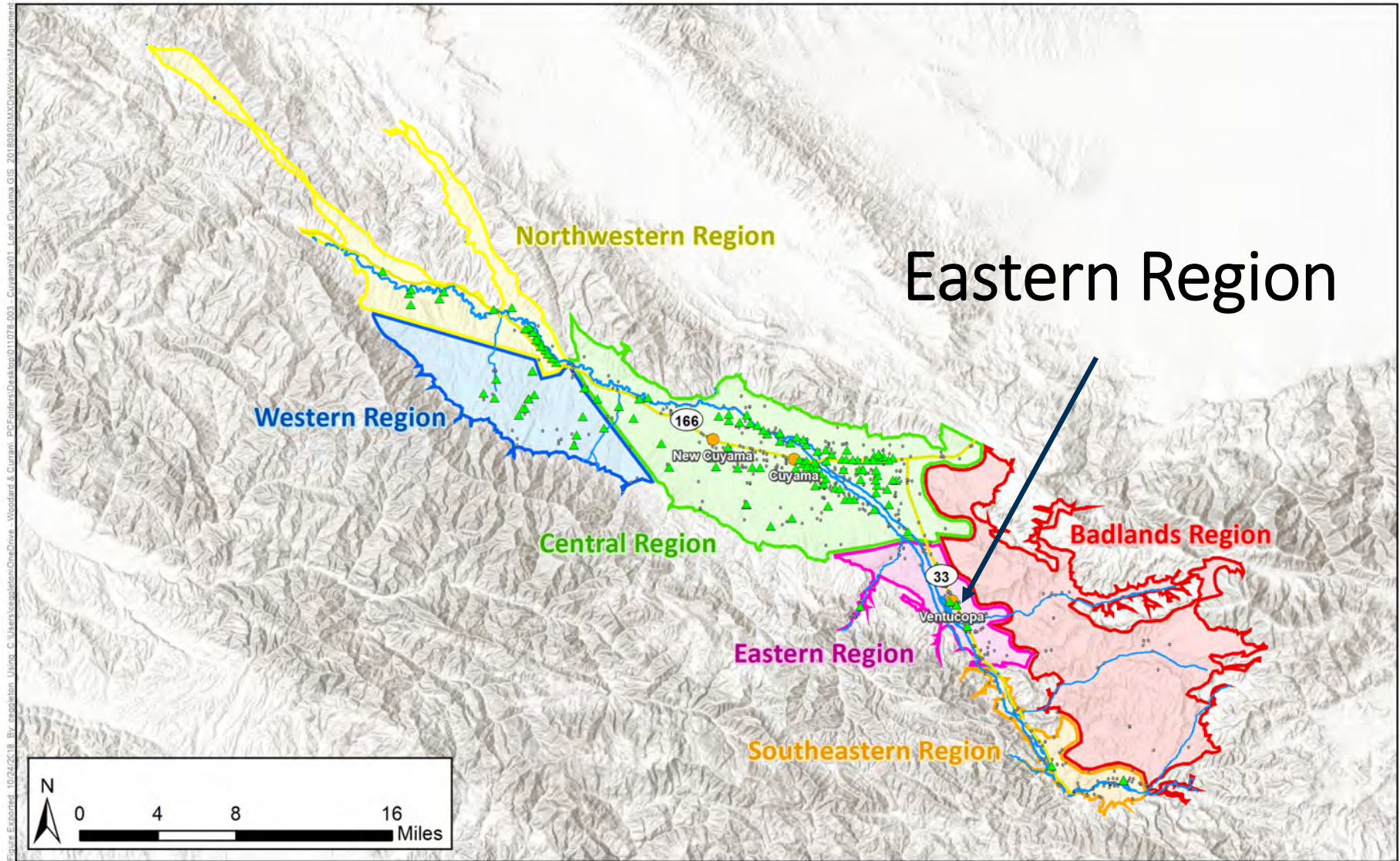
**MT = 20% Below 2015**



**Southeastern Region**

SAC  
Recommended  
General Board  
Agreement







# OPTI Well 85

Initially  
Recommended

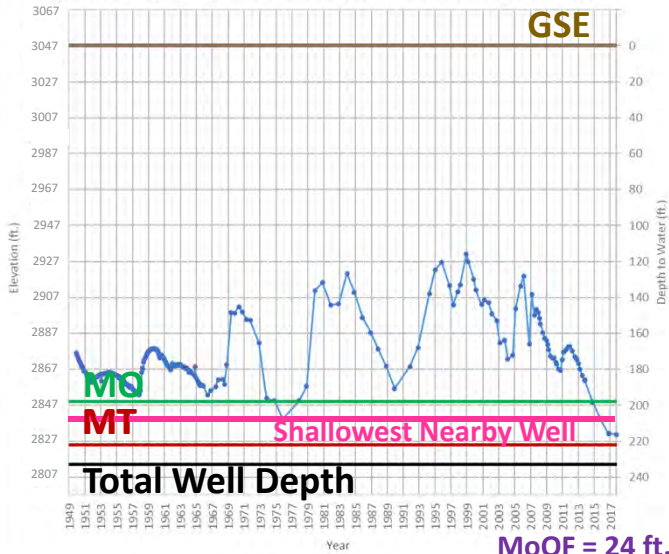
**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

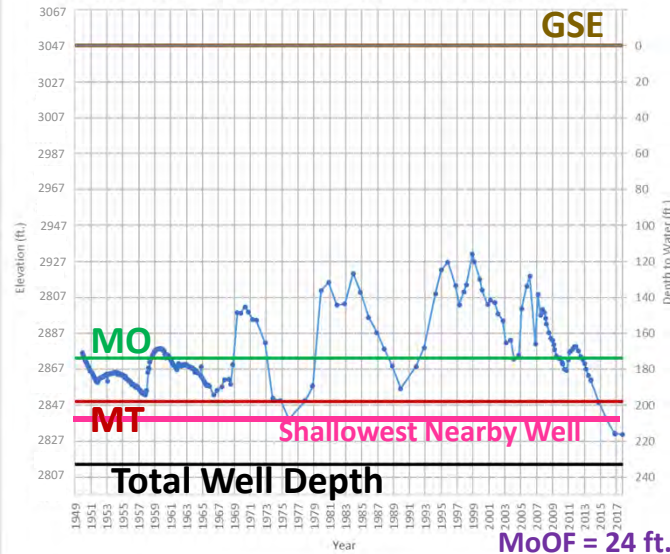
OPTI Well 85 Hydrograph: MO=2015

Well Depth = 233 ft. Minimum Threshold = 222 ft. Measurable Objective = 198 ft.



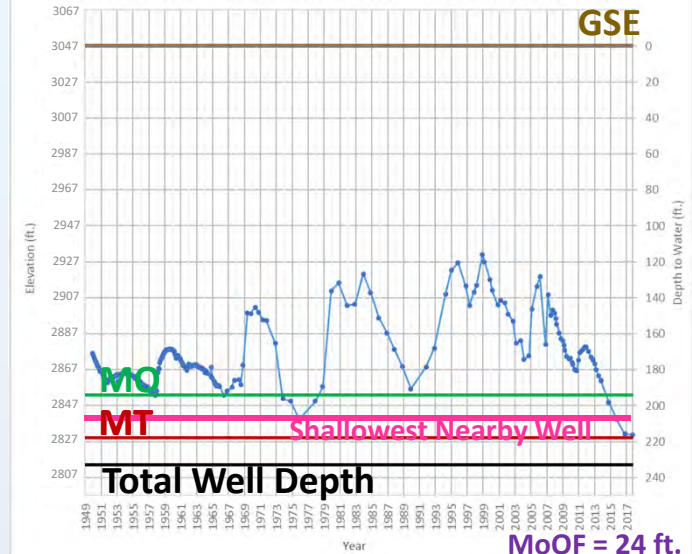
OPTI Well 85 Hydrograph: MT=2015

Well Depth = 233 ft. Minimum Threshold = 198 ft. Measurable Objective = 174 ft.



OPTI Well 85 Hydrograph: MT=20% Below 2015

Well Depth = 233 ft. Minimum Threshold = 218 ft. Measurable Objective = 194 ft.



Eastern Region

SAC  
Recommended



# OPTI Well 62

Initially  
Recommended

**MO = 2015**

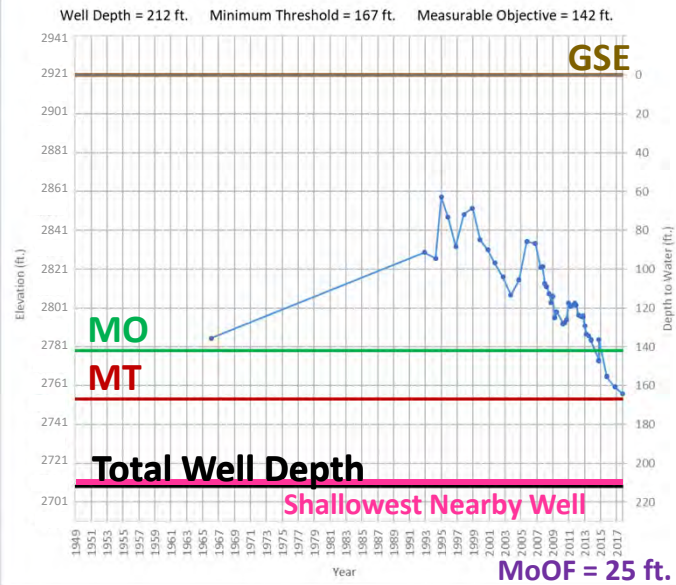
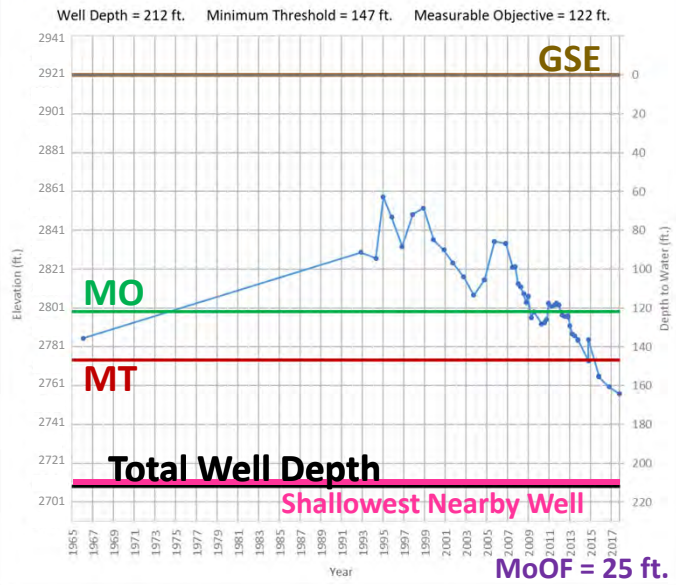
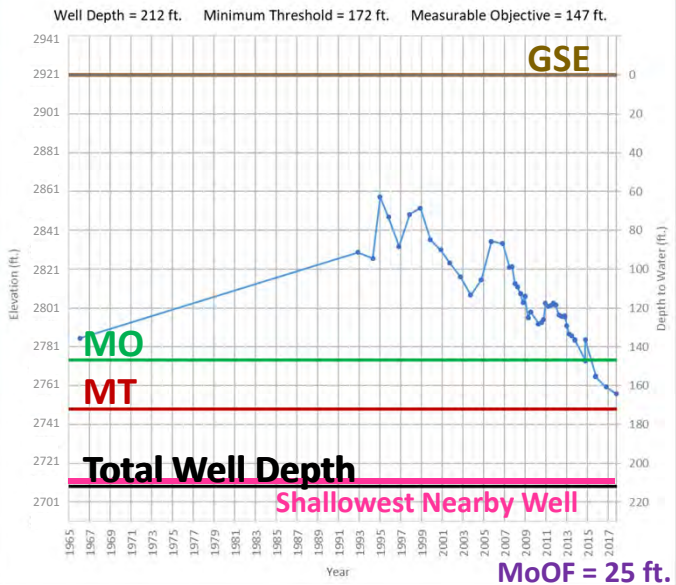
**MT = 2015**

**MT = 20% Below 2015**

OPTI Well 62 Hydrograph: MO=2015

OPTI Well 62 Hydrograph: MT=2015

OPTI Well 62 Hydrograph: MT=20% Below 2015



Eastern Region

SAC  
Recommended





# OPTI Well 100

Initially Recommended

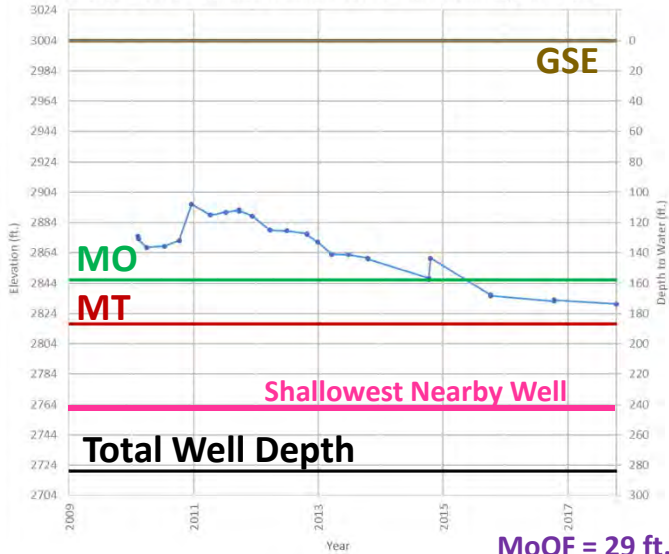
**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

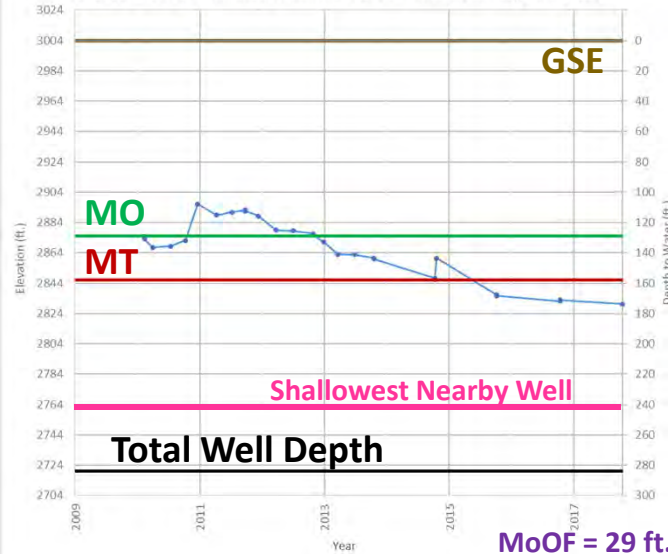
OPTI Well 100 Hydrograph: MO=2015

Well Depth = 284 ft. Minimum Threshold = 187 ft. Measurable Objective = 158 ft.



