**Sacramento River Temperature Task Group (SRTTG) Call**
**Thursday, September 17, 2015 | 1:00 p.m. – 1:30 p.m.**

## MEETING SUMMARY

**Participants:**

- Matt Brown, FWS
- Charlie Chamberlain, USBR
- Robert Franklin, Hoopa
- John Hannon, USBR
- Scott Ligare, SWRCB
- Duane Linander, CDFW
- Donald Reck, NMFS
- Diane Riddle, SWRCB
- John Rueth, FWS
- Rich Satkowski, SWRCB
- Jim Smith, FWS
- Paul Zedonis, USBR
- Thuy Washburn, USBR (Facilitator)

**Note-taking:**

- Gia Brazil, Kearns & West

**Action Items:**

- Thuy Washburn will send to Matt Brown the Whiskeytown profile from September 16.
- Reclamation will talk about ideas to quantify the impact of the TCD curtain with their tech service center.

## Key Discussion Topics with Summary of Outcomes and Agreements

### *Fishery Update*

The spawning winter run is done. Juveniles are emerging with about 50% of them born. Juvenile catches at Red Bluff have increased and general winter run numbers are close to what they were last year. It is still too early to really know final numbers, but there are lots of catches right now. Emergence is typically from September to mid-October. Catches are a little bit behind last year, but that could change quickly because we are in the high catch period.

In the Livingston Stone National Fish Hatchery there are about 370,000 fry outside in the tanks and feeding with a high temperature at 57° F with no mortalities. We should have about 400,000 or more fish to release in February 2016.

FWS sent temperature data on September 16 from Whiskeytown. Temperatures in Clear Creek are higher than the model was suggesting. It is too early to know how much higher. The model data varies and we have had a lot of cooling, but temperatures will be higher than predicted. FWS has been seeing redds and fish are selectively on the redds, so temperatures right now are critical. We are about 2° F above the standard at Igo. Most fish are below the Igo gauge, so reducing temperatures further would be helpful. This could be done by increasing flows, but the downside is that we may have to expend redds later if conditions continue drying. However, flow rates are at 225 cfs (up 50 cfs) and this is already on the higher side. More temperature modeling could help, but this might not be an option. We do not want to increase the flows too much unless we can guarantee the flows that we need to have will be available in November when the temperature control period is over. Right after the spring run spawn the fall run will be spawning and then the steelhead, so there is not a really good time to drop the flows once they are increased. Looking at temperature profiles could

confirm that there is not stratification at Whiskeytown anymore.
**Action**: Thuy Washburn will send to Matt Brown the Whiskeytown profile from September 16.

### *Operations Update*

Reclamation reduced flows from 7,200 to 7,000 on September 14. Trinity River is ramping down to 450 cfs. The change order for this flow reduction from 500 to 450 cfs was on September 19.

The salinity in the Delta has gotten worse in the last two days (September 15-16) so exports have been cut to try to reduce the salinity levels.

### *Temperature Summary (see handout)*

Reclamation opened one of the side gates on September 13 because the TCD weighted average temperature was increasing. CCR average is 56.3º F and KWK is on target at 55º -55.5º F average. There have been unusual temperatures at Redding for September; they have been colder than normal but should be more typical by the weekend (September 19-20).

### *Shasta Temperature Snapshots (see handout)*

The first handout shows when the first side gate was opened with all the PRGs open. Last year this happened on August 7 versus this year on September 13. Next there is a comparison of 2014 to 2015 for the flows at Keswick when the first side gate was opened. This year we have 7,200 cfs versus 8,000 cfs last year and Reclamation had started ramping down at that time in 2014. This year we will stay at ~7,000. Storage is ~200,000 higher this year than last year when the first side gate was open. Last year the target was 56º F while this year it is 57º F.

