

# **CRESCENTA VALLEY WATER DISTRICT**

**2700 Foothill Boulevard  
La Crescenta, California**

**Agenda for the  
Regular Meeting of the Board of Directors  
of the Crescenta Valley Water District  
to be held on November 6, 2018 at 7:00 p.m.**

**Posted: November 2, 2018 at 3:00 p.m.**

**Any written materials distributed to the Board in connection with this agenda will be made available at the same time for public inspection at the District office located at the above address.**

## **Call to Order and Determination of Quorum**

## **Pledge of Allegiance**

## **Adoption of Agenda**

## **Public Comments**

**At this time the public shall have an opportunity to comment on any non-agenda item relevant to the subject matter jurisdiction of the Board. This opportunity is non-transferable and speakers are limited to one three (3) minute comment.**

## **Foothill Municipal Water District Report**

1. Report on activities at Foothill Municipal Water District.

## **Consent Calendar**

1. Consideration and approval of the Minutes of the Adjourned Regular Meeting on October 23, 2018.

## **Action Calendar**

The public shall have an opportunity to comment on any action item as each item is considered by the Board prior to action being taken. This opportunity is non-transferable and speakers are limited to one two (2) minute comment.

1. **Appeal of a High Water Bill** – Consideration and possible action to grant a request for relief from a high water bill by Pinkal Jogani at 2354 Panorama Drive.
2. **Two Year Water & Wastewater Budgets** – Discussion regarding proposed 2-year water and wastewater budgets.
3. **TTHM Study and Disinfection Process Upgrades, Project E-995** - Discussion and update of CVWD's TTHM study and disinfection process upgrades.
4. **General Manager Goals and Objectives** – Finalize the Goals and Objectives for the General Manager.

## **Information Items**

## **Written Communications to District/Board of Directors**

**General Manager's Report**

**Attorney Report**

**Reports of Committees**

- Engineering Committee
- Finance Committee
- Employee Relations Committee
- Policy Committee
- Community Relations/Water Conservation Committee
- Emergency Planning Committee

**Director's Oral Reports**

Report on issues, meetings, or activities attended by Directors.

**Board Members' Request for Future Agenda Items**

**Adjournment**

**CRESCENTA VALLEY WATER DISTRICT**  
**ADJOURNED REGULAR MEETING, BOARD OF DIRECTORS**

**October 23, 2018**

Pursuant to the order of the Board of Directors of the Crescenta Valley Water District, made at the Regular Meeting on October 9, 2018, an Adjourned Regular Meeting was held on October 23, 2018, at 7:00 p.m. at the District office at 2700 Foothill Blvd., La Crescenta, California, with President James D. Bodnar presiding.

At roll call, the following Directors and staff members were present:

|                             |                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Directors:</b>           | <b>James D. Bodnar</b><br><b>Michael L. Claessens (absent)</b><br><b>Kerry D. Erickson</b><br><b>Kenneth R. Putnam</b><br><b>Judy L. Tejeda</b>                                                                                                                         |
| <b>Attorney:</b>            | <b>Thomas S. Bunn</b>                                                                                                                                                                                                                                                   |
| <b>General Manager:</b>     | <b>Nem Ochoa</b>                                                                                                                                                                                                                                                        |
| <b>Secretary-Treasurer:</b> | <b>Ron L. Mitchell</b>                                                                                                                                                                                                                                                  |
| <b>District Engineer:</b>   | <b>David S. Gould (absent)</b>                                                                                                                                                                                                                                          |
| <b>Others Present:</b>      | <b>Mark Hass, IT Manager</b><br><b>Christy Scott, Program Specialist</b><br><b>Wendy Holloway, Customer Service Supervisor</b><br><b>Dennis Maxwell, Operation &amp; Maintenance Manager</b><br><b>Brook Yared, Senior Engineer</b><br><b>Kathy Ross, FMWD Director</b> |

**PLEDGE OF ALLEGIANCE**

President Bodnar opened the meeting by asking Director Erickson to lead the Directors and staff in reciting the Pledge of Allegiance.

**ADOPTION OF AGENDA**

**It was moved by Director Tejeda, seconded by Director Putnam and carried by a 4-0 vote that the Agenda for the Adjourned Regular Meeting of October 23, 2018 be adopted as presented.**

**PUBLIC COMMENTS** - None

**FOOTHILL MUNICIPAL WATER DISTRICT REPORT** – Kathy Ross reported that local production is down and conservation is still where it needs to be. Rain barrels are doing well and people still want them. There will be a landscaping class held on December 1, 2018 at the La Canada Presbyterian Church from 9:00 am to 12:00 pm. There was a Water Resource Committee meeting and they discussed in anticipation of 2019 a decrease in the State Water Project supplies and shortages from the Colorado River. They also discussed CVWD not being charged a Tier 2 rate due to the TTHM's and

the response was that in order to get this change it would need to go back to all the family agencies. Also the average money spent per capita on water conservation throughout Southern California is \$2.40 per person for the fiscal years 2016/17 and 2017/18. Calleguas Municipal Water District is leading the way and FMWD is 5<sup>th</sup> on the list, at \$3.25 per person.

### **CONSENT CALENDAR**

**It was moved by Director Putnam, seconded by Director Erickson and carried by a 4-0 vote to approve the Minutes of the Regular Board Meeting held on October 9, 2018 and to ratify the disbursement for September 2018.**

**Payment of demands against the Crescenta Valley Water District on or before September 30, 2018 the same having been approved by the General Manager, Nem Ochoa and heretofore paid, be ratified and approved subject to audit, in the aggregate sum of Nine Hundred Ninety-Six Thousand, Two Hundred Eighty-Four Dollars and Ninety cents (\$996,284.90), which is composed of the individual items set forth herein.**

### **ACTION CALENDAR**

**TTHM Mitigation and Disinfection Process Upgrades, Project E-995** – Ms. Christy Scott gave an update on the water quality with the TTHM's. She said that test results are continuing to decrease, especially in the upper reservoirs, primarily due to the operational changes, such as circulating the water, lowering the reservoir levels, fine tuning the chlorine, and the temperatures have been better. We have taken compliance samples which show the lower levels of the TTHM's.

Mr. Brook Yared gave an update on the construction. Last week staff met with John Robinson and sent out three Requests for Proposal for the ammonia treatment skids. Staff was doing exploratory diggings at the Glenwood facility for the ammonia injection points. Staff is hoping to be testing the system by mid-January 2019.

**FMWD Rate Discussion** – Mr. Nem Ochoa gave a presentation on the wholesale water rates. He discussed the cost of the imported water and explained what are the variable and fixed costs. He reviewed the MWD pass-through variable and the pass-through fixed costs, which are the capacity charge and the readiness to service charge, and the FMWD variable and fixed costs. FMWD has a resolution which was passed by their Board of Directors No. 881-0618, and this is the cost for which CVWD owes FMWD on a monthly basis. This defines the Tier 1 allocation and what CVWD is allowed to take annually and other fees that could include capacity charge, readiness to service charge, capital and rehabilitation charges, administrative and operating charges, and power costs.

**INFORMATION ITEMS** – Crescenta Valley Fire Safe Council flyer saying on Tuesday October 30, 2018 from 6:30 pm to 8:30 pm there will be a Community Preparedness Forum. Crescenta Valley Chamber of Commerce sent a letter for their November Awards Mixer in recognition for the District's 45 year membership and support.

**WRITTEN COMMUNICATIONS TO DISTRICT** – None

### **REPORTS OF PERSONNEL**

**GENERAL MANAGER** – Mr. Ochoa reported that we have two employee anniversary dates – Jaysen Ortega - 5 years, Jim Halaszynski – 21years. We have worked 1,592 days without a lost time accident.

Mr. Mitchell reported on the Directors Stipend Report.

Ms. Scott reported on the Legislative Update on SB 998 – Discontinuation of Water Service.

**ATTORNEY** – No Report

### **REPORTS OF COMMITTEES**

**Engineering Committee** – Mr. Putnam reported that the Committee had not met; however a meeting will be held on November 2, 2018 at 9:00 a.m.

**Finance Committee** – Director Bodnar reported that the Committee met on October 19, 2018 and reviewed the FY 2018/19 first quarter budget vs actual and had a discussion regarding proposed 2-year water and wastewater budgets.

**Employee Relations Committee** – Director Erickson reported that the Committee had not met; however, a meeting will be scheduled as needed.

**Policy Committee** – Director Tejeda reported that the Committee had not met; however, a meeting will be scheduled as needed.

**Community Relations/Water Conservation Committee** – Director Tejeda reported that the Committee had not met; however, a meeting will be scheduled as needed.

**Emergency Planning Committee** – Director Tejeda reported that the Committee had not met; however, a meeting will be scheduled as needed.

**Executive Committee** – Director Bodnar reported that the Committee had not met; however, a meeting will be scheduled as needed.

### **DIRECTORS ORAL REPORTS**

Director Bodnar – No Report

Director Claessens – No Report

Director Tejeda – No Report

Director Putnam reported that there is a proposition on the ballot for this election to raise money for Stormwater Capture that would assess each parcel to raise funds. He asked if staff could check to see if the County would cut the District some money out of the tax to help us with our Stormwater Capture project.

Director Erickson – No Report

### **ADJOURNMENT**

There being no other business to come before the Board, at 8:10 p.m. it was moved by Director Tejeda, seconded by Director Erickson and carried by a 4-0 vote that the meeting be adjourned to November 6, 2018, at 7:00 p.m.

**APPROVED**

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James D. Bodnar  
President

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Ron L. Mitchell  
Secretary-Treasurer

# CRESCENTA VALLEY WATER DISTRICT BOARD OF DIRECTORS - STAFF REPORT

Action Item No.1  
November 6, 2018

**To:** Honorable President and Members of the Board of Directors  
**From:** Ron L. Mitchell – Secretary-Treasurer  
**Subject:** Appeal of a High Water Bill

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## **ACTION ITEM:**

1. **Appeal of a High Water Bill** – Consideration and possible action to grant a request for relief from a high water bill by Pinkal Jogani at 2354 Panorama Drive.

## **BACKGROUND:**

Pinkal Jogani is the owner of the property located at 2354 Panorama Drive since 2014. Their average usage for this period is 124 units with a high of 166 units which would place it in tier 3. While reading the meter for the August 15, 2018 billing cycle, staff discovered 0.058 gpm going through the meter with a usage of 260,000 gallons. Staff sent Mr. Jogani a letter stating there is a small leak. The current billing charges for this period was \$3,017.28.

On September 13, 2018, Mr. Jogani emailed a letter to the office requesting an adjustment on his account. He explained that between his landscaper and plumber they found the float valve for the pool was leaking. Staff sent out a service request to verify the leak had been fixed and granted the maximum \$300.00 adjustment.

On October 26, 2018 Mr. Jogani emailed a letter requesting the Board's consideration for a further adjustment explaining that the billing was high with tier 3 charges of almost \$2,400.00 and he was not sure how much would be on the next billing. Staff has reviewed the October 15, 2018 reading and it shows that consumption was 121 units, which is 23 units more than the 3-year average of 98 units for this account.

In similar situations, the Board has directed staff to recalculate the bill in question charging only tier 2 rates for all usage over the average consumption for that period. If staff uses that same methodology the average consumption for the August billing period for this account is 124 units. Total consumption was 260 units that mean the extra 136 units (260-124) would be billed at tier 2. Staff has prepared a "Recalculated Statement" which shows the billing for the August 15th period would be \$2,489.60 instead of \$3,017.28 that was billed, or a difference of \$527.68. Additionally, the overage of 23 units for the October 15<sup>th</sup> billing period would result in another \$89.24 in credit bringing the total difference to \$616.92 (\$527.68 + \$89.24). Staff has already applied a \$300.00 adjustment to the account so the additional credit would be \$316.92 if the Board were to choose this solution.

## **RECOMMENDATION:**

Staff recommends granting the request to recalculate the excess water usage at tier 2 rates for this account to be consistent with recent Board actions and is ready to place the remaining balance on an amortization schedule for Pinkal Jogani if he so chooses.

Prepared and submitted by:



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Ron L. Mitchell  
Secretary-Treasurer

Reviewed by:



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Nem Ochoa  
General Manager

Attachments:

*Pinkal Jogani*

2354 Panorama Dr La Crescenta CA 91214

Tel: 213 453 6700

10/23/2018

To,  
Board of Director,  
Crescenta Valley Water District,

RECEIVED

**Subject: Adjustment of my home water bill due to leak**

OCT 26 2018

Dear Board of Director,

CRESCENTA VALLEY  
WATER DISTRICT

This is in continuation of my previous letter dated 09/13/2018 in which I mention that vendor which I hire informed me that Float valve for pool was leaking, I immediately took step and get it repair so that no more leak happens.

I firmly believe in saving water resources, and thank you for bringing this issue to my attention.

Further, I have attached the invoice for the repair I have done. All leak has been fixed. May I request you to kindly look into this matter and if you can adjust my water bill. Your consideration in this matter will be highly appreciated.

If you have any question, please reach out to me.

Thank you in advance,

Your Sincerely,  
Pinkal Jogani



CRESCENTA VALLEY  
WATER DISTRICT  
2700 FOOTHILL BLVD  
LA CRESCENTA, CA 91214-3590

|                |                     |
|----------------|---------------------|
| ACCOUNT NUMBER | SERVICE ADDRESS     |
| 30536-000      | 2354 Panorama Dr.   |
| DUE DATE       |                     |
| 9/20/2018      | 06/16/18 to 8/15/18 |
| TOTAL CHARGES  | AMOUNT ENCLOSED     |
| \$691.16       | \$                  |

Pinkal Jogani  
2354 Panorama Dr.  
La Crescenta, CA 91214-3043

CRESCENTA VALLEY WATER DISTRICT  
2700 FOOTHILL BLVD.  
LA CRESCENTA CA 91214-3590

-----  
DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT

KEEP THIS PORTION FOR YOUR RECORDS

### CORRECTED STATEMENT

|                |                   |            |                     |
|----------------|-------------------|------------|---------------------|
| ACCOUNT NUMBER | SERVICE ADDRESS   | DUE DATE   | BILLING PERIOD      |
| 30536-000      | 2354 Panorama Dr. | 9/20/2018  | 06/16/18 to 8/15/18 |
| METER NUMBER   | CURRENT READ      | PRIOR READ | USAGE               |
| 75115856       | 2847              | 2587       | 260                 |

#### SUMMARY OF CHARGES

|                                      |                 |
|--------------------------------------|-----------------|
| Previous Balance                     | (\$1,798.44)    |
| Payment on                           | \$0.00          |
| Tier 1 - 10 x \$4.83 (Basic Usage)   | \$48.30         |
| Tier 2 -16 x \$7.61 (Average Usage)  | \$121.76        |
| Tier 3 - 98 x \$11.49 (High Usage)   | \$1,126.02      |
| Tier 2 -136 x \$7.61 (Average Usage) | \$1,034.96      |
| Water Service Charge                 | \$75.41         |
| Sewer Service Charge                 | \$45.95         |
| Sewer Flow Charge (Winter Water Use) | \$37.20         |
| Glendale Tax                         | \$0.00          |
| <b>TOTAL DUE</b>                     | <b>\$691.16</b> |



**CRESCENTA VALLEY  
WATER DISTRICT**  
2700 FOOTHILL BLVD  
LA CRESCENTA CA 91214-3590



\*\*AUTO\*\*SCH 5-DIGIT 91214 7 PS5 109362RA29-A-1  
1670 1 AV 0.375



PINKAL JOGANI  
2354 PANORAMA DR  
LA CRESCENTA CA 91214-3043

**ACCOUNT NUMBER**

030536-000

**SERVICE ADDRESS**

2354 PANORAMA

**DUE DATE**

09/20/18

**BILLING PERIOD**

06/16/18 to 08/15/18

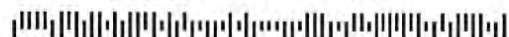
**TOTAL CHARGES**

\$1,218.84

**AMOUNT ENCLOSED**

\$

CRESCENTA VALLEY WATER DISTRICT  
2700 FOOTHILL BLVD  
LA CRESCENTA CA 91214-3590

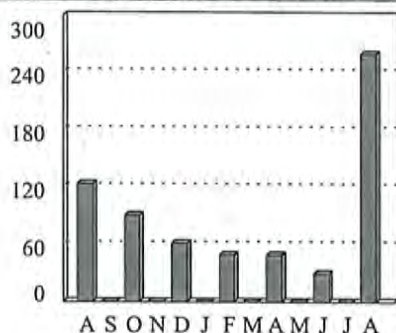


DETACH AND RETURN THIS REMITTANCE PORTION OF THE BILL WITH YOUR PAYMENT  
KEEP THIS PORTION FOR YOUR RECORDS

**STATEMENT OF ACCOUNT**

| ACCOUNT NUMBER | SERVICE ADDRESS | BILL DATE  | DUE DATE     | BILLING PERIOD          |                    |
|----------------|-----------------|------------|--------------|-------------------------|--------------------|
| 030536-000     | 2354 PANORAMA   | 08/15/18   | 09/20/18     | 06/16/18 to 08/15/18    |                    |
| METER NUMBER   | COMMENTS        | PRIOR READ | CURRENT READ | USAGE<br>(IN 1,000 GAL) | USAGE<br>LAST YEAR |
| 75115856       |                 | 2,587      | 2,847        | 260                     | 123                |

**WATER USAGE in THOUSAND GALLONS**



**SUMMARY OF CHARGES**

|                                                  |              |
|--------------------------------------------------|--------------|
| Previous Balance                                 | - \$1,798.44 |
| Payment on                                       | \$0.00       |
| Water Usage Charges                              |              |
| Tier 1 - 10 x \$4.83 (Basic Usage 0-10 Units)    | \$48.30      |
| Tier 2 - 16 x \$7.61 (Average Usage 11-26 Units) | \$121.76     |
| Tier 3 - 234 x \$11.49 (High Usage 27 + Units)   | \$2,688.66   |
| Water Service Charge                             | \$75.41      |
| Sewer Service Charge                             | \$45.95      |
| Sewer Flow Charge (Winter Water Use)             | \$37.20      |

**TOTAL DUE**

**\$1,218.84**

$$136 \times 11.49 = 1562.64$$

$$136 \times 7.61 = 1034.96$$

3,017.28

$$1562.64 + 1034.96 = 2597.60$$

$$2597.60 - 1378.72 = 1218.88$$



If you have questions regarding this bill or dispute the amount charged, the District's Rules and Regulations (Article 8.05G) permit you to submit a complaint or request an investigation. This process must be commenced by you delivering the complaint or request to the District in writing at least five (5) calendar days of receipt of this bill.

Crescenta Valley Water District will be amending miscellaneous fees such as late fees, delinquent turn-off fees and establishing a New Account fee effective July 1, 2018. The complete listing of all rates and fees can be found under the Financial Information tab on the District's website located at [www.cvwd.com](http://www.cvwd.com).

CRESCENTA VALLEY WATER DISTRICT  
2700 FOOTHILL BOULEVARD  
LA CRESCENTA, CALIFORNIA 91214

FOR MORE INFORMATION  
VISIT OUR WEB SITE AT  
[www.cvwd.com](http://www.cvwd.com)

BILLING INQUIRIES: (818) 248-3925  
OFFICE HOURS MON-FRI 8:00 AM - 4:30 pm  
24 HR. EMERGENCY #: (818) 249-2185



Practical Plumbing and Rooter  
17868 Highway 18, suite 326  
apple valley, CA 92307 US  
(888) 680-8111  
practicalplumbingandrooter@gmail.  
com  
practicalplumbingandrooter.com



## INVOICE

### BILL TO

Pinkal Jogani  
2354 Panorama Dr  
La Crescenta, CA 91214

INVOICE # 1264  
DATE 09/12/2018

### JOB ADDRESS

2354 Panorama dr. La Cresenta

| DATE       | ACTIVITY                                                                                                                                                                            | QTY  | AMOUNT |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|
| 09/03/2018 | Plumbing:Repair<br>House leak.<br>Pressure test all fixture and toilets. NO leaks.                                                                                                  | 3    | 324.00 |
| 09/08/2018 | Plumbing:Repair<br>Crawl space inspection.<br>NO leak under home.                                                                                                                   | 1.50 | 162.00 |
| 09/08/2018 | Plumbing:Repair<br>Performed Electronic Leak Detection.<br>No leak in home...Cold water leak outside main foundation.<br>Located leak at pool equipment float valve. Leak Repaired. | 1    | 375.00 |

BALANCE DUE

**\$861.00**



## USAGE HISTORY

10/01/2018 - 9:56 AM

Current Customer: 030536-000 Established On: 8/20/2014 Route # 28

Name: PINKAL JOGANI Address: 2354 PANORAMA

Meter #: 75115856 Meter Size: 1 Status: A U/M: Gallons Meter Install Date: 5/15/2013

| 2018 |     | 2017 |     | 2016 |     | 2015 |    | 2014 |     |
|------|-----|------|-----|------|-----|------|----|------|-----|
| Jan  | 0   | Jan  | 0   | Jan  | 0   | Jan  | 0  | Jan  | 0   |
| Feb  | 49  | Feb  | 22  | Feb  | 33  | Feb  | 41 | Feb  | 0   |
| Mar  | 0   | Mar  | 0   | Mar  | 0   | Mar  | 0  | Mar  | 0   |
| Apr  | 49  | Apr  | 80  | Apr  | 43  | Apr  | 51 | Apr  | 0   |
| May  | 0   | May  | 0   | May  | 0   | May  | 0  | May  | 0   |
| Jun  | 30  | Jun  | 89  | Jun  | 72  | Jun  | 91 | Jun  | 0   |
| Jul  | 0   | Jul  | 0   | Jul  | 0   | Jul  | 0  | Jul  | 0   |
| Aug  | 260 | Aug  | 123 | Aug  | 166 | Aug  | 85 | Aug  | 0   |
| Sep  | 0   | Sep  | 0   | Sep  | 0   | Sep  | 0  | Sep  | 0   |
| Oct  | 0   | Oct  | 90  | Oct  | 110 | Oct  | 93 | Oct  | 116 |
| Nov  | 0   | Nov  | 0   | Nov  | 0   | Nov  | 0  | Nov  | 0   |
| Dec  | 0   | Dec  | 61  | Dec  | 66  | Dec  | 56 | Dec  | 33  |

3-yr average = 124,000  
260 - 124 = 136,000

CVWD  
allmm

Utility Billing  
Service Request Form

9/12/2018 - 3:40 PM

Request Number: 000129-09-2018  
Account Number: 030536-000

Last Updated By: allmm  
On: 9/12/2018

Account Status: Active

Name: PINKAL JOGANI  
Billing Address: 2354 PANORAMA  
LA CRESCENTA, CA 91214

Home Phone: 2134536700  
Business Phone:  
Service Address: 2354 PANORAMA

Request Date: 9/12/2018  
Request Description: Check for leak repairs have been made.  
Service Date: 9/12/2018

| Water/Gas Meters        | Route-Seq<br>Read Dt | Serial No<br>Cons | Register ID<br>No Of Digits | MXU ID | Manufacturer | Model No  | Reading |
|-------------------------|----------------------|-------------------|-----------------------------|--------|--------------|-----------|---------|
| Existing Water<br>Meter | 28-0165<br>8/15/2018 | 75115856<br>260   | <br>4                       |        | Ipearl       | Ipearl.14 | 2847    |

Location: GO DOWN ON BRIGGS 15'N OF DR

2885838.12

Comments:

No leak

Follow up needed? yes no

Serviced By:

20

Date:

9/13/18

Time:

# CRESCENTA VALLEY WATER DISTRICT

## BOARD OF DIRECTOR - STAFF REPORT

Action Item No. 2  
November 6, 2018

**To:** Honorable President and Members of the Board of Directors  
**From:** Ron L. Mitchell, Secretary-Treasurer  
**Subject:** **Consideration for Moving to a Two-Year Budget Process**

### **ACTION ITEM:**

Discussion of and consideration for moving from an annual budget to a two-year budget process.

### **BACKGROUND:**

Multi-year budgeting in the public sector has increased in popularity over the years. For the purpose of this discussion, a multi-year budget refers to a two-year cycle. Two-year budgets have been used more widely since the early 2000s, and the finance community within the water industry has a better understanding of the various “pros” and “cons” of adopting a two-year budget. It is not for every agency, and realizing the benefits of moving to a two-year budget depends on the agency being fully committed to the process.

### **DISCUSSION:**

The following are common pros and cons that are useful to understand in evaluating whether a two-year budget is appropriate for the District.

#### **PROS**

- Significant savings in staff and Board time devoted to the budget
  - o More time invested into tighter budget monitoring, improving processes, and pursuing grant funding and strategic initiatives
- Improved long-range financial planning
- Less politicized budget process

#### **CONS**

##### Shorter-term

- Significant investment of staff time during the first 2-year cycle
- Public perception of a “double” rate increase

##### Longer-term

- Risk of underestimating rate increases required over a 2-year period due to:
  - o Economic downturns
  - o Regulatory changes
  - o Unexpected events – e.g., conversion to chloramination

One of the primary benefits of moving to a two-year budget would be reduced staff time related to preparing the budget, public workshops, and public notification. An analysis of staff time saved from a two-year budget cycle yields low and high-end estimates of between ~1,750 and ~2,250 total hours, respectively. This savings would be from avoidance of activities such as public hearings and workshops, Board and committee meetings, Prop 218 notices and mailers, budget modeling, staff meetings, etc. Staff would also spend less time preparing budget analyses of potential future costs – e.g., CIP projects, fleet replacement, treatment materials, professional services etc.

This time could be re-allocated toward moving District-benefiting initiatives forward more effectively and efficiently as outlined in the strategic plan. Listed below are a sampling of such initiatives.

- Develop and implement a cost-effective public outreach and customer communication plan;
- Pursue and negotiate strategic partnerships;
- Pursue completion of the Automated Meter Infrastructure (AMI) program;
- Pursue additional grant and alternative funding opportunities;
- Cross-train staff in distribution and treatment expertise;
- Prepare a comprehensive Emergency Preparedness Program;
- Incorporate CIP into the Budget Financial Model by individual project on a cost-benefit basis;
- Enhance the asset management plan as part of the implementation of a GIS program;
- Develop a Water Resources Plan and complementing Hydrologic Model;
- Develop a Wastewater Master Plan
- Develop a Districtwide intranet;
- Enhance water quality sampling processes; and
- Document Standard Operating Procedure and internal controls, as applicable, across all departments.

**RECOMMENDATION:**

Staff is currently initiating the budget and Prop 218 process for the FY 2019-20 period.

Staff recommends that the Board review and discuss the provided information during the Board meeting and direct staff on further due diligence and action items related to this issue. Staff will need to know by mid-December 2018 if the Board chooses to implement a two-year budget.

**ENVIRONMENTAL REVIEW:**

Not applicable

**FUNDING AVAILABILITY:**

Not applicable

Prepared by:



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James Lee, Finance & Accounting Manager

Submitted by:



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Ron L. Mitchell, Secretary-Treasurer

# CRESCENTA VALLEY WATER DISTRICT

## BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 3  
November 6, 2018

**To:** Honorable President and Members of the Board of Directors  
**From:** David S. Gould, P.E. – District Engineer  
**Subject:** TTHM Mitigation and Disinfection Process Upgrades, Project E-995

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### **ACTION ITEM:**

**TTHM Mitigation and Disinfection Process Upgrades, Project E-995** - Discussion and update of CVWD's TTHM study and disinfection process upgrades

### **BACKGROUND:**

The District uses chlorine as a disinfectant to treat drinking water. Chlorine can create disinfection by-products during treatment, known as total Trihalomethanes or TTHMs, as it reacts with naturally occurring organic matter in imported water supplied by FMWD/MWD from either the Colorado River (CRW) or the State Water Project (SWP). The typical water supply blend for CVWD is 60% groundwater and 40% imported water. The water supply blend is now closer to 40% groundwater and 60% imported water.

CVWD has seen a steady rise in the concentration of TTHMs because CVWD is using more imported water as groundwater levels have not yet recovered from the latest drought and coupled with additional chlorine in the system has led to an increase in TTHMs in the distribution system.

### **Past Actions:**

- o August 14, 2018
  - Discussion by Dr. Issam Najm of WQTS on TTHMs and Chloramines.
  - Awarded a \$10,000 consulting services contract to WQTS for initial study and evaluation.
- o August 28, 2018
  - Awarded a contract to WQTS for \$99,800 for chloramine conversion, public outreach, staff and operator training, Department of Drinking Water (DDW) permitting support, development of necessary mitigation plans, and preparation of 30% design plans.
  - Awarded a contract to Hazen and Sawyer for \$9,971 to perform bench testing of CVWD's source water to determine proper breakpoint chlorination and formation of TTHMs.
- o September 11, 2018
  - Staff working with WQTS and CV Strategies mailed out public information brochures with a list of frequently asked questions.
  - Staff posted information on website and articles in the CV Weekly and Glendale Newspress.
- o September 15, 2018 – Public Workshop at the Glenwood Plant
- o September 25, 2018
  - Authorized General Manager to select and negotiate with consultants and contractors for the installation of chloramination systems at the Glenwood and Mills Plants for \$410,000.
  - Award contract to John Robinson Consulting (JRC) for \$45,225 for contract and construction administration for the new ammonia injection system.
  - Amended contract to WQTS for \$44,240 for additional design work by Carollo Engineers.
- o October 9, 2018
  - Office & field staff trained on the nitrification and chloramines processes
  - Carollo Engineers submitted preliminary 30% design plans for review
- o October 23, 2018
  - Site walk at Glenwood and Mills Plants to determine location of ammonia injection skids, ammonia injection conduits, SCADA and electrical conduits.
  - JRC prepared and sent out a request for quote for purchase of two (2) ammonia injection pump skids.
  - Grace Environmental Services (Grace) provided a proposal for a system operator to assist staff during the chloramine conversion process in the distribution system.
  - Site visit from Apex Manufacturing Solution (APEX), on the design and installation of SCADA equipment and integration at Glenwood and Mill Plants.
  - Met with Hazen and Sawyer on design and installation of new chlorine analyzers at six (6) locations to provide additional monitoring after conversion to chloramines.



## **DISCUSSION:**

### **Operational Changes:**

Staff continued with water system operational changes to bring the TTHM levels at the reservoirs to below a target level of 64 ug/L. This included reducing the amount of water stored in each reservoir and amount of chlorine injected at the Mills and Glenwood Plants. As shown on the attached charts, the TTHM levels at each reservoir site have decreased or are between 64 ug/L and the MCL limit of 80 ug/L.

Staff requested a proposal from Hazen and Sawyer for the installation of spray aeration system at Oak Creek Reservoir to reduce the TTHM levels and to continue use of free chlorine as the disinfection. Hazen and Sawyer proposed engineering design fee was \$77,265 and a preliminary cost for the spray aeration system was \$100,000 - \$150,000 for each reservoir for approximate total cost of \$377,265. Staff reviewed the proposal and construction costs and determined it was not cost effective to install the spray aeration system in the long-term.

### **Construction – Chloramine Conversion:**

#### **Installation of Ammonia Injection System for Chloramine Conversion:**

The following are tasks completed by staff and consultants:

- o The 30% design plans were reviewed and sent back to Carollo Engineers for final edits.
- o Field crews potholed the 14-inch water main at the Glenwood Plant for depth and location for the ammonia injection and monitoring concrete vault.
- o JRC working with ammonia chemical suppliers (Hill Brothers Chemical Company and Univar) on the type of ammonia (liquid ammonia sulfate), containment units, transportation, delivery and costs.
- o JRC working with Jensen Precast on the 6'x6'x7'-6" deep concrete vault design and quote.
- o JRC working with Poly Processing Company on quote for 405 gallon tank at Mills Plant.
- o JRC scheduled a meeting with Glendale Fire Department to review the design and obtain the permit.
- o Received proposal from APEX for the design and installation of SCADA equipment and integration at Glenwood and Mill Plants for \$47,725.
- o APEX provided a list of SCADA equipment that CVWD will purchase through Royal Industrial Solutions with an estimate of \$15,200.
- o Staff met to discuss planning for flushing out dead-end water mains in January 2019.
- o JRC and staff met with BrikArt Construction to get a quote for installing a concrete pad and grading at the Mills Plant.
- o WQTS and staff continued working on Nitrification Monitoring & Control Plan for submittal to DDW.