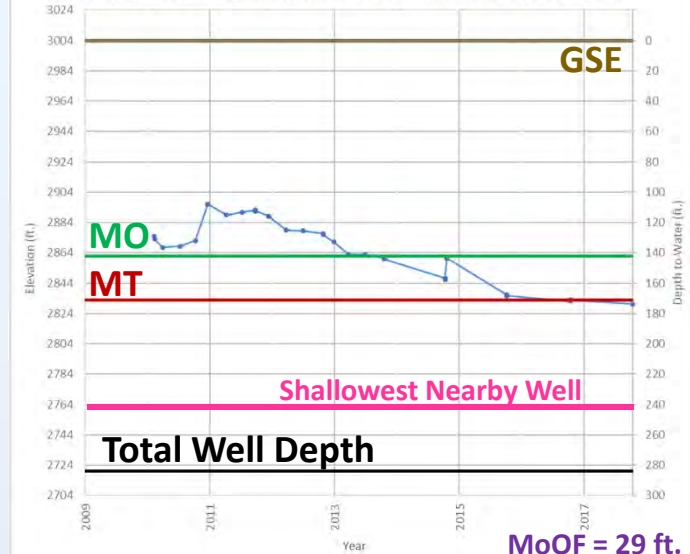
OPTI Well 100 Hydrograph: MT=2015

Well Depth = 284 ft. Minimum Threshold = 158 ft. Measurable Objective = 129 ft.



OPTI Well 100 Hydrograph: MT=20% Below 2015

Well Depth = 284 ft. Minimum Threshold = 171 ft. Measurable Objective = 142 ft.



Eastern Region

SAC Recommended



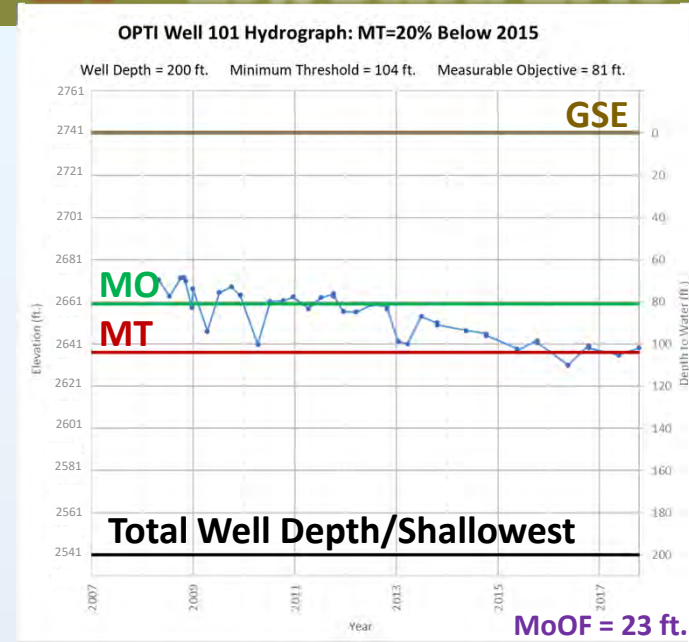
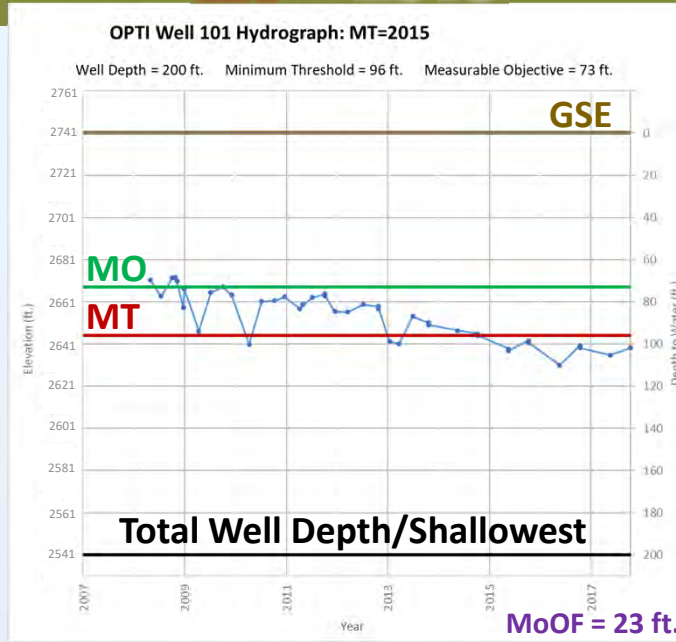
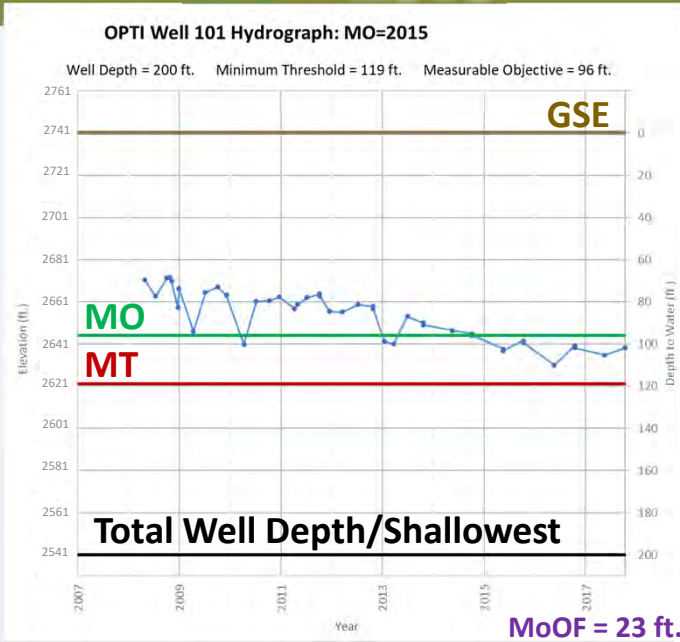
# OPTI Well 101

Initially  
Recommended

**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

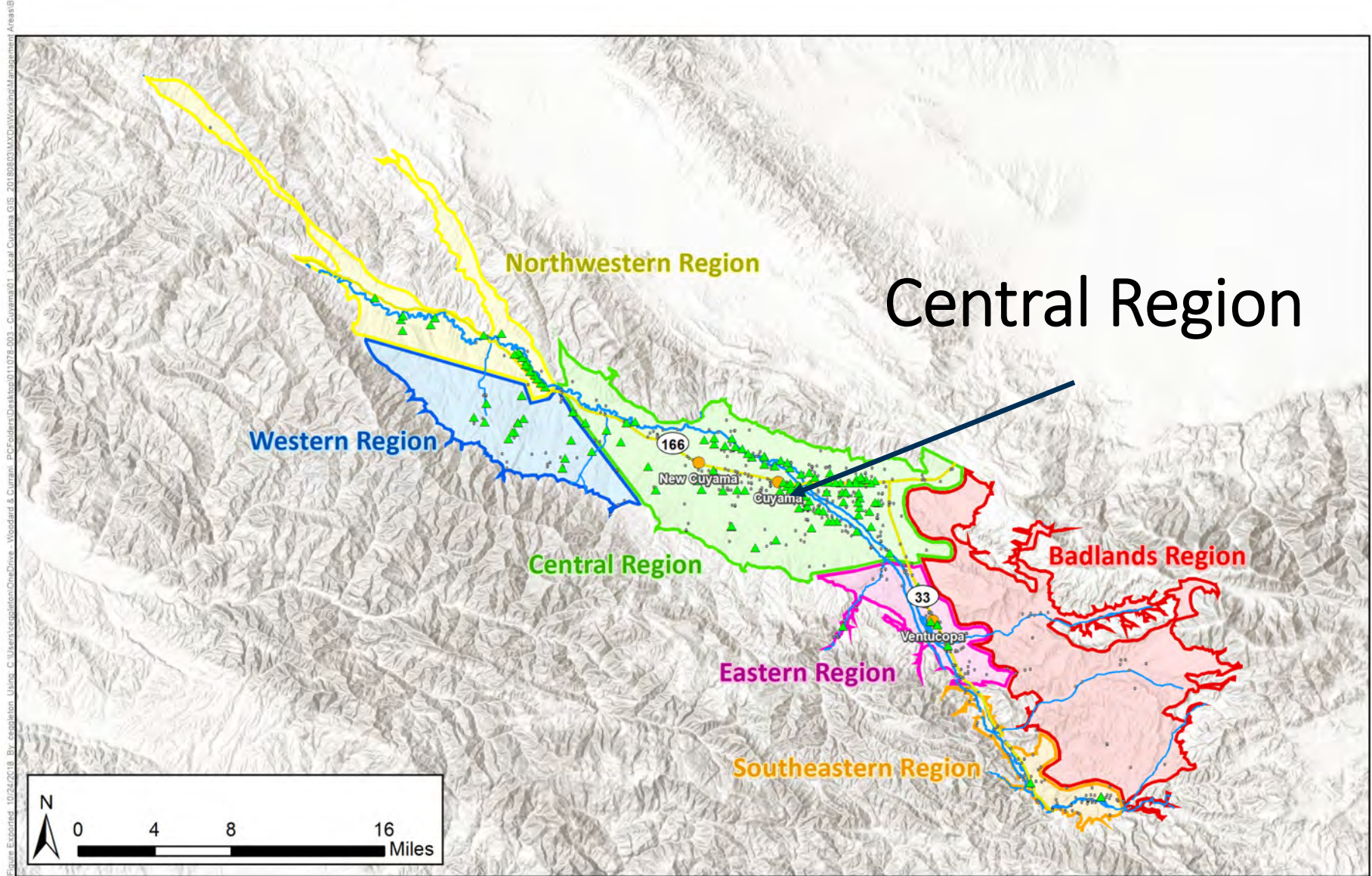


Eastern Region

SAC  
Recommended







# OPTI Well 421

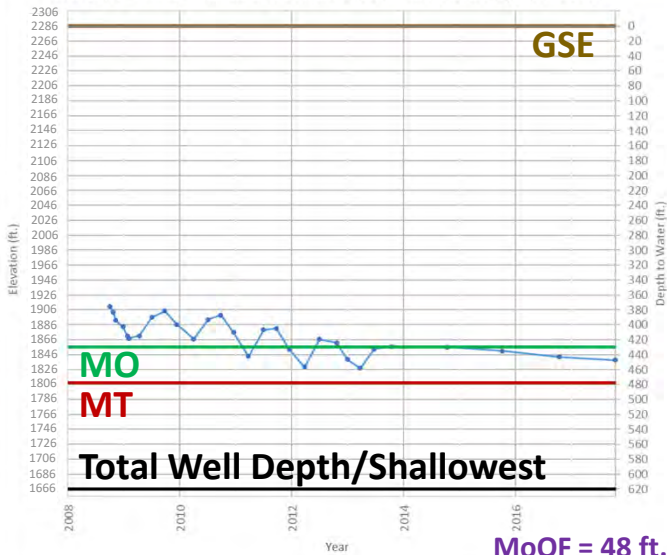
**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

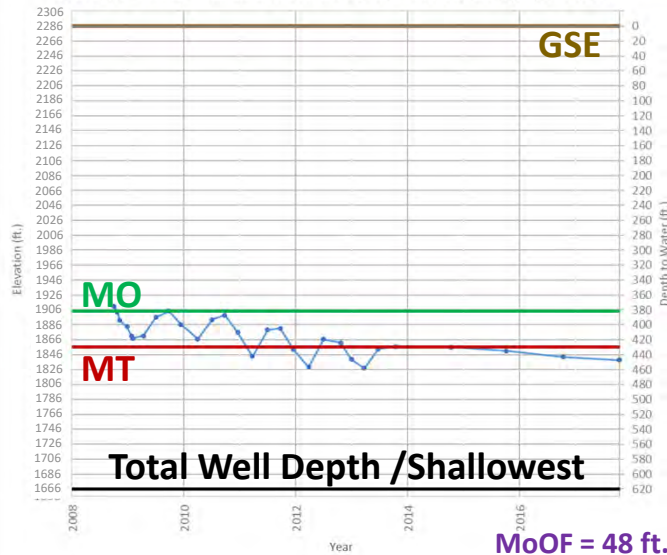
OPTI Well 421 Hydrograph: MO=2015

Well Depth = 620 ft. Minimum Threshold = 478 ft. Measurable Objective = 430 ft.