An additional tool this year is the TCD curtain to help prevent the warmer water from blending in with the side gate. There is no hard evidence that the curtain is having an effect, but Reclamation thinks it has really helped delay pulling the side gate. We will see the most benefit from the curtain when both side gates are open and we are only pulling from the side gates. It would be good to quantify whether the curtain is slowing down any leakage of the warm water from the bottom of the middle gates to the top of the PRGs. One way to do this could be to take a temperature probe, like those done for the profiles to see if you have less leakage nearer to the curtain. NOAA Fisheries installed a new temperature measuring device upstream of the dam. They are still calibrating and validating data. This device does not seem relevant for the TCD curtain evaluation effort since they are ~50-80 yards away from the TCD.

**Action**: Reclamation will talk about ideas to quantify the impact of the curtain with their tech service center.

The second handout is a snapshot of TCD configuration in 2014 and 2015. This year we have all five PRG gates open and one side gate open, versus last year we had both side gates open and all five PRG gates closed. We are in a better position this year than last year in the same timeframe.

The third handout is a snapshot of today versus what was modeled about one week ago (~September 10) based on Scenario 2, which has flows of about 7,200 now and an average of 7,150 for October. In the modeled run there was one side gate open and three PRGs closed. In actuality

we have one side gate open and all five PRG gates open. So there is a little flexibility there. Reclamation has three new profiles as of September 16 and will have new model results by September 22.

Reclamation is bypassing at Trinity Dam to get cool water down the river as of ~September 15. A change order went out in the morning (September 17) to increase the amount of bypass to make sure the Douglas City target is being met. It will be reassessed once the ambient conditions settle.

Reclamation has new profiles at Trinity and will have new modeling complete for the September 22 meeting to better understand the prognosis for the rest of the season for Trinity and the appropriate amount for the bypass.

***Next Meeting***

The next meeting of the SRTTG is scheduled for September 24 at 1:00 p.m.

# Sacramento River Temperature Task Group Meeting

## September 17, 2015
## 1:00 pm

## Conference Line: 877-718-6527
## Pass code: 1954134

## Agenda

1. Introductions

2. Fishery update

3. Operation update

    a. Temperature Summary ***
    b. Shasta Temperature snapshots***

4. Next meeting

***handout

Draft 9/17/2015

# Temperature and Release Summary for Shasta and Trinity - September 2015

(Updated twice a week November through April)