#### **Ammonia Injection Pump Skids:**

Received quotes from three (3) vendors for the ammonia injection pump skids, which are shown in the table below.

|     | <b><u>Vendor</u></b>       | <b><u>Total Quote</u></b> |
|-----|----------------------------|---------------------------|
| Low | Cortech Engineering        | \$29,850.00               |
| 2   | Charles P. Crowley Company | \$32,972.50               |
| 3   | D & H Water Systems, Inc.  | \$37,928.48               |

Cortech Engineering, a DXP Company (Cortech) of Anaheim, CA was the apparent lowest responsible bidder for the project. The engineer's estimate was \$75,000 and the low bid was \$45,515 or 60% lower than the engineer's estimate. Staff has previously worked with Cortech on the construction of CVWD's Ocean View chloramination station and was satisfied with the progress of the project.

Staff is reviewing Cortech's bid proposal and cost breakdown and compared it to CVWD's cost estimate. The quote for Cortech also stated that the delivery of the system will be in about 8 to 10 weeks and staff is firming up the schedule for both submittal review and delivery of the equipment.

#### **SCADA Programing, Integration and Equipment:**

Staff has been working with APEX to formulate a scope of work and list of equipment need to integrate the data from the chlorine analyzers and the ammonia injection pump skids into CVWD's SCADA system. This information will be used to remotely monitor the chlorine and ammonia injection systems and the chloramine level leaving the Glenwood and Mills Plants. APEX proposal was for \$47,525 which includes design of the program logic, off-site and on-site programing and on-site testing of the system (See attached proposal).

**Project Schedule - Installation of Ammonia Injection System:**

Staff has updated the project schedule based on the tentative lead time for the ammonia skids and the pre-cast concrete vault. Staff will be ordering the ammonia skids on November 1, 2018 and Cortech is estimating 8 – 10 weeks for delivery, which will be around the end of December 2018. CVWD's crews will install the ammonia equipment after arrival and it is anticipated it will be completed by the end of January 2019. Engineering Committee requested that staff confirm with Cortech on the delivery date.

The pre-cast concrete vault will also be ordered by November 1, 2018 and the vendor is estimating 6 – 8 weeks for delivery, which will be around the middle of December 2018. CVWD's crews will install the vault, ammonia injection system (static mixer with injection quill) and sampling port for new chlorine analyzer.

**Project Schedule – Conversion to Chloramines:**

Staff has reviewed the TTHMs Mitigation Option Decision Tree that was provided by WQTS, which set specific dates for converting to chloramines based on TTHM levels in the reservoirs.

As shown in the attached TTHM charts, the TTHM levels have been reduced and we should be in compliance during the 2018 4<sup>th</sup> quarter sampling for TTHMs. The next compliance sampling will be in February 2019 for the 2019 1<sup>st</sup> quarter sampling. Staff believes that the TTHM levels will remain below the MCL limit of 80 ug/L during this period as a result of the low winter demands and lower temperatures,

Staff is concerned that TTHM levels will rise during the spring and summer of 2019 due to high demands, temperature and reduced groundwater. Staff is looking at this period to start the disinfection conversion to chloramines and the ammonia injection systems should be installed by this time. However, if there is significant rainfall this winter and groundwater levels rise, the conversion to chloramines could be delayed until fall 2019.

The Engineering Committee commented that staff should plan for the chloramine conversion in February or March 2019, if there is not significant rainfall this winter and the groundwater wells may have to be shutdown.

**Operations & Maintenance:**

**Additional Monitoring for Nitrification after Conversion to Chloramines:**

Staff has been working with WQTS and Hazen and Sawyer on planning for the conversion to chloramines and water quality issues. A major concern is the possibility of nitrification in CVWD's reservoirs, which can result in a reservoir being taken out of service and water being wasted. Currently, we have chlorine analyzers at eleven (11) of the reservoir sites and we will need an additional six (6) chlorine analyzers to monitor for total chlorine, total ammonia and nitrite. Nitrite is a pre-cursor for nitrification and monitoring these levels will give staff advanced notification if nitrification is going to occur at a reservoir.

Staff met with Hazen and Sawyer to discuss a scope of work for engineering services for the installation of the six (6) chlorine analyzers at Cresta Heights Reservoir, Dunsmore Reservoir, Eagle Canyon Reservoir, Goss Canyon Reservoir, Paschall Booster Station, and Shields Reservoir. The scope of work included visits to each site to determine the ideal location of the chlorine analyzers to get a representative chlorine samples, prepare design plans and specifications for construction at each site, project management and meetings. The proposal cost from Hazen and Sawyer was \$53,255, which is about \$9,200 per site.

The new chlorine analyzers will be provided by HACH and will be installed by CVWD's crews. The estimated cost for each chlorine analyzer is about \$10,000 and a total cost \$60,000. In addition, the data from the chlorine analyzers will need to be connected to CVWD's SCADA system for monitoring purposes. The estimated cost for purchasing new SCADA equipment, programming and integration into CVWD's SCADA system is about \$17,000 per site for a total cost of \$102,000. These additional costs were not included in the original cost estimate and will increase the budget by \$215,255. The design of the new chlorine analyzer could be completed by March 2019 and installation completed by July 2019.

Another water quality issue will be the possibility of nitrification occurring in the distribution system, which could result in positive total coliform results and additional flushing or wasting water. It has been suggested to perform water flushing of the entire distribution system to remove any biofilm that may react with the ammonia. Staff has had preliminary discussions with companies that perform this service and initial costs range from \$12,000 to \$20,000 per week for their crews to perform the work. Staff estimates it will take about 5 – 6 weeks to complete a thorough flushing of the distribution system. Staff will be working with WQTS on the nitrification mitigation plan over the next few weeks and should get a better idea on the scope of work and costs.

**Preliminary Cost Estimate:**

The table below shows an updated costs and construction estimates for the conversion to chloramines. It does not include staff labor costs or any flush outs labor cost necessary to maintain water quality.

| <b>Account Description</b>                                                 | <b>Amount</b>    |
|----------------------------------------------------------------------------|------------------|
| <b>Total Estimated Cost for Project</b>                                    | <b>\$570,000</b> |
| <b>Consultants - Planning, Design &amp; Construction Admin</b>             |                  |
| <b>WQTS - Planning</b>                                                     | <b>\$10,000</b>  |
| <b>WQTS - Design</b>                                                       | <b>\$144,040</b> |
| <b>Hazen &amp; Sawyer - Water Quality</b>                                  | <b>\$9,970</b>   |
| <b>John Robinson Consulting - Project Management</b>                       | <b>\$45,225</b>  |
| <b>Grace Environmental Services (3 months part-time service)</b>           | <b>\$15,000</b>  |
| <b>Apex Manufacturing Solution - SCADA programing and integration</b>      | <b>\$47,725</b>  |
| <b>Public Notification - CV Strategies , Printing &amp; Mailing</b>        | <b>\$11,168</b>  |
| <b>WQ Sampling - 7/1/18 to 10/1/18</b>                                     | <b>\$43,284</b>  |
| <b>WQ Sampling - 10/1/18 to 12/31/18 (Estimate)</b>                        | <b>\$31,000</b>  |
| <b>Subtotal</b>                                                            | <b>\$357,412</b> |
| <b>Construction</b>                                                        |                  |
| <b>Ammonia Injection Skids (2)</b>                                         | <b>\$29,850</b>  |
| <b>SCADA - Equipment (RTU's, Communication, cabinets, etc.) (Estimate)</b> | <b>\$15,200</b>  |
| <b>Concrete Pad &amp; Grading at Mills (Estimate)</b>                      | <b>\$27,000</b>  |
| <b>Ammonia Inject Vault at Glenwood</b>                                    | <b>\$34,690</b>  |
| <b>Ammonia Tank at Mills (Estimate)</b>                                    | <b>\$7,000</b>   |
| <b>Conduits/Wiring/Electrical Materials (Estimate)</b>                     | <b>\$7,000</b>   |
| <b>Upgrade Chlorine Analyzers (Mills &amp; Glenwood) (Estimate)</b>        | <b>\$17,000</b>  |
| <b>Safety - Eye Wash, Containment, etc. (materials only) (Estimate)</b>    | <b>\$3,200</b>   |
| <b>On-site Welding (Estimate)</b>                                          | <b>\$9,000</b>   |
| <b>Misc (Estimate)</b>                                                     | <b>\$5,763</b>   |
| <b>Subtotal</b>                                                            | <b>\$155,703</b> |
| <b>Total Cost</b>                                                          | <b>\$513,115</b> |
| <b>Amount Remaining</b>                                                    | <b>\$56,885</b>  |

**RECOMMENDATION:**

It is staff's recommendation to continue with the following:

1. Continue with the design and installation of the ammonia injection system including the SCADA work with APEX, the ordering of the ammonia injection pump skids equipment and materials
2. Continue operational changes to maintain TTHM levels until February 2019
3. Continue working with WQTS on notification mitigation plan
4. Keeping DDW informed on CVWD's progress on the TTHM levels.

Engineering Committee has the following comments:

1. Concurred with staff's recommendation to award a contract to APEX for design and installation of SCADA equipment and integration at \$48,625.
2. Concurred with staff's recommendation to award a contract Cortech Engineering for the ammonia injection pump skids at a cost of \$29,850.

3. Request staff to provide updates project budget costs and scope of work to include any operations and maintenance costs including additional chlorine analyzers, water distribution system flushing and other O & M costs at the next Board meeting.
4. Operations should set up safety training for use of ammonia, installation of new signs at the gates; update personnel protection equipment (PPE) for ammonia spills.

Prepared by:



David S. Gould, P.E.  
District Engineer

Submitted by:



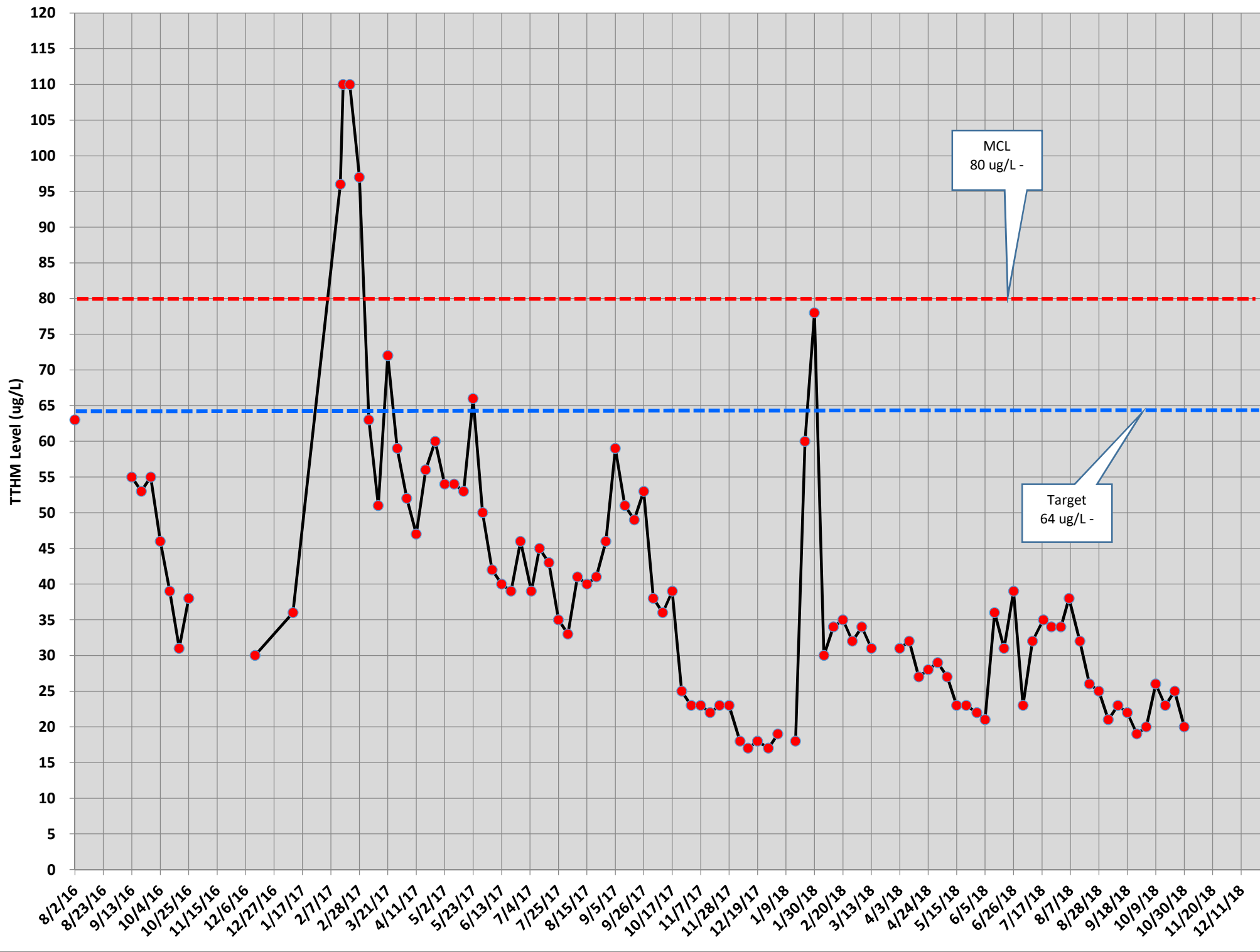
Nem Ochoa  
General Manager

Attachments:

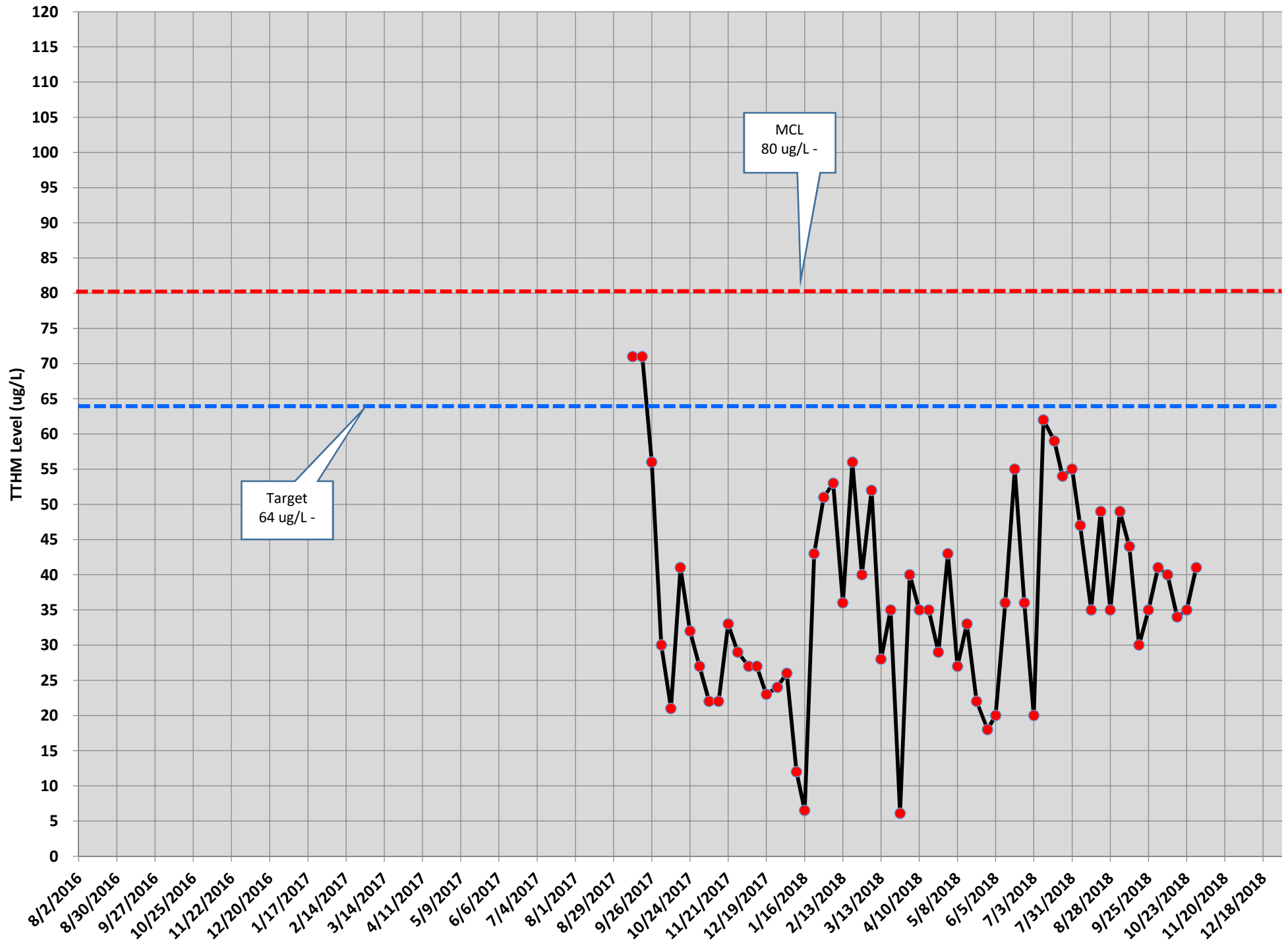
1. TTHM Charts dated 10-30-18
2. Apex Manufacturing Solution proposal dated 10/30/18

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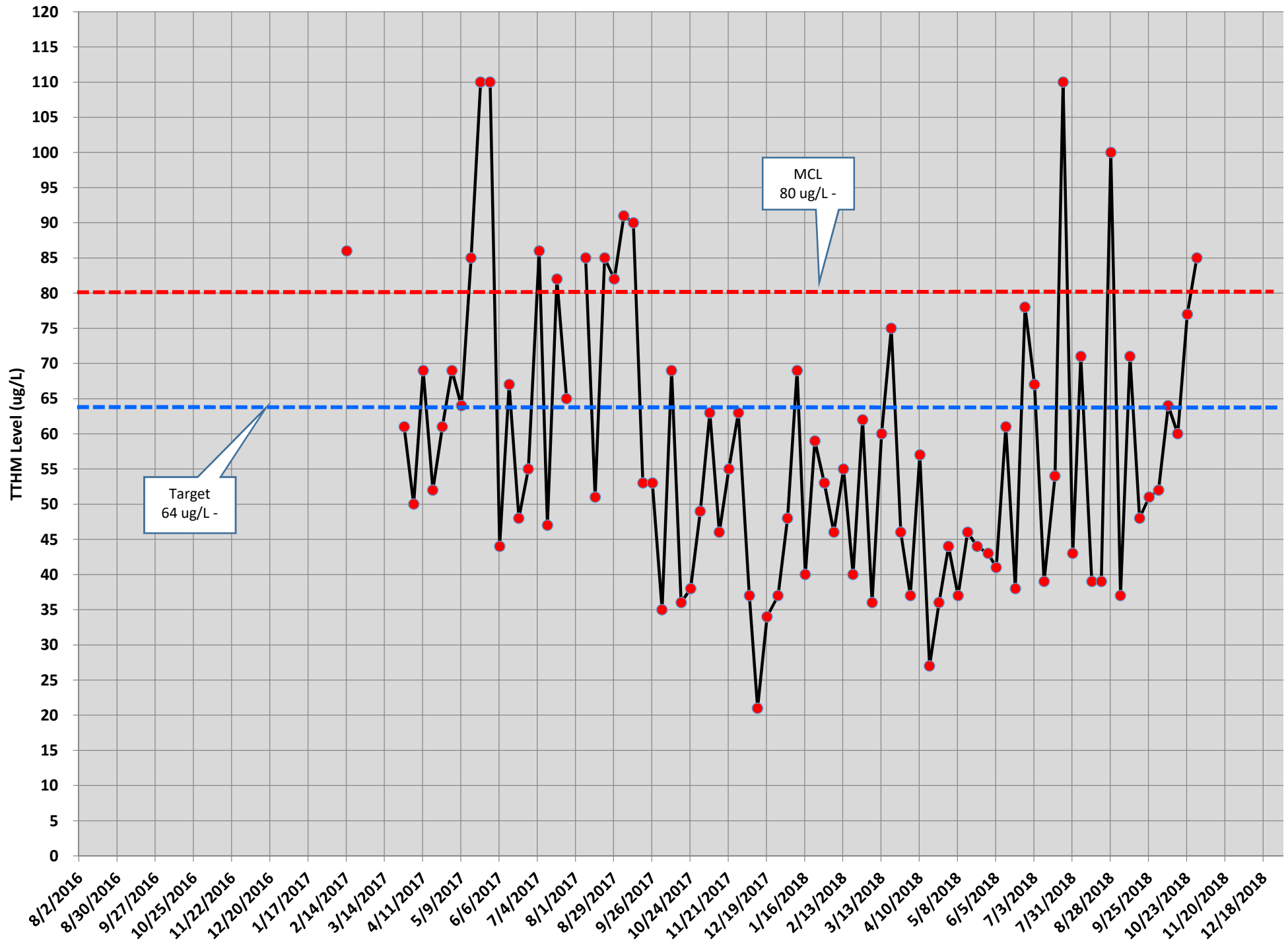
# FMWD at Paschall Booster - TTHM's Levels



# Encinal Reservoir (Zone 1) - TTHMs Levels

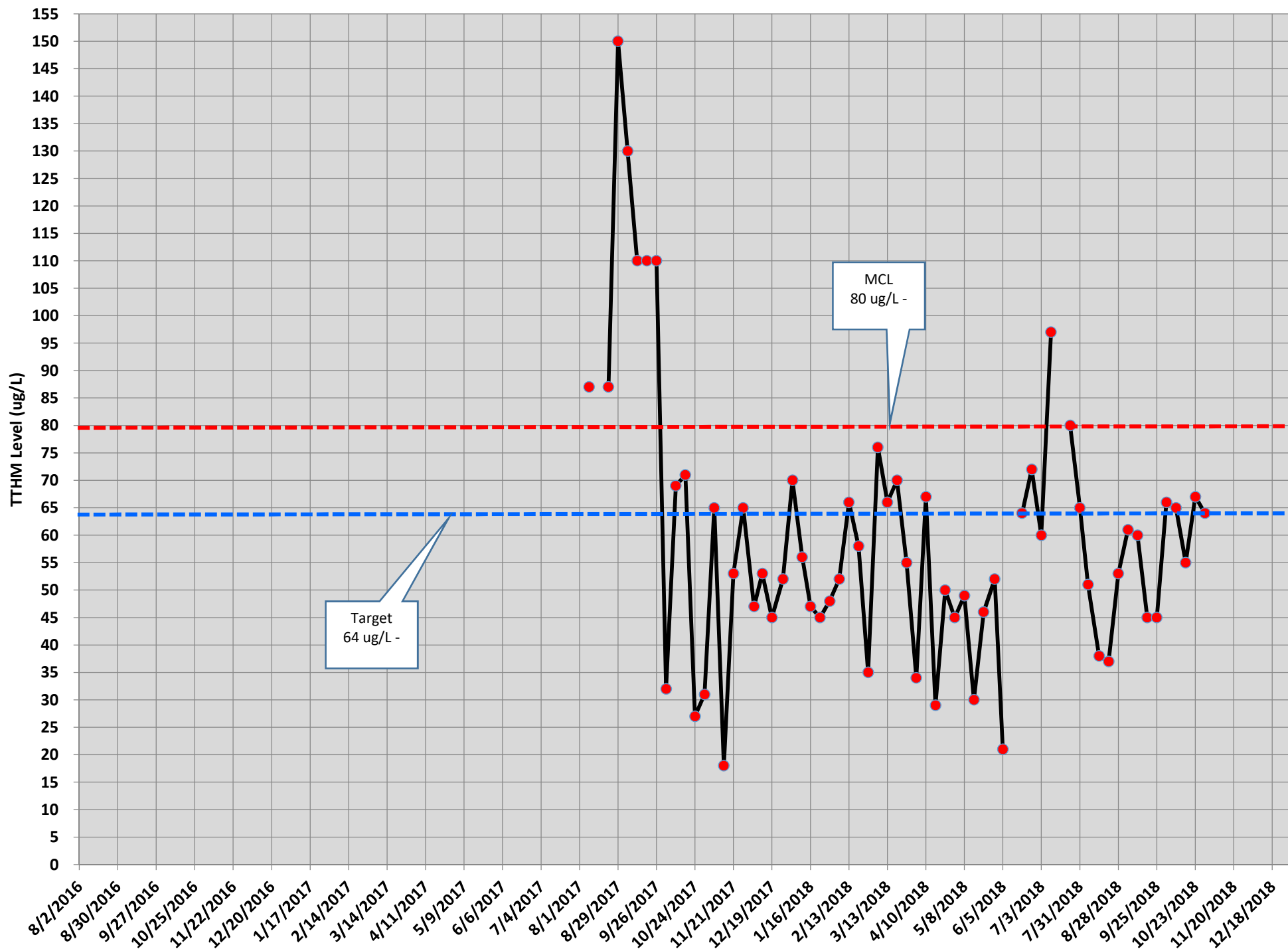


# Williams Reservoir (Zone 2) - TTHMs Levels

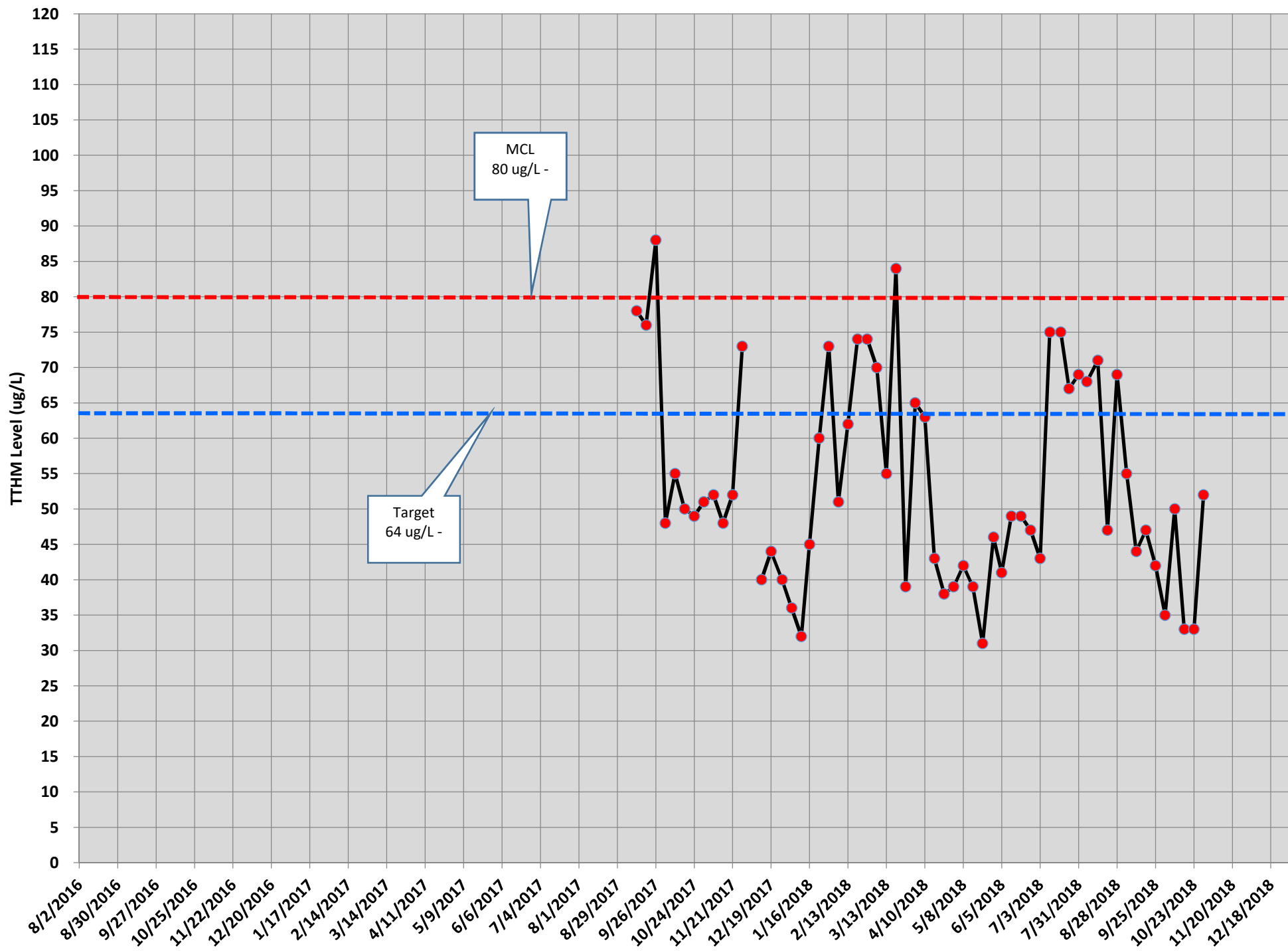




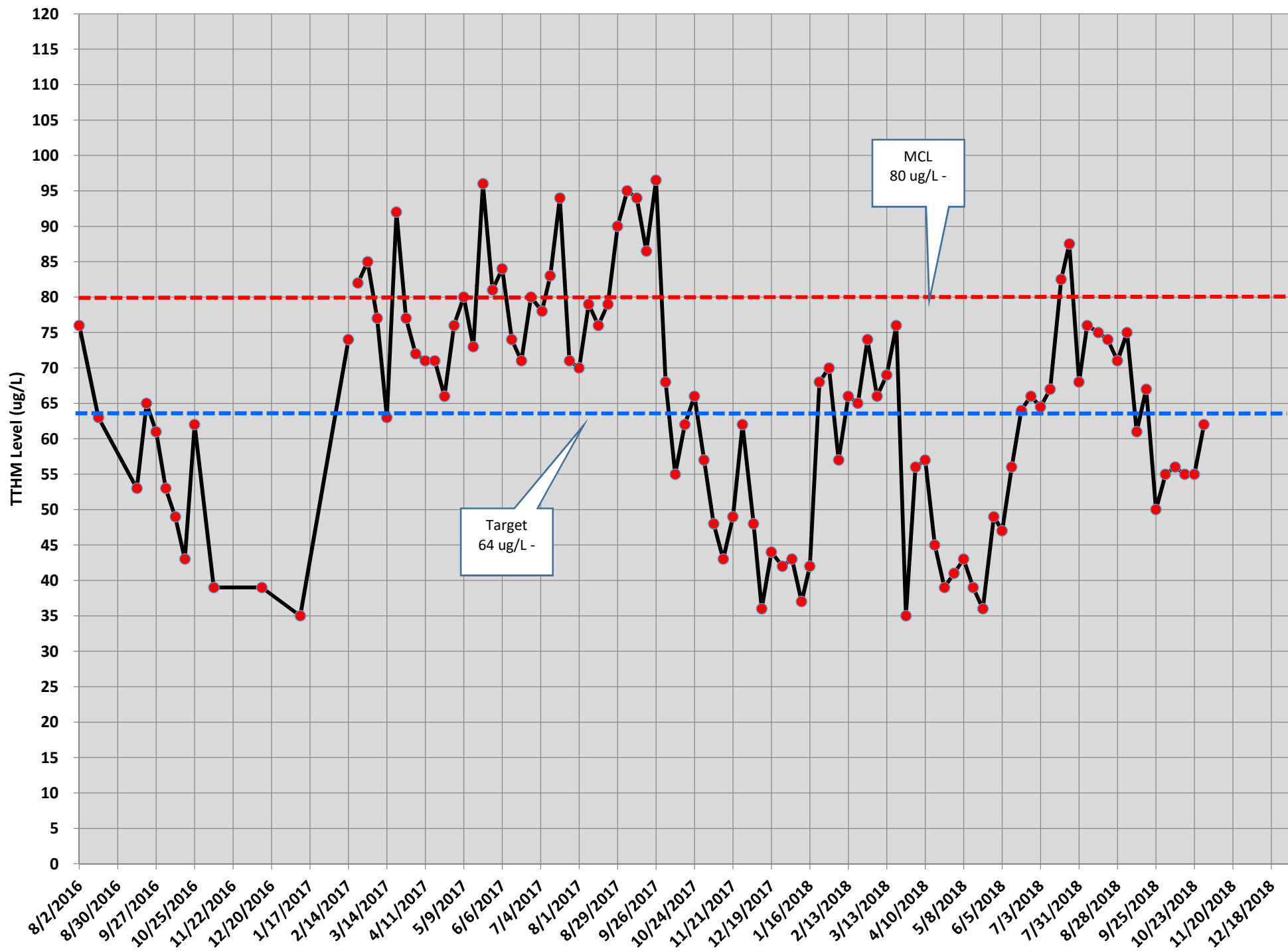
## Ordunio Reservoir (Zone 2) - TTHMs Levels