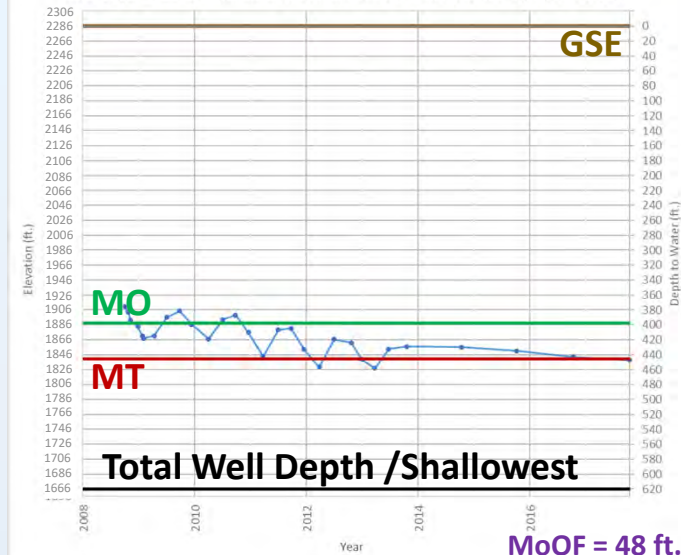
OPTI Well 421 Hydrograph: MT=2015

Well Depth = 620 ft. Minimum Threshold = 430 ft. Measurable Objective = 382 ft.



OPTI Well 421 Hydrograph: MT=20% Below 2015

Well Depth = 620 ft. Minimum Threshold = 446 ft. Measurable Objective = 398 ft.



2 in 5 SAC  
Recommended

3 in 5 SAC  
Recommended

Central Region



# OPTI Well 72 (CSD Well)

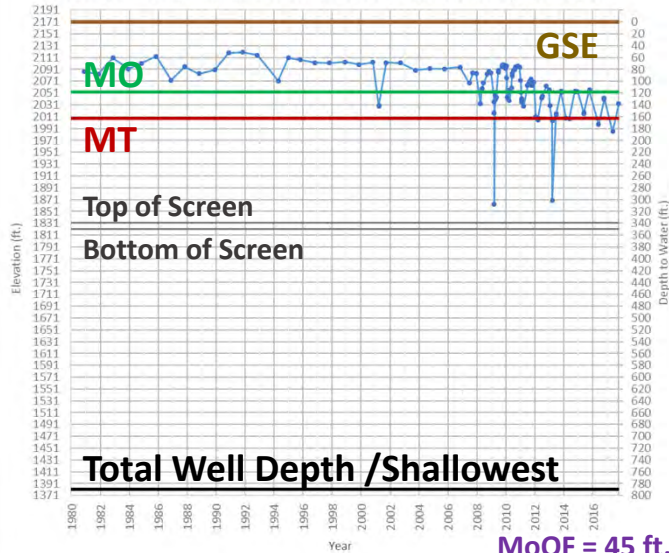
**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

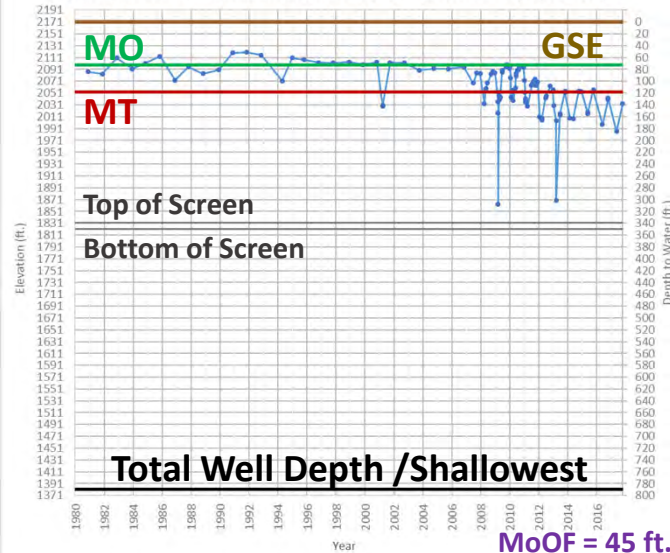
OPTI Well 72 Hydrograph: MO=2015

Well Depth = 790 ft. Minimum Threshold = 163 ft. Measurable Objective = 118 ft.



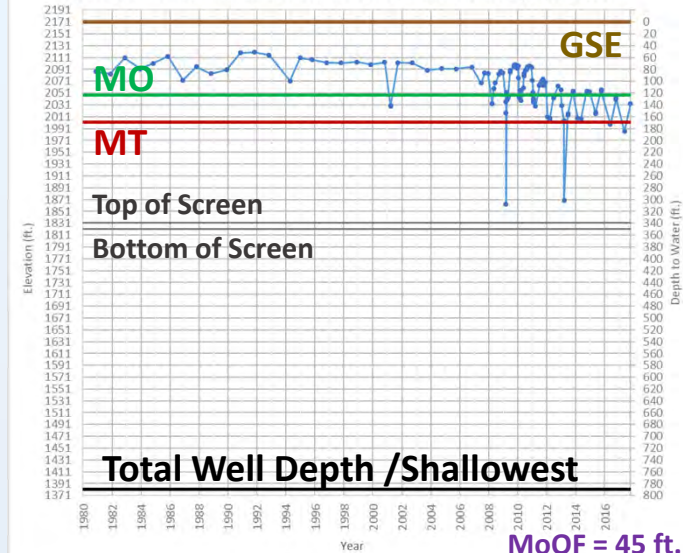
OPTI Well 72 Hydrograph: MT=2015

Well Depth = 790 ft. Minimum Threshold = 118 ft. Measurable Objective = 73 ft.



OPTI Well 72 Hydrograph: MT=20% Below 2015

Well Depth = 790 ft. Minimum Threshold = 169 ft. Measurable Objective = 124 ft.



2 in 5 SAC  
Recommended

3 in 5 SAC  
Recommended

Central Region

# OPTI Well 474

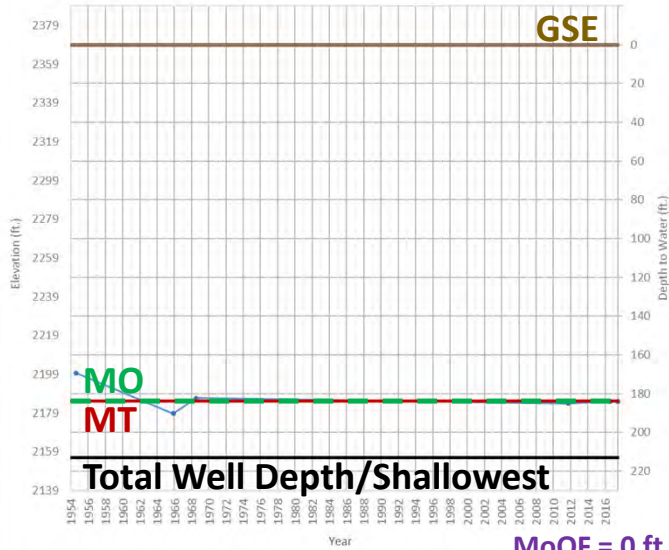
## MO = 2015

## MT = 2015

## MT = 20% Below 2015

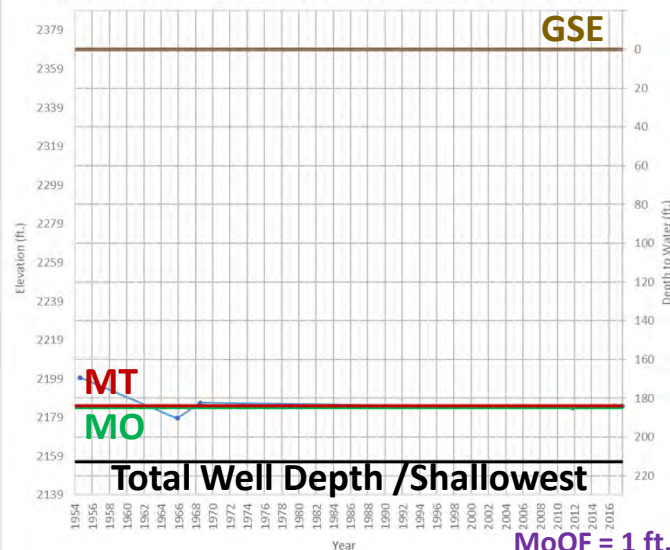
OPTI Well 474 Hydrograph: MO=2015

Well Depth = 213 ft. Minimum Threshold = 184 ft. Measurable Objective = 184 ft.



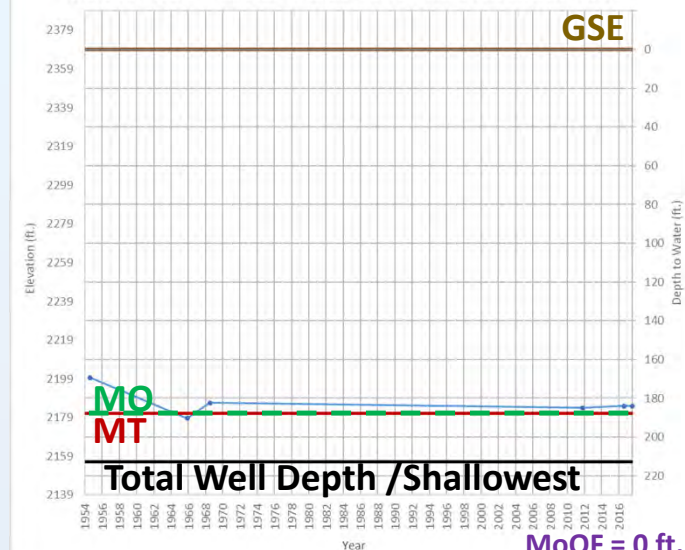
OPTI Well 474 Hydrograph: MT=2015

Well Depth = 213 ft. Minimum Threshold = 184 ft. Measurable Objective = 185 ft.



OPTI Well 474 Hydrograph: MT=20% Below 2015

Well Depth = 213 ft. Minimum Threshold = 188 ft. Measurable Objective = 188 ft.



2 in 5 SAC  
Recommended

3 in 5 SAC  
Recommended

Central Region



# OPTI Well 96

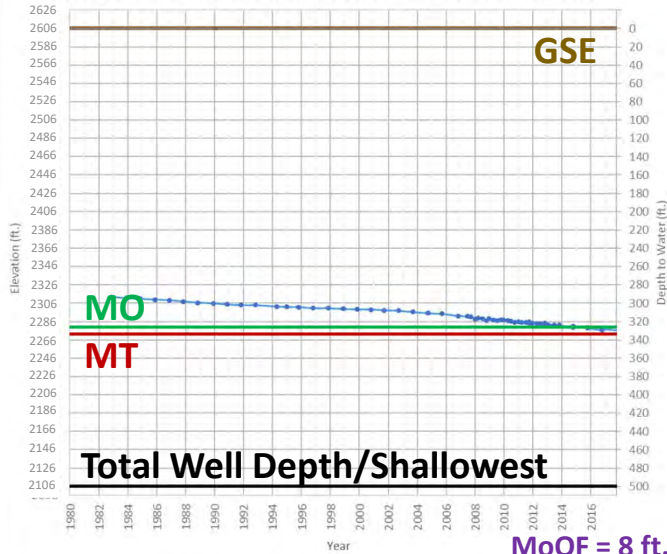
**MO = 2015**

**MT = 2015**

**MT = 20% Below 2015**

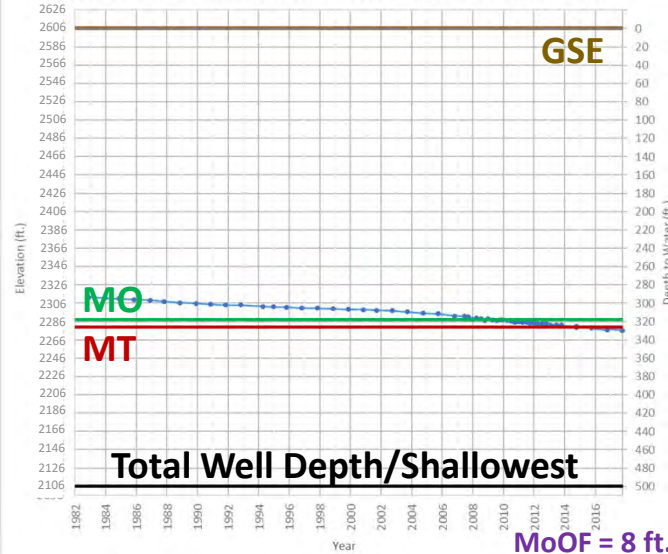
OPTI Well 96 Hydrograph: MO=2015

Well Depth = 500 ft. Minimum Threshold = 334 ft. Measurable Objective = 326 ft.