| Day | Sacramento River Water Temperatures in Degrees F<br>Collected from CDEC (California Data Exchange Center) except for TCD, SPP and Control Point | | | | | | | | | | | | | | Mean Daily Release in CFS | | | Mean Daily Air Temp Degrees F | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TCD Wt. Avg. | SHD minus TCD (Diff) | Shd | SPP Wt. Avg | Kwk | Bsf | Jlf | Bnd | Rdb | Lws | Control Point 4/1 Ccr | Igo | Sac | Dgc | Shasta Generation El 815 | Spring Crk Powerplant Release | Keswick Total Release | RDD | BSF | RDB | LWS |
| Aug | 53.9 | | 52.3 | 58.7 | 55.4 | 58.6 | 60.0 | 60.7 | 62.4 | 53.1 | 56.9 | 58.4 | 56.3 | 57.0 | 5,354 | 1,374 | 6,854 | 81.3 | 75.9 | 76.1 | 70.5 |
| **Sep** | | | | | | | | | | | | | | | | | | | | | |
| **1** | 53.5 | (1.2) | 52.3 | 58.8 | 55.2 | 58.8 | 59.9 | 60.6 | 62.1 | 53.7 | 56.9 | 59.5 | 56.2 | 56.5 | 4,912 | 1,322 | 6,904 | 79.5 | 73.3 | 75.0 | 69.5 |
| **2** | 53.3 | (1.0) | 52.3 | 58.8 | 54.8 | 58.3 | 59.5 | 60.4 | 62.0 | 53.6 | 56.3 | 59.1 | 55.7 | 56.0 | 5,409 | 1,250 | 6,901 | 77.5 | 72.3 | 72.5 | 64.4 |
| **3** | 53.3 | (1.1) | 52.2 | 58.8 | 54.9 | 58.2 | 59.4 | 60.2 | 61.6 | 53.5 | 56.5 | 59.2 | 55.9 | 55.6 | 5,609 | 1,198 | 6,908 | 74.0 | 71.0 | 70.1 | 62.9 |
| **4** | 53.5 | (1.3) | 52.2 | 58.8 | 54.7 | 57.7 | 58.7 | 59.5 | 61.0 | 53.6 | 56.1 | 58.9 | 55.6 | 55.1 | 5,791 | 1,162 | 6,909 | 71.5 | 67.5 | 69.1 | 57.8 |
| **5** | 53.8 | (1.2) | 52.6 | 58.7 | 54.6 | 57.1 | 57.9 | 58.6 | 59.8 | 53.9 | 55.9 | 58.5 | 55.5 | 55.0 | 5,536 | 1,397 | 6,902 | 73.0 | 68.4 | 70.0 | 56.5 |
| **6** | 54.0 | (1.1) | 52.9 | 58.7 | 54.5 | 57.4 | 58.1 | 58.7 | 59.7 | 53.6 | 56.0 | 58.7 | 55.4 | 55.4 | 6,099 | 1,103 | 6,910 | 78.5 | 69.6 | 72.0 | 60.9 |
| **7** | 54.4 | (1.4) | 53.0 | 58.6 | 54.8 | 57.3 | 58.3 | 58.9 | 60.0 | 53.5 | 56.2 | 58.5 | 55.7 | 55.6 | 5,600 | 1,394 | 6,904 | 78.5 | 71.5 | 74.0 | 65.1 |
| **8** | 54.3 | (1.2) | 53.1 | 58.6 | 55.1 | 57.8 | 58.8 | 59.4 | 60.5 | 53.6 | 56.6 | 58.6 | 56.1 | 55.7 | 5,673 | 1,239 | 6,905 | ^ 81.0 | 73.9 | 75.5 | 68.6 |
| **9** | 54.1 | (1.0) | 53.1 | ! | 55.5 | 58.1 | 59.2 | 59.8 | 61.0 | 53.8 | 56.9 | 58.6 | 56.4 | 55.0 | 4,936 | 1,531 | 6,905 | 82.0 | 75.1 | 78.0 | 69.6 |
| **10** | 54.2 | (0.8) | 53.4 | ? 58.6 | 55.3 | 58.5 | 59.5 | 60.2 | 61.4 | 53.8 | 56.9 | 58.8 | 56.3 | 55.0 | 6,059 | 857 | 6,905 | ^ 84.5 | 78.0 | 82.4 | 71.2 |
| **11** | 54.5 | (1.0) | 53.5 | 59.1 | 55.1 | 58.1 | 59.4 | 60.1 | 61.7 | 53.6 | 56.6 | 59.1 | 56.0 | 55.2 | 6,288 | 14 | 6,943 | ^ 85.5 | 79.5 | 81.4 | 74.7 |
| **12** | 54.8 | (1.0) | 53.8 | 58.5 | 54.9 | 57.5 | 58.4 | 59.0 | 60.2 | 53.7 | 56.2 | 59.0 | 55.7 | 55.4 | 5,397 | 331 | 6,908 | 83.0 | 72.7 | 74.5 | 71.9 |
| **13** | 55.0 | (1.1) | 53.9 | 58.5 | 55.0 | 57.7 | 58.6 | 59.1 | 59.7 | 53.4 | 56.5 | 59.1 | 56.1 | 55.5 | 5,801 | 1,242 | 6,907 | 83.0 | 75.6 | 76.9 | 71.5 |
| **14** | 54.1 | (0.8) | 53.3 | 58.5 | 55.3 | 57.3 | 58.2 | 59.0 | 59.9 | 53.1 | 56.0 | 58.1 | 55.6 | 54.4 | 6,270 | 1,001 | 6,903 | 72.5 | 69.0 | 69.4 | 60.8 |
| **15** | 54.4 | (1.0) | ? 53.4 | 58.5 | 54.9 | 57.0 | 57.5 | 57.9 | 58.5 | 52.6 | 56.0 | 58.0 | 55.5 | 53.6 | 5,102 | 1,514 | 6,693 | 64.5 | 64.4 | 63.7 | 55.3 |
| **16** | 55.1 | (1.0) | 54.1 | ? 58.6 | 54.7 | 55.6 | 56.2 | 56.8 | 57.6 | 52.4 | 55.0 | 57.0 | 54.8 | 52.4 | 4,733 | 1,398 | 6,670 | 57.0 | 56.9 | 59.2 | 47.8 |
| **17** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **18** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **19** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **20** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **21** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **22** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **23** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **24** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **25** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **26** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **27** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **28** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **29** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **30** | | 0.0 | | | | | | | | | | | | | | | | | | | |
| | | 0.0 | | | | | | | | | | | | | | | | | | | |
| **Avg** | 54.1 | | 53.1 | 58.7 | 55.0 | 57.7 | 58.6 | 59.3 | 60.4 | 53.5 | 56.3 | 58.7 | 55.8 | 55.1 | 5,576 | 1,122 | 6,880 | 76.6 | 71.2 | 72.7 | 64.3 |
| **Tot cfs** | | | | | | | | | | | | | | | 89,215 | 17,953 | 110,077 | | | | |
| **Tot af** | | | | | | | | | | | | | | | 176,958 | 35,610 | 218,338 | | | | |