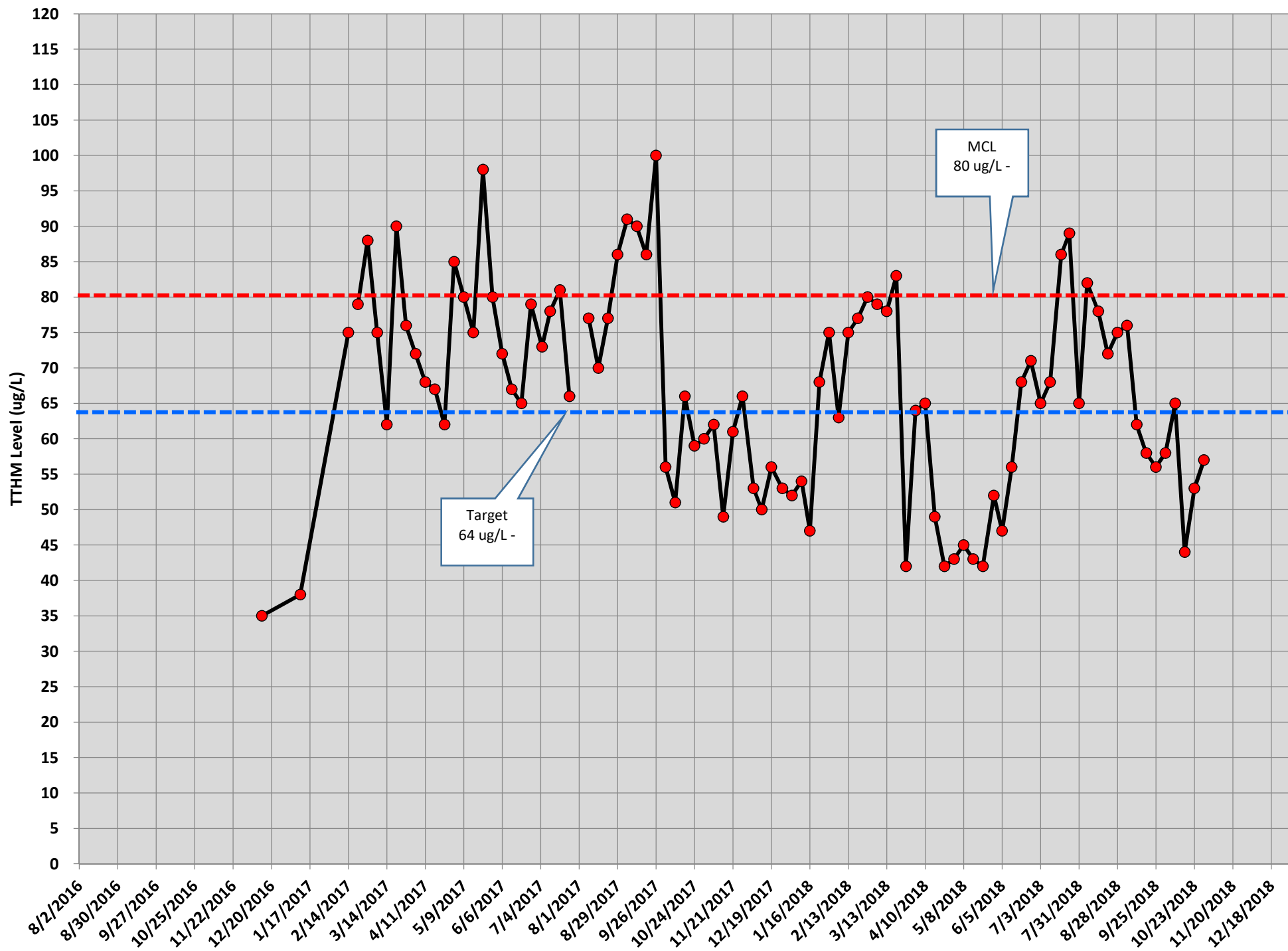
# Rosemont Reservoir (Zone 3) - TTHMs Levels



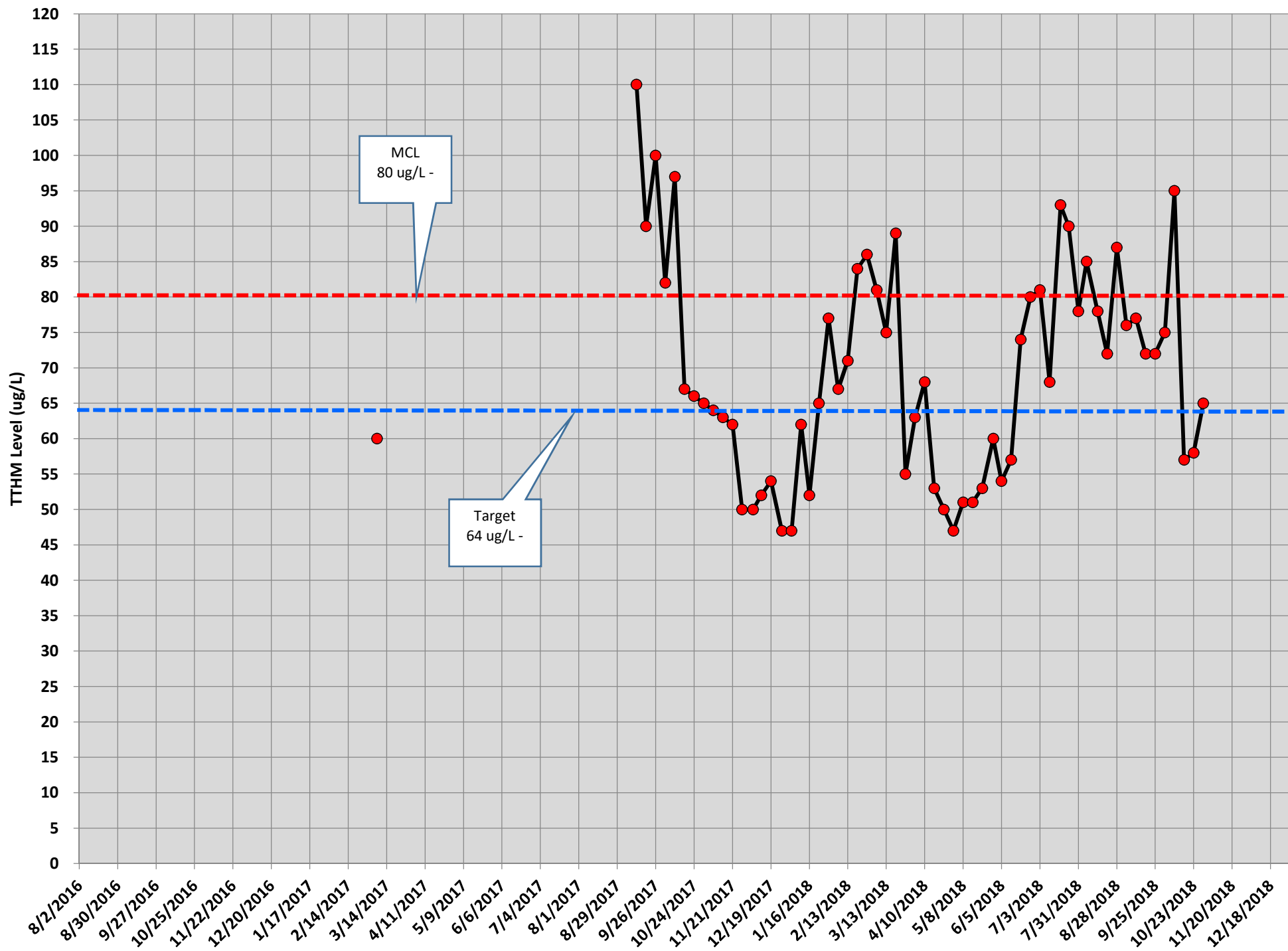
# Oak Creek Reservoir (Zone 4) - TTHMs Levels



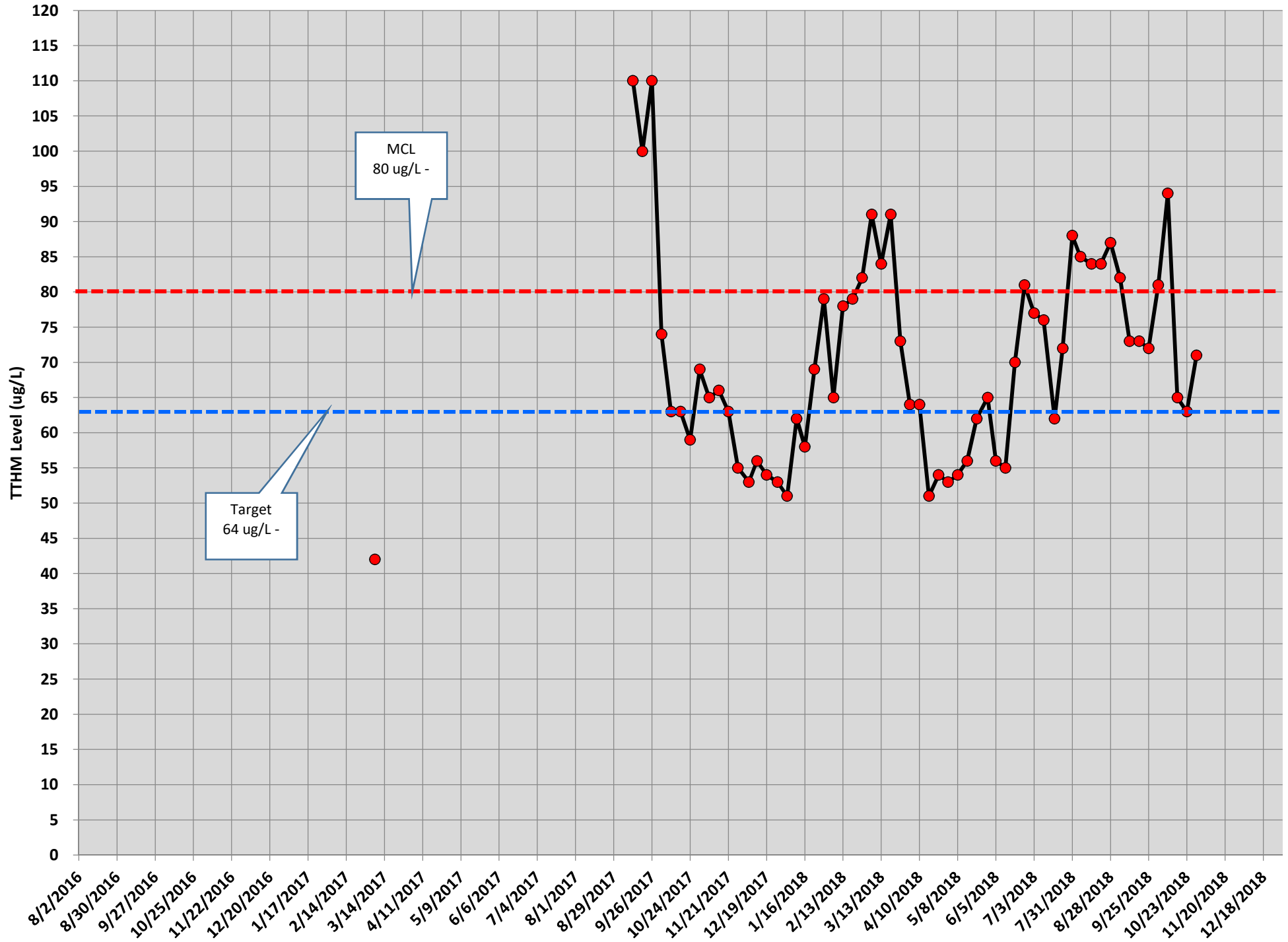
# Markridge Reservoir (Zone 5) - TTHMs Levels



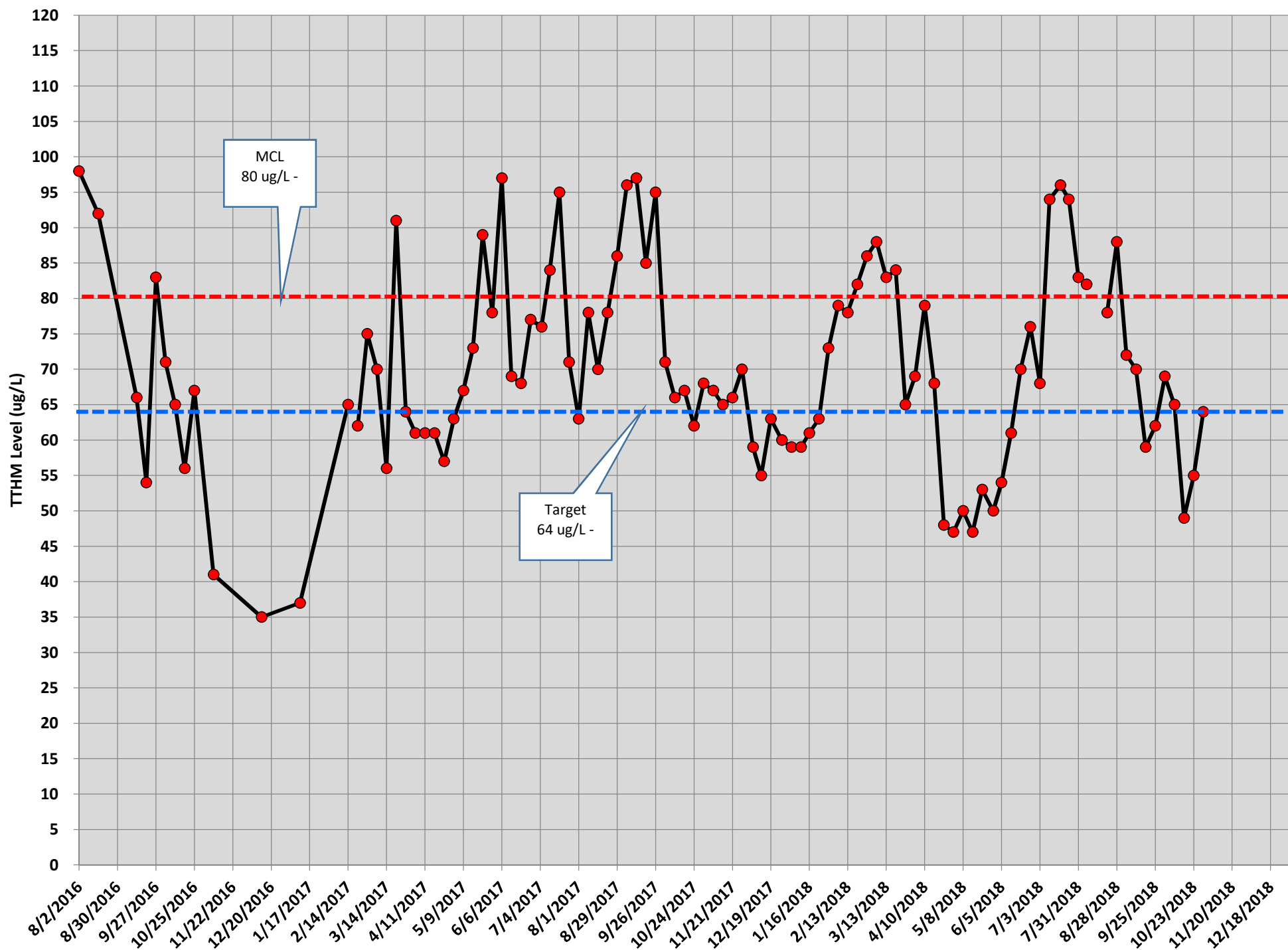
# Eagle Canyon Reservoir (Zone 5) - TTHMs Levels



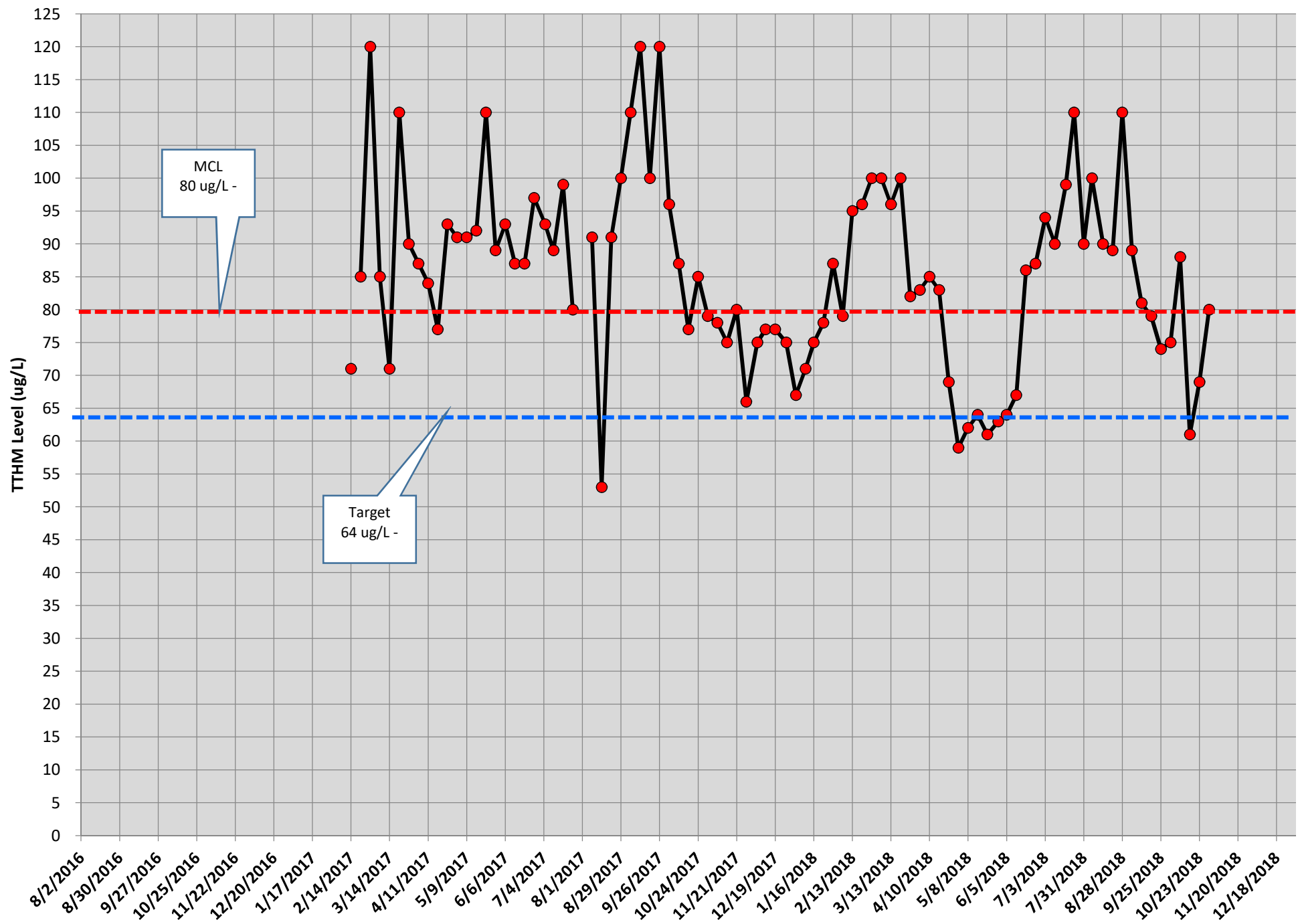
# Goss Canyon Reservoir (Zone 6) - TTHMs Levels



# Dunsmore Reservoir (Zone 7) - TTHMs Levels

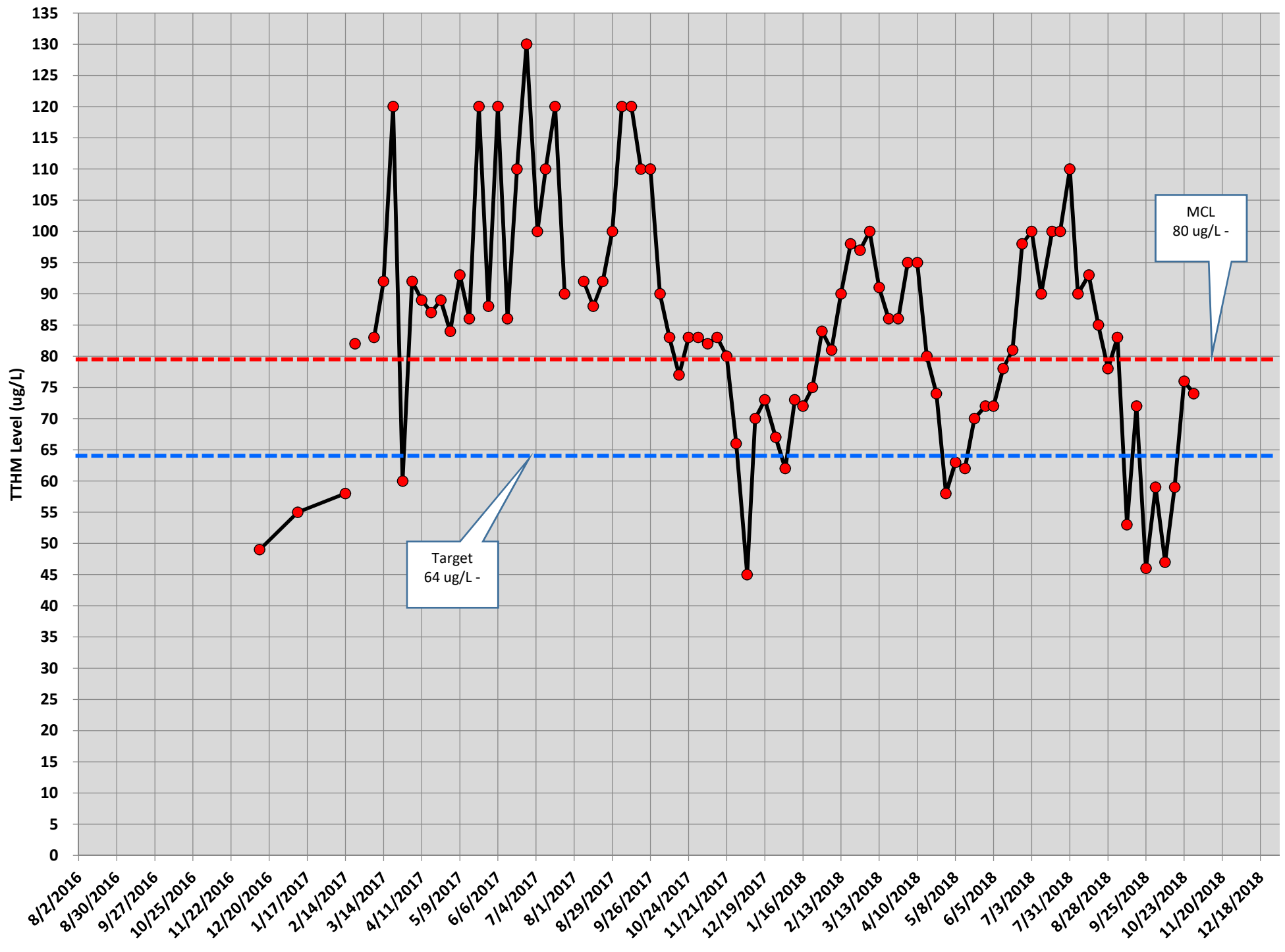


# Cresta Heights Reservoir (Zone 8) - TTHMs Levels

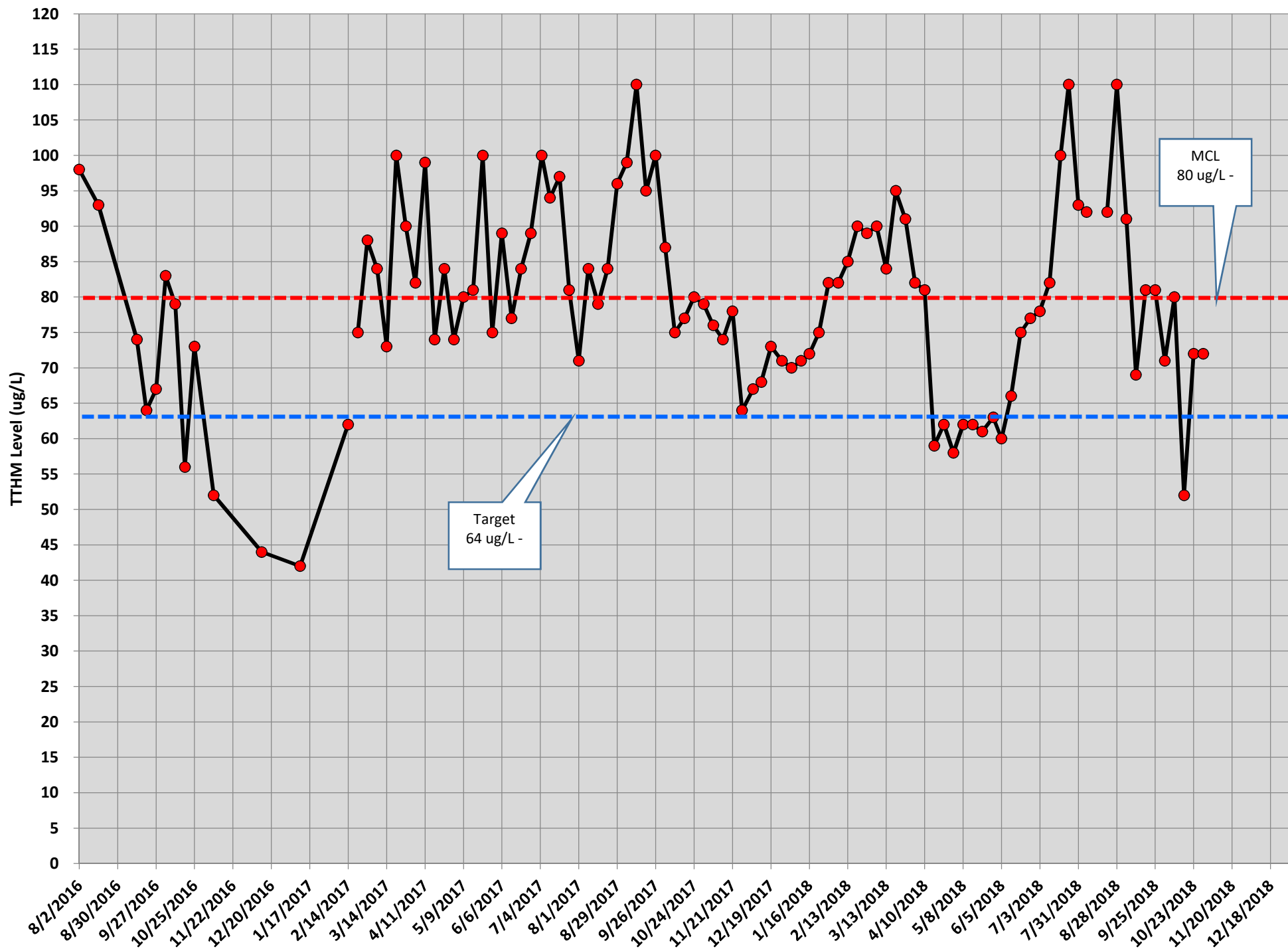




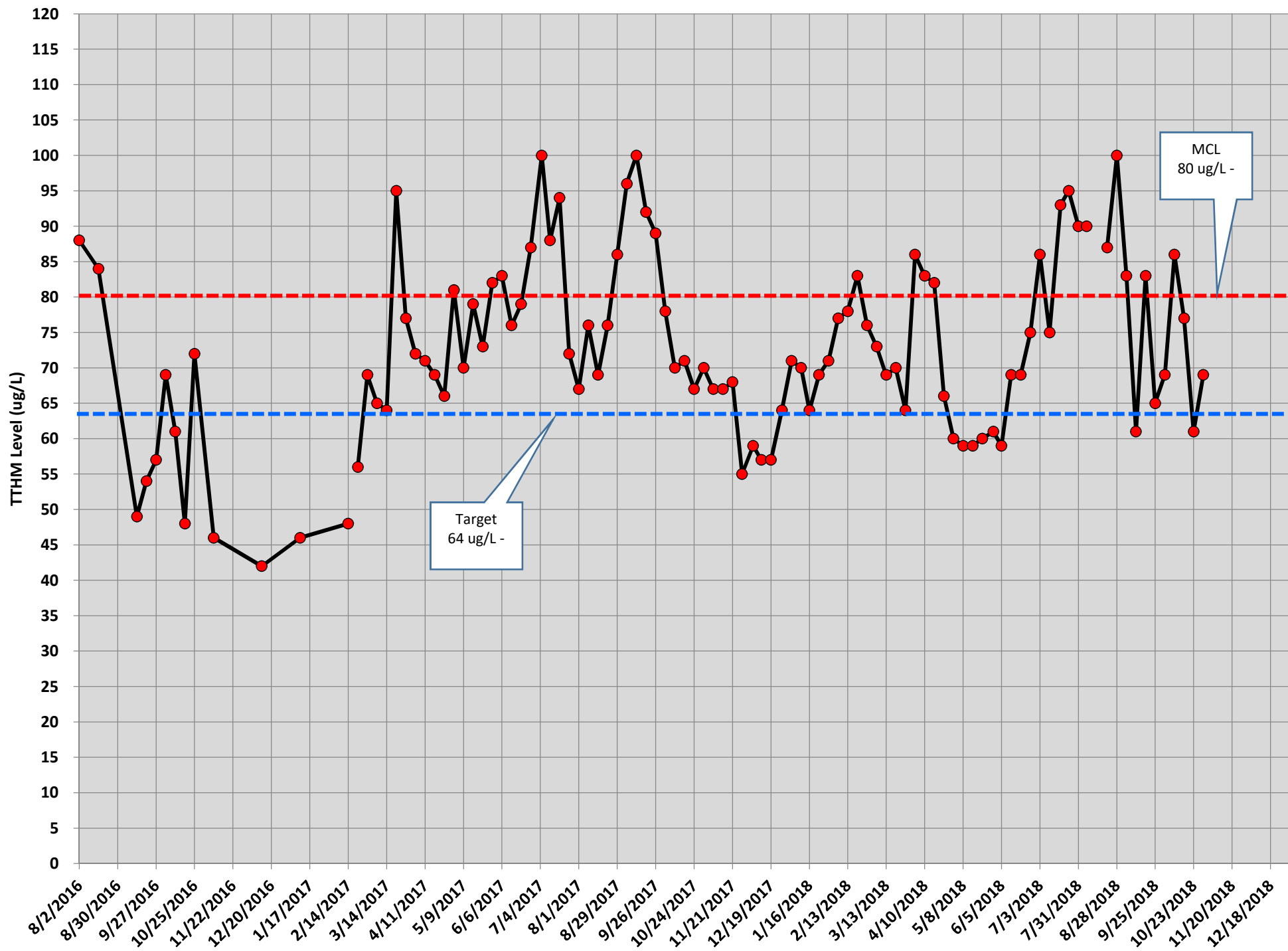
# Edmund No. 1 Reservoir (Zone 9) - TTHMs Level



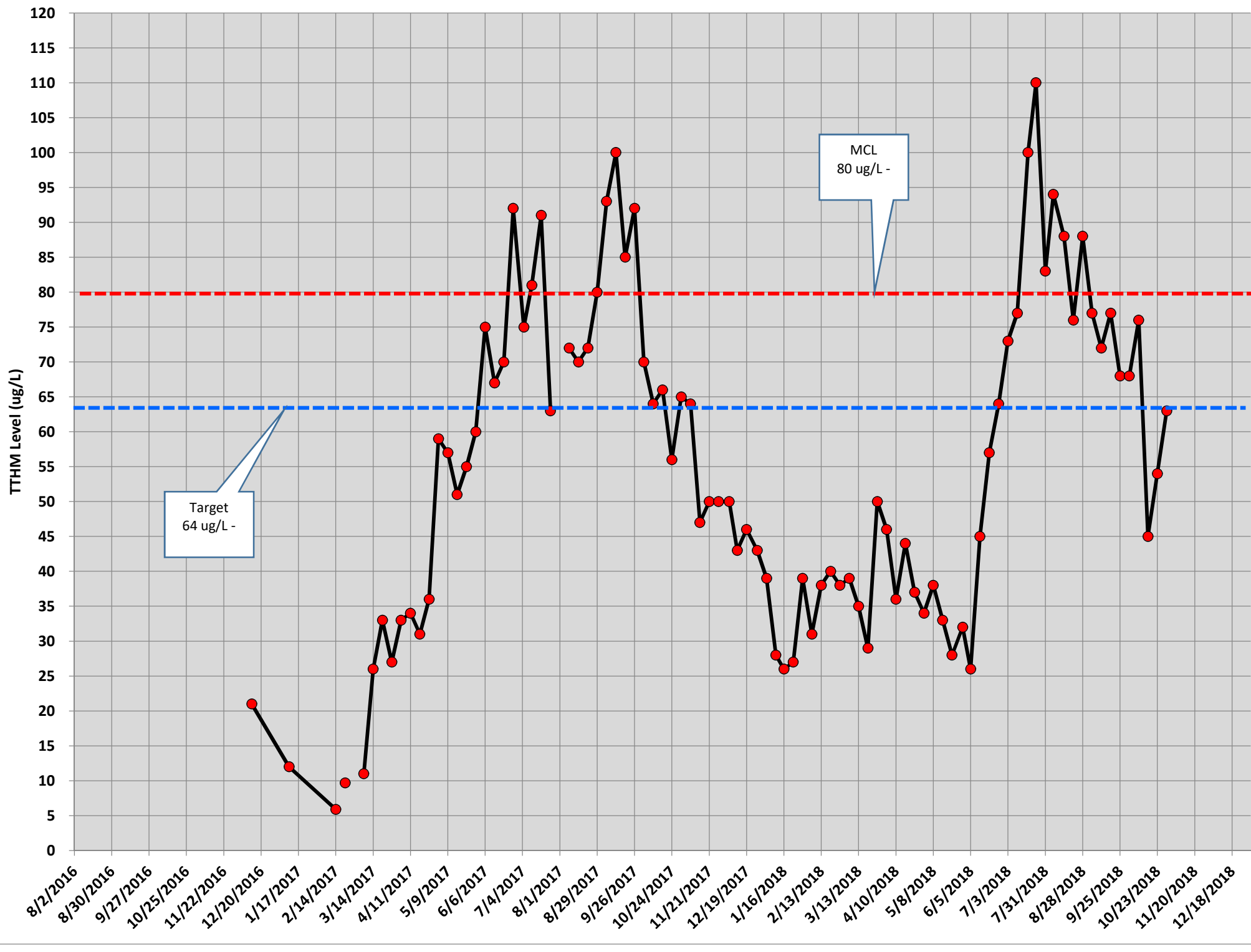
## Edmund No. 2 (Zone 9) - TTHMs Levels



## Shields Reservoir (Zone 10) - TTHMs Levels



# Pickens Reservoir (Zone 11) - TTHMs Levels





**Apex Manufacturing Solutions**  
408 E. Parkcenter Blvd. #200  
Boise, Idaho 83706  
Fax: 866.391.1009  
Phone: 208.344.5535  
[www.apexmfgsolutions.com](http://www.apexmfgsolutions.com)

10/30/2018

Mark Haas  
Crescenta Valley Water District  
(818) 248-3925

SUBJECT: CVWD0008 – Ammonia Injection Skid Integration  
Apex Project Number – CVWD0008 REV1

Dear Mark,

Thank you for the opportunity to submit this proposal to Crescenta Valley Water District (CVWD). This proposal covers the design and integration efforts required to introduce two (2) new ammonia injection skids into the existing CVWD control and SCADA systems. This is a services-only proposal that includes system design development and integration but will not include hardware acquisition, assembly, radios or installation. These can be quoted separately once the design phase has been completed. The "REV1" of this proposal reflects specific requests by Crescenta Valley to remove the installation support and reduce the onsite time from 10 days to 6.