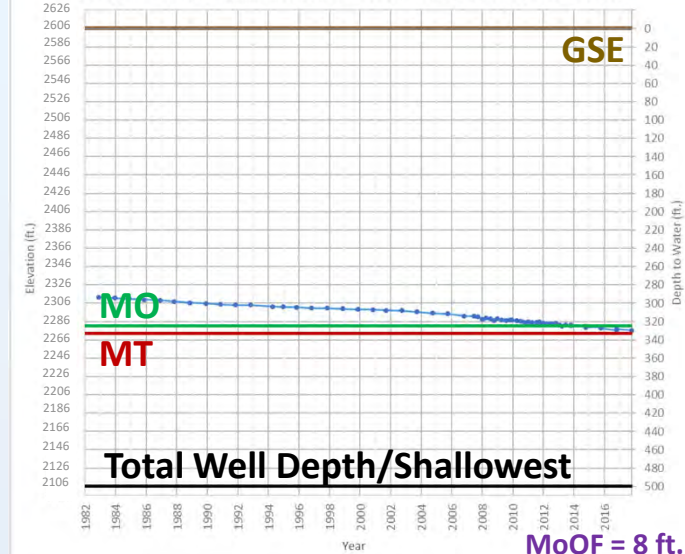
OPTI Well 96 Hydrograph: MT=2015

Well Depth = 500 ft. Minimum Threshold = 326 ft. Measurable Objective = 318 ft.



OPTI Well 96 Hydrograph: MT=20% Below 2015

Well Depth = 500 ft. Minimum Threshold = 333 ft. Measurable Objective = 325 ft.



2 in 5 SAC  
Recommended

3 in 5 SAC  
Recommended

Central Region



# OPTI Well 613

**MO = 2015**

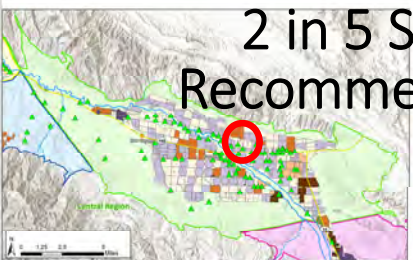
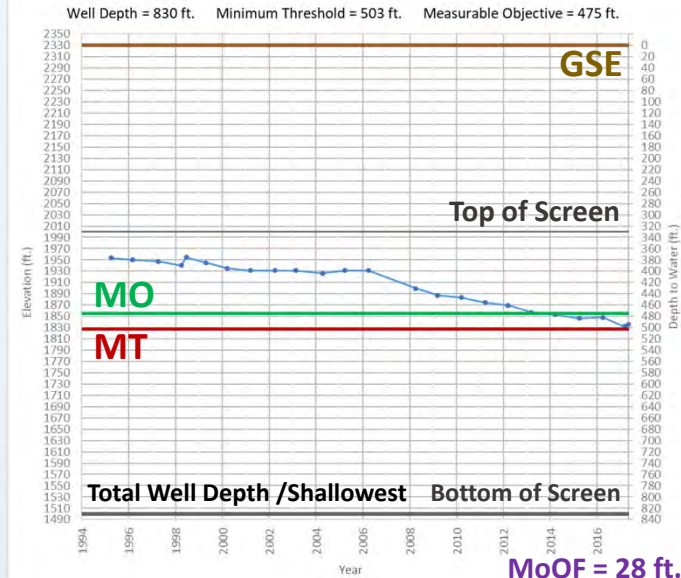
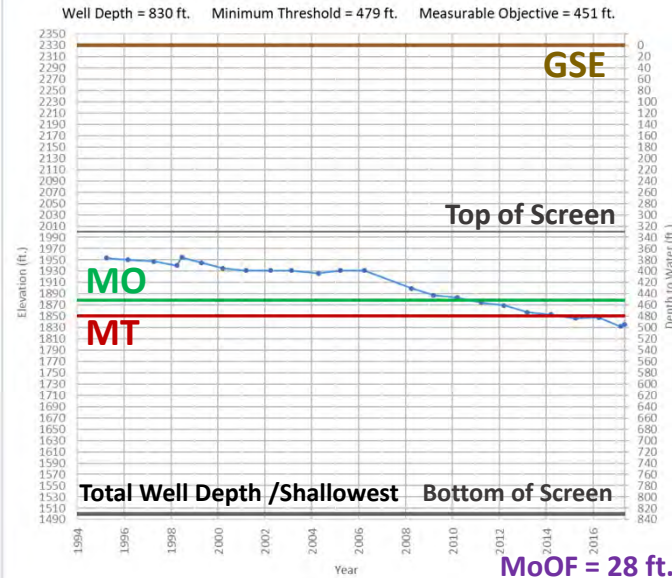
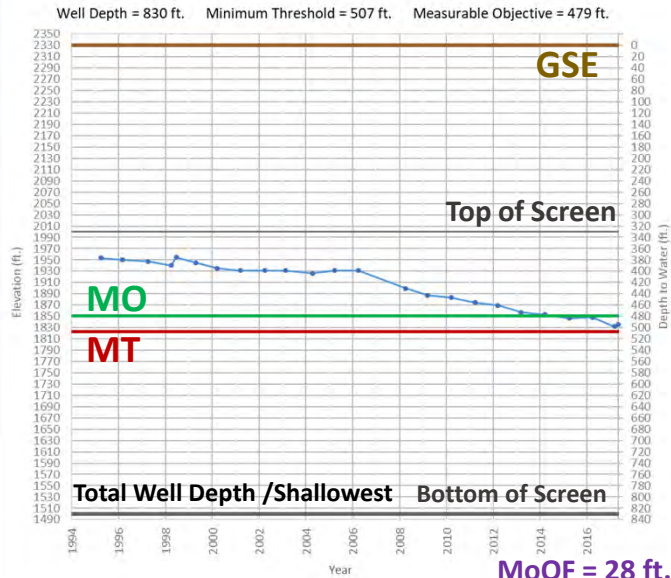
**MT = 2015**

**MT = 20% Below 2015**

OPTI Well 613 Hydrograph: MO=2015

OPTI Well 613 Hydrograph: MT=2015

OPTI Well 613 Hydrograph: MT=20% Below 2015



2 in 5 SAC  
Recommended

3 in 5 SAC  
Recommended

Central Region



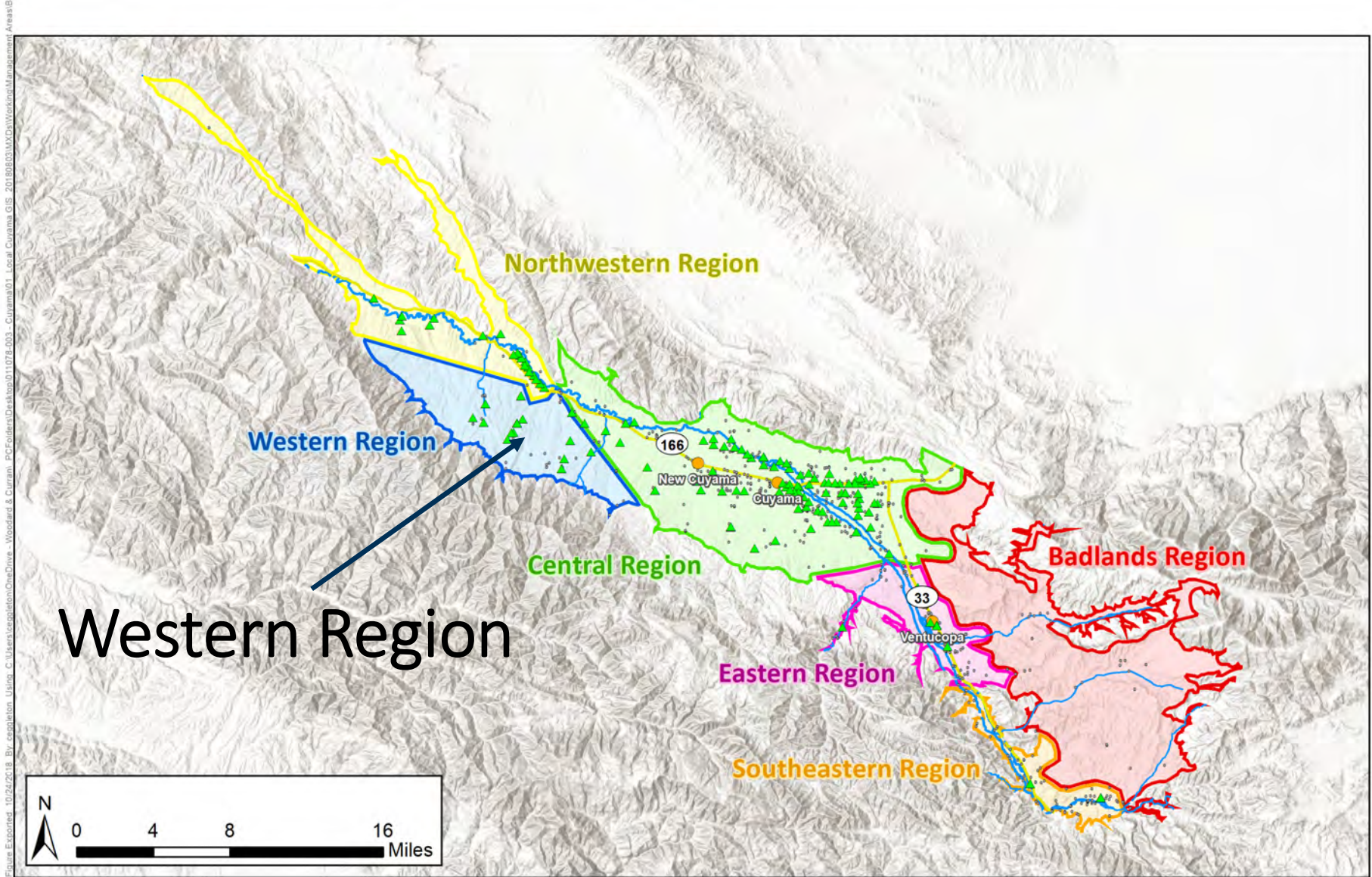
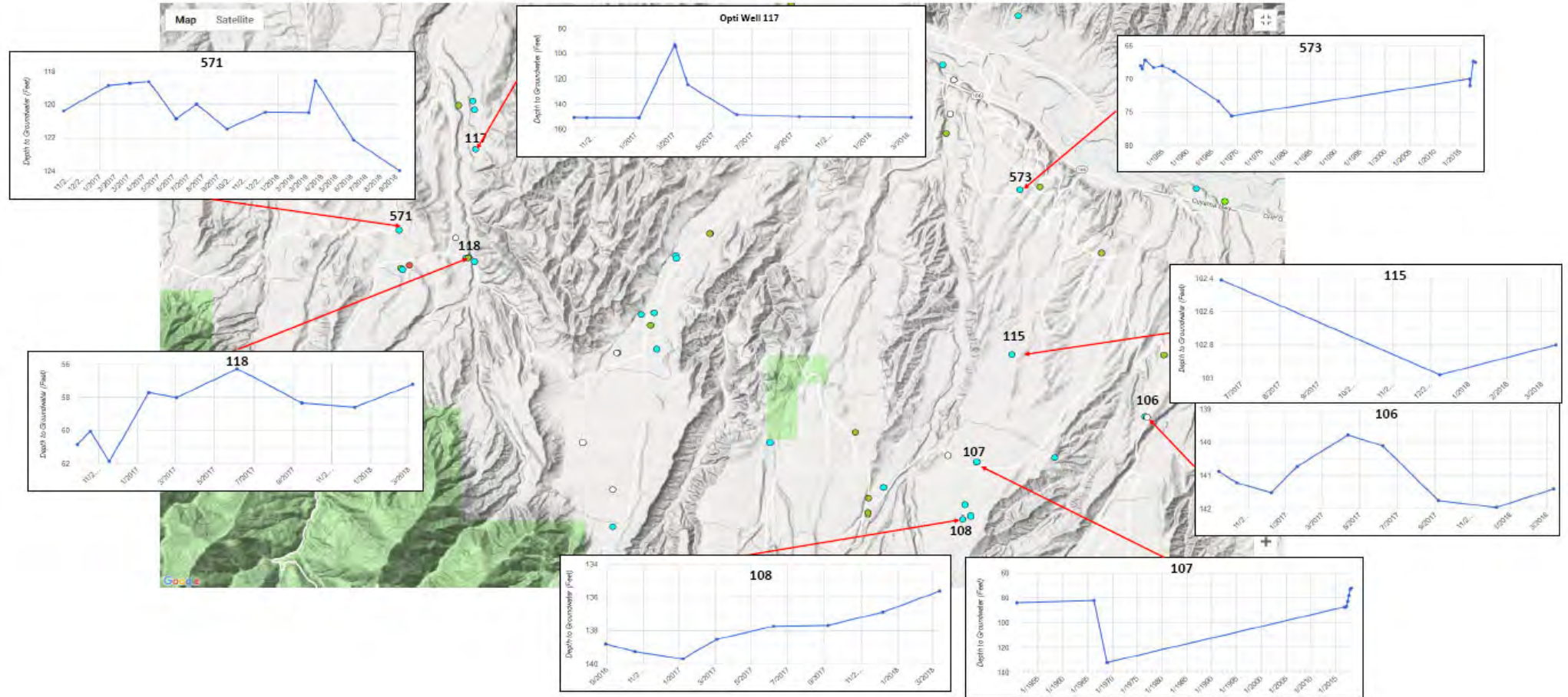