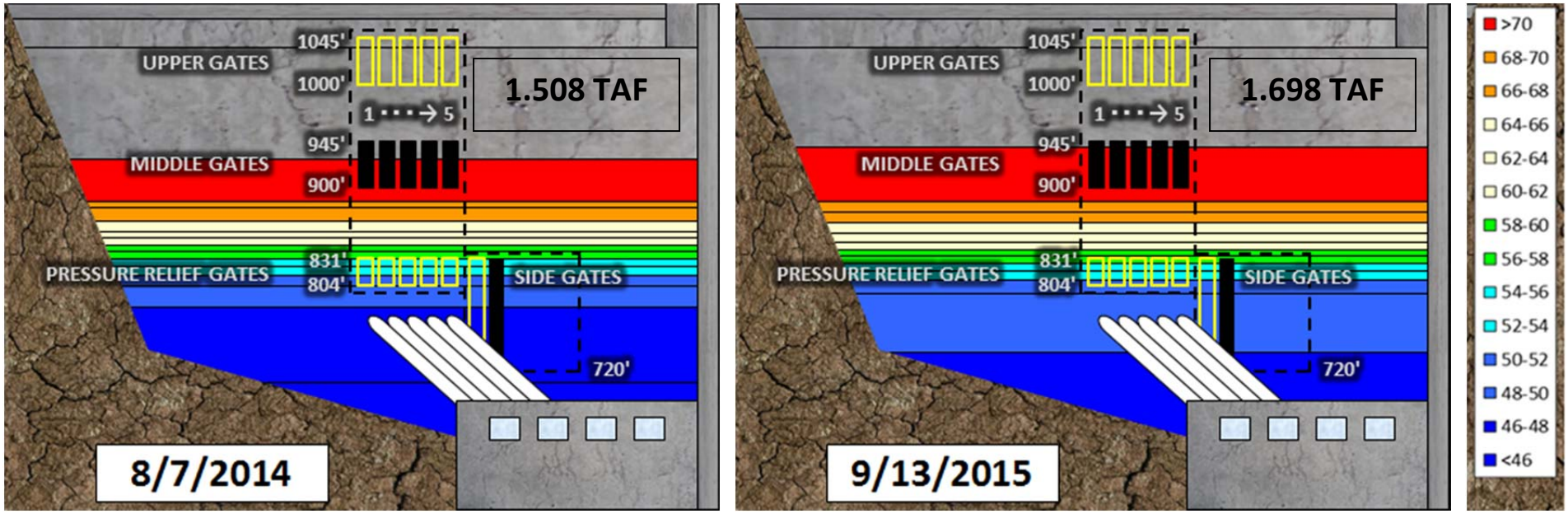
? = Average includes 1-9 estimated hourly readings
! = No Average (10-17 hours missing)
& = No Average (18 to 23 hours missing)
# = Station out of service
ND = No hourly readings or incorrect
% = Data will be down loaded from site at later date by NCAO staff.