The proposed solution architecture would utilize DNP3 routers to allow Rockwell-based Remote Transmission Units (RTUs) to communicate via radio to a central software-based node. This approach would be used to control and acquire data from the injection skid located at the Mills facility and will be the first of the new RTUs. The ammonia injection skid to be installed at the Glenwood facility would be controlled via a dedicated Rockwell CompactLogix PLC that would be accessed via the existing Ethernet network at the Glenwood facility. Data from both injection skids will be integrated into the existing Wonderware-based SCADA system and Historian.

Apex is pleased to offer our knowledge and expertise, and we are dedicated to providing you with the resources, talent, and skill needed to ensure your success with this project. Upon your approval we will engage with you and others on your team, and work to ensure your deliverables are met. Thank you again for this opportunity and please do not hesitate to contact me if you have further questions or comments.

Regards,

Margo Shew  
Project Manager  
Phone: (208) 344-5535 Ext. 206  
[Margo.Shew@apexmfgsolutions.com](mailto:Margo.Shew@apexmfgsolutions.com)



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**Crescenta Valley Water District  
Ammonia Injection Skid Integration**

Apex Project Number – CVWD0008 REV1

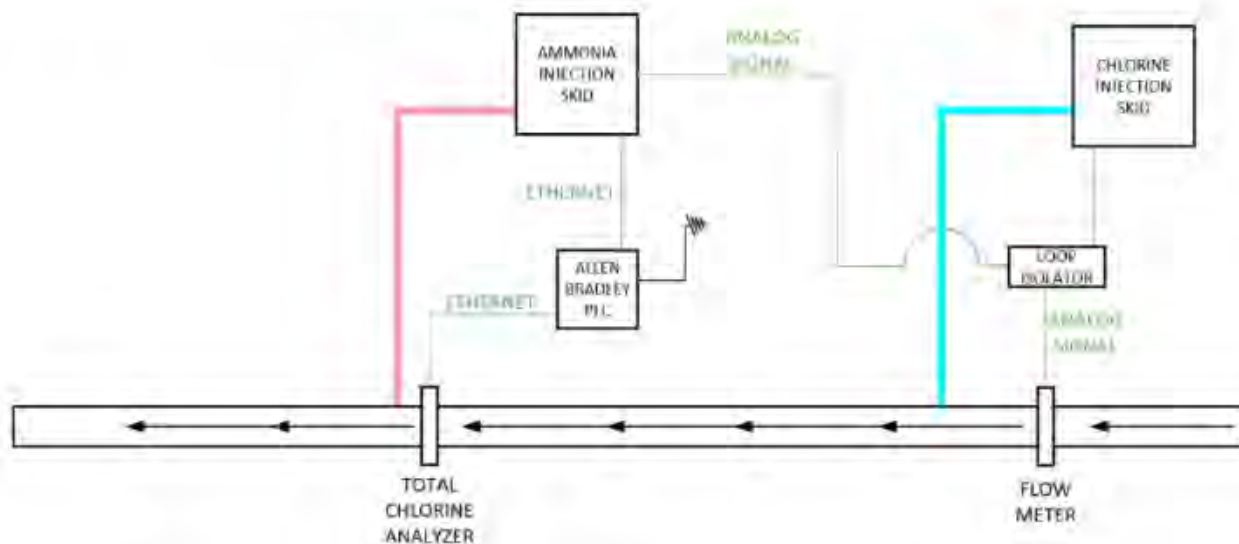
October 30, 2018



## 1. Project Description

The Crescenta Valley Water District will soon begin adding ammonia to the process water. Injection will take place at two geographically isolated locations. The primary facility is the Glenwood location. This location hosts the Wonderware SCADA system tag servers, operator stations, Historian, and other system components. The second injection skid will be located at the Mills facility which is approximately one mile away from the Glenwood facility. The two facilities will be connected via a wireless (900 MHz) network.

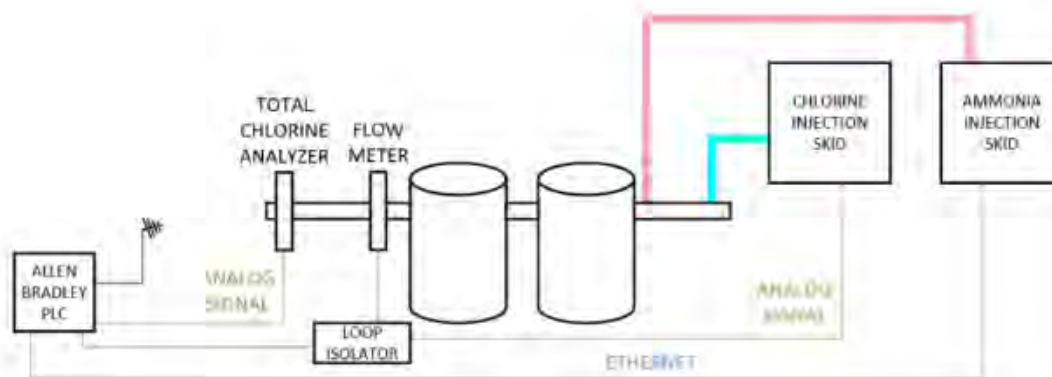
The high-level control strategy for the Glenwood facility is shown in the diagram below:



The chlorine injection rate is controlled by the flow meter via an analog output connected directly to the speed command input on the metering pumps. Injection rate is a simple linear response defined within the metering pumps themselves. The chlorine will be thoroughly mixed prior to entering the free chlorine analyzer. The analog output from the free chlorine analyzer will be connected to a remote IO station which will then relay this information to the new Rockwell PLC added to the existing MCC as a part of this project. The PLC will be connected to another remote IO station on the ammonia dosing skid. The calculated metering pump speed command will be used to control the ammonia injection rate.

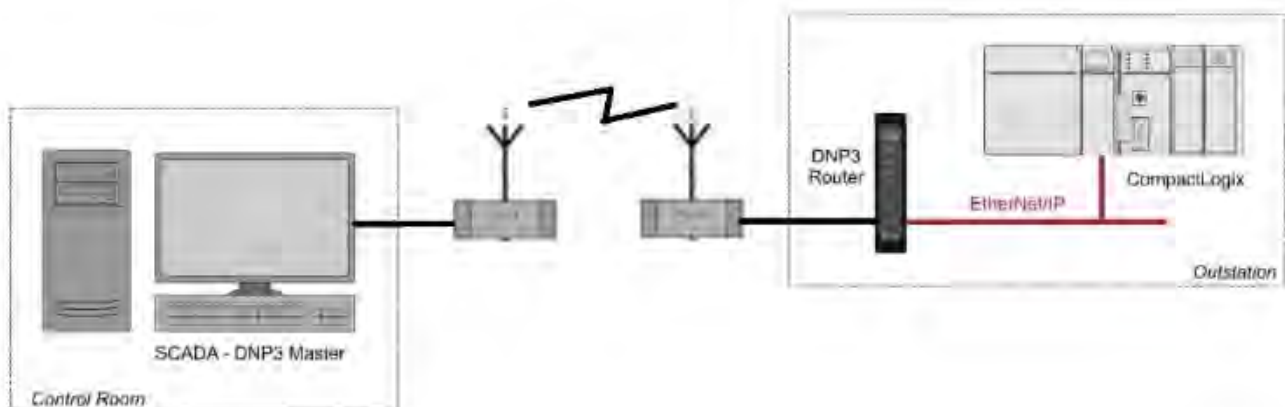
It is important to note that ammonia injection must stop if supply water stops flowing. Due to the critical nature of this constraint a redundant approach will be utilized interlock ammonia injection. First, the analog signal will be routed from the flow meter via a loop isolator to the remote IO station within the ammonia dosing station. Should the flow signal drop below a configurable threshold, the logic within the controller will discontinue injection. Secondly, the flow currently routed to SCADA from the Tesco controller will be forwarded to the ammonia injection controller. Again, if the flow rate falls below a configurable threshold ammonia injection will stop.

The overall control strategy and logic within the controller employed for the Mills facility is very similar insofar as a free chlorine analyzer will be used to determine the ammonia dosing rate. The control strategy for the Mills facility is shown in the diagram below:



In support of the two new ammonia injection skids tags will be added to the existing tag servers without changing the configuration or architecture. Two interfaces will be added to the existing InTouch application. These new injection skid interfaces will be closely modeled after existing interfaces and will allow the operator to control ammonia injection in response to measured total chlorine.

The proposed solution architecture would utilize DNP3 routers to allow Rockwell-based Remote Transmission Units (RTUs) to communicate via radio to a central software-based node. This approach would be used to control and acquire data from the injection skid located at the Mills facility and will be the first of the new RTUs. The ammonia injection skid to be installed at the Glenwood facility would be controlled via a dedicated Rockwell CompactLogix PLC that would be accessed via the existing Ethernet network at the Glenwood facility. Data from both injection skids will be integrated into the existing Wonderware-based SCADA system and Historian. Conceptual design of the solution is shown in the following diagram.



The DNP master would be integrated into the Wonderware SCADA system and would utilize a new DNP-capable IO server to handle the polling and communications with the RTUs via radio. The wireless architecture developed to support this project will form the basis for future work towards modernizing other remote stations such as wells, reservoirs, and pump stations. The new architecture will run in parallel with the existing wireless architecture and support transitioning additional RTU's using a modular approach. After all remote units have been updated the existing wireless network will be removed.



This project will include commissioning only the main node and the node at the Mills plant. However, all programming efforts associated with this project will include as a design criteria the need for easy extensibility and streamlined RTU transition in the future.

System operation of the ammonia injection skids will be documented within a Control Sequence Functional Document (CSFD) including both functional descriptions and a complete IO listing. This document will be updated during the commissioning and testing phase to represent the true as-installed state. Project also includes other necessary documentation, including drawings, Operations and Maintenance (O&M) manuals, and User Training.

Apex uses a work package method to do project estimation. A detailed task breakdown by work package is include in Appendix A below.

## 2. Project Constraints & Assumptions

This proposal is based on the following project constraints and/or assumptions.

- Proposal assumes the customer will supply all required project hardware, tools and software licensing except where this scope of supply is explicitly included as part of a work package.
- Proposal scope excludes computer server/workstation configuration or maintenance (e.g. OS loading, network configuration, etc.) except where this scope of work is explicitly included as part of a work package.
- Proposal scope does not include installation or mounting of equipment or hardware of any kind, including electrical, mechanical, chemical, etc. For purposes of this proposal they are assumed to be the responsibility of the customer or other designated contractors.
- Proposal scope does not include device, equipment or network wiring of any kind. For purposes of this proposal they are assumed to be the responsibility of the customer or other designated contractors.
- Branded development toolkits required for project execution but not intended to delivery to customer as part of the project deliverables (e.g. Rockwell or Siemens development software, Wonderware development software, etc.) will be provided by Apex unless otherwise specified within the proposal.
- Prior to system start-up or commissioning, the client shall confirm that:
  - Client-owned equipment, hardware and software is properly installed, mounted, and wired according to the manufacturers' specifications and conforms to applicable trade and safety codes.
  - In the case of equipment and hardware, client shall ensure the appropriate technical support staff (electrical, mechanical, maintenance, etc.) are available to quickly resolve installation, mechanical, or electrical errors.
  - In the case of software, client shall ensure that appropriate information technology resource(s) are readily available to resolve any installation or infrastructure issues, and that all software applications are appropriately licensed.
- Additional on-site time or return visits to site due to lack of client system readiness, unavailability of support resources, etc. are subject to additional charges at our standard service and travel rates.

### 3. Project Risks

All projects include some element of risk, and most can either be mitigated or managed. Apex feels that the following risk factors are present in this project and believes it is important to bring these to the attention of the Crescenta Valley Water District. Where possible, Apex has included suggested means to mitigate these risks.

- **RISK 1 – Integration with existing TESCO System** - Although no integration with the existing Tesco architecture is expected, however, any such integration with the existing TESCO system would likely represent significant obstacle due primarily to the highly proprietary nature of the TESCO solution. This risk can be mitigated by having appropriate support personnel available to answer questions during design and commissioning.
- **RISK 2 – Reduction in Startup Time** - Per Crescenta Valley request, the proposed onsite time has been reduced from ten (10) days to six (6) days. Apex still believes the original estimate of ten (10) days to be an accurate estimate of the scope of work associated with the commissioning of the new system. Should the reduced time estimate prove to be insufficient, this will create the risk of requiring a change order to support the onsite installation.

### 4. Project Costing

Project costing is summarized in the following tables. Apex's standard terms & conditions are attached in Appendix "C" below.

| Services                                                                                                                  | Cost                |
|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| System Design<br><i>Quoted on a firm fixed basis</i>                                                                      | \$ 14,505.00        |
| Programming<br><i>Quoted on a firm fixed basis</i>                                                                        | \$ 14,160.00        |
| Commissioning and Testing<br><i>Quoted on a time &amp; material (T&amp;M) basis<br/>1 Resource x 6 Days x 12hours/day</i> | \$ 14,160.00        |
| Post-Commission Support<br><i>Removed</i>                                                                                 | \$ 0.00             |
| <b>Subtotal Services Cost</b>                                                                                             | <b>\$ 42,825.00</b> |

| Travel & Living Expenses (Estimated)         | Cost               |
|----------------------------------------------|--------------------|
| Commissioning and Testing                    | \$ 4,700.00        |
| <b>Subtotal Travel &amp; Living Expenses</b> | <b>\$ 4,700.00</b> |

**Total Project Cost** **\$ 47,525.00**

**Project Payment Milestones:**

- 25% Down payment upon placement of order
- Monthly progress payments on balance due up to 90% of total project cost
- Final invoice for 10% of total project cost due upon acceptance of system by client successful completion of site acceptance test (SAT) and completion of any open SAT punch list items.

## 5. Project Schedule

---

Project schedule will be mutually determined by Apex and the client upon Apex's receipt of purchase order for the project.



## 6. Appendix A – Work Package Details

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### Work Package 1- System Design & Programming

#### Description:

This phase would include all of the required system design and design documentation.

#### Scope of Work:

- Project kickoff meeting
- Hardware specification
- Project Documentation
  - Panel Layout Drawings
  - IO Diagrams
  - Network & Communication Drawings
- Master IO List
- Control Sequence Functional Description (CSFD)
- Installation Plan
- Startup & Commissioning Plan
- Factory Acceptance Test (FAT) Plan
- Site Acceptance Test (SAT) Plan
- User & Administrative Training

#### Dependencies:

This work package is based on the following dependencies:

- None

#### Exclusions:

This work package is based on the following exclusions:

- None

#### Assumptions:

This work package is based on the following assumptions:

- No modification of the existing Tesco architecture will be required
- Crescenta Valley employees will be available to answer questions in a timely fashion

#### Deliverables:

This work package will provide the following deliverables:

- Hardware Specification
- Project Documentation Package ("As-Designed")

## Work Package 2 – Programming

### Description:

This phase would include all of the required PLC programming as well as setup and configuration of the DNP3-based RTU communications.

### Scope of Work:

- DNP3 Master Setup & Testing
- DNP RTU Setup & Testing
- Radio Configuration & Testing
- Ammonia Dosing PLC Programming

### Dependencies:

This work package is based on the following dependencies:

- Completion of Work Package 1

### Exclusions:

This work package is based on the following exclusions:

- None

### Assumptions:

This work package is based on the following assumptions:

- None

### Deliverables:

This work package will provide the following deliverables:

- DNP3 Master Configuration
- DNP3 RTU Configuration
- Ammonia Dosing PLC Program
- New Wonderware HMI Screens

## Work Package 3 - Commissioning & Testing

### Description:

Apex personnel will be onsite to commission hardware, install programming, and complete system testing. Note that as per request of Crescenta Valley, the proposed onsite time was reduced from 10 days to 6 days. This work package is proposed at a time and materials rate, if more time is required to complete the onsite commissioning, a change order will be required.

### Scope of Work:

Apex will send one (1) engineer onsite for six (6) days to perform the following activities:

- DNP3 Master Installation, configuration & validation
- DNP3 RTU installation, configuration & validation
- Ammonia Skid PLC programming & validation
- HMI modifications:
  - Ammonia dosing skid
  - RTU communications status

### Dependencies:

This work package is based on the following dependencies:

- Completion of Work Package 2
- Completion of hardware acquisition, assembly, and installation
- All radio communications will be established and validated by Crescenta Valley or others prior to onsite commissioning.

### Exclusions:

This work package is based on the following exclusions:

- No radio work is required of Apex

### Assumptions:

This work package is based on the following assumptions:

- Project hardware installation and wiring is complete prior to Apex arrival
- No modification of the existing Tesco architecture will be required
- Crescenta Valley will provide support as required during commissioning

### Deliverables:

This work package will provide the following deliverables:

- Operational DNP3 master & RTU
- Functional ammonia injection process as defined in CSFD
- Completed test plan
- As built documentation

#### Work Package 4 – Post Commissioning Support

**Description:**

Any support required after onsite installation and commissioning is not included as part of this proposal. This was removed as per Crescenta Valley request.

# CRESCENTA VALLEY WATER DISTRICT

## BOARD OF DIRECTORS - STAFF REPORT

**To:** Honorable President and Members of the Board of Directors  
**From:** Executive Committee  
**Subject:** General Manager Goals and Objectives

Action Item No. 4  
November 6, 2018

---

### **ACTION ITEM:**

**Discuss and approve Goals and Objectives for General Manager's first 12 months**—finalize the Goals and Objectives for General Manager, Nem Ochoa.

### **DISCUSSION:**

The Board discussed the goals and objectives for the General Manager at the August 14, 2018 Regular Board Meeting. Establishing specific, measureable, achievable, relevant, and time-based goals will help ensure that the district achieves its mission of providing quality water and wastewater services to the Crescenta Valley community in a dependable and economically responsible manner.

The Executive Committee has incorporated the feedback from the Board during the August 14, 2018 Regular Board Meeting. The Executive Committee recommends the following goals for the General Manager to accomplish during the first 12 months of his employment:

|    | <b>Goal and Objective</b>                                                                                                                                                                           | <b>Completion Schedule</b>             |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 1. | Attend community events such as the Crescenta Valley Town Council Meetings                                                                                                                          | Ongoing                                |
| 2. | Report to the Board on an organizational structure capable of accomplishing the District's mission effectively and efficiently                                                                      | December 11, 2018                      |
| 3. | Provide a report to the Board on areas where the District has taken actions to control costs. Evaluate and provide recommendation on areas the District can control and reduce costs (semi-annual). | January 15, 2019<br>&<br>July 15, 2019 |
| 4. | Develop a plan to implement asset management tools to better manage District assets with an initial focus on district wells and pipelines.                                                          | May 1, 2019                            |
| 5. | Conduct performance evaluations for management staff                                                                                                                                                | February 1, 2019                       |
| 6. | Present a public outreach and customer communication plan to the Board                                                                                                                              | March 1, 2019                          |
| 7. | Assess and report on leases and appraisals of District-owned properties                                                                                                                             | March 1, 2019                          |
| 8. | Enable district groundwater wells to deliver chloraminated water.                                                                                                                                   | April 1, 2019                          |
| 9. | Present an updated Strategic Plan for review by the Board                                                                                                                                           | May 1, 2019                            |



**RECOMMENDATION:**

Discuss the proposed goals herein, make revisions as desired by the Board, and approve the final list of goals for the General Manager to accomplish, within the first 12 months of his employment.

Prepared and Submitted by:



James Bodnar  
Executive Committee Chair

# CRESCENTA VALLEY WATER DISTRICT

## General Manager Report

GM Report

November 6, 2018

**To:** Honorable President and Members of the Board of Directors

**From:** Nem Ochoa, General Manager

**Subject:** **General Manager Report**

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General Managers Report Topics:

- GM Activities

The following are some highlights in this month's report:

- First Quarter Financial Variance Report
- Water Production
- Hydrology Report
- Engineering Projects
- Operational Activities

## STAFFING

3 employees have work anniversaries in November. Ron Mitchell – 25 years, Alex Sandoval – 19 years, Stephen Korejwo – 5 years

As of November 3<sup>rd</sup> the District has gone 1,606 Days without a lost time accident.

## GENERAL MANAGER ACTIVITIES

### Meetings:

|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| Management staff meetings     | - October 22 <sup>nd</sup> , October 29 <sup>th</sup> |
| FMWD meeting                  | - October 29 <sup>th</sup>                            |
| Halloween staff event         | - October 31 <sup>st</sup>                            |
| Engineering Committee meeting | - November 2 <sup>nd</sup>                            |
| Executive Committee meeting   | - November 2 <sup>nd</sup>                            |

Submitted by:



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Nem Ochoa  
General Manager

**CRESCENTA VALLEY WATER DISTRICT**  
**FISCAL YEAR 2018-19**  
**BUDGET VERSUS ACTUAL - 1st Quarter**  
**FOR THE FISCAL YEAR ENDING JUNE 30, 2019**

| Description                                 | 1st Qtr<br>Ending 9/30/18<br>Budgeted (\$) | 1st Qtr<br>Ending 9/30/18<br>Projected (\$) | 1st Qtr<br>Ending 9/30/18<br>Variance (\$)<br>Better / (Worse) |
|---------------------------------------------|--------------------------------------------|---------------------------------------------|----------------------------------------------------------------|
| <b>Water Operations</b>                     |                                            |                                             |                                                                |
| Operating Revenues                          | 11,652,512                                 | 11,885,167                                  | 232,655                                                        |
| Non-Operating Revenue                       | 844,988                                    | 757,543                                     | (87,445)                                                       |
| <b>Revenues</b>                             | <b>12,497,500</b>                          | <b>12,642,710</b>                           | <b>145,210</b>                                                 |
| Water System Expense                        | 4,651,965                                  | 4,361,244                                   | 290,721                                                        |
| Compensation and Benefits                   | 3,233,185                                  | 3,208,354                                   | 24,831                                                         |
| Gen'l and Admin Expenses                    | 710,000                                    | 548,631                                     | 161,369                                                        |
| Water Plant Operation Expense               | 536,000                                    | 578,294                                     | (42,294)                                                       |
| Distribution System Expense                 | 1,084,800                                  | 900,206                                     | 184,594                                                        |
| Non-Operating Expense                       | 552,500                                    | 552,000                                     | 500                                                            |
| <b>Expenses</b>                             | <b>10,768,450</b>                          | <b>10,148,729</b>                           | <b>619,721</b>                                                 |
| <b>Revenue minus Expenses</b>               | <b>1,729,050</b>                           | <b>2,493,982</b>                            | <b>764,932</b>                                                 |
| Wtr Capital Improvements                    | 1,476,500                                  | 1,476,500                                   | 0                                                              |
| Wtr Capital Outlay & Equipment              | 173,775                                    | 173,775                                     | 0                                                              |
| OPEB Fund                                   | 100,000                                    | 100,000                                     | 0                                                              |
| <b>Addition/(Reduction) to Working Cash</b> | <b>(21,225)</b>                            | <b>743,707</b>                              | <b>764,932</b>                                                 |
| <b>Wastewater Operations</b>                |                                            |                                             |                                                                |
| Operating Revenues                          | 3,235,922                                  | 3,440,233                                   | 204,311                                                        |
| Non-Operating Revenue                       | 8,000                                      | 8,679                                       | 679                                                            |
| <b>Revenues</b>                             | <b>3,243,922</b>                           | <b>3,448,912</b>                            | <b>204,990</b>                                                 |
| Wastewater System Expense                   | 1,253,000                                  | 1,320,000                                   | (67,000)                                                       |
| Compensation and Benefits                   | 1,685,781                                  | 1,562,269                                   | 123,512                                                        |
| Gen'l and Admin Expenses                    | 281,159                                    | 244,830                                     | 36,329                                                         |
| Wastewater Operation Expense                | 74,212                                     | 67,478                                      | 6,734                                                          |
| Collection System Expense                   | 93,774                                     | 79,898                                      | 13,876                                                         |
| Non-Operating Expense                       | 850                                        | 850                                         | 0                                                              |
| <b>Expenses</b>                             | <b>3,388,776</b>                           | <b>3,275,325</b>                            | <b>113,451</b>                                                 |
| <b>Revenue minus Expenses</b>               | <b>(144,854)</b>                           | <b>173,587</b>                              | <b>318,441</b>                                                 |
| WW Capital Improvements                     | 175,000                                    | 175,000                                     | 0                                                              |
| WW Capital Outlay & Equipment               | 80,000                                     | 80,000                                      | 0                                                              |
| OPEB Fund                                   | 200,000                                    | 200,000                                     | 0                                                              |
| <b>Addition/(Reduction) to Working Cash</b> | <b>(599,854)</b>                           | <b>(281,413)</b>                            | <b>318,441</b>                                                 |

# Engineering and Operations

November 6, 2018  
Staff Report

**To:** Honorable President and Members of the Board of Directors  
**From:** David S. Gould, P.E. – District Engineer  
**Subject:** Engineering & Operations – October 2018

---

1. **Water Production Report**
  - October 1 – 31- Water production – 39%/61% split – 113.6 MG for the time period
  - Average use – 4.0% less than 2017 and 7.6% less than 5-yr average
2. **Rainfall Update**
  - 0.45” for October 2018
  - Rainfall Total for Rainfall Year 2018/19 – 0.45”
3. **Report on Engineering**
  - **CIP Projects**
    - Pipeline Project - 2700, 3000 & 3100 Blocks of Brookhill
      - o Complete - moving services to different pressure zone
    - Encinal B – Booster Pump - Complete
    - Oak Creek #1 & #2 Reservoir Rehabilitation
      - o Oak Creek #2 – Starting November 5, 2018
  - **Nitrate Removal Treatment Facility at Well 2 Project**
    - APTwater completed testing and preparing report for DDW approval
    - DDW approval – December 2018
  - **Crescenta Valley County Park Stormwater Recharge Facility Study**
    - No Report
  - **ULARA**
    - No Report
  - **Grant Program**
    - No Report
  - **Water Meter Replacement Program**
    - On hold until January 2019
4. **Report on Administrative and Field Operations**
  - **Wells - Status**
    - Well production capacity – declined to 1.40 MGD
5. **Developer Jobs**
  - 1490 Waltonia – Complete
  - 2340 Montrose – Complete
6. **Street Projects**
  - New Foothill Blvd Medians – Los Angeles County
    - Under Construction
  - Pennsylvania Paving Project – City of Glendale
    - 210 Freeway to Markridge Road
    - Construction to start November 5, 2018

7. **Field Maintenance & Operations – October 6, 2018 – October 31, 2018**

▪ **Water Lateral Leaks & Repairs**

|                |                |                 |
|----------------|----------------|-----------------|
| 3115 Brookhill | 2927 Gertrude  | 2404 Cross      |
| 2106 Harmony   | 5317 Cortolane | 4939 Briggs     |
| 2402 Teasley   | 2520 Harmony   | 4952 Cecilville |

▪ **Water Main Leaks**

- No Report

▪ **Valve Replacement**

- No Report

▪ **Fire Hydrant Repair**

- No Report

▪ **Booster Pump Maintenance**

- No Report

▪ **Reservoir Maintenance**

- No Report

▪ **Sewer Maintenance – September 8, 2018 – October 5, 2018**

|                                 |                                    |                         |
|---------------------------------|------------------------------------|-------------------------|
| 3000 & 3100 Blocks of Markridge | 5300 Block of Cortolane            | 3000 Block of Frances   |
| 3000 Block of Henrietta         | 5000 Block of Cloud                | 3000 Block of Brookhill |
| 3000 Block of Orange            | 5100 & 5200 Blocks of Pennsylvania | 3100 Block of Frances   |

# CRESCENTA VALLEY WATER DISTRICT

## WATER PRODUCTION REPORT

October 1 - October 31, 2018

|                            |             |                              |          |     |
|----------------------------|-------------|------------------------------|----------|-----|
| <b>Well Production:</b>    | 36,251,908  | Gals                         |          |     |
| <b>GWP Production:</b>     | 6,984,000   | Gals                         |          |     |
| <b>Gravity Production:</b> | 1,361,600   | Gals                         | % GW     | 39% |
| <b>Purchased Water:</b>    |             |                              |          |     |
| FMWD:                      | 69,052,000  | Gals                         |          |     |
| City of Glendale:          | 0           | Gals                         | % Import | 61% |
| <b>TOTAL:</b>              | 113,649,508 | Gals                         |          |     |
|                            | 348.78      | ac-ft                        |          |     |
| Glenwood Nitrate Water     |             |                              |          |     |
| Reclamation Plant:*        | 7,063,566   | *Included in Well Production |          |     |

## WATER DEMAND COMPARISON

| Time Period                        | Average Daily Usage (gals) | Current Period Change |
|------------------------------------|----------------------------|-----------------------|
| October 1, 2018 - October 31, 2018 | 3,673,002                  |                       |
| October 1, 2017 - October 31, 2017 | 3,825,572                  | -4.0%                 |
| 5-yr Average - October 2013 - 2017 | 3,973,712                  | -7.6%                 |

RAINFALL: October 1 - October 31, 2018

0.45"

Season-To-Date:

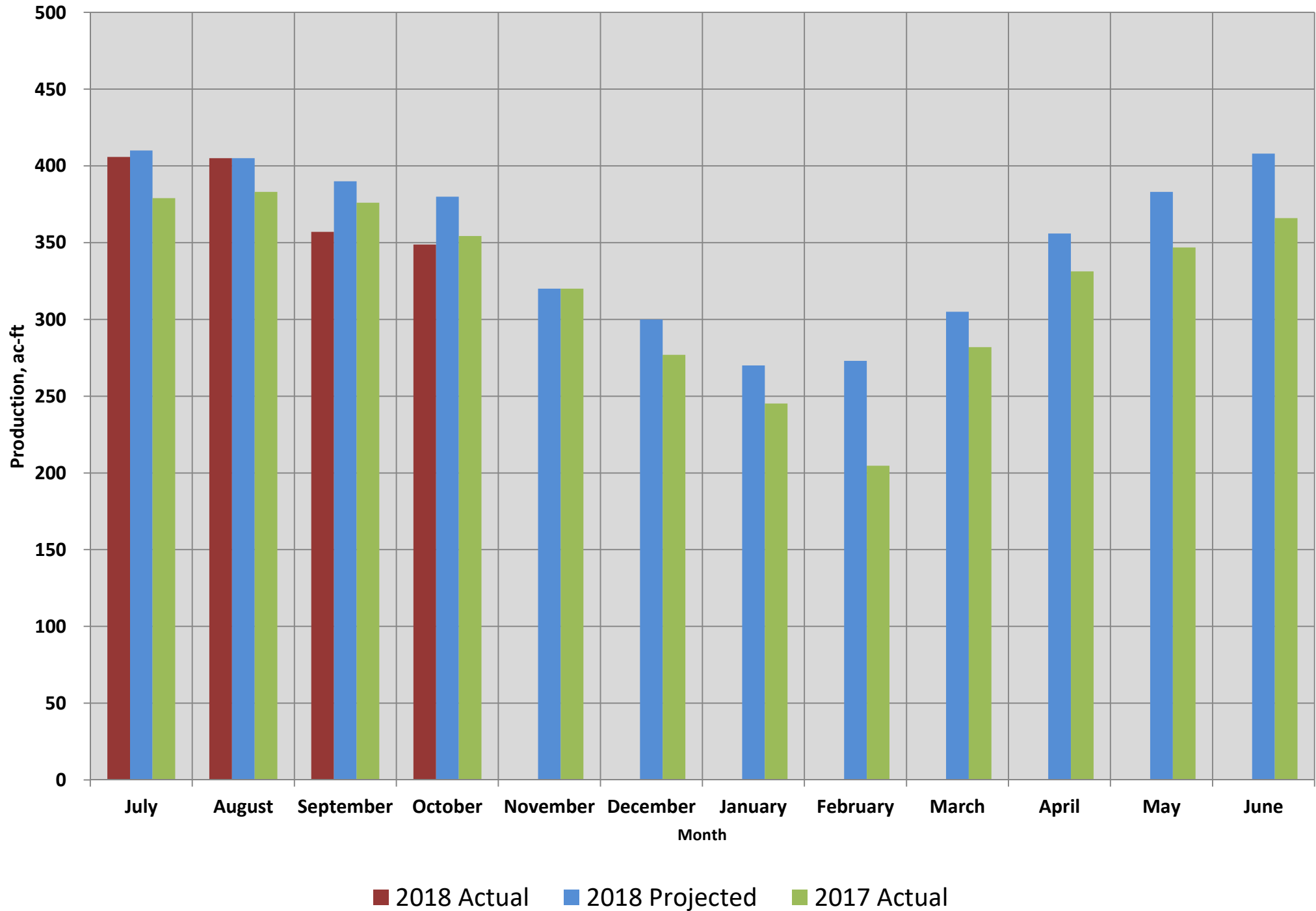
0.45"

| 2018/19 Fiscal Year Water Production |                                       |                                          | WY 18/19 - Groundwater Production Water Rights |       | GWP (Well 16) Water Production - 2018 |                         | Purchased Water Production Tier 2 Allocation - 2018 |                                   |
|--------------------------------------|---------------------------------------|------------------------------------------|------------------------------------------------|-------|---------------------------------------|-------------------------|-----------------------------------------------------|-----------------------------------|
| Month                                | Actual Total Water Production (ac-ft) | Projected Total Water Production (ac-ft) | Month                                          | Month | Month                                 | Well Production (ac-ft) | Month                                               | Imported Water Production (ac-ft) |
| July                                 | 406                                   | 410                                      | October                                        | 129   | January                               | 28                      | January                                             | 137                               |
| August                               | 405                                   | 405                                      | November                                       |       | February                              | 24                      | February                                            | 163                               |
| September                            | 357                                   | 390                                      | December                                       |       | March                                 | 27                      | March                                               | 113                               |
| October                              | 349                                   | 380                                      | January                                        |       | April                                 | 25                      | April                                               | 162                               |
| November                             |                                       | 320                                      | February                                       |       | May                                   | 25                      | May                                                 | 165                               |
| December                             |                                       | 300                                      | March                                          |       | June                                  | 23                      | June                                                | 189                               |
| January                              |                                       | 270                                      | April                                          |       | July                                  | 23                      | July                                                | 256                               |
| February                             |                                       | 273                                      | May                                            |       | August                                | 22                      | August                                              | 259                               |
| March                                |                                       | 305                                      | June                                           |       | September                             | 21                      | September                                           | 235                               |
| April                                |                                       | 356                                      | July                                           |       | October                               | 21                      | October                                             | 212                               |
| May                                  |                                       | 383                                      | August                                         |       | November                              |                         | November                                            |                                   |
| June                                 |                                       | 408                                      | September                                      |       | December                              |                         | December                                            |                                   |
| Total to Date                        | 1,517                                 | 1,585                                    | Total to Date                                  | 129   | Total to Date                         | 240                     | Total to Date                                       | 1,891                             |
| Projected                            | 4,132                                 | 4,200                                    | Water Rights                                   | 3,294 |                                       |                         | Tier 2                                              | 2,154                             |
| % of Projected                       | 36.1%                                 | 37.7%                                    | % of Rights                                    | 4%    |                                       |                         | % of Allocation                                     | 88%                               |
| Remaining                            | 2,683                                 | 2,615                                    | Remaining                                      | 3,165 |                                       |                         | Remaining                                           | 263                               |

### NOTE:

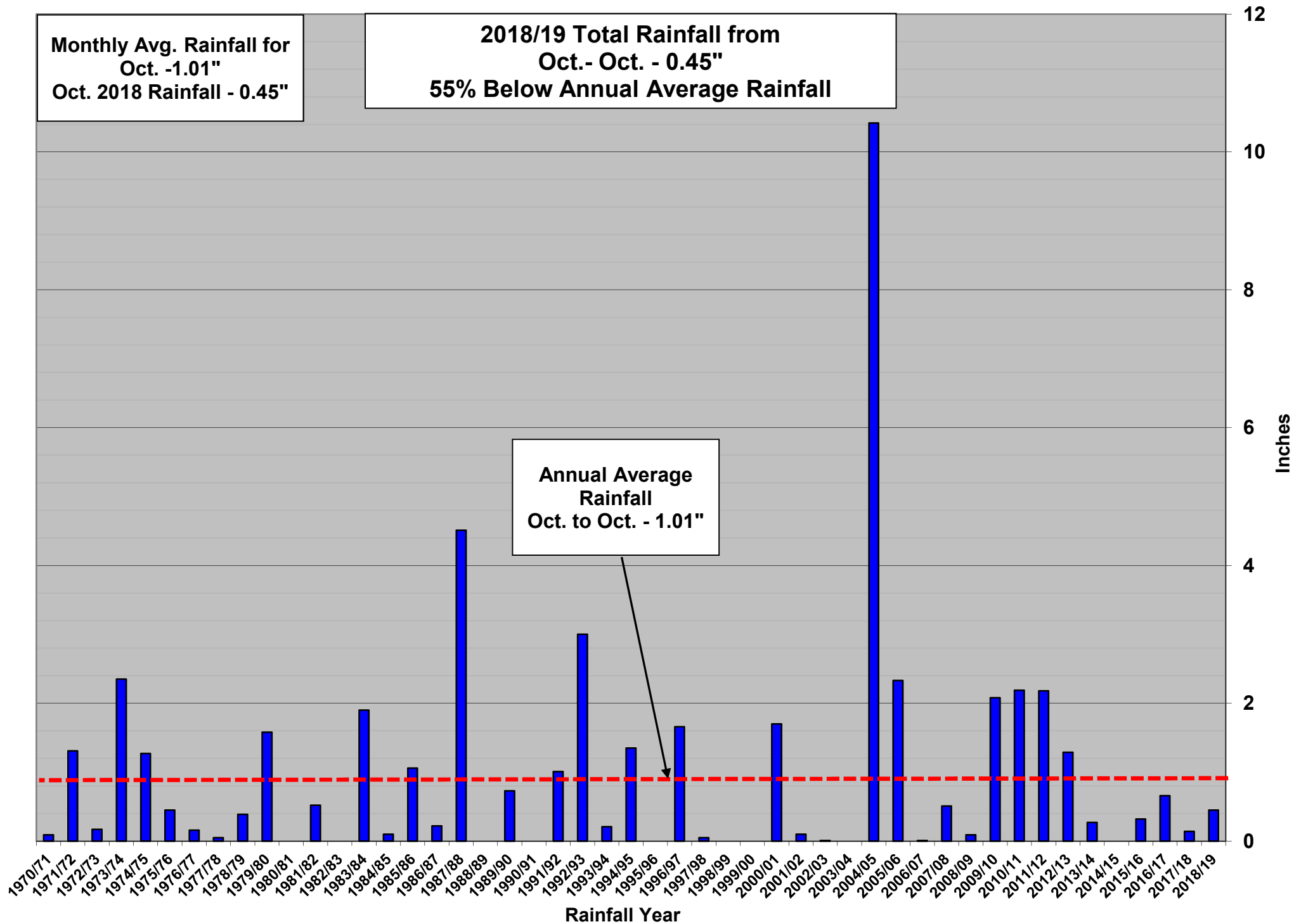
1) Blue Numbers = Estimated Water Production

# Monthly Water Production: 2018 Actual, 2018 Projected & 2017 Actual





# Monthly Rainfall - 1970/71 - 2018/19 (Oct.- Oct.)



# CRESCENTA VALLEY WATER DISTRICT

## MEMORANDUM

DATE: November 2, 2018  
TO: Engineering Committee  
FROM: David S. Gould, District Engineer  
SUBJECT: CVWD Engineering Committee Meeting No. 307

Following is a summary of Engineering Committee Meeting No. 307, held at 9:00 AM on November 2, 2018, at the CVWD main office, and was attended by the following:

---

|                                                   |      |
|---------------------------------------------------|------|
| Director Ken Putnam - Committee Chairperson       | CVWD |
| Director Kerry Erickson                           | CVWD |
| Nem Ochoa – General Manager                       | CVWD |
| David Gould – District Engineer                   | CVWD |
| Dennis Maxwell – Operations & Maintenance Manager | CVWD |
| James Lee – Finance & Accounting Manager          | CVWD |

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**1. Status of Groundwater Wells and Well Capacity**

Mr. Gould provided an updated chart on water production from 2016 to present that indicated that groundwater production has been decreasing over the last month. Mr. Gould also provide a chart showing the average static groundwater levels from 2000 to 2018 that showed about a 30 foot decrease in groundwater levels. The Engineering Committee discussed about shutting down the groundwater well system to try to get some recover in the basin and if this was an option in the next few months. Staff indicated that they will study the effects of shutting down the well system and how it will effect water production and the costs for additional FMWD purchases.

**2. Status of TTHM Study and Upgrades to Disinfection System, Project E-995**

Mr. Gould present and update on the TTHM levels at each reservoir and the status of installation of ammonia injection system for conversion to chloramines. Mr. Gould provided an update on the project schedule and indicated that the switch to chloramines will probably occur in April of May 2019 depending on weather and water demand. Mr. Gould also discussed the next steps for the conversion including additional chlorine monitoring and water flushing of the distribution system and the preliminary costs associated with this.

The Engineering Committee requested that staff update the project budget costs to include operations and maintenance costs. Staff will provide an update at the 11/20/18 Board meeting.

**3. Discussion on Advanced Metering Infrastructure (AMI) Program**

Mr. Gould discussed that previous Board meetings, board members has asked about the status of CVWD's AMI program, the process of working towards the next step of installation and implementation of the program, and an estimation of costs to complete the project along with possible available grant funding for the project.

Mr. Gould indicated that staff has met with Kody Salem from UtiliWorks, Inc. about assisting the District with moving the AMI program forward. UtiliWorks is a consulting firm that assists in developing baseline business case for AMI and then managing the project in terms of identifying vendors and implementing and installing AMI.

Staff had requested a proposal from UtiliWorks; however, it was not available for the Engineering Committee meeting. The Engineering Committee recommended to table the discussion until CVWD has received the proposal.

**4. FY 18/19 – Update of Capital Improvement Project (CIP) Program - Project Schedule**

Mr. Gould provided an updated construction schedule for the FY 18/19 CIP projects and the FY 18/19 Budget will be discussed further at future Engineering Committee meetings.

**Adjournment** - The Engineering Committee meeting was adjourned at 10:27 am on November 2, 2018.

**See CVWD Website [www.cvwd.com](http://www.cvwd.com)  
for the Engineering Committee Packet**

g:\engineering committee\meeting minutes\2018\cvwd eng com minutes 110218.docx

# **CRESCENTA VALLEY WATER DISTRICT**

2700 FOOTHILL BOULEVARD  
LA CRESCENTA, CALIFORNIA

Agenda for the Meeting of the Engineering Committee  
of the Crescenta Valley Water District

To be held on

November 2, 2018 at 9:00 AM

Posted November 1, 2018 at 9:00 AM

## Call to Order

## Adoption of Agenda

## Information Items

1. Status of Groundwater Wells and Well Capacity
2. Status of TTHM Study and Upgrades to Disinfection System, Project E-995
3. Discussion on Automated Meter Infrastructure Program
4. Status of FY 18/19 Capital Improvement Project Program

## Public Comments

At this time, members of the public shall have an opportunity to address the Committee on items of interest that are within the subject matter jurisdiction of this Committee. This opportunity is non-transferable and speakers are limited to three (3) minutes each.

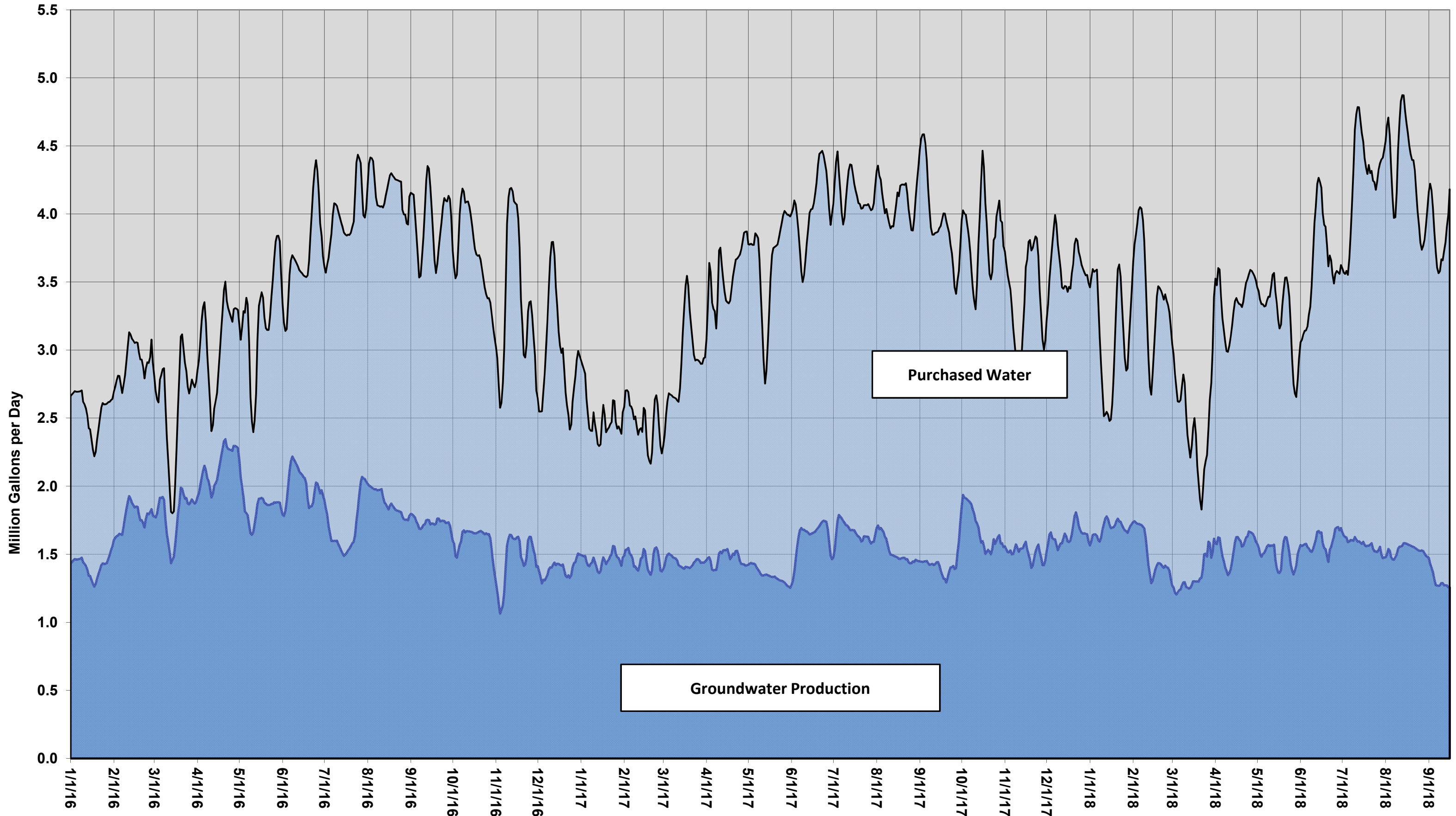
## Committee Member's Request for Future Agenda Items

## Next Engineering Committee Meeting – December 13, 2018

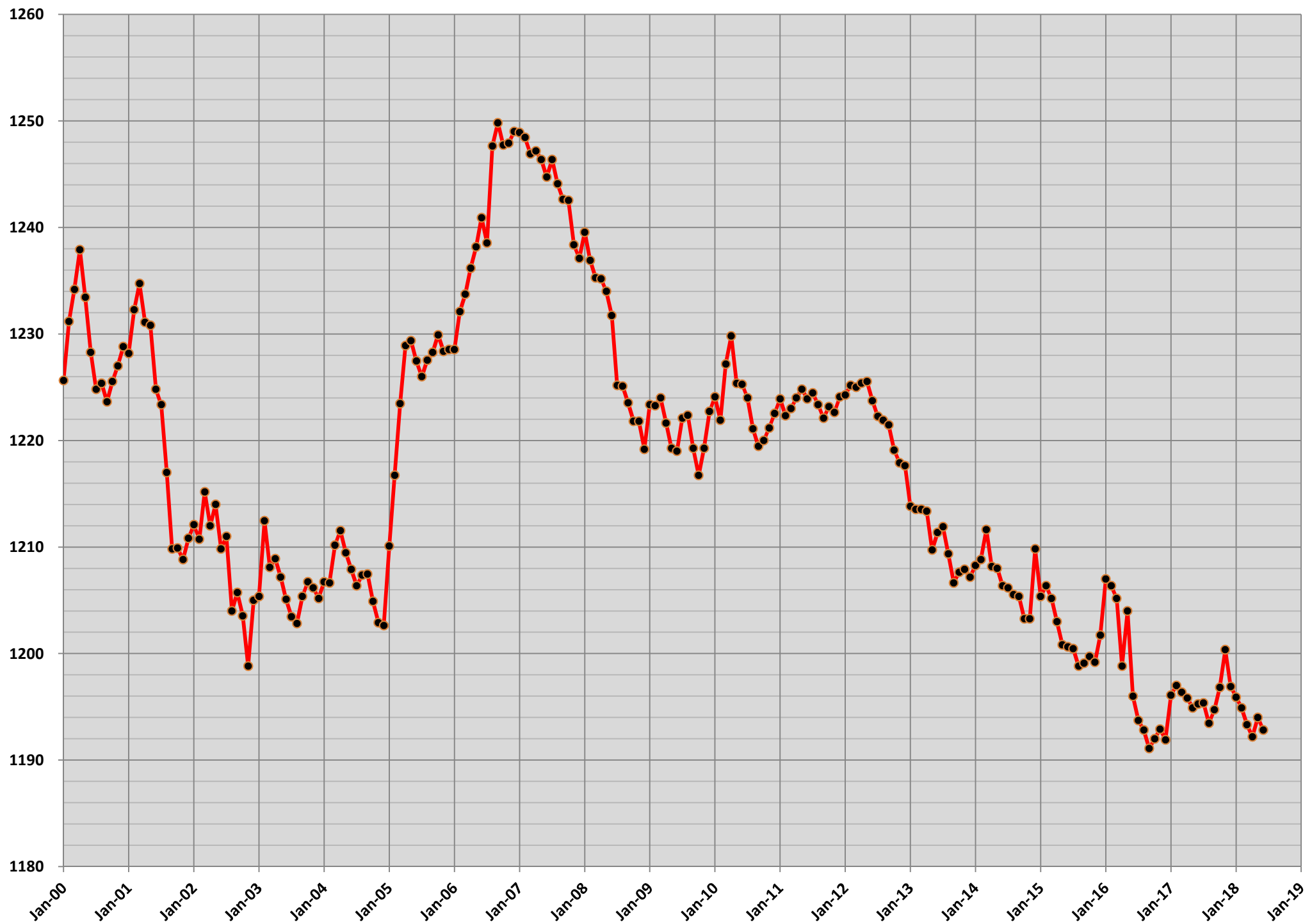
## Adjournment

# Water Production Chart 2016 - 2018

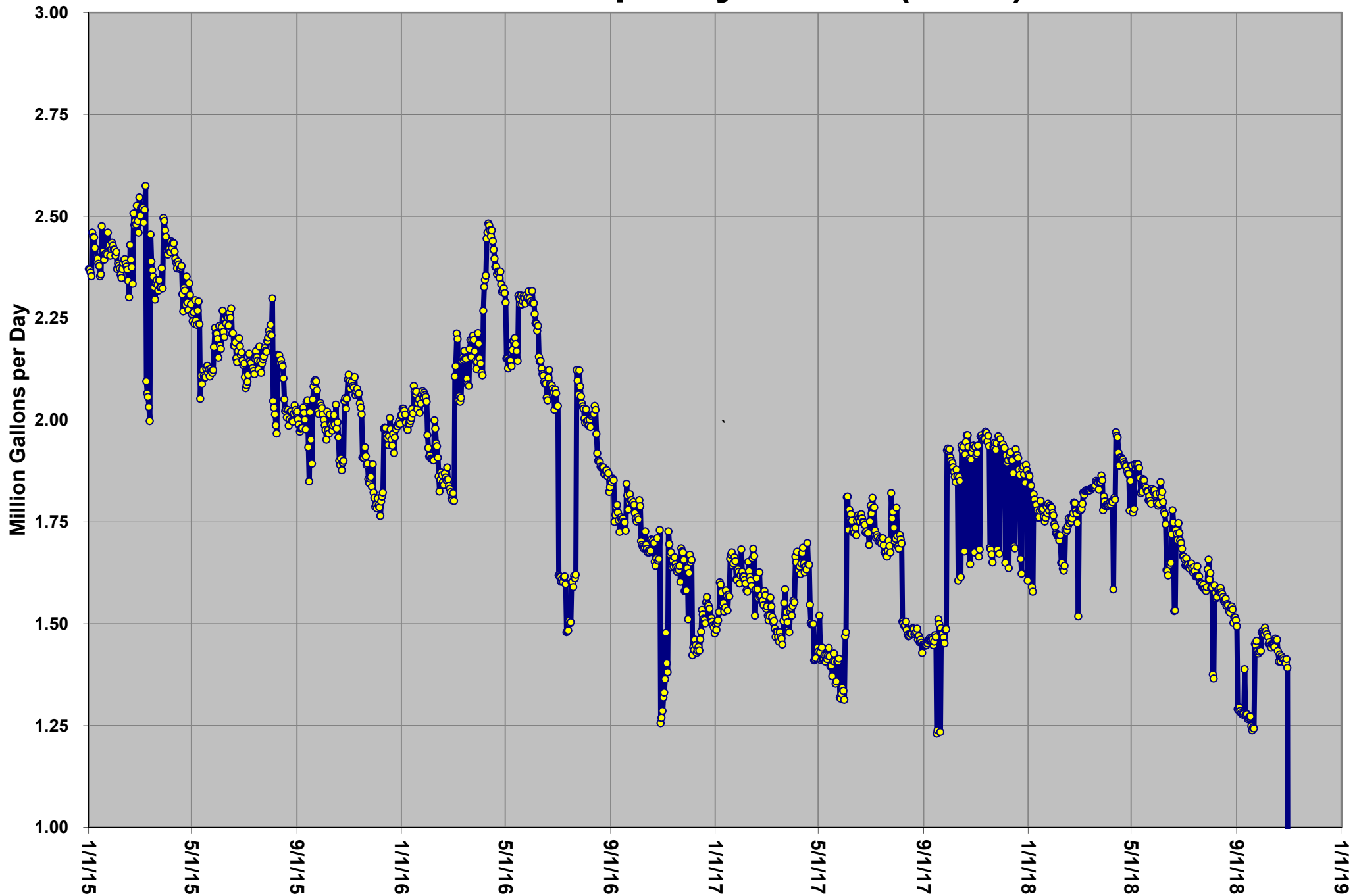
■ Groundwater Production (MGD)    ■ Total Water (MGD)



# CVWD - Groundwater Wells - Average Static Water Elevation 2000 - 2018



# Crescenta Valley Water District 2015-18 Well Capacity Status (MGD)





# CRESCENTA VALLEY WATER DISTRICT

## STAFF REPORT

Information Item No. 2  
November 2, 2018

**To:** Engineering Committee  
**From:** David S. Gould, P.E. – District Engineer  
**Subject:** TTHM Mitigation and Disinfection Process Upgrades, Project E-995

---

### **INFORMATION ITEM:**

Status of CVWD's TTHM study and disinfection process upgrades.

### **BACKGROUND:**

The District uses chlorine as a disinfectant to treat drinking water. Chlorine can create disinfection by-products during treatment, known as total Trihalomethanes or TTHMs, as it reacts with naturally occurring organic matter in imported water supplied by FMWD/MWD from either the Colorado River (CRW) or the State Water Project (SWP). The typical water supply blend for CVWD is 60% groundwater and 40% imported water. The water supply blend is now closer to 40% groundwater and 60% imported water.

CVWD has seen a steady rise in the concentration of TTHMs because CVWD is using more imported water as groundwater levels have not yet recovered from the latest drought and coupled with additional chlorine in the system has led to an increase in TTHMs in the distribution system.

### **Past Actions:**

- o August 14, 2018
  - Discussion by Dr. Issam Najm of WQTS on TTHMs and Chloramines.
  - Awarded a \$10,000 consulting services contract to WQTS for initial study and evaluation.
- o August 28, 2018
  - Awarded a contract to WQTS for \$99,800 for chloramine conversion, public outreach, staff and operator training, Department of Drinking Water (DDW) permitting support, development of necessary mitigation plans, and preparation of 30% design plans.
  - Awarded a contract to Hazen and Sawyer for \$9,971 to perform bench testing of CVWD's source water to determine proper breakpoint chlorination and formation of TTHMs.
- o September 11, 2018
  - Staff working with WQTS and CV Strategies mailed out public information brochures with a list of frequently asked questions.
  - Staff posted information on website and articles in the CV Weekly and Glendale Newspress.
- o September 15, 2018 – Public Workshop at the Glenwood Plant
- o September 25, 2018
  - Authorized General Manager to select and negotiate with consultants and contractors for the installation of chloramination systems at the Glenwood and Mills Plants for \$410,000.
  - Award contract to John Robinson Consulting (JRC) for \$45,225 for contract and construction administration for the new ammonia injection system.
  - Amended contract to WQTS for \$44,240 for additional design work by Carollo Engineers.
- o October 9, 2018
  - Office & field staff trained on the nitrification and chloramines processes
  - Carollo Engineers submitted preliminary 30% design plans for review
- o October 23, 2018
  - Site walk at Glenwood and Mills Plants to determine location of ammonia injection skids, ammonia injection conduits, SCADA and electrical conduits.
  - JRC prepared and sent out a request for quote for purchase of two (2) ammonia injection pump skids.
  - Grace Environmental Services (Grace) provided a proposal for a system operator to assist staff during the chloramine conversion process in the distribution system.
  - Site visit from Apex Manufacturing Solution (APEX), on the design and installation of SCADA equipment and integration at Glenwood and Mill Plants.
  - Met with Hazen and Sawyer on design and installation of new chlorine analyzers at six (6) locations to provide additional monitoring after conversion to chloramines.

## **DISCUSSION:**

### **Operational Changes:**

Staff continued with water system operational changes to bring the TTHM levels at the reservoirs to below a target level of 64 ug/L. This included reducing the amount of water stored in each reservoir and amount of chlorine injected at the Mills and Glenwood Plants. As shown on the attached charts, the TTHM levels at each reservoir site have decreased or are between 64 ug/L and the MCL limit of 80 ug/L.

Staff requested a proposal from Hazen and Sawyer for the installation of spray aeration system at Oak Creek Reservoir to reduce the TTHM levels and to continue use of free chlorine as the disinfection. Hazen and Sawyer proposed engineering design fee was \$77,265 and a preliminary cost for the spray aeration system was \$100,000 - \$150,000 for each reservoir for approximate total cost of \$377,265. Staff reviewed the proposal and construction costs and determined it was not cost effective to install the spray aeration system in the long-term.

### **Installation of Ammonia Injection System for Chloramine Conversion:**

The following are tasks completed by staff and consultants:

- o The 30% design plans were reviewed and sent back to Carollo Engineers for final edits.
- o Field crews potholed the 14-inch water main at the Glenwood Plant for depth and location for the ammonia injection and monitoring concrete vault.
- o JRC working with ammonia chemical suppliers (Hill Brothers Chemical Company and Univar) on the type of ammonia (liquid ammonia sulfate), containment units, transportation, delivery and costs.
- o JRC working with Jensen Precast on the 6'x6'x7'-6" deep concrete vault design and quote.
- o JRC working with Poly Processing Company on quote for 405 gallon tank at Mills Plant.
- o JRC scheduled a meeting with Glendale Fire Department to review the design and obtain the permit.
- o Received proposal from APEX for the design and installation of SCADA equipment and integration at Glenwood and Mill Plants for \$47,725.
- o APEX provided a list of SCADA equipment that CVWD will purchase through Royal Industrial Solutions with an estimate of \$15,200.
- o Staff met to discuss planning for flushing out dead-end water mains in January 2019.
- o JRC and staff met with BrikArt Construction to get a quote for installing a concrete pad and grading at the Mills Plant.
- o WQTS and staff continued working on Nitrification Monitoring & Control Plan for submittal to DDW.

### **Ammonia Injection Pump Skids:**

Received quotes from three (3) vendors for the ammonia injection pump skids, which are shown in the table below.

|     | <b><u>Vendor</u></b>       | <b><u>Total Quote</u></b> |
|-----|----------------------------|---------------------------|
| Low | Cortech Engineering        | \$29,850.00               |
| 2   | Charles P. Crowley Company | \$32,972.50               |
| 3   | D & H Water Systems, Inc.  | \$37,928.48               |

Cortech Engineering, a DXP Company (Cortech) of Anaheim, CA was the apparent lowest responsible bidder for the project. The engineer's estimate was \$75,000 and the low bid was \$45,515 or 60% lower than the engineer's estimate. Staff has previously worked with Cortech on the construction of CVWD's Glenwood Plant. Staff was satisfied with the progress of this project.

Staff is reviewing Cortech's bid proposal and cost breakdown and compared it to CVWD's cost estimate. The quote for Cortech also stated that the delivery of the system will be in about 8 to 10 weeks and staff is firming up the schedule for both submittal review and delivery of the equipment.

### **SCADA Programing, Integration and Equipment:**

Staff has been working with APEX to formulate a scope of work and list of equipment need to integrate the data from the chlorine analyzers and the ammonia injection pump skids into CVWD's SCADA system. This information will be used to remotely monitor the chlorine and ammonia injection systems and the chloramine level leaving the Glenwood and Mills Plants. APEX proposal was for \$47,525 which includes design of the program logic, off-site and on-site programing and on-site testing of the system (See attached proposal).