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# Western Region Hydrographs





# OPTI Well 127 Discussed - No SAC Recommendation

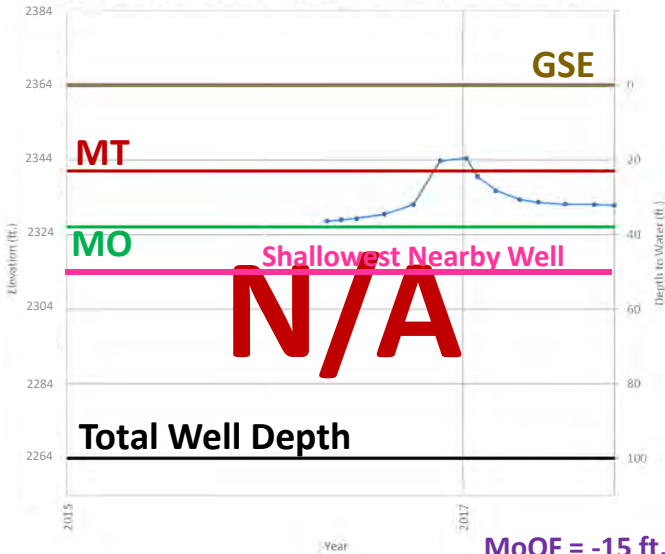
**MO = 2015**

**MT = 20% Below 2015**

**MO = 2018**

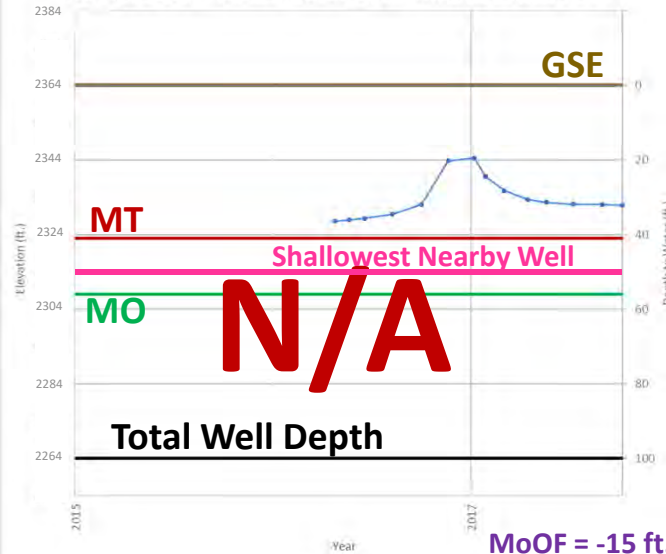
OPTI Well 127 Hydrograph: MO=2015

Well Depth = 100 ft. Minimum Threshold = 23 ft. Measurable Objective = 38 ft.



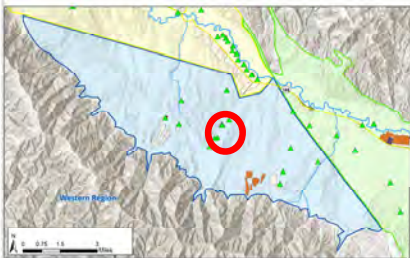
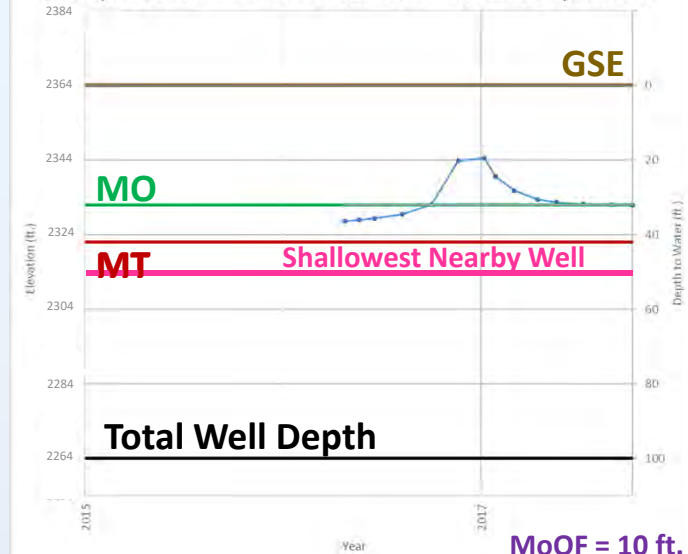
OPTI Well 127 Hydrograph: MT=20% Below 2015

Well Depth = 100 ft. Minimum Threshold = 41 ft. Measurable Objective = 56 ft.



OPTI Well 127 Hydrograph: MO=2018, MT = 10ft Below

Well Depth = 100 ft. Minimum Threshold = 42 ft. Measurable Objective = 32



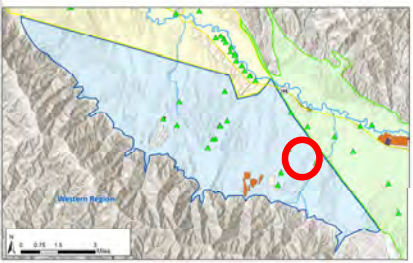
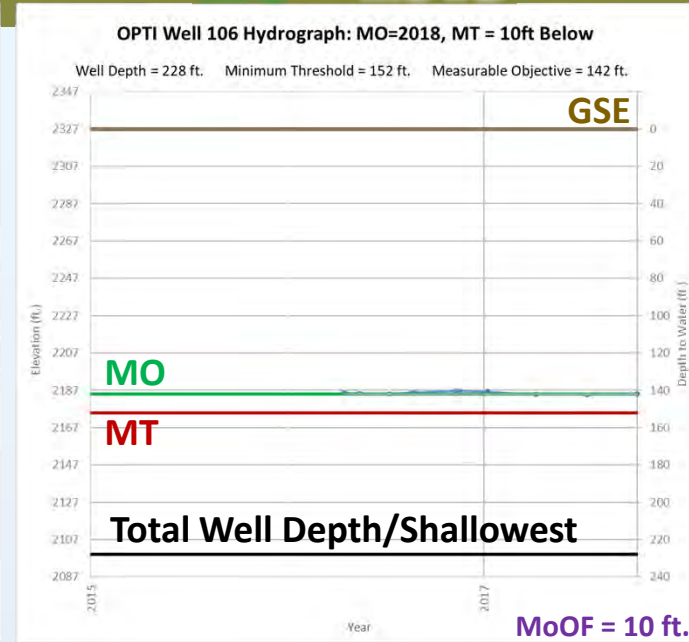
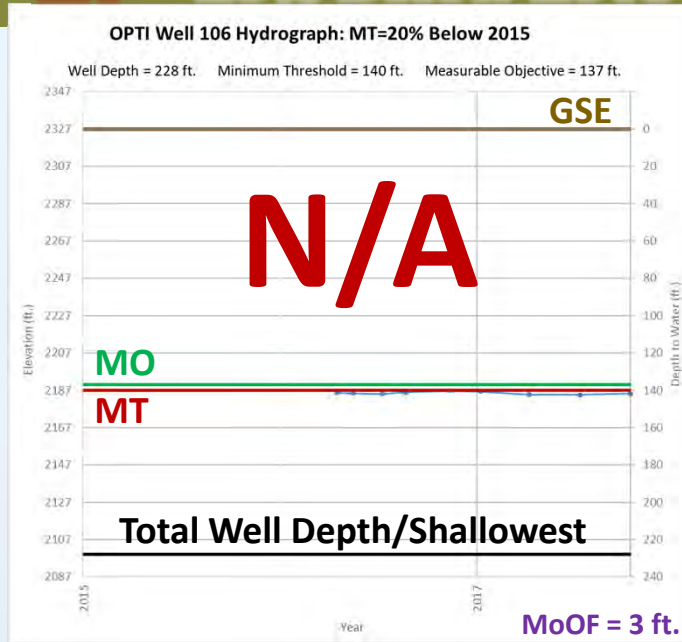
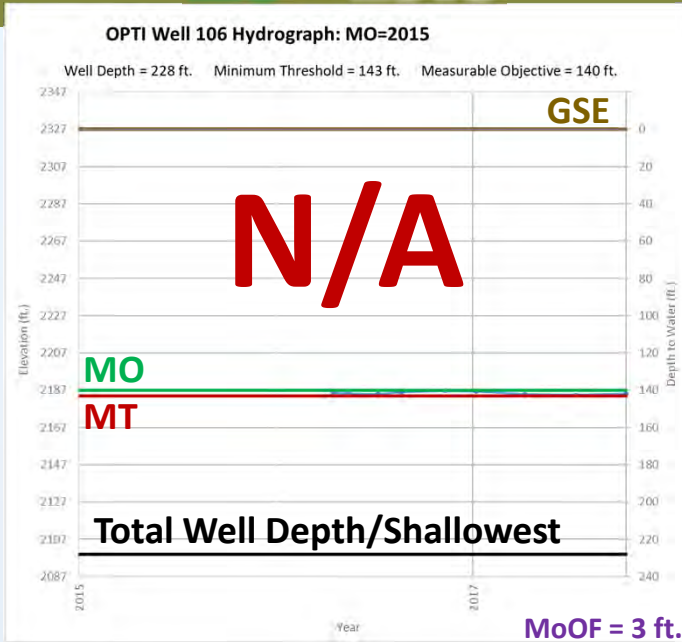
# OPTI Well 106

## Discussed - No SAC Recommendation

### MO = 2015

### MT = 20% Below 2015

### MO = 2018





# OPTI Well 108

## Discussed - No SAC Recommendation

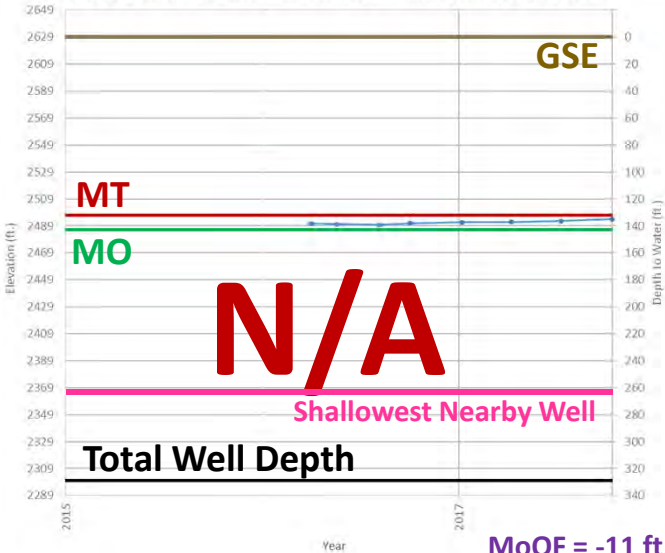
**MO = 2015**

**MT = 20% Below 2015**

**MO = 2018**

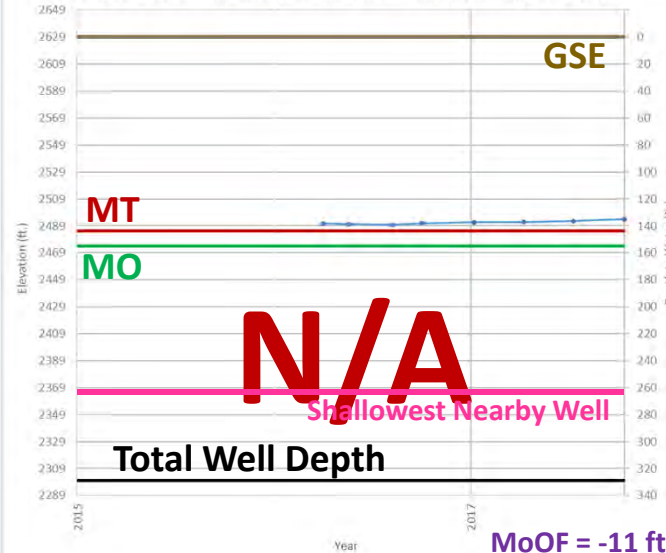
OPTI Well 108 Hydrograph: MO=2015

Well Depth = 329 ft. Minimum Threshold = 132 ft. Measurable Objective = 143 ft.