When available:
^ = Redding Air Temp Record High
* = Redding Air Temp Record Low

Control Point: Clear Creek 4/1/2015 to 4/17/2015 at 56.0 degrees; 4/18/2015 to 5/14/2015 at 58.0 degrees; 5/15/2015 to 6/4/2015 56.0; 6/5/2015 to present 58.0 degrees.

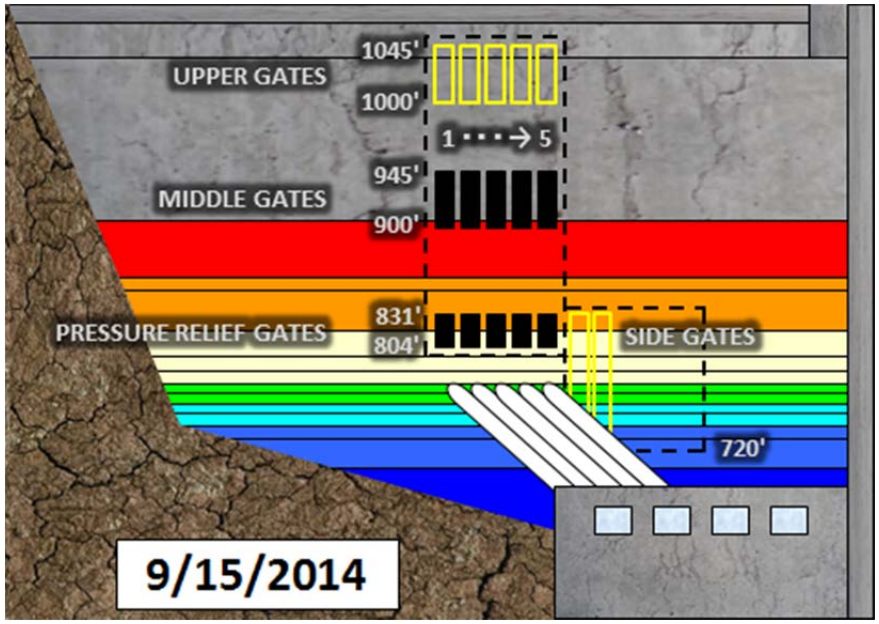
PRELIMINARY

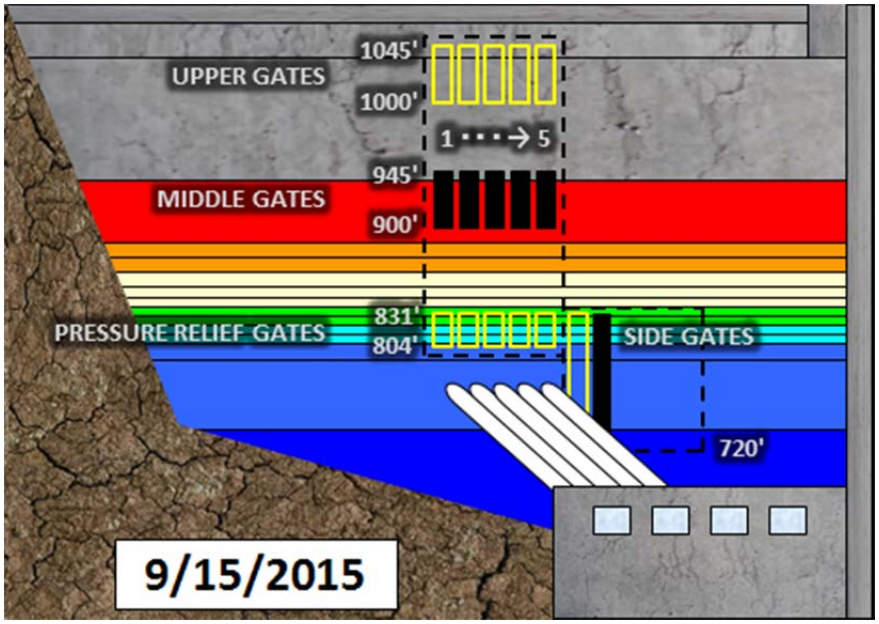
V:\~WATER_res_ops\Sac River Temperature\Tempmodel\~sactemp\2015TempFiles\[09_2015 Monthly Summary.xlsx]Sac Riv Temps