**Project Schedule - Installation of Ammonia Injection System:**

Staff has updated the project schedule based on the tentative lead time for the ammonia skids and the pre-cast concrete vault. Staff will be ordering the ammonia skids on November 1, 2018 and Cortech is estimating 8 – 10 weeks for delivery, which will be around the end of December 2018. CVWD's crews will install the ammonia equipment after arrival and it is anticipated it will be completed by the end of January 2019.

The pre-cast concrete vault will also be ordered by November 1, 2018 and the vendor is estimating 6 – 8 weeks for delivery, which will be around the middle of December 2018. CVWD's crews will install the vault, ammonia injection system (static mixer with injection quill) and sampling port for new chlorine analyzer.

Attached is an updated construction schedule that includes the work at the Mills Plant, delivery and installation at the Glenwood Plant, installation of chlorine analyzers and installation, programming and integration of the SCADA system.

**Project Schedule – Conversion to Chloramines:**

Staff has reviewed the TTHMs Mitigation Option Decision Tree that was provided by WQTS, which set specific dates for converting to chloramines based on TTHM levels in the reservoirs.

As shown in the attached TTHM charts, the TTHM levels have been reduced and we should be in compliance during the 2018 4<sup>th</sup> quarter sampling for TTHMs. The next compliance sampling will be in February 2019 for the 2019 1<sup>st</sup> quarter sampling. Staff believes that the TTHM levels will remain below the MCL limit of 80 ug/L during this period as a result of the low winter demands and lower temperatures,

Staff is concerned that the TTHM levels will rise during spring and summer of 2019 due to high demands, temperature and reduced groundwater. Staff is looking at this period to start the disinfection conversion to chloramines and the ammonia injection systems should be installed by this time. However, if there is significant rainfall this winter and groundwater levels rise, the conversion to chloramines could be delayed until fall 2019.

**Additional Monitoring for Nitrification after Conversion to Chloramines:**

Staff has been working with WQTS and Hazen and Sawyer on planning for the conversion to chloramines and water quality issues. A major concern is the possibility of nitrification in CVWD's reservoirs, which can result in a reservoir being taken out of service and water being wasted. Currently, we have chlorine analyzers at eleven (11) of the reservoir sites and we will need an additional six (6) chlorine analyzers to monitor for total chlorine, total ammonia and nitrite. Nitrite is a pre-cursor for nitrification and monitoring these levels will give staff advanced notification if nitrification is going to occur at a reservoir.

Staff met with Hazen and Sawyer to discuss a scope of work for engineering services for the installation of the six (6) chlorine analyzers at Cresta Heights Reservoir, Dunsmore Reservoir, Eagle Canyon Reservoir, Goss Canyon Reservoir, Paschall Booster Station, and Shields Reservoir. The scope of work included visits to each site to determine the ideal location of the chlorine analyzers to get a representative chlorine samples, prepare design plans and specifications for construction at each site, project management and meetings. The proposal cost from Hazen and Sawyer was \$53,255, which is about \$9,200 per site (see attached proposal).

The new chlorine analyzers will be provided by HACH and will be installed by CVWD's crews. The estimated cost for each chlorine analyzer is about \$10,000 and a total cost \$60,000. In addition, the data from the chlorine analyzers will need to be connected to CVWD's SCADA system for monitoring purposes. The estimated cost for purchasing new SCADA equipment, programming and integration into CVWD's SCADA system is about \$17,000 per site for a total cost of \$102,000. These additional costs were not included in the original cost estimate and will increase the budget by \$215,255. The design of the new chlorine analyzer could be completed by March 2019 and installation completed by July 2019.

Another water quality issue will be the possibility of nitrification occurring in the distribution system, which could result in positive total coliform results and additional flushing or wasting water. It has been suggested to perform water flushing of the entire distribution system to remove any biofilm that may react with the ammonia. Staff has had preliminary discussions with companies that perform this service and initial costs range from \$12,000 to \$20,000 per week for their crews to perform the work. Staff estimates it will take about 5 – 6 weeks to complete a thorough flushing of the distribution system. Staff will be working with WQTS on the nitrification mitigation plan over the next few weeks and should get a better idea on the scope of work and costs.

**Preliminary Cost Estimate:**

The table below shows an updated costs and construction estimates for the conversion to chloramines. It does not include staff labor costs or any flush outs labor cost necessary to maintain water quality.

| Account Description                                                 | Amount           |
|---------------------------------------------------------------------|------------------|
| <b>Total Estimated Cost for Project</b>                             | <b>\$570,000</b> |
| <b>Consultants - Planning, Design &amp; Construction Admin</b>      |                  |
| WQTS - Planning                                                     | \$10,000         |
| WQTS - Design                                                       | \$144,040        |
| Hazen & Sawyer - Water Quality                                      | \$9,970          |
| John Robinson Consulting - Project Management                       | \$45,225         |
| Grace Environmental Services (3 months part-time service)           | \$15,000         |
| Apex Manufacturing Solution - SCADA programing and integration      | \$47,725         |
| Public Notification - CV Strategies , Printing & Mailing            | \$11,168         |
| WQ Sampling - 7/1/18 to 10/1/18                                     | \$43,284         |
| WQ Sampling - 10/1/18 to 12/31/18 (Estimate)                        | \$31,000         |
| <b>Subtotal</b>                                                     | <b>\$357,412</b> |
| <b>Construction</b>                                                 |                  |
| Ammonia Injection Skids (2)                                         | \$29,850         |
| SCADA - Equipment (RTU's, Communication, cabinets, etc.) (Estimate) | \$15,200         |
| Concrete Pad & Grading at Mills (Estimate)                          | \$27,000         |
| Ammonia Inject Vault at Glenwood (Estimate)                         | \$29,000         |
| Ammonia Tank at Mills (Estimate)                                    | \$7,000          |
| Conduits/Wiring/Electrical Materials (Estimate)                     | \$7,000          |
| Upgrade Chlorine Analyzers (Mills & Glenwood) (Estimate)            | \$17,000         |
| Safety - Eye Wash, Containment, etc. (materials only) (Estimate)    | \$3,200          |
| On-site Welding (Estimate)                                          | \$9,000          |
| Misc (Estimate)                                                     | \$5,763          |
| <b>Subtotal</b>                                                     | <b>\$150,013</b> |
| <b>Total Cost</b>                                                   | <b>\$507,425</b> |
| <b>Amount Remaining</b>                                             | <b>\$62,575</b>  |

**RECOMMENDATION:**

It is staff's recommendation to continue with the following:

1. Design and installation of the ammonia injection system including the SCADA work with APEX, ordering equipment and materials
2. Continue operational changes to maintain TTHM levels until February 2019
3. Begin the design of the new chlorine analyzers with Hazen & Sawyer
4. Continue working with WQTS on notification mitigation plan
5. Keeping DDW informed on CVWD's progress on the TTHM levels.

Prepared by:



David S. Gould, P.E.  
District Engineer

Submitted by:

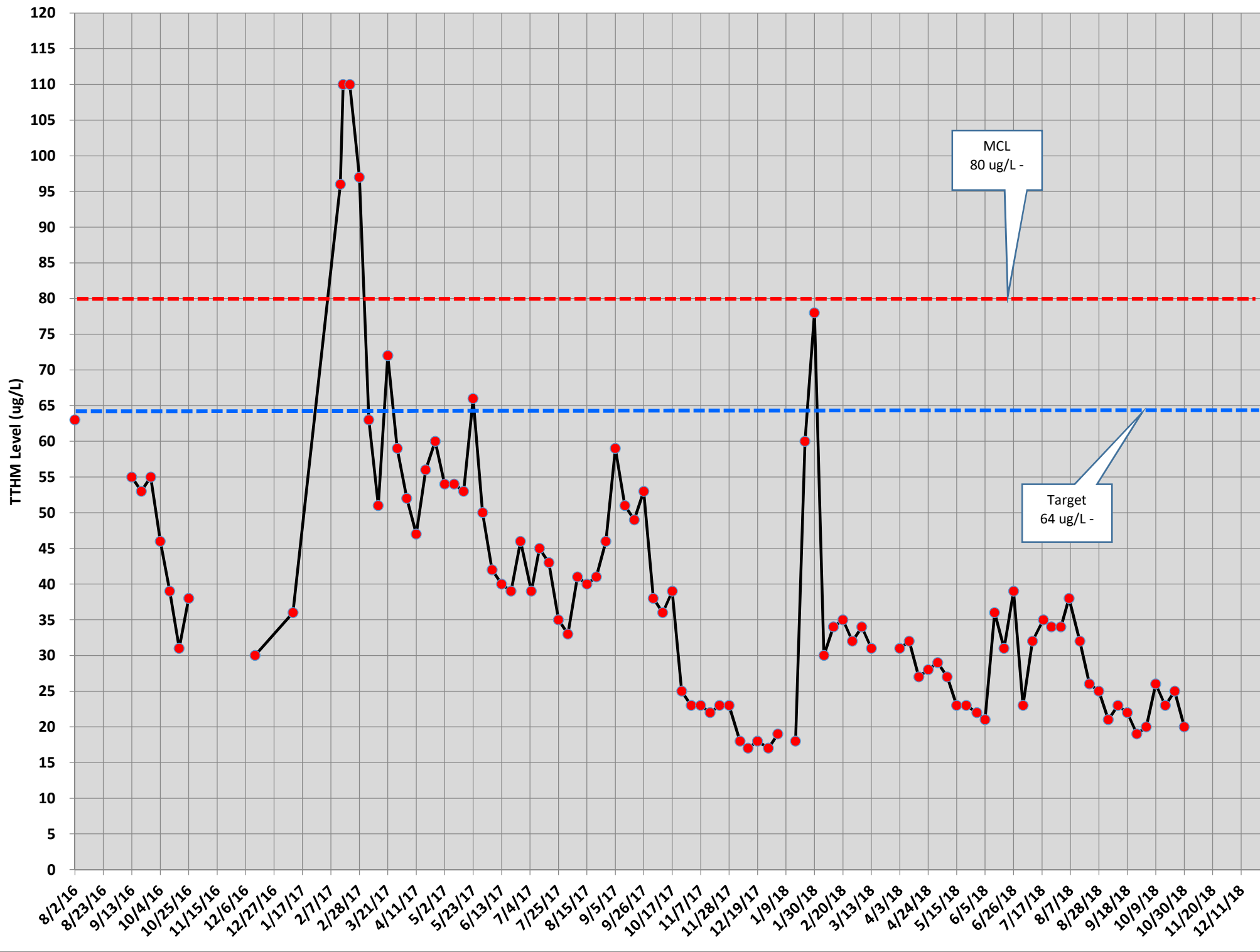


Nem Ochoa  
General Manager

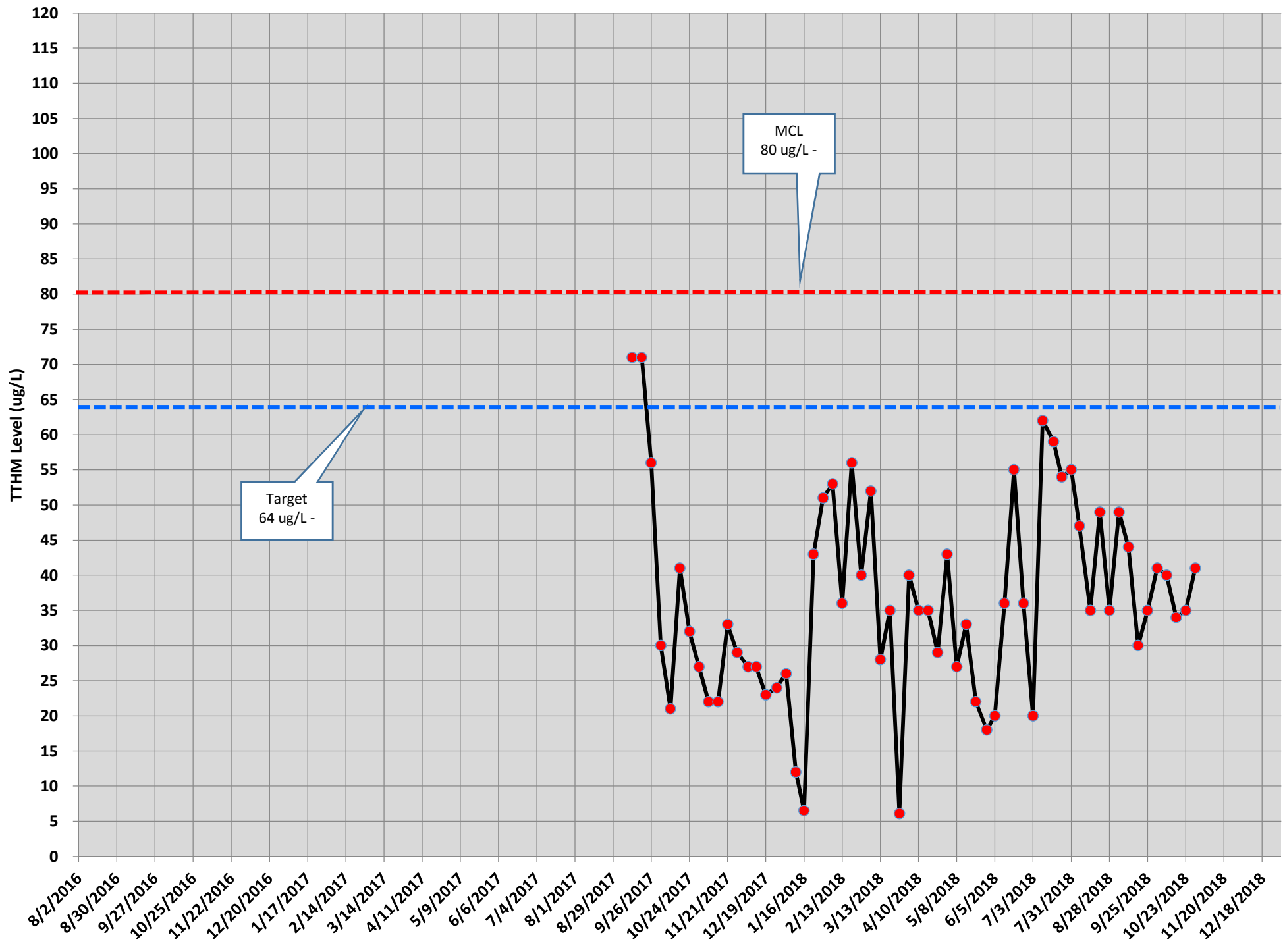
Attachments:

1. TTHM Charts dated 10-30-18
2. Apex Manufacturing Solution proposal dated 10/30/18
3. Hazen and Sawyer Proposal dated 10/24/18

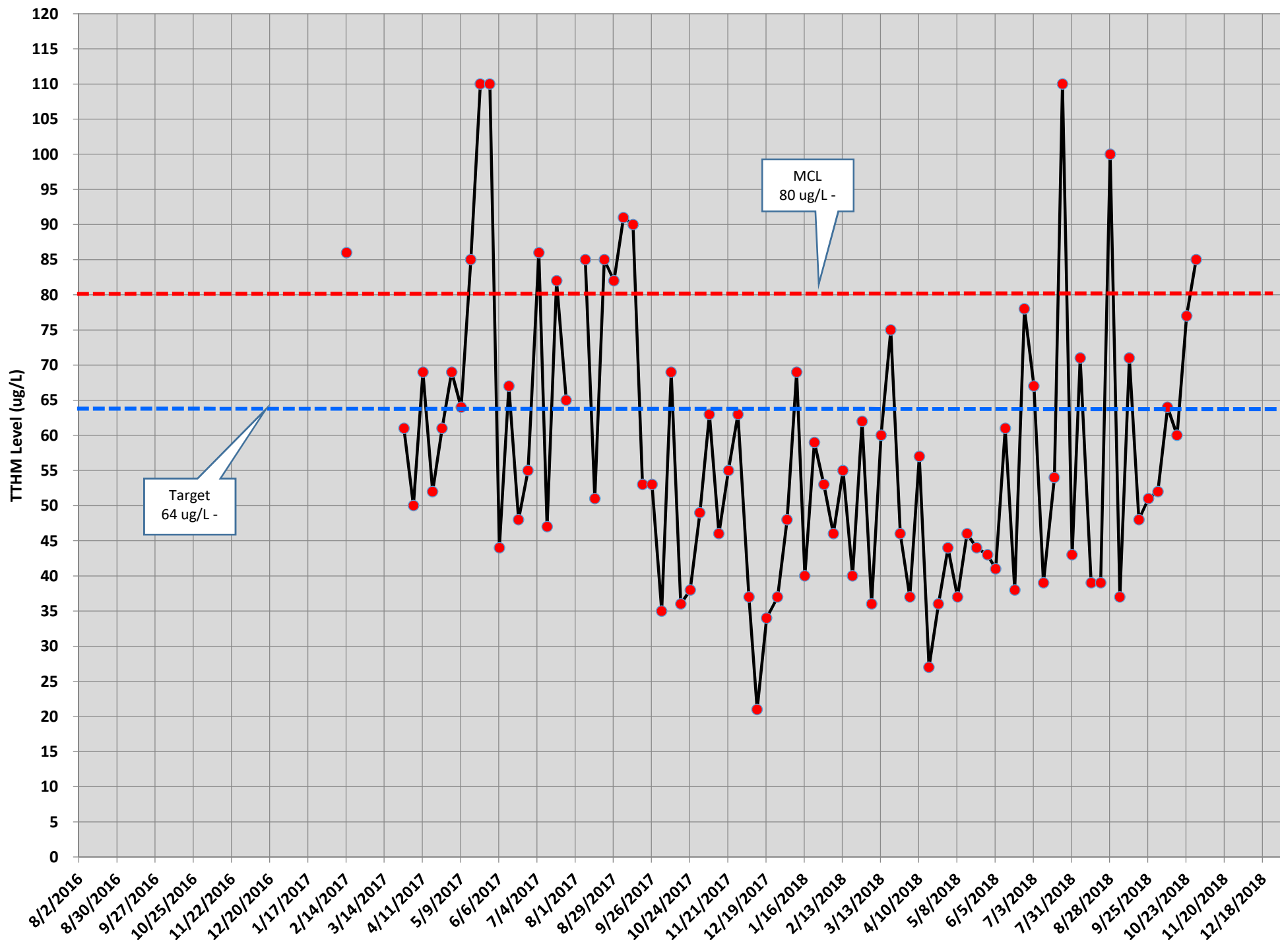
# FMWD at Paschall Booster - TTHM's Levels



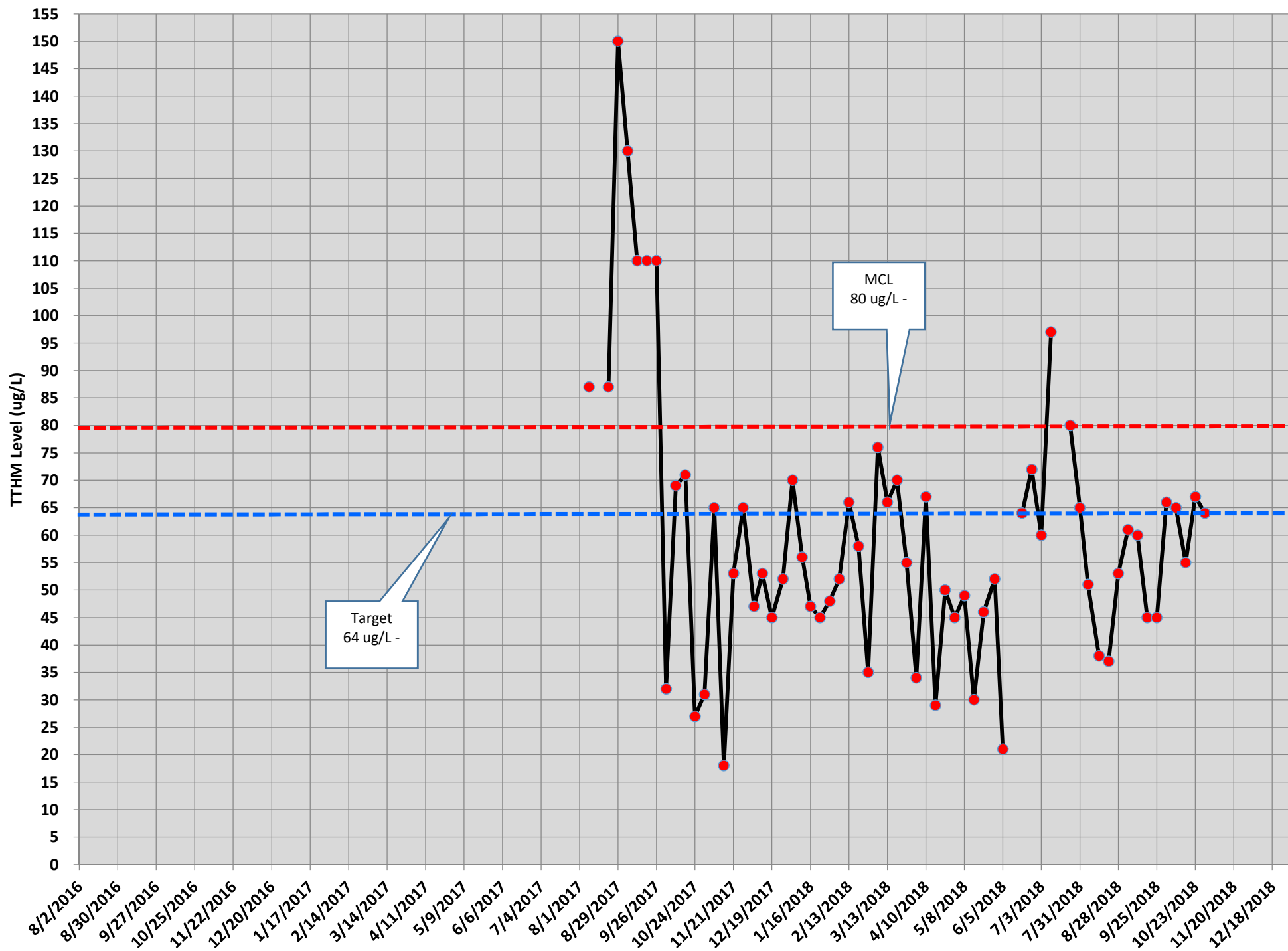
# Encinal Reservoir (Zone 1) - TTHMs Levels



# Williams Reservoir (Zone 2) - TTHMs Levels

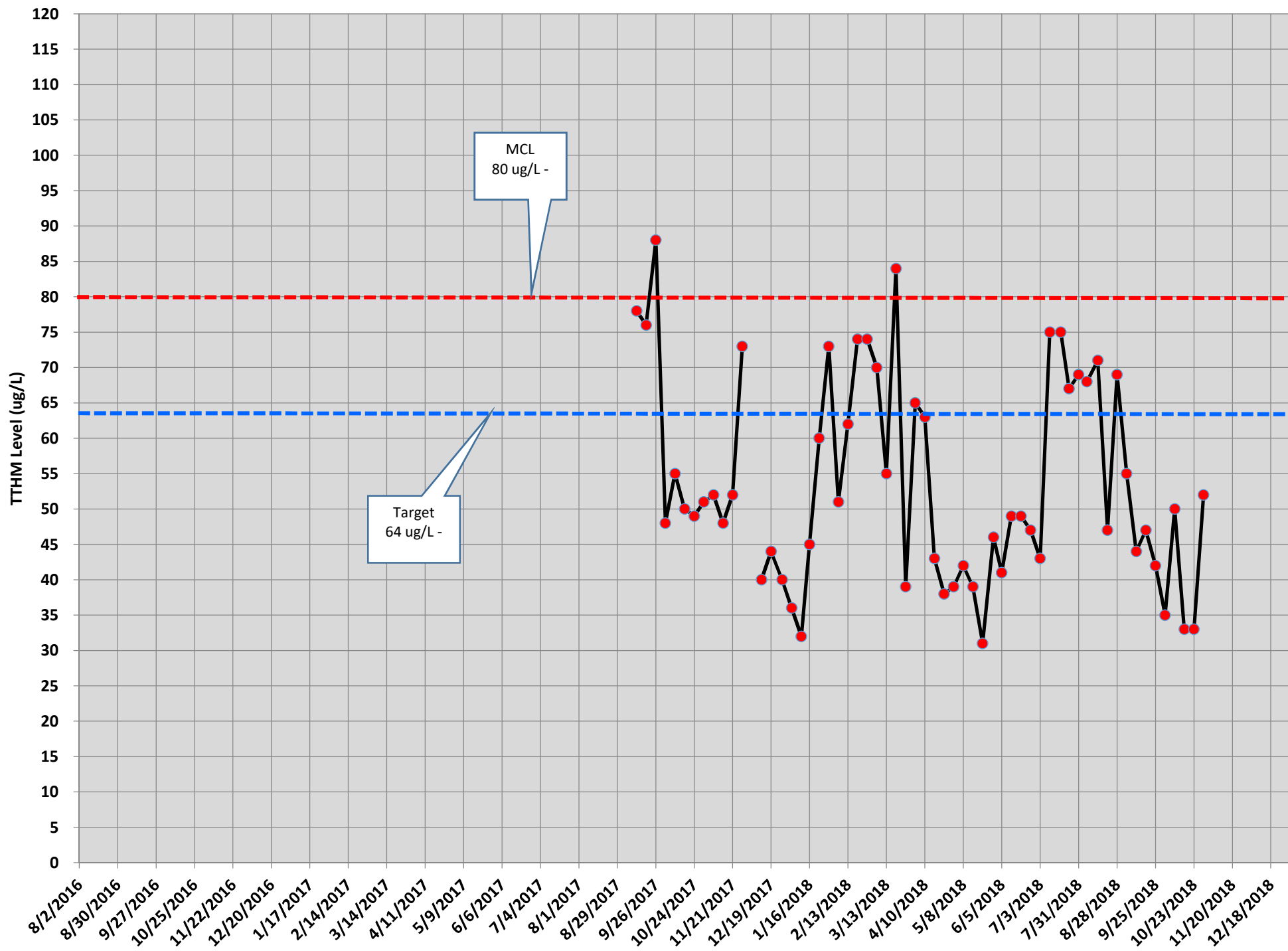


## Ordunio Reservoir (Zone 2) - TTHMs Levels

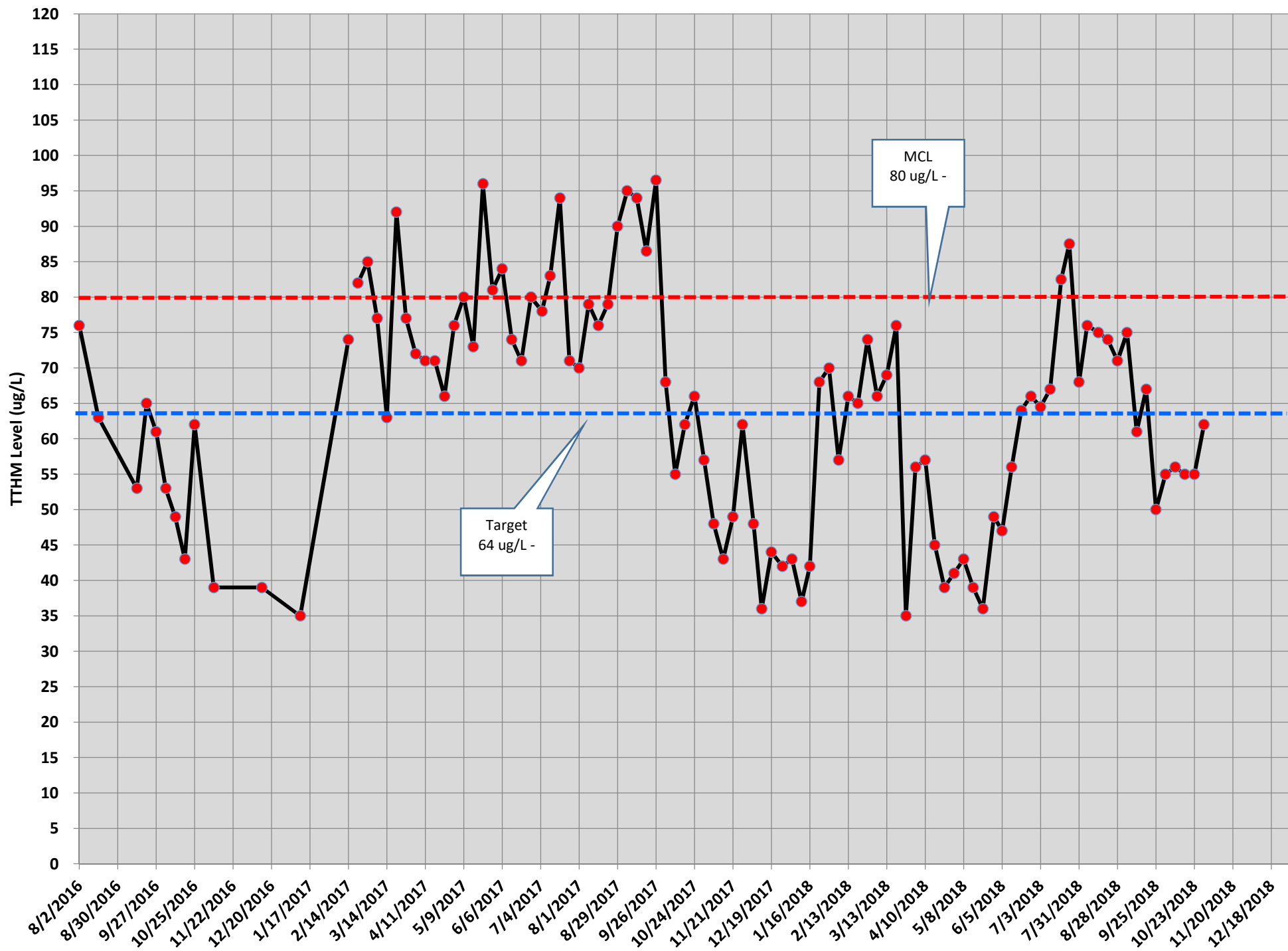




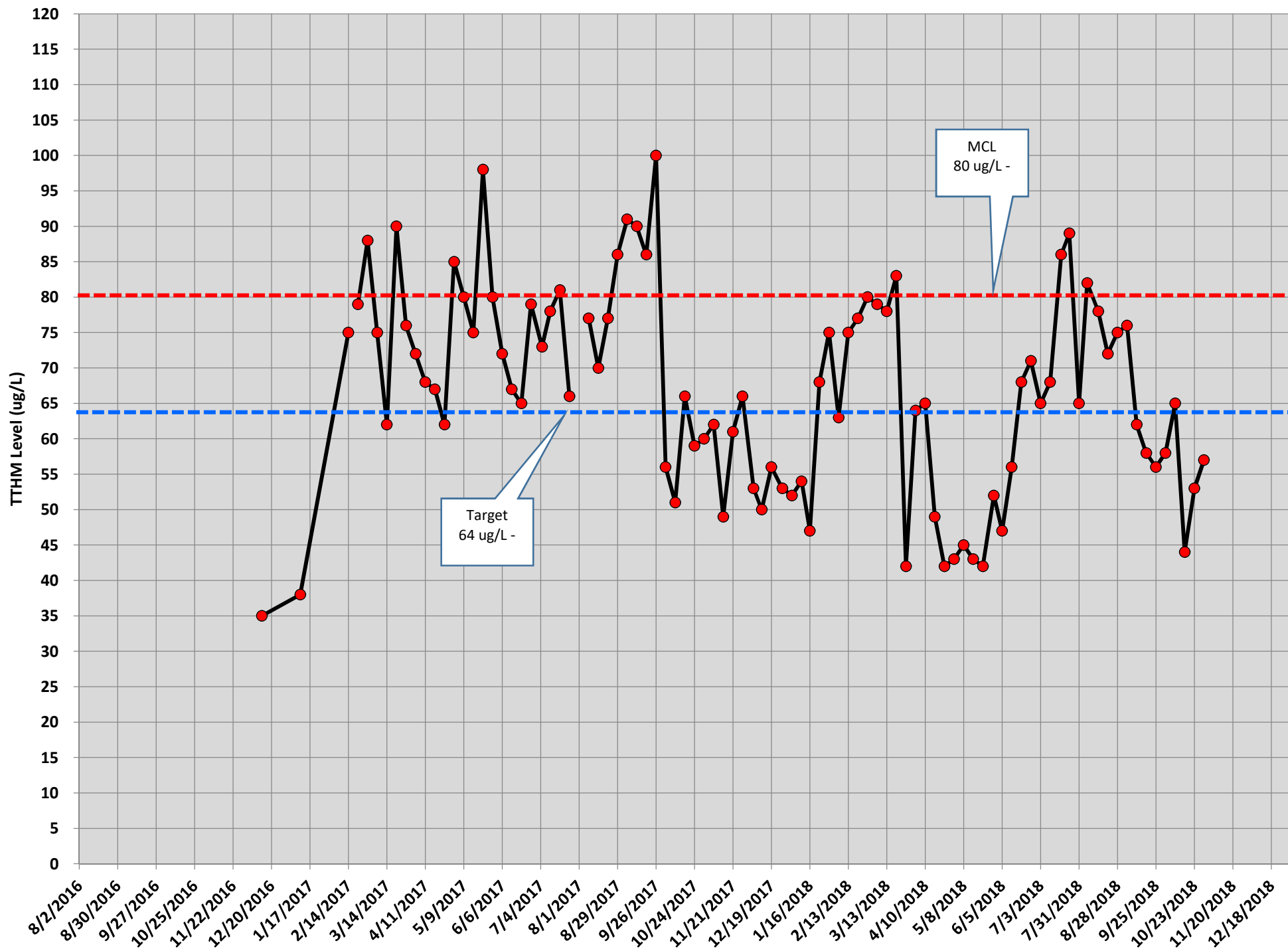
# Rosemont Reservoir (Zone 3) - TTHMs Levels