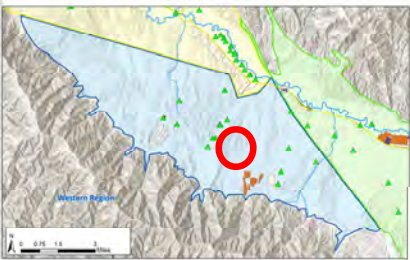
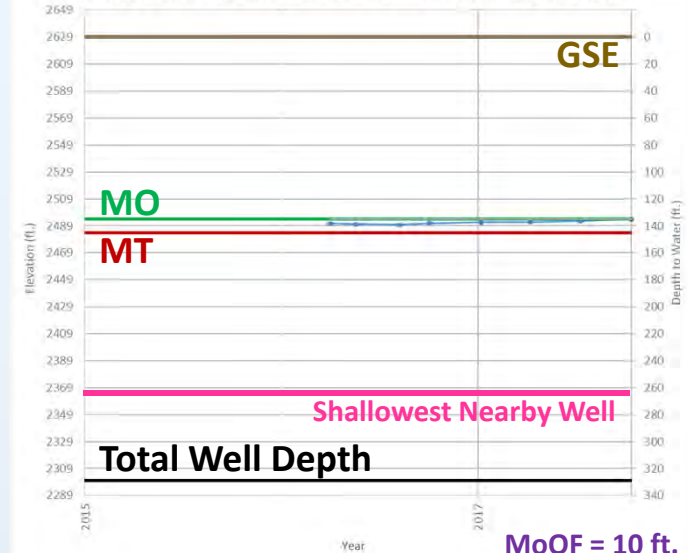
OPTI Well 108 Hydrograph: MT=20% Below 2015

Well Depth = 329 ft. Minimum Threshold = 144 ft. Measurable Objective = 155 ft.



OPTI Well 108 Hydrograph: MO=2018, MT = 10ft Below

Well Depth = 329 ft. Minimum Threshold = 145 ft. Measurable Objective = 135 ft.



# OPTI Well 118 Discussed - No SAC Recommendation

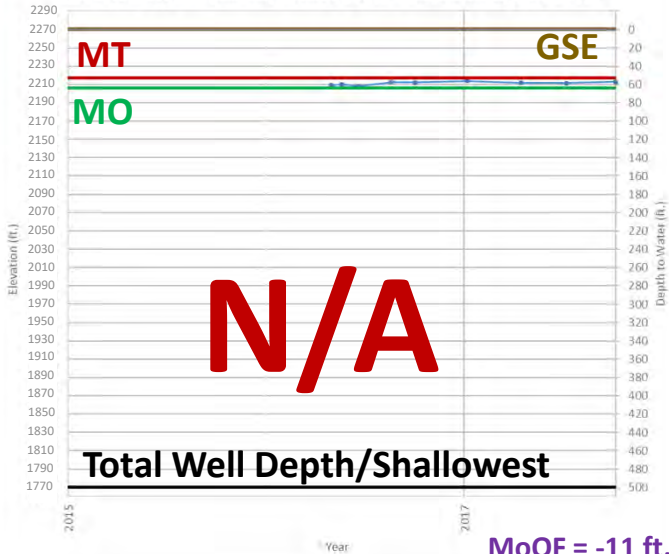
**MO = 2015**

**MT = 20% Below 2015**

**MO = 2018**

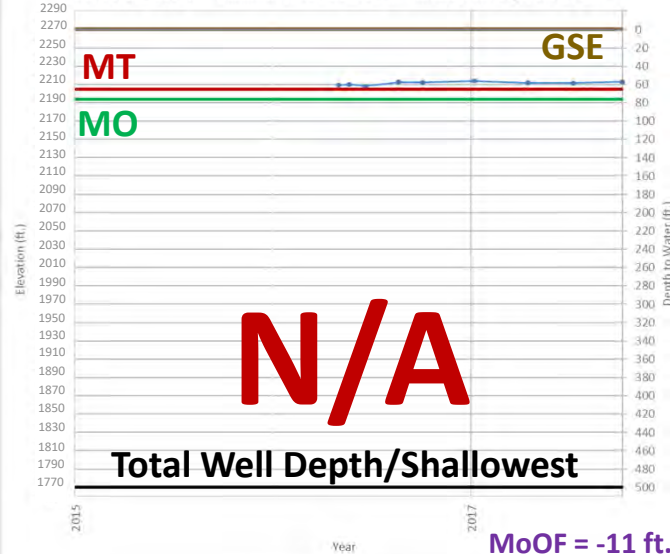
OPTI Well 118 Hydrograph: MO=2015

Well Depth = 500 ft. Minimum Threshold = 53 ft. Measurable Objective = 64 ft.



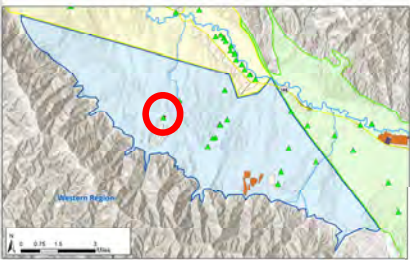
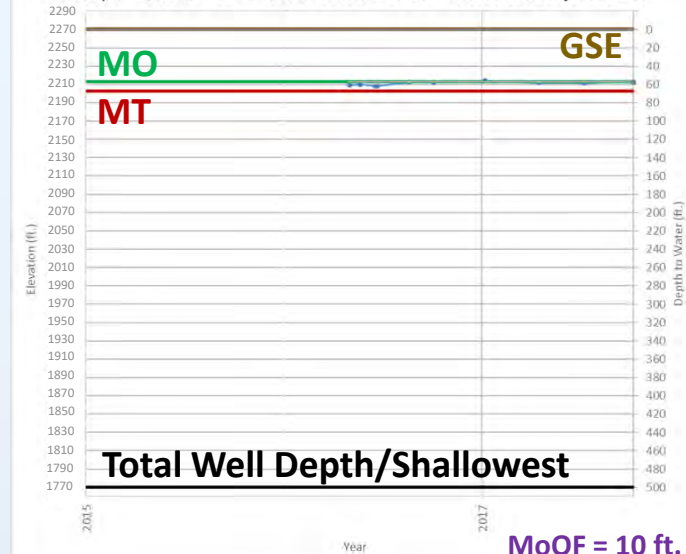
OPTI Well 118 Hydrograph: MT=20% Below 2015

Well Depth = 500 ft. Minimum Threshold = 65 ft. Measurable Objective = 76 ft.



OPTI Well 118 Hydrograph: MO=2018, MT = 10ft Below

Well Depth = 500 ft. Minimum Threshold = 67 ft. Measurable Objective = 57





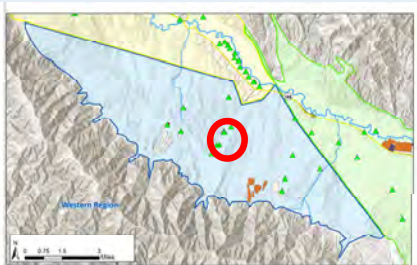
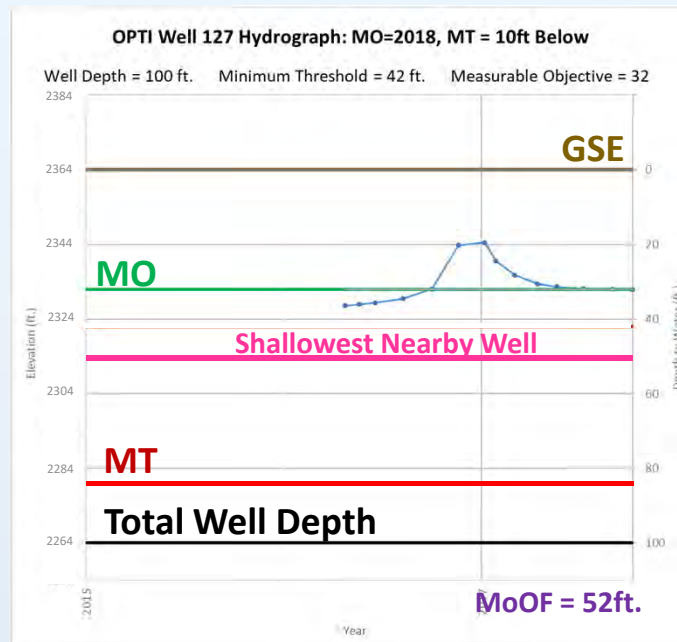
# 20% Saturated Thickness Calculation Western Region

- Collect well depths in region
- Calculate 80<sup>th</sup> Percentile Well Depths (80% of wells are shallower than this depth) – 400 feet bgs
- Calculate 80<sup>th</sup> Percentile of depth to water (80% of measurements of DTW in February 2018 are shallower than this depth) - 140 feet bgs
- Subtract DTW from Well Depth (400-140=260)
- 20% of 260ft is 52 feet

# OPTI Well 127 Saturated Thickness – 80% percentile

**MO = 2018, MT = 20%**  
**Saturated Thickness**

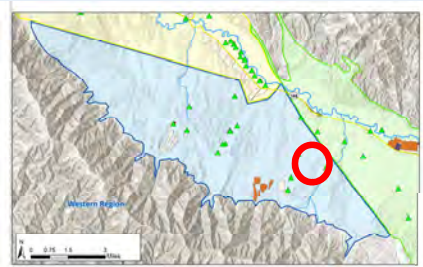
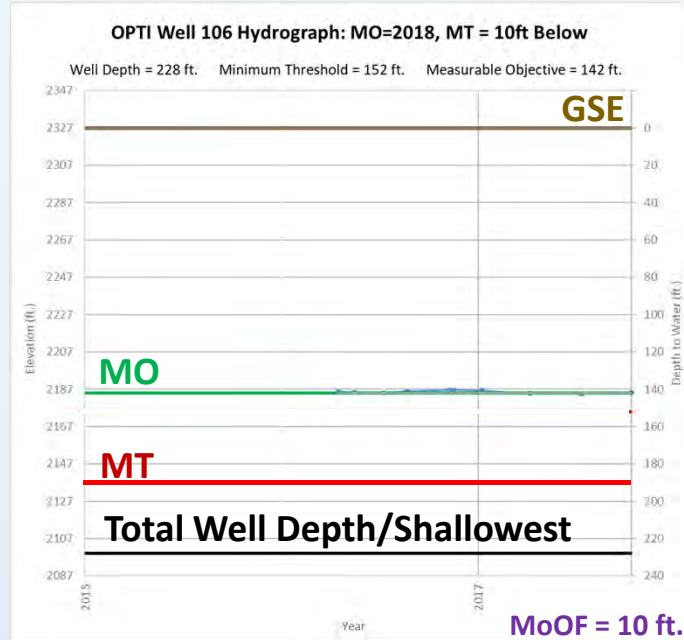
236  
2344  
2324  
2304  
2284  
2264





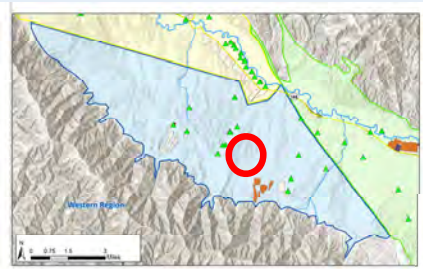
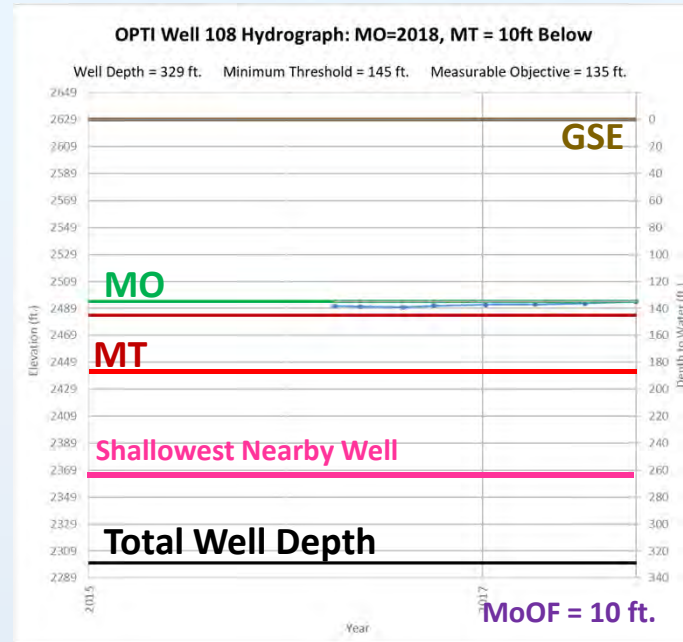
# OPTI Well 106 Saturated Thickness – 80% percentile