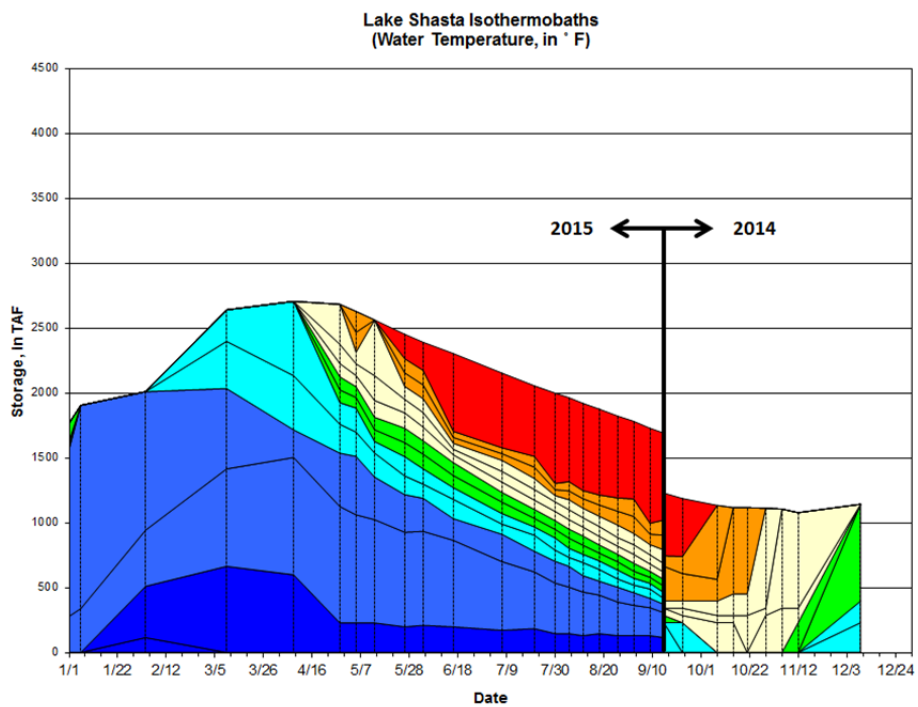

*NOTE: Yellow outline indicates open position, Solid Black indicates closed position.

| First Side Gate open 2014 vs. 2015 | 2014 | 2015 |
|---|---|---|
| First side gate open and 5 PRG's open | August 7, 2014 | September 13,2015 |
| Keswick Release at date of First Side Gate open | 8,000 cfs | 7,200 cfs |
| Keswick Release 15 days from First Side Gate open | 7,500 cfs | 7,000 cfs (projection) |
| Storage at First Side Gate open | 1.508 TAF | 1.698 TAF |
| | | |
| **2014 vs. 2015** | | |
| Temperature target | 56 degree | 57 degree not to exceed 58 |
| Additional Tools | | TCD Curtain |
| | | |