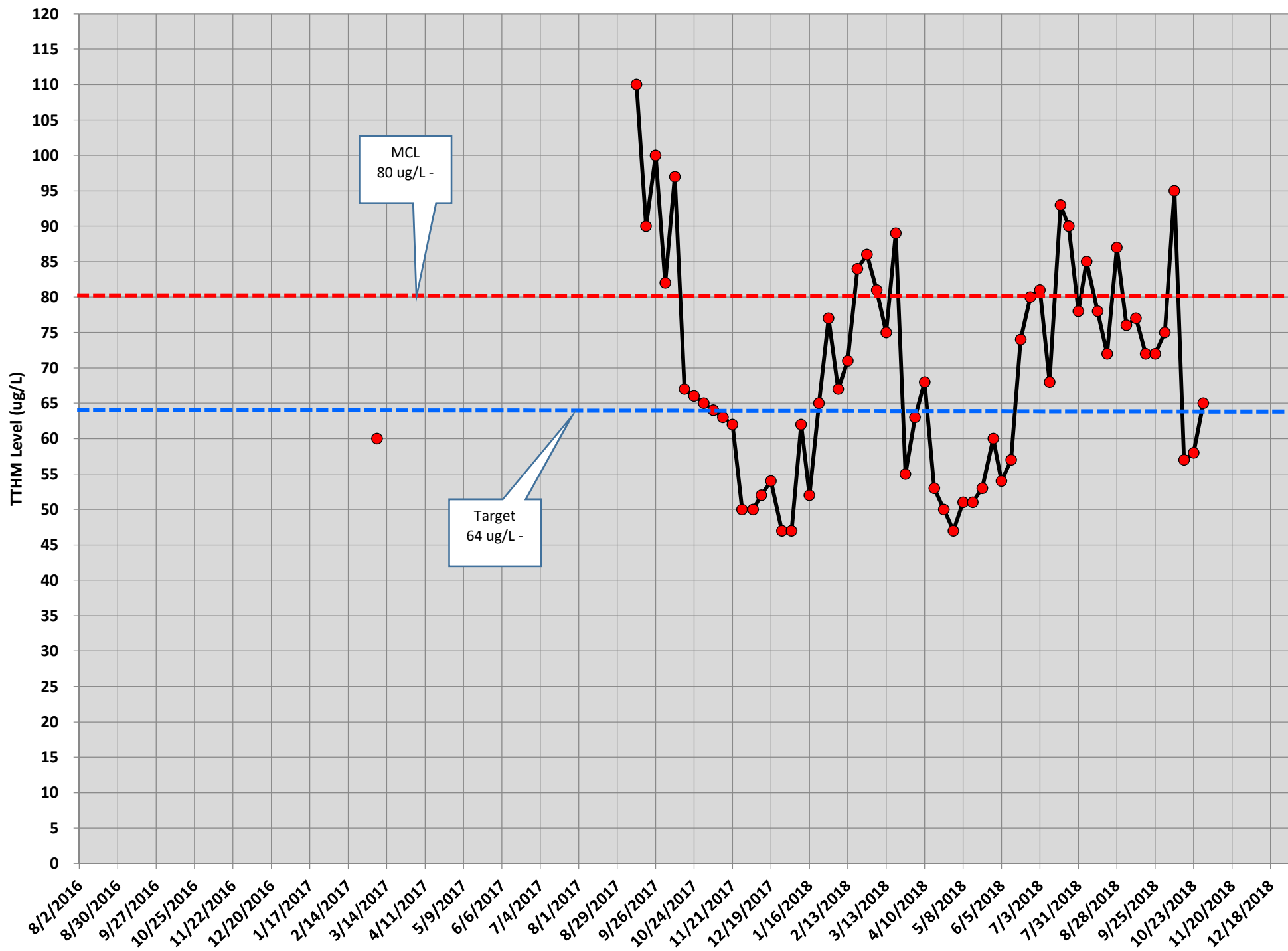
# Oak Creek Reservoir (Zone 4) - TTHMs Levels



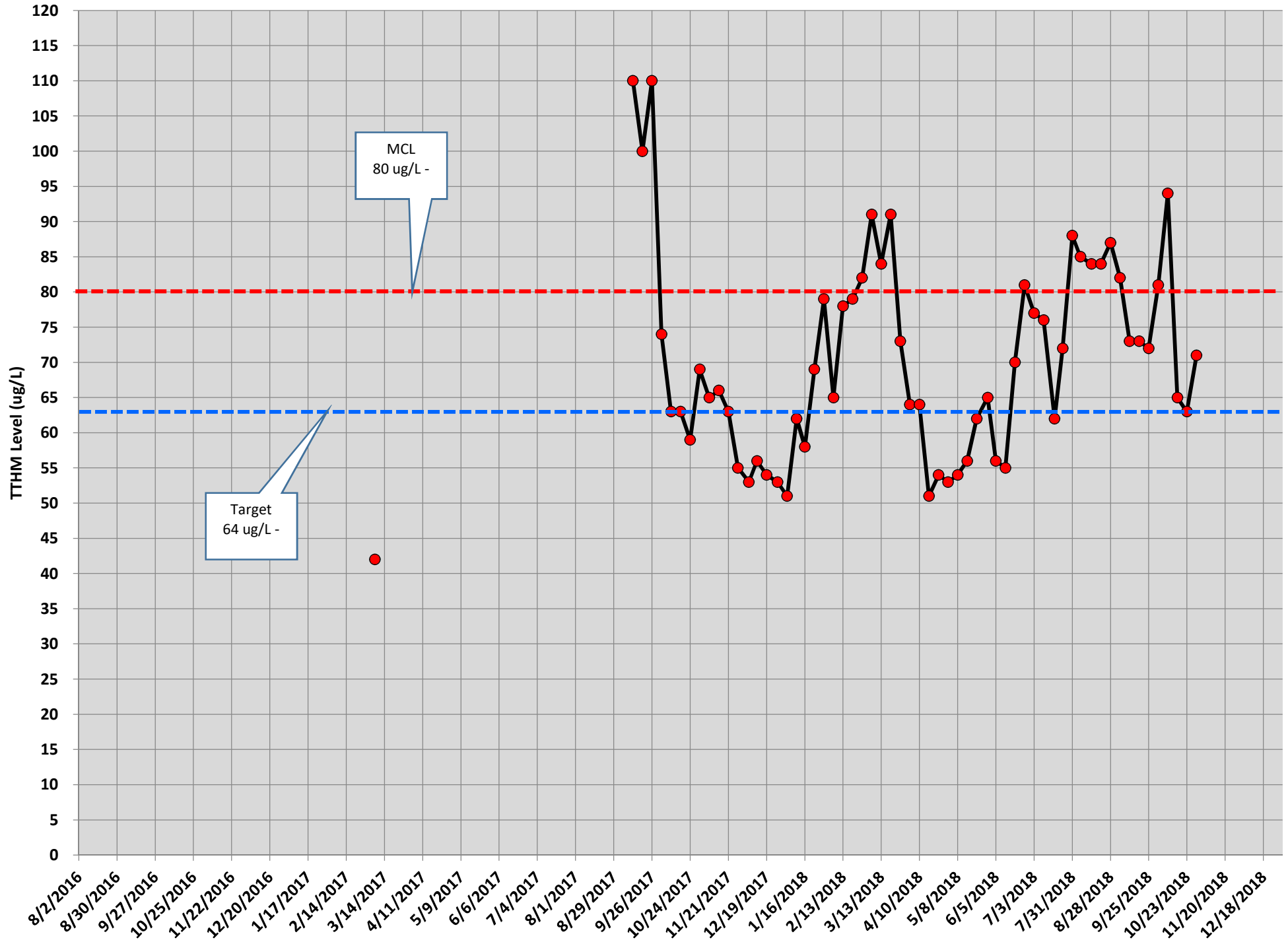
# Markridge Reservoir (Zone 5) - TTHMs Levels



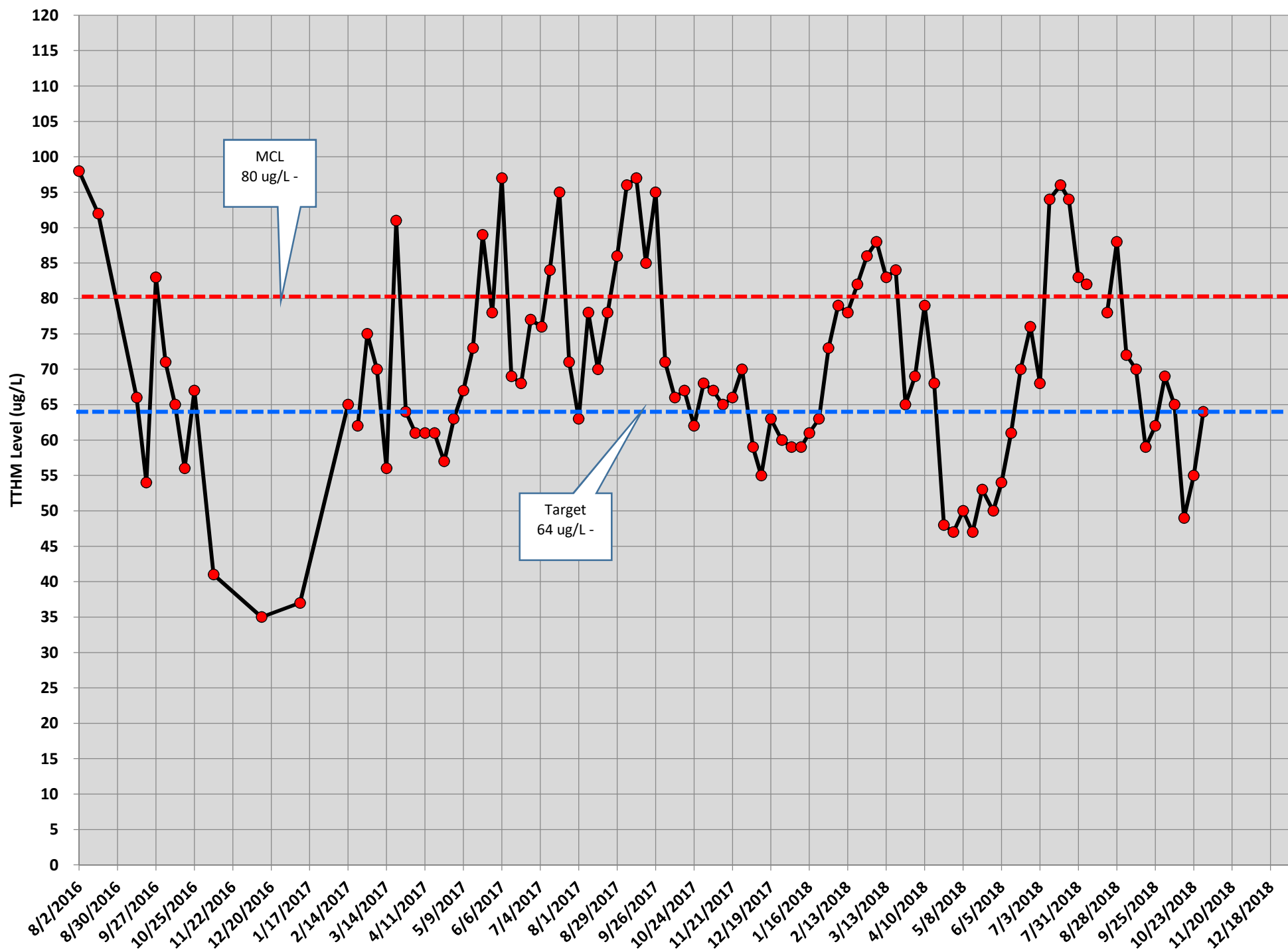
# Eagle Canyon Reservoir (Zone 5) - TTHMs Levels



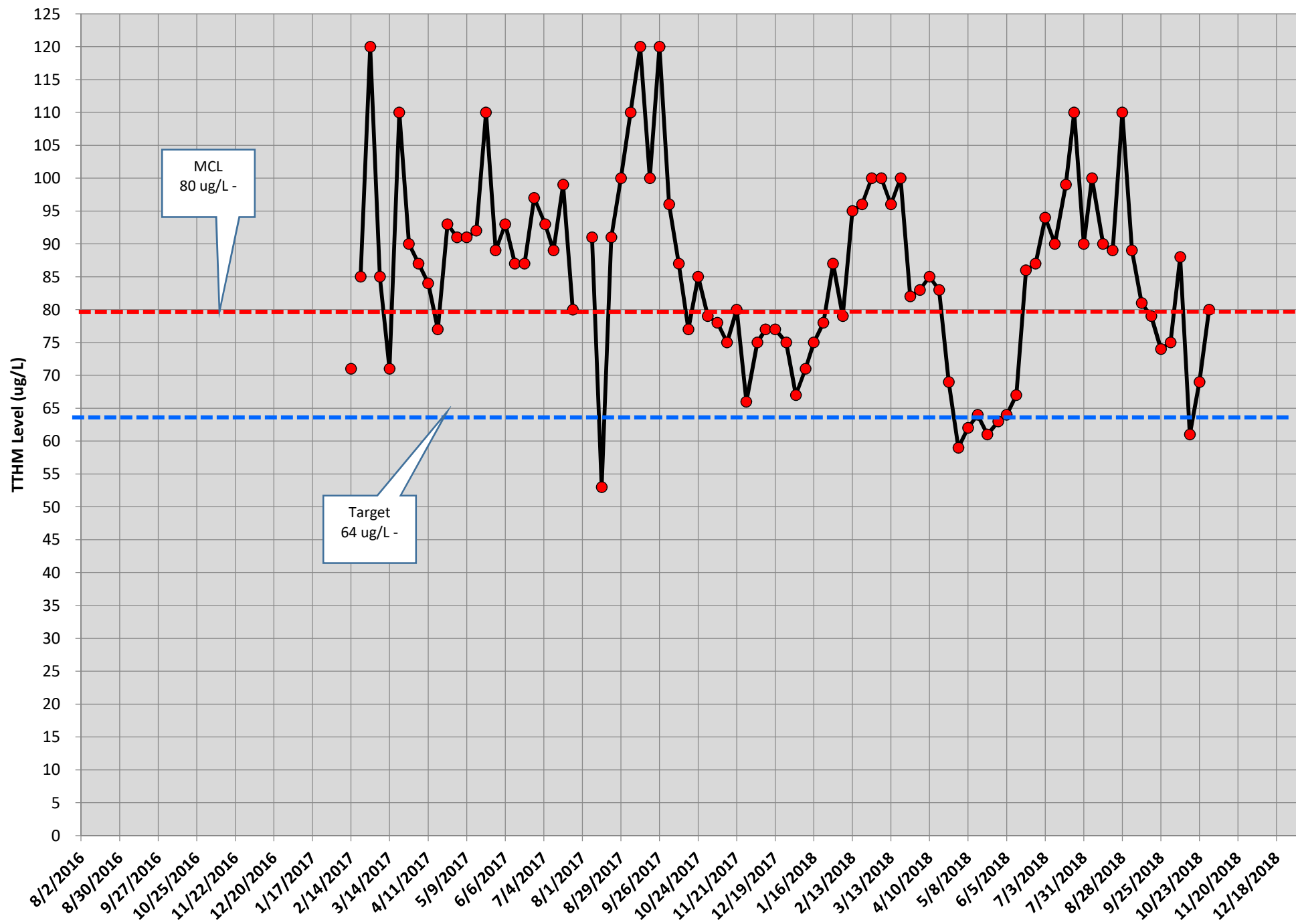
# Goss Canyon Reservoir (Zone 6) - TTHMs Levels



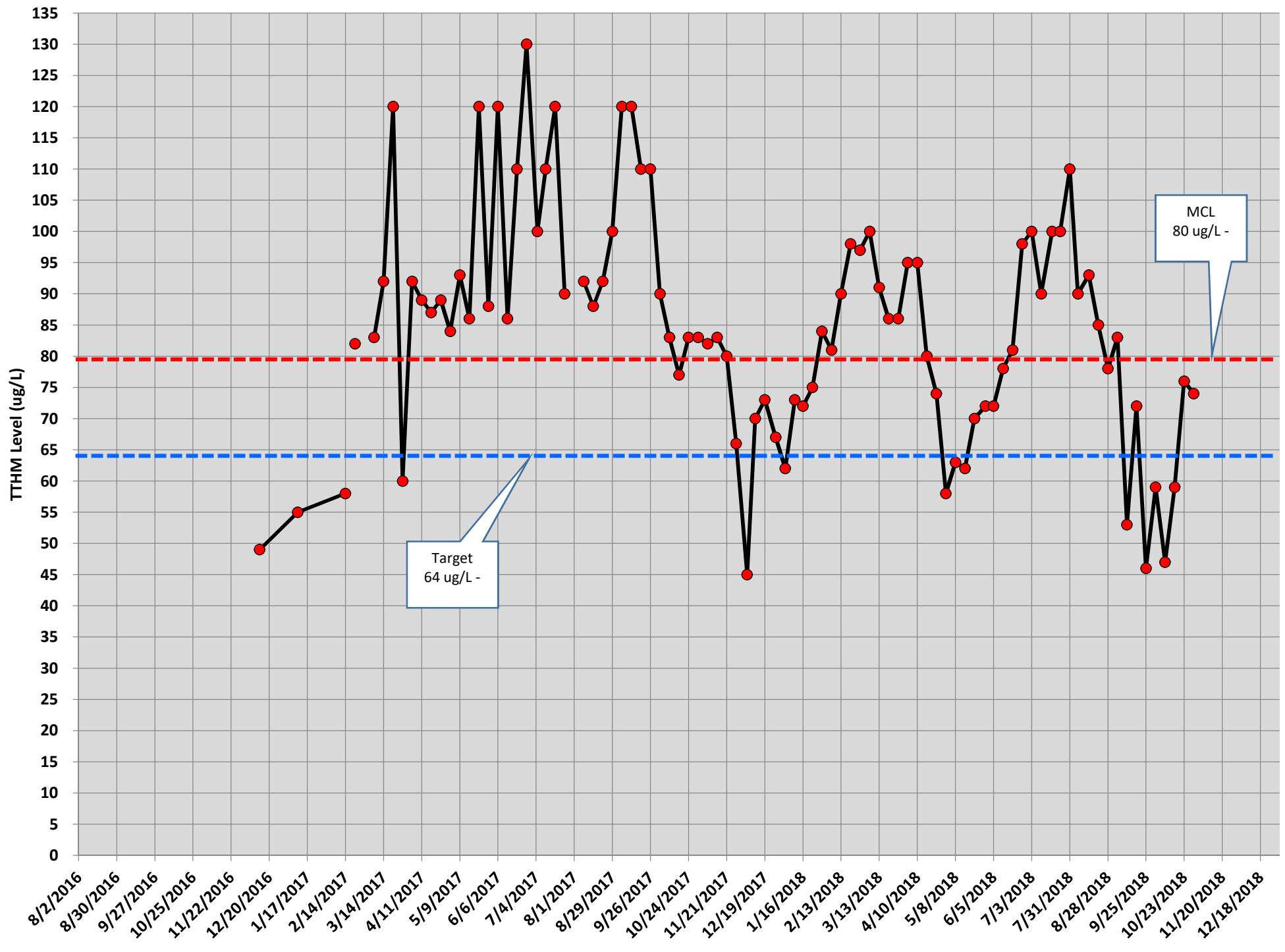
# Dunsmore Reservoir (Zone 7) - TTHMs Levels



# Cresta Heights Reservoir (Zone 8) - TTHMs Levels

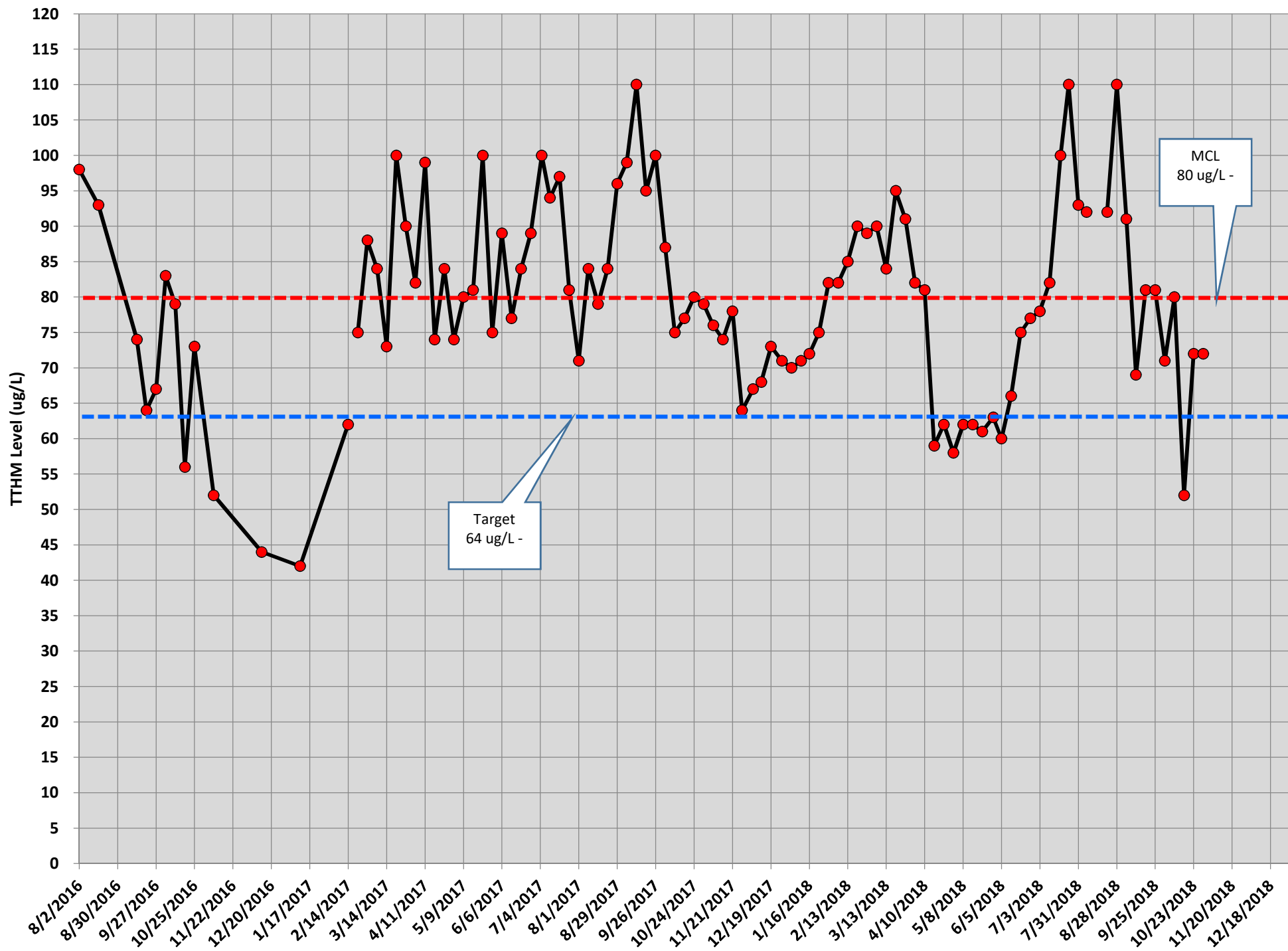


# Edmund No. 1 Reservoir (Zone 9) - TTHMs Level

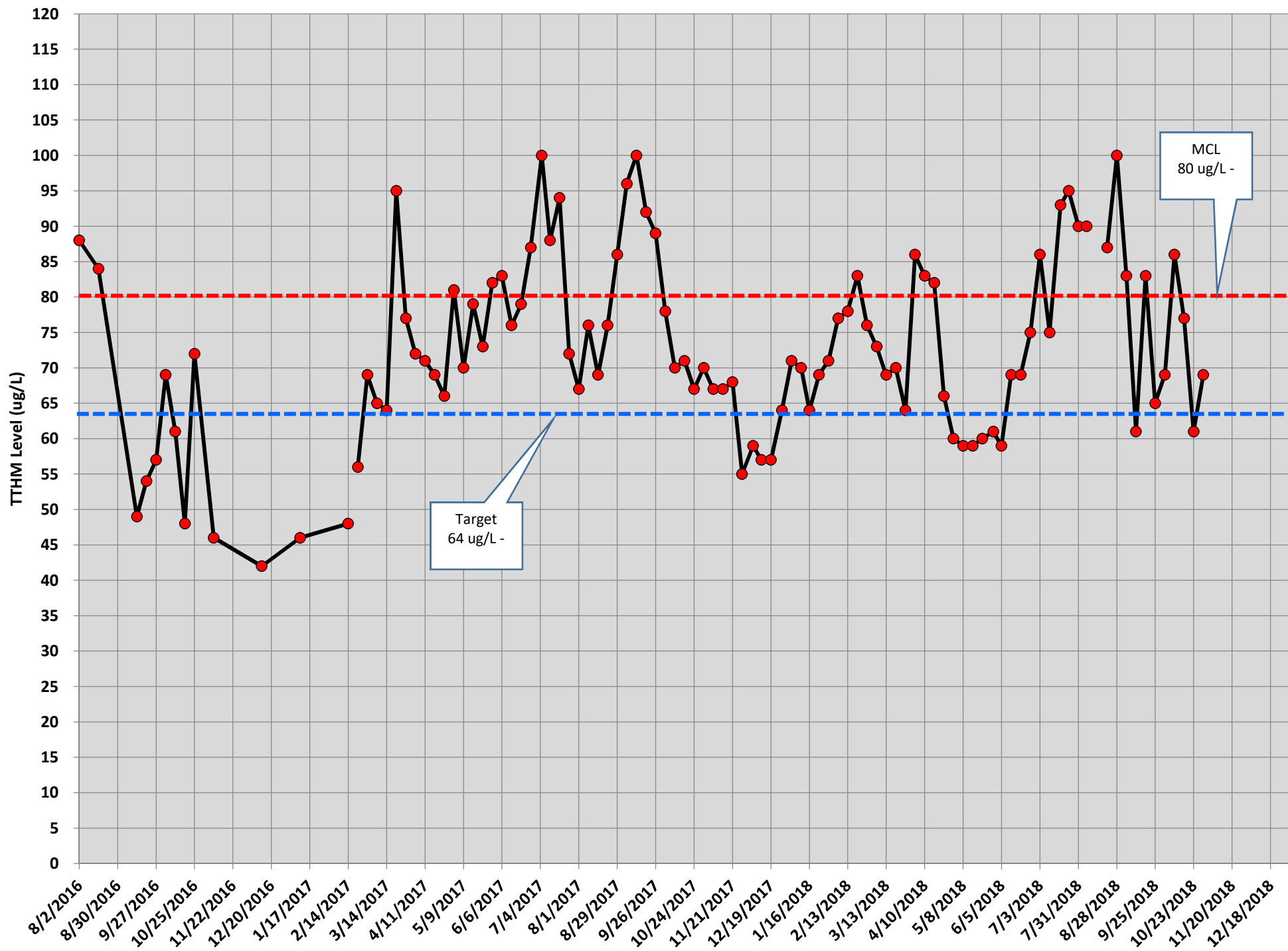




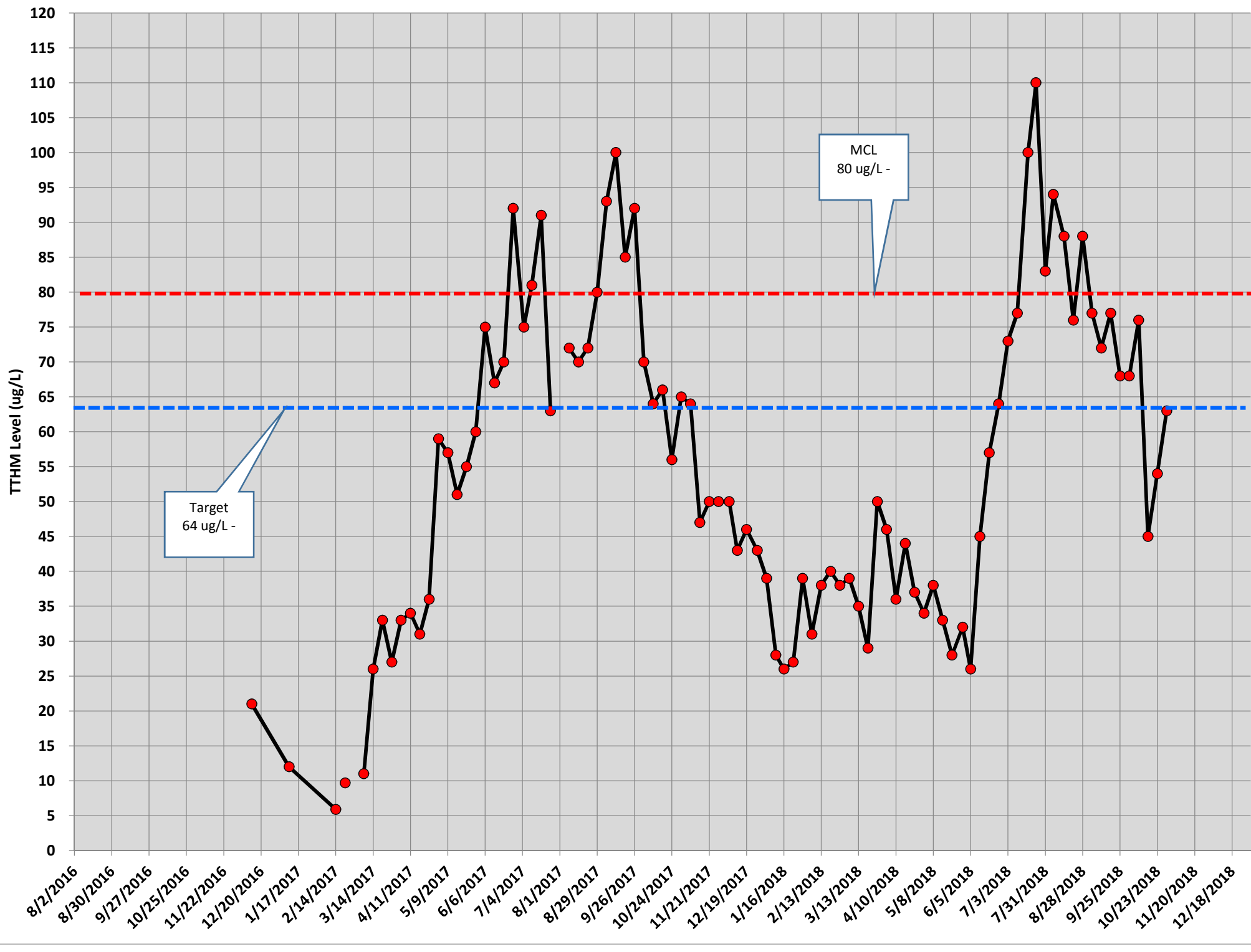
## Edmund No. 2 (Zone 9) - TTHMs Levels



## Shields Reservoir (Zone 10) - TTHMs Levels



# Pickens Reservoir (Zone 11) - TTHMs Levels





**Apex Manufacturing Solutions**  
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10/30/2018

Mark Haas  
Crescenta Valley Water District  
(818) 248-3925

SUBJECT: CVWD0008 – Ammonia Injection Skid Integration  
Apex Project Number – CVWD0008 REV1

Dear Mark,

Thank you for the opportunity to submit this proposal to Crescenta Valley Water District (CVWD). This proposal covers the design and integration efforts required to introduce two (2) new ammonia injection skids into the existing CVWD control and SCADA systems. This is a services-only proposal that includes system design development and integration but will not include hardware acquisition, assembly, radios or installation. These can be quoted separately once the design phase has been completed. The "REV1" of this proposal reflects specific requests by Crescenta Valley to remove the installation support and reduce the onsite time from 10 days to 6.