**MO = 2018, MT= 20%**  
**Saturated Thickness**



# OPTI Well 108 Saturated Thickness – 80% percentile

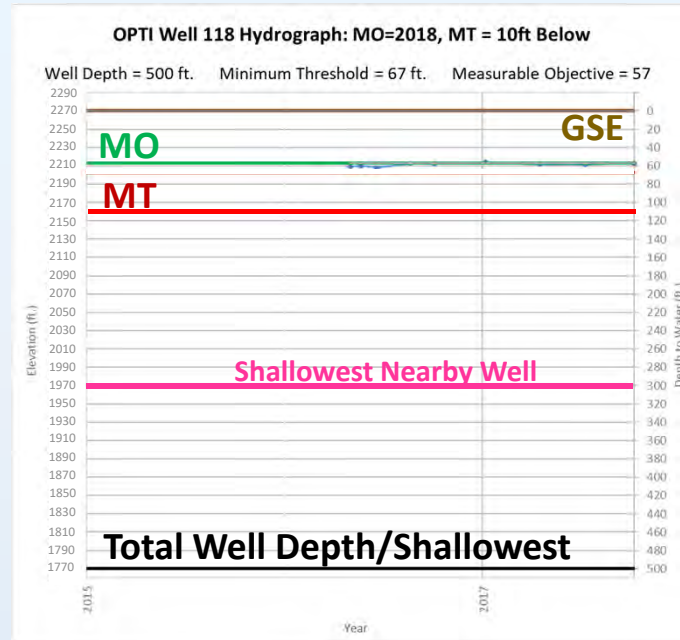
**MO = 2018, MT= 20%**  
**Saturated Thickness**



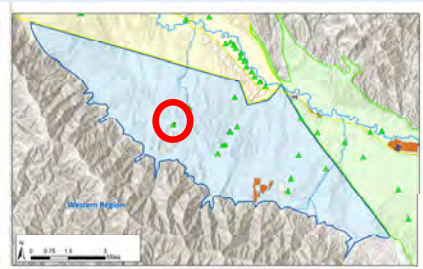


# OPTI Well 118 Discussed - No SAC Recommendation

**MO = 2018, MT = 20%**  
**Saturated Thickness**



MoOF = 10 ft.



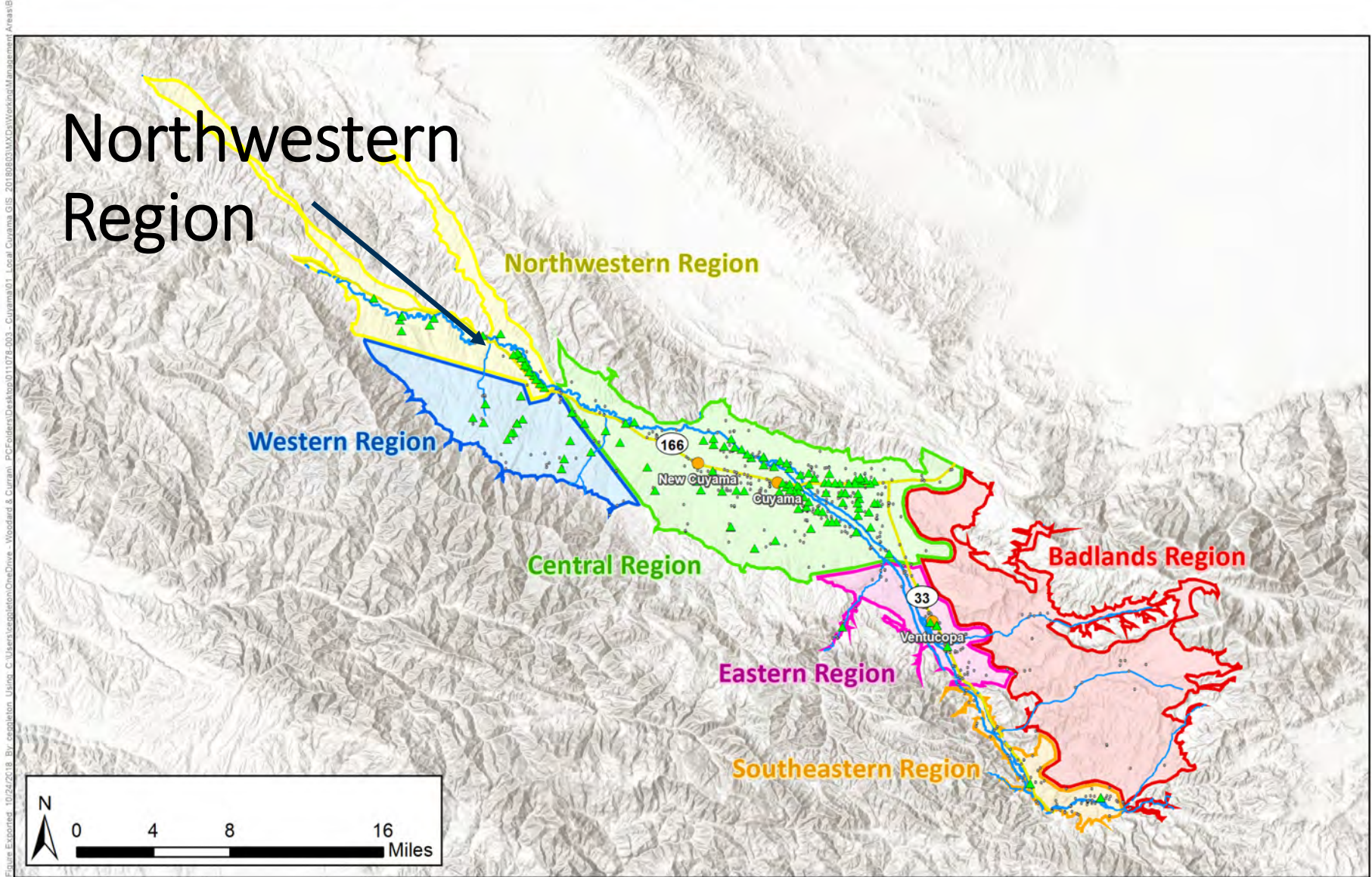


Figure Exported: 10/24/2018 8:45:00 AM - B:\esri\workspace\MapDocs\Woodard & Curran - PC\Folders\Output\01107E-003 - Cuyama01 - Local\_Courtesy\_GIS\_20180803\MXDoc\Workshop\MapManagement\_Areas

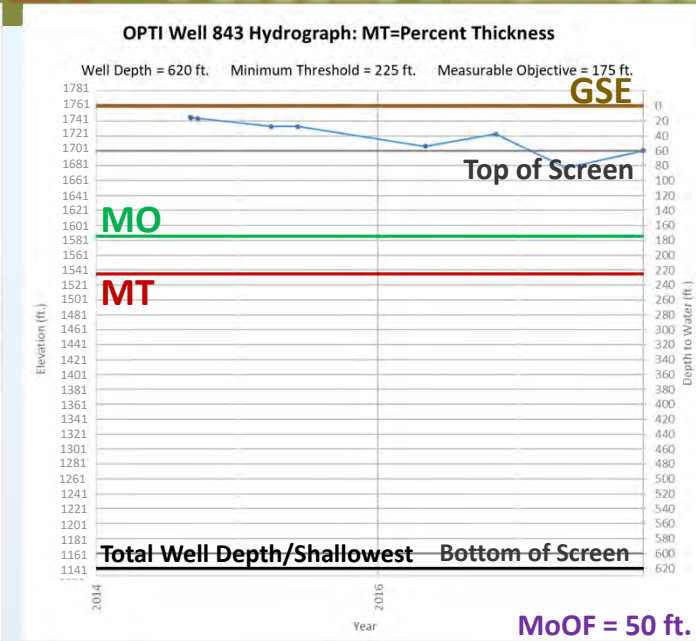
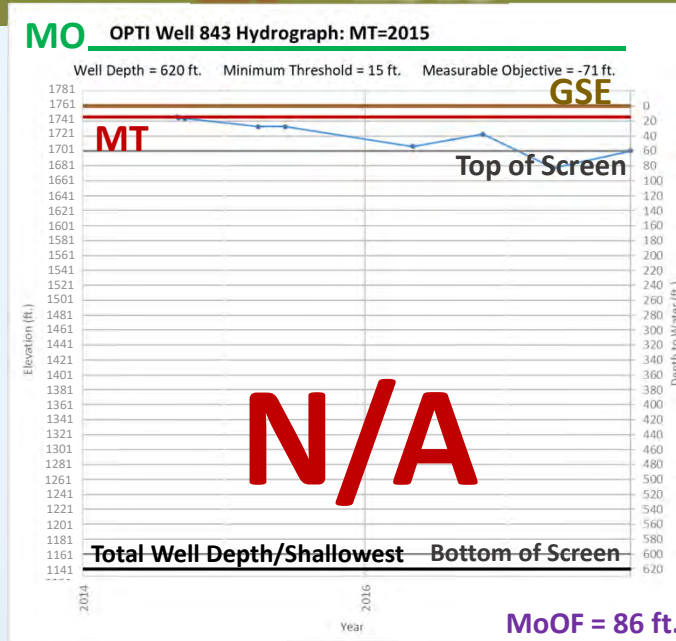
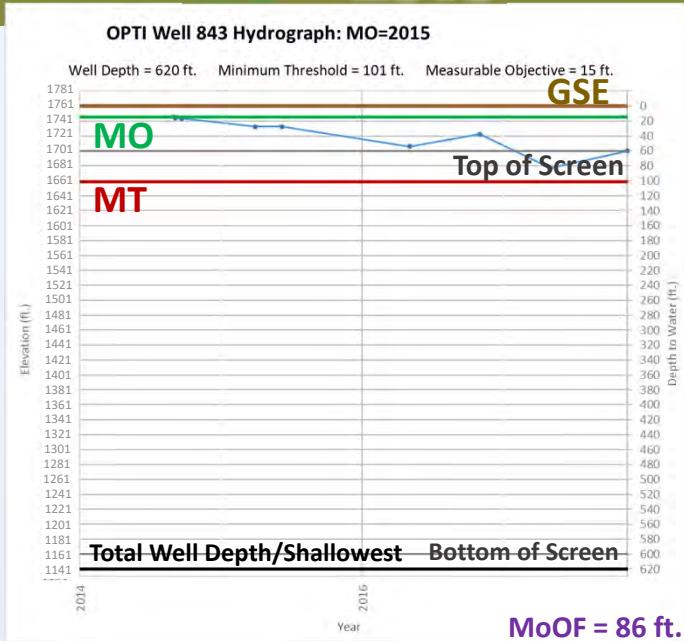


# OPTI Well 843 Discussed - No SAC Recommendation

**MO = 2015**

**MT = 2015**

**MT = Percent Thickness**



1 in 5 SAC Recommended

Northwestern Region

\*1 in 5 SAC Recommend 2018 as MO, 5 years of storage down to MT

3 in 5 SAC Recommended

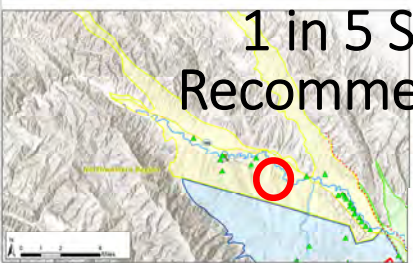
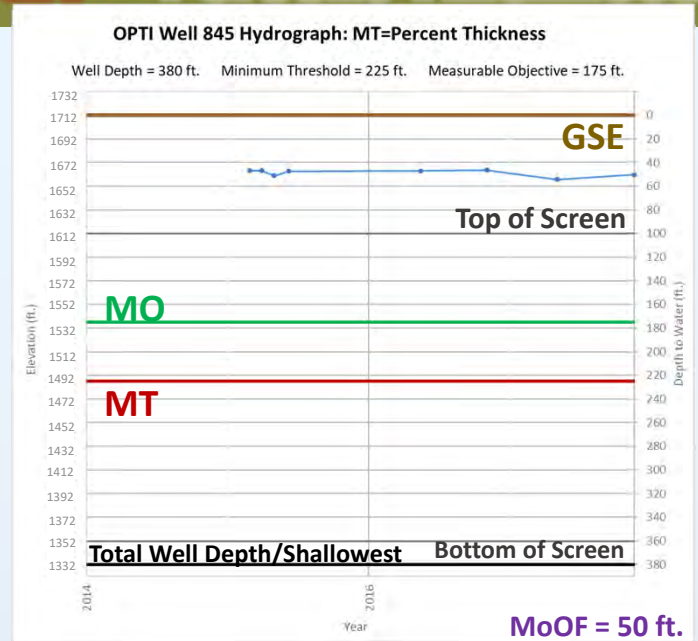
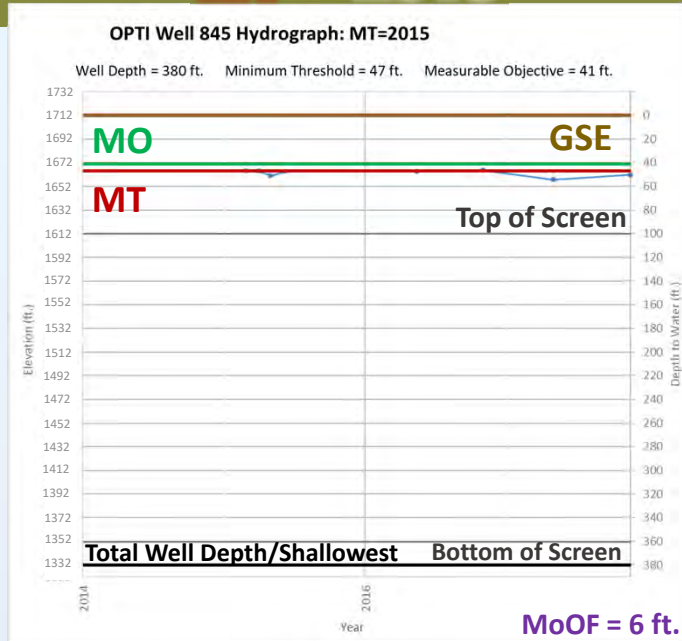
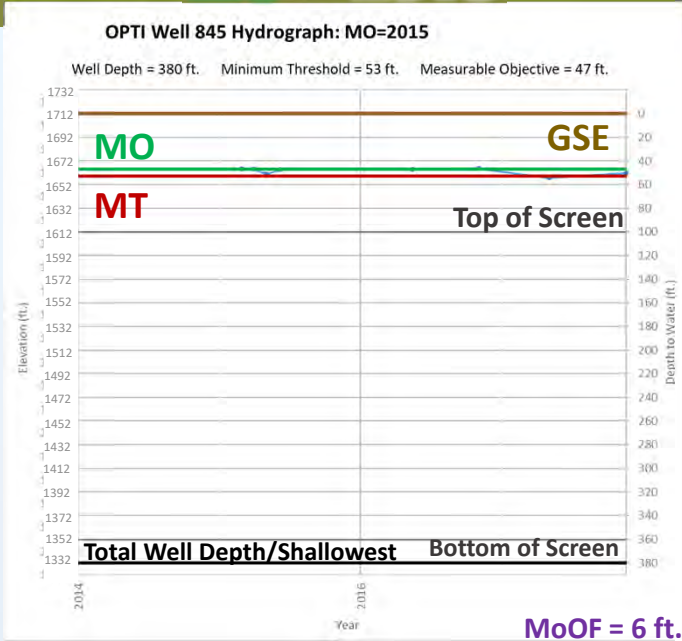


# OPTI Well 845

**MO = 2015**

**MT = 2015**

**MT = Percent Thickness**



1 in 5 SAC  
Recommended

\*1 in 5 SAC  
Recommend 2018 as MO, 5  
years of storage down to MT

3 in 5 SAC  
Recommended

Northwestern Region



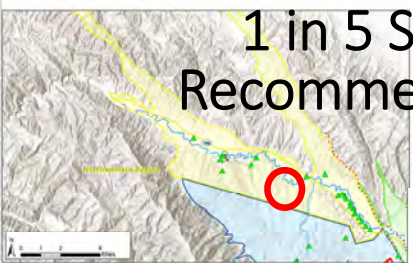
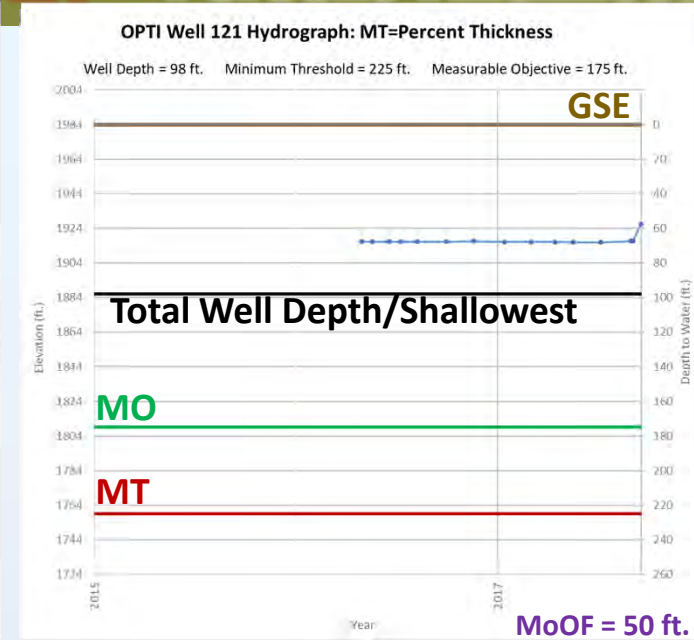
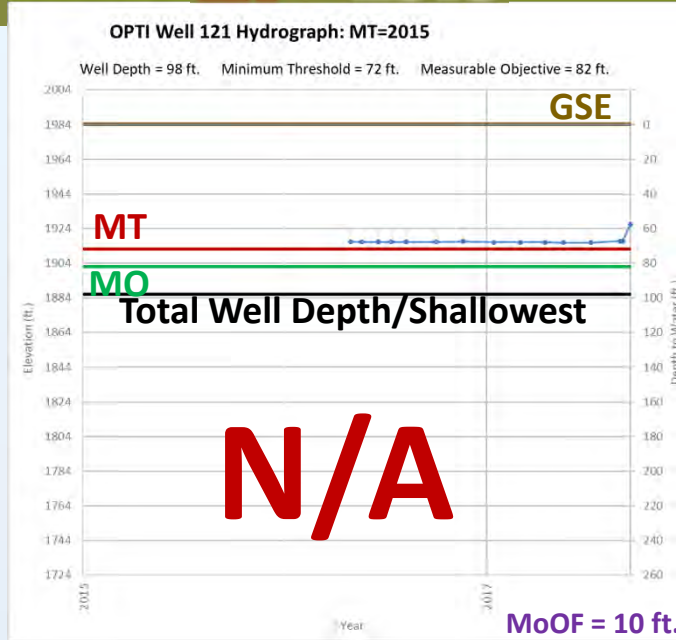
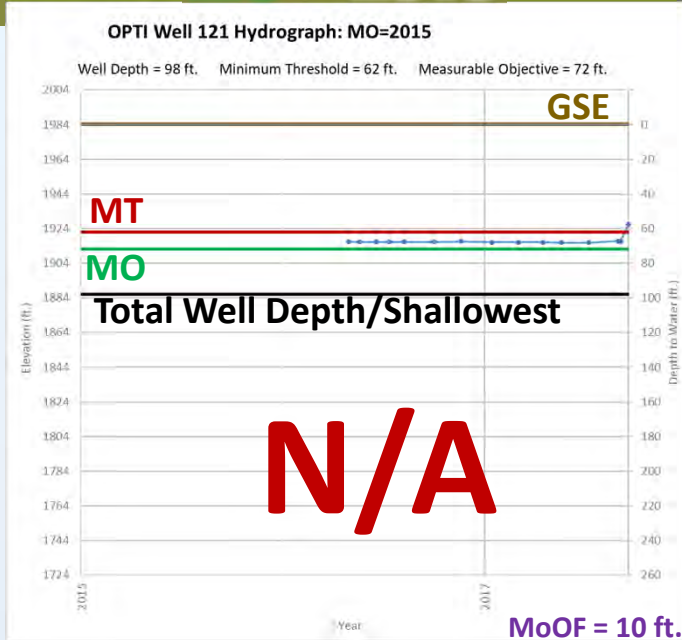


# OPTI Well 121

**MO = 2015**

**MT = 2015**

**MT = Percent Thickness**



1 in 5 SAC  
Recommended

\*1 in 5 SAC  
Recommend 2018 as MO, 5  
years of storage down to MT

3 in 5 SAC  
Recommended

Northwestern Region

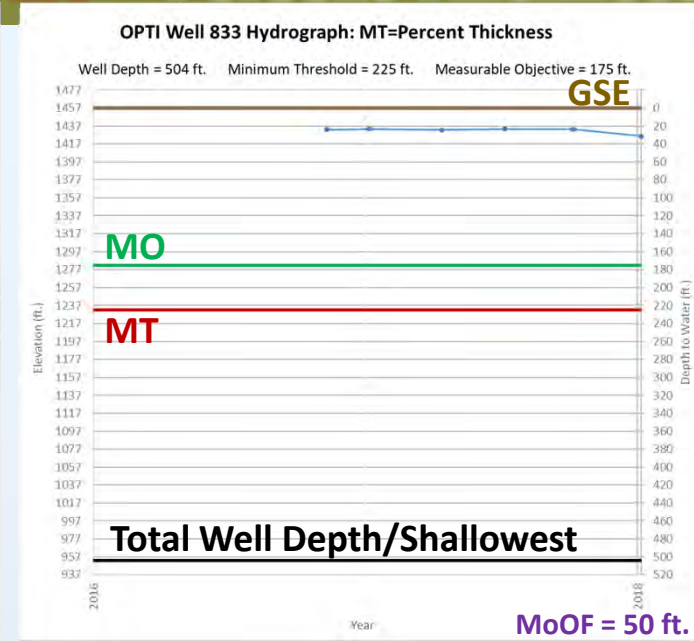
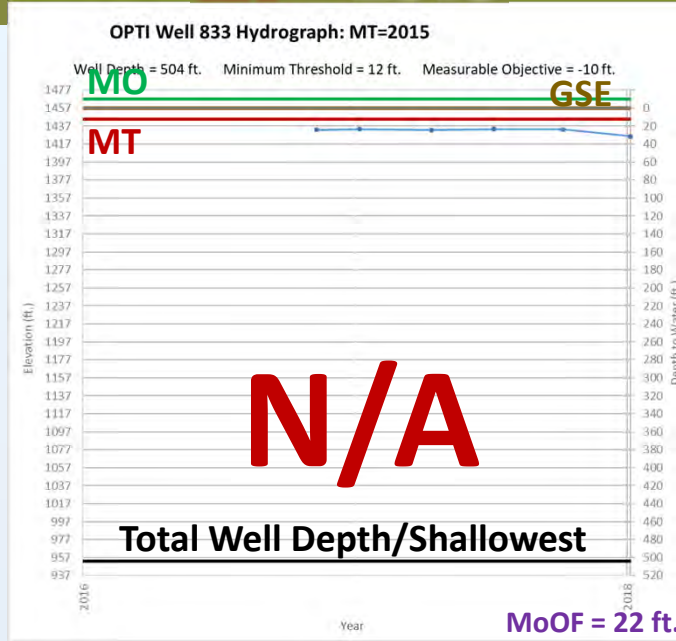
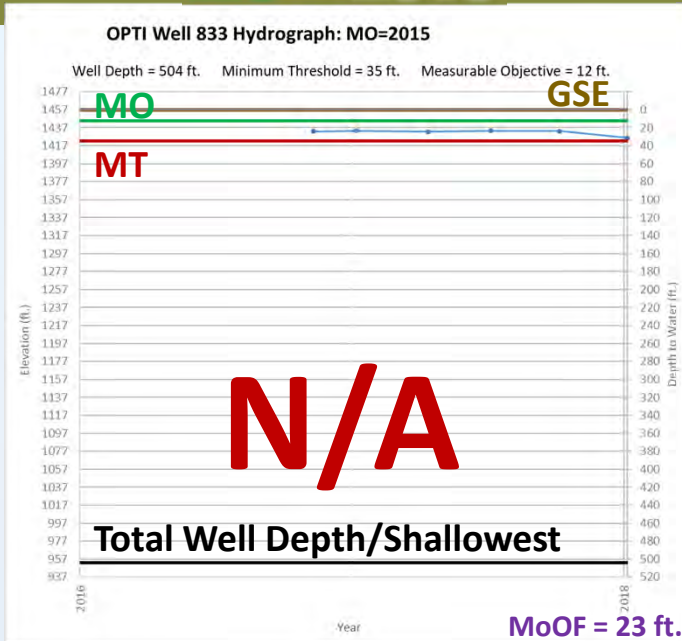


# OPTI Well 833

**MO = 2015**

**MT = 2015**

**MT = Percent Thickness**



1 in 5 SAC  
 Recommended

Northwestern Region

\*1 in 5 SAC  
 Recommend 2018 as MO, 5  
 years of storage down to MT

3 in 5 SAC  
 Recommended





# Next Steps in Developing Sustainability Plan

- Board approves draft sustainability thresholds
- Identify projects and actions to achieve sustainable groundwater levels
- Use numerical model to determine:
  - Long-term sustainable groundwater pumping levels that maintain groundwater levels above minimum thresholds
  - Planned reductions in pumping between now and 2040 to achieve sustainable pumping levels (i.e. glide path)
- Develop long-term implementation plan
  - Includes response plan if levels fall below minimum thresholds