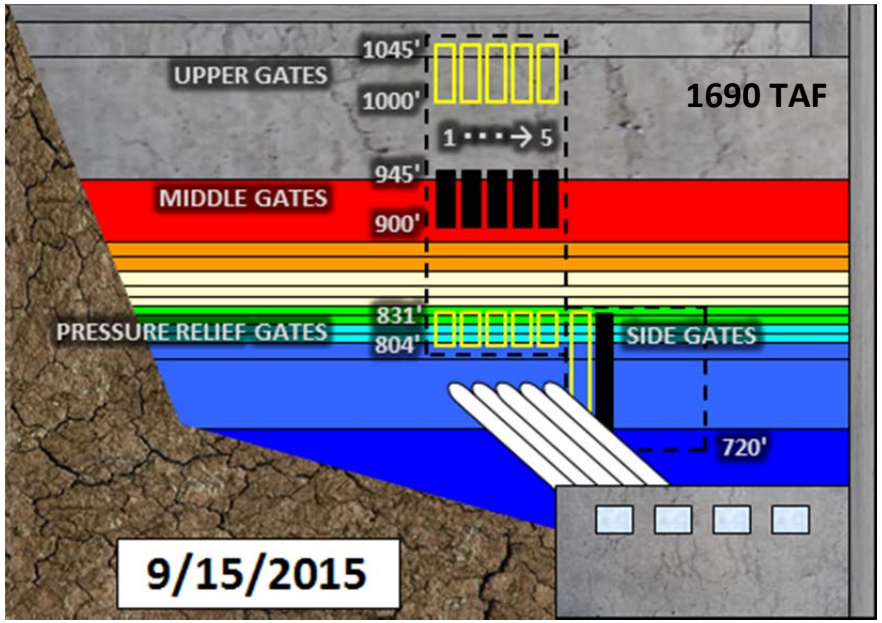


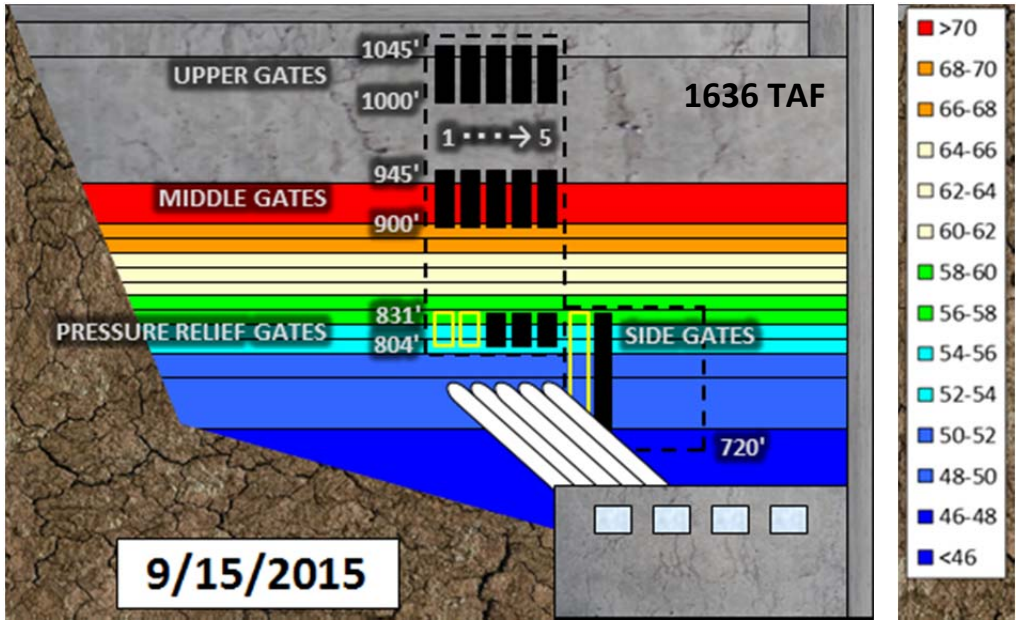
*NOTE: Yellow outline indicates open position, Solid Black indicates closed position.



## ACTUAL OPERATIONS




## OPERATIONS FORECASTED AUGUST 31st




*NOTE: Yellow outline indicates open position, Solid Black indicates closed position.