The proposed solution architecture would utilize DNP3 routers to allow Rockwell-based Remote Transmission Units (RTUs) to communicate via radio to a central software-based node. This approach would be used to control and acquire data from the injection skid located at the Mills facility and will be the first of the new RTUs. The ammonia injection skid to be installed at the Glenwood facility would be controlled via a dedicated Rockwell CompactLogix PLC that would be accessed via the existing Ethernet network at the Glenwood facility. Data from both injection skids will be integrated into the existing Wonderware-based SCADA system and Historian.

Apex is pleased to offer our knowledge and expertise, and we are dedicated to providing you with the resources, talent, and skill needed to ensure your success with this project. Upon your approval we will engage with you and others on your team, and work to ensure your deliverables are met. Thank you again for this opportunity and please do not hesitate to contact me if you have further questions or comments.

Regards,

Margo Shew  
Project Manager  
Phone: (208) 344-5535 Ext. 206  
[Margo.Shew@apexmfgsolutions.com](mailto:Margo.Shew@apexmfgsolutions.com)



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**Crescenta Valley Water District  
Ammonia Injection Skid Integration**

Apex Project Number – CVWD0008 REV1

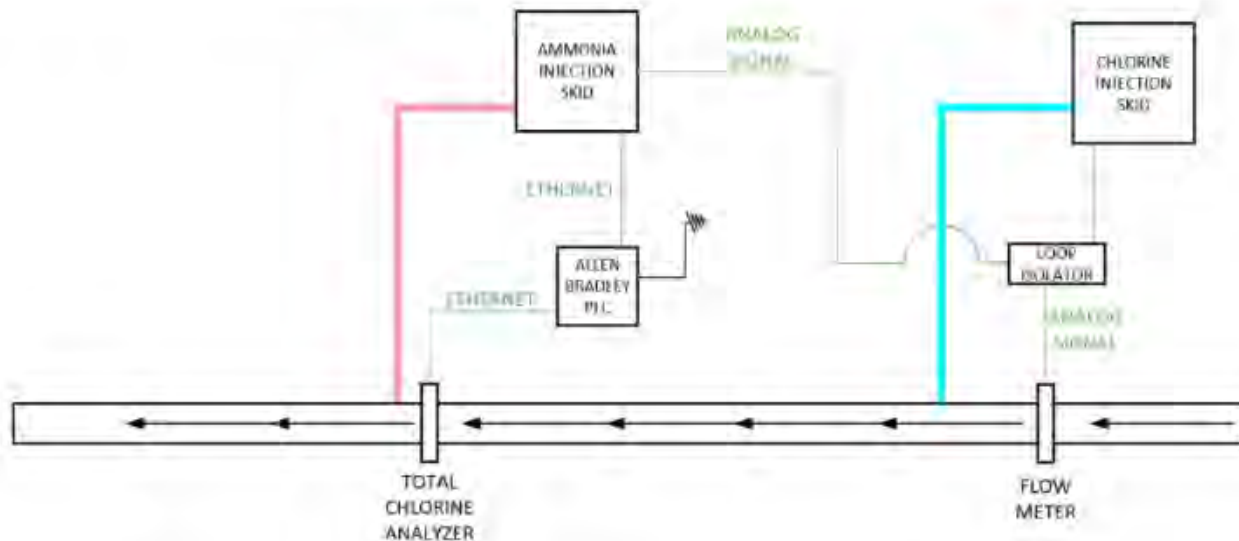
October 30, 2018



## 1. Project Description

The Crescenta Valley Water District will soon begin adding ammonia to the process water. Injection will take place at two geographically isolated locations. The primary facility is the Glenwood location. This location hosts the Wonderware SCADA system tag servers, operator stations, Historian, and other system components. The second injection skid will be located at the Mills facility which is approximately one mile away from the Glenwood facility. The two facilities will be connected via a wireless (900 MHz) network.

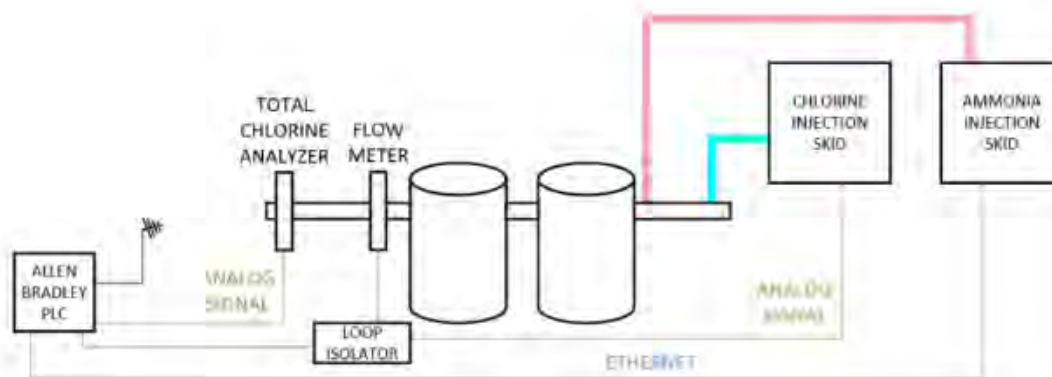
The high-level control strategy for the Glenwood facility is shown in the diagram below:



The chlorine injection rate is controlled by the flow meter via an analog output connected directly to the speed command input on the metering pumps. Injection rate is a simple linear response defined within the metering pumps themselves. The chlorine will be thoroughly mixed prior to entering the free chlorine analyzer. The analog output from the free chlorine analyzer will be connected to a remote IO station which will then relay this information to the new Rockwell PLC added to the existing MCC as a part of this project. The PLC will be connected to another remote IO station on the ammonia dosing skid. The calculated metering pump speed command will be used to control the ammonia injection rate.

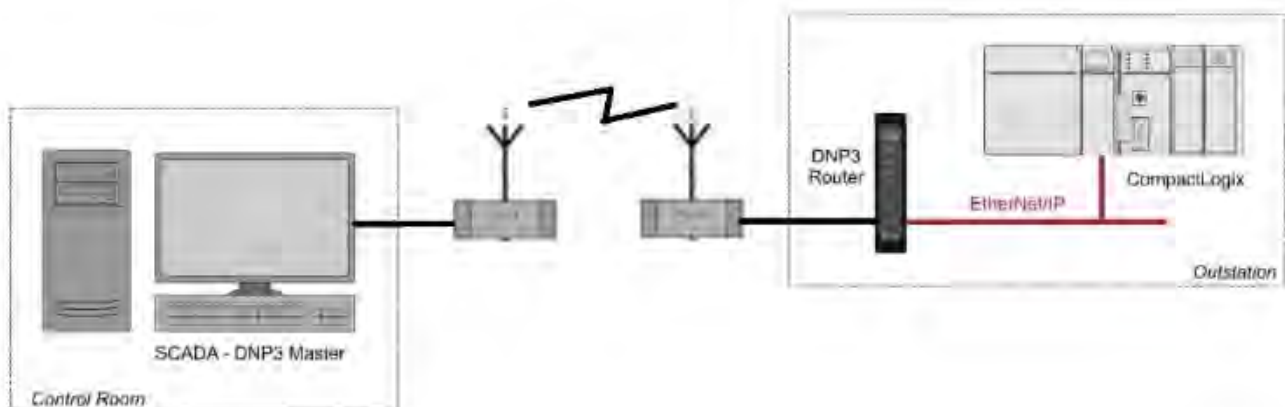
It is important to note that ammonia injection must stop if supply water stops flowing. Due to the critical nature of this constraint a redundant approach will be utilized interlock ammonia injection. First, the analog signal will be routed from the flow meter via a loop isolator to the remote IO station within the ammonia dosing station. Should the flow signal drop below a configurable threshold, the logic within the controller will discontinue injection. Secondly, the flow currently routed to SCADA from the Tesco controller will be forwarded to the ammonia injection controller. Again, if the flow rate falls below a configurable threshold ammonia injection will stop.

The overall control strategy and logic within the controller employed for the Mills facility is very similar insofar as a free chlorine analyzer will be used to determine the ammonia dosing rate. The control strategy for the Mills facility is shown in the diagram below:



In support of the two new ammonia injection skids tags will be added to the existing tag servers without changing the configuration or architecture. Two interfaces will be added to the existing InTouch application. These new injection skid interfaces will be closely modeled after existing interfaces and will allow the operator to control ammonia injection in response to measured total chlorine.

The proposed solution architecture would utilize DNP3 routers to allow Rockwell-based Remote Transmission Units (RTUs) to communicate via radio to a central software-based node. This approach would be used to control and acquire data from the injection skid located at the Mills facility and will be the first of the new RTUs. The ammonia injection skid to be installed at the Glenwood facility would be controlled via a dedicated Rockwell CompactLogix PLC that would be accessed via the existing Ethernet network at the Glenwood facility. Data from both injection skids will be integrated into the existing Wonderware-based SCADA system and Historian. Conceptual design of the solution is shown in the following diagram.



The DNP master would be integrated into the Wonderware SCADA system and would utilize a new DNP-capable IO server to handle the polling and communications with the RTUs via radio. The wireless architecture developed to support this project will form the basis for future work towards modernizing other remote stations such as wells, reservoirs, and pump stations. The new architecture will run in parallel with the existing wireless architecture and support transitioning additional RTU's using a modular approach. After all remote units have been updated the existing wireless network will be removed.



This project will include commissioning only the main node and the node at the Mills plant. However, all programming efforts associated with this project will include as a design criteria the need for easy extensibility and streamlined RTU transition in the future.

System operation of the ammonia injection skids will be documented within a Control Sequence Functional Document (CSFD) including both functional descriptions and a complete IO listing. This document will be updated during the commissioning and testing phase to represent the true as-installed state. Project also includes other necessary documentation, including drawings, Operations and Maintenance (O&M) manuals, and User Training.

Apex uses a work package method to do project estimation. A detailed task breakdown by work package is include in Appendix A below.

## 2. Project Constraints & Assumptions

This proposal is based on the following project constraints and/or assumptions.

- Proposal assumes the customer will supply all required project hardware, tools and software licensing except where this scope of supply is explicitly included as part of a work package.
- Proposal scope excludes computer server/workstation configuration or maintenance (e.g. OS loading, network configuration, etc.) except where this scope of work is explicitly included as part of a work package.
- Proposal scope does not include installation or mounting of equipment or hardware of any kind, including electrical, mechanical, chemical, etc. For purposes of this proposal they are assumed to be the responsibility of the customer or other designated contractors.
- Proposal scope does not include device, equipment or network wiring of any kind. For purposes of this proposal they are assumed to be the responsibility of the customer or other designated contractors.
- Branded development toolkits required for project execution but not intended to delivery to customer as part of the project deliverables (e.g. Rockwell or Siemens development software, Wonderware development software, etc.) will be provided by Apex unless otherwise specified within the proposal.
- Prior to system start-up or commissioning, the client shall confirm that:
  - Client-owned equipment, hardware and software is properly installed, mounted, and wired according to the manufacturers' specifications and conforms to applicable trade and safety codes.
  - In the case of equipment and hardware, client shall ensure the appropriate technical support staff (electrical, mechanical, maintenance, etc.) are available to quickly resolve installation, mechanical, or electrical errors.
  - In the case of software, client shall ensure that appropriate information technology resource(s) are readily available to resolve any installation or infrastructure issues, and that all software applications are appropriately licensed.
- Additional on-site time or return visits to site due to lack of client system readiness, unavailability of support resources, etc. are subject to additional charges at our standard service and travel rates.



### 3. Project Risks

All projects include some element of risk, and most can either be mitigated or managed. Apex feels that the following risk factors are present in this project and believes it is important to bring these to the attention of the Crescenta Valley Water District. Where possible, Apex has included suggested means to mitigate these risks.

- **RISK 1 – Integration with existing TESCO System** - Although no integration with the existing Tesco architecture is expected, however, any such integration with the existing TESCO system would likely represent significant obstacle due primarily to the highly proprietary nature of the TESCO solution. This risk can be mitigated by having appropriate support personnel available to answer questions during design and commissioning.
- **RISK 2 – Reduction in Startup Time** - Per Crescenta Valley request, the proposed onsite time has been reduced from ten (10) days to six (6) days. Apex still believes the original estimate of ten (10) days to be an accurate estimate of the scope of work associated with the commissioning of the new system. Should the reduced time estimate prove to be insufficient, this will create the risk of requiring a change order to support the onsite installation.

### 4. Project Costing

Project costing is summarized in the following tables. Apex's standard terms & conditions are attached in Appendix "C" below.

| Services                                                                                                                  | Cost                |
|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| System Design<br><i>Quoted on a firm fixed basis</i>                                                                      | \$ 14,505.00        |
| Programming<br><i>Quoted on a firm fixed basis</i>                                                                        | \$ 14,160.00        |
| Commissioning and Testing<br><i>Quoted on a time &amp; material (T&amp;M) basis<br/>1 Resource x 6 Days x 12hours/day</i> | \$ 14,160.00        |
| Post-Commission Support<br><i>Removed</i>                                                                                 | \$ 0.00             |
| <b>Subtotal Services Cost</b>                                                                                             | <b>\$ 42,825.00</b> |

| Travel & Living Expenses (Estimated)         | Cost               |
|----------------------------------------------|--------------------|
| Commissioning and Testing                    | \$ 4,700.00        |
| <b>Subtotal Travel &amp; Living Expenses</b> | <b>\$ 4,700.00</b> |

**Total Project Cost** **\$ 47,525.00**

**Project Payment Milestones:**

- 25% Down payment upon placement of order
- Monthly progress payments on balance due up to 90% of total project cost
- Final invoice for 10% of total project cost due upon acceptance of system by client successful completion of site acceptance test (SAT) and completion of any open SAT punch list items.

## 5. Project Schedule

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Project schedule will be mutually determined by Apex and the client upon Apex's receipt of purchase order for the project.

## 6. Appendix A – Work Package Details

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### Work Package 1- System Design & Programming

#### Description:

This phase would include all of the required system design and design documentation.

#### Scope of Work:

- Project kickoff meeting
- Hardware specification
- Project Documentation
  - Panel Layout Drawings
  - IO Diagrams
  - Network & Communication Drawings
- Master IO List
- Control Sequence Functional Description (CSFD)
- Installation Plan
- Startup & Commissioning Plan
- Factory Acceptance Test (FAT) Plan
- Site Acceptance Test (SAT) Plan
- User & Administrative Training

#### Dependencies:

This work package is based on the following dependencies:

- None

#### Exclusions:

This work package is based on the following exclusions:

- None

#### Assumptions:

This work package is based on the following assumptions:

- No modification of the existing Tesco architecture will be required
- Crescenta Valley employees will be available to answer questions in a timely fashion

#### Deliverables:

This work package will provide the following deliverables:

- Hardware Specification
- Project Documentation Package ("As-Designed")

## Work Package 2 – Programming

### Description:

This phase would include all of the required PLC programming as well as setup and configuration of the DNP3-based RTU communications.

### Scope of Work:

- DNP3 Master Setup & Testing
- DNP RTU Setup & Testing
- Radio Configuration & Testing
- Ammonia Dosing PLC Programming

### Dependencies:

This work package is based on the following dependencies:

- Completion of Work Package 1

### Exclusions:

This work package is based on the following exclusions:

- None

### Assumptions:

This work package is based on the following assumptions:

- None

### Deliverables:

This work package will provide the following deliverables:

- DNP3 Master Configuration
- DNP3 RTU Configuration
- Ammonia Dosing PLC Program
- New Wonderware HMI Screens

## Work Package 3 - Commissioning & Testing

### Description:

Apex personnel will be onsite to commission hardware, install programming, and complete system testing. Note that as per request of Crescenta Valley, the proposed onsite time was reduced from 10 days to 6 days. This work package is proposed at a time and materials rate, if more time is required to complete the onsite commissioning, a change order will be required.

### Scope of Work:

Apex will send one (1) engineer onsite for six (6) days to perform the following activities:

- DNP3 Master Installation, configuration & validation
- DNP3 RTU installation, configuration & validation
- Ammonia Skid PLC programming & validation
- HMI modifications:
  - Ammonia dosing skid
  - RTU communications status

### Dependencies:

This work package is based on the following dependencies:

- Completion of Work Package 2
- Completion of hardware acquisition, assembly, and installation
- All radio communications will be established and validated by Crescenta Valley or others prior to onsite commissioning.

### Exclusions:

This work package is based on the following exclusions:

- No radio work is required of Apex

### Assumptions:

This work package is based on the following assumptions:

- Project hardware installation and wiring is complete prior to Apex arrival
- No modification of the existing Tesco architecture will be required
- Crescenta Valley will provide support as required during commissioning

### Deliverables:

This work package will provide the following deliverables:

- Operational DNP3 master & RTU
- Functional ammonia injection process as defined in CSFD
- Completed test plan
- As built documentation

#### Work Package 4 – Post Commissioning Support

**Description:**

Any support required after onsite installation and commissioning is not included as part of this proposal. This was removed as per Crescenta Valley request.

**PROPOSAL**  
**RESERVOIR CHLORINE ANALYZER DESIGN**  
**HAZEN AND SAWYER FOR CRESCENTA VALLEY WATER DISTRICT**  
**Draft, 10/25/18**

**Scope of Services**

This scope of services includes the engineering design services for the installation of a chlorine analyzer at the six (6) identified District reservoirs, including Cresta Heights Reservoir, Dunsmore Reservoir, Eagle Canyon Reservoir, Goss Canyon Reservoir, Paschall Reservoir, and Shields Canyon Reservoir.

Services to be provided in this work are described below in several tasks.

**Task 1. Site Visits and Analysis**

CVWD will provide Hazen staff with site tours of the six (6) reservoir locations identified by CVWD for chlorine analyzers. Operations staff will be present and will provide their preferences on locations for optimal operations and maintenance activities.

At this time, CVWD would like to conduct the first step in identifying representative sampling locations from the reservoirs, which involves collecting samples for chlorine residual measurement on the inlet/outlet line and the sample tap on the side of the reservoirs.

For tanks without mixers, sampling may be recommended within the tanks at various heights if CVWD elects to characterize stratification in the reservoirs. Alternately, CVWD might consider computational fluid dynamics (CFD) modeling of the reservoirs if stratification of the reservoirs are a concern, which would be additional scope.

**Task 2. Preparation of Design Drawings**

Hazen will prepare design drawings for the installation of a chlorine analyzer at the six (6) identified District's reservoirs. Design drawings will be prepared to the 75% level design in order for the CVWD staff to install the equipment and all related facilities. The 75% level design drawings will include civil, electrical, and mechanical work. All specifications and construction notes will be included on the drawings. A separate set of technical specifications will not be prepared. Plans for the entire project will be produced in 22" X 34" format in AutoCAD. Hazen will anticipate one (1) progress workshop to review the design (at approximately 30% level design) with the CVWD staff prior to the 75% level design submittal. Sub-tasks to be performed and facilities to be designed under the design services include:

- Preparation of the 75% level design drawings.
- Preparation of an opinion of probable construction cost at the 75% design submittal.
- Attendance at and distribution of meeting minutes from the Kick-off, design progress meeting, and 75% design review meeting.

**Assumptions:**

- This scope of work does not include topographic survey of the site. CVWD will provide Hazen with as-built drawings and AutoCAD files of the reservoir sites for use as a basis for the preparation of the design drawings.



- This scope of work does not include the sub-surface geotechnical investigation.
- Permitting is excluded from this scope of work.
- SCADA system integration will be done by others.
- The scope of work does not include preparation of bid documents.
- The scope of work does not include preparation of frontend documents.

A list of anticipated design drawings is provided in the following table.

| Sheet No. | Drawing No. | Sheet Title                                                   |
|-----------|-------------|---------------------------------------------------------------|
| 1         | G-1         | Cover Sheet                                                   |
| 2         | G-2         | Legend, Notes and Drawing Index                               |
| 3         | C-1         | Chlorine Analyzer - Cresta Heights Reservoir Plan and Details |
| 4         | C-2         | Chlorine Analyzer - Dunsmore Reservoir Plan and Details       |
| 5         | C-3         | Chlorine Analyzer - Eagle Canyon Reservoir Plan and Details   |
| 6         | C-4         | Chlorine Analyzer – Goss Canyon Reservoir Plan and Details    |
| 7         | C-5         | Chlorine Analyzer – Paschall Reservoir Plan and Details       |
| 8         | C-6         | Chlorine Analyzer – Shields Canyon Reservoir Plan and Details |

### Task 3. Project Management, Meetings, and QA/QC

Hazen will administer the budget, schedule, work progress, and work quality to meet CVWD's expectations. Hazen will implement a QA/QC program and maintain regular contact with the CVWD's Project Manager to coordinate work progress. Hazen will prepare and submit monthly invoices for work performed to date. Three (3) meetings are budgeted for the support of the project as follows:

1. Kickoff Meeting
2. Design Progress Review Meeting (30% Design)
3. 75% Submittal Review Meeting

### Schedule

Following the issuance of a Notice-To-Proceed (NTP), Hazen will begin the project effort immediately. It is anticipated that the detailed design be completed within ten (10) weeks from the NTP. Hazen has assumed one (1) week review period for the 75% submittal by the CVWD staff.

### Budget

The total fee for the design services described in the above scope of work is **\$53,255.00** in accordance with the assigned hours per task and associated rates as shown on the attached Exhibit B, Fee Estimate.



|  | Hazen and Sawyer |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
|-----------------------------------------------------------------------------------|------------------|-----------------|------------------|-----------------------------------|-------------------------------|-------------------------------|----------------------------------|--------------|-----|----------|-------|----------|-------------|
|                                                                                   | Project Manager  | Technical QA/QC | Project Engineer | Senior Associate Electrical / I&C | Assistant Engineer Mechanical | Assistant Engineer Electrical | Principal Engineer Cost Estimate | CAD Designer |     |          |       |          | Grand Total |
|                                                                                   |                  |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
|                                                                                   |                  |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
| NB                                                                                | IM               | AR              | GF               | VD                                | HB                            | CP                            | RS                               |              |     |          |       |          |             |
| \$285                                                                             | \$245            | \$195           | \$225            | \$150                             | \$135                         | \$160                         | \$130                            |              |     |          |       |          |             |
|                                                                                   |                  |                 |                  |                                   |                               |                               |                                  |              | TMH | Labor    | ODC   | Total    |             |
| Task 1 - Site Visits and Data Analysis                                            |                  |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
| 1.1 Site Visits and Data Analysis                                                 | 16               | -               | 16               | 16                                | -                             | -                             | -                                | -            | 48  | \$11,280 | \$200 | \$11,480 | \$11,480    |
| TASK 1 TOTALS                                                                     | 16               | 0               | 16               | 16                                | 0                             | 0                             | 0                                | 0            | 48  | \$11,280 | \$200 | \$11,480 | \$11,480    |
| Task 2 - Preparation of Design Drawings                                           |                  |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
| 2.1 Prepare 75% Level Design Drawings                                             | 8                | -               | 24               | 12                                | 32                            | 60                            | -                                | 60           | 196 | \$30,360 | \$200 | \$30,560 | \$30,560    |
| 2.2 Prepare Cost Estimate                                                         | 1                | -               | 2                | -                                 | -                             | -                             | 8                                | -            | 11  | \$1,955  | \$0   | \$1,955  | \$1,955     |
| TASK 2 TOTALS                                                                     | 9                | 0               | 26               | 12                                | 32                            | 60                            | 8                                | 60           | 207 | \$32,315 | \$200 | \$32,515 | \$32,515    |
| Task 3 - Project Management, Meetings, and QA/QC                                  |                  |                 |                  |                                   |                               |                               |                                  |              |     |          |       |          |             |
| 3.1 Project Management                                                            | 8                | -               | -                | -                                 | -                             | -                             | -                                | -            | 8   | \$2,280  | \$0   | \$2,280  | \$2,280     |
| 3.2 Meetings                                                                      | 8                | -               | 12               | -                                 | -                             | -                             | -                                | -            | 20  | \$4,620  | \$400 | \$5,020  | \$5,020     |
| 3.4 QA/QC                                                                         | -                | 8               | -                | -                                 | -                             | -                             | -                                | -            | 8   | \$1,960  | \$0   | \$1,960  | \$1,960     |
| TASK 2 TOTALS                                                                     | 16               | 8               | 12               | 0                                 | 0                             | 0                             | 0                                | 0            | 36  | \$8,860  | \$400 | \$9,260  | \$9,260     |
| TASKS 1-3 GRAND TOTALS                                                            | 41               | 8               | 54               | 28                                | 32                            | 60                            | 8                                | 60           | 291 | \$52,455 | \$800 | \$53,255 | \$53,255    |

# CRESCENTA VALLEY WATER DISTRICT

## STAFF REPORT

Information Item No. 3  
November 2, 2018

**To:** Engineering Committee  
**From:** David S. Gould, P.E. – District Engineer  
**Subject:** **Status of the District's Advanced Metering Infrastructure (AMI) Program**

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### **INFORMATION ITEM:**

Discussion on Status of CVWD's Advanced Metering Infrastructure (AMI) Program

### **BACKGROUND:**

- Presentation to Board – February 2018 – Broken down into three (3) phases
  1. Smart Meters – Meter Replacement
  2. Communications & Data Collection – wireless communication infrastructure
  3. Data Management System – Water use info and data; Customer Outreach
  4. Estimated Cost - \$2.53M
  5. Completion date – Estimate July 2020
- Presentation at August 2018 Engineering Committee – Brett Foreman from WaterSMART on Preparing for AMI

### **DISCUSSION:**

There has been discussion at previous Board meetings about the status of CVWD's AMI program, the process of working towards the next step of installation and implementation of the program, and an estimation of costs to complete the project along with possible available grant funding for the project.

### **Status – Water Meter Replacement:**

CVWD crews have replaced over 5,500 ¾-inch water meters and 515 1-inch water meters over the last 6-years. There are about 1,500 ¾-inch water meters and 350 1-inch water meters remaining to be replaced. The program has been put off until January 2019 while CVWD crews are redirected toward the installation of the new ammonia injection system as part of the chloramine conversion.

The water meter replacement program has concentrated on replacing the 7,000 residential meters and will begin replacing the larger meters (1-½-inch to 4-inch meters) after the residential meters are completed.

### **Project Management and Consulting Services:**

Staff met with Kody Salem from UtiliWorks, Inc. about assisting the District with moving the AMI program forward. UtiliWorks is a consulting firm that moves AMI projects forward by developing the baseline business case for AMI (go/no-go based on a cost-benefit analysis) and then managing the project in terms of identifying vendors and implementing and installing AMI. UtiliWorks has assisted utility agencies of all sizes throughout California, including the Cities of Buena Park, Palo Alto, Roseville, Long Beach, and Riverside, Azusa Light & Water, and Glendale Water & Power on such tasks as business case assessment, preparing request for proposals, and implementation of a full-scale AMI program.

Staff requested a proposal from UtiliWorks for consulting services that includes the following scope of work:

Task 1: Review the Status of CVWD's Automated Meter Infrastructure Program

1. Review data and information completed by CVWD
2. Research and provide recommendations for the following:
  - a. Radio transceivers
  - b. Water meter box lids for radio transceivers – Concrete and Metal

- c. Communication Networks from meter box to storing data on “Cloud” including:
  - i. Review Propagation Study
  - ii. Data Collection Units and/or repeaters
  - iii. Programing meter
  - iv. Integration into Cloud
  - v. Methods to retrieve information
- d. Meter Data Management System to generate billing, water usage analysis, customer reports and alerts including
  - i. Determine information needed for CVWD such as leak detection, high or low water use, and emergencies
  - ii. Review Companies that provide these services
  - iii. Provide recommendation

Task 2: Prepare and present Business case for implementation of CVWD’s AMI program including

- 1. Preliminary Cost Estimate including
  - a. Purchase of equipment and materials
  - b. Labor by outside company
  - c. Purchase of software and annual subscription costs
- 2. Payback period or Return on Investment
- 3. Presentation at Engineering Committee Meeting and Board meeting
- 4. Project Schedule for implementation by June 2021 (or sooner)

Task 3: Implementation of AMI Program

- 1. Research and provide recommendation for the following
  - a. Pilot Study
  - b. Phasing project over 2 or 3 year period

Task 4: Project Schedule – Study to be completed by end of February 2019

Task 5: Proposed fee

UtiliWorks is finalizing the proposal and will be available for review at the Engineering Committee meeting. Staff will include Water Smart in the discussion with UtiliWorks.

**Grant Funding:**

Staff has been working with John Robinson Consulting (JRC) on the status of grant funding from the U.S. Bureau of Reclamation (USBR) through its WaterSMART grants. USBR grant funding ranges from \$300,000 and \$1,000,000 with a 50/50 cost sharing. The next round of grant application should be available in March 2019.

**RECOMMENDATION:**

Staff will discuss its recommendation at the Engineering Committee meeting as we review the proposal from UtiliWorks. \$40,000 was included in the FY 18/19 Capital Outlay Budget for the AMI program.

Prepared & Submitted by:



David S. Gould, P.E.  
District Engineer

| <b>Crescenta Valley Water District</b>                                                     |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    |                 |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------|--------------|---|----|----|--------------------|---|----|----|------------------|---|----|----|----------------|---|---|----|-----------------|---------|--------------|----|-----------------------------------------|----|---|----|----------------|----|----|---|-----------------|----|----|---|--------------|---------|-----------------------|----|---------------------|----|----|---|--------------|----|----|----|-------------|----|----|----|---|----|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <b>Design and Construction Schedule for FY 18/19</b>                                       |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    |                 |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Project</b>                                                                             | <b>July</b>  |   |    |    | <b>August</b>      |   |    |    | <b>September</b> |   |    |    | <b>October</b> |   |   |    | <b>November</b> |         |              |    | <b>December</b>                         |    |   |    | <b>January</b> |    |    |   | <b>February</b> |    |    |   | <b>March</b> |         |                       |    | <b>April</b>        |    |    |   | <b>May</b>   |    |    |    | <b>June</b> |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                            | 2            | 9 | 16 | 23 | 30                 | 6 | 13 | 20 | 27               | 3 | 10 | 17 | 24             | 1 | 8 | 15 | 22              | 29      | 5            | 12 | 19                                      | 26 | 3 | 10 | 17             | 24 | 31 | 7 | 14              | 21 | 28 | 4 | 11           | 18      | 25                    | 4  | 11                  | 18 | 25 | 1 | 8            | 15 | 22 | 29 | 6           | 13 | 20 | 27 | 3 | 10 | 17 | 24 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FY 18/19 - Projects                                                                        |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    |                 |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Re-Activate Well 2 - Design/Construction                                                   | Construction |   |    |    | Testing/DDW Review |   |    |    |                  |   |    |    |                |   |   |    |                 |         |              |    | Well 2 in Service                       |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oak Creek #1 & #2 Rehabilitation                                                           |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    | AC              |         | Construction |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         | OC #2 Back in Service |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2700, 3000 & 3100 Block of Brookhill & 5000 Block of La Crescenta                          | Construction |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    | Construction    |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Encinal - Booster B                                                                        |              |   |    |    |                    |   |    |    |                  |   |    |    | Construction   |   |   |    |                 |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| New Emergency Electrical Generator at Main Office<br>(included in FY 18/19 Capital Outlay) |              |   |    |    | Design             |   |    |    |                  |   |    |    |                |   |   |    | AB              | Bidding |              | AC | Shop Drawing Review                     |    |   |    | Construction   |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Well 7, 11 & 14 Rehabilitation                                                             |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    | Design          |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   | AB           | Bidding |                       | AC | Shop Drawing Review |    |    |   | Construction |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Installation of Ammonia Injection System                                                   |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    | Design          |         |              |    | Shop Drawing Review &<br>Project Coord. |    |   |    | Construction   |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                            |              |   |    |    |                    |   |    |    |                  |   |    |    |                |   |   |    |                 |         |              |    |                                         |    |   |    |                |    |    |   |                 |    |    |   |              |         |                       |    |                     |    |    |   |              |    |    |    |             |    |    |    |   |    |    |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |