CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX A – DWR UWMP CHECKLIST

Appendix A: UWMP Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Sections 4 and 8
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Lay Description at beginning of UWMP
x	x	Section 2.2	10620(b)	Every agency that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	N/A

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Sections 2.4 - 2.5
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Sections 2.4 – 2.5
x		Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	NA

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
	x	Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Section 3.1-3.2
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.4
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.5
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.4
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Sections 3.1-3.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.1, 4.2.2
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	NA
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	NA
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	NA
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.3
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	NA
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 6.6

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	NA
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	NA
	x	Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 6.5, Appendix HN/A
x		Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	NA

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	NA
x		Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	NA
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Section 6.1
x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Sections 6.1- 6.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 5
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 5.5
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 5.3
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 5.8
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	NA
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	NA

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	NA
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	NA
x	x	Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	NA
x	x	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	NA
x	x	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 5.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	NA
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 5.8
x	x	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	NA
x	x	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	NA
x	x	Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	NA

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	NA
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 5.7
x	x	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	NA
x	x	Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Section 5.9
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 5.10

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 6.3
x	x	Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 6.5
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 6.1
x	x	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 6.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 6.5
x	x	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 6.1
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 6.1
x	x	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Section 6.6
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	N/A
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix H
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	NA
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix H
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	NA
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	NA
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	NA
x	x	Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 2.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Section 2.5
	x	Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Section 8
x		Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	NA
x		Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	NA

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 2.4-2.5
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 2.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 2.5
x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 2.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	NA
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 2.5

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX B – DWR STANDARDIZED UWMP TABLES

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☑	Supplier is a wholesaler
☐	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
Unit	AF
NOTES:	

Submittal Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☑	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with Water Code Section 10631. Completion of the table below is optional. If not completed, include a list of the water suppliers that were informed.
	Provide page number for location of the list.
☐	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with Water Code Section 10631. **Complete the table below.**
Water Supplier Name	
Add additional rows as needed	
City of Buellton	
Carpinteria Valley Water District	
Goleta Water District	
City of Guadalupe	
La Cumbre Mutual Water Company	
Montecito Water District	
Morehart Land Company	
City of Santa Barbara	
Raytheon Company	
City of Santa Maria	
Santa Ynez River Water Conservation District, Improvement District #1	
Golden State Water Company	
Vandenberg Air Force Base	
NOTES: CCWA Participants	

Submittal Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	367,341	381,828	391,622	401,678	411,686	415,247

NOTES: Numbers are based on 2019 data from agency Annual Water System Reports. Future population values estimated based on growth rates provided in Santa Barbara County Association of Governments Regional Growth Forecast 2050 released in January 2019.

Submittal Table 4-1 Wholesale: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Sales to other agencies	CCWA is a pass through agency.	Drinking Water	12,175
	Water is treated and conveyed to		
	member agencies.		
		TOTAL	12,175

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*

[2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 4-2 Wholesale: Use for Potable and Raw Water [1] - Projected						
Use Type		Projected Water Use [2] Report To the Extent that Records are Available				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool.	Additional Description (as needed)	2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Sales to other agencies		26,542	26,303	26,064	25,824	25,589
TOTAL		26,542	26,303	26,064	25,824	25,589

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 4-3 Wholesale: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable and Raw Water From Tables 4-1W and 4-2W	12,175	26,542	26,303	26,064	25,824	25,589
Recycled Water Demand* From Table 6-4W	0	0	0	0	0	0
TOTAL WATER DEMAND	12,175	26,542	26,303	26,064	25,824	25,589
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES:						

Submittal Table 6-1 Wholesale: Groundwater Volume Pumped						
☑	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type Drop Down List	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
	TOTAL	0	0	0	0	0
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2020

☑	Wholesale Supplier neither distributes nor provides supplemental treatment to recycled water. The Supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal ***Drop down list***	Does This Plant Treat Wastewater Generated Outside the Service Area? ***Drop down list***	Treatment Level ***Drop down list***	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Add additional rows as needed											
						Total	0	0	0	0	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES:

Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
☑	Recycled water is not directly treated or distributed by the Supplier. The Supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment *Drop down list*	2020*	2025*	2030*	2035*	2040*	2045* *(opt)*
Add additional rows as needed							
Total		0	0	0	0	0	0
*** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.							
NOTES:							

Submittal Table 6-5 Wholesale: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☑	Recycled water was not used or distributed by the supplier in 2015, nor projected for use or distribution in 2020. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2015 Projection for 2020*	2020 Actual Use*
Add additional rows as needed		
Total	0	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*		
NOTES:		

Submittal Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description *(if needed)*	Planned Implementation Year	Planned for Use in Year Type *Drop Down list*	Expected Increase in Water Supply to Supplier*
	Drop Down Menu	*If Yes, Supplier Name*				
Add additional rows as needed						
Suspended Table A	*Yes*	CCWA Project Participants	Reacquire 12,214 AF of Table A water	2021-2025	Average Year	7,206
Long Term Exchange with SLOCFCWCD	*Yes*	San Luis Obispo County Flood Control and Water Conservation District (SLOCFCWCD)	Long Term Unbalanced Exchange with SLOCFCWCD	2021-2025	Average Year	4,506
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: See Section 5.9 of the UWMP for more details						

Submittal Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Purchased or Imported Water	State Water Project	12,175	Other Non-Potable Water	
Total		12,175		0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Wholesale: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply* Report To the Extent Practicable									
		2025		2030		2035		2040		2045 (opt)	
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Purchased or Imported Water		26,542		26,303		26,064		25,824		25,589	
Total		26,542	0	26,303	0	26,064	0	25,824	0	25,589	0

***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 7-1 Wholesale: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000	Available Supplies if Year Type Repeats	
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Average Year			100%
Single-Dry Year			
Consecutive Dry Years 1st Year			
Consecutive Dry Years 2nd Year			
Consecutive Dry Years 3rd Year			
Consecutive Dry Years 4th Year			
Consecutive Dry Years 5th Year			

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table. Suppliers may create an additional worksheet for the additional tables.

***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: See section 6.1 of the UWMP for more details

Submittal Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	26,542	26,303	26,064	25,824	25,589
Demand totals *(autofill fm Table 4-3)*	26,542	26,303	26,064	25,824	25,589
Difference	0	0	0	0	0
NOTES:					

Submittal Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	3,519	3,959	4,399	4,838	5,278
Demand totals*	3,519	3,959	4,399	4,838	5,278
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: Since CCWA is a wholesale agency and is not required to make up for water shortages, the supplies will equal the demands in this drought year, which is based on 2014 conditions.					

Submittal Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	4,838	4,838	4,838	4,838	4,838
	Demand totals	4,838	4,838	4,838	4,838	4,838
	Difference	0	0	0	0	0
Second year	Supply totals	4,838	4,838	4,838	4,838	4,838
	Demand totals	4,838	4,838	4,838	4,838	4,838
	Difference	0	0	0	0	0
Third year	Supply totals	6,158	6,158	6,158	6,158	6,158
	Demand totals	6,158	6,158	6,158	6,158	6,158
	Difference	0	0	0	0	0
Fourth year	Supply totals	10,557	10,117	9,677	9,237	8,797
	Demand totals	10,557	10,117	9,677	9,237	8,797
	Difference	0	0	0	0	0
Fifth year	Supply totals	7,771	8,064	8,357	8,651	8,944
	Demand totals	7,771	8,064	8,357	8,651	8,944
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG) m** ust remain consistent throughout the UWMP as reported in Table 2-3.*						

NOTES: Since CCWA is a wholesale agency and is not required to make up for water shortages, the supplies will equal the demands in these drought years. These represent 5-year drought conditions from 1988-1992.

Submittal Table 8-1
Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions (*Narrative description*)
1	Up to 10%	Not applicable to CCWA. See UWMP Water Shortage Contingency Plan for more details
2	Up to 20%	
3	Up to 30%	
4	Up to 40%	
5	Up to 50%	
6	>50%	

NOTES:

Submittal Table 8-2: Demand Reduction Actions

Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				

NOTES: CCWA is a wholesale water agency and not reponsbile for demand management measures. See the Water Shortage Contingency Plan for more details.

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
All	Transfers	Varies based on availability and demand from member agencies	
All	Exchanges	Varies based on availability and demand from member agencies	
All	Other Purchases	Varies based on availability and demand from member agencies	
NOTES:			

Submittal Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☑	Supplier has notified more than 10 cities or counties in accordance with Water Code Sections 10621 (b) and 10642. **Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.**	
	Provide the page or location of this list in the UWMP.	
☐	Supplier has notified 10 or fewer cities or counties. **Complete the table below.**	
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Multiple, See Appendix C	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Santa Barbara County	Yes	Yes
San Luis Obispo County	Yes	Yes
NOTES:		

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX C – NOTICES AND PUBLIC OUTREACH MATERIALS

February 18, 2021

Subject: 60-Day Notification for Preparation of the 2020 Urban Water Management Plan for the Central Coast Water Authority.

Santa Barbara and San Luis Obispo County Stakeholders:

The Central Coast Water Authority (CCWA) is in the process of preparing an updated Urban Water Management Plan, as required under the Urban Water Management Plan Act (Act). The deadline for completing and adopting the final Urban Water Management Plan is July 1, 2021.

Water Code, Section 10621(b) of the Act requires CCWA to provide a 60 day advance notice regarding the preparation of its 2020 Urban Water Management Plan (Plan). This notice must be provided to any city or county that receives water from the Central Coast Water Authority. This letter constitutes CCWA's 60 day notice.

When a draft Plan is available for public review, a copy will be posted on our website (www.ccwa.com). A copy of the draft Plan will also be available for review at our office in Buellton, California, once available to the public. In addition, CCWA will hold a public workshops in late April or early May of this year and will make its draft Plan available to the public at least two weeks prior to the public workshops. A notice of these public workshops will be issued in advance, as required.

The public hearing to consider adoption of the final Plan will be held in late May or June, 2021. The hearing will take place at the CCWA Board room, located at 255 Industrial Way, Buellton, CA 93427-9565 or may be held via RingCentral Zoom should COVID19 mitigation measures remain in place at that time. A notice will be issued specifying the date, time and forum in advance of the hearing, as required.

If you have any questions, please call our office at (805) 688-2292.

Sincerely,

John Brady
Deputy Director
Central Coast Water Authority

255 Industrial Way
Buellton, CA 93427
(805) 688-2292
Fax (805) 686-4700
www.ccwa.com

First Name	Last Name	Org	Address	City	State	Zip
Jose	Acosta	SYCSD				
Cindy	Allen	Vandenberg Village CSD	3757 Constellation Rd.	Lompoc	CA	93440
Joe	Barget	Vandenberg Village CSD	3757 Constellation Rd.	Lompoc	CA	93436-
Bree	Belyea	Project Clean Water	123 East Anapamu	Santa Barbara	CA	
Ethan	Bertrand	IVCSD				
Bill	Brennen	consultant - syrwcd #1				
Bill	Buelow	SYRWCD				
Paul	Chounet	CCSD				
Sam	Cohen	SY Band of Chumash				
Dakota	Corey	City of Santa Barbara				
Rachel	Couch	Coastal Conservancy				
Lena	Cox	Goleta Sanitary District				
Jeff	Dameron	La Cumbre Mutual Water Co.	695 Via Tranquila	Santa Barbara	CA	93110-
Joel	Degner	COMB				
Ryan	Drake	Goleta Water District				
Bridget	Ellison	City of Solvang				
Jon	Frye	Santa Barbara County-Flood Control	123 E. Anapamu St	Santa Barbara	CA	93101
Maureen	Gaasch	City of Goleta	130 Cremona Drive, Suite 2	Goleta	CA	93117
Paeter	Garcia	ID #1				
Robert	Geis	IVCSD			CA	93117
Janet	Gingras	COMB				
Alexandra	Griffin	City of Santa Maria				
Rhonda	Gutierrez					
Terri	Stricklin	Casmalia CSD	P.O. Box 207	Casmalia	CA	93429-
Hillary	Hauser	Heal the Ocean	735 State Street #209	Santa Barbara	CA	93101
Jon	Hedges	IVCSD				
Rose	Hess	City of Buellton	201 Industrial Way, Suite A	Buellton	CA	93427
Natalie	Jordan	IVCSD				
Adam	Kanold	MWD				
Brenton	Kelly	Quail Springs				
Brian	King	CVWD				
Jefferson	Litten	3rd District				
Edward	Lyons	COMB				
Erin	Maker	City of Capinteria	5775 Carpinteria Avenue	Carpinteria	CA	93013
Mary	Martone	ID #1				
Bob	McDonald	Carpinteria Valley Water District	P.O. Box 578	Carpinteria	CA	93014
Zack	Moran	La Cumbre Mutual Water Company				
Craig	Murray	Carpinteria Sanitary District	5300 Sixth Street	Carpinteria	CA	93013
Mark	Nation	Goleta West Sanitary District	P.O. Box 4	Goleta	CA	93116
Melissa	Nelson	City of Goleta				
Kelly	Odion					
Doug	Pike	Los Olivos CSD				
Theresa	Romero	Santa Ynez Band of Chumash - Environmental staff				
Norma	Rosales	Carpinteria Valley Water District	P.O. Box 578	Carpinteria	CA	93014
Robert	Rosenbaum					
Shaun	Ryan	City of Lompoc (Water Superintendent)				
Michella	Sevilla	ASM Limon				
Jan	Smith					
Shannon	Stewart	Santa Ynez Community Services District	1095 Meadowvale Rd. #E	Santa Ynez	CA	93460
Shannon	Sweeney	City of Guadalupe				
Nick	Turner	MWD - General Manager				
Matt	Van der Linden	City of Solvang	P.O. Box 107	Solvang	CA	93464
Vivian	Vickery	Cuyama CSD	P.O. Box 368	New Cuyama	CA	93254-
Steve	Wagner	GSD	One William Moffett Place	Goleta	CA	93117
Brooke	Welch	GWD	4699 Hollister Ave	Goleta	CA	93117
Martin	Wilder	Santa Barbara County-Laguna Sanitation District	620 Foster Road	Santa Maria	CA	93455
Whitney	Wilkenson	SB County				
Michael	Winnewisser	City of Goleta				
James	Winslow	City of Goleta				
Perri	Wolfe					
Kristin	Worthley	City of Lompoc				
Matt	Young					
Mary	Zepeda					

NOTICE OF PUBLIC WORKSHOP AND PUBLIC HEARINGS

2020 URBAN WATER MANAGEMENT PLAN

The Central Coast Water Authority ("CCWA") has prepared its 2020 Urban Water Management Plan ("UWMP"), as encouraged by the Urban Water Management Planning Act ("Act"). Adoption of the 2020 UWMP by the CCWA Board of Directors is required under the Act by July 1, 2021.

While the Act only requires that an urban water supplier hold one public hearing before adopting a plan, in order to ensure sufficient opportunity for public feedback, input and suggestions concerning the 2020 UWMP, a public workshop has also been scheduled in advance of the Public Hearing to adopt the 2020 UWMP. Both the public workshop and hearing will take place via Zoom.

The public workshop will be held at 7:00 p.m. on Monday, June 14, 2021 via Zoom meeting at the following Link:

https://meetings.ringcentral.com/j/1448688589

Or Telephone: Dial +1(623)404-9000 Meeting ID: 144 868 8589

The public hearing will held at 9:00 a.m., on Thursday, June 24, 2021 via Zoom meeting at the following Link:

https://meetings.ringcentral.com/j/1493422285

Or Telephone: Dial +1(623)404-9000 Meeting ID: 149 342 2285

For additional information regarding the public hearings, please contact John Brady, CCWA Deputy Director at (805) 688-2292.

JUN 9, 15 / 2021 -- 57242

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX D – CCWA BOARD RESOLUTION

RESOLUTION NO. 21-03

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CENTRAL COAST WATER AUTHORITY ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN FOR THE CENTRAL COAST WATER AUTHORITY

WHEREAS, California Water Code Section 10610 et seq., known as the Urban Water Management Planning Act (Planning Act), requires urban water suppliers to prepare and adopt an Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) every five years on or before July 1, in years ending in six and one; and

WHEREAS, the Central Coast Water Authority (CCWA) is an urban water supplier, as defined by the Planning Act, because it is classified as a public water system by the California State Water Resources Control Board, Division of Drinking Water and it supplies more than 3,000 acre-feet of State Water Project water per year; and

WHEREAS, the Planning Act specifies the requirements and procedures for adopting UWMPs and WSCPs; and

WHEREAS, pursuant to the Planning Act, CCWA prepared a draft 2020 UWMP and draft WSCP which is included within the UWMP, in consultation with CCWA's project participants, to support long-term water resources planning in areas that include water demand forecasting, identification of local and imported supplies, and water shortage contingency planning; and

WHEREAS, CCWA provided notice and an opportunity to comment on the draft 2020 UWMP and draft WSCP through:

Sixty day notice posted on the CCWA website and e-mailed to all project participants February 22, 2021
Reduced Reliance Notice to all project participants dated March 24, 2021
Supply forecast letter to all project participants dated April 28, 2021
June 10, 2021 posting of the draft UWMP and draft WSCP on the CCWA website
Notice published in the Santa Barbara News Press on June 9, and June 15, 2021 for the Public Workshop and Public Hearing

WHEREAS, CCWA conducted one properly noticed public workshop regarding said draft 2020 UWMP and draft WSCP on June 14, 2021; and

WHEREAS, the CCWA conducted one properly noticed public hearing regarding said draft 2020 UWMP and draft WSCP on June 24, 2021; and

WHEREAS, pursuant to California Water Code section 10652, the preparation and adoption of an UWMP is exempt from the requirements of the California Environmental Quality Act (California Public Resources Code section 21000, et seq.).

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Central Coast Water Authority:

Section 1.

The foregoing recitals are true and correct, have been duly performed in conformity with the Planning Act and other applicable law, and constitute the findings and determinations of the Board.

Section 2.

The final 2020 UWMP, dated 6/23/2021, is approved and adopted.

The final 2020 WSCP, dated 6/23/2021, is approved and adopted.

Section 3.

The Executive Director is hereby directed to:

A. Submit the 2020 UWMP and WSCP to the California Department of Water Resources within 30 days of adoption and not later than July 1, 2021;

B. Submit a copy of the 2020 UWMP and WSCP to the California State Library, each CCWA Participant, the County of Santa Barbara and the County San Luis Obispo, not later than 30 days after adoption;

C. Make the 2020 UWMP and WSCP available for public review through the CCWA website as soon as practical after adoption; and

D. Implement the 2020 UWMP and WSCP consistent with applicable law and other formal actions of the Board.

The Executive Director is further directed to periodically review the 2020 UWMP and WSCP in accordance with applicable law and recommend to the Board amendments to the documents as may be appropriate as a result of such review.

Section 4.

This resolution is effective upon adoption.

I certify that the foregoing Resolution No. 21-03 was adopted by the Board of Directors of the Central Coast Water Authority at a meeting held June 24, 2021.

Eric Friedman, Chairman

Attest:

Elizabeth Watkins
Secretary to the Board of Directors

	VOTING PERCENTAGE	AYE	NAY	ABSTAIN	ABSENT
City of Buellton	2.21%	x			
Carpinteria Valley Water District	7.64%	x			
Goleta Water District	17.20%	x			
City of Guadalupe	1.15%				x
Montecito Water District	9.50%	x			
City of Santa Barbara	11.47%	x			
City of Santa Maria	43.19%	x			
Santa Ynez River Water Conservation District, Improvement District No. 1	7.64%	x			

APPROVED AS TO FORM:

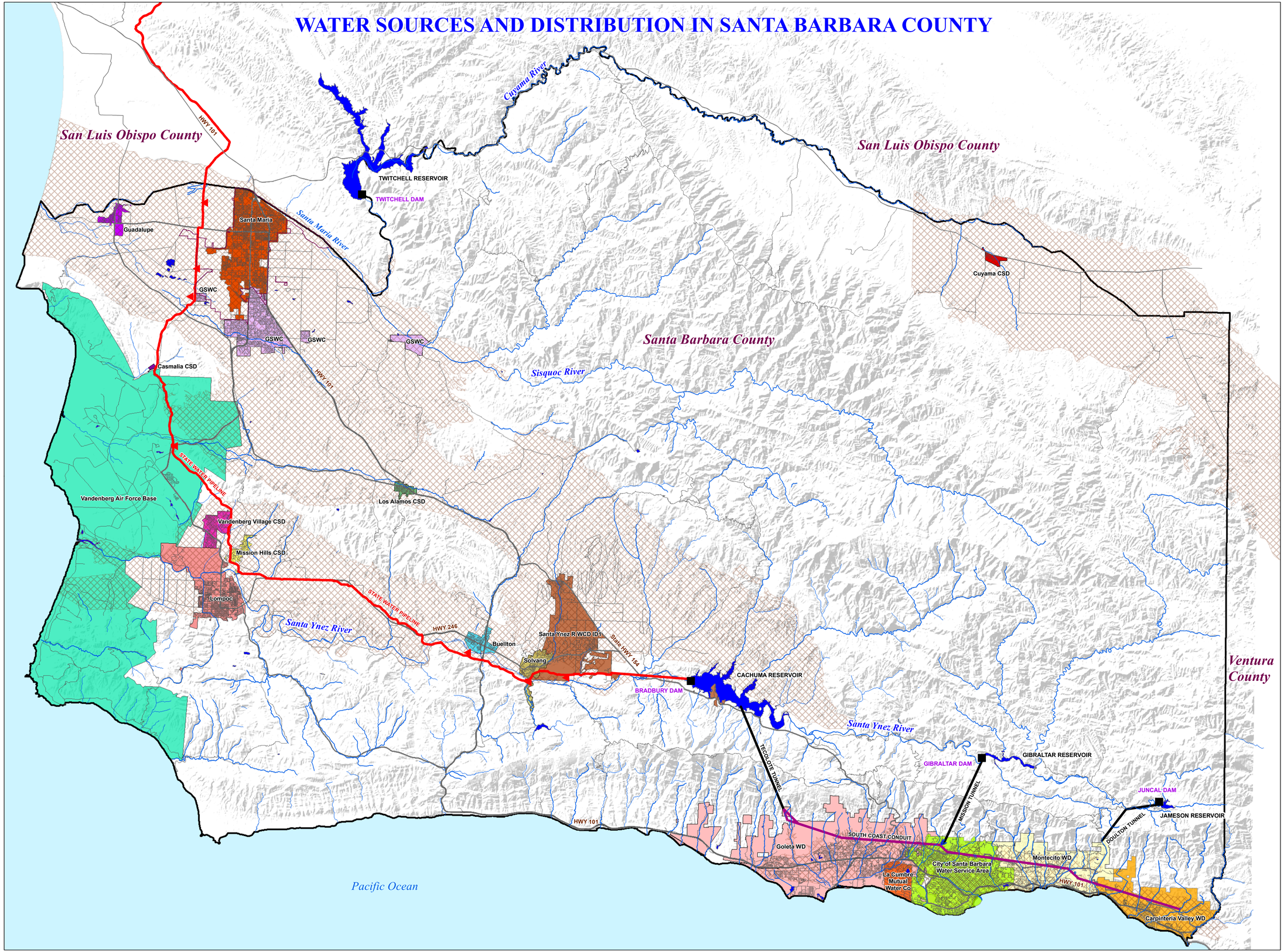
Brownstein Hyatt Farber Schreck LLP
General Counsel to the Central Coast Water Authority

Stephanie Osler Hastings

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX E – SERVICE AREA MAPS OF CCWA PARTICIPANTS

WATER SOURCES AND DISTRIBUTION IN SANTA BARBARA COUNTY



Department of Public Works
County of Santa Barbara

Legend

- Dams
- SWP Turnout
- City Boundary Line
- State Water Project Pipeline
- Rivers
- South Coast Conduit
- Tunnel
- Roads
- Highways Freeways
- Groundwater Basins
- Lakes & Reservoirs
- Casmalia CSD
- City of Santa Barbara Water Service Area
- County boundary
- Santa Maria
- Vandenberg Air Force Base
- La Cumbre Mutual Water Co
- Goleta WD
- Buellton
- Carpinteria Valley WD
- Cuyama CSD
- Guadalupe
- Lompoc
- Los Alamos CSD
- Mission Hills CSD
- Montecito WD
- Vandenberg Village CSD
- Golden State Water Co (GSWC)
- Solvang
- Santa Ynez R WCD ID1
- Pacific Ocean

N
W E
S

Miles
0 0.5 1 2 3 4

Coordinate System: State Plane California Zone V NAD 1983

WATER SOURCES AND DISTRIBUTION IN SANTA BARBARA COUNTY

Santa Barbara County, California

PUBLIC WORKS
ENTERPRISE GIS

Prepared By:
G. Reasty

Compiled by the Public Works Enterprise GIS in October 2012

Santa Barbara Flood Control and Water Conservation District

Compiled by the Office of the County Surveyor in September of 2007

Legend

- Parcel Boundary
- Annexation
- Detachment
- Formation

N

W E

S

GRAPHIC SCALE

0 2.5 5 10 15 20

Miles

City of Guadalupe

Compiled by the Office of the County Surveyor in December of 2010. Incorporated 8/3/1946 by County Res. 6769. Last Action: Gowing Reorg., LAFCO 07-10, 11/13/2007. Sphere: 11/4/2010. See boundary activity table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

GRAPHIC SCALE

0 0.125 0.25 0.5

Miles

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Ranchos and Townships
- County Boundary
- City Boundary
- Sphere of Influence
- Annexation
- Incorporation
- Detachment

City of Guadalupe Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

InternalNo	Title	Type	Effective	County_Res	City_Ord	City_Res	City_Date	LAFCO_Res	LAFCO_Date	Instrument	Recorded
0	Incorporation of the City of Guadalupe	Formation	8/3/1946	6769						32/177-179	
1	Ordinance No. 45	Annexation	3/19/1951		45		3/19/1951				
2	Ordinance No. 55	Annexation	9/24/1956		55						
3	Annexation No. 3	Annexation	5/31/1960								
4	Annexation No. 4	Annexation	1/26/1961		71		12/27/1960				
5	Annexation No. 5	Annexation	8/7/1963		88	6769	7/8/1963				
6	Pioneer Street Annexaton No. 1	Annexation	12/5/1974			432		1974-385	12/5/1974		
7	Sewer Lift Station	Annexation	3/31/1975			433	2/7/1975	1974-386			
8	El Club Comote Civico Mexicano de Guadalupe	Annexation	3/28/1980			554		1979-533	4/2/1982	1980-0012905	3/28/1980
9	Annexation No. 6, Wastewater Treatment Plant	Annexation	11/29/1988		88-846			1988-774	11/18/1988	1988-0076520	11/29/1988
10	DJ Farms Reorganization	Annexation	6/5/1995			95-05	5/11/1995	1993-14	5/23/1995	1995-0030210	6/8/1995
11	Jasco Reorganization	Annexation	8/5/2004					2003-11	9/4/2004	2004-0111676	10/20/2004
12	Gowing Reorganization	Annexation	11/13/2007					2007-10	11/13/2007	2007-0078906	11/13/2007
	City of Guadalupe Sphere of Influence	SOI	11/4/2010						11/4/2010		

City of Santa Maria

Compiled by the Office of the County Surveyor in December of 2011.
Incorporated 9/18/1905, Board of Supervisors Minute Book J/ 150-152.
Last Action: 106, Wastewater Treatment Plant Reorg., LAFCO 07-08, 10/5/2007.
Sphere: 11/4/2010. See Boundary Activity Table at
http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

A missing number means no completion information was found for a proposed boundary change.
NOTICE OF DISCLAIMER: This data is for reference only. Although every effort has been made to ensure the accuracy of information, errors and conditions originating from physical sources used to develop the database may be reflected in this data. Santa Barbara County shall not be liable for any errors, omissions, or damages that result from inappropriate use of this document. No level of accuracy is claimed for the boundary lines shown hereon and lines should not be used to obtain coordinate values, bearings or distances.

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Ranchos and Townships
- County Boundary
- City Boundary
- Sphere of Influence
- Annexation
- Incorporation
- Detachment

GRAPHIC SCALE
0 0.25 0.5 1 1.5 2
Miles

City of Santa Maria Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

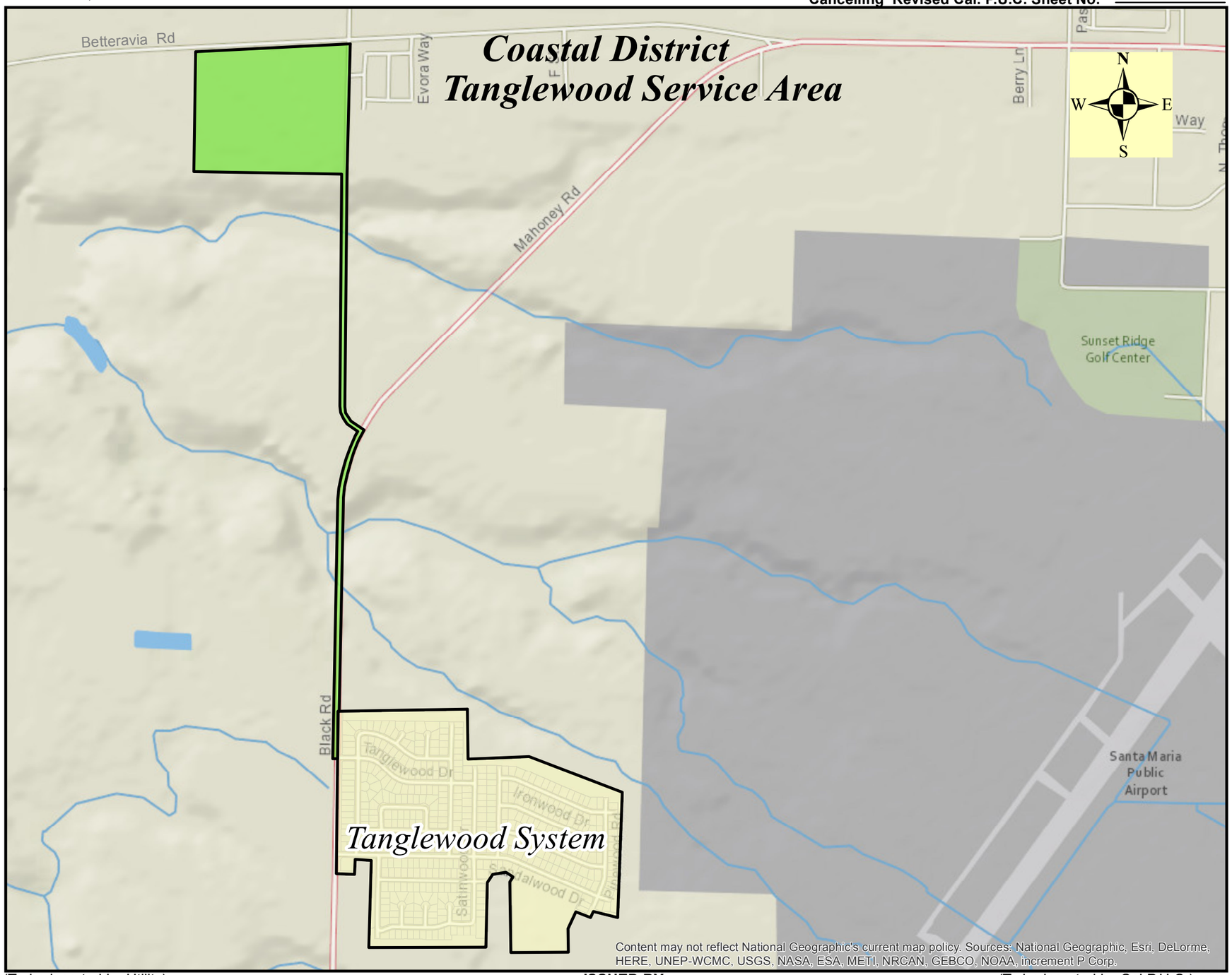
InternalNo	Title	Type	Effective	City_Ord	City_Res	City_Date	County_Res	LAFCO_Res	LAFCO_Date	Instrument	Recorded	State_Date
0	Incorporation of the City of Santa Maria	Formation	9/18/1905							BOS Min. J 150		
1	S. M. Freezer	Annexation	7/16/1956	340		7/16/1956						
2	La Brea Securities	Annexation	7/15/1957	354		7/15/1957						
3	Driver Co.	Annexation	3/15/1958	368		3/15/1958						
4	Sewer Plant	Annexation	3/17/1958				17704					
5	Enos	Annexation	10/24/1958	378		10/24/1958						
6	Porter (Stowell)	Annexation	11/5/1958	382		11/5/1958						
7	Ray Hommes Dev. Co. (Donovan)	Annexation	3/2/1959	384		3/2/1959						
8	Diani Hanson	Annexation	4/6/1959	389		4/6/1959						
9	Enos	Annexation	2/16/1959	390		2/16/1959						
10	Thompson (Holcomb)	Annexation	2/16/1959	392		2/16/1959						
11	Maria Vista (Pasquini)	Annexation	3/23/1959	396		3/23/1959						
12	Pace - Paige	Annexation	1/16/1961	413		1/16/1961						
13	EB Taylor Estate (No Park.)	Annexation	7/27/1959	405		7/27/1959						
14	Porter - Ruiz	Annexation	4/4/1960	428		4/4/1960						
15	Airport	Annexation	7/18/1960	445		7/18/1960						
17	Enos	Annexation	3/7/1960	431		3/7/1960						
18	Mahoney	Annexation	8/15/1960	436		8/15/1960						
19	Cortez Land and Mortgage Co.	Annexation	2/6/1961	463		2/6/1961						
20	Thompson Associates	Annexation	7/17/1961	472		7/17/1961						
21	Newlove	Annexation	9/18/1961	492		9/18/1961						
23	Mayer Tract	Annexation	9/4/1962	546		9/4/1962						
24	City Dump	Annexation	8/7/1961	481		8/7/1961						
26	Pasquini	Annexation	1/22/1962	510		1/22/1962						
27	Cossa (East Gate)	Annexation	11/20/1961	502		11/20/1961						
28	Freeway R/W (Sec. 12)	Annexation	3/5/1962	513		3/5/1962						
29	Bognuda	Annexation	4/24/1962	517		4/24/1962						
30	S. Counties Gas Co.	Annexation	4/2/1962	518		4/2/1962						
31	Cemetery Association	Annexation	7/16/1962	523		7/16/1962						
32	McCoy	Annexation	6/4/1962	530		6/4/1962						
33	South Side of E. Stowell Rd. and Vicinity	Annexation	6/18/1962	532		6/18/1962						
34	Machado	Annexation	8/20/1962	533		8/20/1962						
35	Suey Iliff	Annexation	4/1/1963	564		4/1/1963						
36	Theo Holcomb	Annexation	7/24/1962	538		7/24/1962						
39	South Bradley Road (Jones to Stowell)	Annexation	11/5/1962	551		11/5/1962						
40	Bob Roberts and Aguirre	Annexation	1/21/1963	554		1/21/1963						
48	Petrolane Gas	Annexation	1/17/1964	589		1/17/1964						
53	Airport (SMPA2), et al	Annexation	3/31/1967	659		3/31/1967		17	6/23/1966			
54	Viking AFCO (Iverson)	Annexation	8/1/1966		2442	8/1/1966						

InternalNo	Title	Type	Effective	City_Ord	City_Res	City_Date	County_Res	LAFCO_Res	LAFCO_Date	Instrument	Recorded	State_Date
55	Skyway Drive Annex (SMPA)	Annexation	12/17/1976	1976-879		11/2/1976				1976-0054319	12/17/1976	
56	"A" Street	Annexation	12/27/1977		1977-444	8/2/1977		1976-445		1977-0063359	12/27/1977	
57	Foster Road	Annexation	12/27/1977		1977-4446	12/6/1977		1977-469	6/1/1977	1977-0063357	12/27/1977	
58	Sander Mobile Home Park	Annexation	9/9/1970	746		9/9/1970		1970-205	7/9/1970			
60	Suey Disposal Site	Annexation	11/20/1972		3395	11/20/1972		1972-319	10/26/1972			
61	Columbia Broadcasting System	Annexation	11/20/1972		3383	11/20/1972		310	9/28/1972			
62	Suey Crossing	Annexation	11/11/1977	1977-907		6/7/1977		1976-412	1/8/1976	1977-0056586	11/11/1977	12/12/1977
63	Country Club	Annexation	5/5/1975		3898	4/1/1975		1975-391	2/27/1975	1975-0015095		5/5/1975
65	Mahoney	Annexation	12/28/1977	1977-924		11/1/1977		1977-472	7/28/1977	1977-0063659	12/28/1977	1/11/1978
67	Pertusi	Annexation	12/17/1976	1976-881		12/16/1976				1976-0054320	12/17/1976	
68	Libeu	Annexation	6/15/1979		1979-4804	7/15/1979		1979-526	5/24/1979	1979-0027232	6/15/1979	7/5/1979
69	Kerr Hall Hurly Deutsch (SB Research)	Annexation	7/14/1982		1982-416	6/22/1982				1982-0029007	7/14/1982	7/28/1982
71	Hidden Pines	Annexation	3/17/1987		1986-190	12/16/1986		1986-738	11/13/1986	1987-0019714	3/17/1987	5/5/1987
73	First Christian Church	Annexation	5/13/1987		1987-44	4/7/1987		1987-745	2/26/1987	1987-0035655	5/13/1987	7/14/1987
77	Jeff White ("A" Street)	Annexation	9/27/1989		1989-112	9/19/1989		1989-793	6/15/1989	1989-0064342	9/27/1989	10/27/1989
78	Foxenwoods	Annexation	12/5/1990		1990-146	11/20/1990		1990-804	9/6/1990	1990-0077404	12/5/1990	1/18/1991
80	Robinson Helicopter Co.	Annexation	2/10/1992		1992-03	2/5/1992		1991-828	12/5/1991	1992-0008884	2/10/1992	3/5/1992
81	Hidden Pines Estates Reorg.	Annexation	5/7/1992		1991-191	12/17/1991		1991-826	11/7/1991	1992-0034516	5/7/1992	01920605
82	Hidden Pines Reorg. (Cherry Blossom)	Annexation	12/27/1994		1994-204	11/15/1994				1994-0092336	12/27/1994	
83	Hidden Pines II/Riverside MHP Reorg.	Annexation	7/29/1992		1992-72	6/2/1992		1992-835	5/7/1992	1992-0058964	7/29/1992	8/31/1992
84	Old Country Club Estates	Annexation	9/15/1993		1993-114	9/9/1993		1992-02	6/10/1993	1994-0018617	3/3/1994	
85	West Main Reorg.	Annexation	10/24/1994		1994-160	8/16/1994				1994-0079390	10/24/1994	
86	Blosser Southeast Reorg.	Annexation	12/30/1994		1994-205					1994-0093861	12/30/1994	
87	Blosser Southwest Reorg.	Annexation	12/27/1994		1994-206	11/15/1994				1994-0092337	12/27/1994	
89	West Stowell Reorg.	Annexation	9/30/1994		1994-161	8/16/1994				1994-0074841	9/30/1994	
90	Entrada Este Reorg.	Annexation	12/27/1994		1994-207	11/15/1994				1994-0092335	12/27/1994	
91	Sur Del Rio Reorg.	Annexation	7/24/1995		1995-93	7/17/1995		1993-04	8/18/1994	1995-0039890	7/24/1995	
93	Sur Del Rio Reorg. (Costco/Carls)	Annexation	7/24/1995		1995-93	7/17/1995		1993-04	8/18/1994	1995-0039890	7/24/1995	
95	Refiled Bradley Land Co. Reorg.	Annexation	7/24/2000					2000-01	2/3/2000	2000-0044768	7/24/2000	
96	City Wastewater Treatment Plant Reorg.	Annexation	12/3/1999					1999-13	10/7/1999	1999-0094776	12/3/1999	
96	City Wastewater Treatment Plant Reorg.	Detachment	12/3/1999					1999-13	10/7/1999	1999-0094776	12/3/1999	
97	North Preisker Ranch Reorg.	Annexation	3/16/2000					1999-06	8/5/1999	2000-0015587	3/16/2000	
99	Robinson Annex	Annexation	4/12/2004					2002-15	2/6/2003	2004-0036513	4/12/2004	
100A	Santa Maria Cemetery Reorg.	Annexation	11/19/2003					2002-18	9/4/2003	2003-0158428	11/19/2003	
100	Enos-[Buss] Ranchos Reorg.	Annexation	8/7/2008					2008-04	7/3/2008	2008-0046995	8/7/2008	
102	Refiled Mahoney Ranch Annex	Annexation	11/9/2004					2003-05	3/4/2004	2004-0119171	11/9/2004	
103	Black Road Reorg.	Annexation	11/23/2004					2004-01	9/17/2004	2004-0124282	11/23/2004	
104	Hagerman Sports Complex (CSM)	Annexation	7/14/2006					2005-17	12/1/2005	2006-0055703	7/14/2006	
105	Quail Run Reorg. (ADAM)	Annexation	1/28/2008					2007-11	12/28/2007	2008-0004886	1/28/2008	
106	Wastewater Treatment Plant Reorg.	Annexation	10/5/2007					2007-08	9/6/2007	2007-0071432	10/5/2007	
	City of Santa Maria Sphere of Influence	SOI	2/2/2006						2/2/2006			

GOLDEN STATE WATER COMPANY (U 133 W)
630 EAST FOOTHILL BOULEVARD
SAN DIMAS, CALIFORNIA 91773

Revised Cal. P.U.C. Sheet No. 7429-W
Cancelling Revised Cal. P.U.C. Sheet No. 5258-W

Coastal District
Tanglewood Service Area



California Vicinity Map

SHOWING TERRITORY WITHIN WHICH DULY ESTABLISHED AND REGULARLY FILLED TARIFF SCHEDULES APPLICABLE TO WATER SERVICE ARE IN EFFECT

This map shall not be considered by the Public Utilities Commission of the State of California or any other public body as a final or conclusive determination or establishment of the dedicated area of service, or any portion thereof.

Indicates Existing Service Area

Indicates Service Area Added by the Filing of this Map

Golden State Water Company
A Subsidiary of American States Water Company

(To be inserted by Utility)
Advice Letter No. 1651-W
Decision No._____

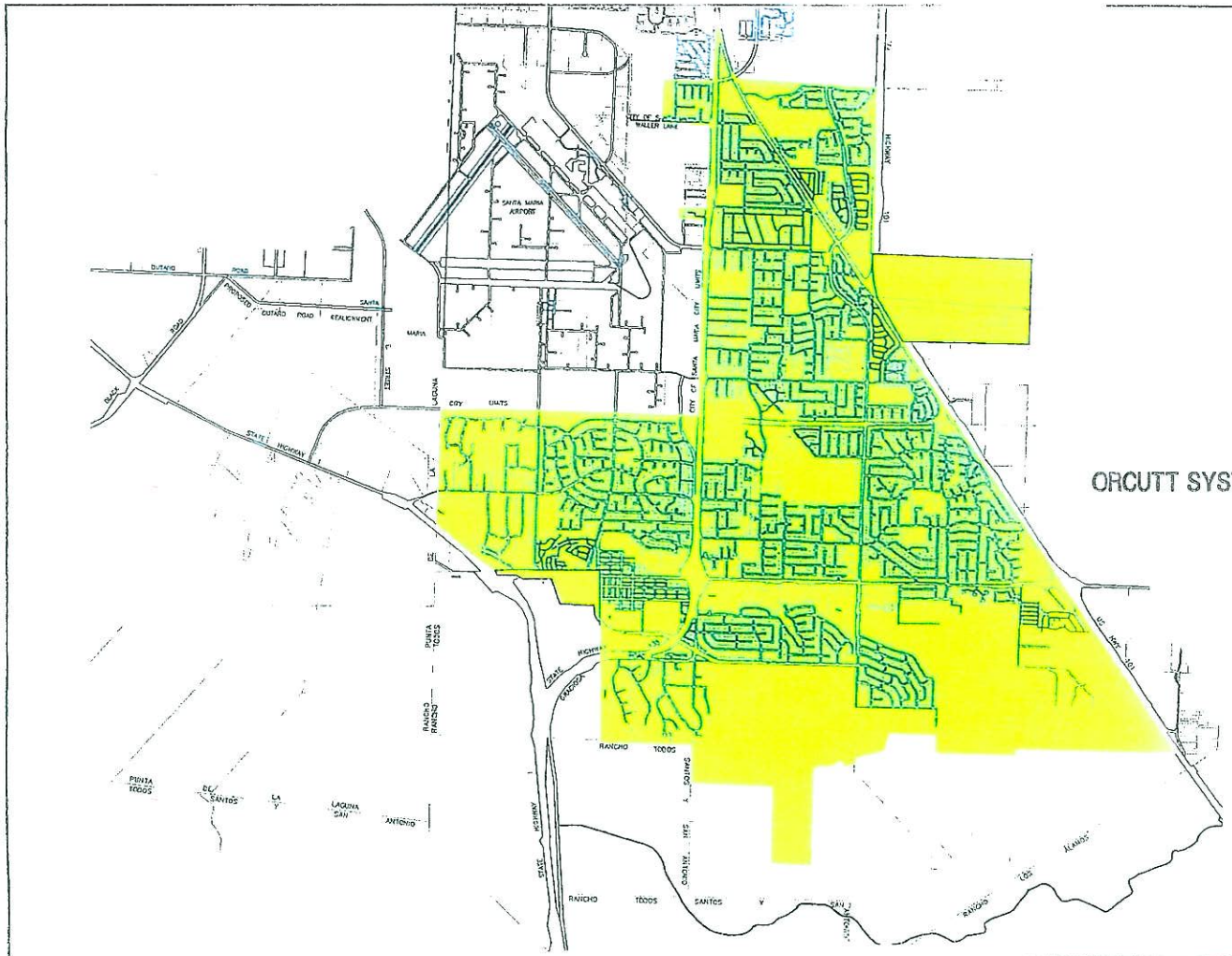
ISSUED BY
R.J. SPROWLS
PRESIDENT

(To be inserted by Cal P.U.C.)
Date Filed: February 22, 2016
Effective: March 23, 2016
Resolution No._____

GOLDEN STATE WATER COMPANY
630 E. FOOTHILL BLVD. P. O. BOX 9016
SAN DIMAS, CALIFORNIA 91773-9016

Revised Cal. P.U.C. Sheet No. 5558-W

Canceling Revised Cal. P.U.C. Sheet No. 5256-W



COASTAL DISTRICT
SANTA MARIA SERVICE AREA

Indicates Existing Service Area

ORCUTT SYSTEM

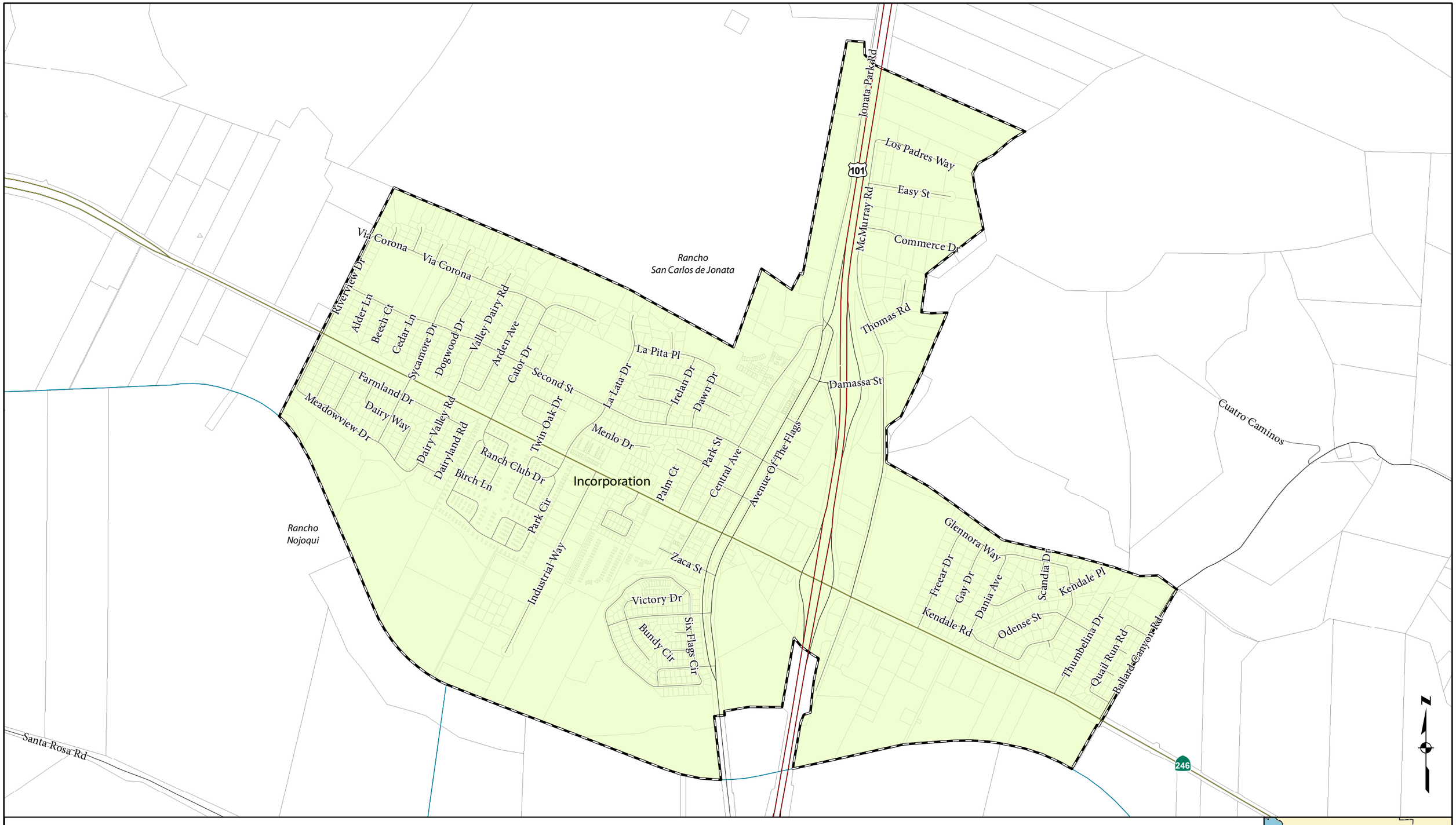
This map shall not be considered by the Public Utilities Commission of the State of California or any other public body as a final or conclusive determination of establishment of the dedicated area of service, or any portion thereof.

SHOWING TERRITORY WITHIN WHICH DULY ESTABLISHED AND REGULARLY FILED TARIFF SCHEDULES APPLICABLE TO WATER SERVICE ARE IN EFFECT

ISSUED BY
R. J. SPROWLS
President

(To be inserted by Cal. P.U.C.)
Date Filed MAR 20 2009
Effective Date MAR 27 2009
Resolution No.

Advice Letter No. 1322-W
Decision No.



City of Buellton

Compiled by the Office of the County Surveyor in December of 2010. Incorporated 2/1/1992 by 1991-0081535, Official Records of Santa Barbara County. Sphere: 11/4/2010. Boundary activity table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

GRAPHIC SCALE

0 0.1 0.2 0.4

Miles

Legend

- Freeways
- Highways
- Roads
- Ranchos and Townships
- City Boundary
- Sections
- Parcels
- Sphere of Influence
- Annexation
- Incorporation
- Detachment

City of Buellton Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

InternalNo	Title	Type	Effective	County_Res	LAFCO_Res	LAFCO_No	Instrument	Recorded
0	City of Buellton Incorporation	Formation	2/1/1992	1991-676	1991-821	1990-R-01	1991-0081535	12/5/1991
	City of Buellton Sphere of Influence	SOI	11/4/2010					

City of Solvang

Compiled by the Office of the County Surveyor in June of 2010.
Incorporated 12/17/1984, by 1984-0066853, Official Records.
Last Action: Seltzer Modification, LAFCO 05-14, 9/1/2005.
Sphere: 11/4/2010. See boundary activity table at
http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Ranchos and Townships
- City Boundary
- Sphere of Influence
- Annexation
- Incorporation
- Detachment

GRAPHIC SCALE

0 0.125 0.25 0.5 0.75 1

Miles

Vicinity Map - Not to scale

City of Solvang Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

InternalNo	Title	Type	Effective	County_Res	LAFCO_Res	LAFCO_No	LAFCO_Date	Instrument	Recorded
0	Incorporation of Solvang 1985	Formation	5/1/1985	1984-560	1984-667	1982-R-01	4/19/1984	1984-0066853	12/17/1984
1	Shley Reorg	Annexation	8/9/1995		1995-01	1995-01	4/12/1995	1995-0043869	8/9/1995
2	Triangle Park Reorganization	Annexation	10/20/2005		2004-08	2004-08	12/16/2004	2005-0102320	10/20/2005
3	Seltzer Modification	OOASA	9/1/2005		2005-14	2005-14	9/1/2005		
	City of Solvang Sphere of Influence	SOI	4/6/2006				4/6/2006		

Santa Ynez River Water Conservation District

Improvement District No. 1

Compiled by the Office of the County Surveyor in April of 2012. Formed by Santa Ynez River Water Conservation District Board of Directors Resolution 103, Recorded 7/20/1961. Last Action: 15, Schley Annexation, SYRWCDID1 Board Resolution 526, Adopted 6/6/1995. Shprere: 4/5/2012. See Boundary Activity Table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

GRAPHIC SCALE

0 0.5 1 2

Miles

Legend

- Freeways
- Highways
- Roads
- Santa Ynez River
- Parcels
- Sections
- Los Padres National Forest
- City Boundaries
- Lake Cachuma
- Annexation
- Formation
- Detachment
- Sphere of Influence

Vicinity Map - Not to scale

Santa Ynez River Water Conservation District Improvement District No. 1

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

InternalNo	Title	Type	BOS_Date	Dist_Number	District_Res	District_Date	LAFCO_No	LAFCO_Res	LAFCO_Date	Instrument	Recorded	Equalization_Secretary_of_State
0	Formation	Formation			103	7/7/1959						
1	Los Olivos Area, A	Annexation			280	10/3/1963				2017/393-412	10/16/1963	
2	Los Olivos Area, B	Annexation			280	10/3/1963				2017/393-412	10/16/1963	
3	Gainey Ranch	Detachment		1964-1	303	12/18/1964				2093/942-953	3/1/1965	
4	Refugio Road Area	Annexation		1965-1	317, 319	2/3/1966				2146/1378-1400	4/7/1966	
5	Sides Property	Annexation		1965-2	317, 319	2/3/1966				2146/1378-1400	4/7/1966	
6	Hansen Property	Annexation		1965-3	317, 319	2/3/1966				2146/1378-1400	4/7/1966	
7	SMID No. 4 Area	Annexation		1965-4	318, 320	2/3/1966				2146/1401-1413	4/7/1966	
8	SMID No. 9 Area	Annexation		1965-5	318, 320	2/3/1966				2146/1401-1413	4/7/1966	
9	SMID Fredensborg Area	Annexation		1967-1	1967-11	10/13/1967						11/1/1967
10	SMID 1970-1 Area	Annexation	5/7/1973		356	7/8/1970						
11	Alisal Ranch	Annexation		1972-1	367, 370	7/27/1972						
12	Stewart	Annexation		1981-1	424, 426	9/30/1981						
13	Osborne	Annexation		1981-2	425, 427	9/30/1981						
14	Cachuma Park	Annexation		1983-1	291,449	12/13/1983	83-AD-6	83-643	10/30/1983	1983-0053181	10/4/1983	10/17/1983
15	Schley Annex 1995-1	Annexation		1995-1	526	6/6/1995						
		SOI							4/5/2012			

Goleta Water District

Compiled by the Office of the County Surveyor on 10/17/2015.
Last Action: 55, Cieneguitas Reorganization, LAFCO 12-04, recorded 12/6/2012. Sphere: 3/1/2012.
See Boundary Activity Table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

GRAPHIC SCALE
0 0.5 1 2
Miles

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Land Grants and Townships
- Los Padres National Forest
- City Boundaries
- Sphere of Influence
- Formation
- Annexation
- Detachment

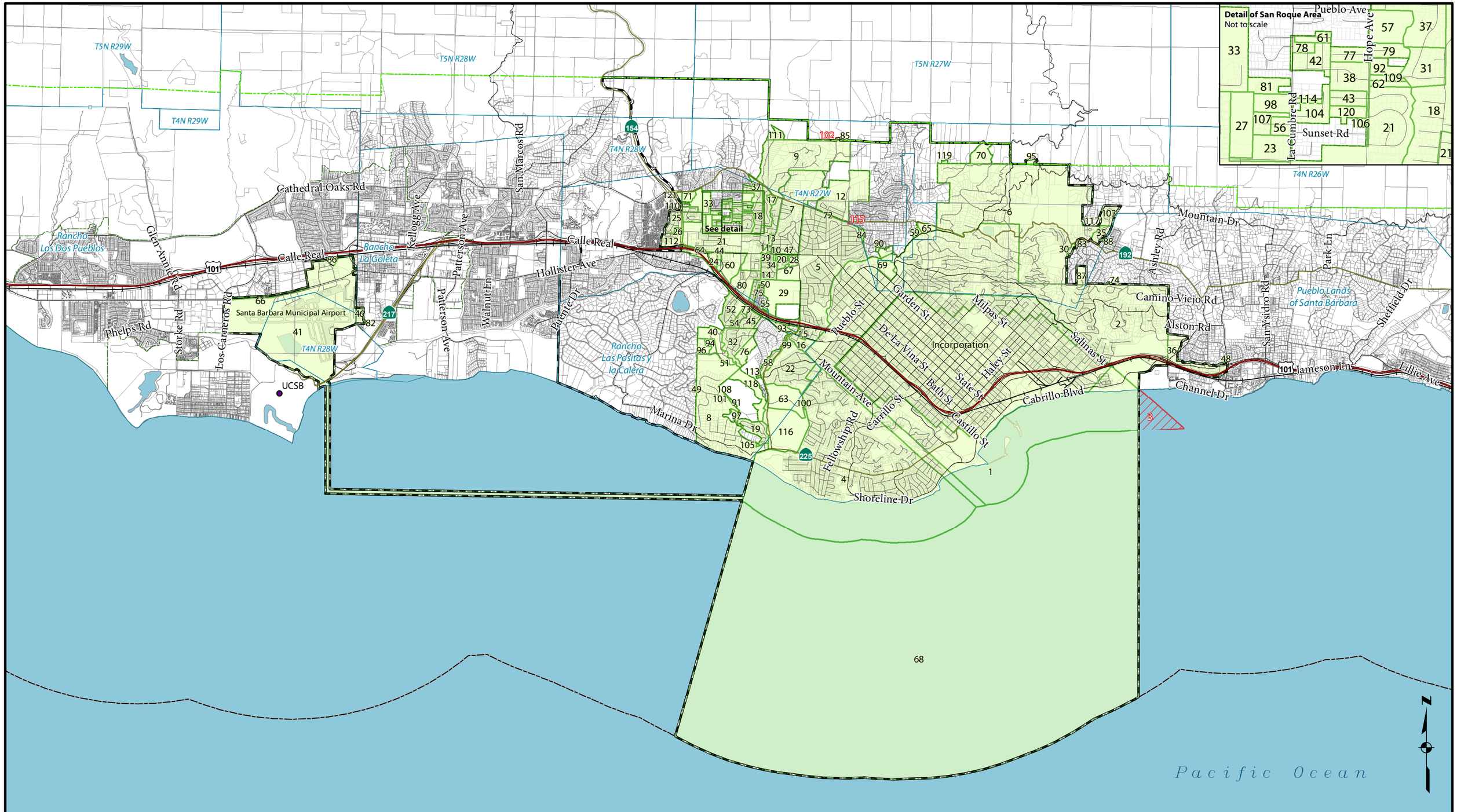
Vicinity Map - Not to scale

Goleta Water District Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

InternalNo	Title	Type	Effective	County_Res	County_DT	Ord	Dist_Res	LAFCO_Res	LAFCO_No	Instrument	Recorded
0	Goleta County Water District Formation	Formation	11/13/1944		11/13/1944						
1	George W. Smith and Bird S. Smith	Annexation	7/2/1954	14096	7/2/1954	Ord. #2	126				
2	Oluf O. Hove, et al. Annexation	Annexation	7/2/1954	14096	7/2/1954	Ord. #2	126				
3	San Roque Exclusion	Detachment	1/24/1955	14096			116, 126			1282/0180-0183	1/24/1955
4	Ruth D. Ehrenborg Annexation	Annexation	11/27/1955	15170	11/27/1955	Ord. #3					
5	Esther H. Marchiando Et Al. Annexation	Annexation	5/23/1955	15170		Ord. #4				1613/0018-0024	5/23/1955
6	Horace F. Pierce	Annexation	10/15/1956	16387	10/15/1956	Ord. #5					
7	George W. Smith Et Ux. Annexation	Annexation	10/10/1956	16387	10/10/1956	Ord. #6					
8	Henry J. Kuzen Annexation	Annexation	11/29/1956	16387	11/29/1956	Ord. #7					
9	Eleanor S. Parker, Et Al. Annexation	Annexation	12/24/1956	16387	12/24/1956	Ord. #8					
10	T. Scudelari Annexation	Annexation	11/29/1956	16387	11/29/1956	Ord. #9					
11	Ann and Nathaniel Perkoff Annexation	Annexation	5/23/1957	17552	5/23/1957	Ord. #11	237				
12	Edwards Et Al. Annexation	Annexation	5/23/1957	17552		Ord. #10	209, 237			1652/0514-0522, 1652/0523-0533	5/23/1957
13	Sharky Et Al. Annexation	Annexation	5/21/1959			Ord. #12					
14	La Patera Land Company	Annexation	7/21/1960	21098	7/21/1960	Ord. #13	365, 404, 405, 426				
15	Charlotte W. Anderson Et Al. Annexation	Annexation	10/12/1960	21098	10/12/1960	Ord. #13	404, 405, 426				
16	So. Cal. Edison Company Annexation	Annexation	9/13/1962	22850	9/13/1962	Ord. #14	519				
17	Henry L. Mertz Et Al. Detachment	Detachment	1/17/1963	23746		Ord. #14A				1977/0759-0765	1/17/1963
18	Horace F. & Shirley H. Pierce Annexation	Annexation	11/21/1963	23746		Ord. #15				2022/0872-0877	11/21/1963
19	De Loreto Exclusion	Detachment	3/24/1966	1966-663			586	1966-05		2146/0968-0977	3/24/1966
20	Hidden Valley Estates, et. al. (Hope Area)	Detachment	4/15/1966	1966-663			589	1966-06		2149/0093-0110	4/15/1966
21	Plaza Felipe Subdivision	Detachment	12/16/1968	1968-676			618, 621	1967-58		2225/0829-0838	12/16/1968
22	Prevedello-Lasarzig et al withdrawal	Detachment	2/6/1969				634	1968-109		2262/0435-0445	2/6/1969
23	Bel-Air Knolls	Detachment	11/14/1969				649	1969-175		2290/0673-0682	11/14/1969
24	El Capitan Ranch Annex.	Annexation	10/22/1970				664	1970-219		2330/0886-0902	10/22/1970
25	Cavalletto Property Annex.	Annexation	12/6/1972				699	1972-293		2434/1460-1471	12/6/1972
26	Reino Land Company Inc. Property Reorg.	Detachment	8/16/1982					1982-616	1981-AC-02	1982-0034183	8/16/1982
27	City of Santa Barbara Proceedings, Parcel 2, Detach.	Detachment	7/23/1983				1983-13	1983-642	1983-DD-01	1983-0037200	7/23/1983
27	City of Santa Barbara Proceedings, Parcel 1, Detach.	Detachment	7/23/1983				1983-13	1983-642	1983-DD-01	1983-0037200	7/23/1983
28	Portion of APN 47-010-43 (Fard & Cambell) Reorg.	Detachment	9/27/1983					1983-648	1983-AC-02	1983-0057795	9/27/1983
29	Tatjes Property Reorg.	Detachment	9/4/1984					1984-664	1983-AC-04	1984-0048035	9/4/1984
30	El Capitan Ranch Detachment	Detachment	10/11/1984				1984-14	1981-595	1981-DD-01	1984-0055526	10/11/1984
31	Kirkhart & Ozolins Property (Modoc Rd Condos) Reorg.	Detachment	11/1/1984					1984-663	1983-AC-03	1984-0059471	11/1/1984
32	Valle Verde Property Reorg.	Detachment	11/8/1984				1984-184	1984-681	1984-AC-02	1984-0067876	11/8/1984
33	Rutherford Property Reorg.	Detachment	6/27/1986				1986-105	1985-704	1985-AC-05	1986-0038606	6/27/1986
34	Nichols Property Reorg.	Detachment	6/8/1987					1986-734	1986-R-02	1987-0042369	6/8/1987

InternalNo	Title	Type	Effective	County_Res	County_DT	Ord	Dist_Res	LAFCO_Res	LAFCO_No	Instrument	Recorded
35	Feazelle	Detachment	7/13/1987					1986-732		1987-0052422	7/13/1987
36	APN 49-150-47 Reorganization	Detachment	1/11/1988					1987-754		1988-0001665	1/11/1988
37	Elbek (Jesuit Property) Reorganization	Detachment	1/26/1988					1986-743		1988-0004999	1/26/1988
38	Markel Reorganization	Detachment	4/19/1988					1988-766		1988-0022828	4/19/1988
39	Towbes Reorganization	Detachment	6/11/1996					1994-22		1996-0035858	6/11/1996
40	Morgan Reorganization	Detachment	2/4/1997				1996-138	1995-16		1997-0006130	2/4/1997
41	Cantor Reorg. Part 1	Detachment	9/4/1997					1997-07		1997-0056661	9/4/1997
42	Carey Reorg	Detachment	12/8/1998				1998-150	1998-07		1998-0095550	12/8/1998
43	Compton Reorg.	Detachment	12/24/1998				1998-159	1998-08		1998-0100683	12/24/1998
44	Investec Reorganization	Detachment	7/19/2000					2000-10		2000-0044014	7/19/2000
45	Cantor Reorg Part 2	Detachment	7/25/2000					1997-07		2000-0044976	7/25/2000
46	Northridge Reorganization	Detachment	1/11/2001					2000-24		2001-0002894	1/11/2001
47	St Vincents Reorg.	Detachment	10/24/2002					2002-09		2002-0107674	10/24/2002
48	Kennedy Reorg.	Detachment	10/21/2003					2003-08		2003-0145552	10/21/2003
49	Hart Reorg.	Detachment	8/16/2005					2004-10		2005-0078552	8/16/2005
50	Las Positas Reorganization	Detachment	4/7/2008					2006-06		2008-0019858	4/7/2008
51	Dos Pueblos Golf Links Reorganization	Annexation	8/11/2008					1998-11		2008-0047472	8/11/2008
52	Veronica Meadows Reorganization	Detachment	7/14/2009					2007-12		2009-0042221	7/14/2009
53	Las Canoas Reorganization	Detachment	9/7/2010					2009-08		2010-0048697	9/7/2010
54	Hope Avenue Reorganization	Detachment	8/6/2012					2012-03		2012-0051116	8/6/2012
55	Cieneguitas Reorganization	Detachment	12/6/2012					2012-04		2012-0083507	12/6/2012
	Goleta County Water District Sphere of Influence	SOI	3/1/2012								3/1/2012



City of Santa Barbara

Compiled by the Office of the County Surveyor on 08/05/2013. Incorporated April, 1850.
Last Action: Cieneguitas Reorganization, LAFCO 12-04, 12/6/2012. Sphere updated with no changes: 2/3/2011.
See boundary activity table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

GRAPHIC SCALE
0 0.25 0.5 1 1.5
Miles

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- City Boundary
- Sections
- Ranchos and Townships
- County Boundary
- Los Padres National Forest
- Sphere of Influence
- Annexation
- Incorporation
- Detachment

City of Santa Barbara Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=5118

InternalNo	Title	Type	Effective	City_Ord	City_Res	City_Date	County_Res	LAFCO_Res	LAFCO_No	LAFCO_Date	Instrument	Recorded
0	Haley - Official Maps 1 & 2	Formation	8/9/1855	7								
1	City Charter Article I	Annexation	4/4/1898			4/4/1898						
2	city boundary	Annexation	9/21/1915	454		10/21/1903						
3	Line Change statute of 1917 (Elmer L. Jones)	Detachment	1/1/1917			1/1/1917						
4	Mesa Annexation, Territory No.1	Annexation	5/6/1921	1066		5/6/1921						
5	Pedregosa Annexation, Territory No.2	Annexation	5/6/1921	1066		5/6/1921						
6	Las Canoas, Territory No.3	Annexation	5/6/1921	1066		5/6/1921						
7	City Boundaries (Foothill)	Annexation	1/8/1926	1282		1/8/1926						
8	Braemar Tract	Annexation	12/31/1945	2052		11/29/1945						
9	Ontare Annexation	Annexation	11/29/1945	2053		1/19/1946						
10	Dixon Tract	Annexation	4/12/1946	2076		4/12/1946						
11	Higbee Tract	Annexation	5/1/1947	2139		5/1/1947						
12	Johnston Property	Annexation	5/5/1948	2182		3/4/1948						
13	Greene Tract	Annexation	8/26/1948	2202		8/26/1948						
14	San Roque Gardens	Annexation	3/26/1951	2315		3/26/1951						
15	West Property	Annexation	4/5/1951	2318		4/5/1951						
16	Las Positas Estates No.1	Annexation	5/31/1956	2541		5/31/1956						
17	Blackmore Annexation	Annexation	7/19/1956	2555		7/19/1956						
18	Schooler Annexation	Annexation	8/23/1956	2563		8/23/1956						
19	Braemar Annexation	Annexation	8/30/1956	2566		8/30/1956						
20	Phillips State Street Annexation	Annexation	9/13/1956	2571		9/13/1956						
21	State-Hope-La Cumbre Annex	Annexation	2/21/1957	2594		2/21/1957						
22	Las Positas Estates No.2	Annexation	3/14/1957	2601		3/14/1957						
23	La Colina Annexation	Annexation	2/27/1958	2649		2/27/1958						
24	Hollister Wye Annexation	Annexation	3/20/1958	2651		3/20/1958						
25	San Marcos Gardens Annexation	Annexation	3/27/1958	2654		3/27/1958						
26	Watling Annexation	Annexation	3/27/1958	2655		3/27/1958						
27	Hope School Property of the Hope Elem. School Dist	Annexation	8/7/1958	2681		7/21/1958	18187					
28	De Loreto Annexation	Annexation	11/20/1958	2692		11/20/1958						
29	Municipal Golf Course and Adams School Annex.	Annexation	7/7/1959	2716		7/7/1959						
30	Sycamore Canyon Annexation	Annexation	7/16/1959	2721		7/16/1959						
31	Coleman Annexation	Annexation	7/16/1959	2723		7/16/1959						
32	Hidden Valley Annexation	Annexation	7/16/1959	2722		7/16/1959						
33	La Colina Jr. High School Property	Annexation	9/3/1959	2731		9/3/1959						
34	Shapiro Annexation	Annexation	10/26/1959	2733		9/17/1959						
35	Montecito Circle Annexation	Annexation	1/27/1960	2752		1/27/1960						
36	Montecito Strip Annexation	Annexation	5/13/1960	2765		4/12/1960	2765					
37	Archer Annexation	Annexation	6/17/1960	2770		5/17/1960						
38	Hope Terrace Annexation	Annexation	9/6/1960	2779		8/2/1960						

InternalNo	Title	Type	Effective	City_Ord	City_Res	City_Date	County_Res	LAFCO_Res	LAFCO_No	LAFCO_Date	Instrument	Recorded
39	Ormiston Annexation	Annexation	9/6/1960	2783		8/2/1960						
40	Rutherford Annexation	Annexation	9/6/1960	2783		8/2/1960						
41	Santa Barbara Airport Annexation	Annexation	11/14/1961	2846		11/14/1961						
42	Moxcey Annexation	Annexation	4/27/1962	2870								
43	Lincoln Road Annexation	Annexation	5/1/1962	2874		5/1/1962						
44	State Street-South La Cumbre Road	Annexation	7/31/1962	2887		7/31/1962						
45	Hidden Valley Estates Annexation	Annexation	1/22/1963	2907		1/22/1963						
46	Airport Clear Zone Annexation	Annexation	3/12/1963	2914		3/12/1963						
47	Schaefer Annexation	Annexation	5/7/1963	2923		5/7/1963						
48	Robillard Annexation	Annexation	10/29/1963	2947	5682	9/24/1963						
49	Hope Ranch Estates Annexation	Annexation	10/29/1963	2949		10/29/1963						
50	Widling Annexation	Annexation	12/10/1963	2959		12/10/1963						
51	Hope Ranch Misc (Boundary Correction)	Annexation	1/21/1964	2964		1/21/1964						
52	Williams, et al Annexation	Annexation	1/30/1964	2963		12/31/1963						
53	Rue Property Annexation	Annexation	3/3/1964	2969		3/3/1964						
54	Cavaletto Annexation	Annexation	4/21/1964	2977		4/21/1964						
55	Karleskint Annexation	Annexation	9/8/1964	3005		9/8/1964						
56	Stacy Lane Annexation	Annexation	4/5/1965	3031		2/23/1965						
57	Hope School District Annex. No. 2	Annexation	7/6/1965				24812					
58	Esperanza Estates	Annexation	7/13/1965	3056		7/13/1965						
59	City Water Dept Property Annexation	Annexation	8/17/1965	3062		8/17/1965						
60	Prevedello-Lasarzig et al Annexation	Annexation	2/23/1966	3160		2/23/1966						
61	Blankenship Annexation	Annexation	6/14/1966	3152		6/14/1966						
62	Bethany Congregational Church Annexation	Annexation	7/5/1966	3161		7/5/1966						
63	City Sanitary Fill Site, et al. Annexation	Annexation	7/19/1966	3166		7/19/1966						
64	Calle Real Property Annexation	Annexation	12/6/1966	3184		12/6/1966						
65	John F. Kennedy School Site Annexation	Annexation	12/13/1966	3188		12/13/1966						
66	Hollister Avenue Annexation	Annexation	1/3/1967	3198		1/3/1967						
67	Renwick Annexation	Annexation	4/4/1967	3212		4/4/1967						
68	Tidelands Annexation	Annexation	11/7/1967	3257		11/7/1967						
69	Old Mission-Museum Annexation	Annexation	3/19/1968	3283				1967-43	1967-AC-02			
70	St. Mary's Seminary Annexation	Annexation	4/16/1968	3289	6554	4/16/1968						
71	Gainor Annexation	Annexation	4/23/1968	3293		4/23/1968						
72	Foothill Road Annexation	Annexation	9/12/1968	3309				1968-100	1968-AC-03			
73	Emanuel Lutheran Church Annexation	Annexation	5/20/1969	3367		5/20/1969						
74	Alexander Annexation	Annexation	10/14/1969	3384	6960	10/14/1969						
75	Thompson-Anderman Annexation	Annexation	12/23/1969	3397		12/23/1969						
76	Veronica Springs Road Properties Annexation	Annexation	2/19/1970	3400				1969-169	1969-AC-05			
77	Connie Way Properties Annexation	Annexation	7/9/1971	3479		7/9/1971						
78	Brooks Property Annexation	Annexation	10/14/1971	3489		9/14/1971			1971-AC-01			
79	Avco-Demelik Annexation	Annexation	2/20/1973	3581		2/20/1973						
80	Bueneman, Cavaletto & Transportation Corridor Ann*	Annexation	12/10/1973	3606	7670			1973-333	1973-AC-05			

InternalNo	Title	Type	Effective	City_Ord	City_Res	City_Date	County_Res	LAFCO_Res	LAFCO_No	LAFCO_Date	Instrument	Recorded
81	Aiches Property Annexation	Annexation	10/15/1974	3691		10/15/1974						
82	Airport Easterly Clear Zone Annexation	Annexation	5/27/1975	3772		5/27/1975						
83	Eucalyptus Knolls #2 (Williams Property)	Annexation	3/15/1979	1979-016				1978-511	1978-AC-02		1978-0011541	3/15/1979
84	PM 12,700	Annexation	10/11/1979		1979-78,79	10/11/1979		1979-520	1978-AC-04		1979-0047689	
85	Giordani Property	Annexation	5/22/1980								1980-0042163	5/22/1980
86	Airport Property	Annexation	10/16/1980								1980-0042162	10/16/1980
87	Thompson Property (Via Alicia)	Annexation	10/16/1980		1980-055	10/16/1980		1997-481	1977-AC-03		1980-0042161	
88	M. Edwards Property (APN 13-123-09)	Annexation	7/22/1982	1980-576		11/3/1981		1981-594	1979-AC-07		1982-0030245	7/22/1982
89	Reino Land Company Inc. Property Annexation	Annexation	8/16/1982								1982-0034183	8/16/1982
90	Hill Property	Annexation	11/23/1982								1982-0053336	11/23/1982
91	Portion of APN 47-010-43 (Fard & Cambell Property)	Annexation	10/23/1983								1983-0057795	10/23/1983
92	Tatjes Property	Annexation	9/4/1984								1984-0048035	9/4/1984
93	Kirkhart & Ozolins Property (Modoc Road Condos)	Annexation	11/1/1984		1984-164	11/1/1984		1984-663	1983-AC-03	10/23/1984	1984-0059471	
94	Valle Verde Property	Annexation	12/21/1984		1984-184	12/21/1984		1984-681	1984-AC-2	11/8/1984	1984-0067876	
95	Sanchez Property Annexation	Annexation	1/11/1985	1984-191				1984-671	1994-14		1985-0001805	1/11/1985
96	Koelsch/Schwaiger & Rutherford Property Reorg	Annexation	5/20/1986		1986-104	5/20/1986		1985-704	1985-AC-5		1986-0038606	
97	Nichols Property Reorganization	Annexation	6/8/1987								1987-0042369	6/8/1987
98	Feazelle Annexation	Annexation	7/13/1987		1986-165	7/13/1987		1986-732	1986-AC-03		1987-0052422	
99	APN 49-150-47 Reorganization	Annexation	1/11/1988								1988-0001665	1/11/1988
100	Elbek (Jesuit Property) Annexation	Annexation	1/26/1988								1988-0004999	1/26/1988
101	Markel Reorganization	Annexation	4/5/1988								1988-0022828	4/5/1988
102	Giordani Detachment	Detachment	12/10/1993		1993-124	12/10/1993		1992-842	1991-DC-1		1993-0098471	
103	Westmont Reorganization	Annexation	8/28/1995	1995-014		1/17/1995		1994-014	1994-14		1995-0048109	8/28/1995
104	Towbes Reorganization	Annexation	6/11/1996								1996-0035858	6/11/1996
105	Morgan Reorganization	Annexation	2/4/1997								1997-0006130	2/4/1997
106	Cantor Reorg. Part 1	Annexation	9/23/1997					1997-07	1997-07	1/1/1997	1977-0056661	9/23/1997
107	Carey Reorganization	Annexation	12/8/1998								1998-0095550	12/8/1998
108	Compton Reorganization	Annexation	12/24/1998								1998-0100683	12/24/1998
109	Investec Reorganization	Annexation	7/19/2000					2000-10	2000-10	7/18/2000	2000-0044014	7/19/2000
110	Cantor Reorg. Part 2	Annexation	7/25/2000					1997-07	1997-07	1/1/1997	2000-0044976	7/25/2000
111	Northridge Reorganization	Annexation	1/11/2001					2000-24	2000-24	12/18/2000	2001-0002894	1/11/2001
112	St. Vincent's Reorganization	Annexation	10/24/2002					2002-09	2002-09		2002-0107674	10/24/2002
113	Kennedy Reorganization	Annexation	10/21/2003					2003-08	2003-08		2003-0145552	10/21/2003
114	Hart Reorg.	Annexation	8/16/2005					2004-10	2004-10		2005-0078552	8/16/2005
115	Lengsfelder Reorganization	Detachment	5/17/2006					2006-03	2006-03	4/6/2006	2006-0039991	5/17/2006
116	Las Positas Reorganization	Annexation	4/7/2008					2006-06	2006-06		2008-0019858	4/7/2008
117	Rivera Trust Out-of-Agency Service Agreement	OOASA	7/2/2009					2009-03	2009-03		n/a	7/2/2009
118	Veronica Meadows Reorganization	Annexation	7/14/2009					2007-12	2007-12		2009-0042221	7/14/2009
119	Las Canoas Reorganization	Annexation	9/7/2010					2009-08	2009-08		2010-0048697	9/7/2010
120	Hope Avenue Reorganization	Annexation	8/6/2012					2012-03	2012-03		2012-0051116	8/6/2012
121	Cieneguitas Reorganization	Annexation	12/6/2012					2012-04	2021-04	11/1/2012	2012-0083507	12/6/2012
	City of Santa Barbara Sphere of Influence	SOI	2/3/2011							2/3/2011		

Montecito Water District

Compiled by the Office of the County Surveyor in October of 2014.
Formed by resolution of the County Board of Supervisors, BOS Minute Book T, Pages 287-293, 11/7/1921.
Sphere 3/1/2012. Last Action: 24, Bella Vista Annexation, LAFCO 10-01, 5/6/2010.
See Boundary activity table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

GRAPHIC SCALE
0 0.25 0.5 1
Miles

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Ranchos and Townships
- Los Padres National Forest
- City Boundaries
- Sphere of Influence
- Formation
- Annexation
- Detachment

Vicinity Map - Not to scale

Montecito Water District Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

Note: Only the portion of the SPRR Detachment (1) not annexed by the Berenzer Annexation (18) is depicted

InternalNo	Title	Type	Effective	County_Res	County_DT	LAFCO_Res	Dist_Ord	Dist_DT	Instrument	Recorded
0	Montecito Water District Formation	Formation	11/7/1921	Minute T/287	11/7/1921					
1	SPRR Detachment	Detachment	6/12/1922					6/12/1922		
2	Ordinance 6	Annexation	12/29/1925				6	12/29/1925		
3	Langley Hill	Annexation	12/29/1925				7	12/29/1925		
4	Ordinance No. 8	Annexation	12/29/1925				8	12/29/1925		
5	Ordinance No. 9	Annexation	12/29/1925				9	12/29/1925		
6	Barnes & Barnes	Annexation	3/27/1934				15	3/27/1934		
7	Ortega Hill	Annexation	3/27/1934				16	3/27/1934		
8	King	Annexation	1/19/1948	7768	1/19/1948		18			
9	Ordinance No. 20	Annexation	3/1/1948				20	3/1/1948		
10	Ordinance No. 23	Annexation	5/19/1948				23	5/19/1948		
11	Ordinance No. 37	Annexation	4/15/1959	19850	4/15/1959		37			
12	Ordinance No. 38	Annexation	4/15/1959	19850	4/15/1959		38			
13	Stegall	Annexation	12/2/1969	1108 A		1968-181			2291/1434-1444	12/2/1969
14	Casa Dorinda	Annexation	7/23/1974	1362-A		1973-341			1974-0027146	7/23/1974
15	Slovak Bondi	Annexation	8/16/1994			1994-09			1994-0064238	8/16/1994
16	Miller Reorganization	Annexation	8/17/1994			1994-10			1994-0064734	8/17/1994
17	Knoll	Annexation	8/26/1994			1994-11			1994-0066591	8/26/1994
18	Berenzer	Annexation	12/12/1994			1994-13			1994-0089380	12/12/1994
19	Summerland Water Reorg.	Annexation	12/6/1995			1994-21			1995-0068098	12/6/1995
20	McCaslin	Annexation	7/8/1996			1995-13			1996-0041210	7/8/1996
21	Vista	Annexation	11/18/1997			1996-16			1997-0069733	11/18/1997
22	Gostovich	Annexation	7/27/2000			2000-04			2000-0045765	7/27/2000
23	Dishion	Annexation	10/11/2001			2001-10			2001-0087500	10/11/2001
24	Bella Vista Annexation	Annexation	5/6/2010			2010-01			2010-0043982	8/16/2010
	Montecito Water District SOI	Sphere	3/1/2012							

Carpinteria Valley Water District

Compiled by the Office of the County Surveyor in September of 2014. Formed 2/10/1941.
Sphere: 3/1/2012. Last Action: 6, Railroad Corridor Annexation, LAFCO 13-08, 9/10/2014.
See Boundary activity table at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

GRAPHIC SCALE
0 0.5 1 2
Miles

Legend

- Freeways
- Highways
- Roads
- Railroads
- Parcels
- Sections
- Ranchos and Townships
- Los Padres National Forest
- City Boundaries
- County Boundary
- Ventura County Parcels
- Sphere of Influence
- Formation
- Annexation
- Detachment

Vicinity Map - Not to scale

Carpinteria Valley Water District Boundary Activity

See map at http://www.countyofsb.org/pwd/pwsurveyor.aspx?id=23260

InternalNo	Title	Type	Effective	County_Res	County_DT	LAFCO_Res	Instrument	Recorded
0	Carpinteria Valley Water District Formation	Formation	2/10/1941		2/10/1941		Min 23/385-389	
1	Resolution 16388	Annexation	1/21/1957	16388	1/21/1957			
2	Louis C. Blau	Annexation	7/26/1966	1966-634		1966-13	2159/1103-1115	7/26/1966
3	Borgatello (Kaiser-Aetna)	Annexation	10/9/1973			1972-304	2487/0394-0406	10/9/1973
4	Miller Reorganization	Detachment	8/17/1994			1994-10	1994-0064734	8/17/1994
5	Rancho Monte Alegre	Annexation	4/20/2004			2003-02	2004-0039865	4/20/2004
6	Railroad Corridor	Annexation	9/10/2014			2013-08	2014-0041234	9/10/2014
	Carpinteria Valley Water District Sphere of Influence	SOI	3/1/2012					

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX F – CALTRANS SOCIO-ECONOMIC FORECAST FOR SANTA BARBARA COUNTY

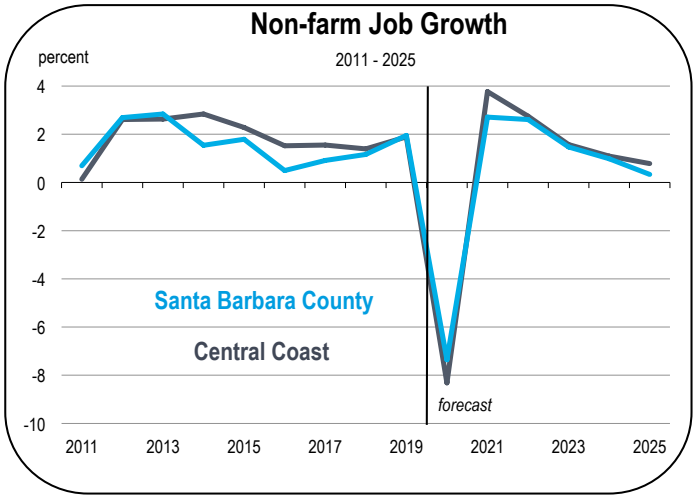
Santa Barbara County Economic Forecast

Forecast Summary

- It is estimated that an average of 13,000 to 17,000 jobs will be lost in Santa Barbara County during 2020. Job losses will be heavy in the first half of the year.
- Employment losses will be largest in leisure services, retail trade, professional business services, and government.
- Some sectors may expand slowly in 2020, including construction and financial activities.
- The unemployment rate averaged 3.7 percent in 2019. It will average between 8 percent and 10 percent for the 2020 calendar year.
- The Santa Barbara County population is expected to grow more quickly than the Central Coast average during most of the 2020-2025 forecast period.
- Home values are not expected to change much in 2020 or 2021.
- During the 2020-2025 forecast period, housing production is expected to be similar to the 2014-2019 period.

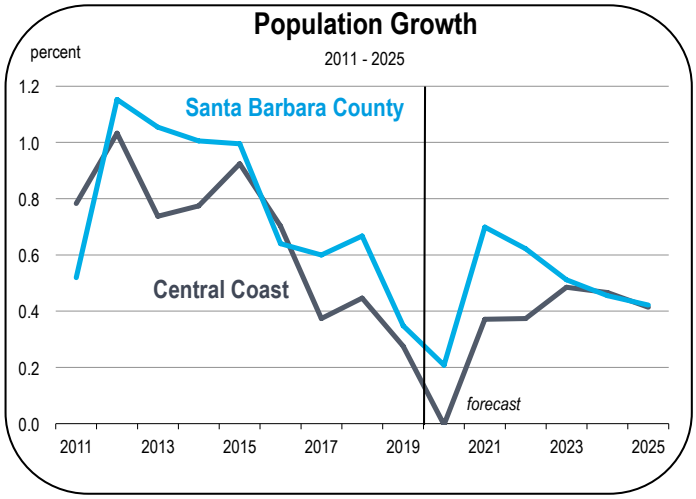
Job Growth

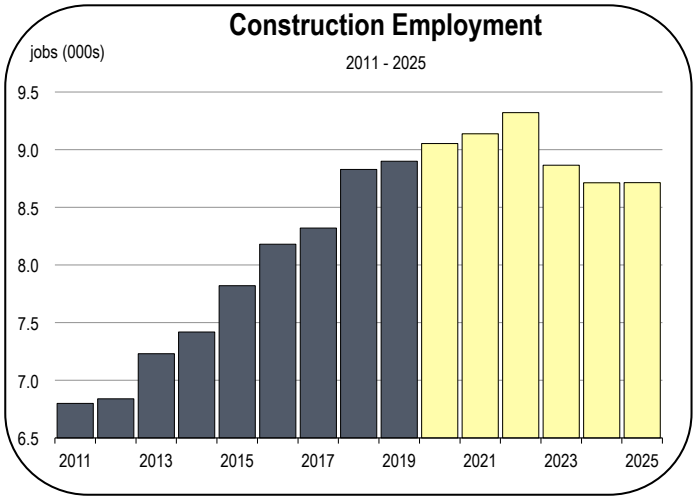
- Total employment in the county will decline by at least 6 percent in 2020. This is an annual average change from 2019.
- In 2021, Santa Barbara County is expected to re-gain many of the jobs that were lost during the Coronavirus Recession.



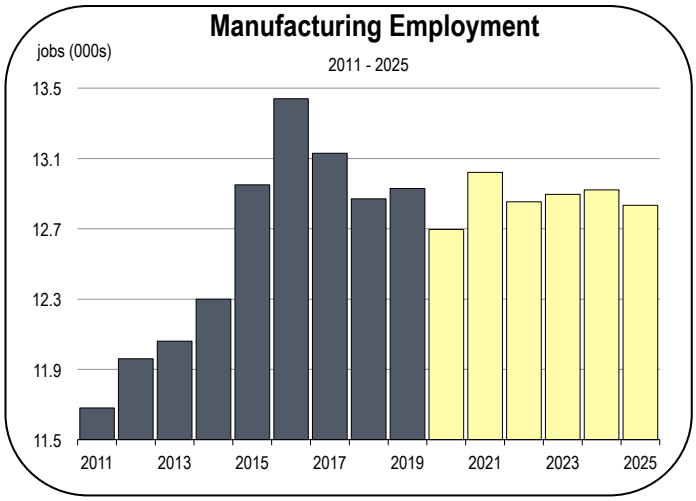
Construction Employment

- The construction sector is expected to expand by a small number of jobs in 2020 and 2021.
- Most California construction activity was deemed non-essential for portions of March and April, leading to construction layoffs.
- Restrictions on construction were lifted in late April, and overall construction activity began to ramp back up during the spring and summer.
- Construction projects will largely have resumed by 2021, but employment might decline again after 2022 as existing projects are completed and fewer new projects are started.





Santa Barbara County Economic Forecast



Manufacturing Employment

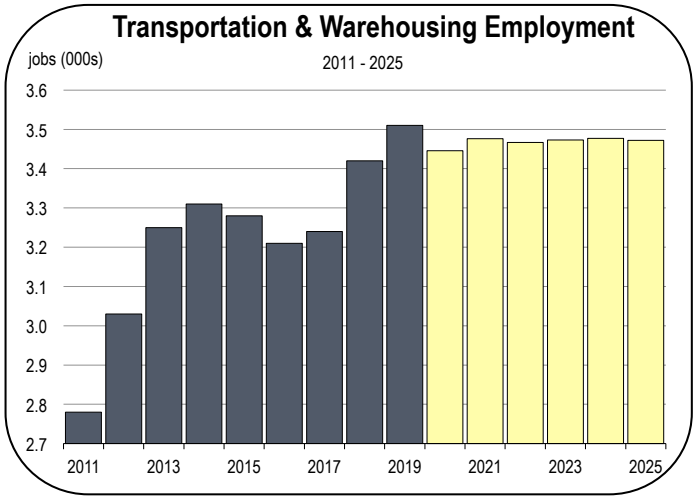
- Manufacturing employment is expected to decrease by a few hundred in Santa Barbara County during 2020.
- Manufacturing activity is forecast to rebound sharply after the recession subsides, but it is unlikely that sustained growth will transpire through the entire 2020-2025 forecast period.

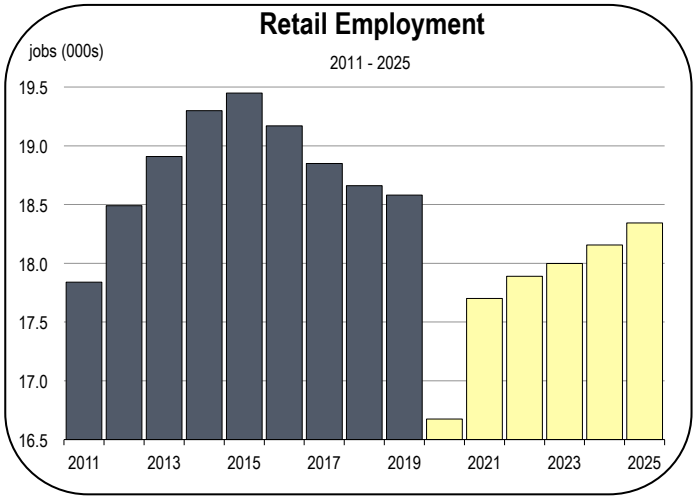
Transportation and Warehousing Employment

- Most transportation jobs in Santa Barbara County are in trucking and warehousing, where firms deliver goods to and from local businesses, and store these goods in logistics facilities.
- A meaningful share of Santa Barbara County transportation jobs are in delivery firms like UPS, FedEx, and Instacart. Delivery firms hired large numbers of workers during the second quarter of 2020, and could be among the few corners of the labor market to expand throughout the year.
- Approximately 300 jobs are located at the Santa Barbara and Santa Maria airports. Air travel declined sharply in 2020 as the coronavirus crisis severely limited passenger activity across the globe.
- Overall transportation and warehousing employment is not expected to expand in a meaningful way during the next few years.

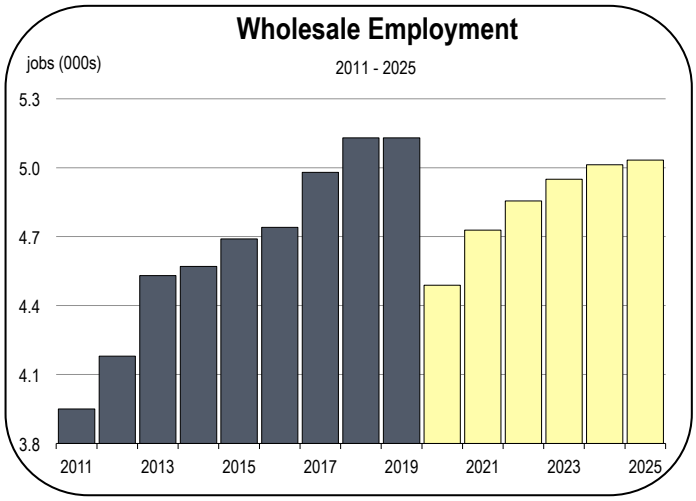
Retail Trade Employment

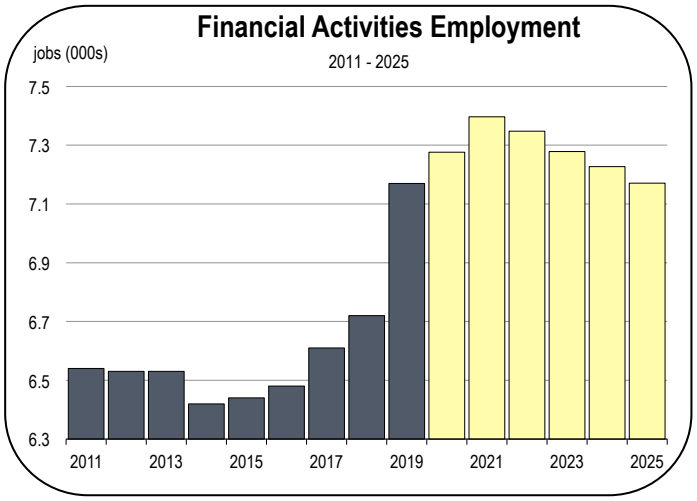
- The retail sector is expected to lose at least 1,800 jobs in 2020 on an annual average basis.
- Many retail chains chose to furlough their employees rather than lay them off completely, and furloughed workers are not considered to be unemployed. This is a technical detail that will mask the true number of work stoppages in the retail sector.
- Accounting for furloughed workers more than 3,000 retail workers could be effectively not working and not earning an income on an annual average basis in 2020.
- Retail trade jobs will return after in-store shopping is permitted in a sustained way.





Santa Barbara County Economic Forecast





Wholesale Trade Employment

- Wholesale trade employment is expected to fall by at least 500 jobs on an annual average basis in 2020.
- Wholesale employment is expected to re-gain some jobs in 2021 and 2022, but is unlikely to return to pre-recession levels during the 2020-2025 forecast period.

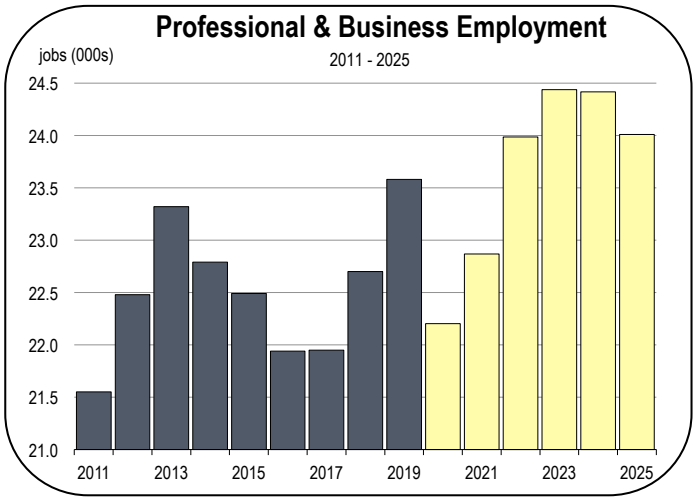
Financial Activities Employment

- The financial activities sector expanded strongly in 2019 and should add even more jobs in 2020 and 2021.
- The financial activities industry is primarily comprised of real estate companies, banks, and insurance firms, which were relatively unaffected by the Coronavirus Recession in Santa Barbara County.
- The most prominent growth is expected in real estate. Local banks and insurance firms have been consolidating for years, and are not expected to generate a substantial number of new jobs between 2020 and 2025.

Financial Activities Sub-Sectors 2019	Jobs in Subsector	Subsector's Share of Overall Industry
Real Estate	2,600	36.1%
Banks	1,700	23.6%
Insurance	1,300	18.1%
Asset Management	900	12.5%
Other	700	9.7%

Professional and Business Services Employment

- The professional and business services industry has a diverse array of subsectors, and each will be impacted differently during the recession and recovery phases of 2020 and 2021.
- Jobs in building maintenance declined substantially during the shutdowns but are expected to rebound at office and industrial buildings with repopulating employment.
- Staffing agencies had significant losses during the contraction, but may bounce back quickly through 2021.
- Staffing agencies primarily employ temp workers, who are often laid off first in a downturn but hired back first during a recovery.



Santa Barbara County Economic Forecast

Professional & Business Services Sub-Sectors 2019	Jobs in Subsector	Subsector's Share of Overall Industry
Building Maintenance	4,700	20.0%
Engineering & Architecture	3,300	14.0%
Corporate Headquarters	2,900	12.3%
Custom IT Services	2,700	11.5%
Staffing Agencies	2,100	8.9%
Scientific Research	1,100	4.7%
Business & Technical Consulting	1,100	4.7%
Accounting & Bookkeeping	1,100	4.7%
Law	900	3.8%
Total	3,600	15.3%

- Aside from maintenance, staffing agencies, and scientific research labs, most subsectors of the professional business services industry operated remotely and were largely unaffected by the shutdowns, although some had layoffs due to the recessionary macroeconomic conditions that persisted through the U.S.

Information Employment

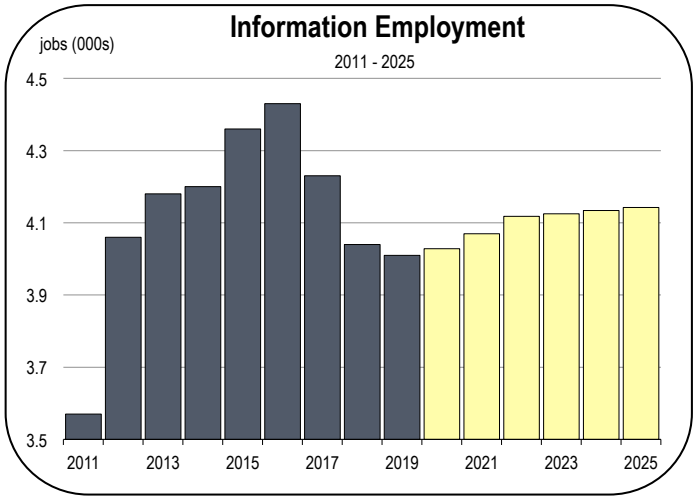
- In Santa Barbara County, the information sector is dominated by software firms.
- Software firms are primarily located near U.C. Santa Barbara. Major employers include Citrix and Procore, and the region has a particular concentration software that is designed for real estate, property management, and construction companies.

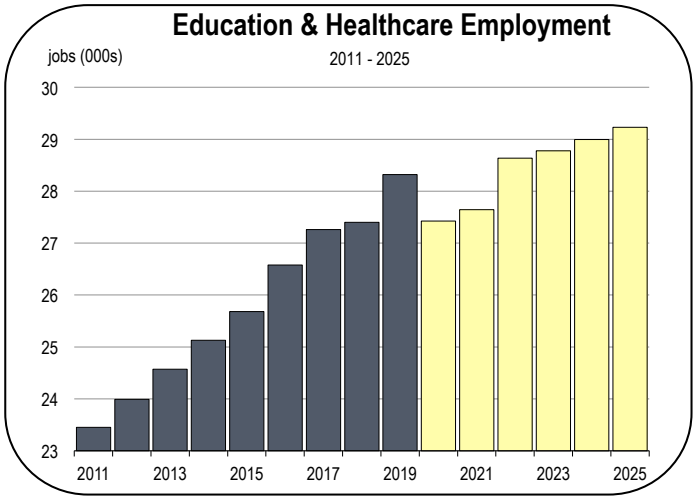
Information Sub-Sectors 2019	Jobs in Subsector	Subsector's Share of Overall Industry
Software Publishers	1,800	47.5%
Newspaper / Magazine / Book Publishing	400	10.7%
Radio & TV Broadcasting	300	9.0%
Movie Theaters	300	8.6%
Telecommunications	300	8.2%
Data & Internet Services	200	5.1%
Total	500	14.2%

- Aside from software publishing and data/Internet services, most subsectors of the information industry are in long-term patterns of stagnation, and will not generate a meaningful number of jobs during the 2020-2025 forecast period.

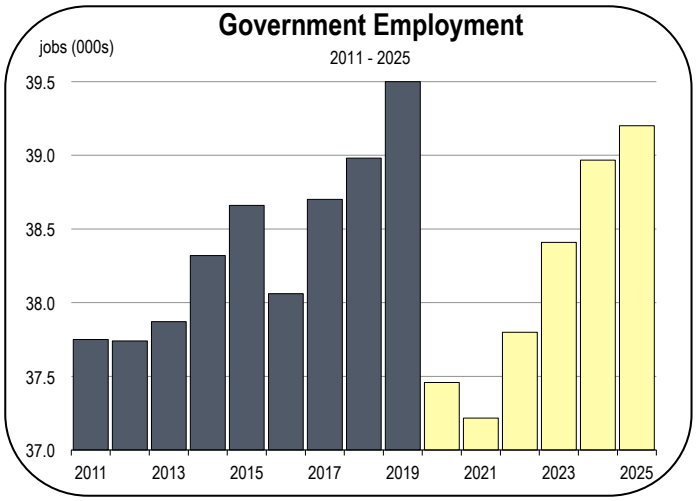
Private Education and Healthcare Employment

- There were 19,000 healthcare jobs in Santa Barbara County in 2019. Approximately 4,000 these jobs were in the Cottage Health system, which operates the primary hospitals in the county.
- Healthcare jobs were recession proof during the 2008-2009 financial crisis. However, some non-essential medical offices had to close in 2020.
- There were approximately 6,000 social assistance jobs in 2019, including industries like childcare, housing shelters, and non-medical care for senior citizens.





Santa Barbara County Economic Forecast



- There were also 3,000 jobs in private schools and colleges, tutoring services, vocational schools, and other educational organizations.
- Jobs in social assistance and education were mostly classified as essential. Nevertheless, there were layoffs at institutions with revenue shortfalls.

Leisure and Hospitality Employment

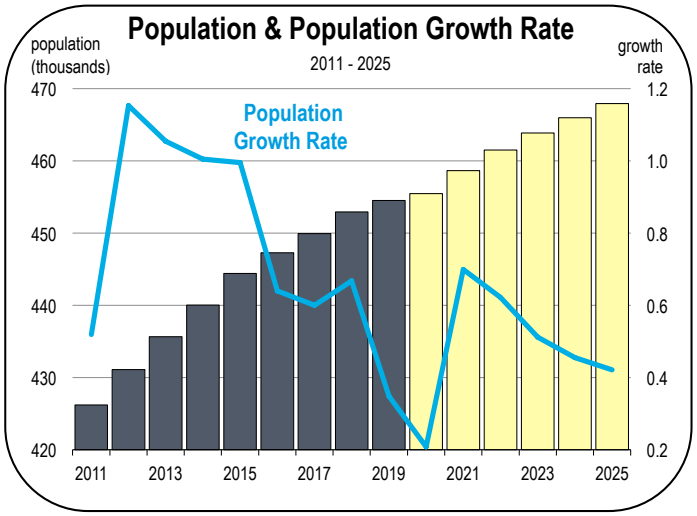
- The leisure and hospitality industry was devastated by the recession more than any other sector of the labor market.
- In 2019, Santa Barbara County had 25,000 jobs in restaurants, hotels, and bars. Our research indicates that most were laid off, furloughed, or had their hours cut in March and April of 2020.
- Santa Barbara also had 3,800 jobs in entertainment and recreation in 2019, including things like fitness centers, museums, and event venues. Many of these organizations will operate at reduced capacities into 2021.

Government Employment

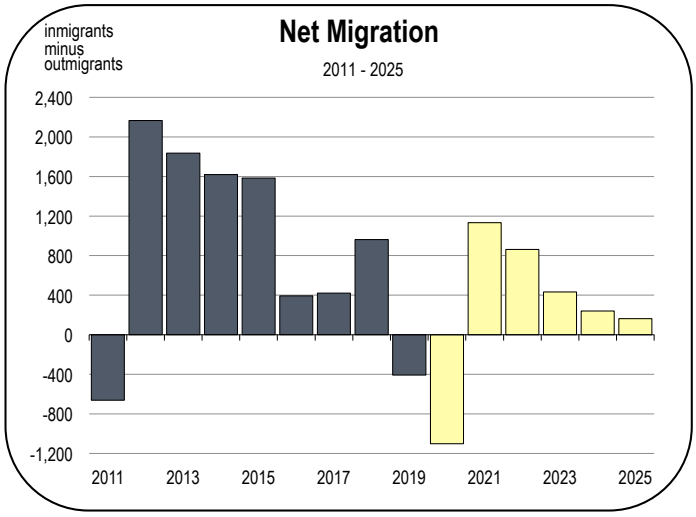
- Government agencies are expected to lose revenue from taxes and fees in 2020, and these revenue shortfalls will likely persist into 2021 and 2022.
- Government employment is strongly influenced by enrollment at U.C. Santa Barbara.
- U.C. Santa Barbara has more than 10,000 employees and is the largest single employer in the county.
- Student enrollment is expected to increase by several thousand students over the forecast period, but because the Coronavirus Recession may lead to budget cuts for U.C. Santa Barbara, employment levels may decline.
- When government agencies need to reduce expenditures on salaries, many workers are expected to be given unpaid furlough days that are distributed throughout the year, and many staffing reductions could be the result of hiring freezes rather than layoffs.
- However, if revenue shortfalls are severe and Congress does not appropriate funding to mitigate these shortfalls, government agencies may have no choice but to issue layoffs.

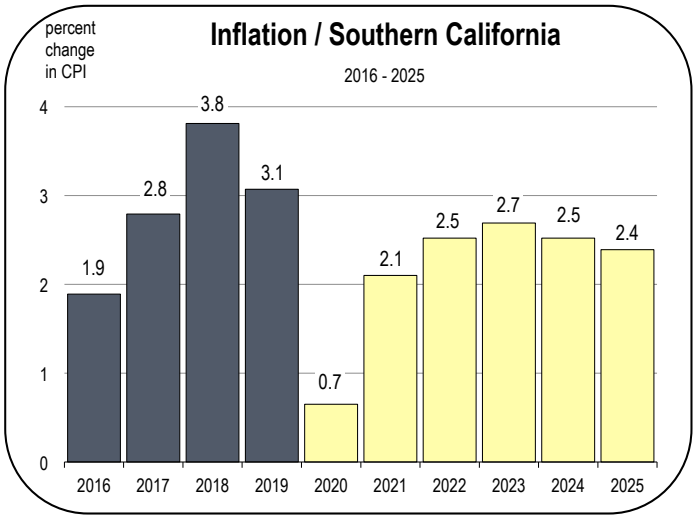
Population Growth

- The Santa Barbara County population is expected to expand more quickly than the Central Coast average between 2020 and 2025.



Santa Barbara County Economic Forecast





- Net migration is expected to be positive during most years of the forecast period, with more people moving into the county than moving out.
- The population will expand at an annual average rate of 0.5 percent per year from 2020 to 2025.
- By 2025 the Santa Barbara County population will surpass 465,000 residents.

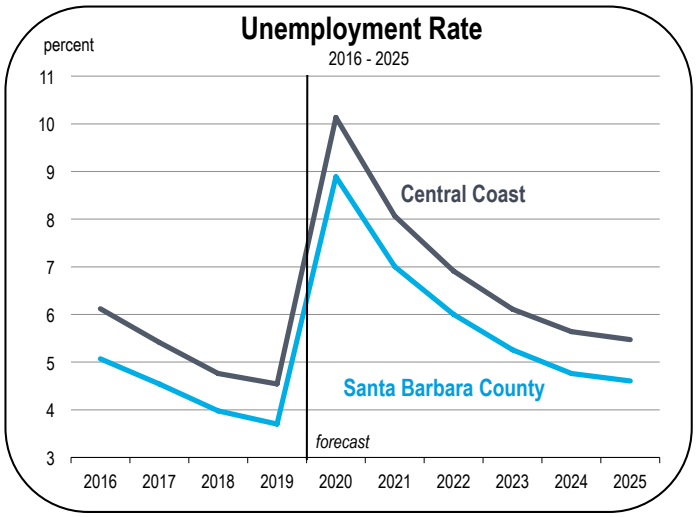
Unemployment and Inflation Rates

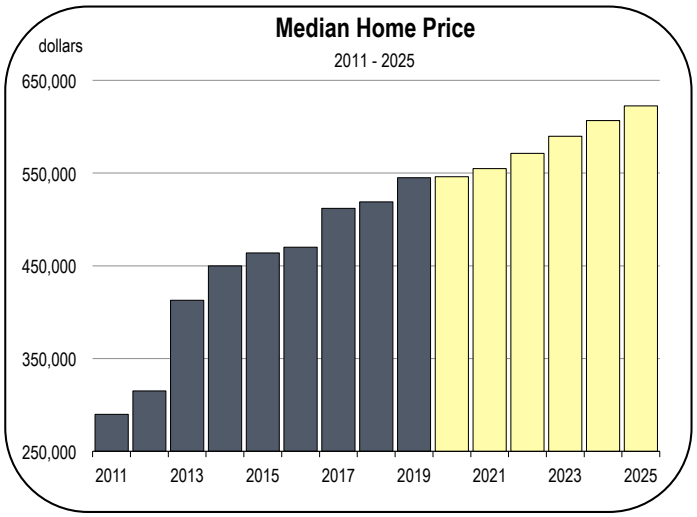
- The unemployment rate in Santa Barbara County averaged 3.7 percent in 2019, which was well below the composite rate for the Central Coast.
- The unemployment rate is expected to average between 8 and 10 percent in 2020.

- The unemployment rate is expected to remain elevated for several years, but is likely to improve more quickly than after the 2008-2009 recession.
- Inflation decelerated in 2019 as energy prices declined and home prices increased more slowly than the previous year.
- Inflation is expected to be very low in 2020 but could accelerate in 2021 or 2022.

Home Prices and New Housing Production

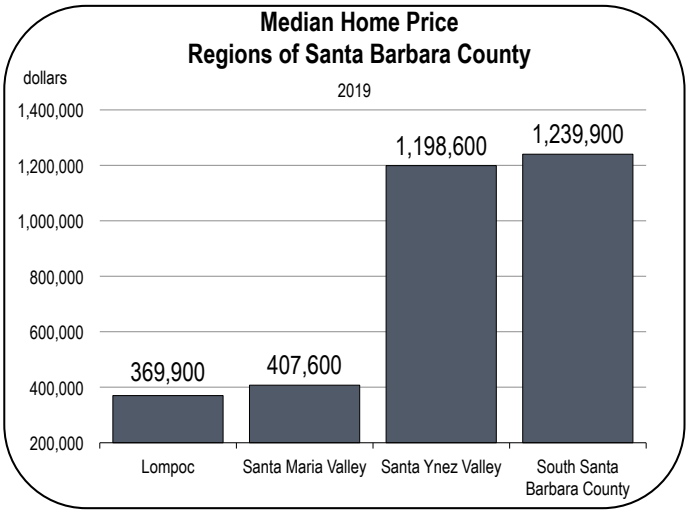
- In 2019 the median home price in Santa Barbara County was $545,100.
- The median price is not expected to show much change in 2020 or 2021.

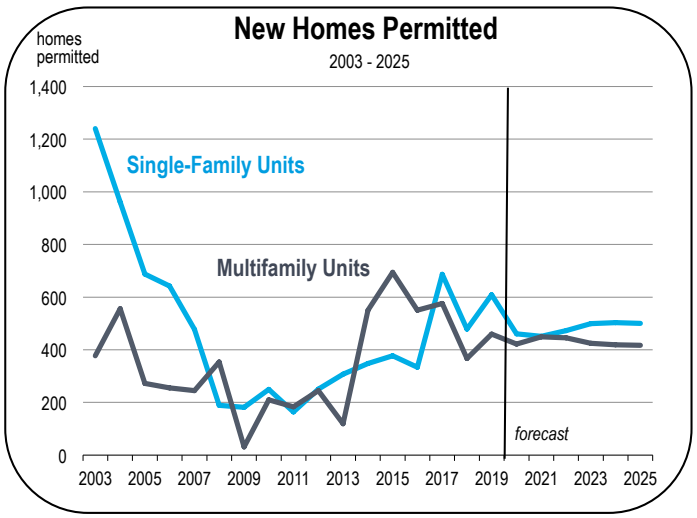




Santa Barbara County Economic Forecast

- Home prices differ drastically across the carious regions of Santa Barbara County.
- In Southern Santa Barbara County, which includes the City of Santa Barbara and is the primary tourist destination in the county, the median home price exceeded $1.2 million in 2019.
- In the Santa Ynez Valley, which is home to Santa Barbara County's wine making industry and is within commuting distance of the job centers of the southern portion of the county, the median home price was almost $1.2 million in 2019.
- In Southern Santa Barbara County and the Santa Ynez Valley, home prices have become prohibitively expensive. In order to afford a median priced home, the typical household would have had to spend 57 percent of its income on mortgage payments in 2019, making this area one of the most expensive markets in the country.
- Across California, the typical household would have to spend approximately 30 percent of its income on mortgage payments for the median priced home.
- Across the northern portion of Santa Barbara County, which includes Lompoc and the Santa Maria Valley, the median home price was well below $500,000 in 2019, less than half as expensive as the southern portion of the county.
- From 2014 to 2019, an average of 1,000 new homes were started per year in Santa Barbara County. Approximately half were single-family homes and the other half were apartments and condos.
- Housing production is expected to average 910 homes per year from 2020 to 2025, consisting of an even mix of single-family homes and multifamily units.





Santa Barbara County Economic Forecast

Economic Indicators — 2015-2019 History, 2020-2050 Forecast

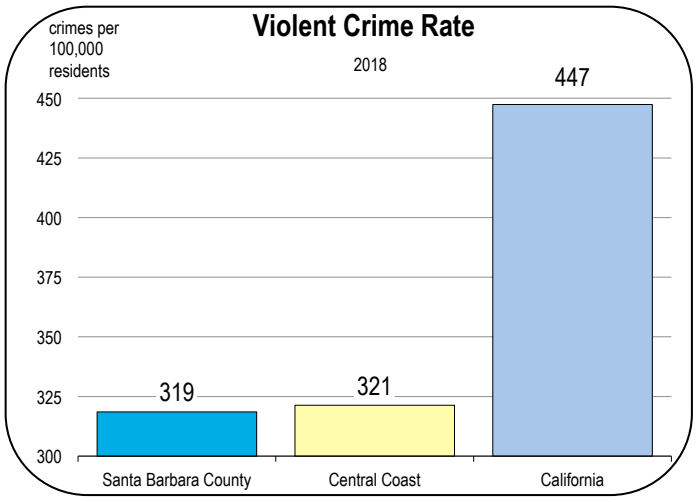
	Population (people)	House-holds (thousands)	Net Migration (people)	New Homes Permitted (homes)	Registered Vehicles (thousands)	Personal Income (billions)	Taxable Retail Sales (billions)	Total Taxable Sales (billions)	Real Industrial Production (billions)	Real per Capita Income (dollars)	Unemployment Rate (percent)	Real Farm Production (billions)	Inflation Rate (percent)
2015	444,421	144.9	1,583	1,071	394	$25.4	$4.8	$6.8	$3.4	$63,938	5.3	1.7	0.9
2016	447,267	146.4	392	884	404	$25.5	$4.8	$6.9	$3.3	$62,794	5.1	1.6	1.9
2017	449,950	147.1	422	1,263	403	$26.6	$4.9	$7.1	$3.4	$63,183	4.5	1.7	2.8
2018	452,953	148.1	963	846	406	$28.0	$5.2	$7.3	$3.5	$63,695	4.0	1.6	3.8
2019	454,529	149.5	-408	1,069	414	$29.5	$5.3	$7.6	$3.5	$65,002	3.7	1.6	3.1
2020	455,475	149.7	-1,102	882	412	$29.3	$4.1	$5.9	$3.7	$63,810	8.9	1.6	0.7
2021	458,660	150.7	1,133	900	413	$30.1	$4.9	$7.0	$3.7	$63,958	7.0	1.6	2.1
2022	461,513	151.6	863	918	414	$31.4	$5.1	$7.4	$3.6	$64,519	6.0	1.6	2.5
2023	463,874	152.5	433	924	416	$32.7	$5.4	$7.7	$3.7	$65,238	5.3	1.6	2.7
2024	465,984	153.4	240	923	417	$34.1	$5.6	$8.0	$3.7	$66,052	4.8	1.6	2.5
2025	467,948	154.2	163	917	418	$35.4	$5.9	$8.4	$3.7	$66,700	4.6	1.7	2.4
2026	469,902	155.0	205	920	419	$36.9	$6.0	$8.6	$3.8	$67,537	4.4	1.7	2.3
2027	471,730	155.8	162	921	421	$38.4	$6.2	$8.9	$3.9	$68,437	4.2	1.7	2.2
2028	473,529	156.6	209	923	422	$39.9	$6.4	$9.1	$3.9	$69,372	4.1	1.7	2.3
2029	475,260	157.5	194	909	423	$41.4	$6.6	$9.4	$4.0	$69,967	4.0	1.7	2.4
2030	476,992	158.3	238	894	425	$42.8	$6.8	$9.7	$4.0	$70,575	3.9	1.7	2.3
2031	478,591	159.0	233	882	426	$44.3	$6.9	$9.9	$4.1	$71,181	3.8	1.8	2.2
2032	480,069	159.8	213	869	427	$45.7	$7.1	$10.1	$4.1	$71,595	3.7	1.8	2.4
2033	481,517	160.5	267	860	428	$47.2	$7.2	$10.3	$4.2	$72,246	3.8	1.8	2.0
2034	482,888	161.3	314	842	429	$48.8	$7.4	$10.6	$4.2	$72,864	3.9	1.8	2.2
2035	484,206	162.0	385	824	430	$50.4	$7.6	$10.8	$4.3	$73,479	4.0	1.8	2.3
2036	485,436	162.7	409	802	431	$52.2	$7.8	$11.2	$4.3	$73,895	4.0	1.9	2.7
2037	486,638	163.4	478	786	432	$54.0	$8.1	$11.5	$4.3	$74,254	4.1	1.9	2.8
2038	487,811	164.1	570	772	433	$55.9	$8.3	$11.8	$4.4	$74,748	4.0	1.9	2.6
2039	488,909	164.7	584	759	434	$57.9	$8.5	$12.2	$4.4	$75,164	4.1	1.9	2.8
2040	489,945	165.4	651	743	435	$59.9	$8.8	$12.5	$4.4	$75,615	4.1	1.9	2.7
2041	490,859	166.0	677	730	435	$62.1	$9.0	$12.8	$4.5	$76,275	4.2	2.0	2.5
2042	491,702	166.6	703	715	436	$64.2	$9.2	$13.1	$4.5	$77,003	4.3	2.0	2.4
2043	492,509	167.2	739	700	437	$66.5	$9.4	$13.5	$4.6	$77,787	4.3	2.0	2.3
2044	493,170	167.8	664	685	437	$68.7	$9.6	$13.7	$4.6	$78,683	4.2	2.0	2.1
2045	493,747	168.4	662	665	438	$71.1	$9.9	$14.1	$4.7	$79,548	4.0	2.1	2.3
2046	494,264	169.0	653	649	438	$73.5	$10.1	$14.4	$4.7	$80,326	4.1	2.1	2.2
2047	494,713	169.6	646	632	438	$75.7	$10.3	$14.7	$4.8	$80,963	4.0	2.1	2.2
2048	495,107	170.1	643	616	439	$78.0	$10.6	$15.1	$4.8	$81,535	4.1	2.1	2.2
2049	495,323	170.6	533	600	439	$80.5	$10.8	$15.5	$4.8	$82,292	4.2	2.2	2.2
2050	495,454	171.1	536	585	439	$82.9	$11.1	$15.8	$4.9	$83,018	4.3	2.2	2.2

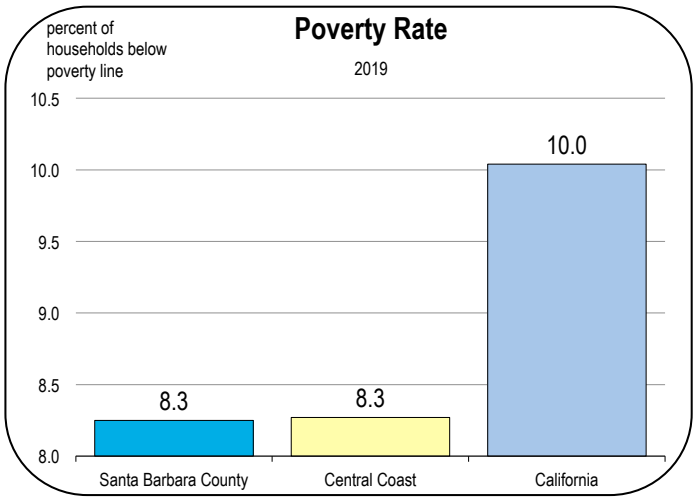
Employment Sectors — 2015-2019 History, 2020-2050 Forecast

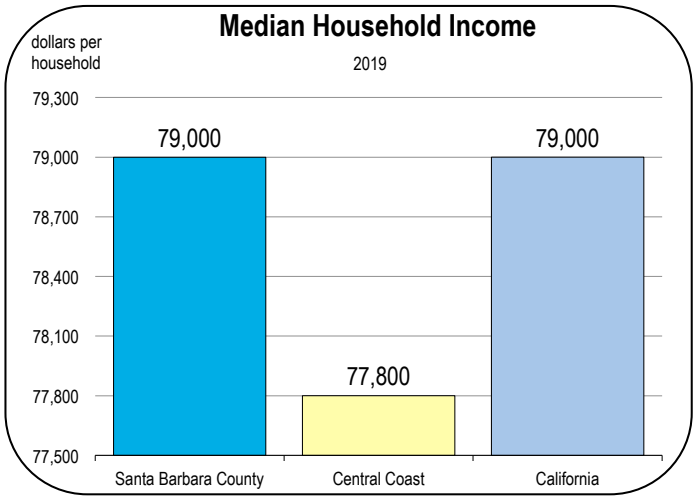
	Total Wage & Salary	Farm	Construction	Manufac-turing	Transportation & Utilities	Wholesale & Retail Trade	Financial Activities	Professional Services	Information	Health & Education	Leisure	Government
	(thousands of jobs)											
2015	200.4	21.0	7.8	13.0	3.3	24.1	6.4	22.5	4.4	25.7	26.6	38.7
2016	201.3	20.9	8.2	13.4	3.2	23.9	6.5	21.9	4.4	26.6	27.2	38.1
2017	203.7	21.7	8.3	13.1	3.2	23.8	6.6	22.0	4.2	27.3	27.8	38.7
2018	207.0	22.9	8.8	12.9	3.4	23.8	6.7	22.7	4.0	27.4	28.2	39.0
2019	211.8	24.0	8.9	12.9	3.5	23.7	7.2	23.6	4.0	28.3	28.5	39.5
2020	196.9	23.0	9.1	12.7	3.4	21.2	7.3	22.2	4.0	27.4	22.7	37.5
2021	203.1	24.5	9.1	13.0	3.5	22.4	7.4	22.9	4.1	27.6	24.6	37.2
2022	207.8	24.5	9.3	12.9	3.5	22.7	7.3	24.0	4.1	28.6	25.7	37.8
2023	210.9	24.9	8.9	12.9	3.5	22.9	7.3	24.4	4.1	28.8	27.2	38.4
2024	213.0	25.2	8.7	12.9	3.5	23.2	7.2	24.4	4.1	29.0	28.1	39.0
2025	213.8	25.4	8.7	12.8	3.5	23.4	7.2	24.0	4.1	29.2	28.6	39.2
2026	215.2	25.5	8.7	12.9	3.5	23.4	7.1	24.1	4.2	29.4	29.1	39.4
2027	216.2	25.6	8.7	13.0	3.5	23.5	7.1	24.1	4.2	29.7	29.4	39.5
2028	217.3	25.8	8.8	13.1	3.5	23.6	7.1	24.3	4.2	29.8	29.5	39.7
2029	218.3	26.0	8.8	13.2	3.5	23.6	7.1	24.4	4.2	30.0	29.7	39.8
2030	219.4	26.2	8.8	13.3	3.5	23.7	7.1	24.6	4.2	30.2	29.8	40.0
2031	220.2	26.4	8.8	13.3	3.5	23.7	7.1	24.7	4.2	30.4	30.0	40.1
2032	220.9	26.6	8.8	13.4	3.5	23.7	7.0	24.6	4.2	30.6	30.2	40.2
2033	221.6	26.9	8.7	13.4	3.5	23.7	7.0	24.6	4.2	30.8	30.3	40.3
2034	222.3	27.1	8.7	13.5	3.6	23.7	7.0	24.6	4.2	30.9	30.5	40.3
2035	223.1	27.3	8.7	13.5	3.6	23.8	7.0	24.6	4.2	31.1	30.7	40.5
2036	224.0	27.5	8.7	13.6	3.6	23.8	6.9	24.6	4.2	31.3	30.8	40.6
2037	224.8	27.8	8.7	13.6	3.6	23.8	6.9	24.6	4.2	31.5	31.0	40.8
2038	225.8	28.0	8.7	13.6	3.6	23.8	6.9	24.7	4.2	31.7	31.2	41.0
2039	226.7	28.3	8.7	13.7	3.6	23.8	6.9	24.8	4.2	31.9	31.3	41.2
2040	227.7	28.5	8.7	13.7	3.6	23.8	6.9	24.9	4.2	32.1	31.5	41.3
2041	228.6	28.8	8.7	13.8	3.6	23.8	6.9	25.0	4.2	32.3	31.7	41.5
2042	229.6	29.0	8.7	13.8	3.6	23.8	6.8	25.1	4.2	32.5	31.8	41.7
2043	230.6	29.3	8.7	13.8	3.6	23.8	6.8	25.3	4.3	32.7	32.0	41.8
2044	231.5	29.6	8.7	13.9	3.6	23.8	6.8	25.4	4.3	32.9	32.2	42.0
2045	232.6	29.8	8.7	13.9	3.6	23.9	6.8	25.5	4.3	33.1	32.3	42.2
2046	233.6	30.1	8.7	13.9	3.6	23.9	6.8	25.6	4.3	33.3	32.5	42.4
2047	234.6	30.4	8.7	14.0	3.6	23.9	6.8	25.7	4.3	33.5	32.6	42.6
2048	235.6	30.7	8.7	14.0	3.6	23.9	6.7	25.8	4.3	33.8	32.8	42.8
2049	236.6	31.0	8.6	14.0	3.7	23.9	6.7	25.9	4.3	34.0	32.9	43.0
2050	237.7	31.3	8.6	14.1	3.7	23.9	6.7	26.0	4.3	34.2	33.1	43.2

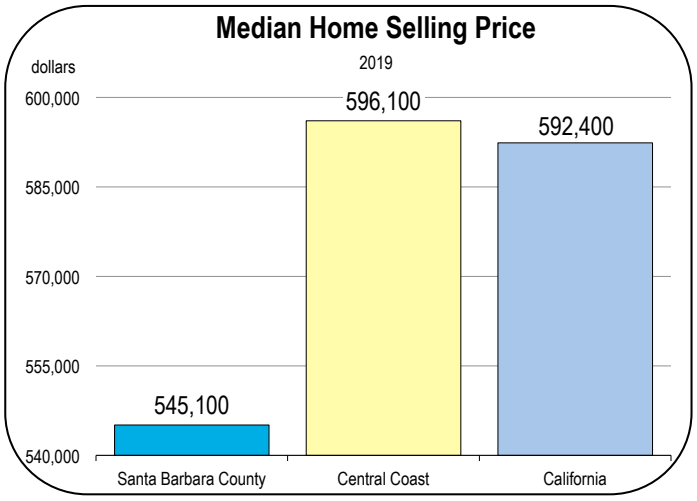
Santa Barbara County Economic Forecast

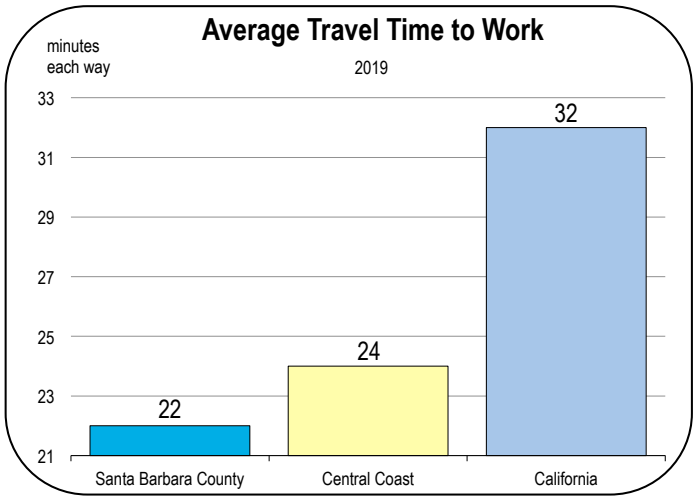
Socioeconomic Indicators

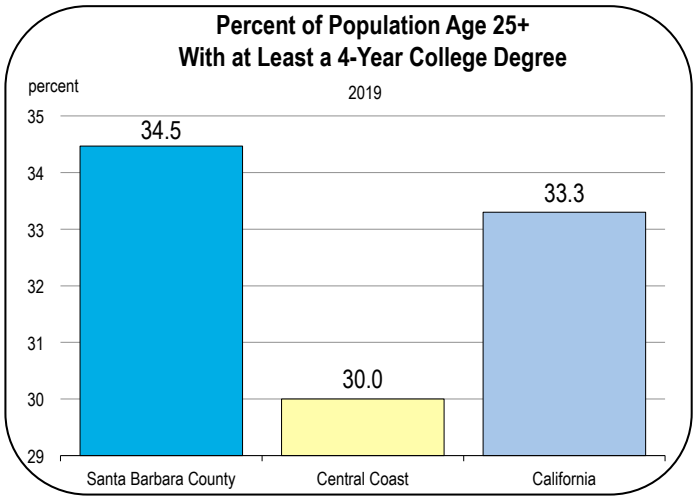












CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX G – COMPLETED AWWA AUDIT REPORTS

AWWA Free Water Audit Software v6.0

FWAS v6.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format and is not meant to take the place of a full-scale, comprehensive water audit format. Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels. This tool contains several separate worksheets. Sheets can be accessed using the tabs at the bottom of the screen, or by clicking the TOC links below.

Table of Contents (TOC)

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https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

Items referenced in the Free Water Audit Software v6.0 on the web:

- Data Grading Matrix v6.0
- Example Water Audit v6.0
- Water Audit Compiler v6.0
- AWWA Reports on Performance Indicators
- M36 Manual

Enter Basic Information

Name of Utility:	Central Coast Wate Authority
Name of Contact Person:	Darin Dargatz
Email:	dod@ccwa.com
Telephone | Ext.:	805-688-2292
City/Town/Municipality:	Buellton
State / Province:	California (CA)
Country:	USA
Audit Preparation Date:	Apr 15 2021
Audit Year:	2016
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2016
Audit Period End Date:	Dec 31 2016
Volume Reporting Units:	Acre-feet
Water System Structure:	Wholesale
Water Type:	Potable Water
System ID Number:	4210030
Validator Name/ID:	N/A
Validator Email:	N/A
Estimated Total Population Served by Water Utility:	

Key of Input Acronyms

In order of appearance in the Worksheet

VOS	Volume from Own Sources
VOSEA	VOS Error Adjustment
WI	Water Imported
WIEA	WI Error Adjustment
WE	Water Exported
WEEA	WE Error Adjustment
BMAC	Billed Metered Authorized Consumption
BUAC	Billed Unmetered Authorized Consumption
UMAC	Unbilled Metered Authorized Consumption
UUAC	Unbilled Unmetered Authorized Consumption
SDHE	Systematic Data Handling Errors
CMI	Customer Metering Inaccuracies
UC	Unauthorized Consumption
Lm	Length of mains
Nc	Number of service connections
Lp	Average length of (private) customer service line
AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*
	volume	25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*
	custom	75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2016 | Jan 01 2016 - Dec 31 2016 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

Water Supplied Error Adjustments
choose entry option:

VOS	Volume from Own Sources:	n	g	6	31,489.000	Acre-ft/Yr	n g 9		percent	VOSEA
WI	Water Imported:	n	g	n/a		Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	n/a		Acre-ft/Yr				WEEA

WATER SUPPLIED: 31,489.000 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	9	31,381.000	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a		Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	n/a		Acre-ft/Yr		
UUAC	Unbilled Unmetered:	n	g	3	78.453	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 31,459.453 Acre-ft/Yr

WATER LOSSES

29.548 Acre-ft/Yr

Apparent Losses

choose entry option:

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	78.453	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	10	0.000	Acre-ft/Yr		percent	under-registration
UC	Unauthorized Consumption:	n	g	3	78.453	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 156.905 Acre-ft/Yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses

Real Losses: -127.357 Acre-ft/Yr

WATER LOSSES: 29.548 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 108.000 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	122.8	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	10		(active *and* inactive)
	Service connection density:				0	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				No		
Lp	Average length of (private) customer service line:	n	g	10		ft	(average distance between property line and meter)
AOP	Average Operating Pressure:	n	g	7	165.3	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	n/a			Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	10		$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Unauthorized Consumption (UC)
3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

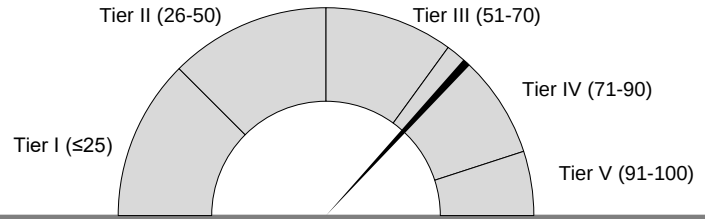
go to worksheet | go to grading | go to references

Water Audit Report for: Central Coast Wate Authority **Audit Year:** 2016 Calendar Jan 01 2016 - Dec 31 2016

Data Validity

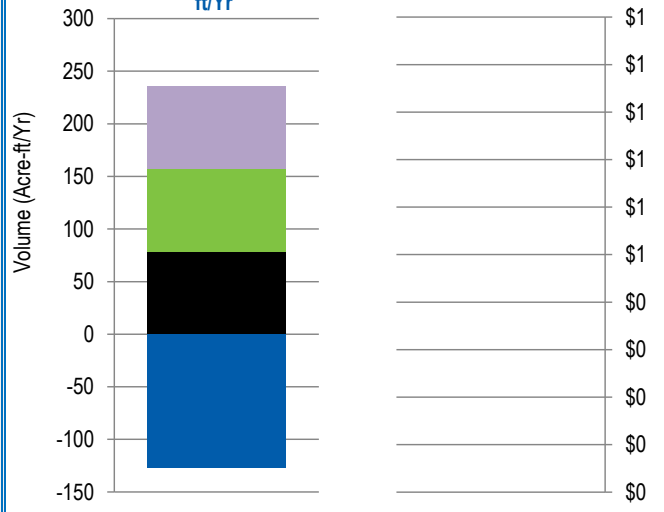
Data Validity Score: 73 **Data Validity Tier:** Tier IV (71-90)

See Loss Control Planning for Tier Details



NRW Components Summary

Total Volume of NRW = 108 Acre-ft/Yr **Total Cost of NRW = $/Yr**



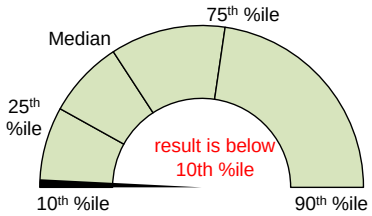
Real Losses
Systematic Data Handling Errors
Customer Metering Inaccuracies
Unauthorized Consumption
Unbilled Unmetered Auth Cons
Unbilled Metered Authorized Cons

	Volume Acre-ft/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	156.9		CRUC
Real Losses	(127.4)	$0	VPC
Unbilled Authorized Cons	78.5		VPC
Non-Revenue Water	108.0		Blended

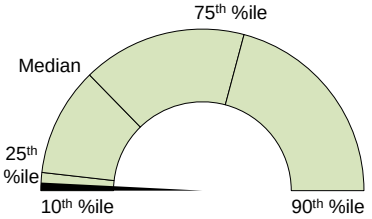
Key Performance Indicators

Actual KPI result — Target (see Worksheet)

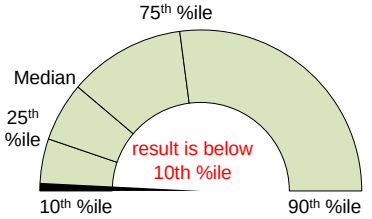
gauge %iles per validated industry ranges[2]



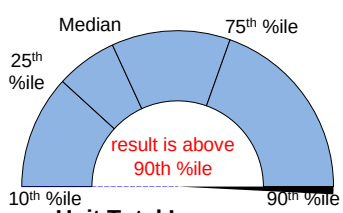
Total Loss Cost Rate
0.00 $/conn/year



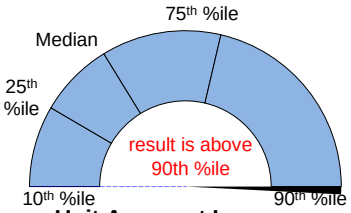
Apparent Loss Cost Rate
$/conn/year



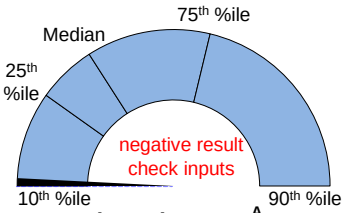
Real Loss Cost Rate
0.00 $/conn/year



Unit Total Losses
2,637.8 gal/conn/day

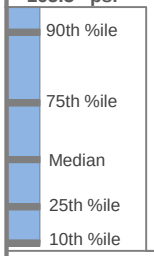


Unit Apparent Losses
14,007.6 gal/conn/day

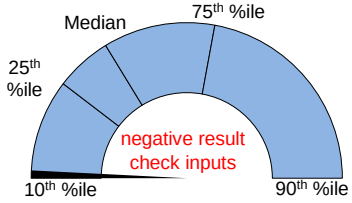


Unit Real Losses[A]
(11,369.7) gal/conn/day

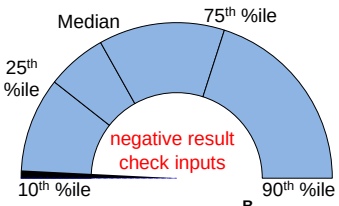
Average Operating Pressure
165.3 psi



AOP is above 90th %ile



Infrastructure Leakage Index (ILI)
(1.0) dimensionless



Unit Real Losses[B]
(926) gal/mile/day

See UARL definition for additional guidance on the ILI

(UARL) Unavoidable Annual Real Losses 123.3 Acre-ft/Yr 11,006.5 gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)[1], with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)[2].
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4695 Guidance Manual, Appendix B (2019)[5].
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by user for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

AWWA Free Water Audit Software
Water Balance

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2016 Jan 01 2016 - Dec 31 2016
Data Validity Tier: Tier IV (71-90)

		Water Exported (WE) (corrected for known errors) 0.000	Billed Water Exported			Revenue Water (Exported) 0.000
Volume from Own Sources (VOS) (corrected for known errors) 31,489.000	System Input Volume 31,489.000	Water Supplied 31,489.000	Authorized Consumption 31,459.453	Billed Authorized Consumption 31,381.000	Billed Metered Consumption (BMAC) (water exported is removed) 31,381.000	Revenue Water 31,381.000
					Billed Unmetered Consumption (BUAC) 0.000	
				Unbilled Authorized Consumption 78.453	Unbilled Metered Consumption (UMAC) 0.000	Non-Revenue Water (NRW) 108.000
					Unbilled Unmetered Consumption (UUAC) 78.453	
			Water Losses 29.548	Apparent Losses 156.905	Systematic Data Handling Errors (SDHE) 78.453	
					Customer Metering Inaccuracies (CMI) 0.000	
					Unauthorized Consumption (UC) 78.453	
Water Imported (WI) (corrected for known errors) 0.000				Real Losses -127.357	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2016 Jan 01 2016 - Dec 31 2016
Data Validity Tier: Tier IV (71-90)

Water Loss Control Planning Guide

	Water Audit Data Validity Tier (Score Range)				
Functional Focus Area	**Tier I (1-25)**	**Tier II (26-50)**	**Tier III (51-70)**	**Tier IV (71-90)**	**Tier V (91-100)**
Audit Data Collection	Launch auditing and loss control team; address supply metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations; Identify data gaps; improve supply metering	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or AMR/AMI system	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon with PIs for performance comparisons for real losses	Performance Benchmarking with PIs is meaningful in comparing real loss standing	Identify Best Practices/ Best in class; PIs are very reliable as real loss performance indicators for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

AWWA Free Water Audit Software v6.0

FWAS v6.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format and is not meant to take the place of a full-scale, comprehensive water audit format. Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels. This tool contains several separate worksheets. Sheets can be accessed using the tabs at the bottom of the screen, or by clicking the TOC links below.

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- Example Water Audit v6.0
- Water Audit Compiler v6.0
- AWWA Reports on Performance Indicators
- M36 Manual

Enter Basic Information

Name of Utility:	Central Coast Wate Authority
Name of Contact Person:	Darin Dargatz
Email:	dod@ccwa.com
Telephone | Ext.:	805-688-2292
City/Town/Municipality:	Buellton
State / Province:	California (CA)
Country:	USA
Audit Preparation Date:	Apr 13 2021
Audit Year:	2017
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2017
Audit Period End Date:	Dec 31 2017
Volume Reporting Units:	Acre-feet
Water System Structure:	Wholesale
Water Type:	Potable Water
System ID Number:	4210030
Validator Name/ID:	N/A
Validator Email:	N/A
Estimated Total Population Served by Water Utility:	

Key of Input Acronyms

In order of appearance in the Worksheet

VOS	Volume from Own Sources
VOSEA	VOS Error Adjustment
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UMAC	Unbilled Metered Authorized Consumption
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Lm	Length of mains
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Lp	Average length of (private) customer service line
AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*
	volume	25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*
	custom	75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2017 | Jan 01 2017 - Dec 31 2017 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	6	32,863.700	Acre-ft/Yr	n g 9		percent	VOSEA
WI	Water Imported:	n	g	n/a		Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	n/a		Acre-ft/Yr				WEEA

WATER SUPPLIED: 32,863.700 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	9	32,585.000	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a		Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	n/a		Acre-ft/Yr		
UUAC	Unbilled Unmetered:	n	g	3	81.463	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 32,666.463 Acre-ft/Yr

WATER LOSSES

197.237 Acre-ft/Yr

Apparent Losses

choose entry option:

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	81.463	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	10	0.000	Acre-ft/Yr		percent	under-registration
UC	Unauthorized Consumption:	n	g	3	81.463	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 162.925 Acre-ft/Yr

Real Losses

Real Losses: 34.312 Acre-ft/Yr

WATER LOSSES: 197.237 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 278.700 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	122.8	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	10		(active *and* inactive)
	Service connection density:				0	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				No		
Lp	Average length of (private) customer service line:	n	g	10		ft	(average distance between property line and meter)
AOP	Average Operating Pressure:	n	g	7	165.3	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	n/a			Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	10		$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Unauthorized Consumption (UC)
3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

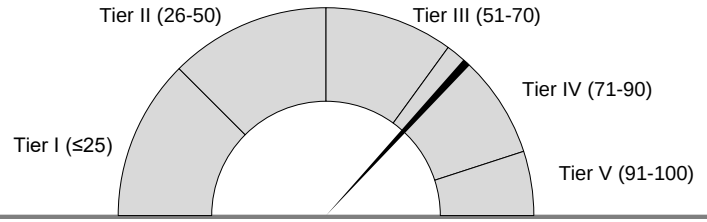
go to worksheet | go to grading | go to references

Water Audit Report for: Central Coast Wate Authority **Audit Year:** 2017 Calendar Jan 01 2017 - Dec 31 2017

Data Validity

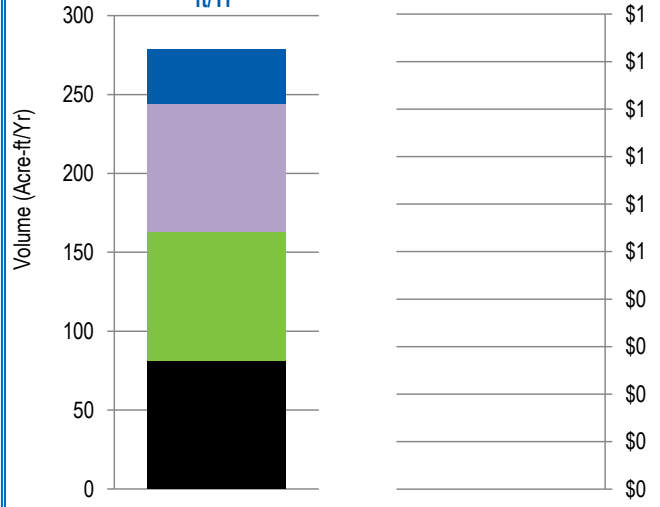
Data Validity Score: 73 **Data Validity Tier:** Tier IV (71-90)

See Loss Control Planning for Tier Details



NRW Components Summary

Total Volume of NRW = 279 Acre-ft/Yr **Total Cost of NRW = $/Yr**

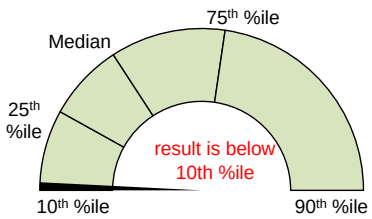


	Volume Acre-ft/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	162.9		CRUC
Real Losses	34.3	$0	VPC
Unbilled Authorized Cons	81.5		VPC
Non-Revenue Water	278.7		Blended

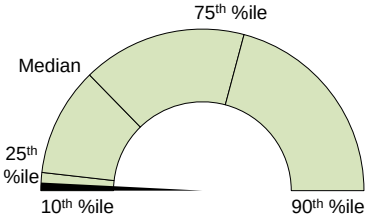
Key Performance Indicators

Actual KPI result — Target (see Worksheet)

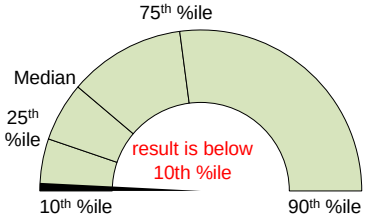
gauge %iles per validated industry ranges[2]



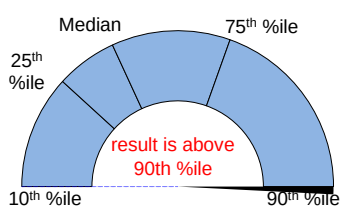
Total Loss Cost Rate
0.00 $/conn/year



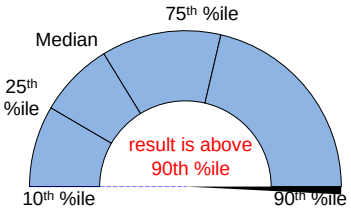
Apparent Loss Cost Rate
$/conn/year



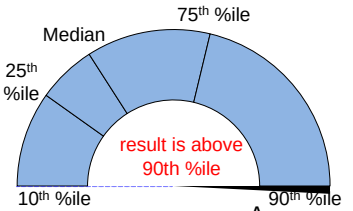
Real Loss Cost Rate
0.00 $/conn/year



Unit Total Losses
17,608.2 gal/conn/day

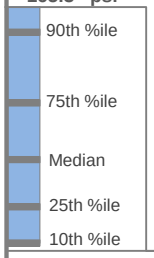


Unit Apparent Losses
14,545.0 gal/conn/day

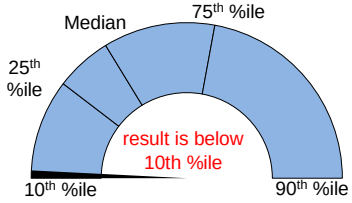


Unit Real Losses[A]
3,063.2 gal/conn/day

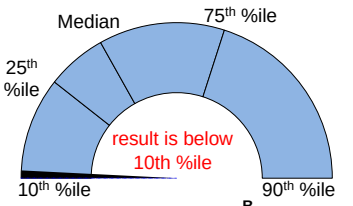
Average Operating Pressure
165.3 psi



AOP is above 90th %ile



Infrastructure Leakage Index (ILI)
0.3 dimensionless



Unit Real Losses[B]
249 gal/mile/day

See UARL definition for additional guidance on the ILI

(UARL) Unavoidable Annual Real Losses	123.3	Acre-ft/Yr	11,006.5	gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)[1], with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)[2].
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4695 Guidance Manual, Appendix B (2019)[5].
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by user for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

AWWA Free Water Audit Software
Water Balance

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2017 Jan 01 2017 - Dec 31 2017
Data Validity Tier: Tier IV (71-90)

		Water Exported (WE) (corrected for known errors) 0.000	Billed Water Exported			Revenue Water (Exported) 0.000
Volume from Own Sources (VOS) (corrected for known errors) 32,863.700	System Input Volume 32,863.700	Water Supplied 32,863.700	Authorized Consumption 32,666.463	Billed Authorized Consumption 32,585.000	Billed Metered Consumption (BMAC) (water exported is removed) 32,585.000	Revenue Water 32,585.000
					Billed Unmetered Consumption (BUAC) 0.000	
				Unbilled Authorized Consumption 81.463	Unbilled Metered Consumption (UMAC) 0.000	Non-Revenue Water (NRW) 278.700
					Unbilled Unmetered Consumption (UUAC) 81.463	
			Water Losses 197.237	Apparent Losses 162.925	Systematic Data Handling Errors (SDHE) 81.463	
					Customer Metering Inaccuracies (CMI) 0.000	
					Unauthorized Consumption (UC) 81.463	
Water Imported (WI) (corrected for known errors) 0.000				Real Losses 34.312	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2017 Jan 01 2017 - Dec 31 2017
Data Validity Tier: Tier IV (71-90)

Water Loss Control Planning Guide

	Water Audit Data Validity Tier (Score Range)				
Functional Focus Area	**Tier I (1-25)**	**Tier II (26-50)**	**Tier III (51-70)**	**Tier IV (71-90)**	**Tier V (91-100)**
Audit Data Collection	Launch auditing and loss control team; address supply metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations; Identify data gaps; improve supply metering	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or AMR/AMI system	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon with PIs for performance comparisons for real losses	Performance Benchmarking with PIs is meaningful in comparing real loss standing	Identify Best Practices/ Best in class; PIs are very reliable as real loss performance indicators for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

AWWA Free Water Audit Software v6.0

FWAS v6.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format and is not meant to take the place of a full-scale, comprehensive water audit format. Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels. This tool contains several separate worksheets. Sheets can be accessed using the tabs at the bottom of the screen, or by clicking the TOC links below.

Table of Contents (TOC)

AWWA Web Resources for Water Loss Control

https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

Items referenced in the Free Water Audit Software v6.0 on the web:

- Data Grading Matrix v6.0
- Example Water Audit v6.0
- Water Audit Compiler v6.0
- AWWA Reports on Performance Indicators
- M36 Manual

Enter Basic Information

Name of Utility:	Central Coast Wate Authority
Name of Contact Person:	Darin Dargatz
Email:	dod@ccwa.com
Telephone | Ext.:	805-688-2292
City/Town/Municipality:	Buellton
State / Province:	California (CA)
Country:	USA
Audit Preparation Date:	Apr 15 2021
Audit Year:	2018
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2018
Audit Period End Date:	Dec 31 2018
Volume Reporting Units:	Acre-feet
Water System Structure:	Wholesale
Water Type:	Potable Water
System ID Number:	4210030
Validator Name/ID:	N/A
Validator Email:	N/A
Estimated Total Population Served by Water Utility:	

Key of Input Acronyms

In order of appearance in the Worksheet

VOS	Volume from Own Sources
VOSEA	VOS Error Adjustment
WI	Water Imported
WIEA	WI Error Adjustment
WE	Water Exported
WEEA	WE Error Adjustment
BMAC	Billed Metered Authorized Consumption
BUAC	Billed Unmetered Authorized Consumption
UMAC	Unbilled Metered Authorized Consumption
UUAC	Unbilled Unmetered Authorized Consumption
SDHE	Systematic Data Handling Errors
CMI	Customer Metering Inaccuracies
UC	Unauthorized Consumption
Lm	Length of mains
Nc	Number of service connections
Lp	Average length of (private) customer service line
AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*
	volume	25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*
	custom	75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2018 | Jan 01 2018 - Dec 31 2018 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	6	30,243.000	Acre-ft/Yr	n g 9		percent	VOSEA
WI	Water Imported:	n	g	n/a		Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	n/a		Acre-ft/Yr				WEEA

WATER SUPPLIED: 30,243.000 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	9	29,875.000	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a		Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	n/a		Acre-ft/Yr		
UUAC	Unbilled Unmetered:	n	g	3	74.688	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 29,949.688 Acre-ft/Yr

WATER LOSSES

293.313 Acre-ft/Yr

Apparent Losses

choose entry option:

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	74.688	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	10	0.000	Acre-ft/Yr		percent	under-registration
UC	Unauthorized Consumption:	n	g	3	74.688	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 149.375 Acre-ft/Yr

Real Losses

Real Losses: 143.938 Acre-ft/Yr

WATER LOSSES: 293.313 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 368.000 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	122.8	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	10		(active *and* inactive)
	Service connection density:				0	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				No		
Lp	Average length of (private) customer service line:	n	g	10		ft	(average distance between property line and meter)
AOP	Average Operating Pressure:	n	g	7	165.3	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	n/a			Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	10		$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Unauthorized Consumption (UC)
3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

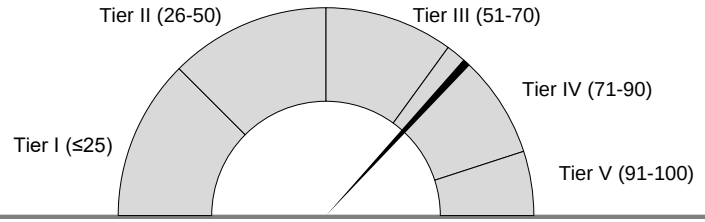
go to worksheet | go to grading | go to references

Water Audit Report for: Central Coast Wate Authority **Audit Year:** 2018 Calendar Jan 01 2018 - Dec 31 2018

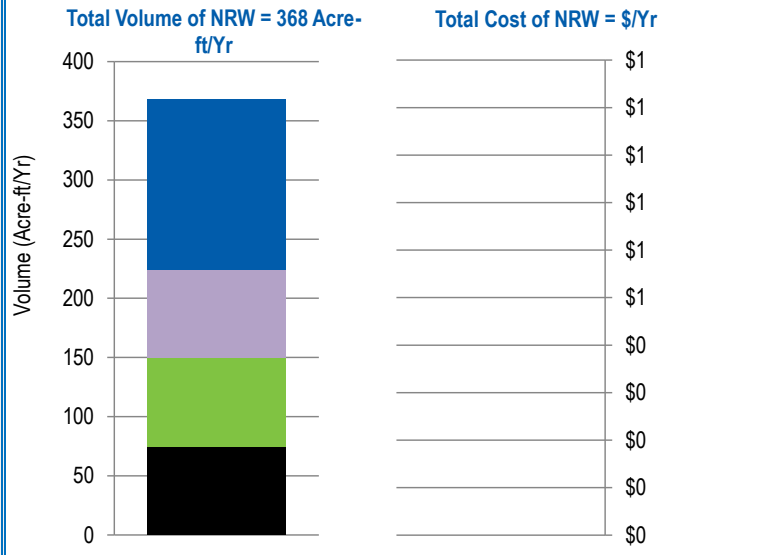
Data Validity

Data Validity Score: 73 **Data Validity Tier:** Tier IV (71-90)

See Loss Control Planning for Tier Details



NRW Components Summary

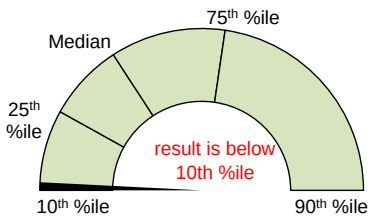


	Volume Acre-ft/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	149.4		CRUC
Real Losses	143.9	$0	VPC
Unbilled Authorized Cons	74.7		VPC
Non-Revenue Water	368.0		Blended

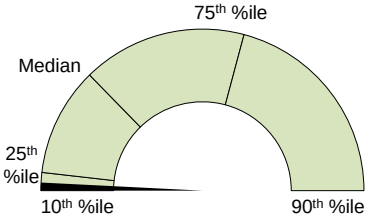
Key Performance Indicators

Actual KPI result | Target (see Worksheet)

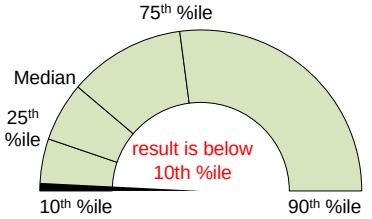
gauge %iles per validated industry ranges[2]



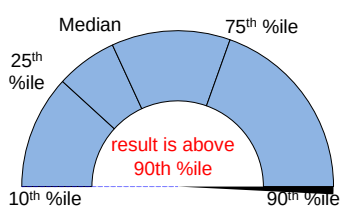
Total Loss Cost Rate
0.00 $/conn/year



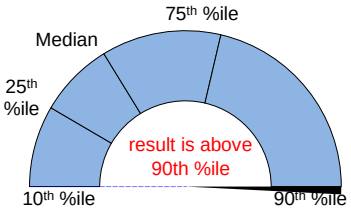
Apparent Loss Cost Rate
$/conn/year



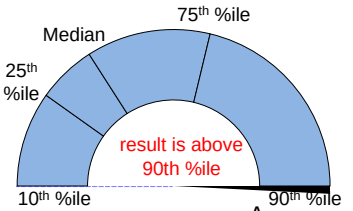
Real Loss Cost Rate
0.00 $/conn/year



Unit Total Losses
26,185.3 gal/conn/day

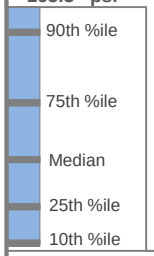


Unit Apparent Losses
13,335.3 gal/conn/day

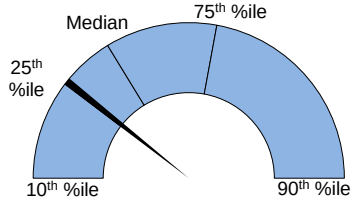


Unit Real Losses[A]
12,849.9 gal/conn/day

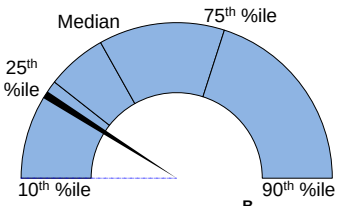
Average Operating Pressure
165.3 psi



AOP is above 90th %ile



Infrastructure Leakage Index (ILI)
1.2 dimensionless



Unit Real Losses[B]
1,046 gal/mile/day

See UARL definition for additional guidance on the ILI

(UARL) Unavoidable Annual Real Losses 123.3 Acre-ft/Yr 11,006.5 gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
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AWWA Free Water Audit Software
Water Balance

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2018 Jan 01 2018 - Dec 31 2018
Data Validity Tier: Tier IV (71-90)

		Water Exported (WE) (corrected for known errors) 0.000	Billed Water Exported			Revenue Water (Exported) 0.000
Volume from Own Sources (VOS) (corrected for known errors) 30,243.000	System Input Volume 30,243.000	Water Supplied 30,243.000	Authorized Consumption 29,949.688	Billed Authorized Consumption 29,875.000	Billed Metered Consumption (BMAC) (water exported is removed) 29,875.000	Revenue Water 29,875.000
					Billed Unmetered Consumption (BUAC) 0.000	
				Unbilled Authorized Consumption 74.688	Unbilled Metered Consumption (UMAC) 0.000	Non-Revenue Water (NRW) 368.000
					Unbilled Unmetered Consumption (UUAC) 74.688	
			Water Losses 293.313	Apparent Losses 149.375	Systematic Data Handling Errors (SDHE) 74.688	
					Customer Metering Inaccuracies (CMI) 0.000	
					Unauthorized Consumption (UC) 74.688	
Water Imported (WI) (corrected for known errors) 0.000				Real Losses 143.938	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2018 Jan 01 2018 - Dec 31 2018
Data Validity Tier: Tier IV (71-90)

Water Loss Control Planning Guide

Functional Focus Area	Water Audit Data Validity Tier (Score Range)				
	Tier I (1-25)	**Tier II (26-50)**	**Tier III (51-70)**	**Tier IV (71-90)**	**Tier V (91-100)**
Audit Data Collection	Launch auditing and loss control team; address supply metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations; Identify data gaps; improve supply metering	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or AMR/AMI system	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon with PIs for performance comparisons for real losses	Performance Benchmarking with PIs is meaningful in comparing real loss standing	Identify Best Practices/ Best in class; PIs are very reliable as real loss performance indicators for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

AWWA Free Water Audit Software v6.0

FWAS v6.0

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format and is not meant to take the place of a full-scale, comprehensive water audit format. Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels. This tool contains several separate worksheets. Sheets can be accessed using the tabs at the bottom of the screen, or by clicking the TOC links below.

Table of Contents (TOC)

AWWA Web Resources for Water Loss Control

https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

Items referenced in the Free Water Audit Software v6.0 on the web:

- Data Grading Matrix v6.0
- Example Water Audit v6.0
- Water Audit Compiler v6.0
- AWWA Reports on Performance Indicators
- M36 Manual

Enter Basic Information

Name of Utility:	Central Coast Wate Authority
Name of Contact Person:	Darin Dargatz
Email:	dod@ccwa.com
Telephone | Ext.:	805-688-2292
City/Town/Municipality:	Buellton
State / Province:	California (CA)
Country:	USA
Audit Preparation Date:	Apr 15 2021
Audit Year:	2019
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2019
Audit Period End Date:	Dec 31 2019
Volume Reporting Units:	Acre-feet
Water System Structure:	Wholesale
Water Type:	Potable Water
System ID Number:	4210030
Validator Name/ID:	N/A
Validator Email:	N/A
Estimated Total Population Served by Water Utility:	

Key of Input Acronyms

In order of appearance in the Worksheet

VOS	Volume from Own Sources
VOSEA	VOS Error Adjustment
WI	Water Imported
WIEA	WI Error Adjustment
WE	Water Exported
WEEA	WE Error Adjustment
BMAC	Billed Metered Authorized Consumption
BUAC	Billed Unmetered Authorized Consumption
UMAC	Unbilled Metered Authorized Consumption
UUAC	Unbilled Unmetered Authorized Consumption
SDHE	Systematic Data Handling Errors
CMI	Customer Metering Inaccuracies
UC	Unauthorized Consumption
Lm	Length of mains
Nc	Number of service connections
Lp	Average length of (private) customer service line
AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*
	volume	25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*
	custom	75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2019 | Jan 01 2019 - Dec 31 2019 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	6	20,878.100	Acre-ft/Yr	n g 9		percent	VOSEA
WI	Water Imported:	n	g	n/a		Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	n/a		Acre-ft/Yr				WEEA

WATER SUPPLIED: 20,878.100 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	9	20,780.000	Acre-ft/Yr			
BUAC	Billed Unmetered:	n	g	n/a		Acre-ft/Yr			
UMAC	Unbilled Metered:	n	g	n/a		Acre-ft/Yr			
UUAC	Unbilled Unmetered:	n	g	3	51.950	Acre-ft/Yr	0.25%	default	

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 20,831.950 Acre-ft/Yr

WATER LOSSES

46.150 Acre-ft/Yr

Apparent Losses

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	51.950	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	10	0.000	Acre-ft/Yr		percent	under-registration
UC	Unauthorized Consumption:	n	g	3	51.950	Acre-ft/Yr	0.25%	default	

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 103.900 Acre-ft/Yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses

Real Losses: -57.750 Acre-ft/Yr

WATER LOSSES: 46.150 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 98.100 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	122.8	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	10		(active *and* inactive)
	Service connection density:				0	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				No		
Lp	Average length of (private) customer service line:	n	g	10		ft	(average distance between property line and meter)
AOP	Average Operating Pressure:	n	g	7	165.3	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	n/a			Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	10		$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Unauthorized Consumption (UC)
3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

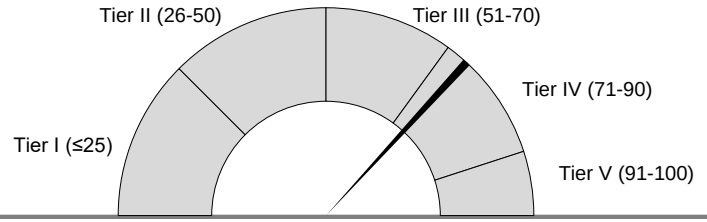
go to worksheet | go to grading | go to references

Water Audit Report for: Central Coast Wate Authority **Audit Year:** 2019 Calendar Jan 01 2019 - Dec 31 2019

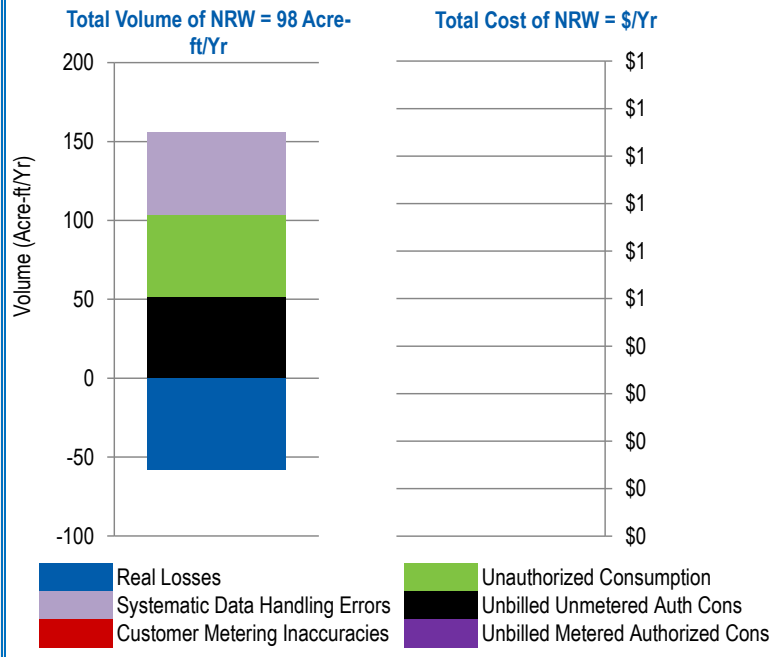
Data Validity

Data Validity Score: 73 **Data Validity Tier:** Tier IV (71-90)

See Loss Control Planning for Tier Details



NRW Components Summary

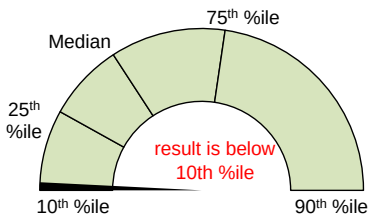


	Volume Acre-ft/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	103.9		CRUC
Real Losses	(57.8)	$0	VPC
Unbilled Authorized Cons	52.0		VPC
Non-Revenue Water	98.1		Blended

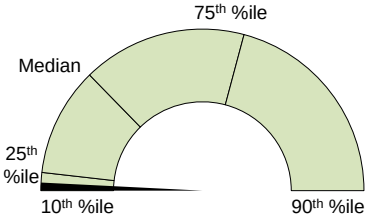
Key Performance Indicators

Actual KPI result | Target (see Worksheet)

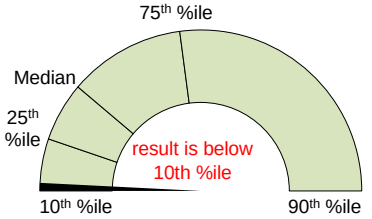
gauge %iles per validated industry ranges[2]



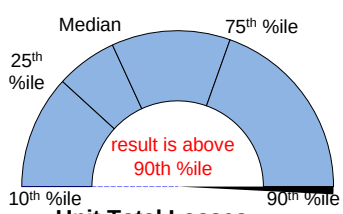
Total Loss Cost Rate
0.00 $/conn/year



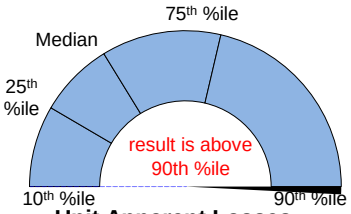
Apparent Loss Cost Rate
$/conn/year



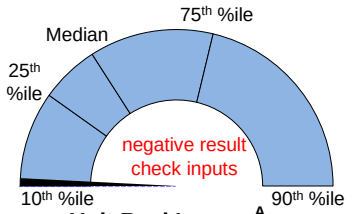
Real Loss Cost Rate
0.00 $/conn/year



Unit Total Losses
4,120.0 gal/conn/day

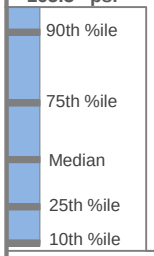


Unit Apparent Losses
9,275.6 gal/conn/day

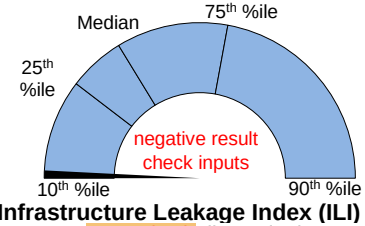


Unit Real Losses[A]
(5,155.6) gal/conn/day

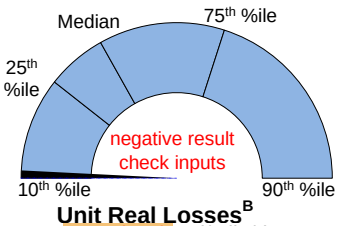
Average Operating Pressure
165.3 psi



AOP is above 90th %ile



Infrastructure Leakage Index (ILI)
(0.5) dimensionless



Unit Real Losses[B]
(420) gal/mile/day

See UARL definition for additional guidance on the ILI

(UARL) Unavoidable Annual Real Losses 123.3 Acre-ft/Yr 11,006.5 gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)[1], with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)[2].
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4695 Guidance Manual, Appendix B (2019)[5].
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by user for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

AWWA Free Water Audit Software
Water Balance

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2019 Jan 01 2019 - Dec 31 2019
Data Validity Tier: Tier IV (71-90)

		Water Exported (WE) (corrected for known errors) 0.000	Billed Water Exported			Revenue Water (Exported) 0.000
Volume from Own Sources (VOS) (corrected for known errors) 20,878.100	System Input Volume 20,878.100	Water Supplied 20,878.100	Authorized Consumption 20,831.950	Billed Authorized Consumption 20,780.000	Billed Metered Consumption (BMAC) (water exported is removed) 20,780.000	Revenue Water 20,780.000
					Billed Unmetered Consumption (BUAC) 0.000	
				Unbilled Authorized Consumption 51.950	Unbilled Metered Consumption (UMAC) 0.000	Non-Revenue Water (NRW) 98.100
					Unbilled Unmetered Consumption (UUAC) 51.950	
			Water Losses 46.150	Apparent Losses 103.900	Systematic Data Handling Errors (SDHE) 51.950	
					Customer Metering Inaccuracies (CMI) 0.000	
					Unauthorized Consumption (UC) 51.950	
Water Imported (WI) (corrected for known errors) 0.000				Real Losses -57.750	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2019 Jan 01 2019 - Dec 31 2019
Data Validity Tier: Tier IV (71-90)

Water Loss Control Planning Guide

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Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
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- M36 Manual

Enter Basic Information

Name of Utility:	Central Coast Wate Authority
Name of Contact Person:	Darin Dargatz
Email:	dod@ccwa.com
Telephone | Ext.:	805-688-2292
City/Town/Municipality:	Buellton
State / Province:	California (CA)
Country:	USA
Audit Preparation Date:	Apr 15 2021
Audit Year:	2020
Audit Year Label:	Calendar (Fiscal, Calendar, etc)
Audit Period Start Date:	Jan 01 2020
Audit Period End Date:	Dec 31 2020
Volume Reporting Units:	Acre-feet
Water System Structure:	Wholesale
Water Type:	Potable Water
System ID Number:	4210030
Validator Name/ID:	N/A
Validator Email:	N/A
Estimated Total Population Served by Water Utility:	

Key of Input Acronyms

In order of appearance in the Worksheet

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AOP	Average Operating Pressure
CRUC	Customer Retail Unit Charge
VPC	Variable Production Cost

Color Key User input | Calculated | Optional default

Guidance for the Worksheet

Choosing to enter unit of **percent** or **volume** (applies to VOSEA, WIEA, WEEA, CMI) choose entry option:

1.00%	percent	*or*
	volume	25.000

Choosing to enter **default** or **custom input** (applies to UUAC, SDHE, UC) choose entry option:

0.25%	default	*or*
	custom	75.000

Guidance for the Interactive Data Grading

Use acronym buttons in IDG header to navigate among inputs. Acronym Key above. White = needs answers, orange = complete, clear = not required. Example below.

After clicking an acronym button, answer all visible questions in the order they're presented, choosing best-fit answer

Grade will populate when all visible questions are complete for an input **7**

The limiting criteria will be labeled along the right. If only 1 limiting criterion is shown, improving on that criterion will achieve a higher data grade. If multiple limiting criteria are shown, improving on *each* limiting criterion is necessary to achieve a higher data grade. A complete inventory of data grading criteria is available in the Data Grading Matrix v6.0 (see web resources)

Limiting

If you have questions or comments regarding this software please contact us at: wlc@awwa.org

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2020 | Jan 01 2020 - Dec 31 2020 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	6	14,702.300	Acre-ft/Yr	n g 9		percent	VOSEA
WI	Water Imported:	n	g	n/a		Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	n/a		Acre-ft/Yr				WEEA

WATER SUPPLIED: 14,702.300 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	9	14,859.000	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a		Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	n/a		Acre-ft/Yr		
UUAC	Unbilled Unmetered:	n	g	3	37.148	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 14,896.148 Acre-ft/Yr

Check input values; WATER SUPPLIED should be greater than AUTHORIZED CONSUMPTION

WATER LOSSES

-193.848 Acre-ft/Yr

Apparent Losses

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	37.148	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	10	0.000	Acre-ft/Yr		percent	under-registration
UC	Unauthorized Consumption:	n	g	3	37.148	Acre-ft/Yr	0.25%	default	

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 74.295 Acre-ft/Yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses

Real Losses: -268.143 Acre-ft/Yr

WATER LOSSES: -193.848 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: -156.700 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	122.8	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	10		(active *and* inactive)
	Service connection density:				0	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				No		
Lp	Average length of (private) customer service line:	n	g	10		ft	(average distance between property line and meter)
AOP	Average Operating Pressure:	n	g	7	165.3	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	n/a			Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	10		$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Unauthorized Consumption (UC)
3: Systematic Data Handling Errors (SDHE)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

FWAS v6.0

AWWA Free Water Audit Software: Dashboard

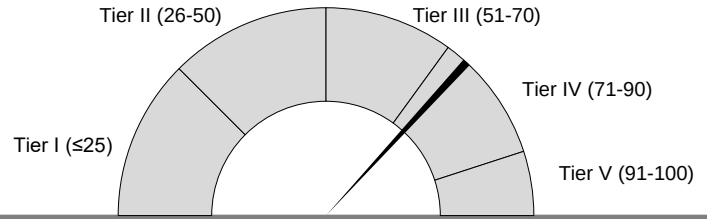
go to worksheet | go to grading | go to references

Water Audit Report for: Central Coast Wate Authority **Audit Year:** 2020 Calendar Jan 01 2020 - Dec 31 2020

Data Validity

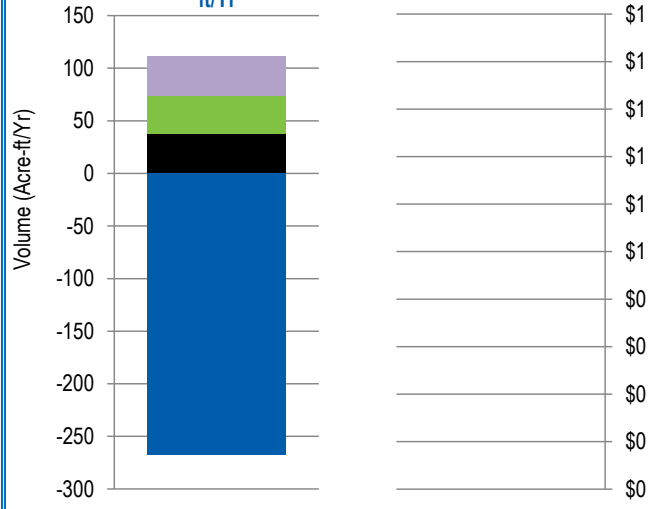
Data Validity Score: 73 **Data Validity Tier:** Tier IV (71-90)

See Loss Control Planning for Tier Details



NRW Components Summary

Total Volume of NRW = -157 Acre-ft/Yr **Total Cost of NRW = $/Yr**



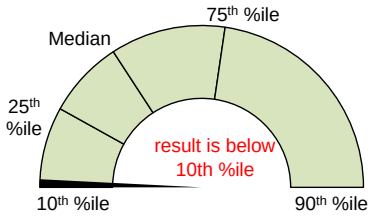
Real Losses
Systematic Data Handling Errors
Customer Metering Inaccuracies
Unauthorized Consumption
Unbilled Unmetered Auth Cons
Unbilled Metered Authorized Cons

	Volume Acre-ft/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	74.3		CRUC
Real Losses	(268.1)	$0	VPC
Unbilled Authorized Cons	37.1		VPC
Non-Revenue Water	(156.7)		Blended

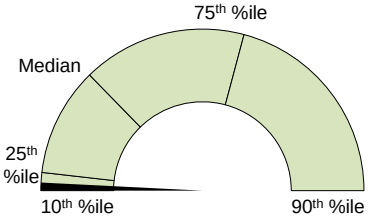
Key Performance Indicators

Actual KPI result | Target (see Worksheet)

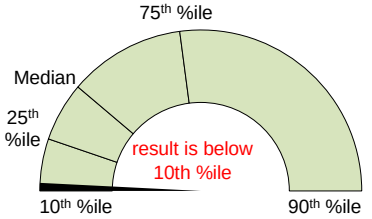
gauge %iles per validated industry ranges[2]



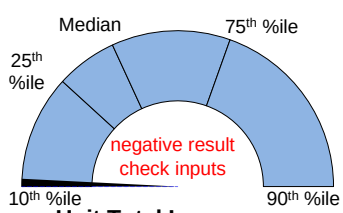
Total Loss Cost Rate
0.00 $/conn/year



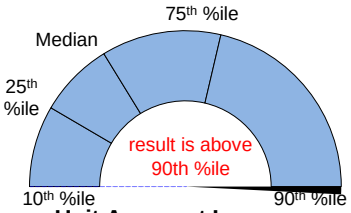
Apparent Loss Cost Rate
$/conn/year



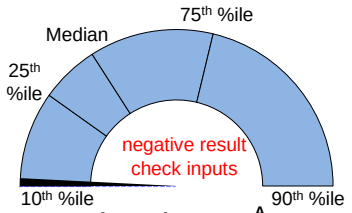
Real Loss Cost Rate
0.00 $/conn/year



Unit Total Losses
(17,305.6) gal/conn/day

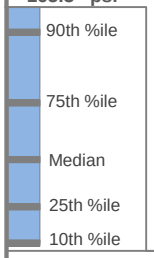


Unit Apparent Losses
6,632.6 gal/conn/day

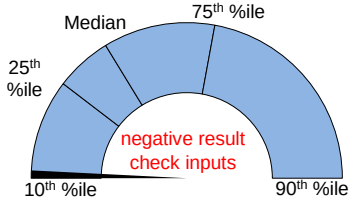


Unit Real Losses[A]
(23,938.2) gal/conn/day

Average Operating Pressure
165.3 psi

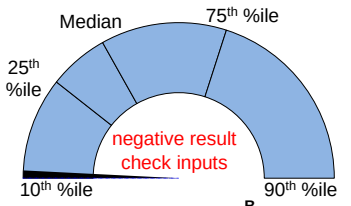


AOP is above 90th %ile



Infrastructure Leakage Index (ILI)
(2.2) dimensionless

See UARL definition for additional guidance on the ILI



Unit Real Losses[B]
(1,949) gal/mile/day

(UARL) Unavoidable Annual Real Losses	123.3	Acre-ft/Yr	11,006.5	gal/conn/day

Guidance Information for Key Performance

- The eight indicators shown are the recommended suite per the AWWA Water Loss Control Committee 2020 Position on KPIs[1].
- A suite of KPIs is necessary, as no single KPI can holistically communicate water loss performance for a given water system.
- See Table 1 below for Uses and Limitations for each KPI, excerpted from the AWWA Water Loss Control Committee Report (2020)[1], with naming conventions updated.
- Percentiles (%iles) shown on KPI gauges come from Level 1 validated data in the AWWA WLCC Reference Water Audit Dataset (2020)[2].
- KPI %iles shown above are not segregated by cohorts. Limited KPI data by cohorts may be found in WRF 4695 Guidance Manual, Appendix B (2019)[5].
- Actual KPI results that fall below 10th %ile or above 90th %ile do not necessarily imply error, but should be viewed with scrutiny.
- Percentiles not intended to imply targets. Targets may be input by user for operational KPIs, if desired, on Worksheet.
- See UARL and ILI in Definitions tab for discussion of size and pressure limitations.
- Systems that fall on the extreme ends of size or connection density should use caution when interpreting Unit Losses KPIs.

AWWA Free Water Audit Software
Water Balance

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Water Audit Report for: Central Coast Wate Authority
Audit Year: 2020 Jan 01 2020 - Dec 31 2020
Data Validity Tier: Tier IV (71-90)

		Water Exported (WE) (corrected for known errors) 0.000	Billed Water Exported			Revenue Water (Exported) 0.000
Volume from Own Sources (VOS) (corrected for known errors) 14,702.300	System Input Volume 14,702.300	Water Supplied 14,702.300	Authorized Consumption 14,896.148	Billed Authorized Consumption 14,859.000	Billed Metered Consumption (BMAC) (water exported is removed) 14,859.000	Revenue Water 14,859.000
					Billed Unmetered Consumption (BUAC) 0.000	
				Unbilled Authorized Consumption 37.148	Unbilled Metered Consumption (UMAC) 0.000	Non-Revenue Water (NRW) -156.700
					Unbilled Unmetered Consumption (UUAC) 37.148	
			Water Losses -193.848	Apparent Losses 74.295	Systematic Data Handling Errors (SDHE) 37.148	
					Customer Metering Inaccuracies (CMI) 0.000	
					Unauthorized Consumption (UC) 37.148	
Water Imported (WI) (corrected for known errors) 0.000				Real Losses -268.143	Leakage on Transmission and/or Distribution Mains Not broken down	
					Leakage and Overflows at Utility's Storage Tanks Not broken down	
					Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Central Coast Wate Authority
Audit Year: 2020 (Jan 01 2020 - Dec 31 2020)
Data Validity Tier: Tier IV (71-90)

Water Loss Control Planning Guide

	Water Audit Data Validity Tier (Score Range)				
Functional Focus Area	**Tier I (1-25)**	**Tier II (26-50)**	**Tier III (51-70)**	**Tier IV (71-90)**	**Tier V (91-100)**
Audit Data Collection	Launch auditing and loss control team; address supply metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations; Identify data gaps; improve supply metering	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or AMR/AMI system	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon with PIs for performance comparisons for real losses	Performance Benchmarking with PIs is meaningful in comparing real loss standing	Identify Best Practices/ Best in class; PIs are very reliable as real loss performance indicators for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX H - WATER SHORTAGE CONTINGENCY PLAN

WATER SHORTAGE CONTINGENCY PLAN

FOR

CENTRAL COAST WATER AUTHORITY

June 2021

Prepared By:

Provost & Pritchard Consulting Group

Table of Contents

1 - PURPOSES AND PRINCIPLES OF PLAN

The purpose of the Central Coast Water Authority (CCWA or Authority) Water Shortage Contingency Plan (WSCP) is to document the methodology for analyzing water supply reliability, declaring water shortage emergencies, identifying mitigation actions, and documenting protocols for implementing the WSCP. This WSCP was prepared according to requirements in Sections 10632 & 10635 of the California Water Code. Certain components of the WSCP, such as water use restrictions and enforcement, are not applicable to CCWA since they provide wholesale water. The agencies served by CCWA (also called project participants) also have their own Water Shortage Contingency Plans and are ultimately responsible for addressing their water supply shortages. However, CCWA will try to secure supplemental water supplies in dry years if requested to by the project participants.

2 - WATER SUPPLY AGREEMENT WITH PARTICIPANTS

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, or a toxic spill that affects water quality. As a wholesaler of a supplemental water supply, CCWA's obligation during water supply interruptions or reductions is limited. The Water Supply Agreements signed by each project participant includes the following language to address shortage of water supply:

"Shortage in Water Supply

a) *Temporary Shortages; Delivery Priorities. In any Year in which there may occur a shortage or interruption due to drought or other temporary cause in the supply of water available for delivery to the Contractor, with the result that such supply is less than the total of the annual Project Allotments of all Project Participants for that Year, the Authority Shall reduce the delivery of water to the Contractor based upon water use in accordance with the State Water Supply Contract.*

b) *Permanent Shortage Entitlements. In the event that the State is unable to construct sufficient additional conservation facilities to prevent a reduction in the minimum State Water Project yield, or if for any other reason there is a reduction in the minimum State Water Project yield, which, notwithstanding preventive or remedial measures taken or to be taken by the State, threatens a permanent shortage in the supply of State Water Project water to be made available to the Authority under the State Water Supply Contract the Project Allotment of the Contractor shall be reduced in accordance with the State Water Supply Contract.*

c) *No Liability for Shortages. Neither the Authority nor any of its officers, agents, or employees shall be liable for any damage, direct or indirect, arising from the shortages in the amount of water to be made available for delivery to the Contractor under this Agreement caused by non-availability of water to the Authority under the State Water Supply Contract or caused by drought, operation of area of origin statutes, or any other cause beyond its control.*

d) *Wheeling During Shortages. In the event that the Contractor's Project Allotment has been temporarily or permanently reduced, the Contractor may direct the Authority to deliver water acquired by the Contractor outside of Santa Barbara County and delivered through the Coastal Aqueduct, up to an amount equal to such reduction, subject to the Authority's overall delivery ability considering the then current delivery schedule of all Project Participants and subject to water quality requirements reasonably approved by the Authority. For purpose of Section 13 hereof, such water shall*

be treated as Project Allotment and the Authority shall not charge any fee in connection with the delivery of such water except Fixed O&M Costs and Variable O&M Costs which would be allocable to such Contractor's Project Allotment."

3 - PROCEDURES FOR EVALUATING WATER SUPPLIES

Overview of Water Supply Assessment

CCWA provides wholesale treated water originating from the State Water Project to the 13 water providers in Santa Barbara County annually. These agencies are collectively called the project participants. Quantifying water supplies is fairly simple since they are based on the project participant's SWP contract amounts multiplied by the announced SWP allocation. The allocation can be adjusted throughout winter, spring and summer months, usually gradually increasing during the year but in some cases can be decreased. CCWA can only deliver what is available. If project participants desire more water one option is to ask CCWA to search for more water through transfers, exchanges or water banking opportunities. These water supplies, if available, can be added to the SWP allocations for those agencies willing to pay their cost. A shortage can also occur from a catastrophic water supply interruption, which may or may not be under the control of CCWA. CCWA has plans in place to respond to a catastrophic water supply emergency and restore service as soon as feasible.

Existing Infrastructure Constraints

Primary infrastructure includes a water treatment plant and the Coastal Aqueduct for conveying flows to the project participants. In addition, the State Water Project also operates facilities, including Delta pumping facilities and the California Aqueduct, that deliver water to CCWA.

Water Treatment Plant. The water treatment plant has backup generators so it can continue operating during a power outage. The water treatment plant may temporarily be down in case of malfunction or other operational problem, but most treatment processes have backup systems or redundancies, making the risk of a plant shutdown relatively low.

Coastal Aqueduct. The Coast Aqueduct is the sole conveyance facility for delivering water to the project participants. CCWA has special design features, stockpiled materials and emergency plans in place to address an outage or problem with the aqueduct. For more details refer to Section 6 – Catastrophic Water Supply Interruption.

State Water Project Facilities. The State of California has an Emergency Response Plan to deal with catastrophic failures or emergencies on State Water Project Facilities. These would generally be out of the control of CCWA. However, if the facility failures occurred North of San Luis Reservoir, there may still be opportunities for CCWA to retrieve their own water from San Luis Reservoir, or other water supplies via exchange or transfers.

Locally Appropriate Operational Changes

When participant delivery requests fall below the design minimum flow rate of the Coastal Aqueduct (10 million gallons per day or 30 AF per day), CCWA management will attempt to coordinate deliveries rates as a measure to maintain water quality within the pipeline. This action is coupled with a wide range of nitrification control measures. If nitrification cannot be controlled due to elevated water age arising from low flow rates in the aqueduct, CCWA will need to cease delivery operations.

Gap Between Supply and Demand

The District can only provide water that is available. The project participants must close any gaps between supply and demand with their own local water supplies, their own water transfer/exchanges agreements, water conservation programs, or supplemental water which they must request from CCWA.

4 - WATER SHORTAGE STAGES AND RESPONSE ACTIONS

The Water Code lists six standard Water Shortage Stages for use in WSCPs, each increasing gradually by 10% up to the highest level which is a 50+% reduction. These stages are generally not applicable to CCWA since they provide a wholesale supply and are not responsible for response actions. It is the responsibility of the project participants to declare local water shortages and implement water conservation measures. CCWA has no ability to reduce water consumption during a water shortage event. In fact, during a water shortage event, CCWA is called upon by its member agencies to increase and maximize deliveries. However, CCWA regularly notifies the project participants of the current SWP allocation and will declare an emergency if there is a catastrophic water supply interruption.

5 - MITIGATION MEASURES

CCWA's charge is to assure that the delivery of the SWP to retail agencies is as reliable as possible each and every year. To that end, CCWA will respond to the need of its participants when additional sources of water, beyond that provided by the annual DWR Table A allocation process, are requested. During one of the driest periods on record (late 2013 and 2014), the CCWA Board of Directors established two important goals for CCWA staff to pursue: (1) establish a program to identify and secure supplemental water during times of drought and (2) investigate the options for a groundwater banking partnership for storing excess water, when it is available. The Supplemental Water Program has been very successful in securing additional supplies in dry years and CCWA is also currently participating in two groundwater banks. More details on these two topics are provided below.

The CCWA Supplemental Water Purchase Program (SWPP) was first implemented in 2014, which was the year with the lowest annual Table A allocation in the history of the SWP. Considering that each CCWA participant had their own unique set of water supply needs, it was necessary to develop a specific program to assist only those agencies that required supplemental source of water supplies. The purpose of this separation was to isolate the participants not involved with purchasing supplemental water from the costs and liabilities associated with such transactions.

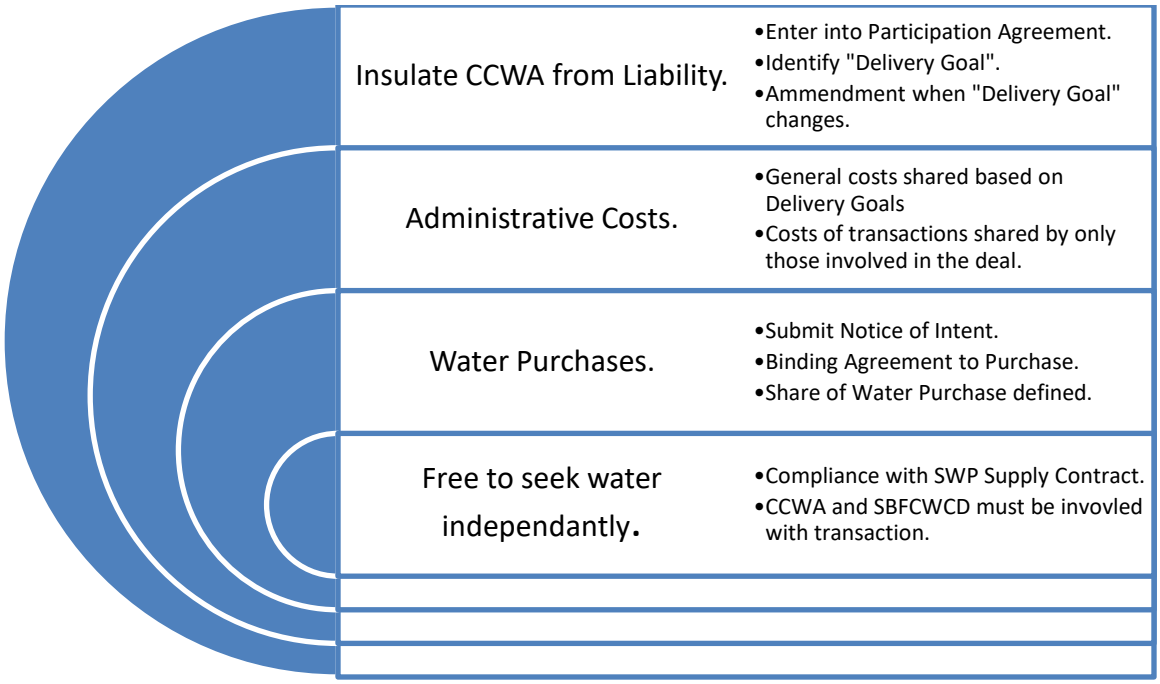

Figure 1 Supplemental Water Purchase Program

As illustrated in Figure 1, the SWPP was formed through a contract among the CCWA participants joining the program. The program was established to facilitate a group effort to secure supplemental water, while not prohibiting individual CCWA participants from making their own independent efforts.

The SWPP Participation Agreement included provisions where those signing the agreement would agree to indemnify CCWA and its member agencies from the costs and liabilities associated with the program. The Agreement also outlined how general administrative costs and specific transaction costs would be allocated to the membership of the SWPP.

First, to join the SWPP, a CCWA participant would need to identify a delivery goal and this goal would be documented in the Participant Agreement. If a SWPP member wanted to change their delivery goal at a later date due to changing circumstances, they would need to change it by an amendment to the Agreement. All general administrative costs for the program would be proportionally shared based on Delivery Goals.

When a specific supplemental water transaction is identified, SWPP members will opt in or opt out. Those that opt in on the transaction will need to submit a Notice of Intent. The costs for the transaction would be shared only by those SWPP members involved with the transaction and would be proportionally paid based on the volumes presented in the Notice of Intent. Finally, once the specifics of the transaction became finalized, each participating SWPP member would need to enter a Binding Agreement to Purchase. This agreement included provisions to allocate the share of the water purchase in terms of costs and water received.

The SWPP proved to be highly effective in responding to the urgent need for supplemental water in the 2014 - 2016 drought and will be made available to the project participants in future water shortages.

As of 2021, CCWA was participating in two groundwater banks: The Strand Water Bank in Irvine Ranch Water District and the Semitropic Water Banking and Exchange Program. These projects can provide stable dry-year water supplies since the water can be stored for multiple years. Refer to the 2020 UWMP for more details on the groundwater banking agreements.

6 - CATASTROPHIC WATER SUPPLY INTERRUPTION

A catastrophic water supply interruption can come from a number of causes including natural disaster, equipment malfunctions, terrorism, water quality issues, or power failures. This represents a different situation than a drought and will require efforts by CCWA to restore services as soon as feasible, as well as coordination with the project participants. The following topics will be covered in this section: 1) Mitigation and prevention measures; 2) CCWA Risk Resilience Assessment and Emergency Response Plan; 3) Seismic Hazard Risk Assessment and Mitigation; and 4) Seismic Damage to the California Aqueduct.

Mitigation and Prevention Measures

Both CCWA and DWR are committed to delivering all of the water that is available in a given year. There are many design features in the DWR and CCWA systems that are intended to facilitate continuous supply and delivery operations, with a minimum of interruptions. Some of the features are as follows:

- To prevent service interruption due to power failures, all key facilities have emergency electrical generators to, at least, maintain communication and control of these facilities.
- To prevent malicious acts of vandalism or terrorism, a wide variety of security measures are in place.
- To minimize the impact of earthquakes, there are a range of design features on the pipeline to minimize damage. These features include specialized pipe connections such as the Coastal Branch pipeline crosses the San Andreas Fault and isolation valves at other fault crossing locations.
- To provide early detection of contamination, the pipeline and treatment plant are equipped with a wide variety of water quality instrumentation. All of these water quality instruments can be monitored through CCWA's Supervisory Control and Data Acquisition (SCADA) System.

Risk and Resiliency Assessment and Updated Emergency Response Plan

The American Water Infrastructure Act (AWIA) of 2018 requires community water systems serving more than 3,300 people to develop or update Risk and Resiliency Assessments (RRA) and Emergency Response Plans (ERP). Since CCWA provides water to over 100,000 people, the deadline for completing the RRA was March 31, 2020, and the deadline for completing the ERP was September 30, 2020. CCWA was able to complete both of these required tasks well before the regulatory deadline.

The Risk and Resiliency Assessment (RRA) includes six overall tasks: (1) identification of critical assets, (2) estimation of a Utility Resilience Index, (3) utilization of the Cyber Security Assessment Tool, (4) completing a Malevolent Acts Risk Review, (5) identification of Threat-Asset Pairs and (6) utilizing the VSAT software to complete and document the RRA. These tasks were completed by the CCWA Supervisor group (project team) in a several collaborative workshop setting. The project team reviewed original design documentation as well as maintenance and maintenance records of the CCWA system as they considered each element of the RRA.

The results of the RRA identified specific actions that could be taken to improve overall resiliency of the CCWA operation. As required by AWIA, the existing CCWA Emergency Response Plan (ERP) was updated, as appropriate, to include resiliency improvements measures that were identified during the RRA. In addition, the updated ERP was also required to include specific elements that did not existing in the previous CCWA ERP. The main elements of an updated ERP included (1) Utility Information, (2) Resilience Strategies, (3) Emergency Plans and Procedures, (4) Mitigation Actions and (5) Detection Strategies.

The ERP also provides detailed instructions for catastrophic interruption of its water supply including chemical spill, SCADA or other communications failure, accidental contamination of water supply,

contamination of water supply threat, earthquake, fire, intrusion alarm at CCWA facilities, power failure, vandalism or other damage to CCWA facilities, water supply failure and water treatment failure.

The ERP includes job classification-specific instructions for all the above situations, notification lists, facility specific information, chain of command/emergency operations center information, emergency contractor and supplier information and a complete set of forms to assist in emergency tracking. CCWA also maintains an inventory of essential equipment such as emergency generators, portable chlorination and de-chlorination equipment, lighting, etc. as well as long lead time supplies such as pipe sections in various diameters, valves and other critical items.

The ERP is updated annually. Additionally, staff receives training and performs emergency response exercises on a frequent basis. The ERP is not attached because it contains sensitive security information, but is available to CCWA staff, project participants, and other approved public agencies.

Seismic Hazard Assessment and Mitigation Plan

The seismic hazards associated with the CCWA system are addressed through the original design of the system, periodic seismic risk assessments of selected components of the system and routine operations and maintenance work. All structures within the CCWA system have been designed to comply with the applicable sections of the Uniform Building Code for seismic safety in California. In addition, the CCWA pipeline crosses two known earthquake faults, the San Andreas and the Santa Ynez River Faults, and certain features have been incorporated into the pipeline design to mitigate damage arising from an earthquake event at these locations.

As required by Title 19 California Code of Regulations (CCR) CalARP Program, CCWA retains the services of an engineering consultant to conduct a CalARP Seismic Assessment every 5 years at the Water Treatment Plant (WTP), with the first one completed in 2017. The purpose of the assessment is to reduce the likelihood of releasing significant quantities of the regulated materials in the event of strong ground motion at the facility due to an earthquake. The assessment specifically focused on the storage, control and dosing systems for Aqueous Ammonia (19% by weight) and chlorine (one ton compressed liquid chlorine cylinders). These chemicals are classified as hazardous materials and are stored in quantities above the CalARP regulatory thresholds. The results of the 2017 assessment did not identify conditions that merited specific recommendations for improvements of the systems inspected.

In addition to design features, periodic assessment and routine operations and maintenance measures, the CCWA Emergency Response Plans outlines procedures for staff to implement upon detection of a significant earthquake event. These procedures include both assessment activities and specific operational responses, depending upon the circumstances.

San Andreas Fault. The CCWA pipeline is an underground pipeline, however, as it approaches the San Andreas Fault, it becomes an above ground pipeline for approximately 1,325 feet. The design approach for this section of pipeline is to reinforce the pipe anchoring at the points of transition from underground to aboveground. The above ground portion of the pipeline has numerous design features to improve stability and is connected in a way to facilitate articulation and movement during an earthquake event.

The pipe connections are accomplished with a sleeve coupling assembly. This assembly consists of a middle ring and two follower rings. The middle ring is 1 foot - 3 inches wide and is slipped over the ends of the two joined pipe spools. The two follower rings are positioned on each side of the middle ring. A special gland is presents between the middle ring and follower rings where a resilient rubber gasket is placed. The follower ringers are joined together with long 3/4 inch through-bolts that are used to tighten the follower rings together and squeeze the resilience rubber gasket into the middle ring to form a watertight seal. This kind of pipe joining assembly allows for a certain degree of lateral movement by the pipes.

Finally, the Seismic Joint is inspected monthly by CCWA staff for any signs of leakage or significant movement of the pipeline. If needed the sleeve coupling assemblies are tightened to prevent leakage. Also, on a periodic basis, the concrete foundations of each pipe support are surveyed in order to monitor for gradual movements over time.

Santa Ynez River Fault. The CCWA pipeline crosses over the Santa Ynez Fault. To mitigate potential environmental impacts and potential safety risk to the general public, isolation valve systems have been installed on the main aqueduct pipeline. Two are located on each side of the San Antonio Creek crossing and two additional isolation valve systems are located at strategic locations as the aqueduct crosses the Santa Ynez River. The isolation valves are designed to reduce the flow rate but not completely eliminate flow from the pipeline.

The isolation valve system is equipped with a large butterfly valve on the main aqueduct pipeline and a smaller bypass pipe and associated isolation valve. The isolation valve system also includes a seismic sensor and flow meter. If an earthquake is sensed above a certain magnitude or if a high rate of flow is detected, the isolation valves will activate. First, the smaller bypass pipeline isolation valve will open. When the bypass pipeline isolation valve is fully open, the larger butterfly isolation valve in the main aqueduct pipeline will start to close. Once the main butterfly isolation valve closes, the bypass pipeline isolation valve will close. The closure time and sequence have been established to minimize the formation of the pressure transient within the main aqueduct. If the isolation valves are activated, they can only be manually opened so that CCWA staff can conduct physical inspection to determine the extent of damage

These isolation valve systems have a number of features that ensure continuous operation. All instrumentation has battery back-up power supply, which can accommodate connection of an emergency electrical generator. Also, the valve actuation is powered through a "Hydraulic Package", which is a system that stores hydraulic pressure that can be utilized to actuate the valves during a power failure event. All of these systems and control sequences are verified on an annual basis by CCWA staff, typically during the annual winter shutdown maintenance.

Spare Pipe. As part of the Risk and Resilience Assessment of the CCWA System, it was concluded that purchasing pipe spools and related parts would significantly reduce repair time if an earthquake were to significantly damage the aqueduct pipeline. The pipe materials are stored in strategic locations and have been manufactured in a way to allow for long term storage without corrosion or other damage.

Seismic Damage to the California Aqueduct

The Phase II Coastal Branch pipeline traverses the San Andreas Fault, in addition, the California Aqueduct passes within 20 miles of the San Andreas Fault as well. The California Division of Mines and Geology has stated that two of the aqueduct systems that import water to southern California (including the California Aqueduct) could be ruptured by displacement on the San Andreas Fault. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power.

As previously stated, the CCWA ERP addresses seismic risks and some facilities have been constructed to minimize impacts from earthquakes, including special pipe connections and isolation valves.

DWR has an Aqueduct Outage Plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair. This would interrupt the SWP source of supply to the CCWA project participants for the four-month repair period. Since the CCWA system is a supplemental and interruptible supply, the CCWA project participants maintain other sources of water supply that could be utilized during this potential extended outage. However, CCWA staff would work and cooperate with DWR in facilitating a speedy resumption of service.

Since the CCWA system receives all of its water supply through the SWP system, any interruption between the San Luis Reservoirs and the Coastal Branch will represent significant potential for interrupting water supply

delivery operations. The complete disruption of the California Aqueduct between San Luis Reservoir and the Coastal Branch would represent the worst-case scenario because it separates the Coastal Branch from both the Delta and San Luis Reservoir. As discussed above, DWR has estimated that the time to repair a complete disruption of the aqueduct would be four months. Although the Levee failures in the Delta would impact SWP export for up to six months, CCWA typically has carryover water in San Luis Reservoir, which would reduce, but not eliminate, the impact.

7 - COMMUNITY OUTREACH

An important function of the CCWA operation is to fully characterize the source of supply for CCWA Participants so that they can incorporate this information into their individual water management strategies. CCWA management provides frequent updates on the current year available supply at each Board of Directors Meeting and at each Operating Committee Meeting. This update includes the current status of precipitation and snow levels of the SWP's watershed, current reservoir levels, and the results of DWR periodic special studies regarding potential changes to the amount of available supply as well as DWR's annual position analysis. In addition, a Water Delivery Status Report is also posted on the agency's website. This report provides the amount of available water supply for the current year and the amount delivered to date for the given year. Most of the project participants also closely follow SWP water allocation announcements. Nevertheless, CCWA regularly notifies project participants of changes in allocations, as well as the availability of other supplementary water supplies.

8 - LEGAL AUTHORITY OF THE PLAN

This WSCP adheres with the California Water Code 10632. This document is also required by State law as outlined in the Water Code, which states that, "Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan…" (WC 10632). As an established California water agency, CCWA has the authority to implement the WSCP, declare water shortages, and implement mitigation measures requested by the project participants.

CCWA will follow the protocols outlined in this Plan should it become necessary to declare a water shortage emergency, such as a catastrophic water supply interruption. The process will follow the pertinent sections of the California Water Code and be noticed for a public hearing, typically at a Board of Directors meeting. If time is of the essence, then the CCWA Executive Director can declare a water emergency before Board approval is possible.

9 - REVENUE REDUCTIONS AND EXPENSE INCREASES

Expenses for the Supplemental Water Purchase Program are passed on directly to the agencies choosing to participate, so there are not additional costs for CCWA.

Responding to a catastrophic water supply interruption could feasibly be covered under existing budgets and using existing staff and resources. If additional costs were incurred, CCWA could rely on reserves or the CCWA Board of Directors, which is composed of project participants, could increase fees for the following year to recover any deficits. CCWA is funded entirely by the project participants who are required to cover any expenses incurred by CCWA.

10 - MONITORING AND EVALUATING THE PLAN

This WSCP has been prepared to incorporate new requirements established in 2020. The WSCP will be re-evaluated at least every five years and at the end of each drought period to assess its performance. If deemed necessary, it will be modified and updated.

10 - MONITORING AND EVALUATING THE PLAN

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CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

APPENDIX I – REDUCED DELTA RELIANCE NOTICE FOR CCWA MEMBERS

CENTRAL COAST WATER AUTHORITY

MEMORANDUM

March 24, 2021

TO: CCWA Member Agencies

FROM: Ray Stokes
Executive Director

SUBJECT: Reduced Reliance Notice for CCWA Members

As you may have heard, on December 18, 2020 the Department of Water Resources recommended that potential participants in the Delta Conveyance project prepare documentation on reduced reliance on Delta water supplies that is consistent with the Delta Stewardship Council (DSC)'s Reduced Reliance Policy. While not a strict requirement of the UWMP, reduced reliance documentation would facilitate implementation of possible future actions that involve the Sacramento-San Joaquin Delta (such as Delta Conveyance and multi-year water transfers from North of the Delta) and require a consistency determination with the Delta Plan.

CCWA has reviewed the Reduced Reliance Policy and the guidelines for documenting compliance with this policy. A key factor in documenting Reduced Reliance is defining a baseline for 2010. CCWA is proposing to use the 2009 State Water Project (SWP) Delivery Reliability Report (DRR) as the basis for documenting Reduced Reliance. The 2009 SWP DRR was the last documentation of SWP supply availability prior to the 2010 implementation of the Delta Plan and is supported for documentation by the DSC. The 2009 SWP DRR identified a SWP average reliability of 60%.

The distribution of baseline for CCWA members based on the 60% average delivery amount from 2009 SWP DRR is shown in Table 1.

Table 1
2010 SWP Baseline for CCWA Project Participants

Agency	Table A	2009 SWP DRR	2009 SWP DRR w/ Buffer
City of Buellton	578	347	381
Carpinteria Valley Water District	2,000	1,200	1,320
Goleta Water District	4,500	2,700	4,470
City of Guadalupe	550	330	363
La Cumbre Mutual Water Company	1,000	600	660
Montecito Water District	3,000	1,800	1,980
Morehart Land Company	200	120	132
City of Santa Barbara	3,000	1,800	1,980
Raytheon Systems Company	50	30	33
City of Santa Maria	16,200	9,720	10,692
Santa Ynez RWCD, Improvement District #1	2,000	1,200	1,320
Golden State Water Company	500	300	330

Vandenberg Air Force Base	5,500	3,300	3,630
TOTAL	39,078	23,447	27,291
CCWA Drought Buffer	3,908		
Goleta WD Drought Buffer	2,500		
Total	45,486		27,292

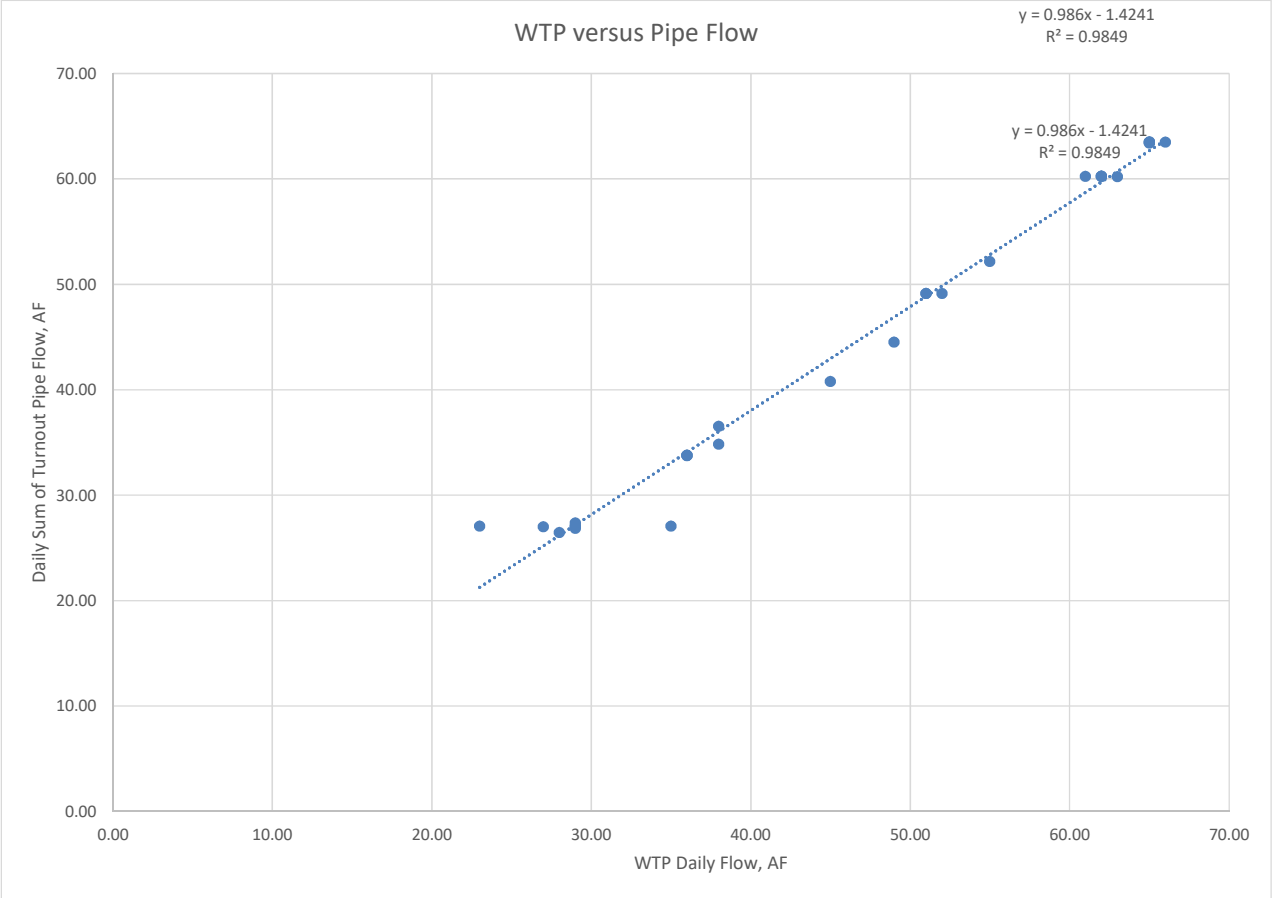
CCWA believes that the values shown in Table 1 would collectively cover potential future use of SWP supplies within Santa Barbara County and provide for documentation of Reduced Reliance. Note that the amounts above are intended to document average water use over a normal period, and would not be a single year cap on future use of SWP and other Delta water supplies. If you desire, your agency may choose to use another estimate of 2010 baseline supplies. If your agency chooses to use another estimate, we request that you provide us with that estimate and the rationale for choosing the alternative baseline.

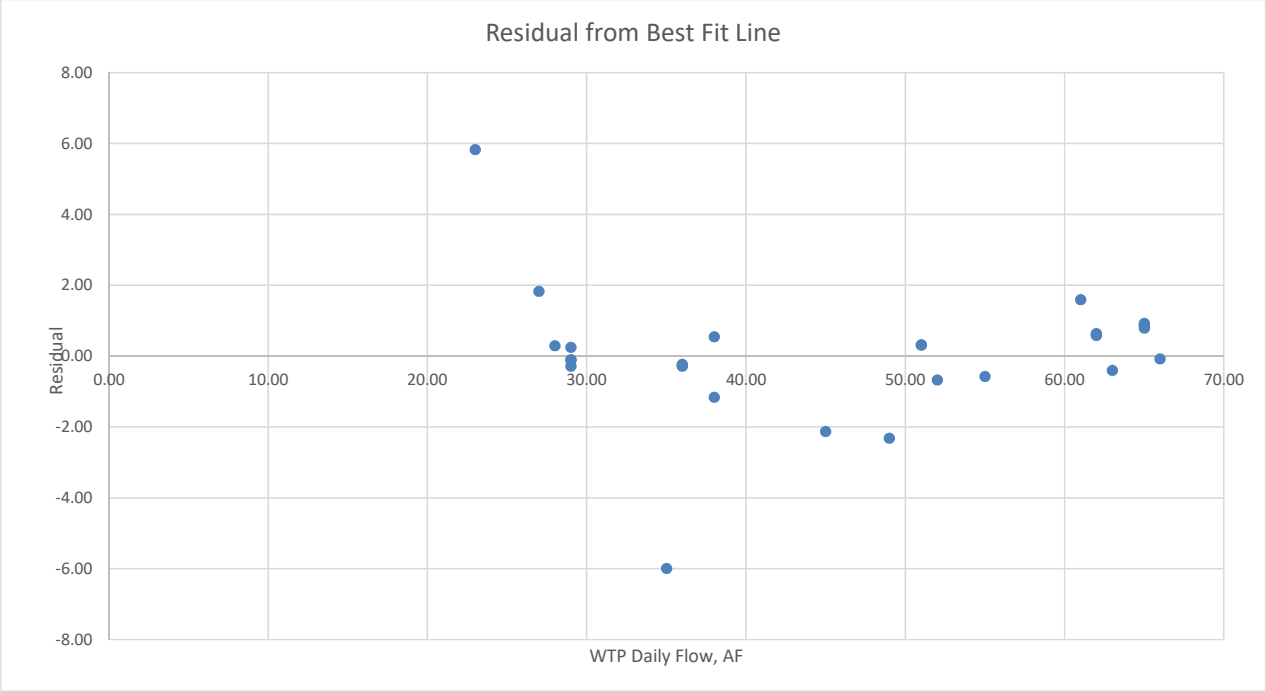
If you have any questions about the Reduced Reliance 2010 Baseline, please contact me at 805-698-5923.

CENTRAL COAST WATER AUTHORITY
URBAN WATER MANAGEMENT PLAN

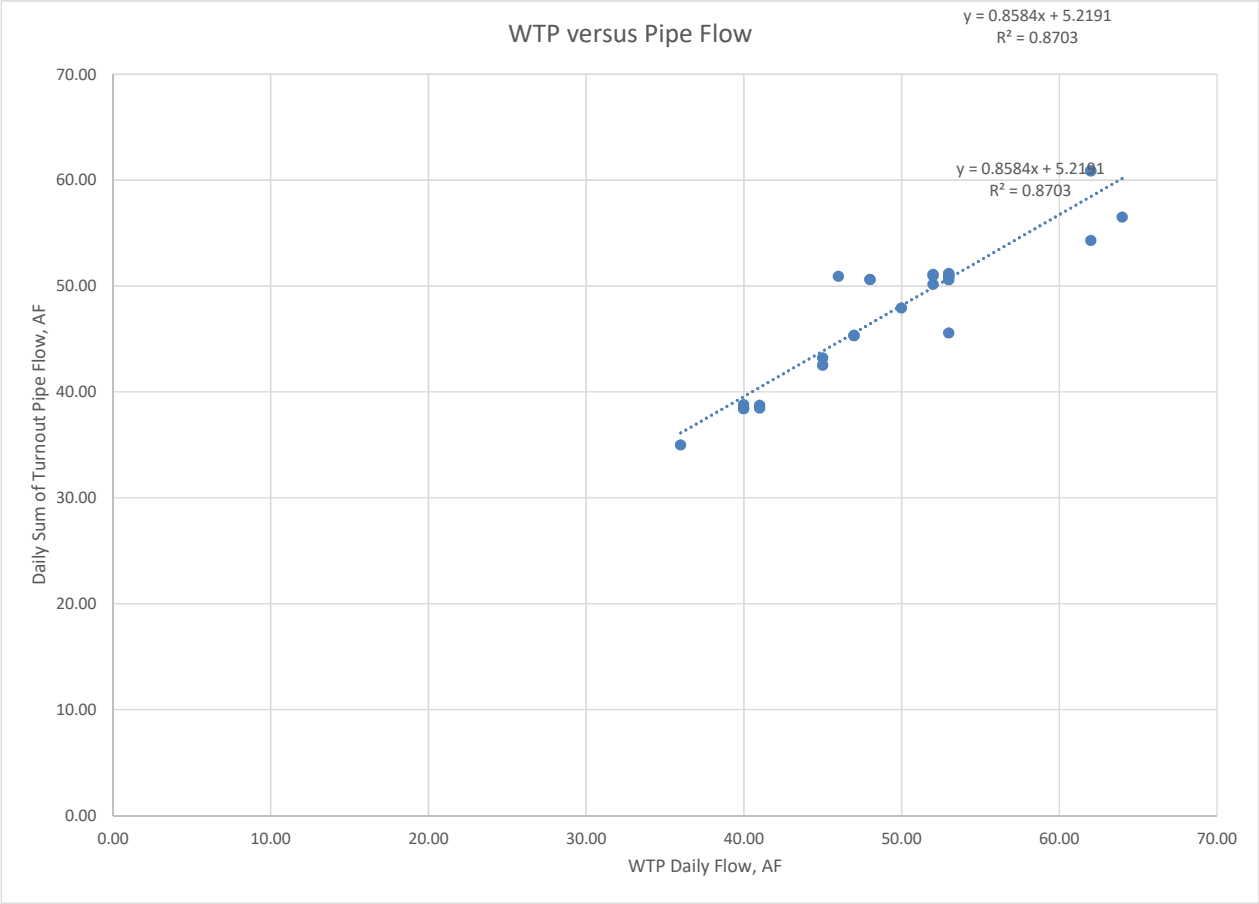
APPENDIX J – ANALYSIS OF DAILY FLOW RECORDS FOR LEAK DETECTION FOR 2016-2020

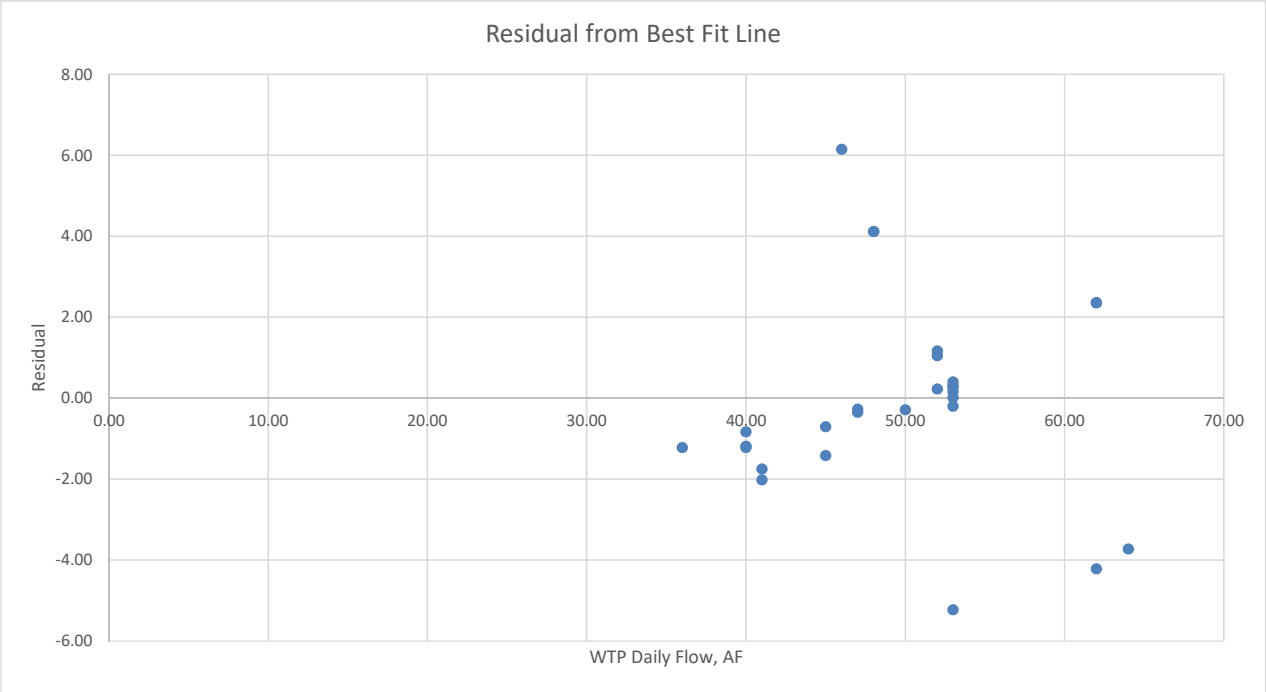
January 2016



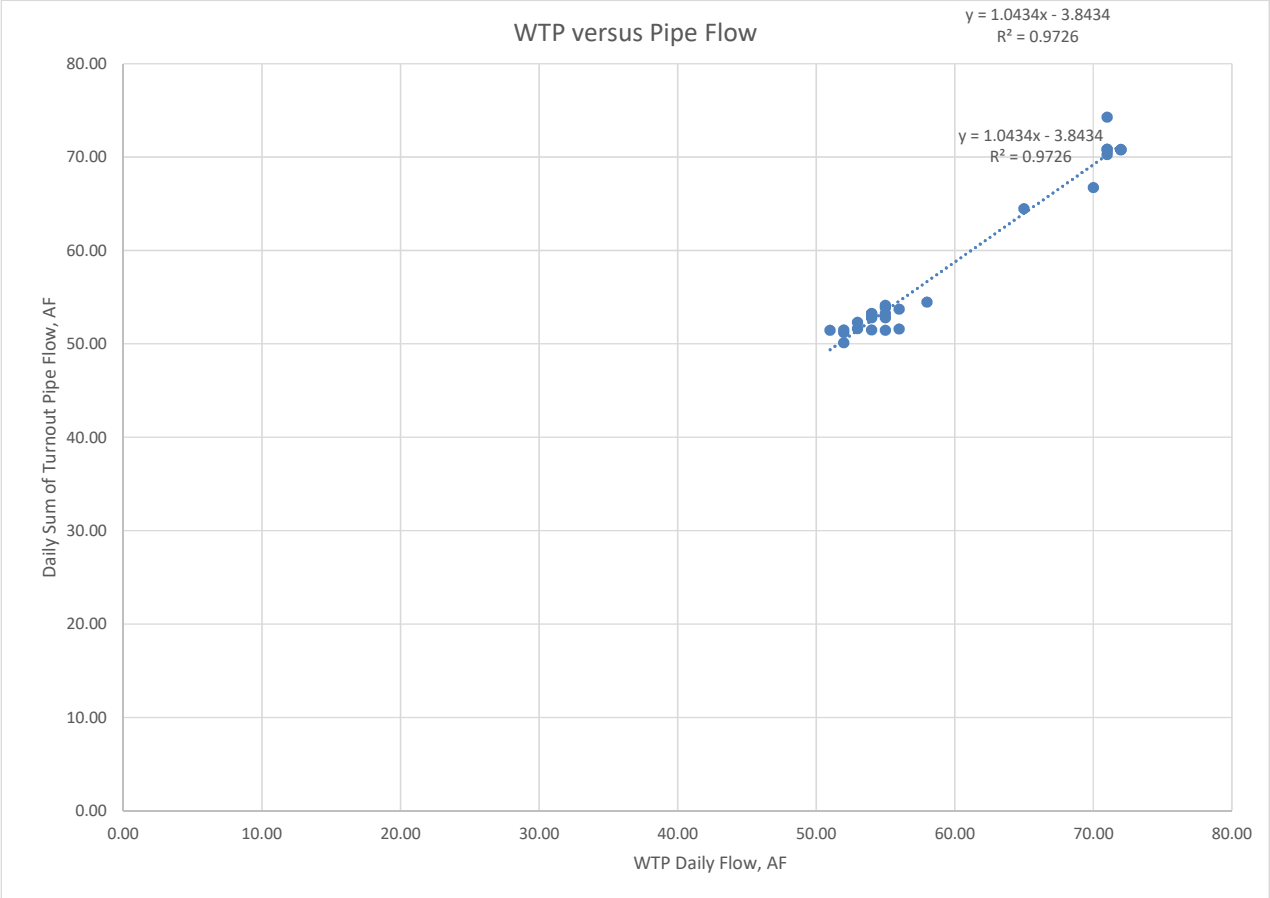


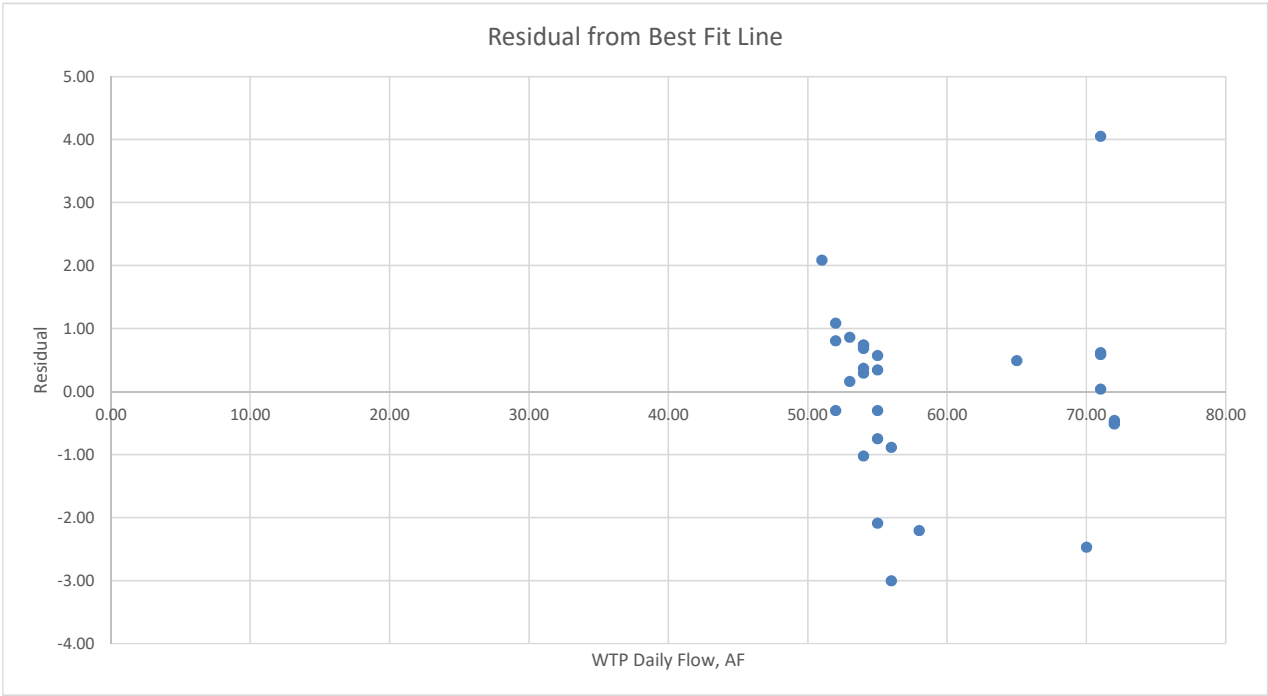
February 2016



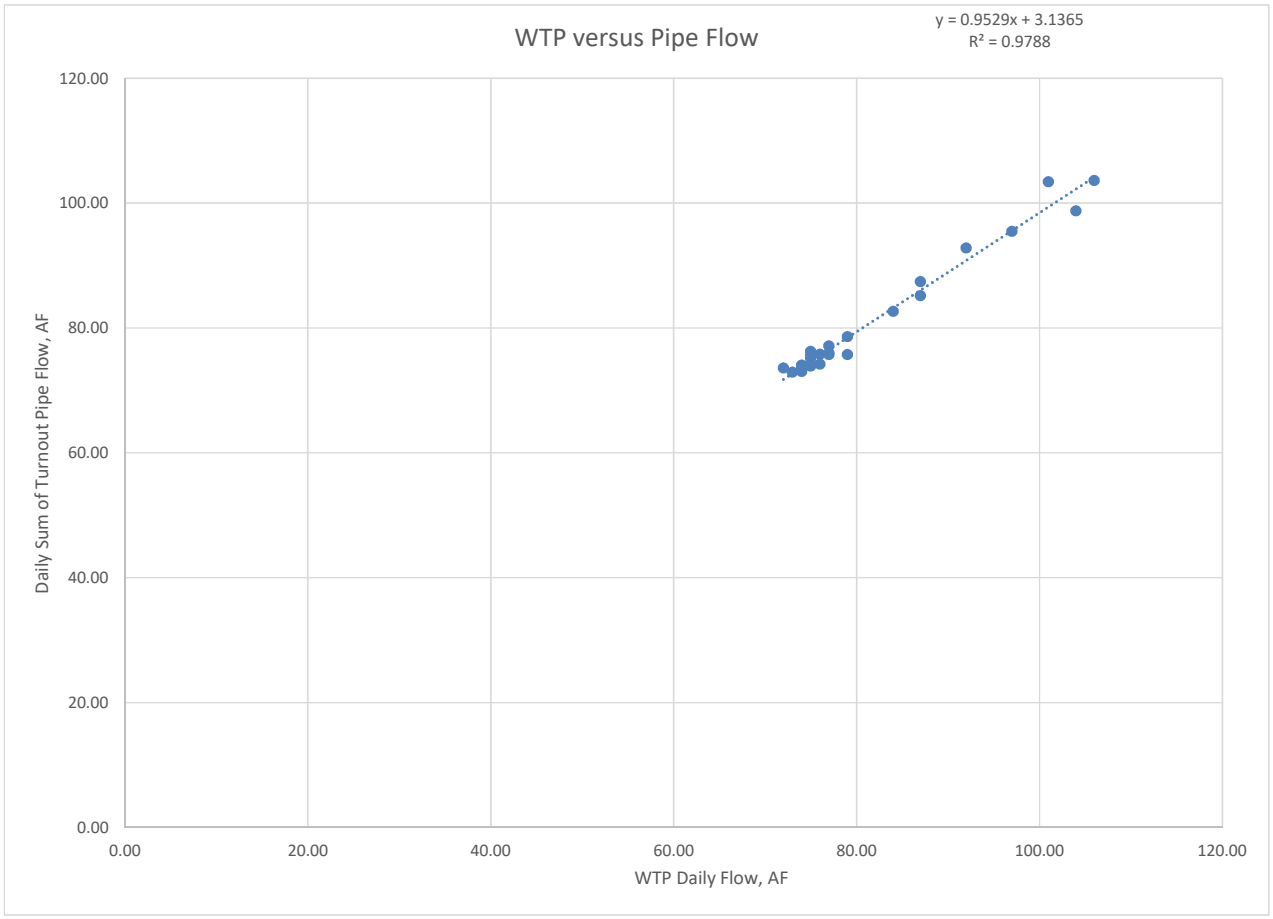


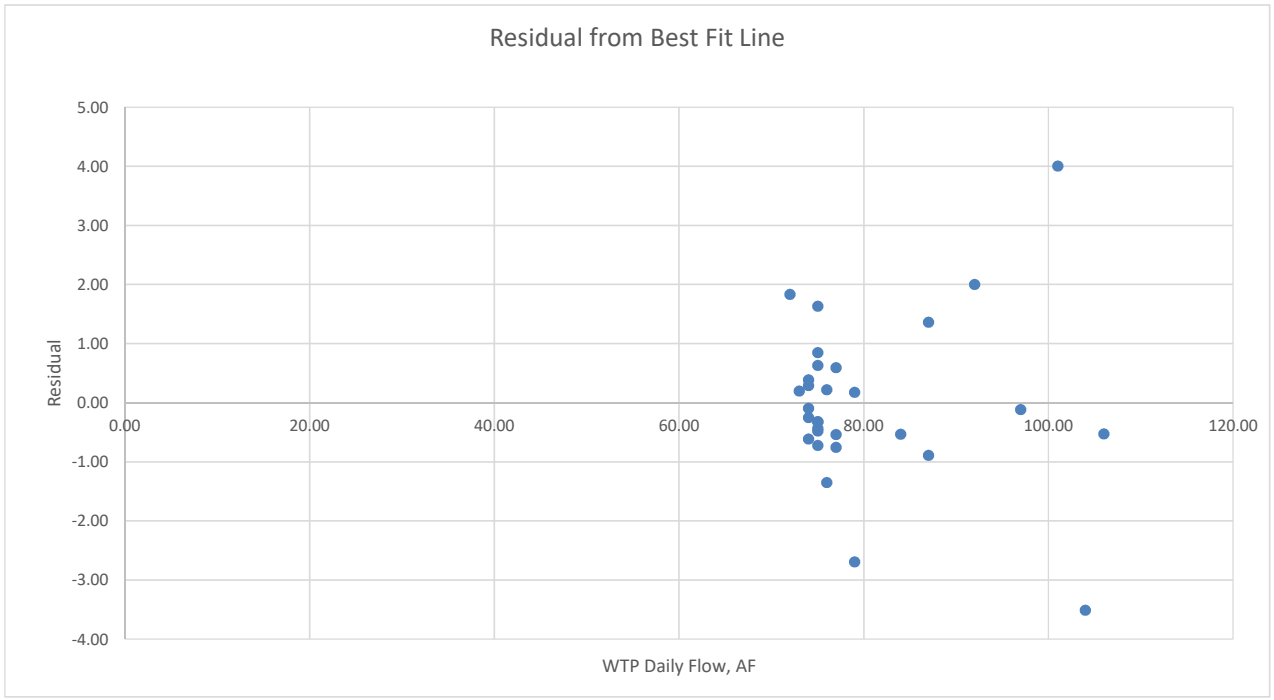
March 2016


WTP versus Pipe Flow
y = 1.0434x - 3.8434
R² = 0.9726
y = 1.0434x - 3.8434
R² = 0.9726
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

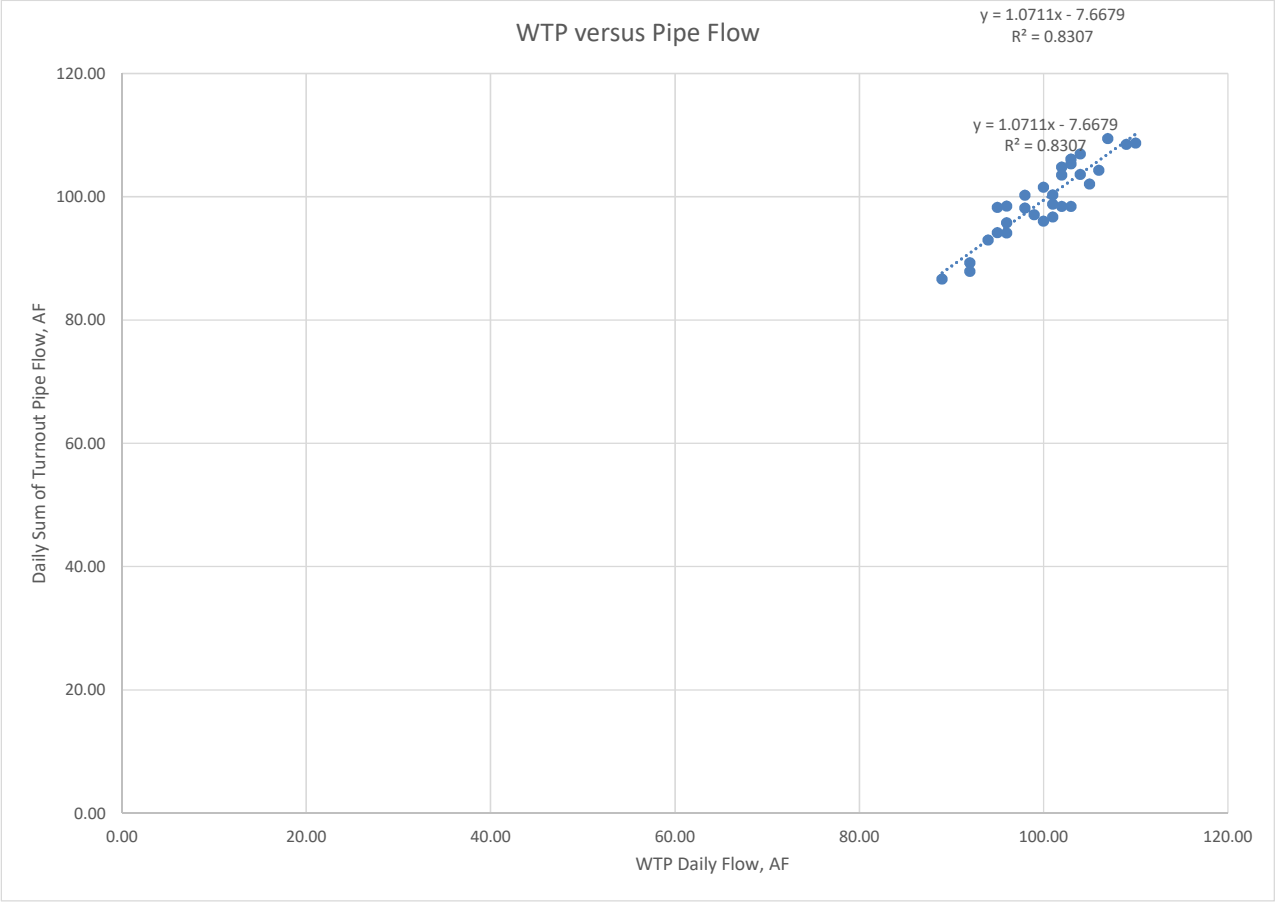

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

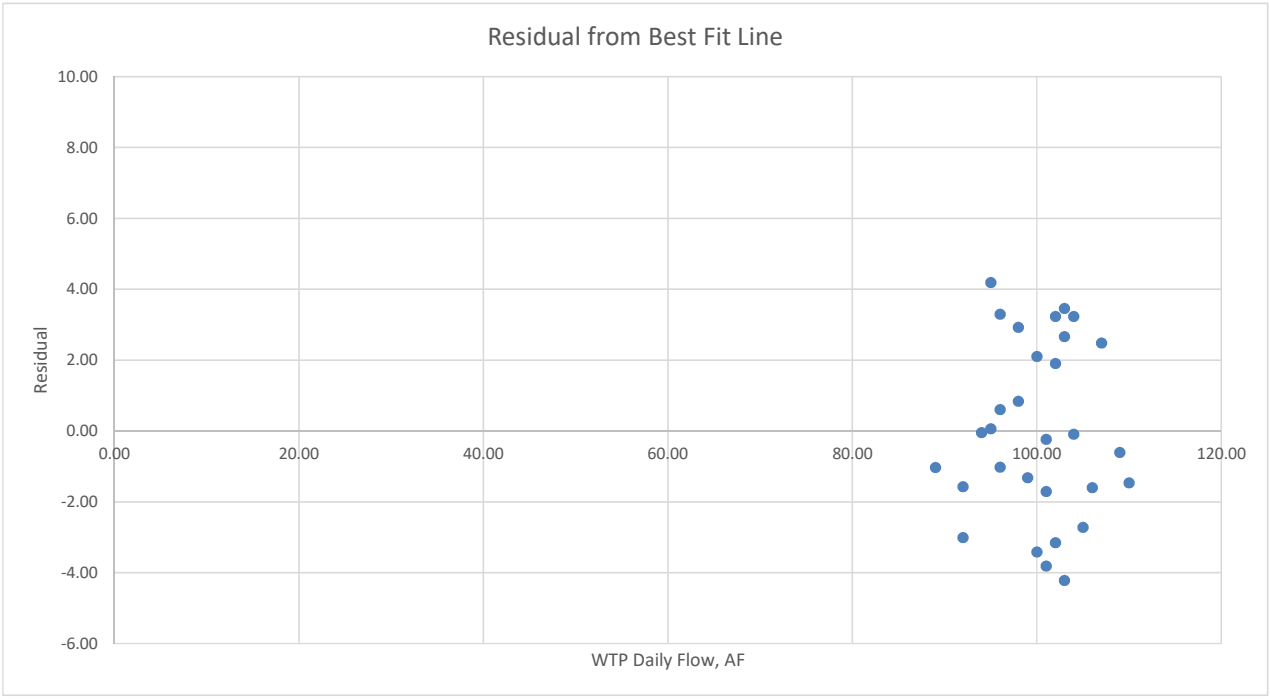
April 2016


WTP versus Pipe Flow
y = 0.9529x + 3.1365
R² = 0.9788
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00

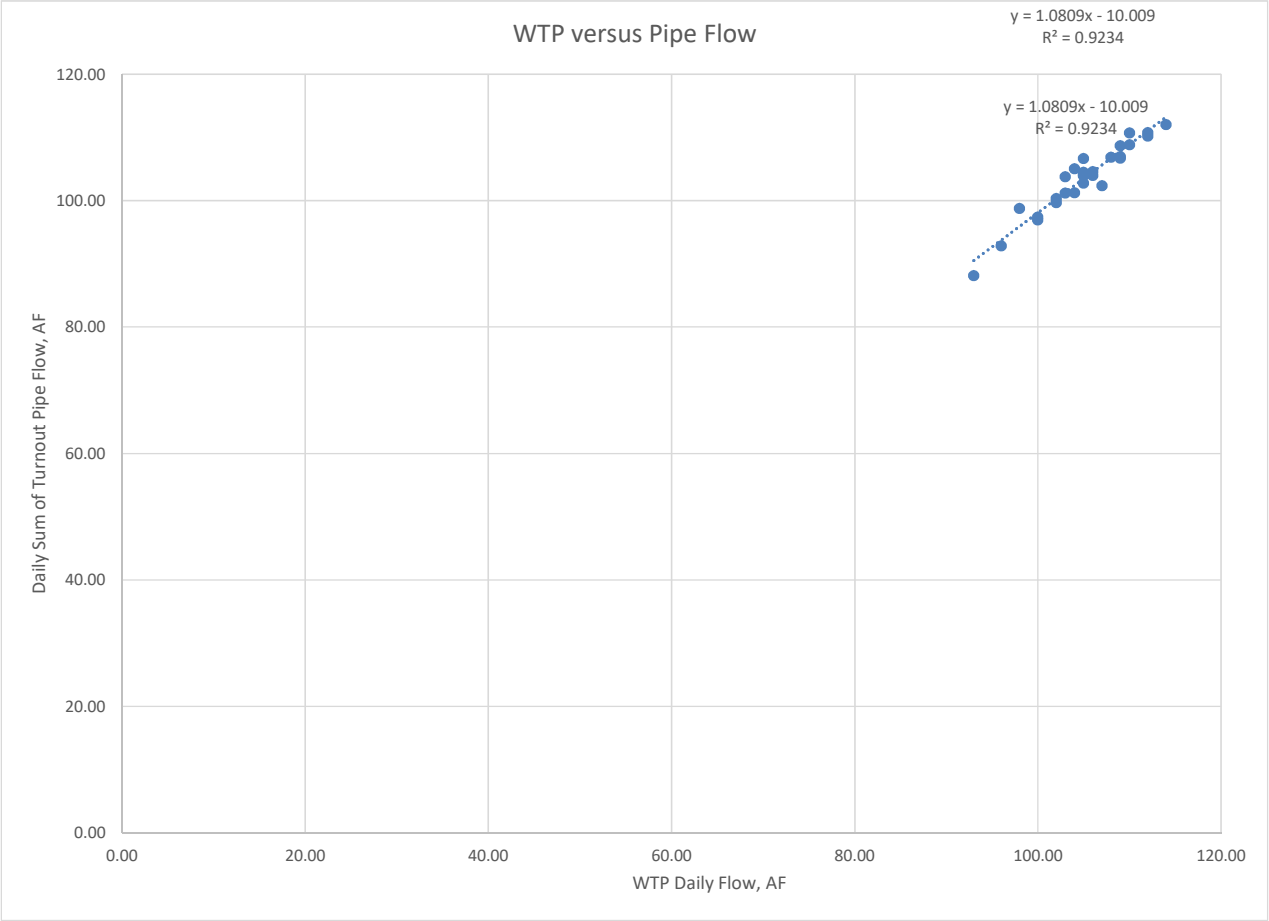

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

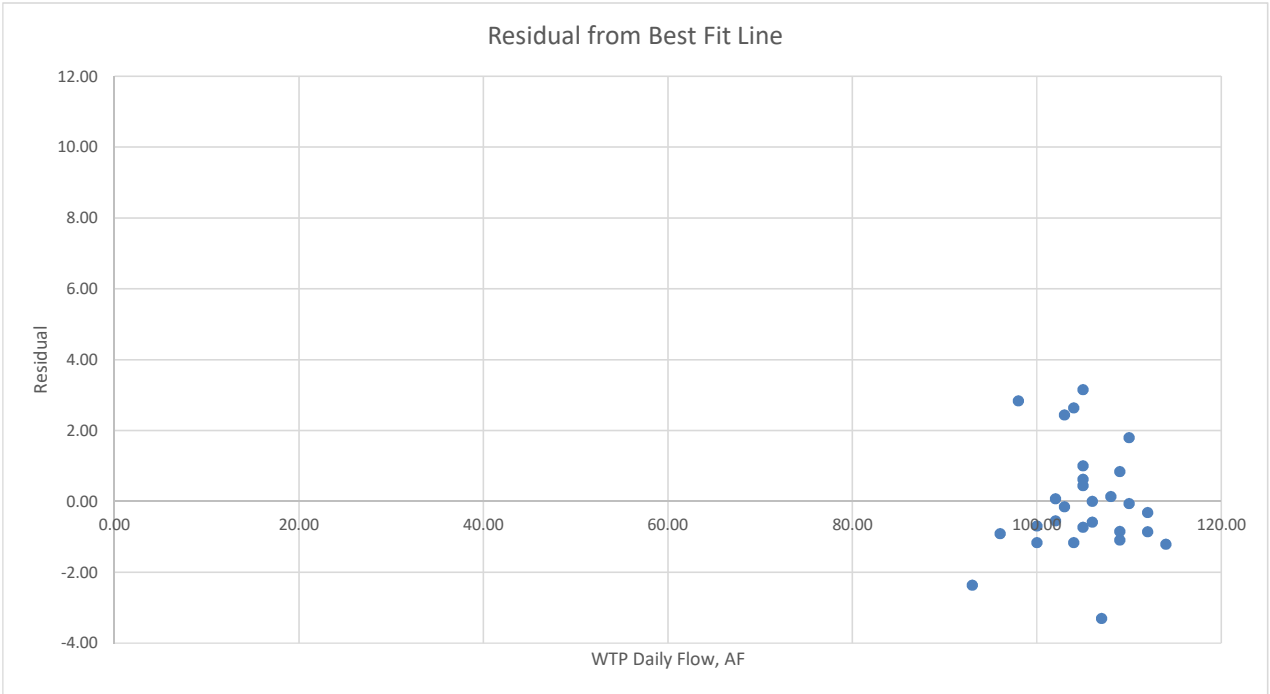
May 2016


WTP versus Pipe Flow
y = 1.0711x - 7.6679
R² = 0.8307
y = 1.0711x - 7.6679
R² = 0.8307
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
120.00
100.00
80.00
60.00
40.00
20.00
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

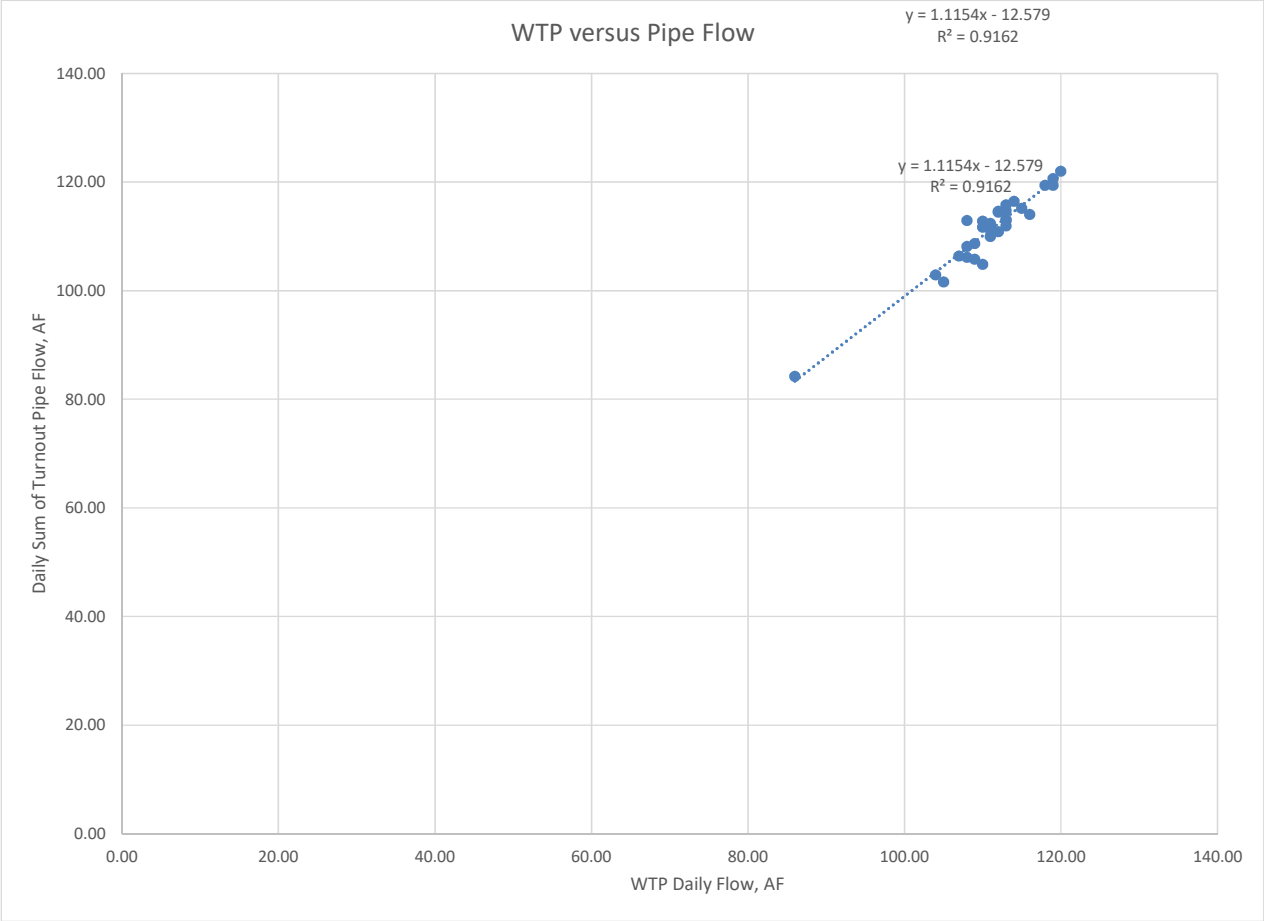

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

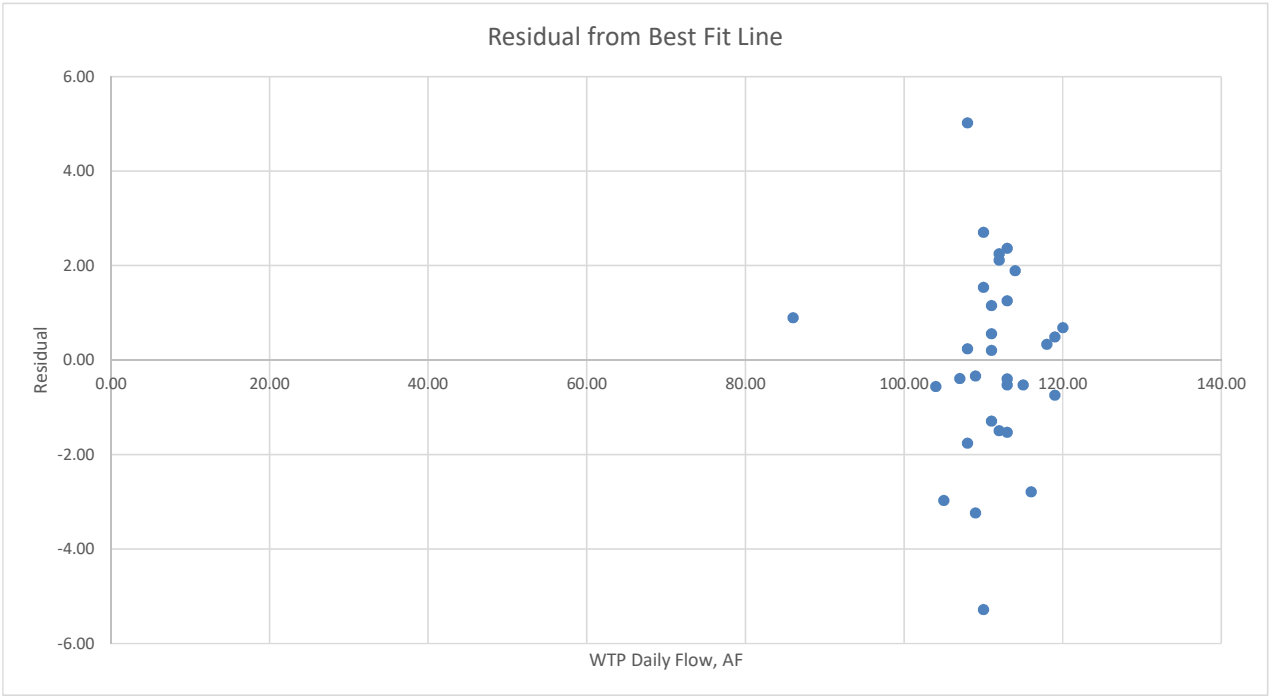
June 2016


WTP versus Pipe Flow
y = 1.0809x - 10.009
R² = 0.9234
y = 1.0809x - 10.009
R² = 0.9234
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00

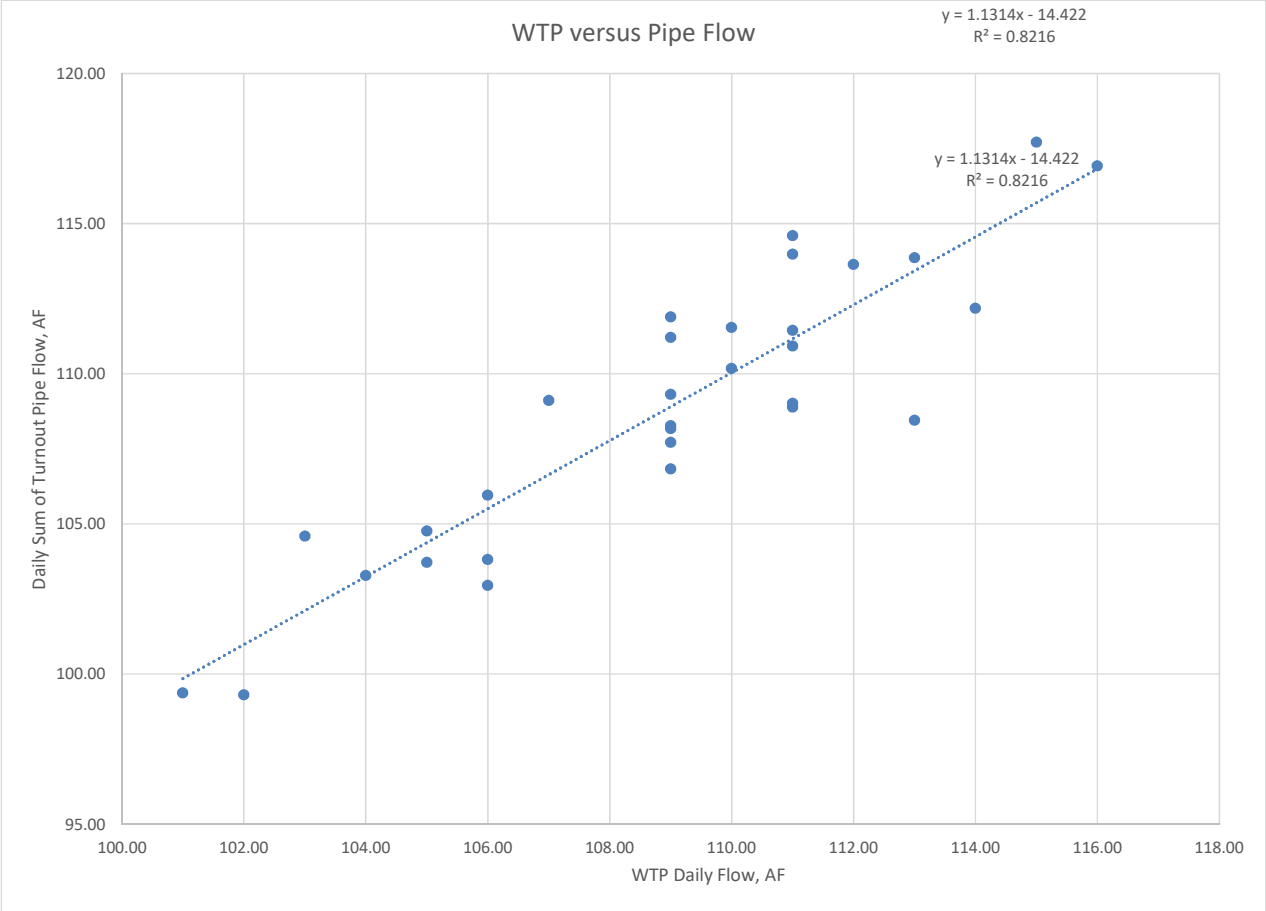

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
12.00
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

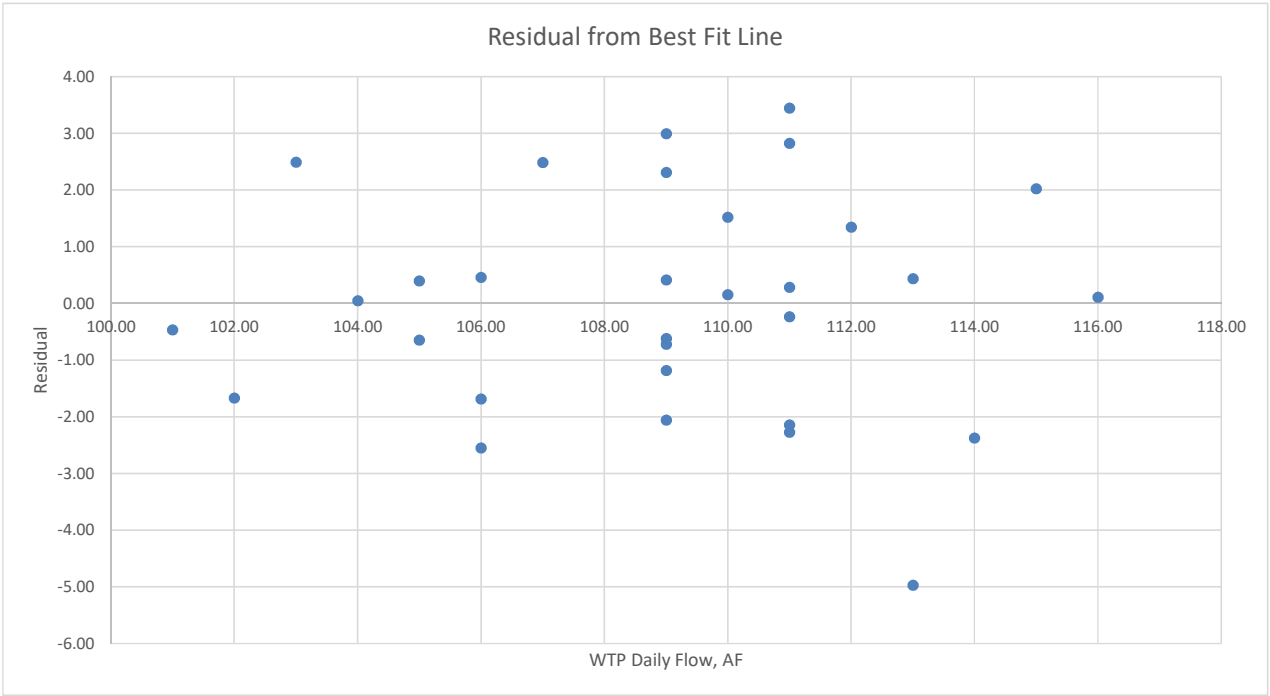
July 2016


WTP versus Pipe Flow
y = 1.1154x - 12.579
R² = 0.9162
y = 1.1154x - 12.579
R² = 0.9162
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

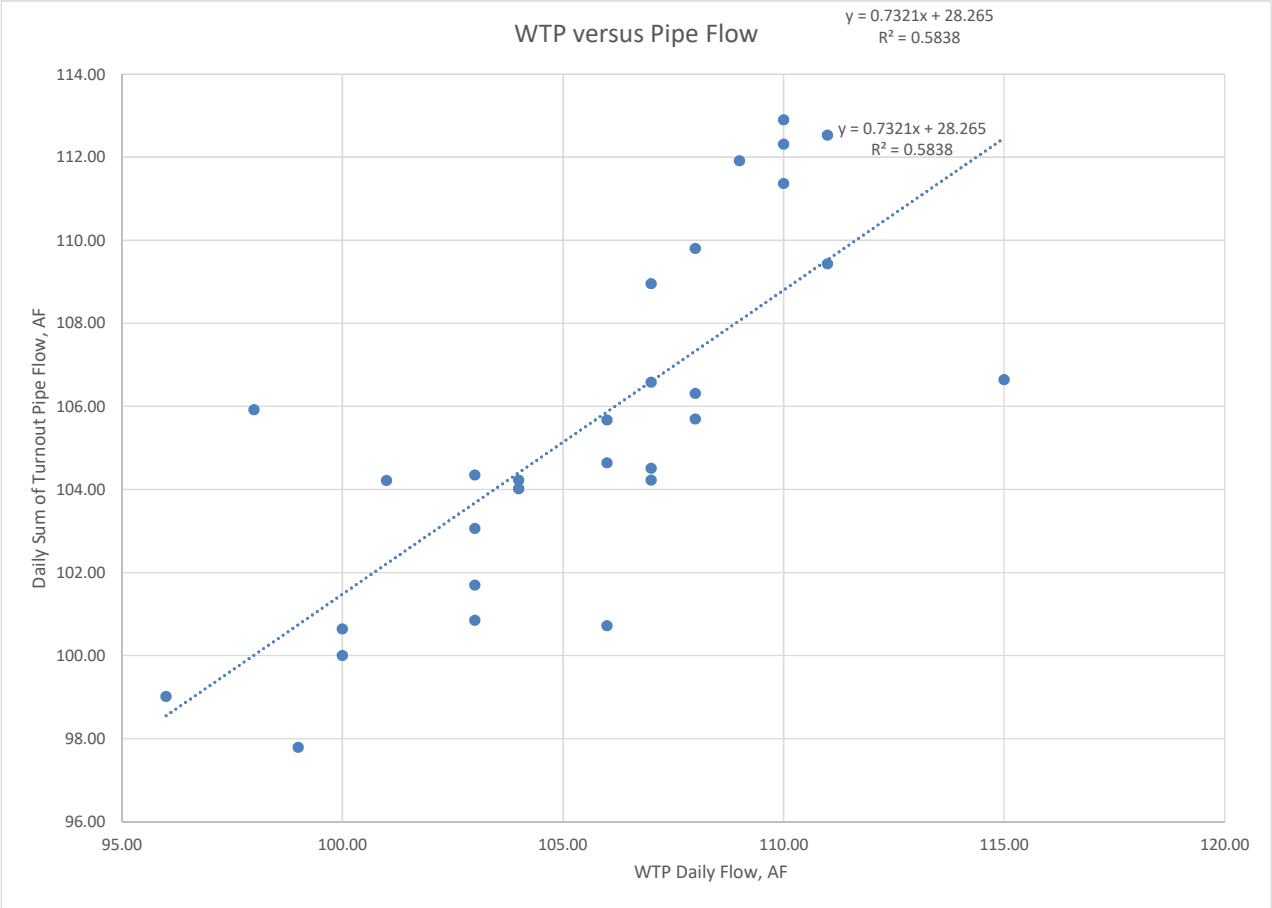

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

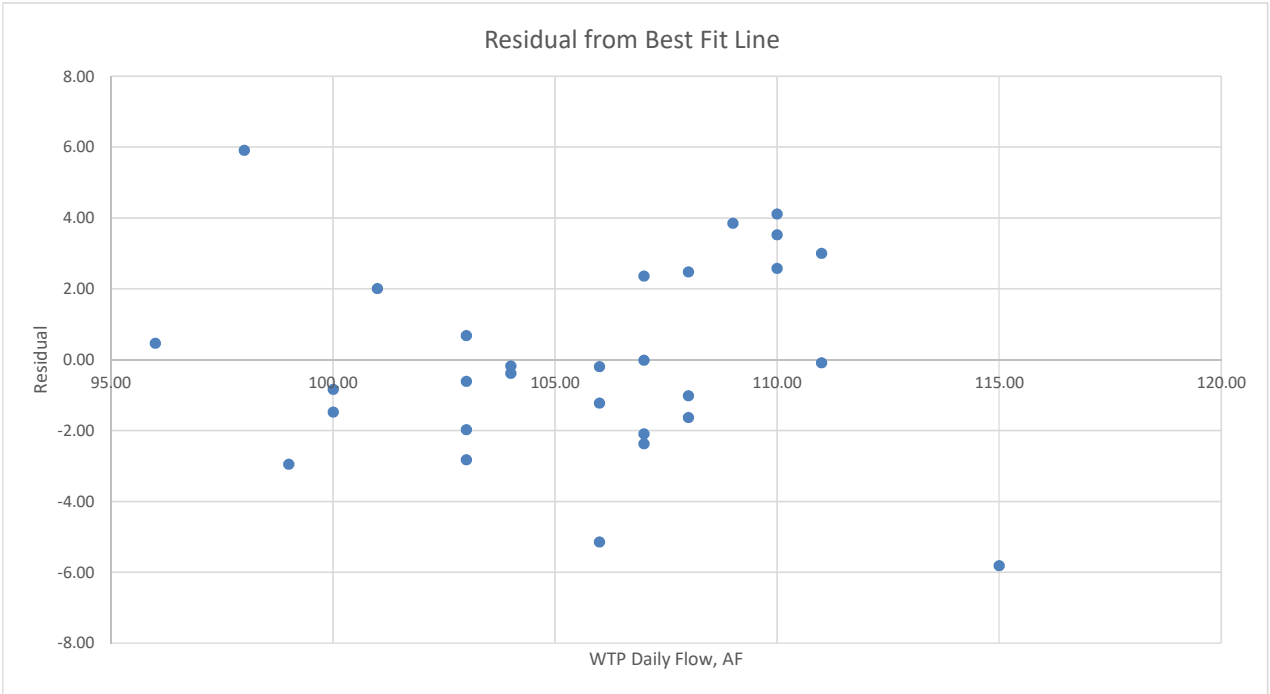
August 2016


WTP versus Pipe Flow
y = 1.1314x - 14.422
R² = 0.8216
y = 1.1314x - 14.422
R² = 0.8216
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
120.00
115.00
110.00
105.00
100.00
95.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00
118.00


Residual from Best Fit Line
Residual
WTP Daily Flow, AF
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00
118.00

September 2016





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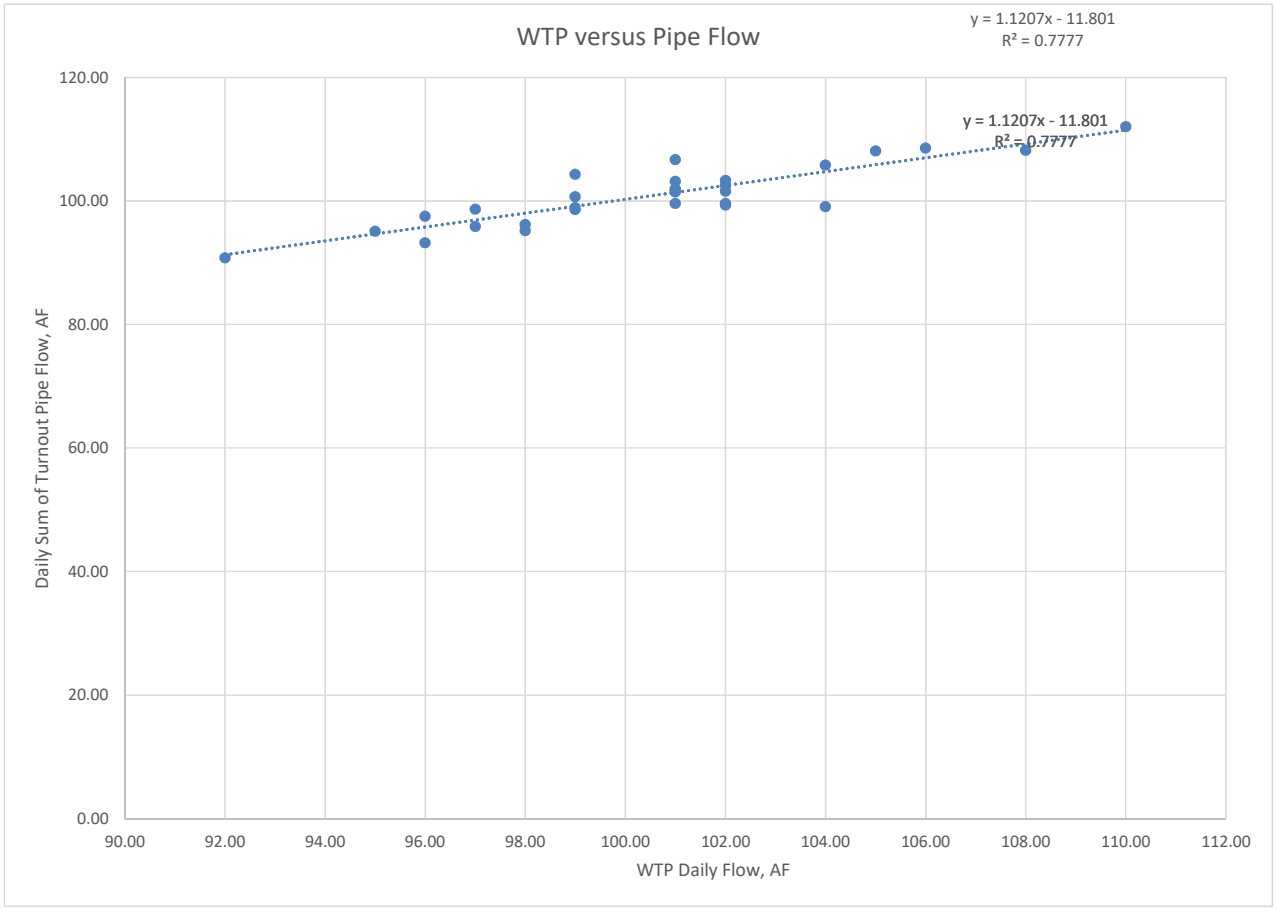

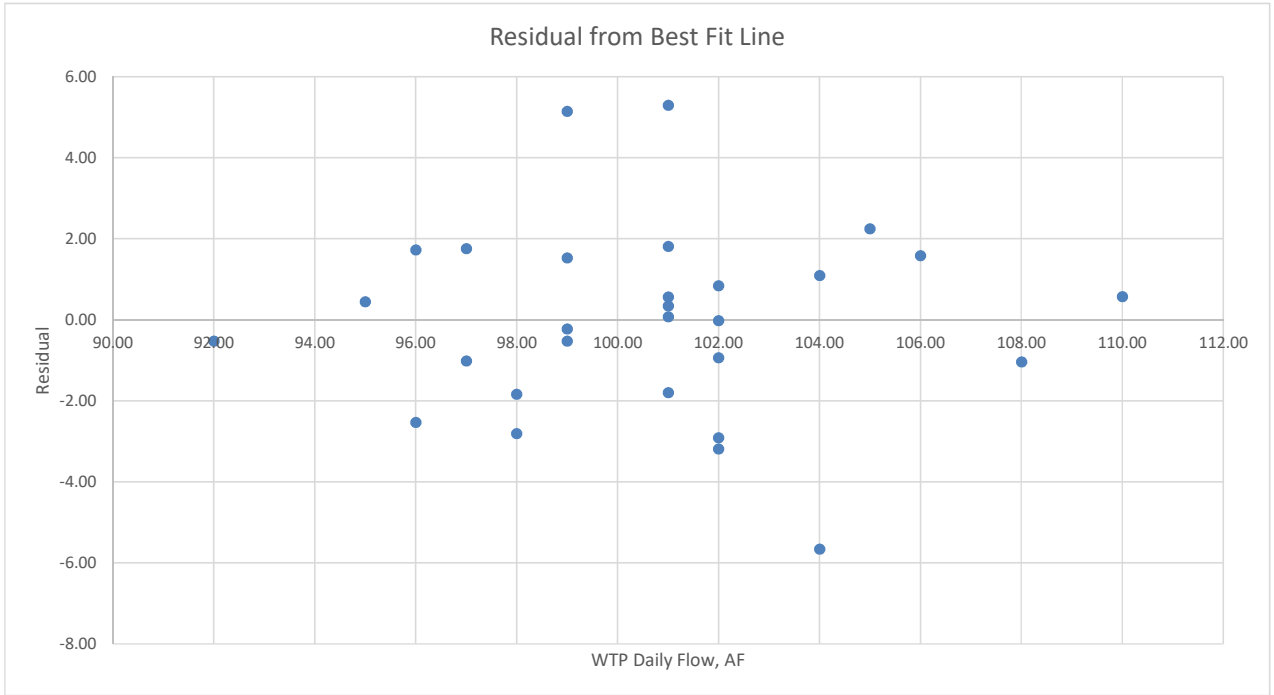

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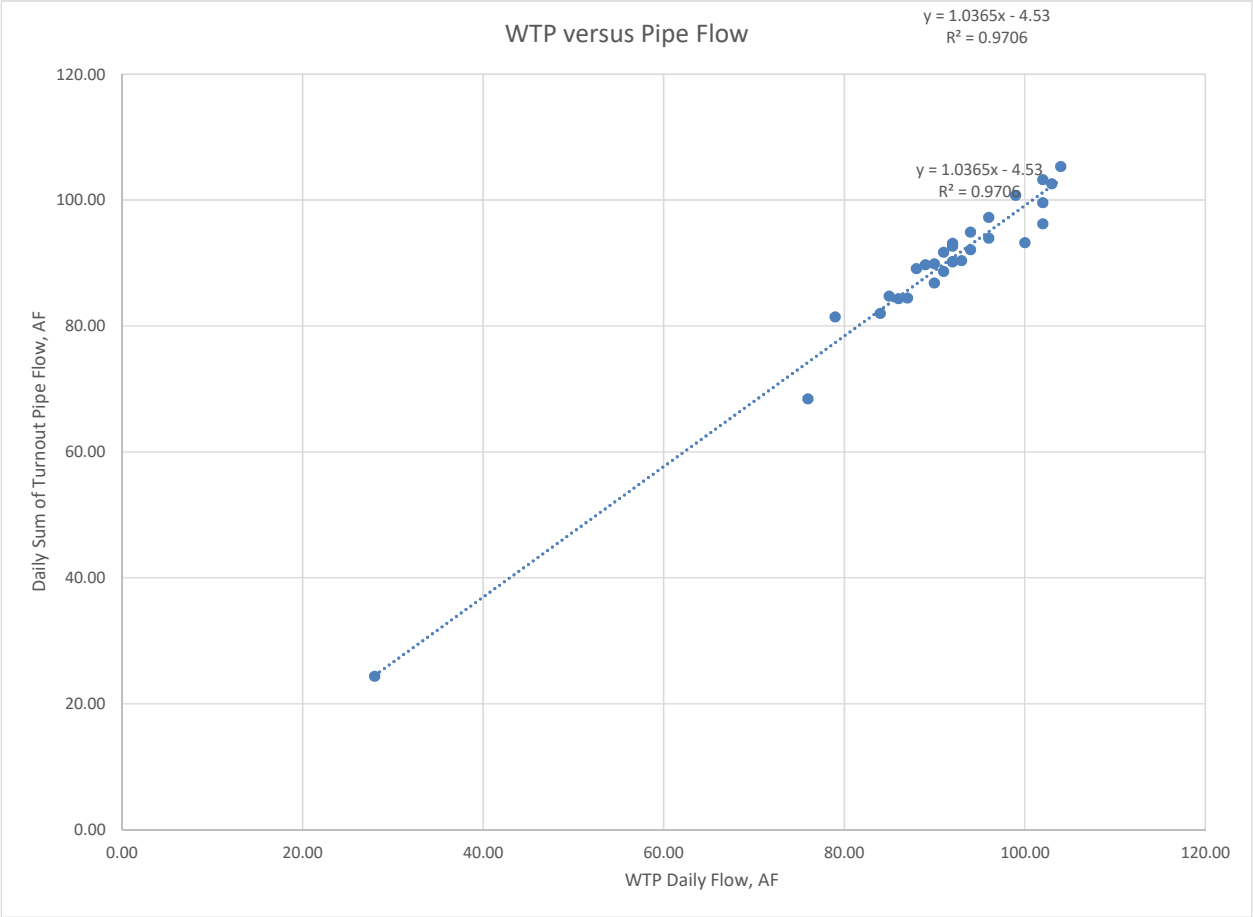

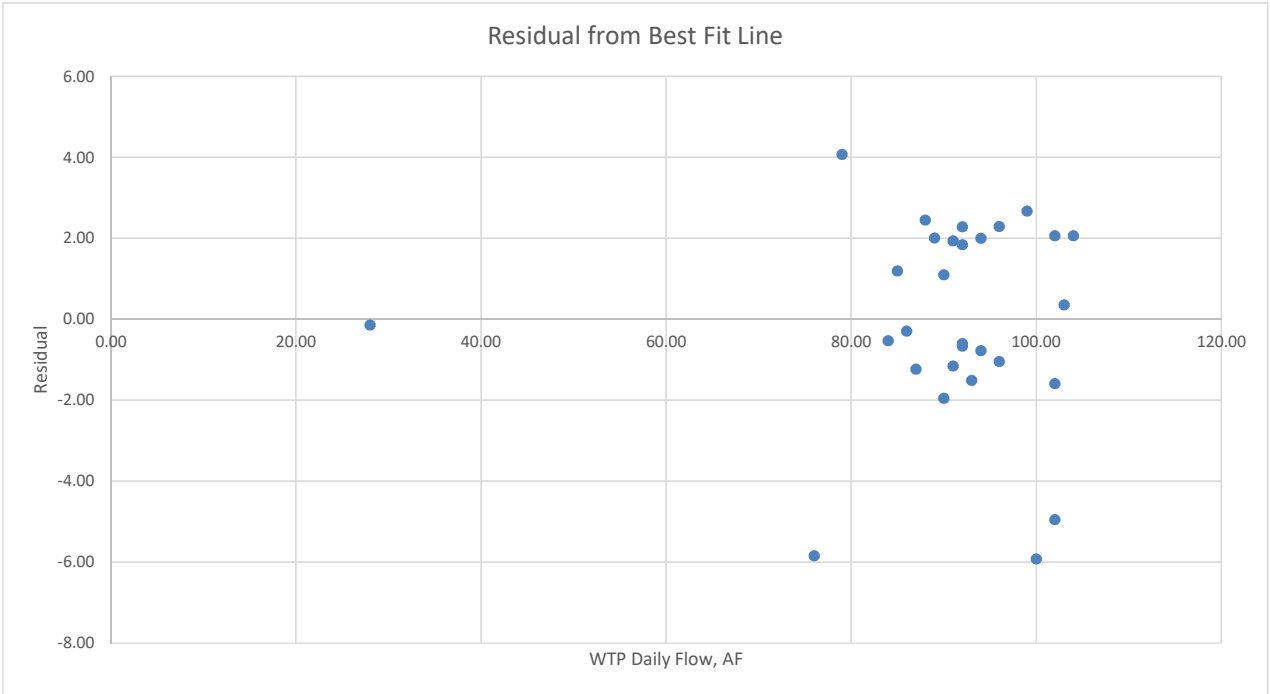

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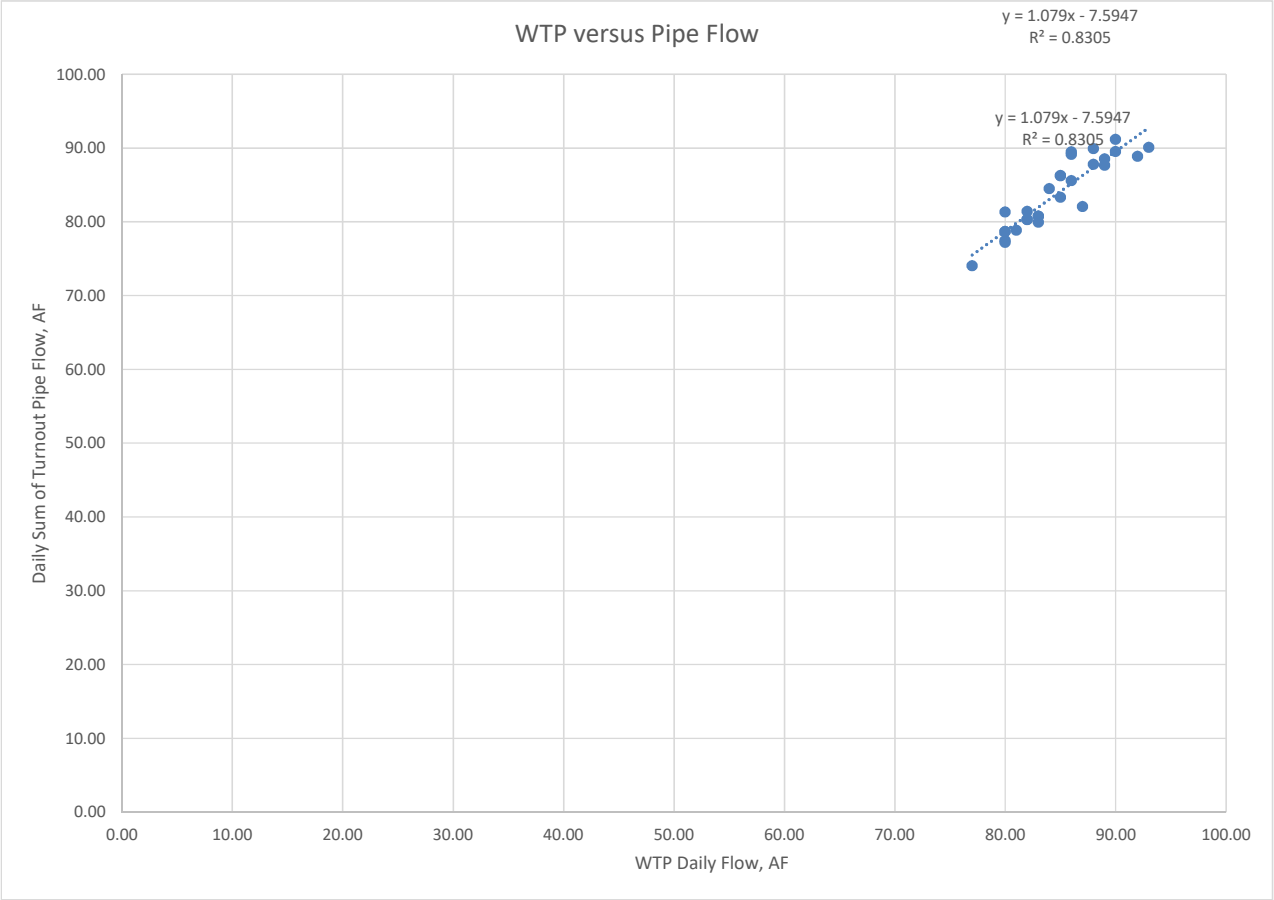
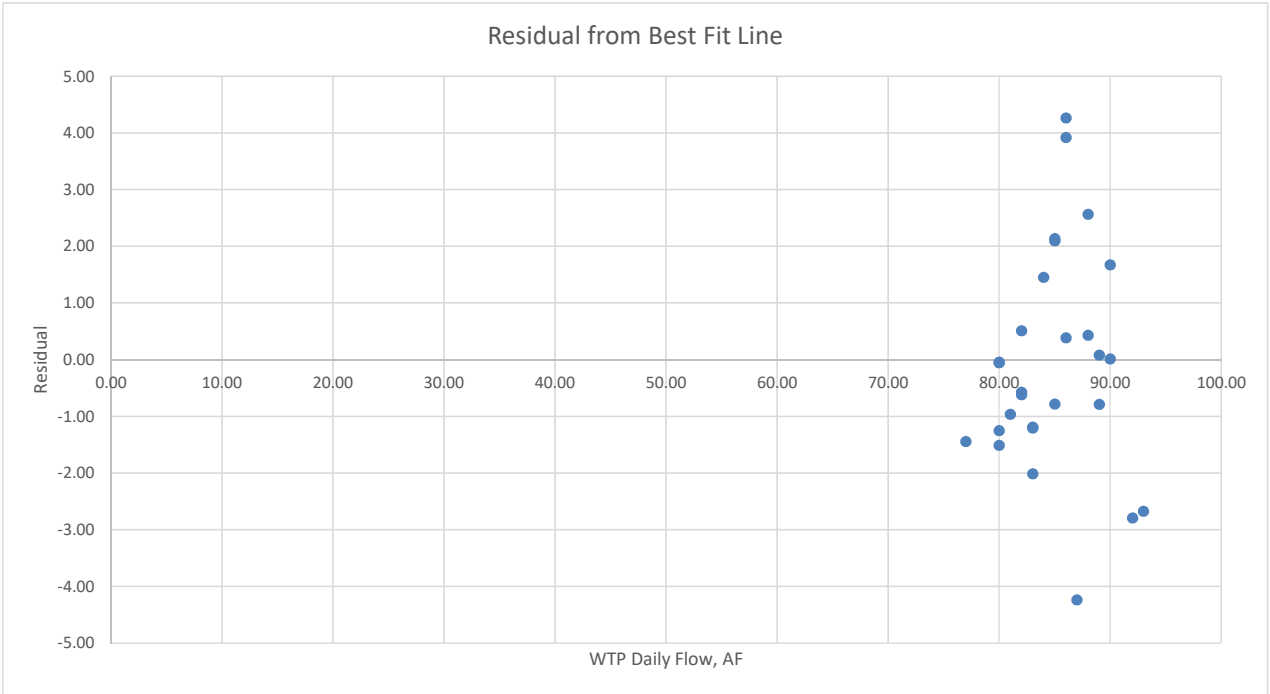
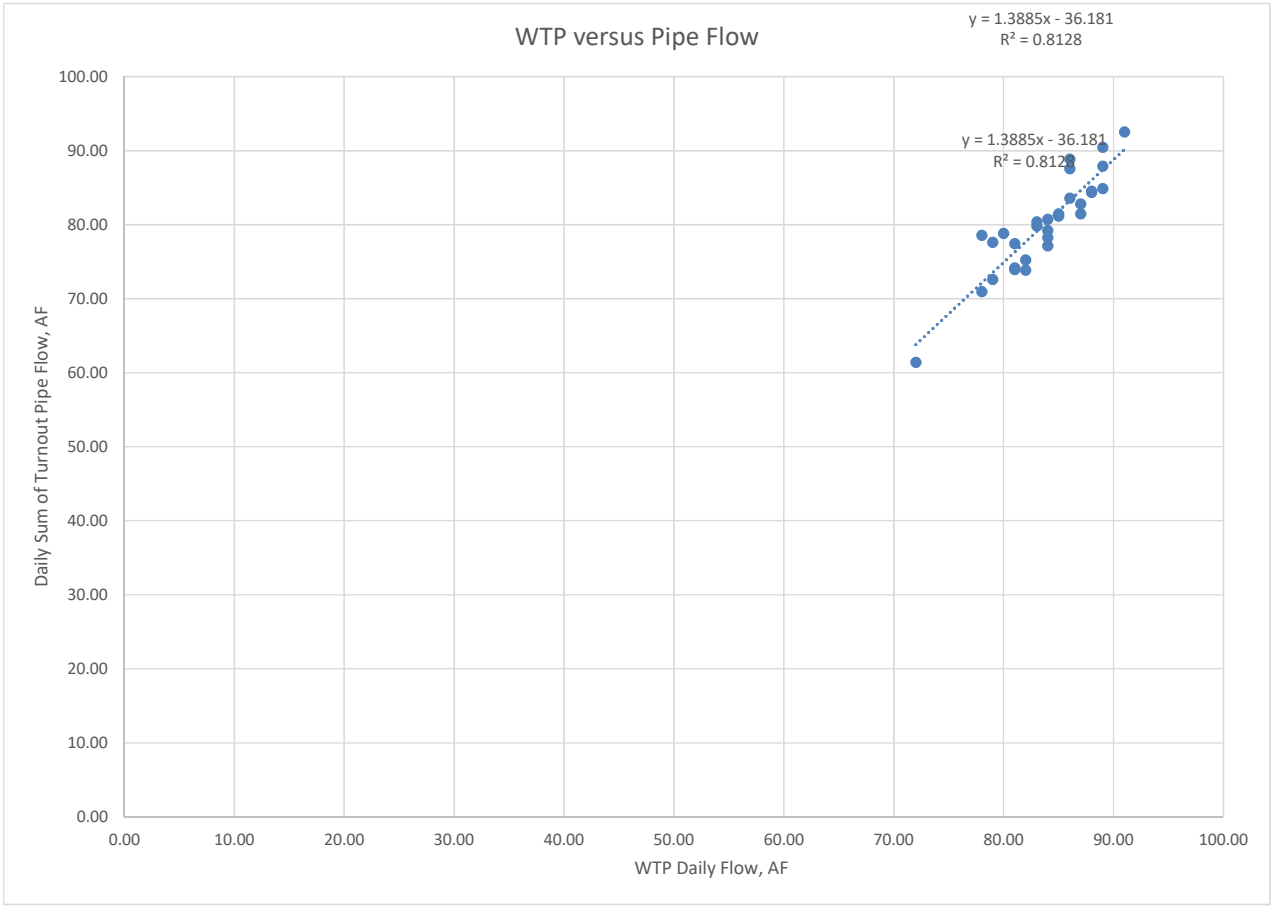
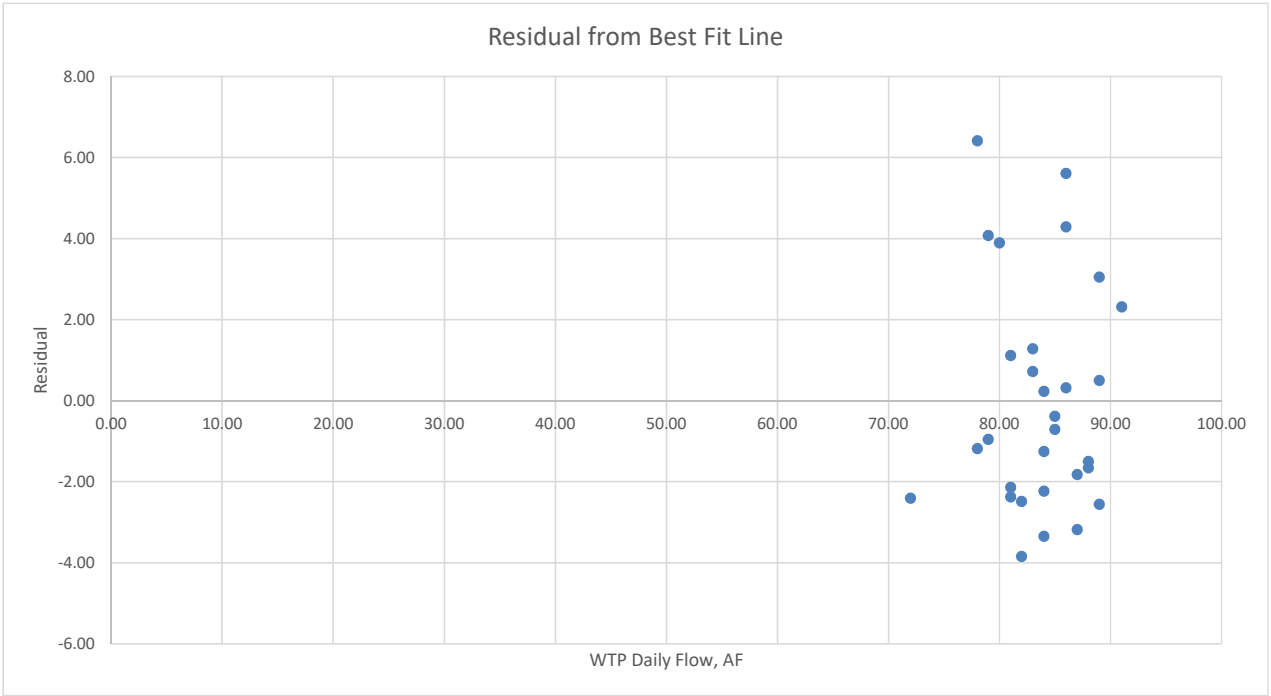


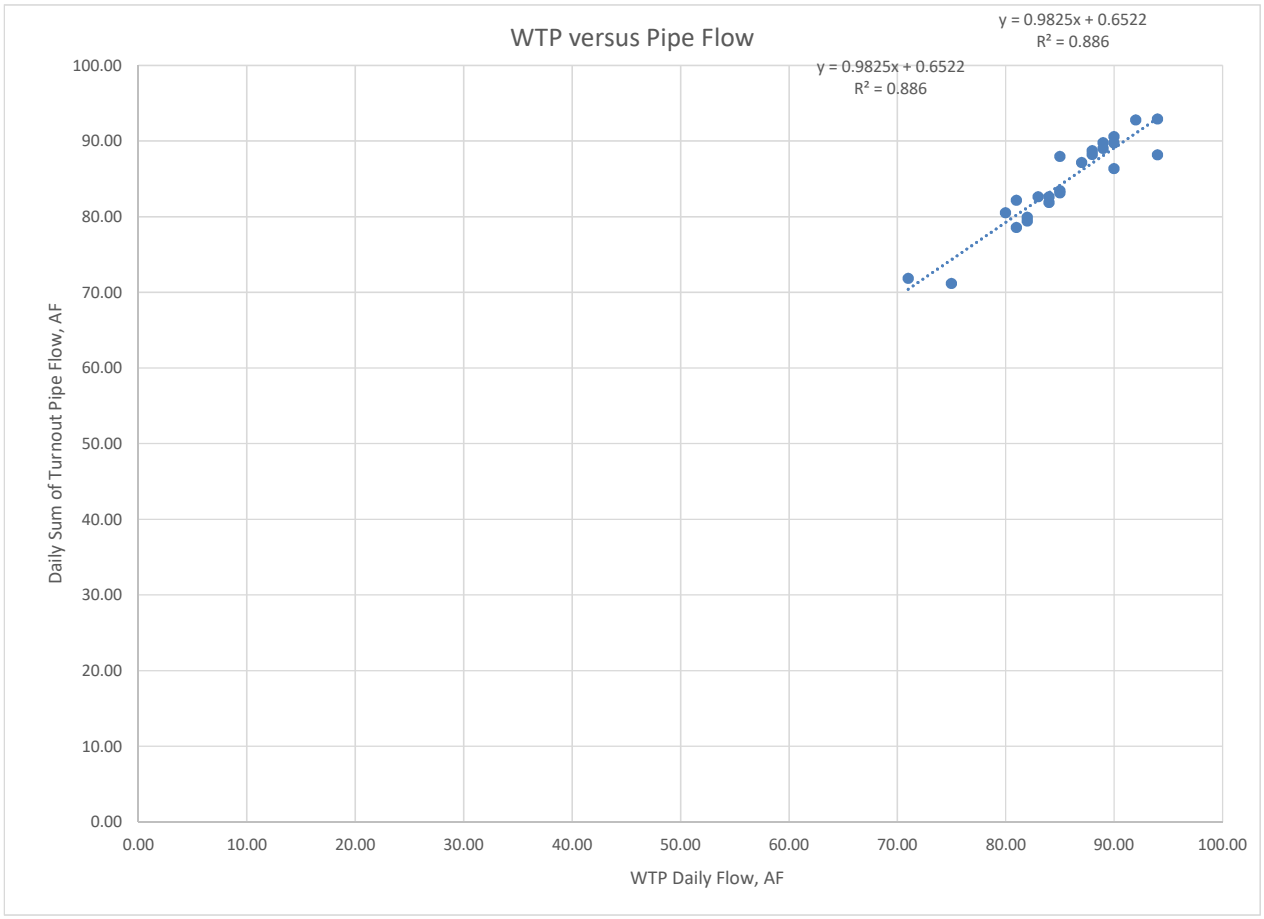


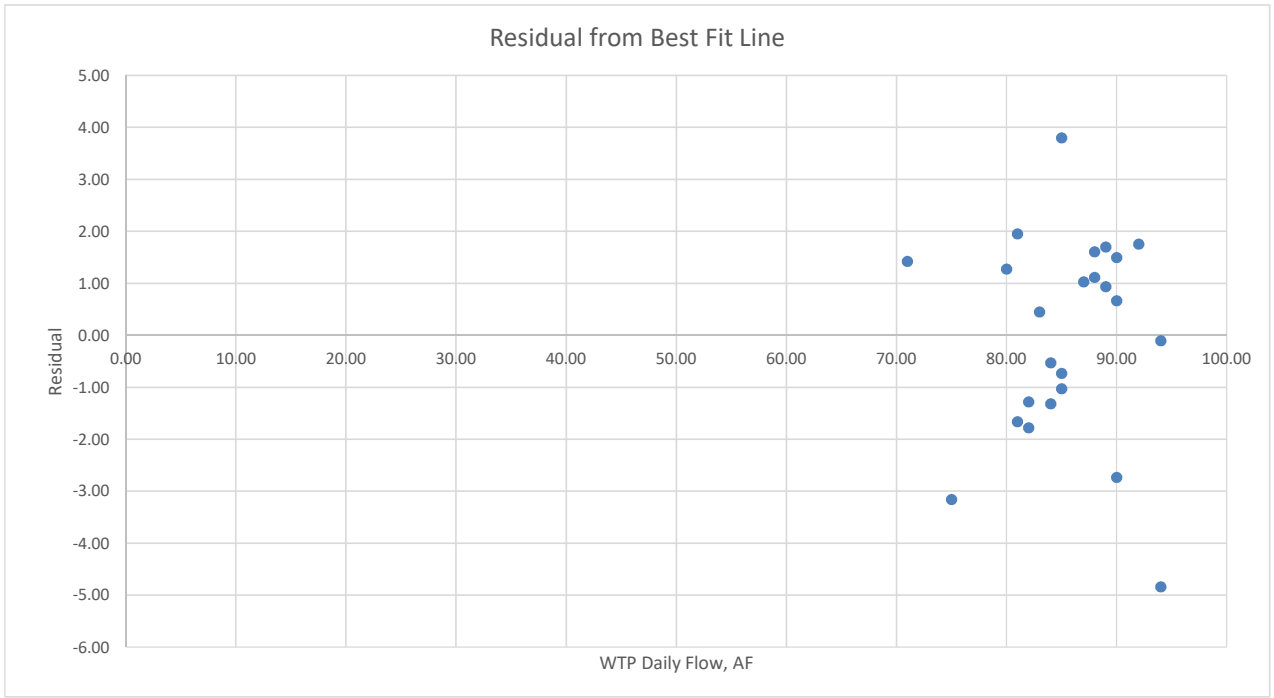
January 2017



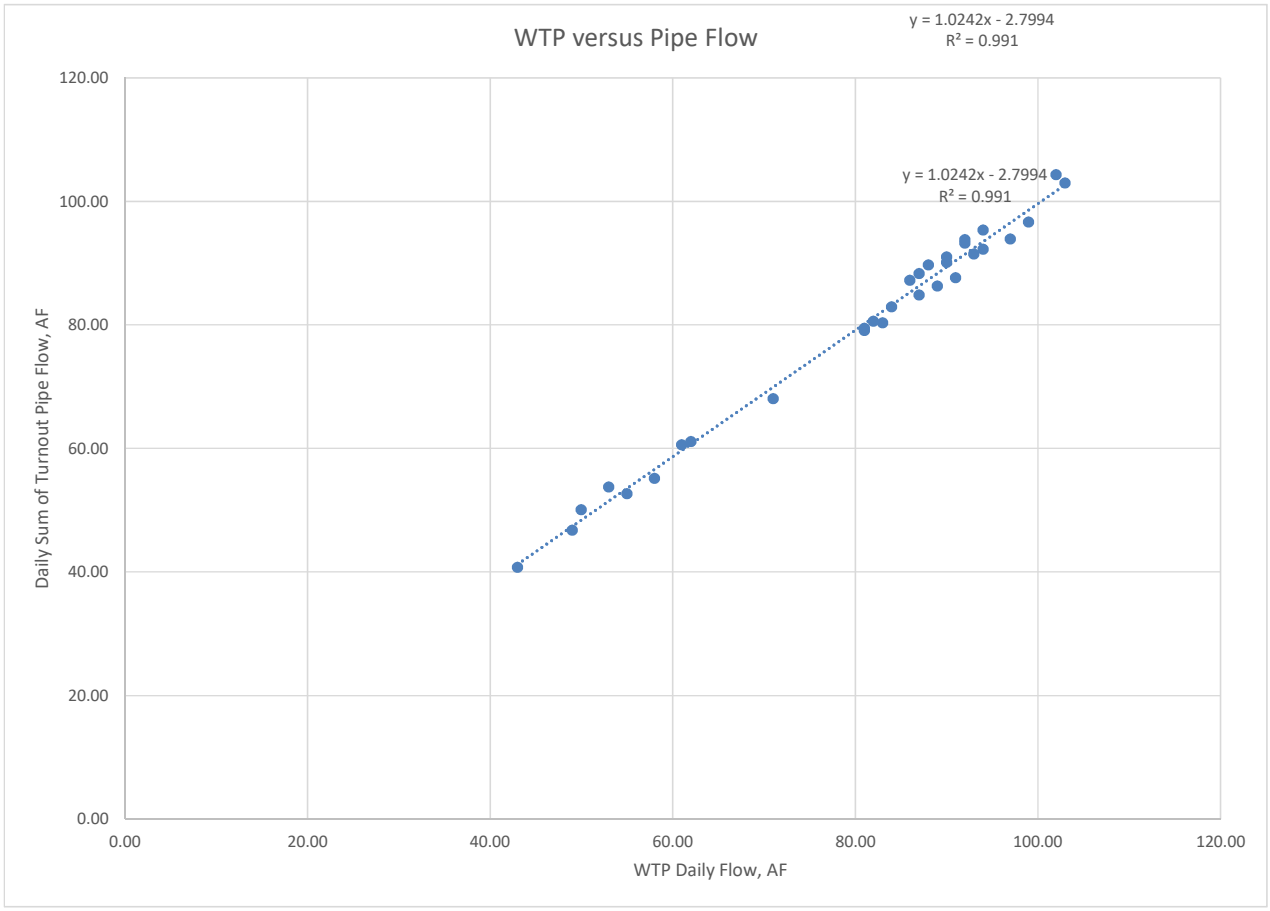


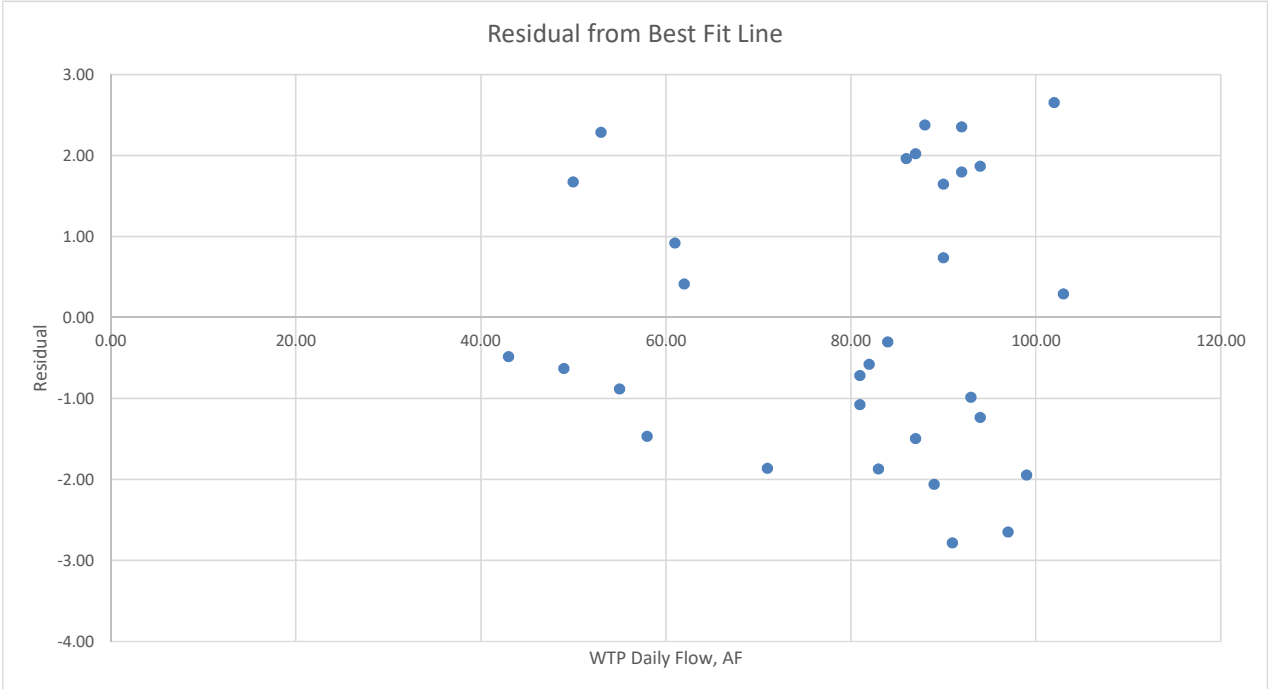
February 2017



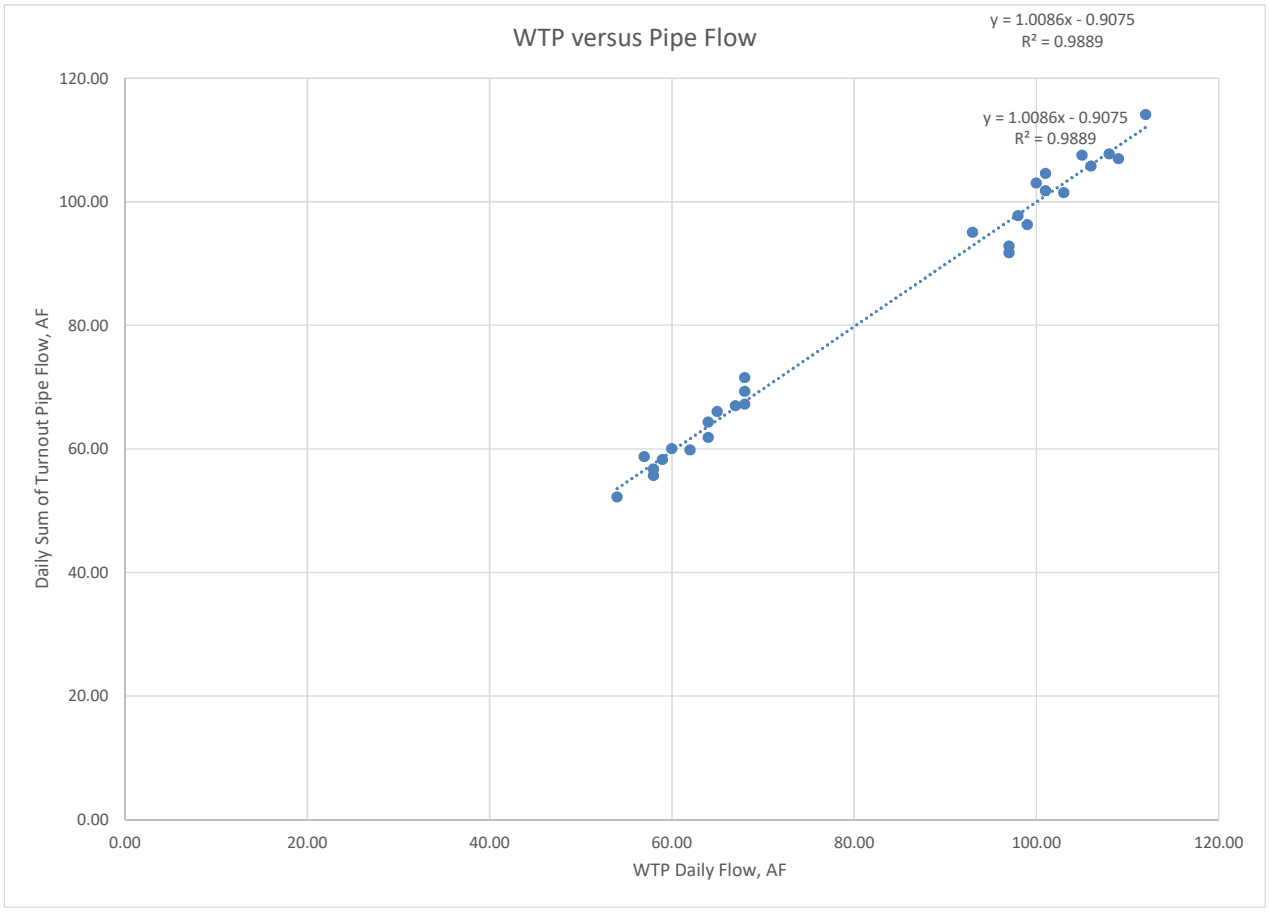


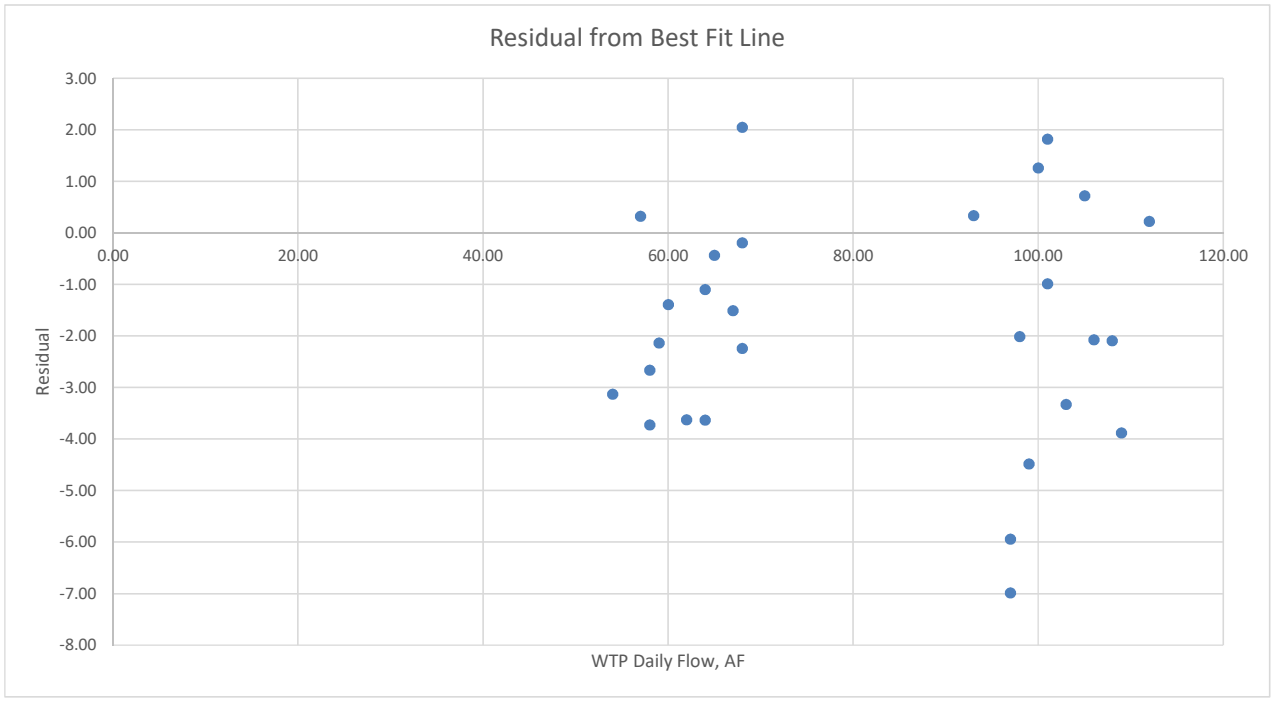
March 2017


WTP versus Pipe Flow
y = 1.0242x - 2.7994
R² = 0.991
y = 1.0242x - 2.7994
R² = 0.991
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
120.00
100.00
80.00
60.00
40.00
20.00
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

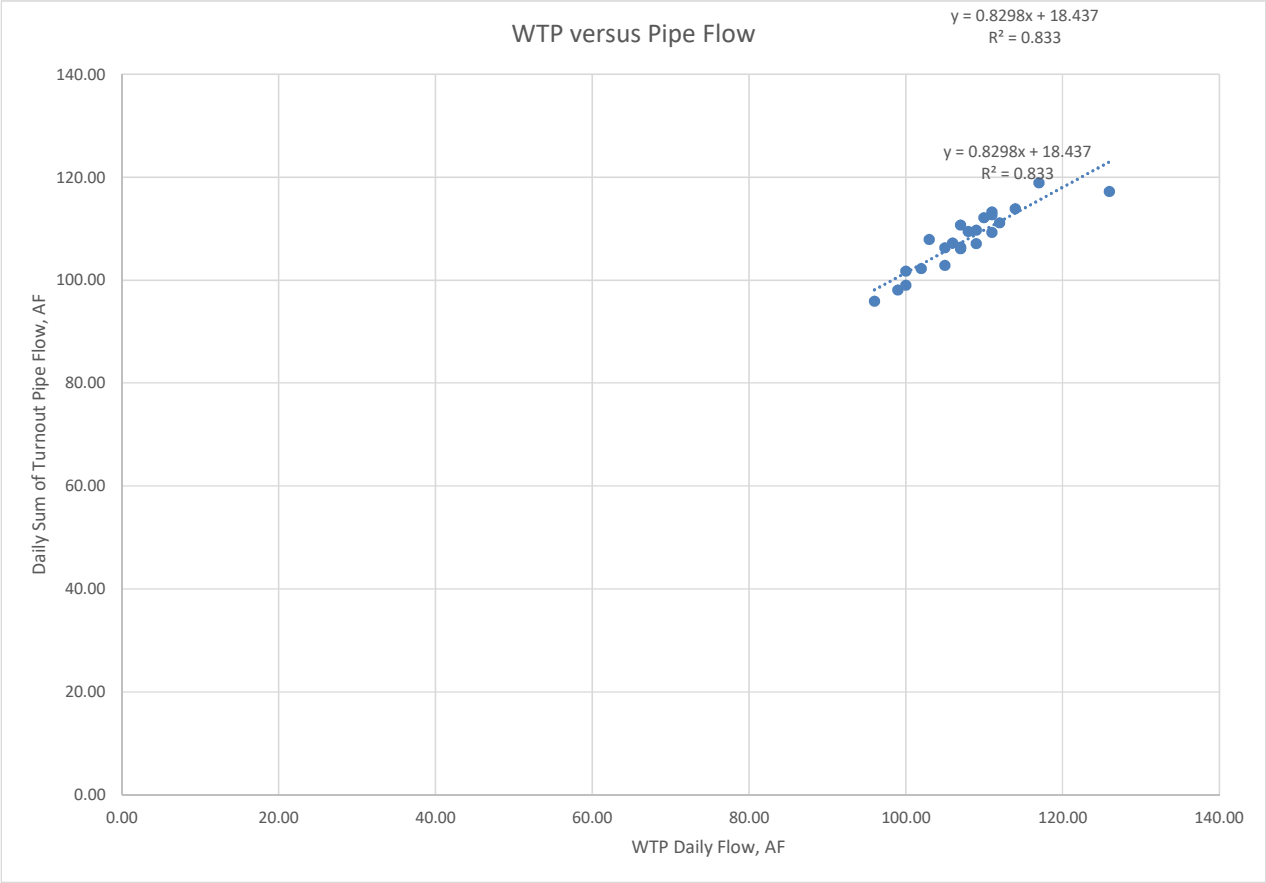

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

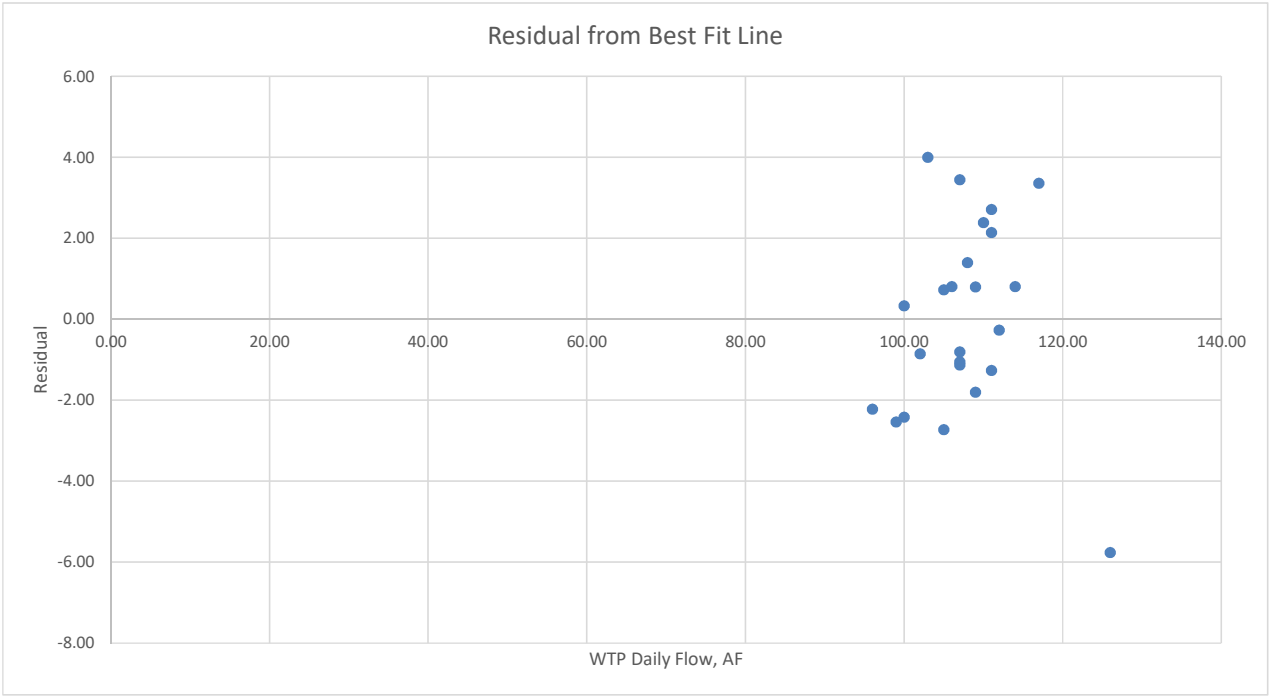
April 2017


WTP versus Pipe Flow
y = 1.0086x - 0.9075
R² = 0.9889
y = 1.0086x - 0.9075
R² = 0.9889
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00

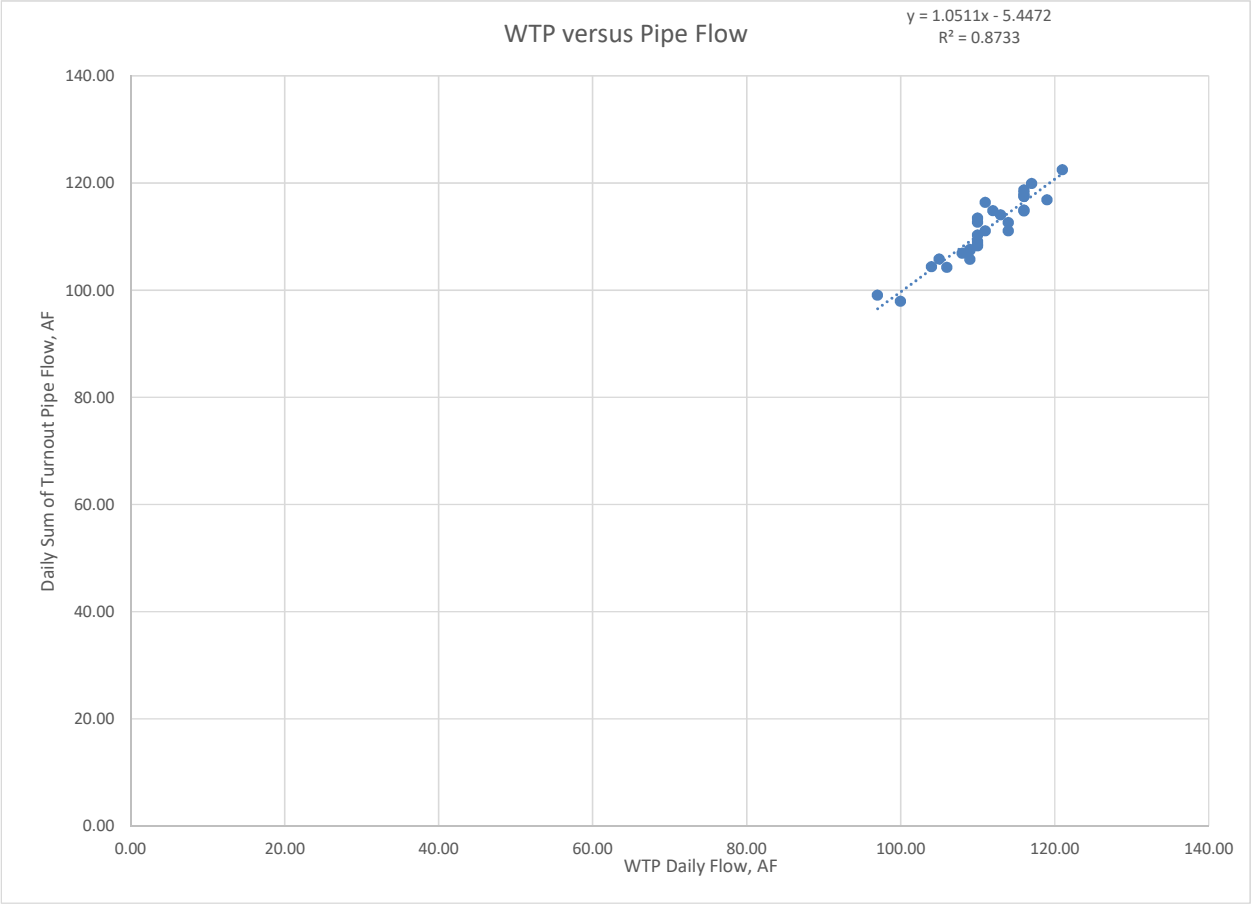

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-8.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

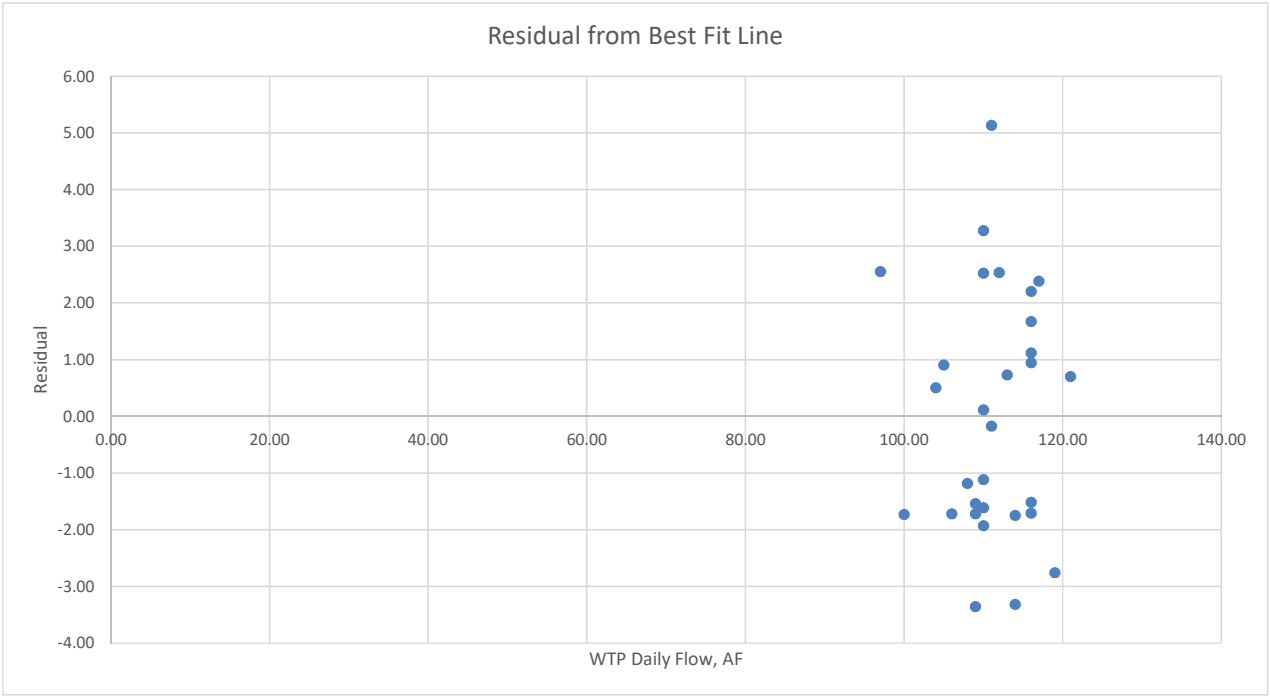
May 2017


WTP versus Pipe Flow
y = 0.8298x + 18.437
R² = 0.833
y = 0.8298x + 18.437
R² = 0.833
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

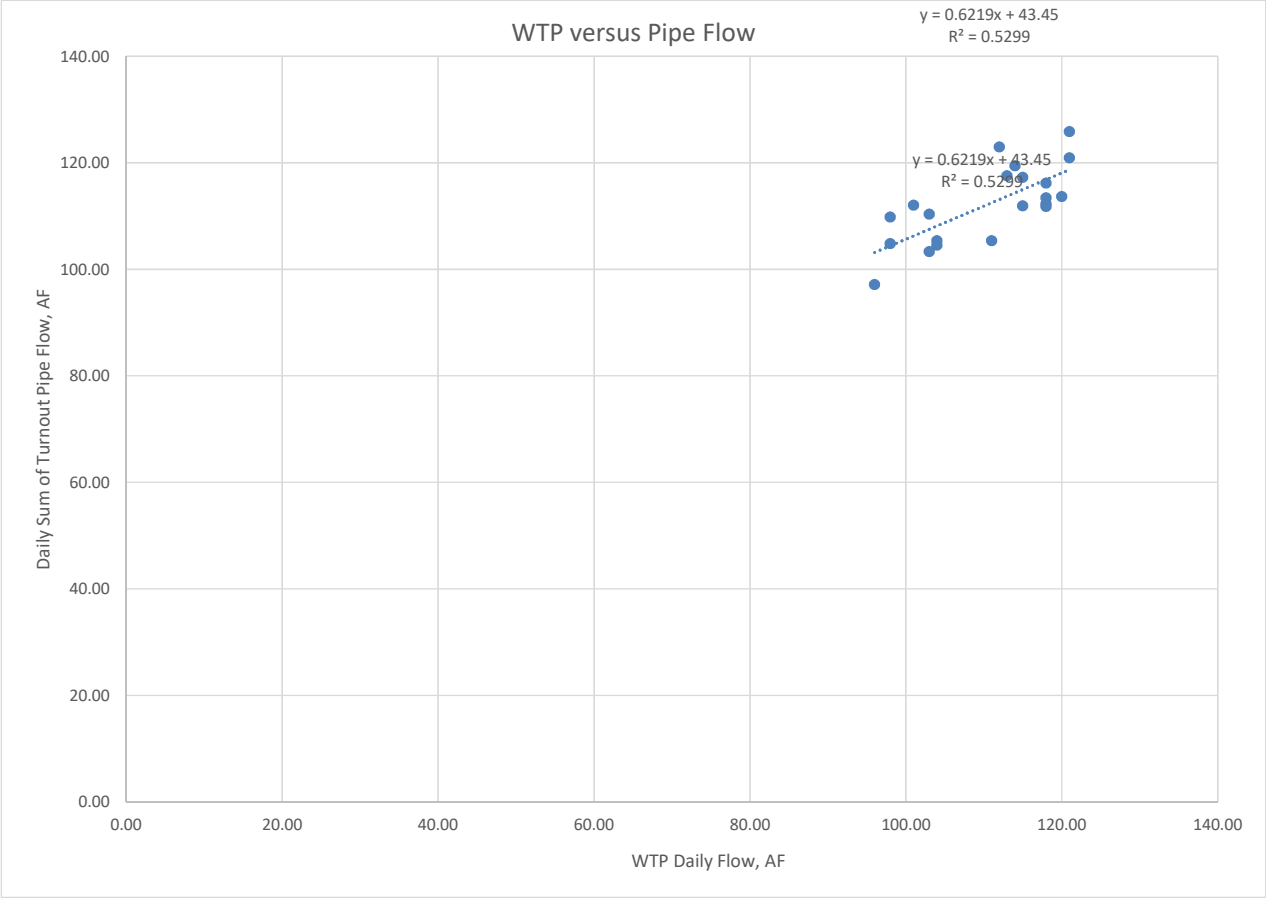

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

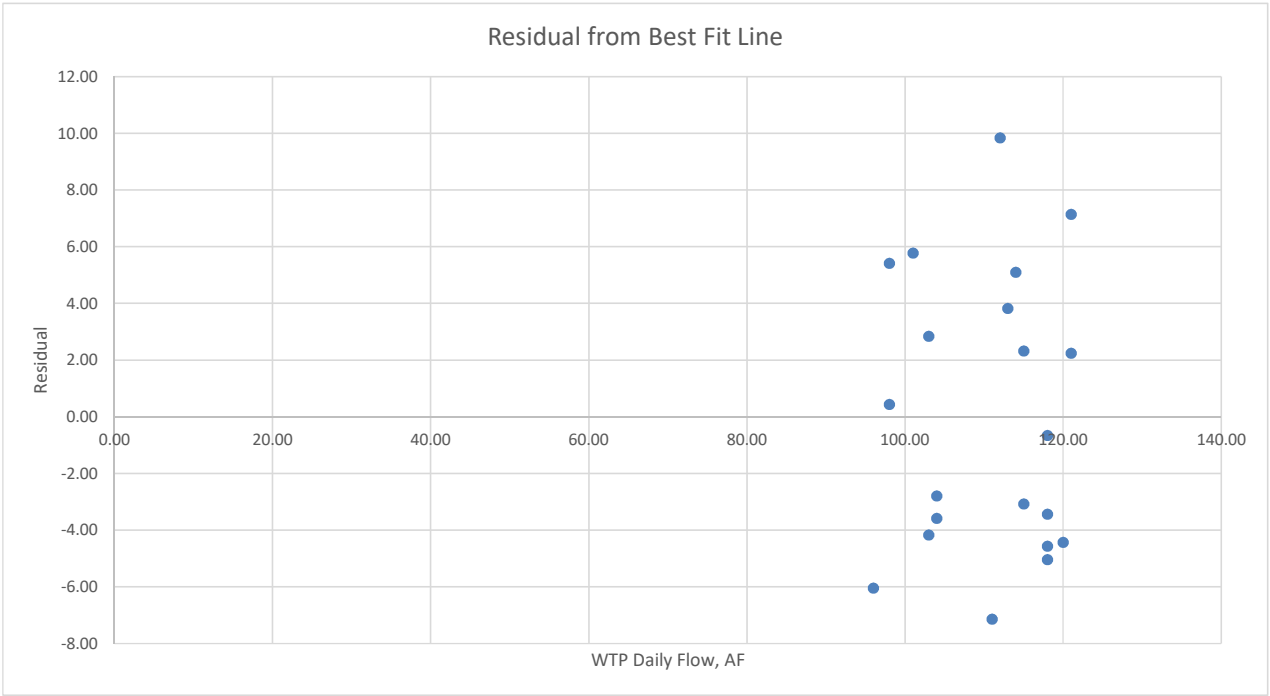
June 2017


WTP versus Pipe Flow
y = 1.0511x - 5.4472
R² = 0.8733
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

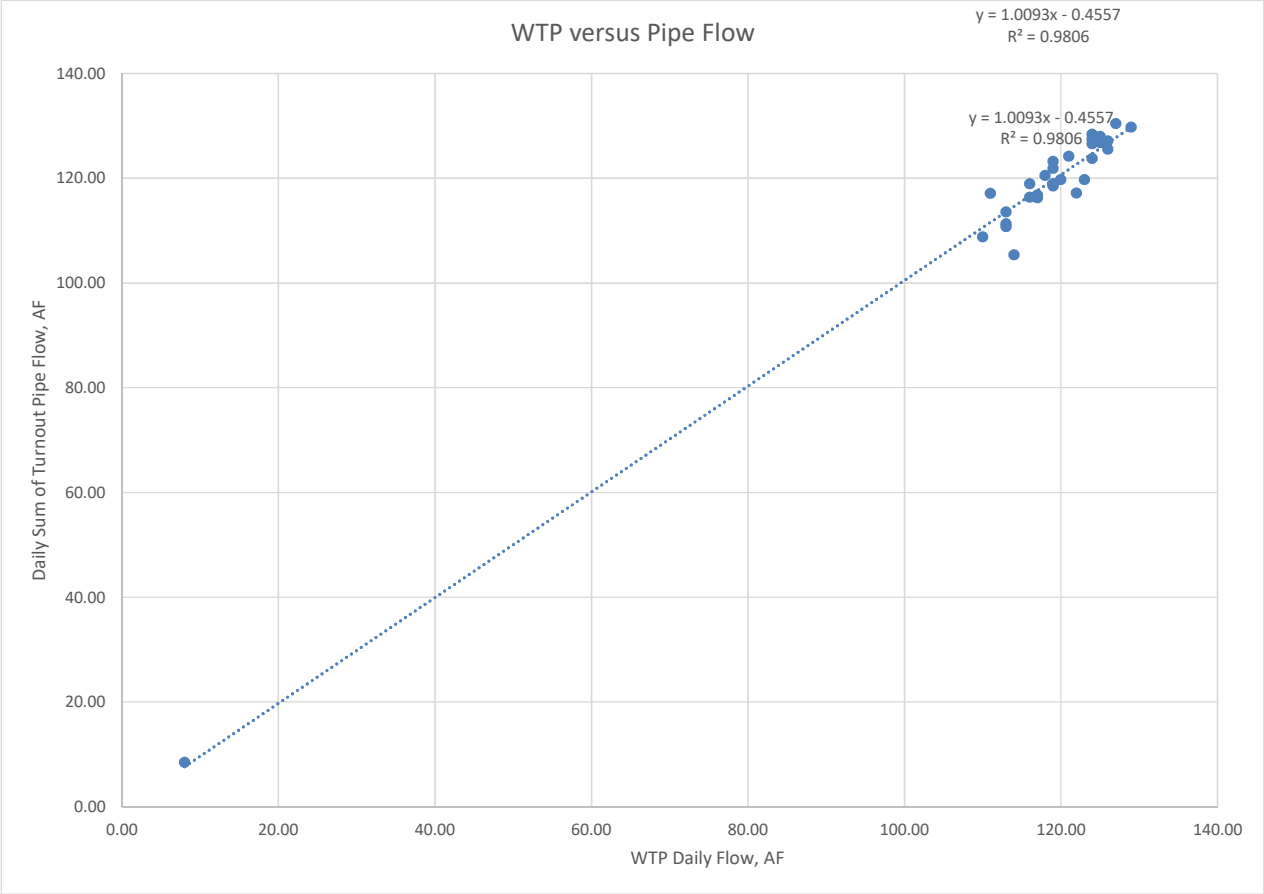

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

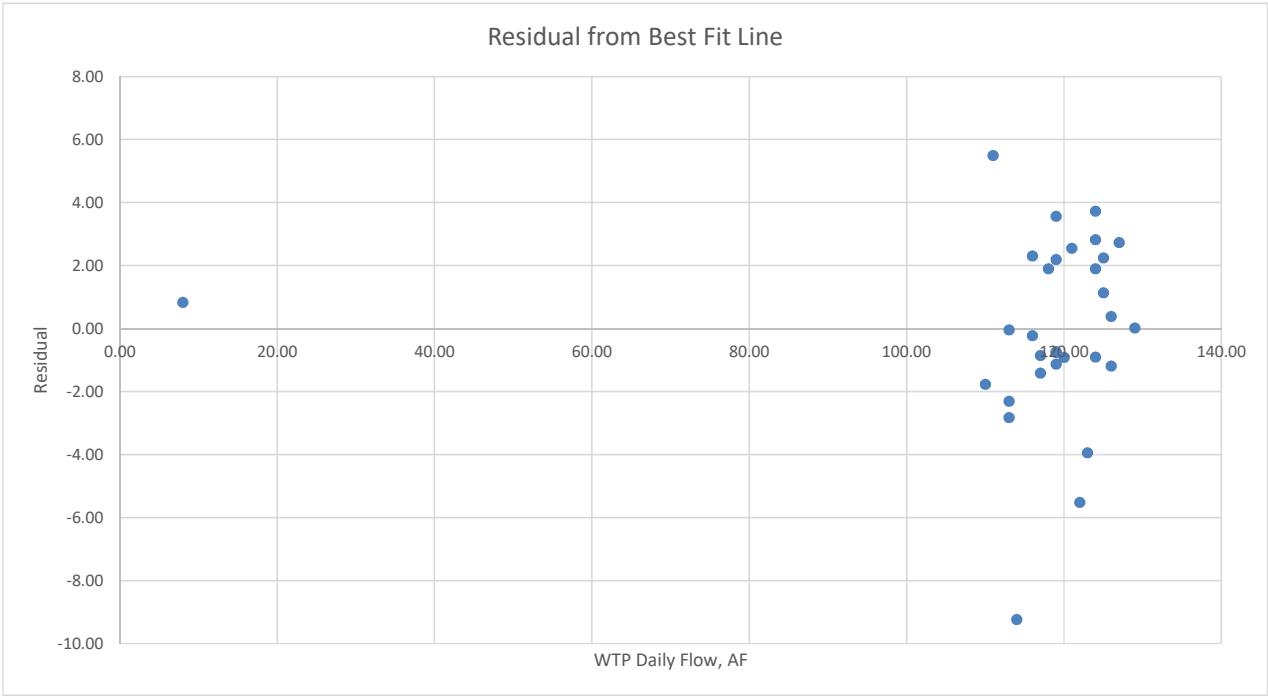
July 2017


WTP versus Pipe Flow
y = 0.6219x + 43.45
R² = 0.5299
y = 0.6219x + 43.45
R² = 0.5299
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

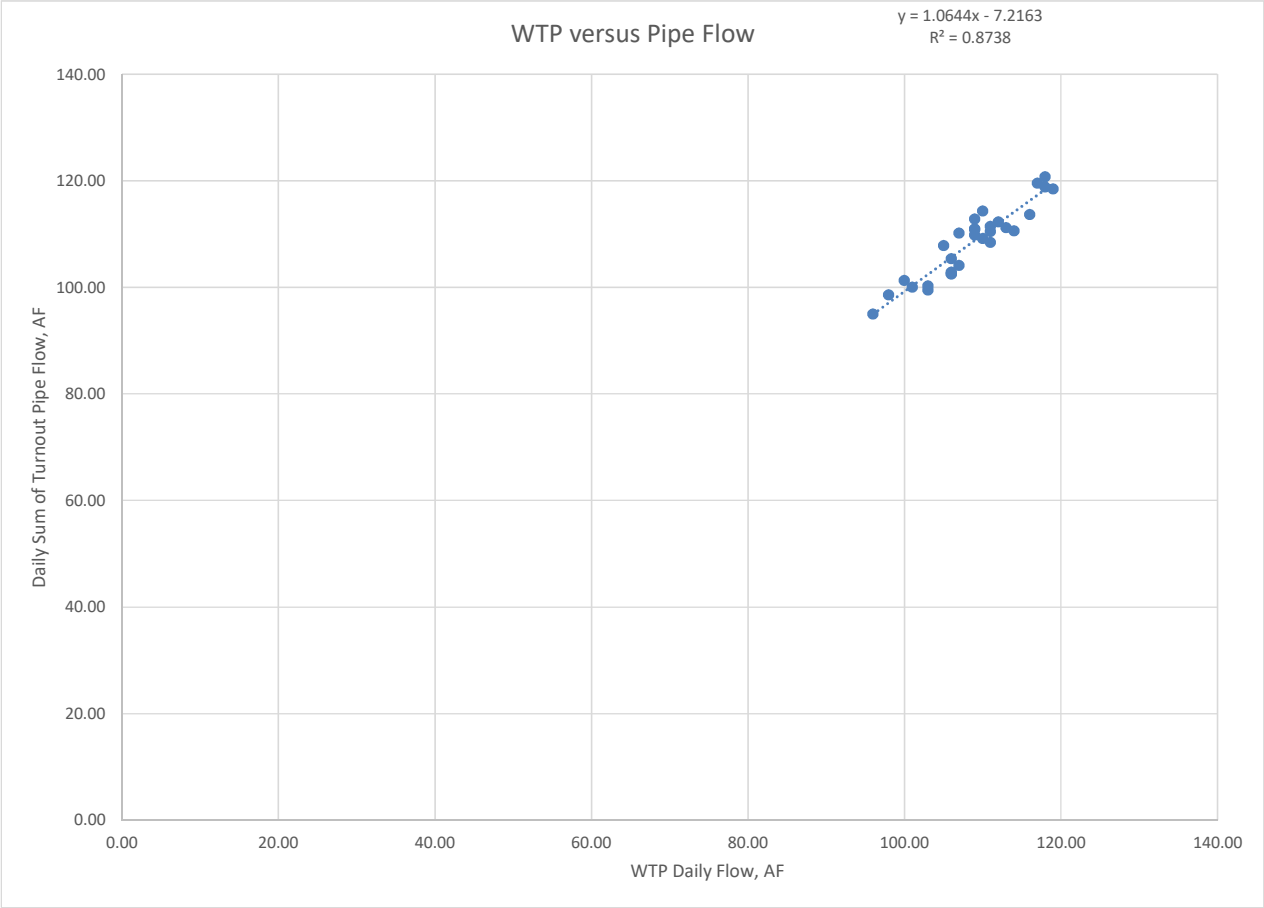

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
12.00
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

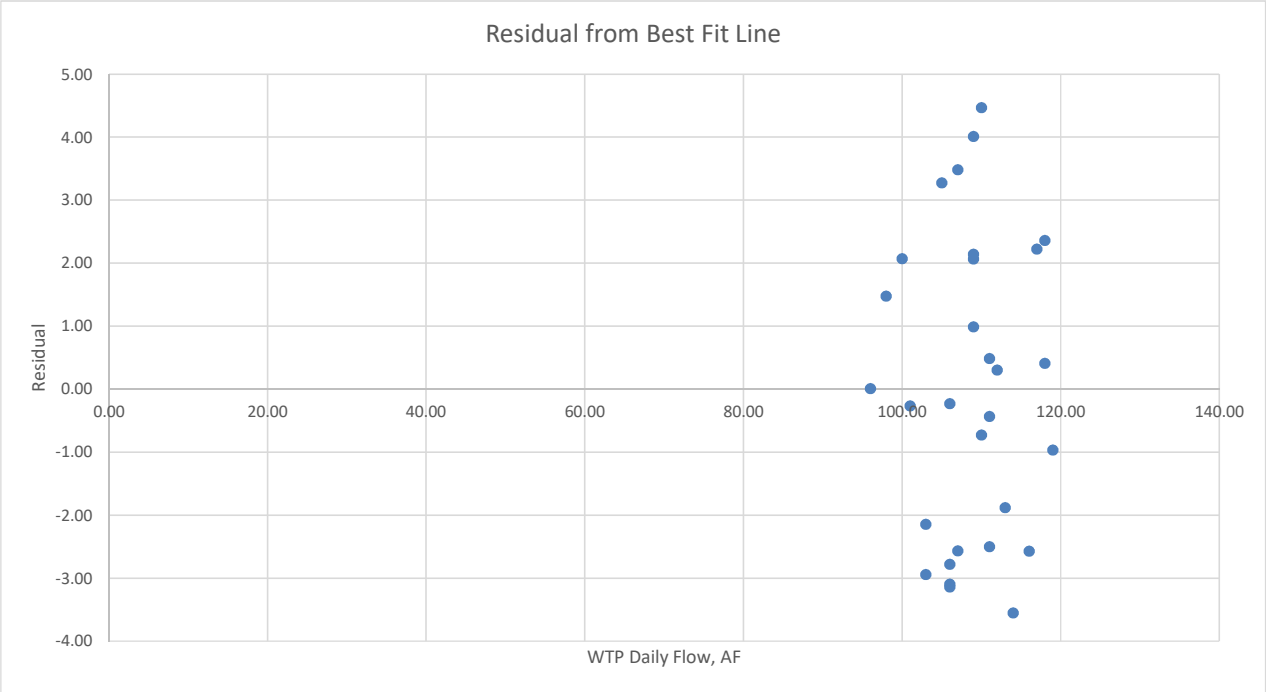
August 2017


WTP versus Pipe Flow
y = 1.0093x - 0.4557
R² = 0.9806
y = 1.0093x - 0.4557
R² = 0.9806
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

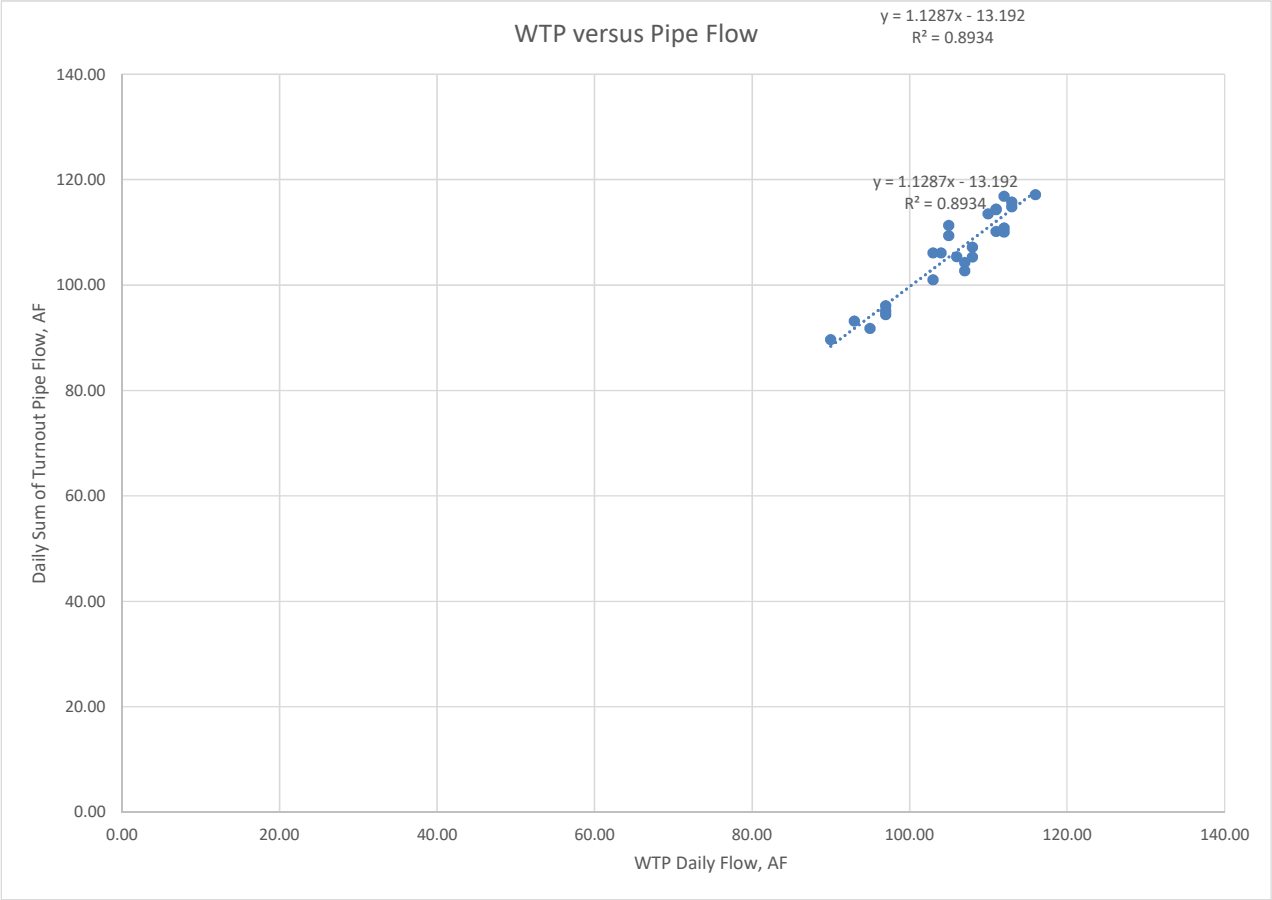

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

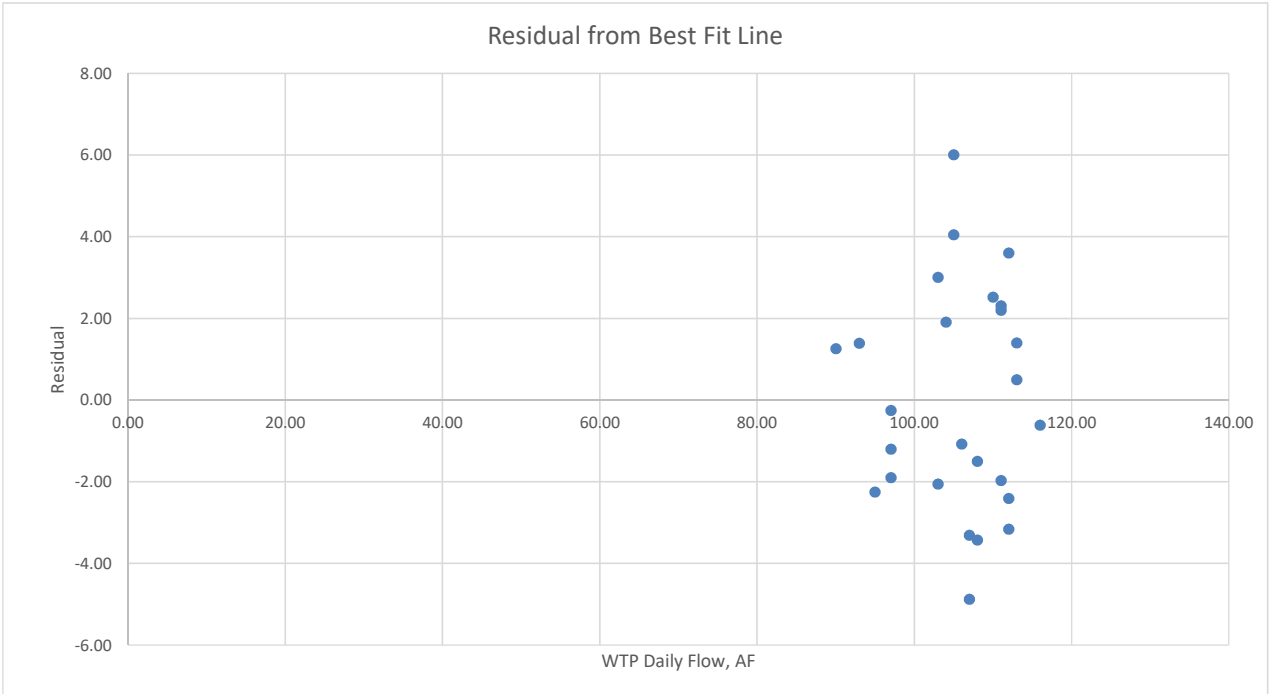
September 2017



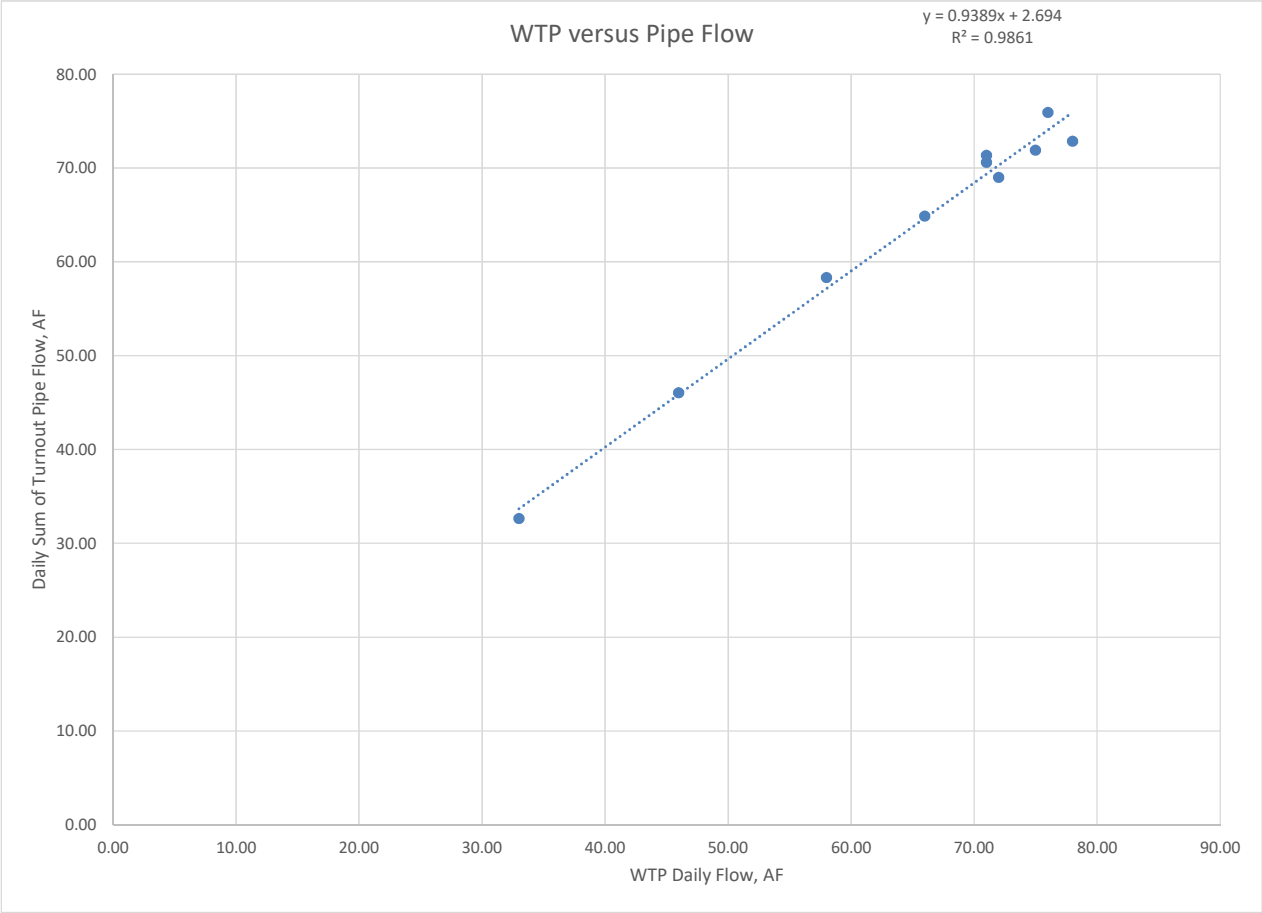


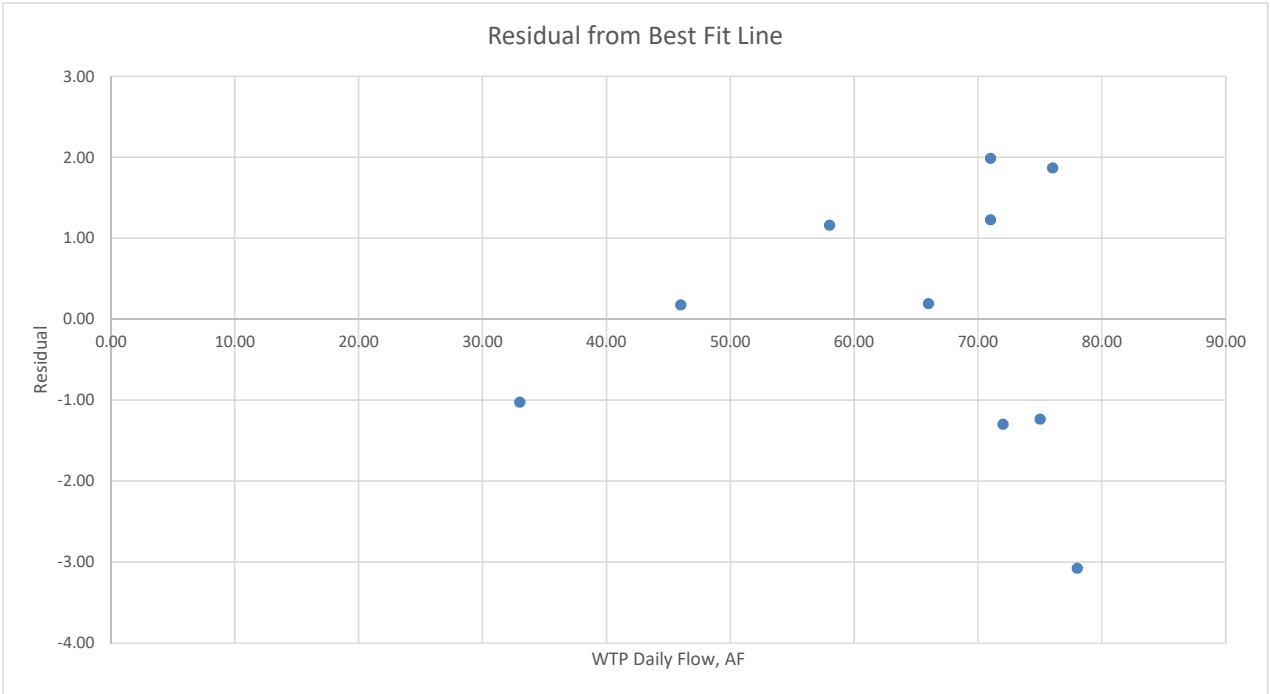
October 2017



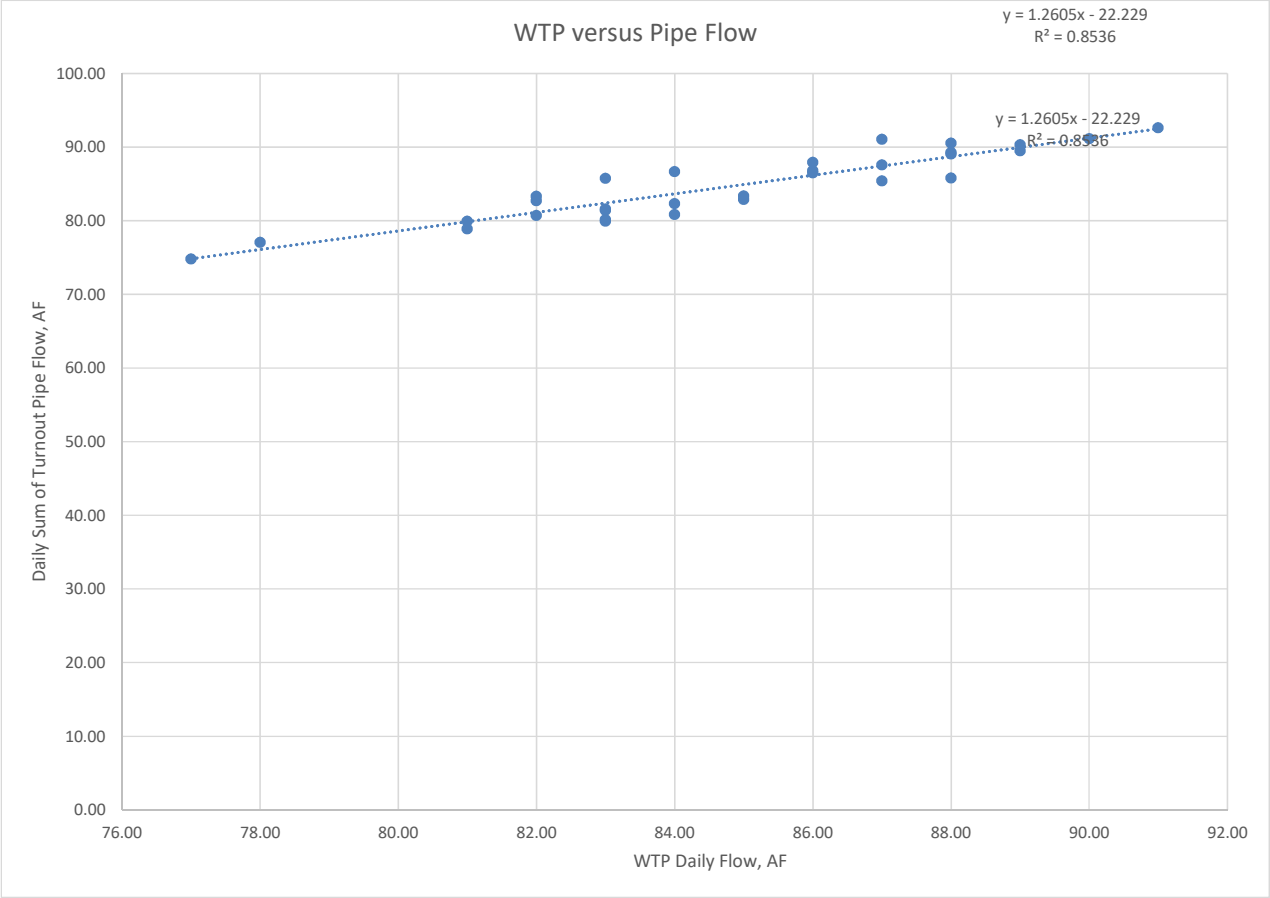


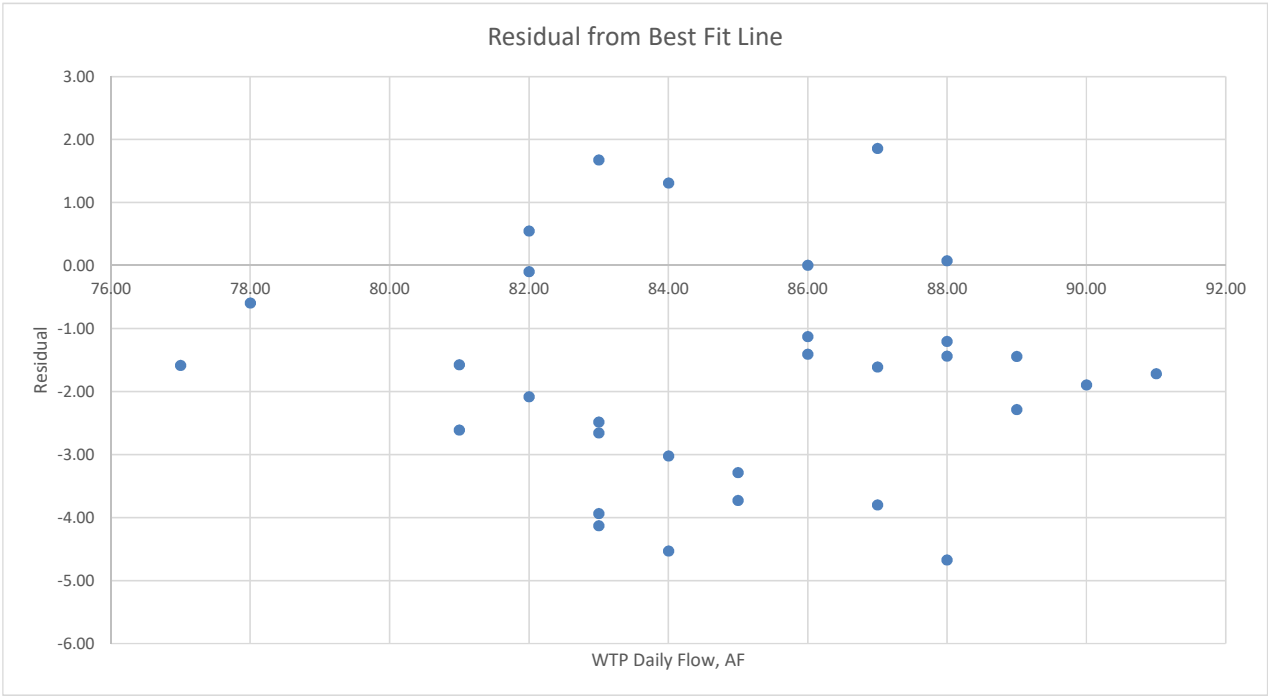
November 2017



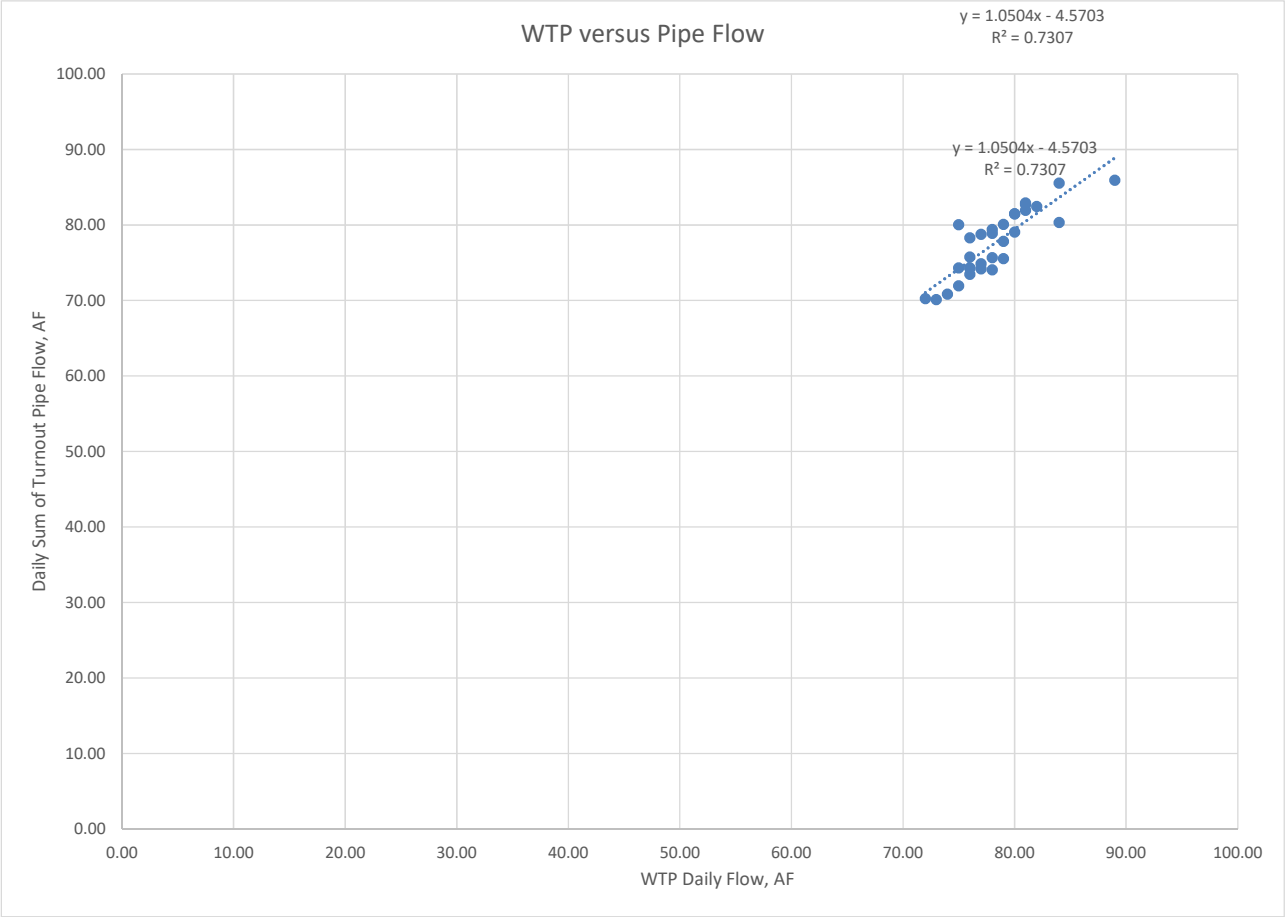


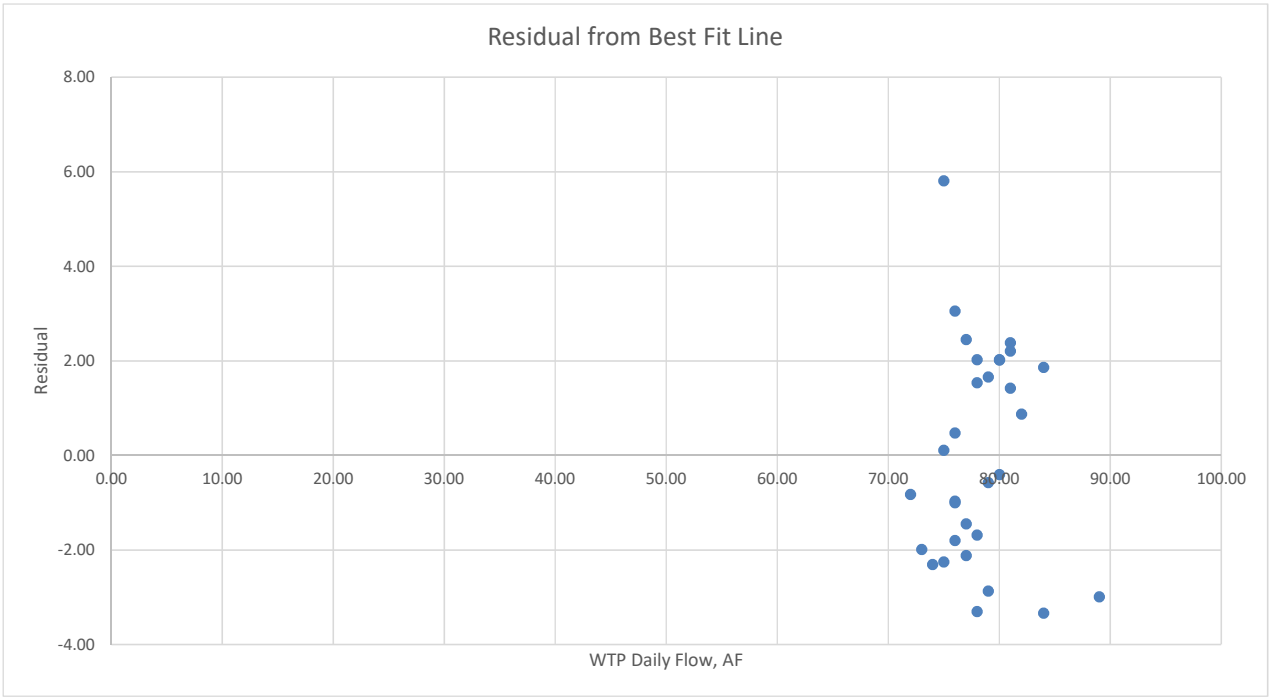
December 2017



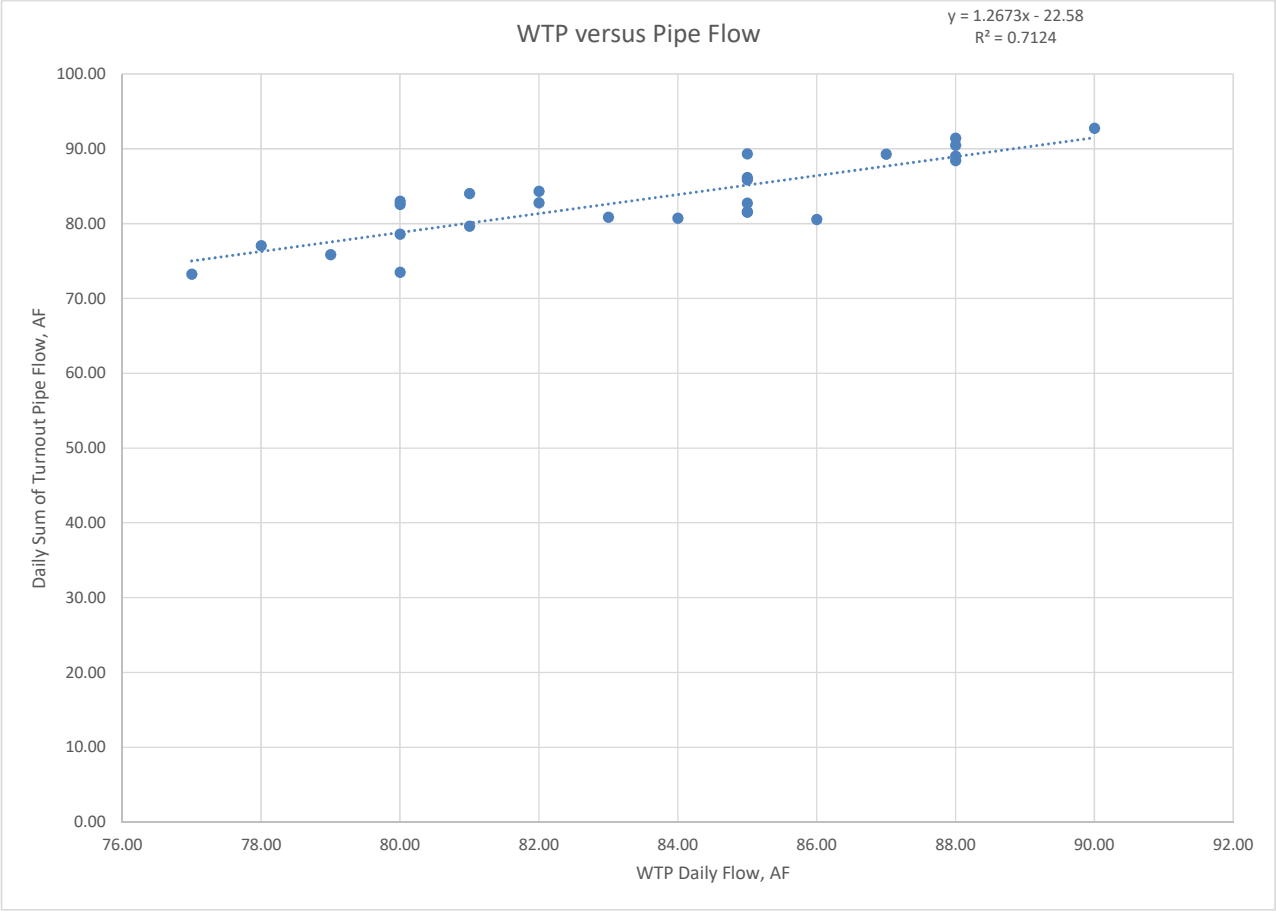


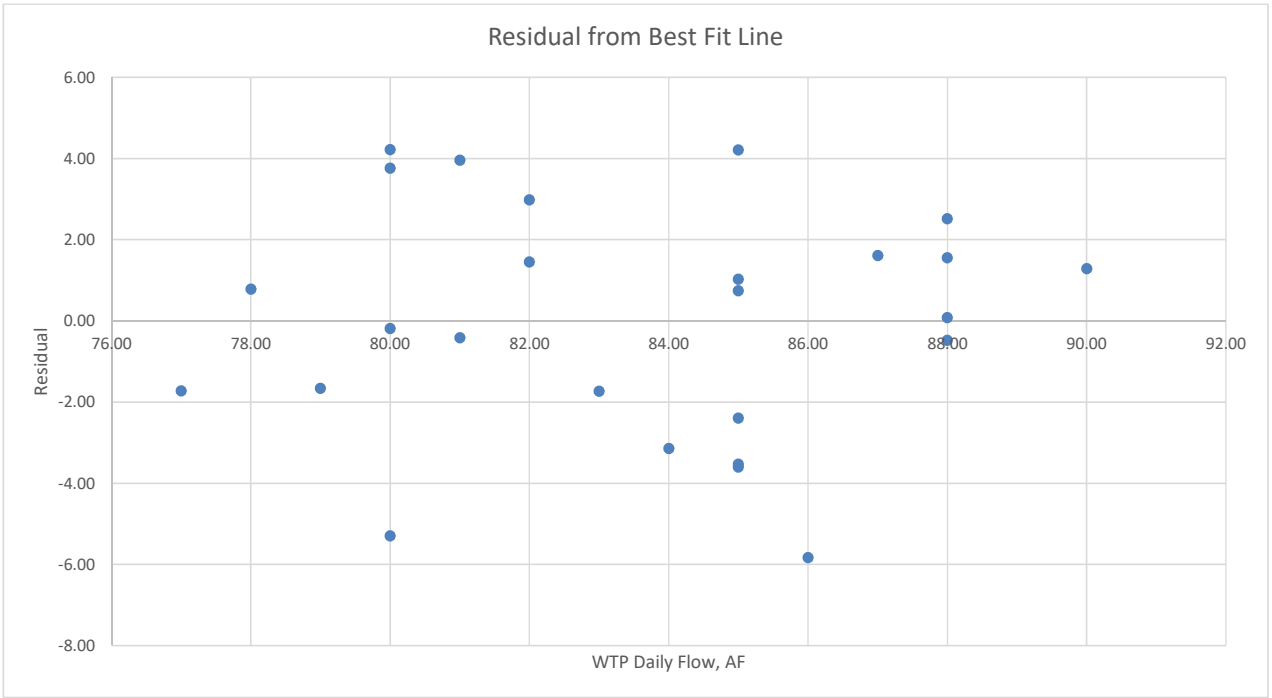
January 2018



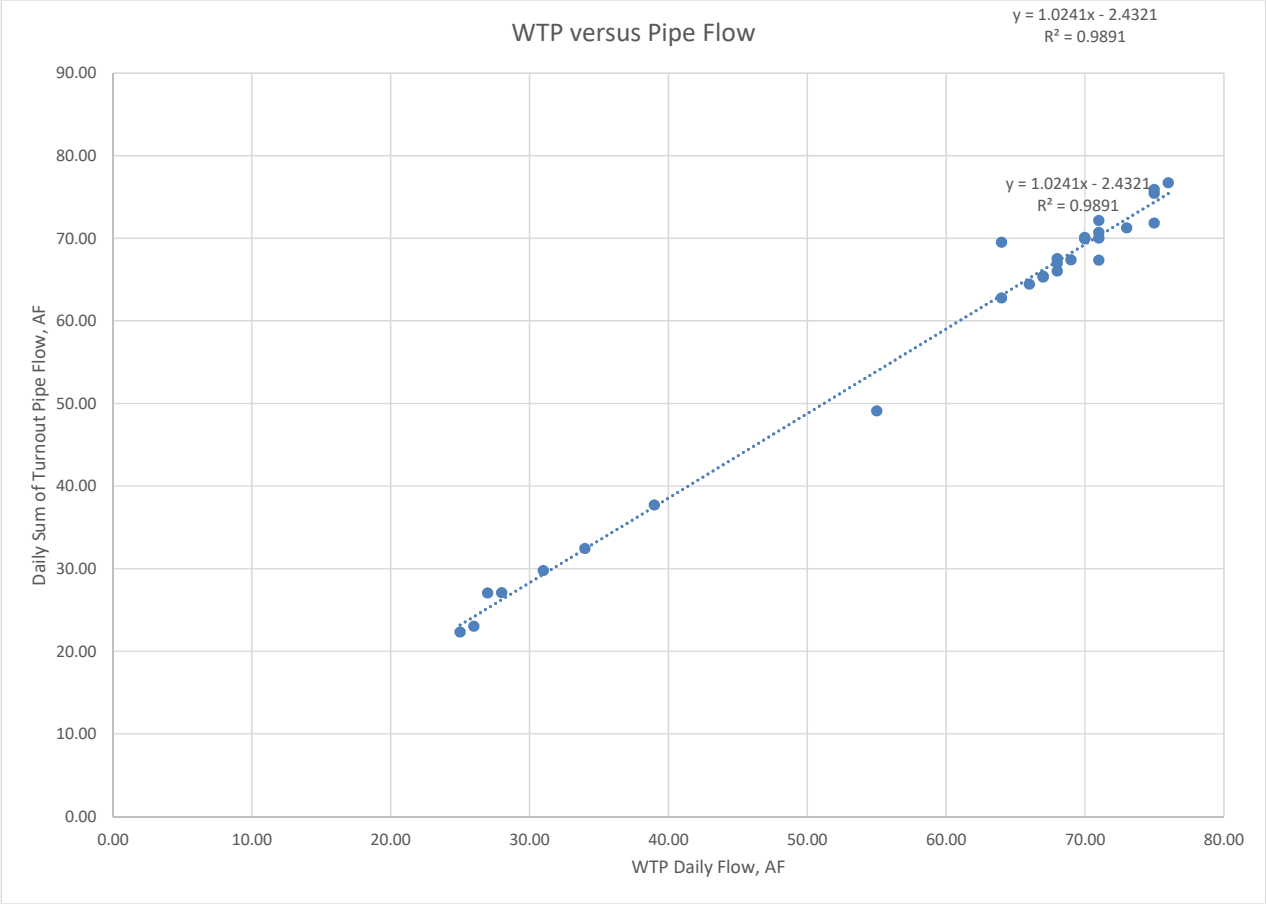


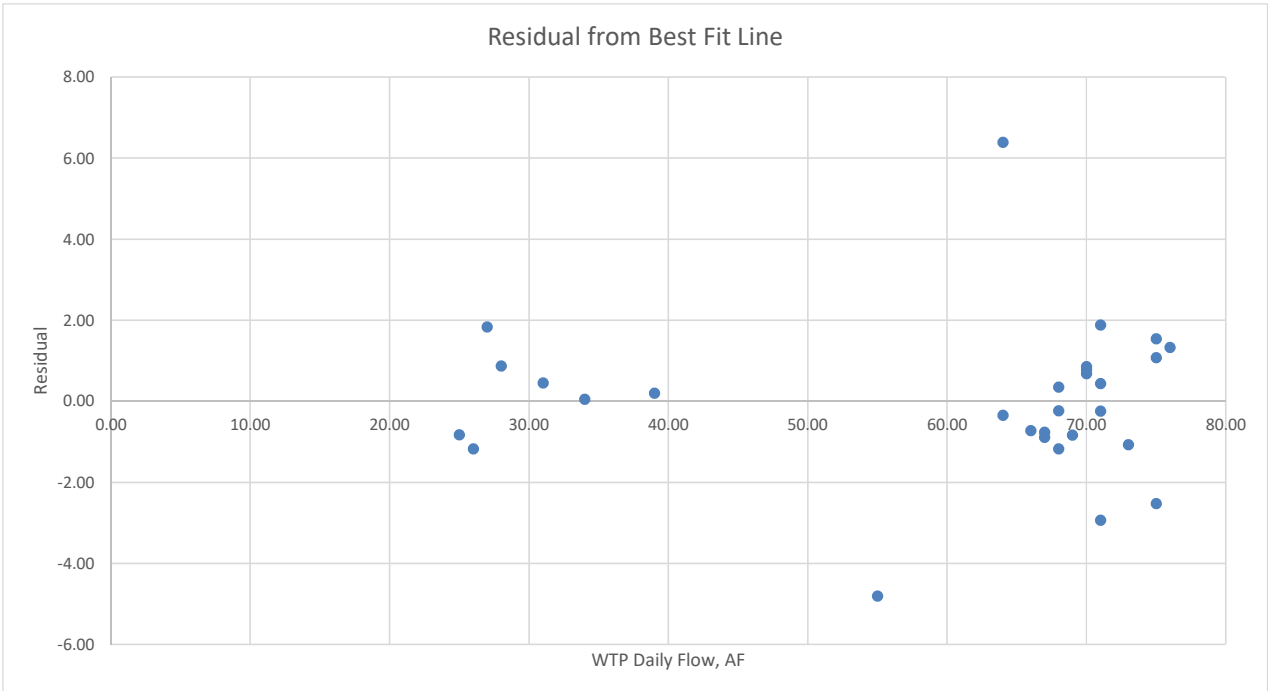
February 2018



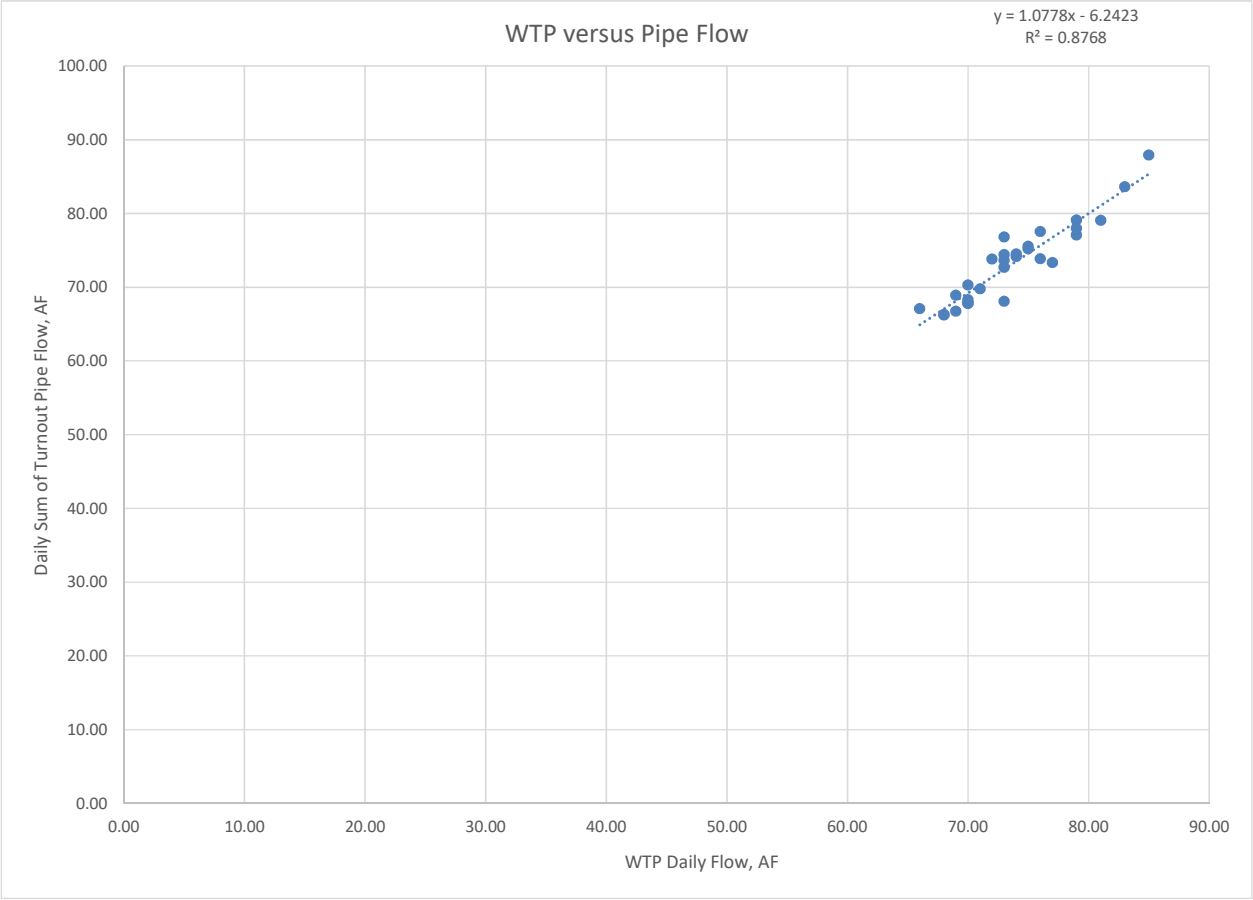


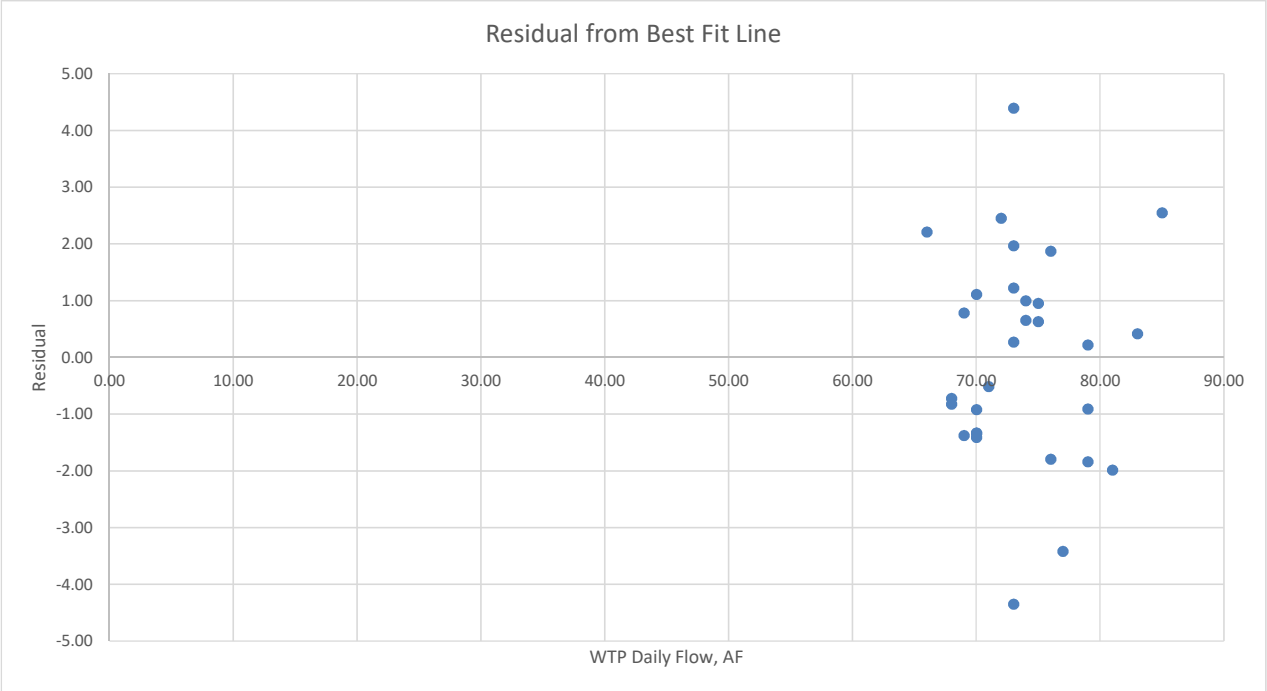
March 2018


WTP versus Pipe Flow
y = 1.0241x - 2.4321
R² = 0.9891
y = 1.0241x - 2.4321
R² = 0.9891
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

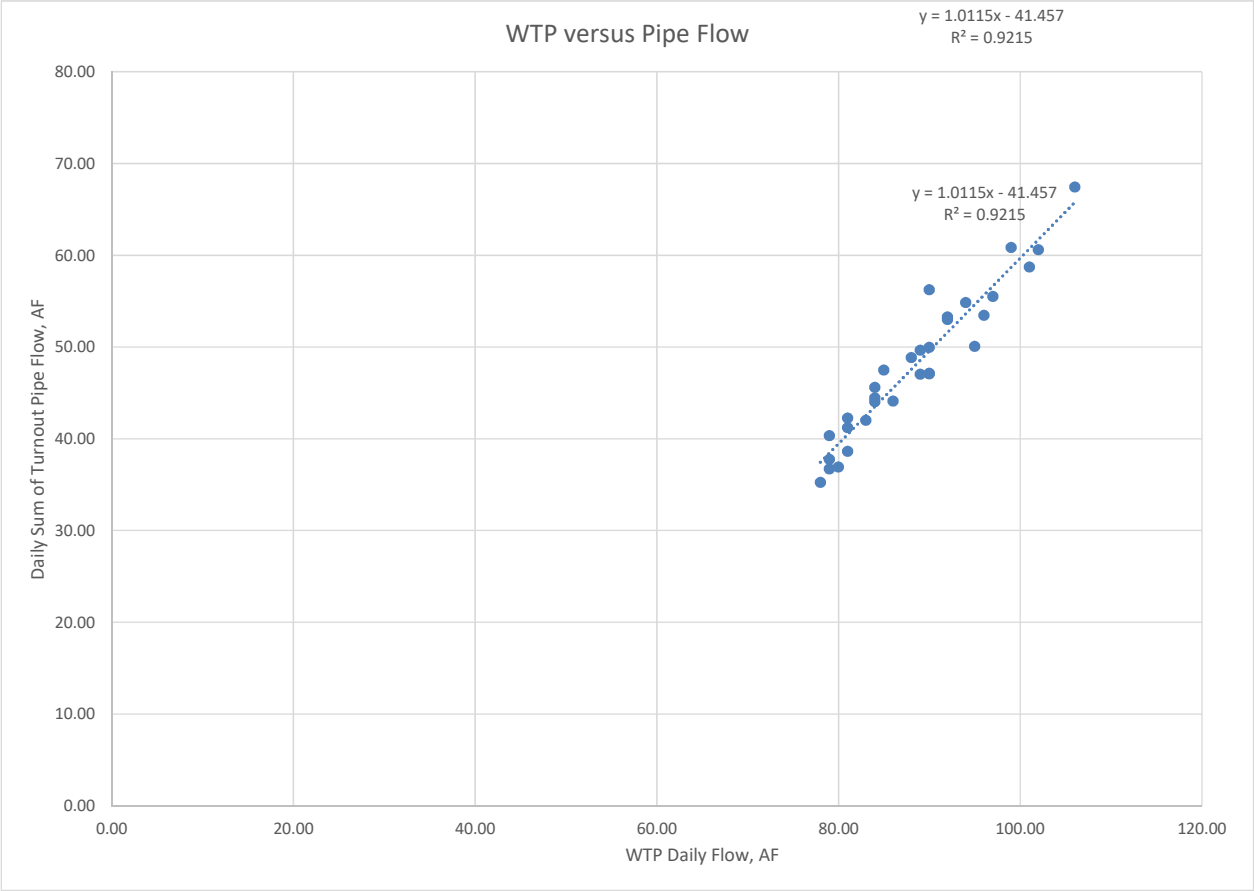

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

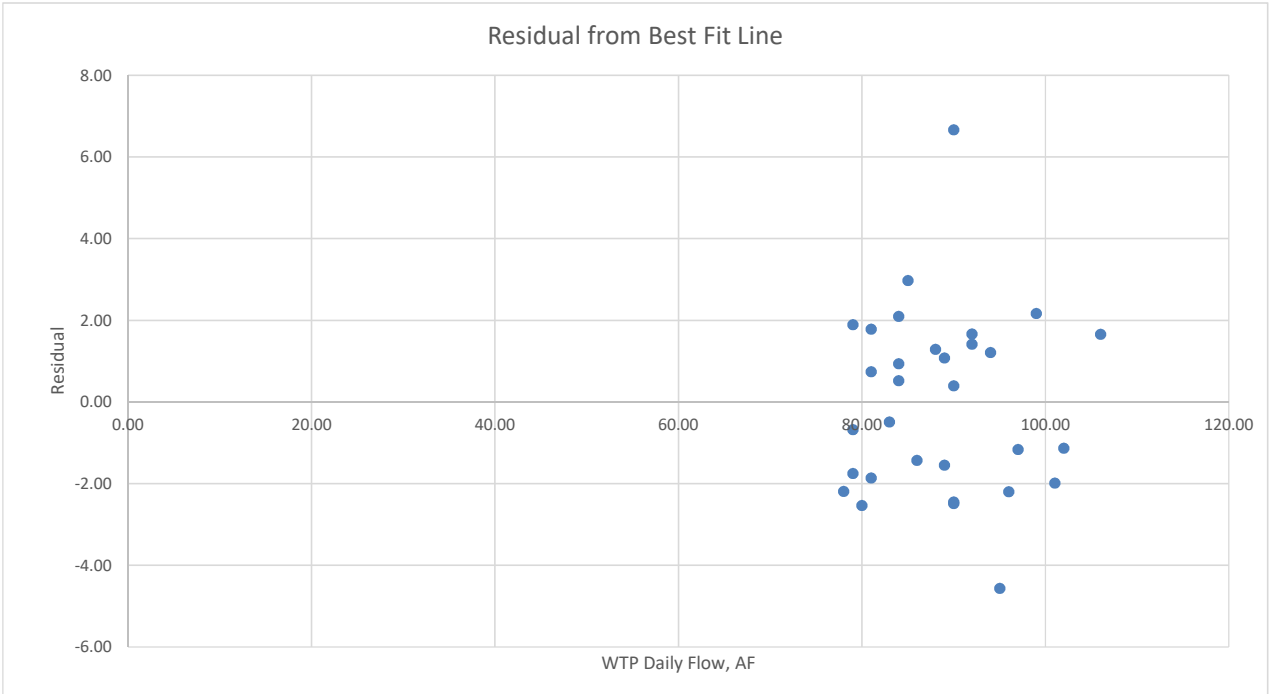
April 2018


WTP versus Pipe Flow
y = 1.0778x - 6.2423
R² = 0.8768
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

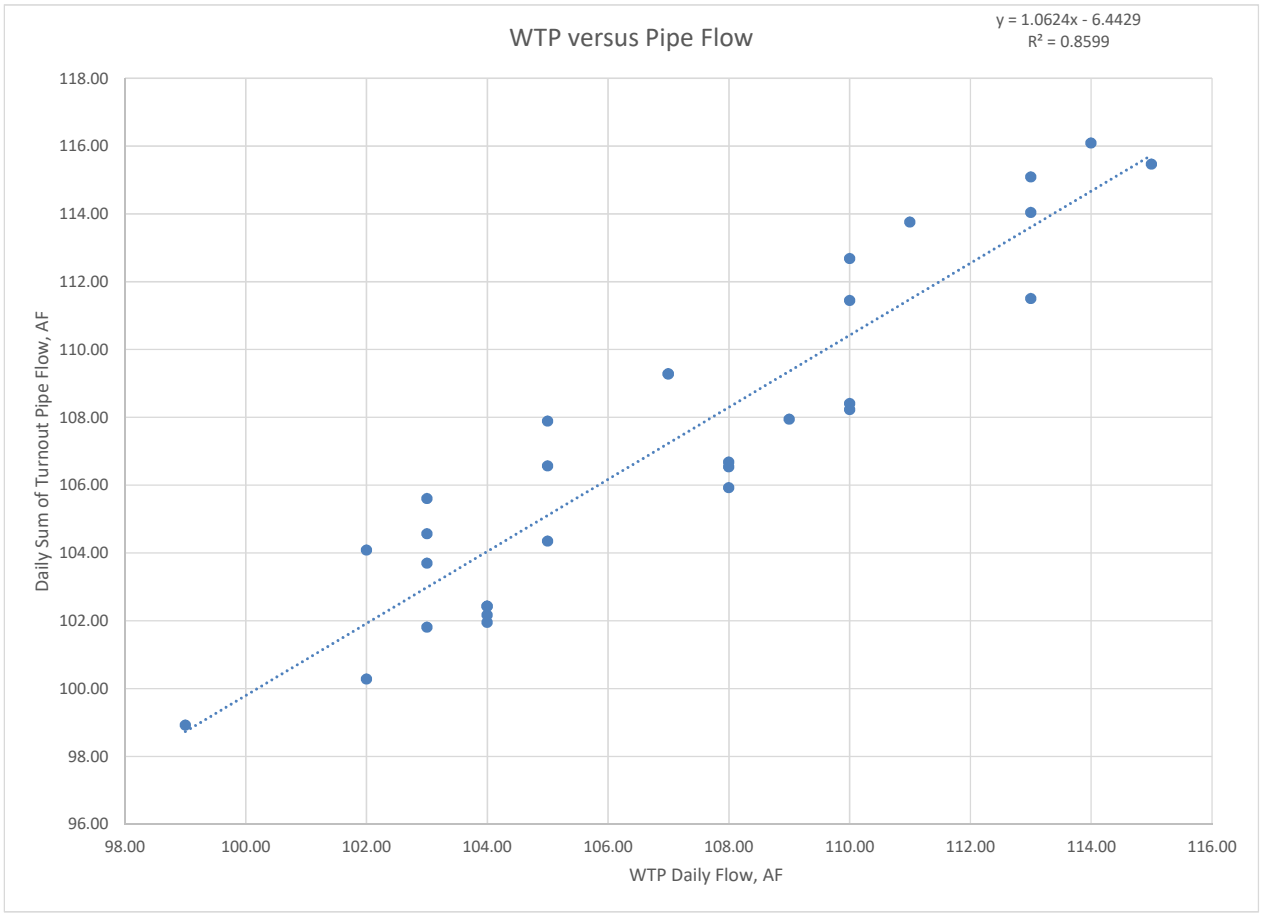

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

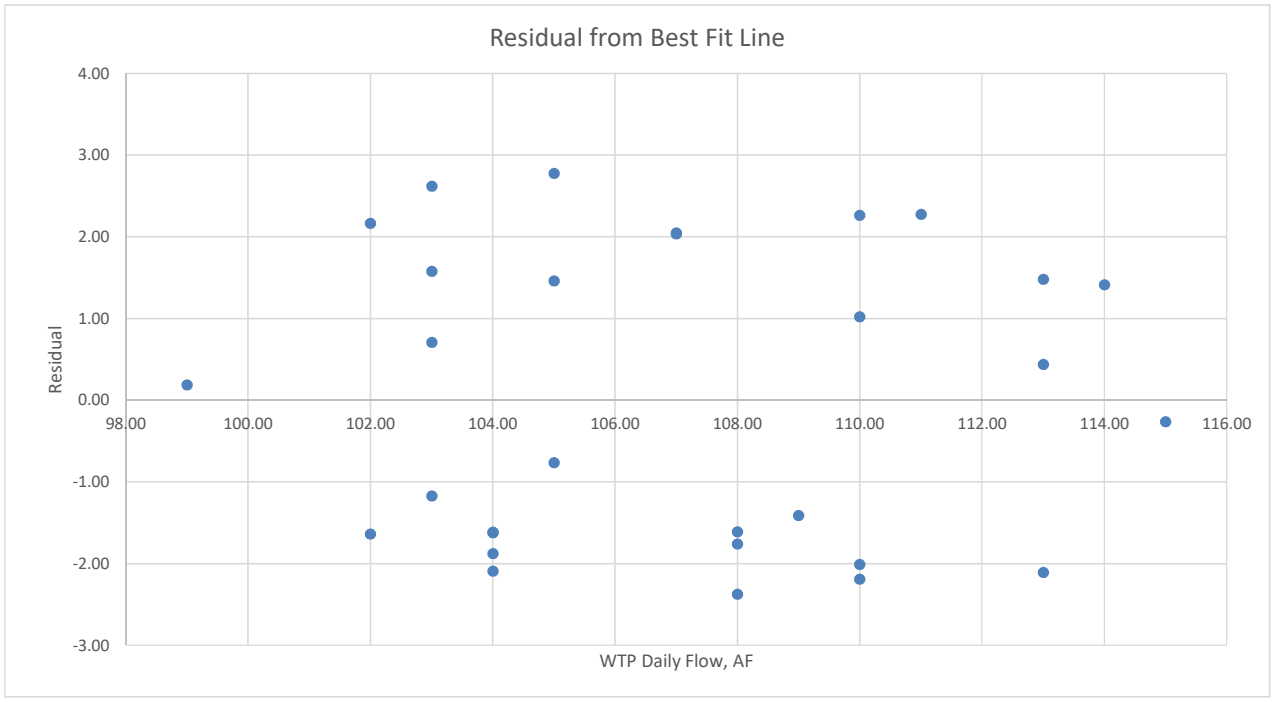
May 2018


WTP versus Pipe Flow
y = 1.0115x - 41.457
R² = 0.9215
y = 1.0115x - 41.457
R² = 0.9215
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

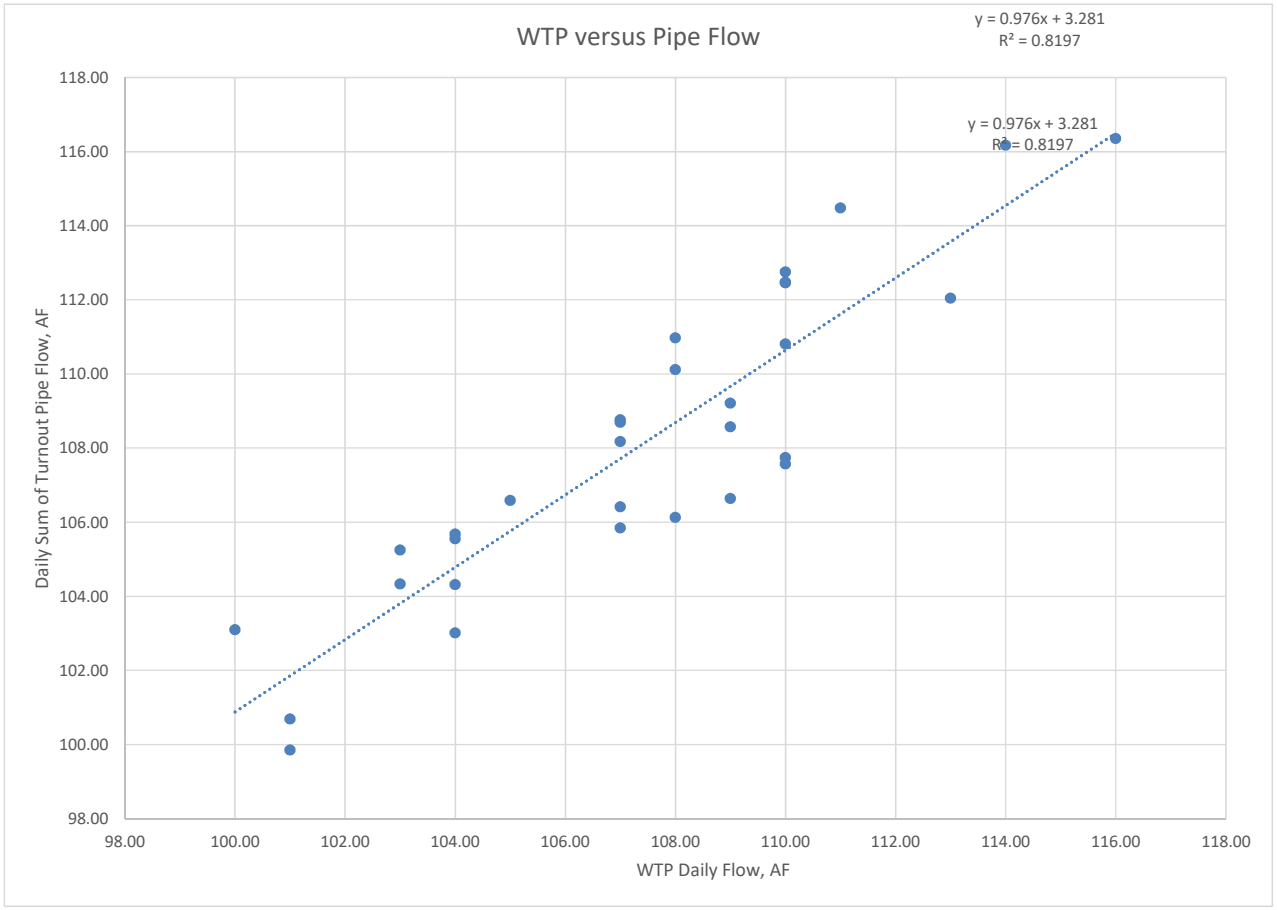

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00

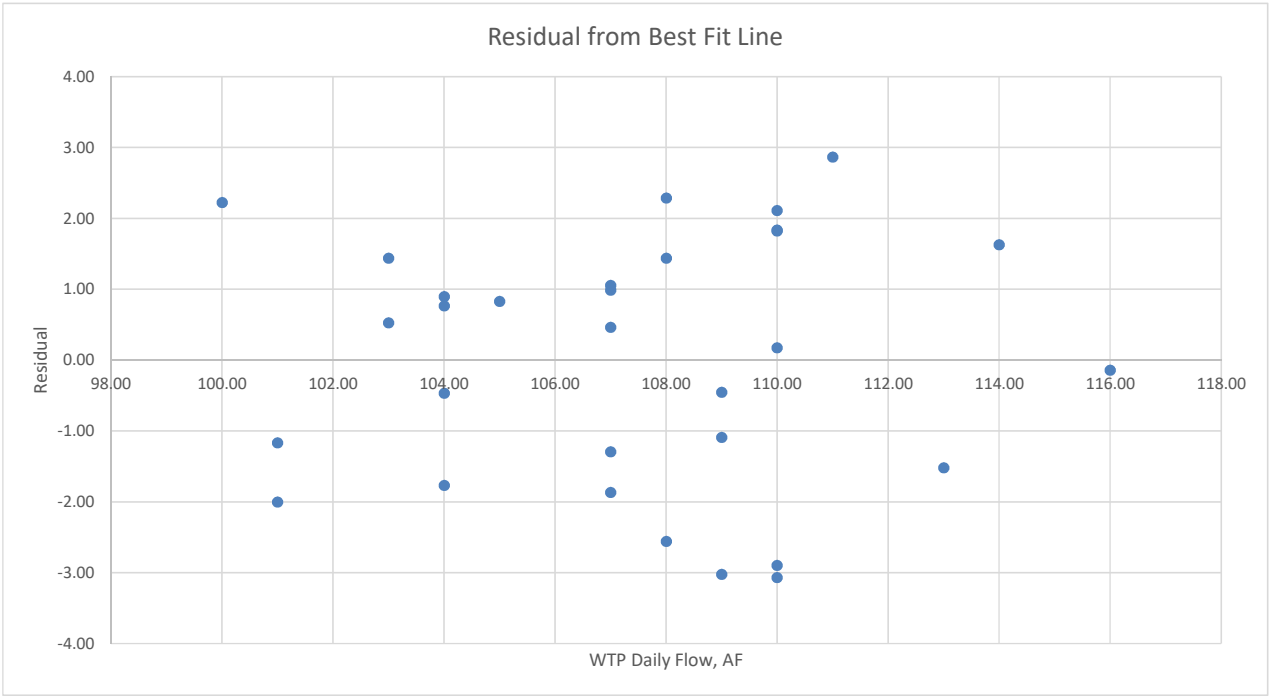
June 2018


WTP versus Pipe Flow
y = 1.0624x - 6.4429
R² = 0.8599
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
118.00
116.00
114.00
112.00
110.00
108.00
106.00
104.00
102.00
100.00
98.00
96.00
98.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00

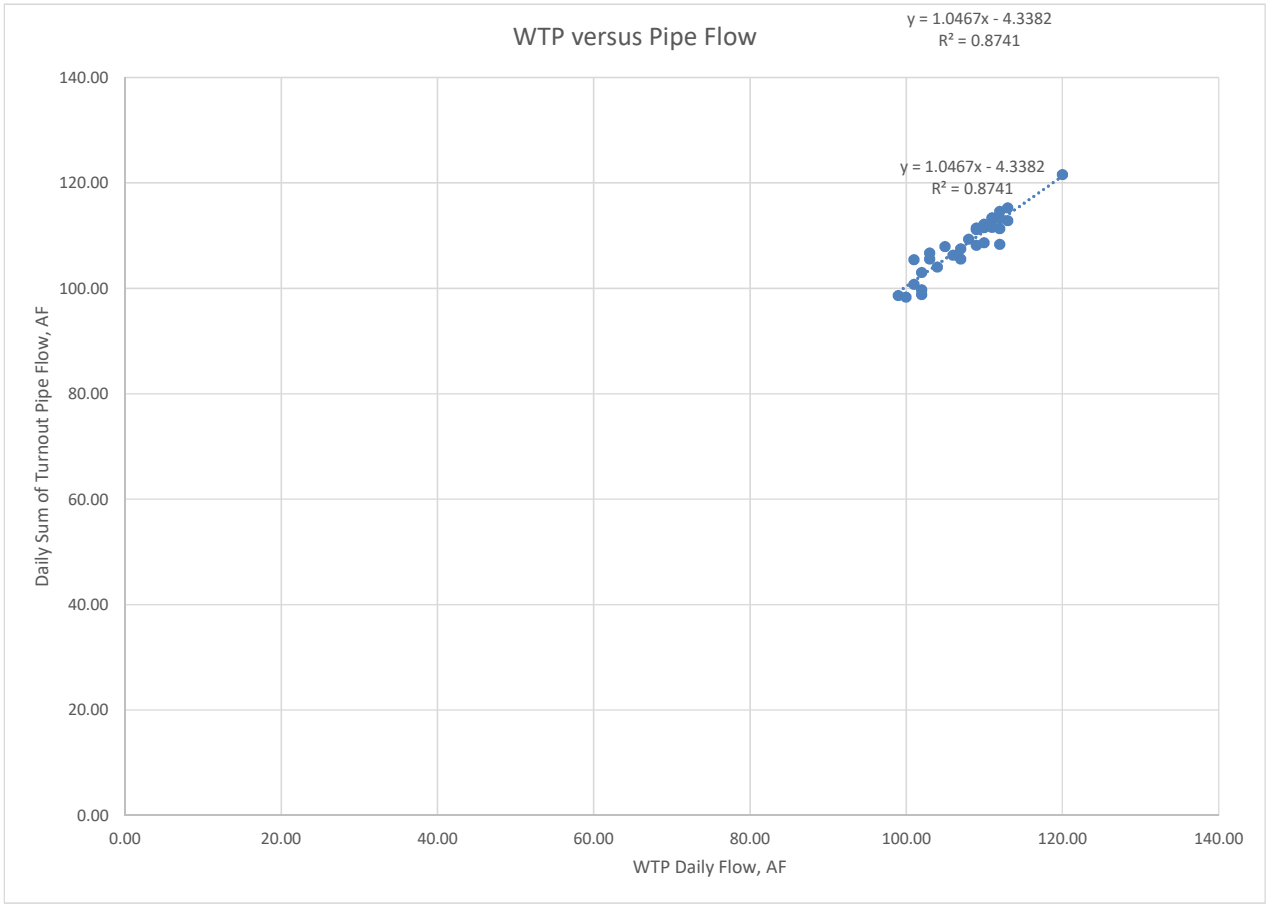

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
98.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00

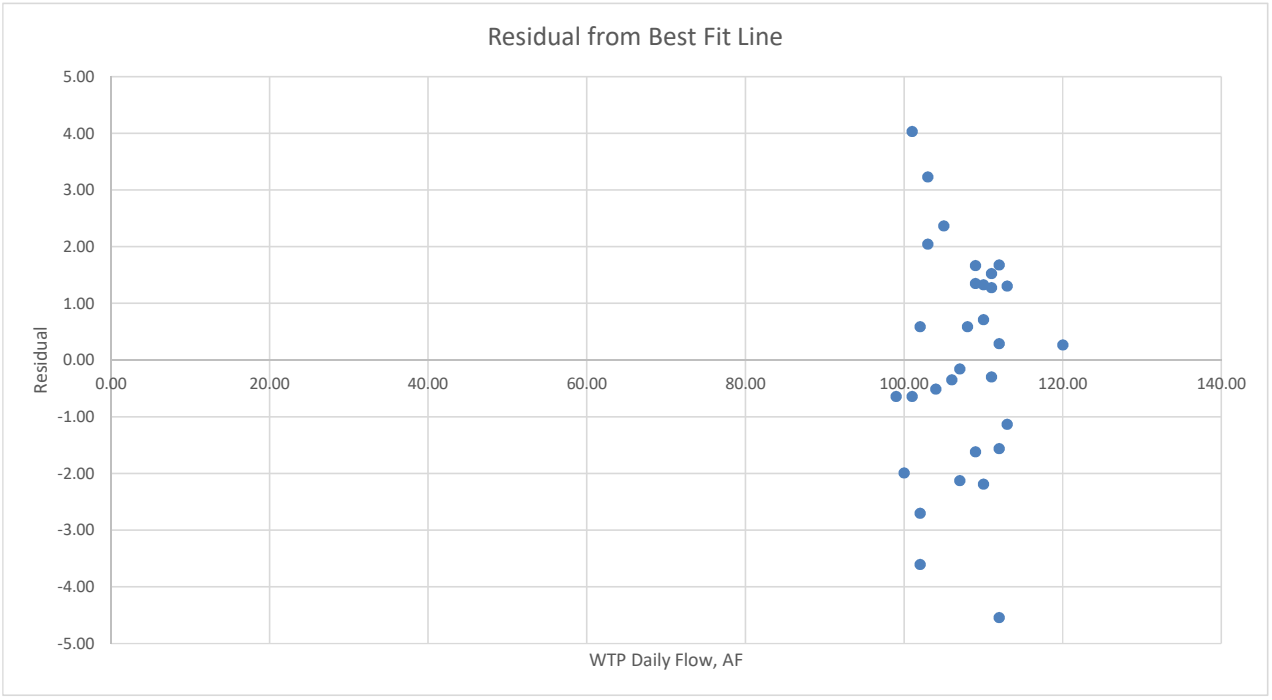
July 2018


WTP versus Pipe Flow
y = 0.976x + 3.281
R² = 0.8197
y = 0.976x + 3.281
R² = 0.8197
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
118.00
116.00
114.00
112.00
110.00
108.00
106.00
104.00
102.00
100.00
98.00
98.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00
118.00

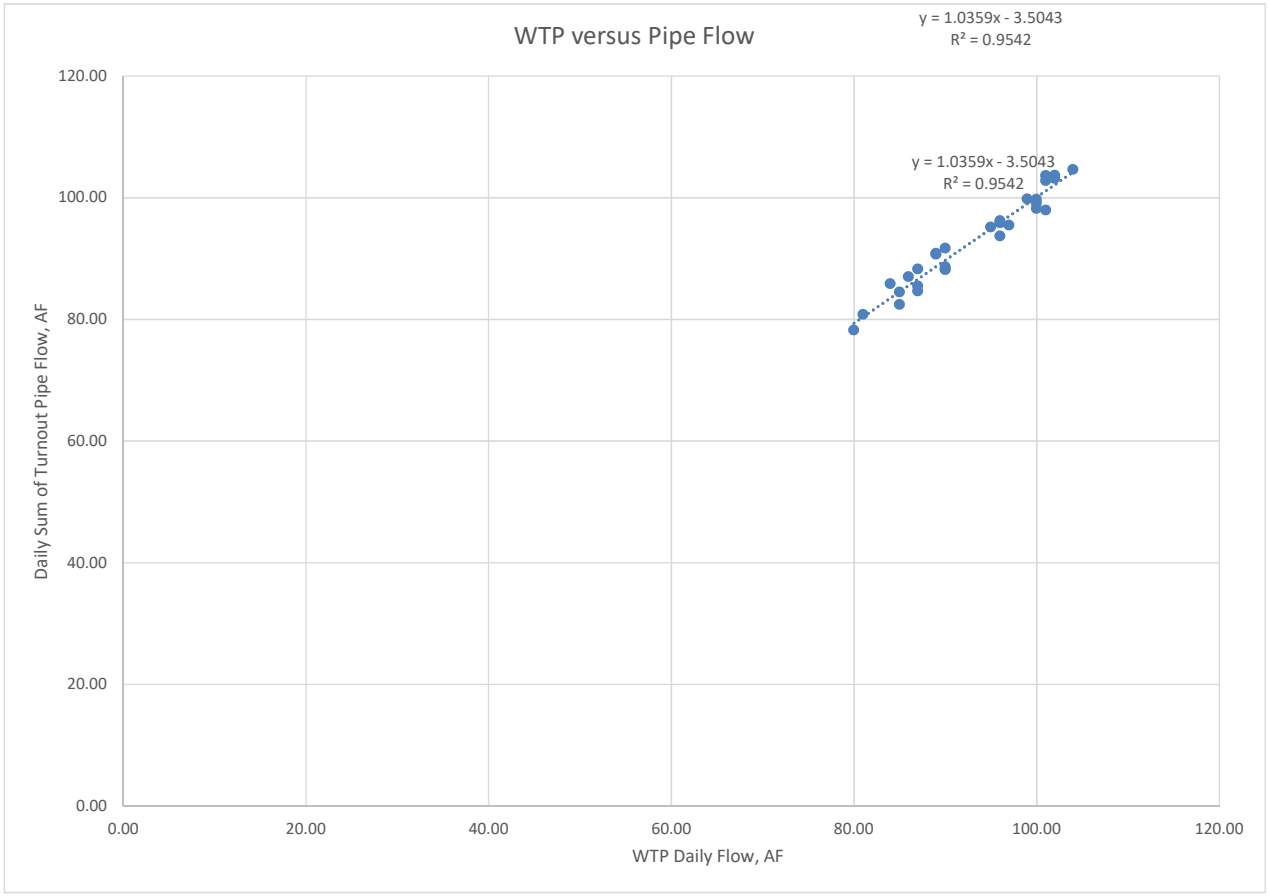

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
98.00
100.00
102.00
104.00
106.00
108.00
110.00
112.00
114.00
116.00
118.00

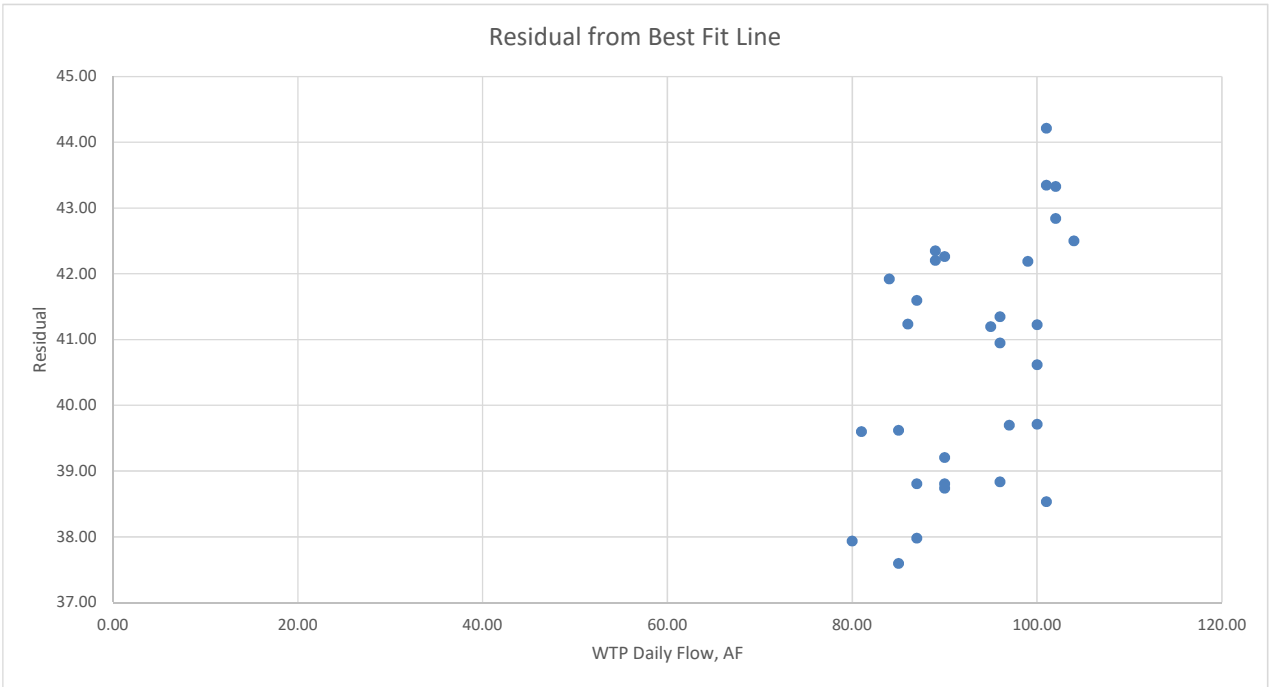
August 2018


WTP versus Pipe Flow
y = 1.0467x - 4.3382
R² = 0.8741
y = 1.0467x - 4.3382
R² = 0.8741
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

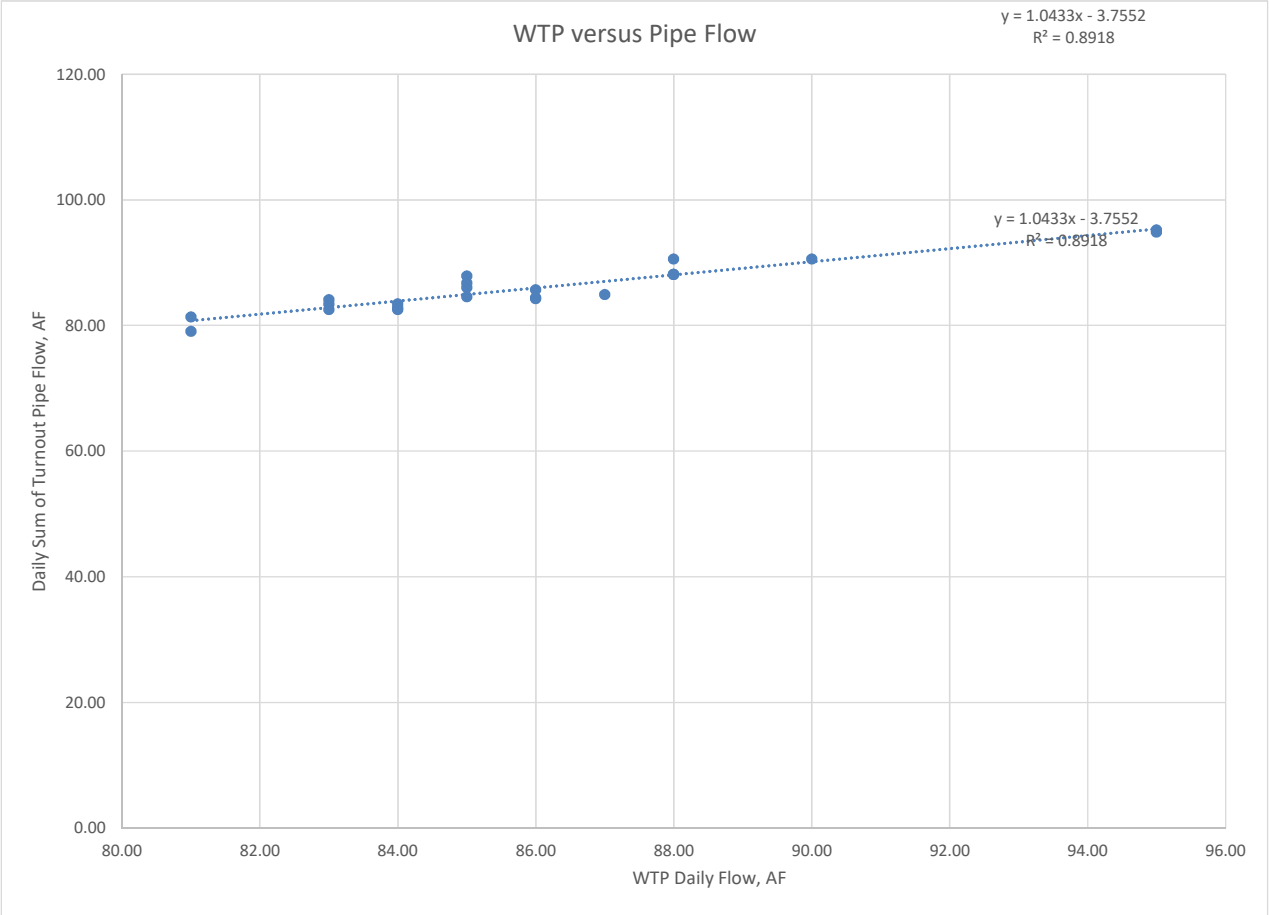

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00

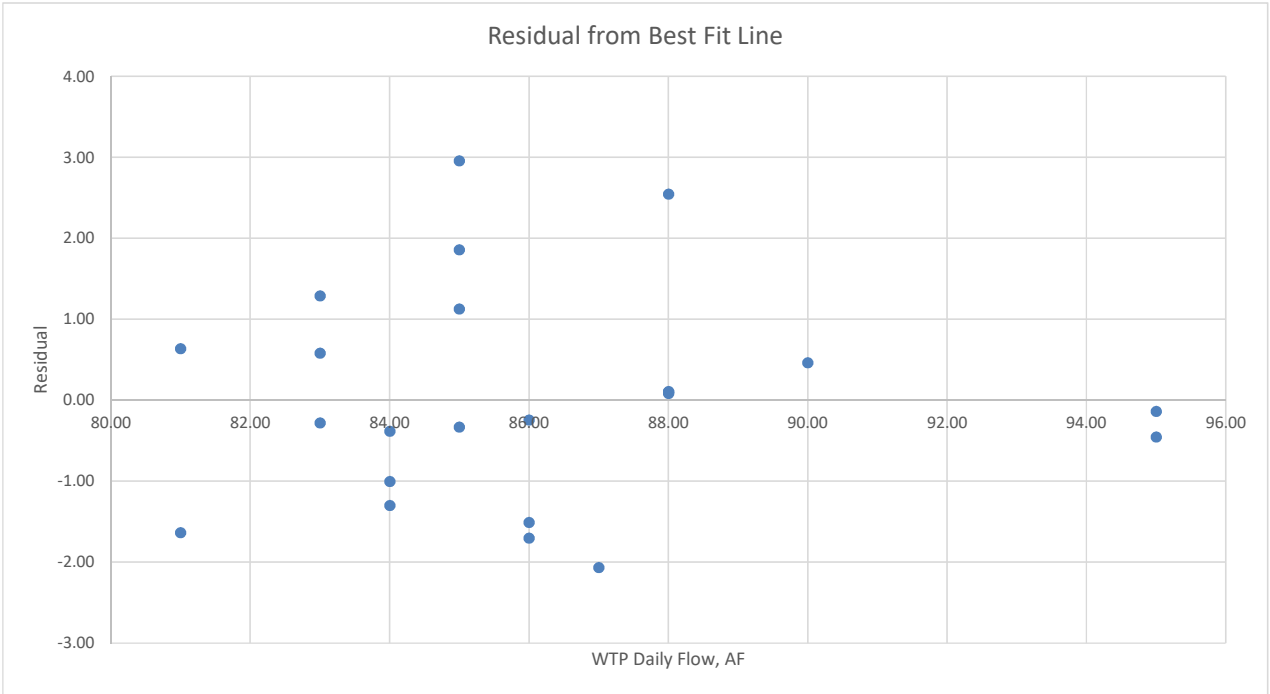
September 2018



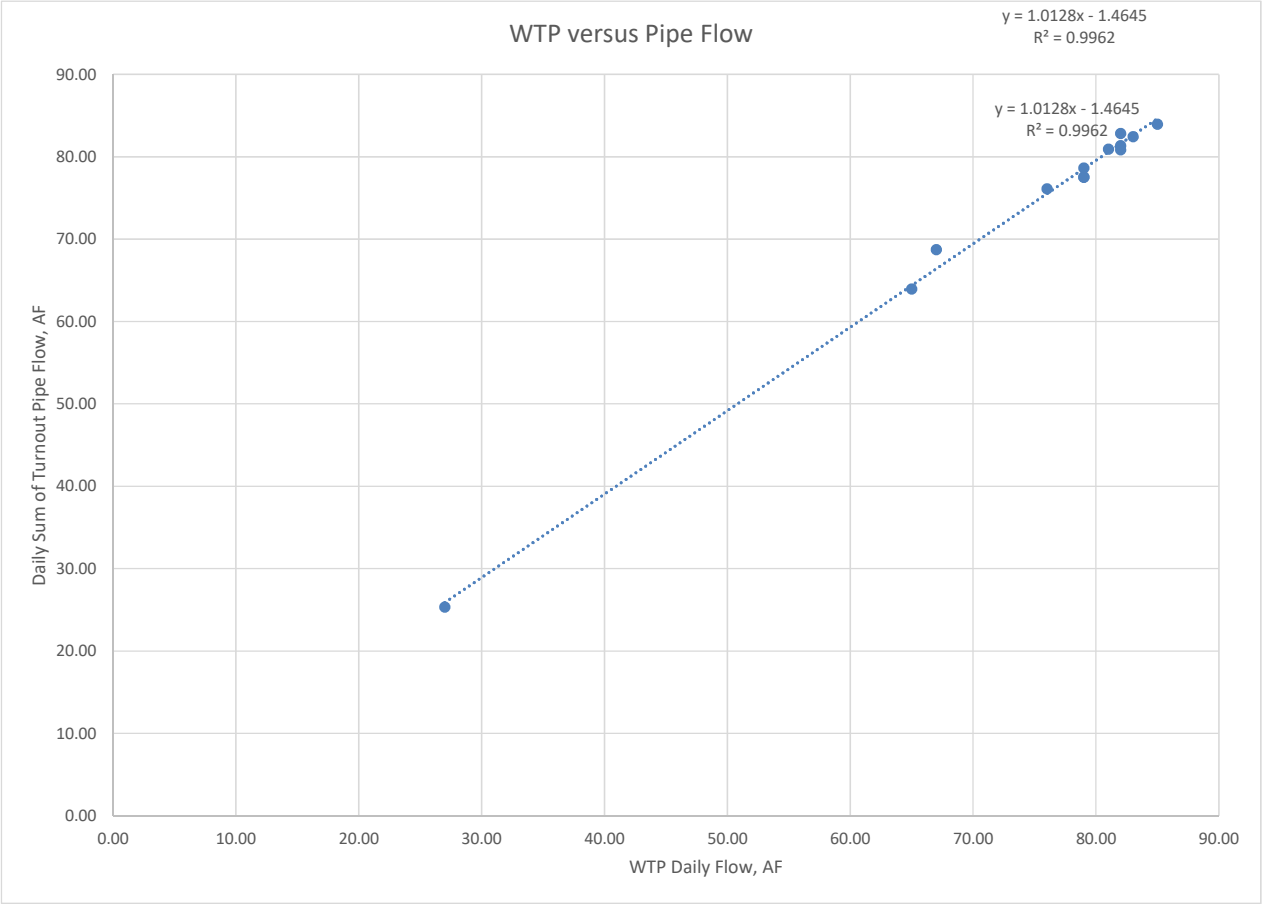


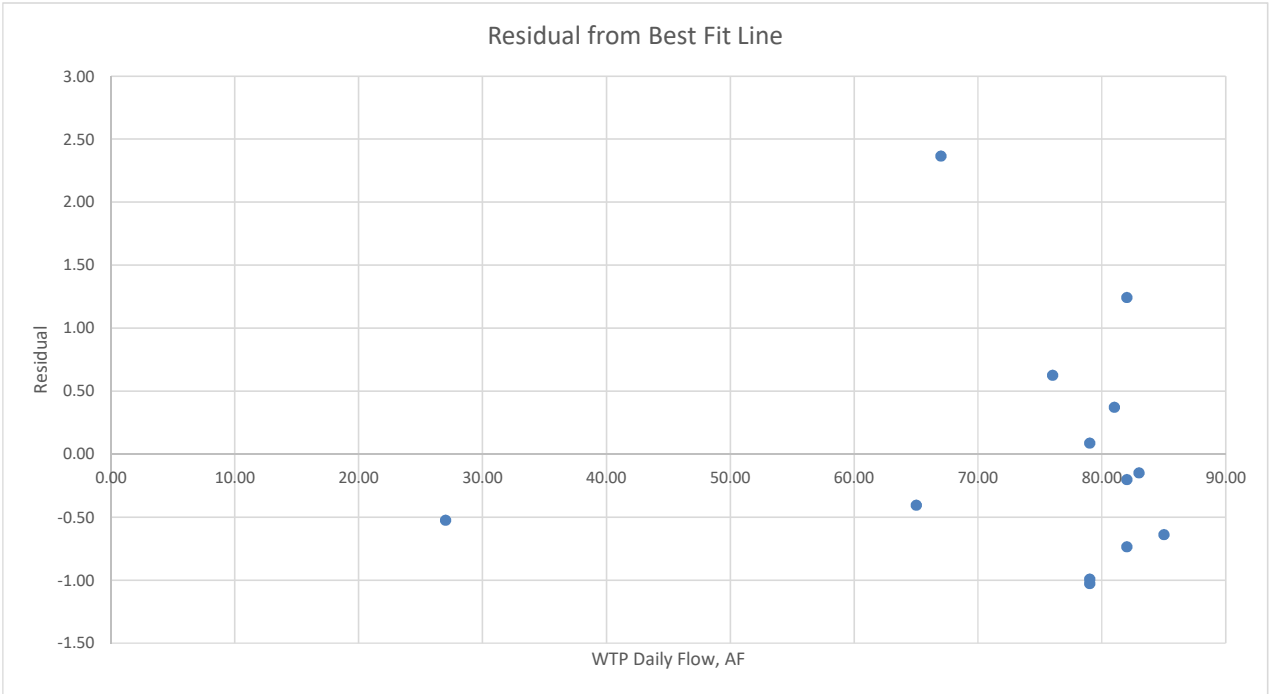
October 2018



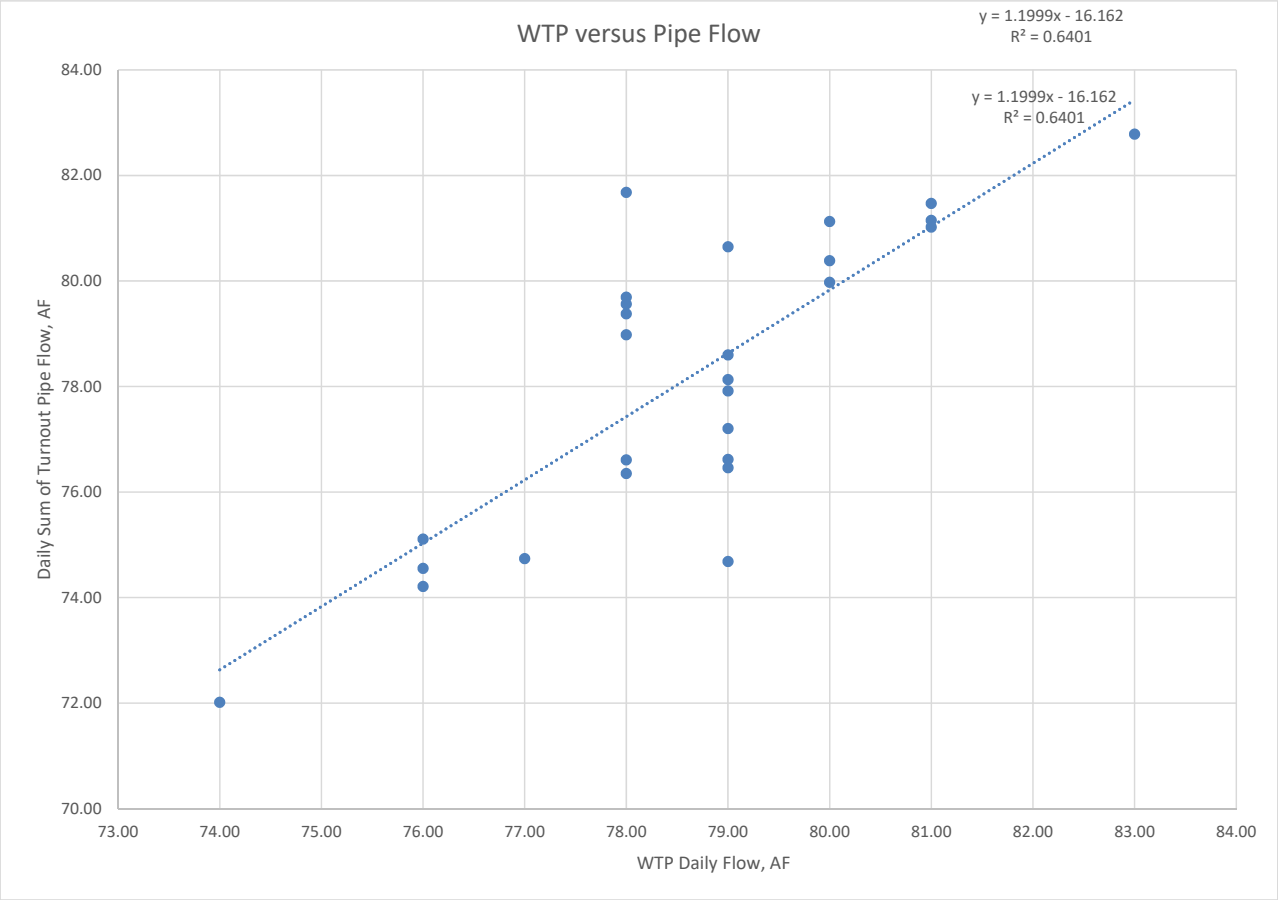


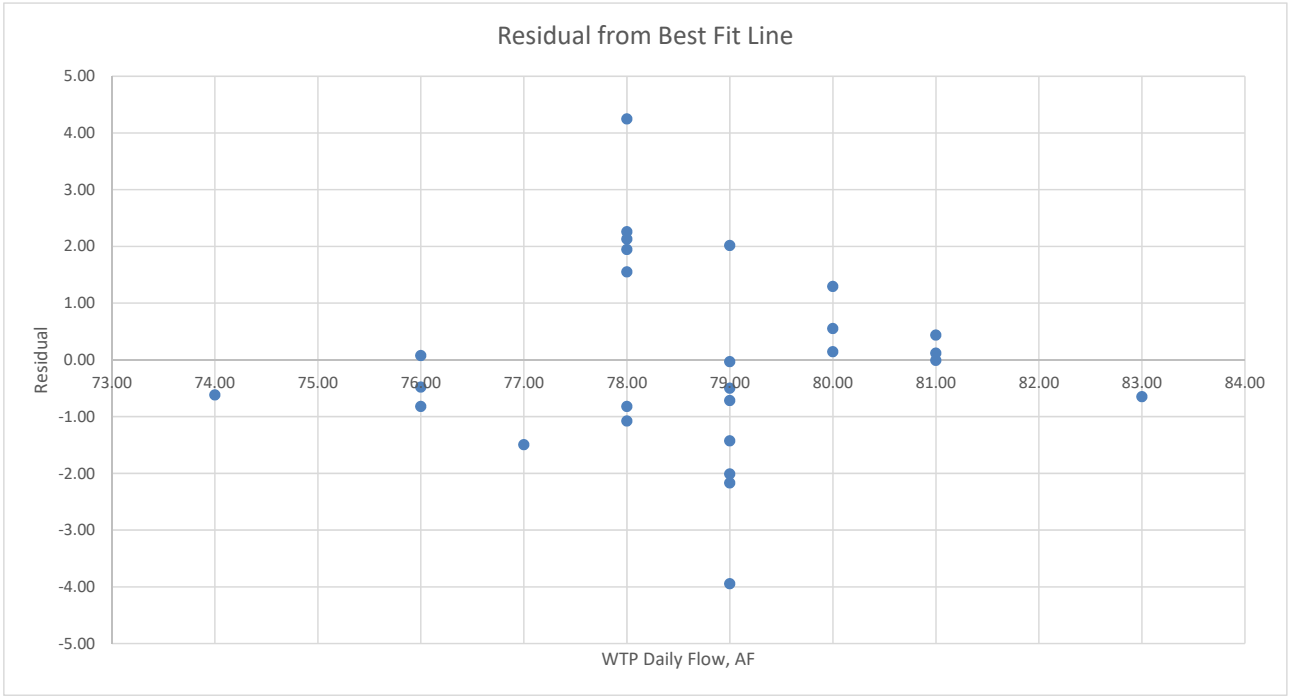
November 2018



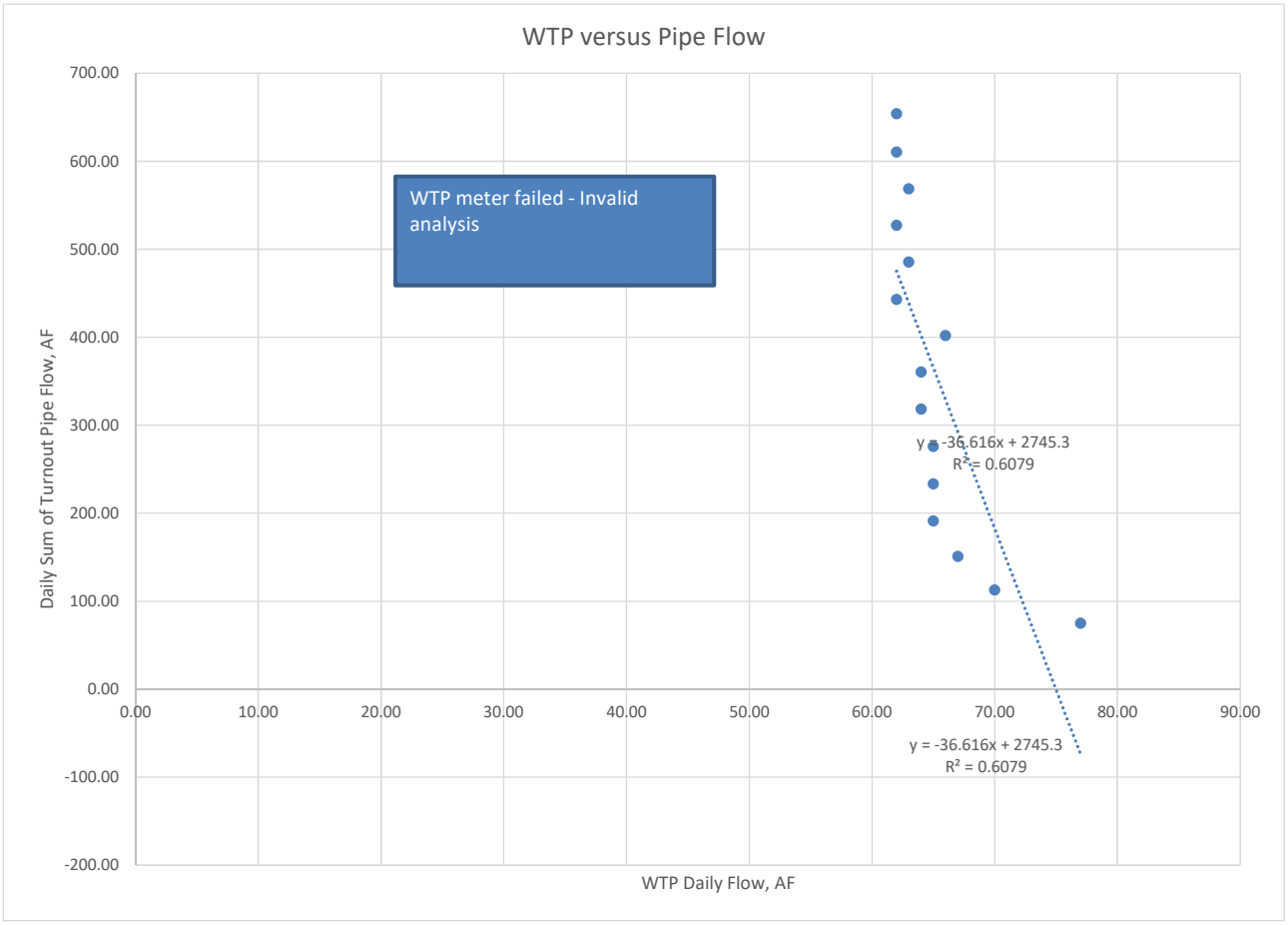


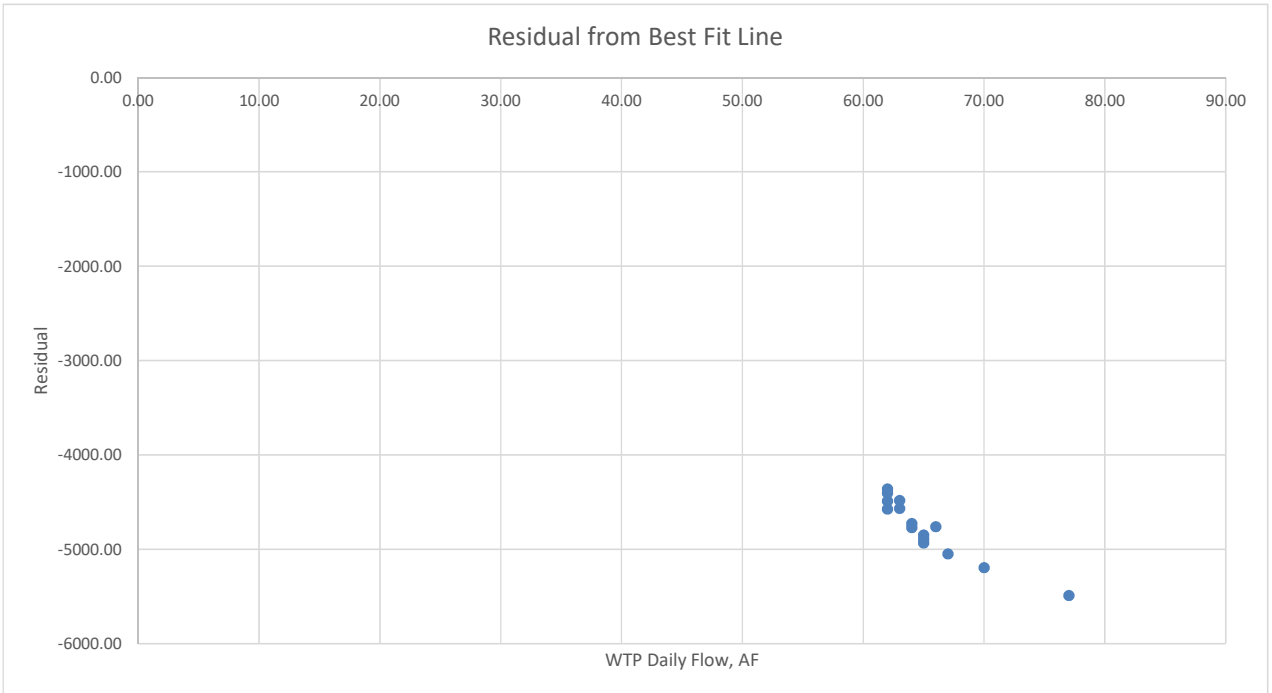
December 2018



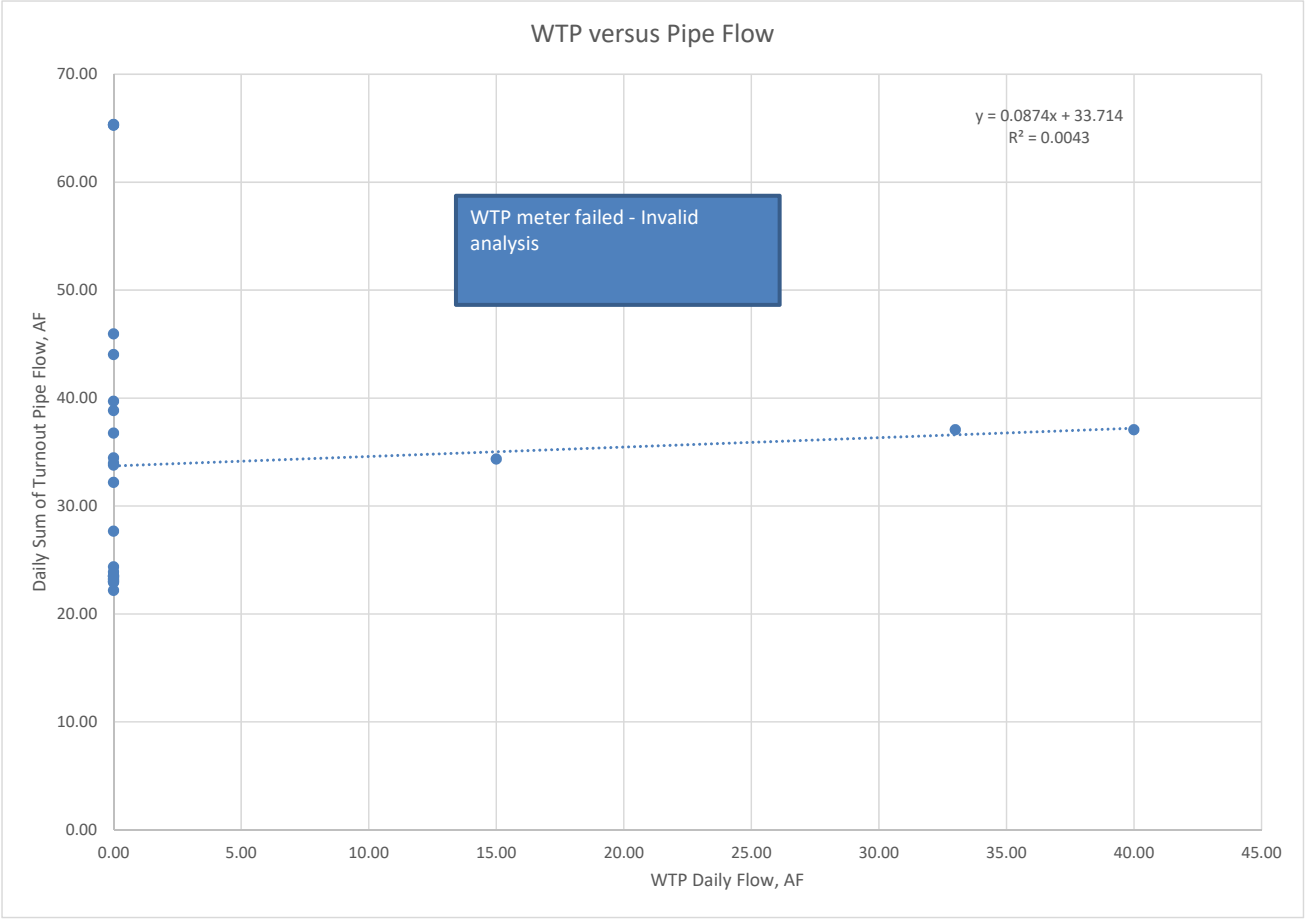


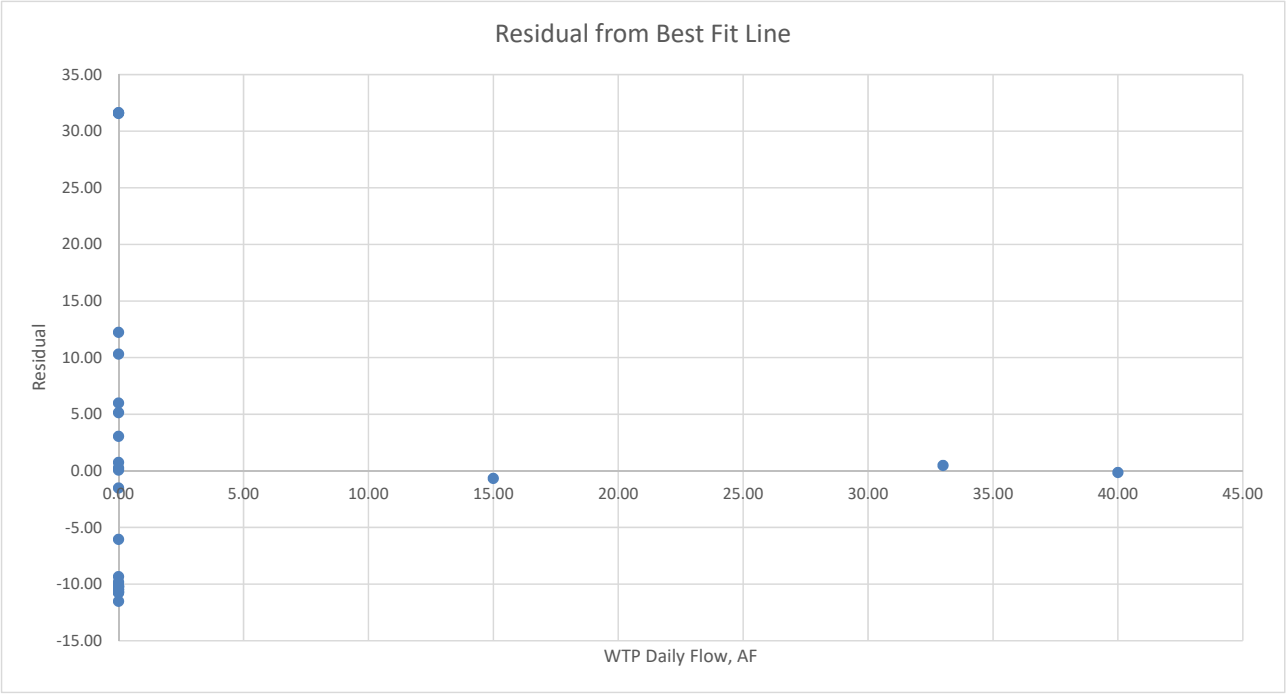
January 2019



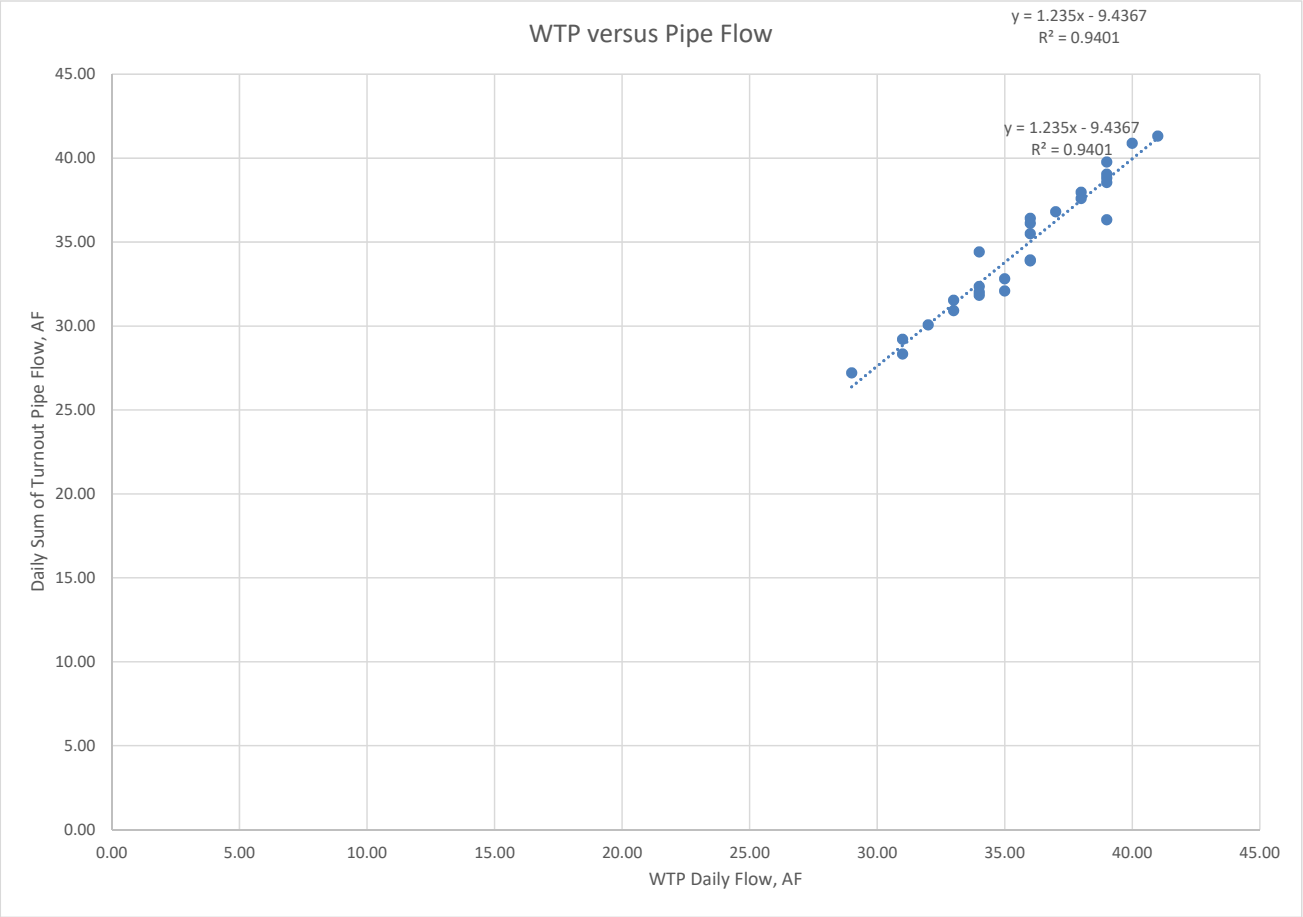


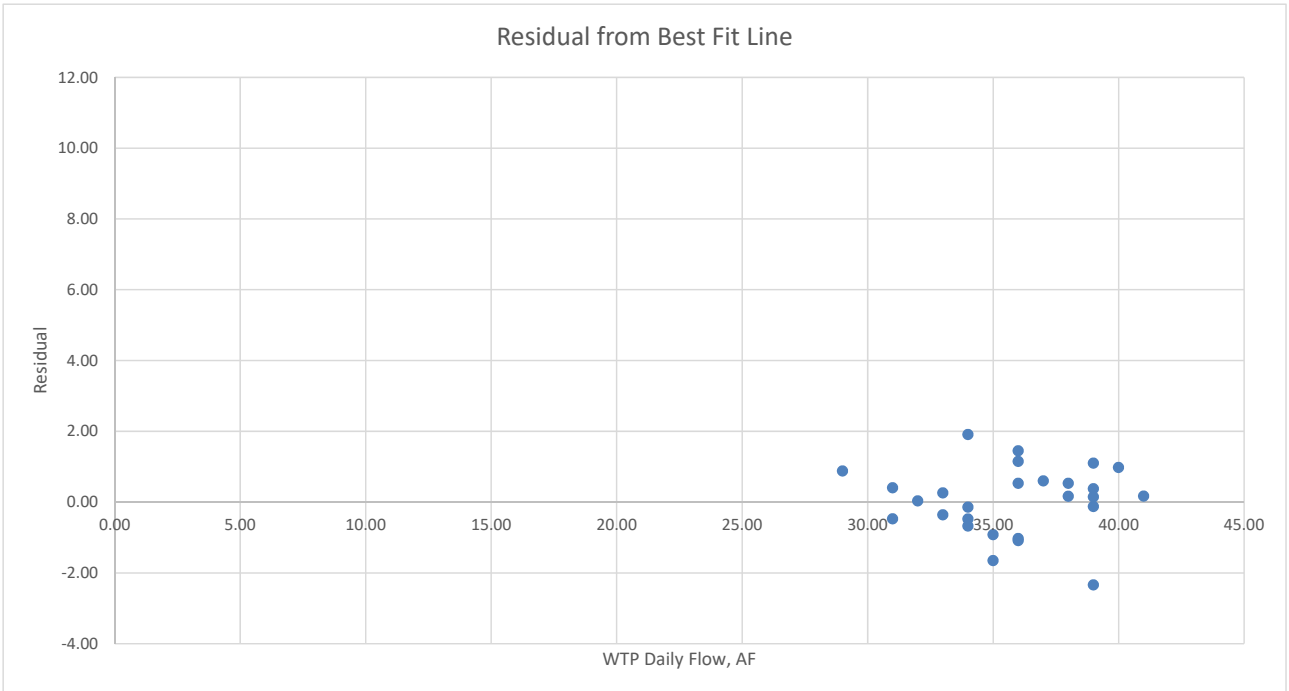
February 2019



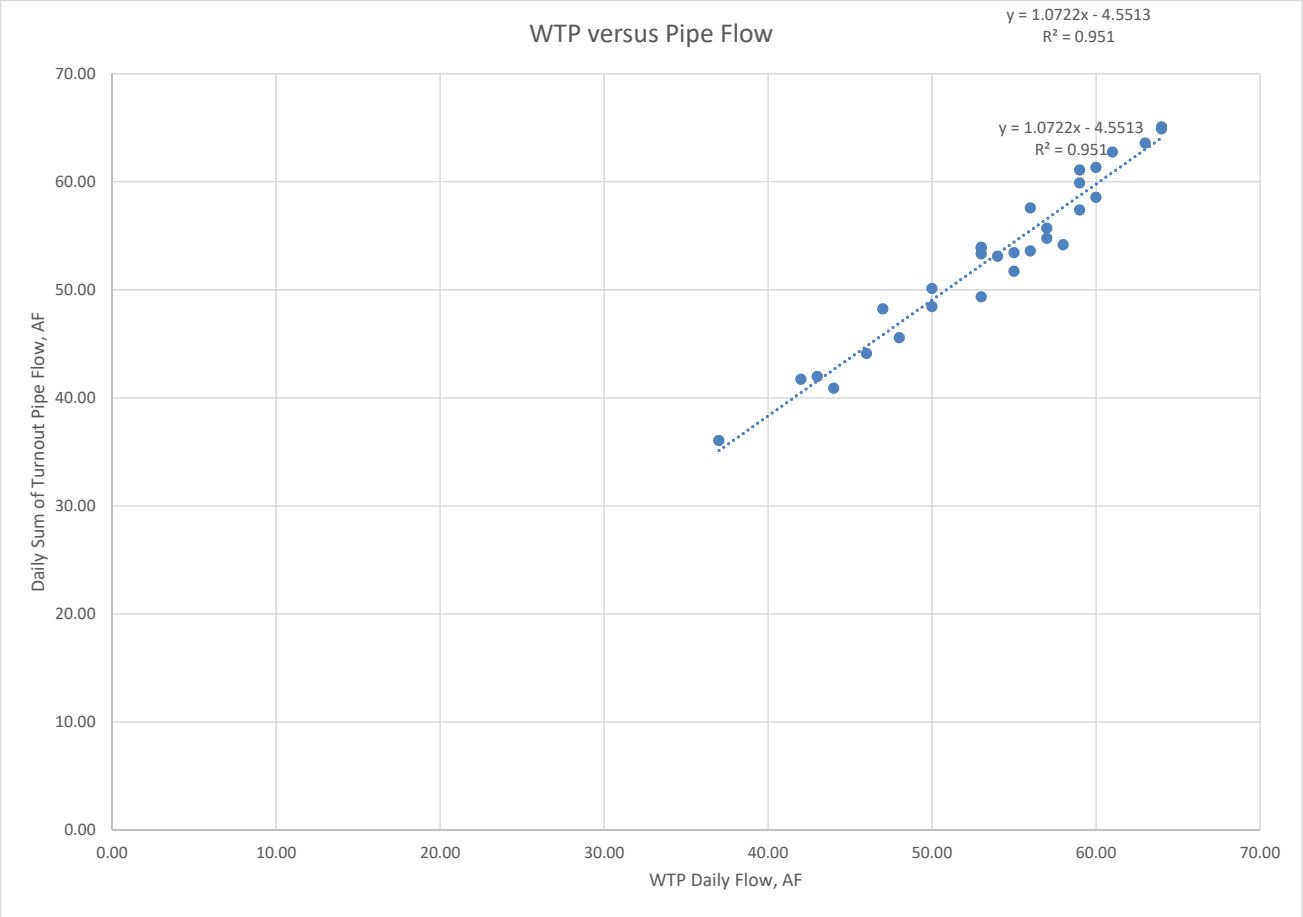


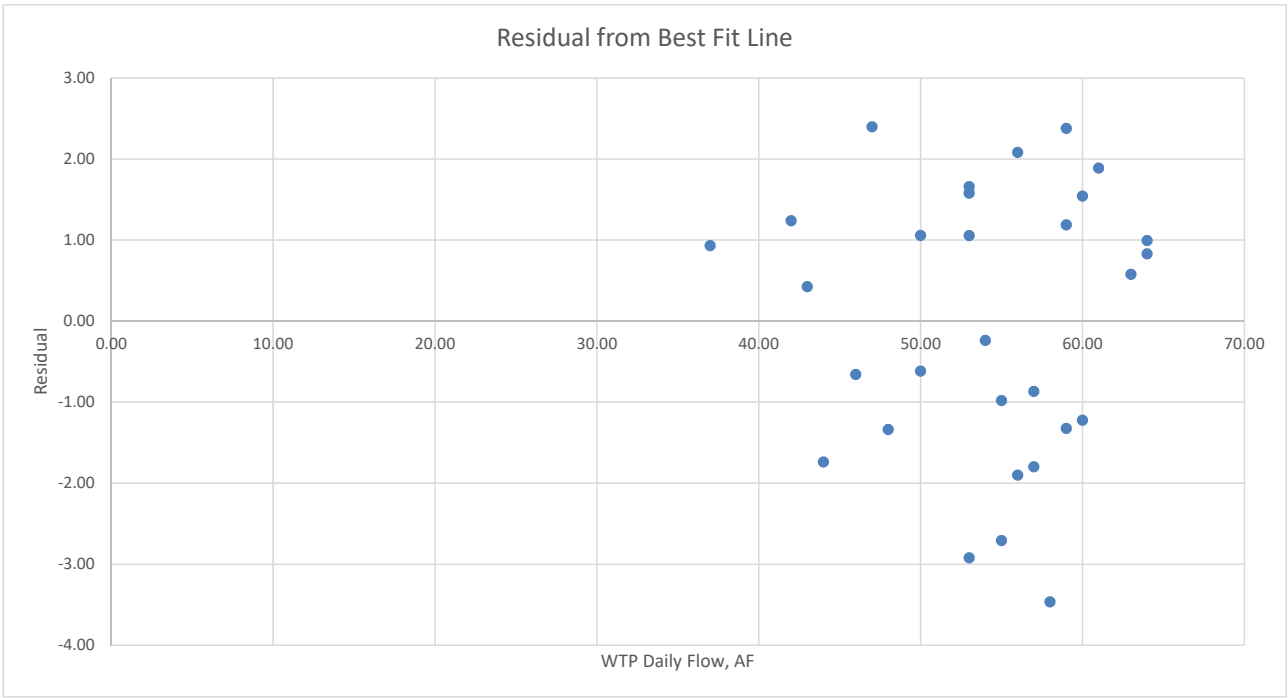
March 2019


WTP versus Pipe Flow
y = 1.235x - 9.4367
R² = 0.9401
y = 1.235x - 9.4367
R² = 0.9401
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00

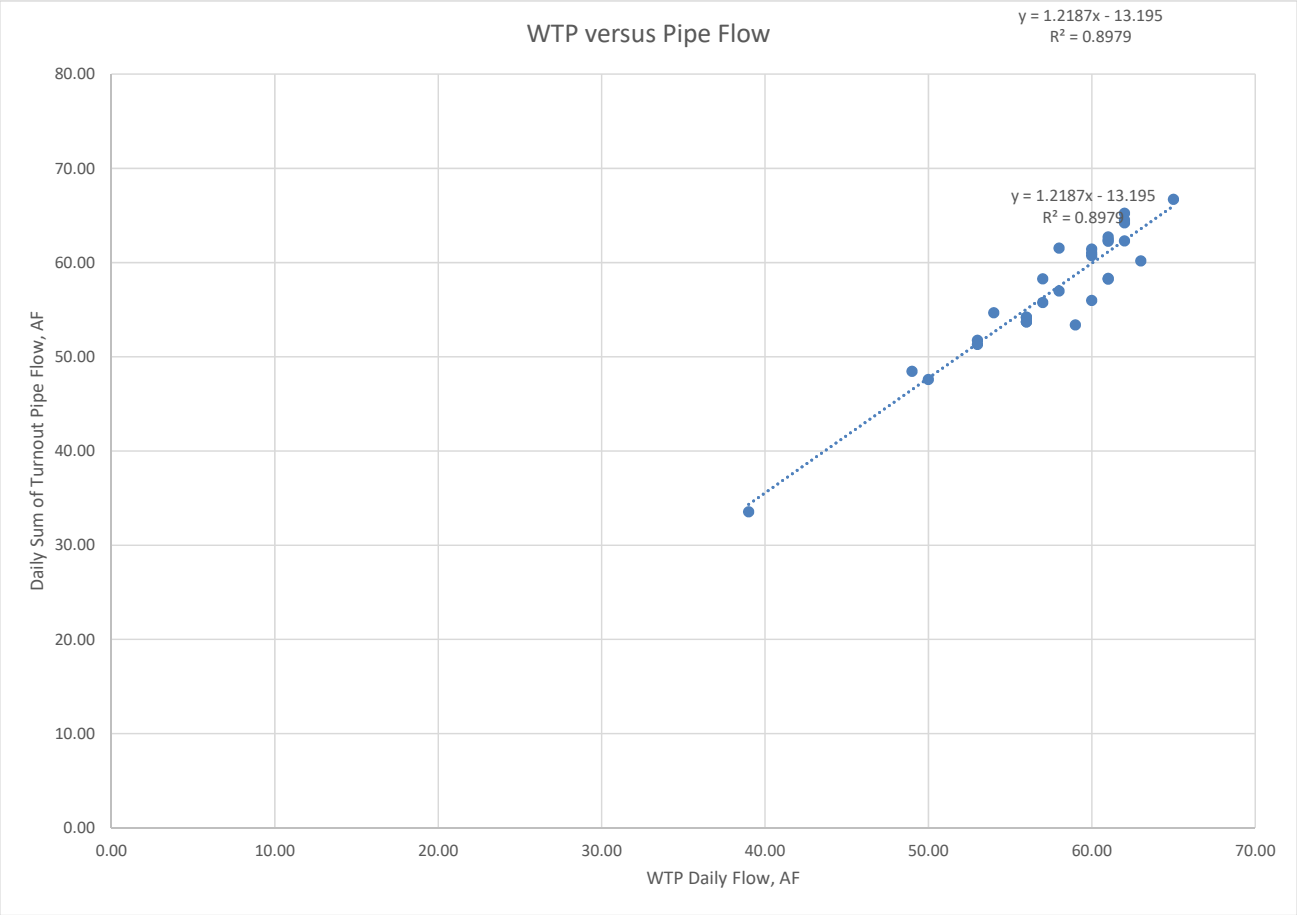

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
12.00
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00

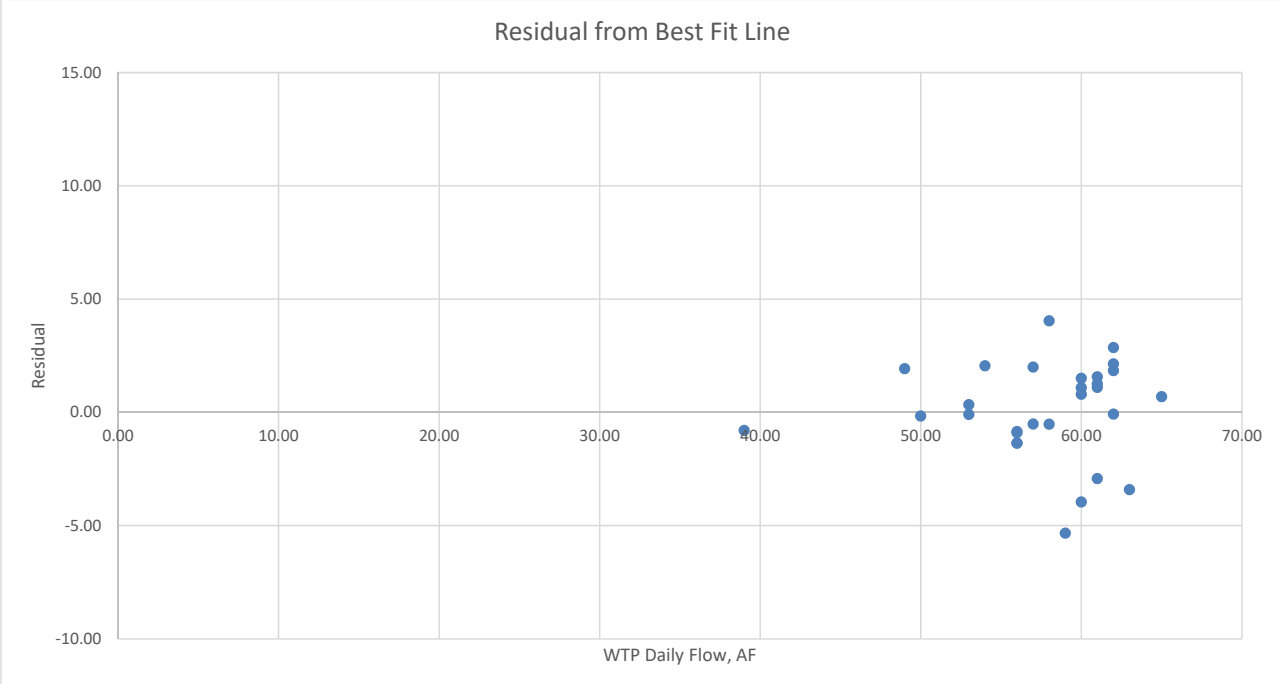
April 2019


WTP versus Pipe Flow
y = 1.0722x - 4.5513
R² = 0.951
y = 1.0722x - 4.5513
R² = 0.951
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

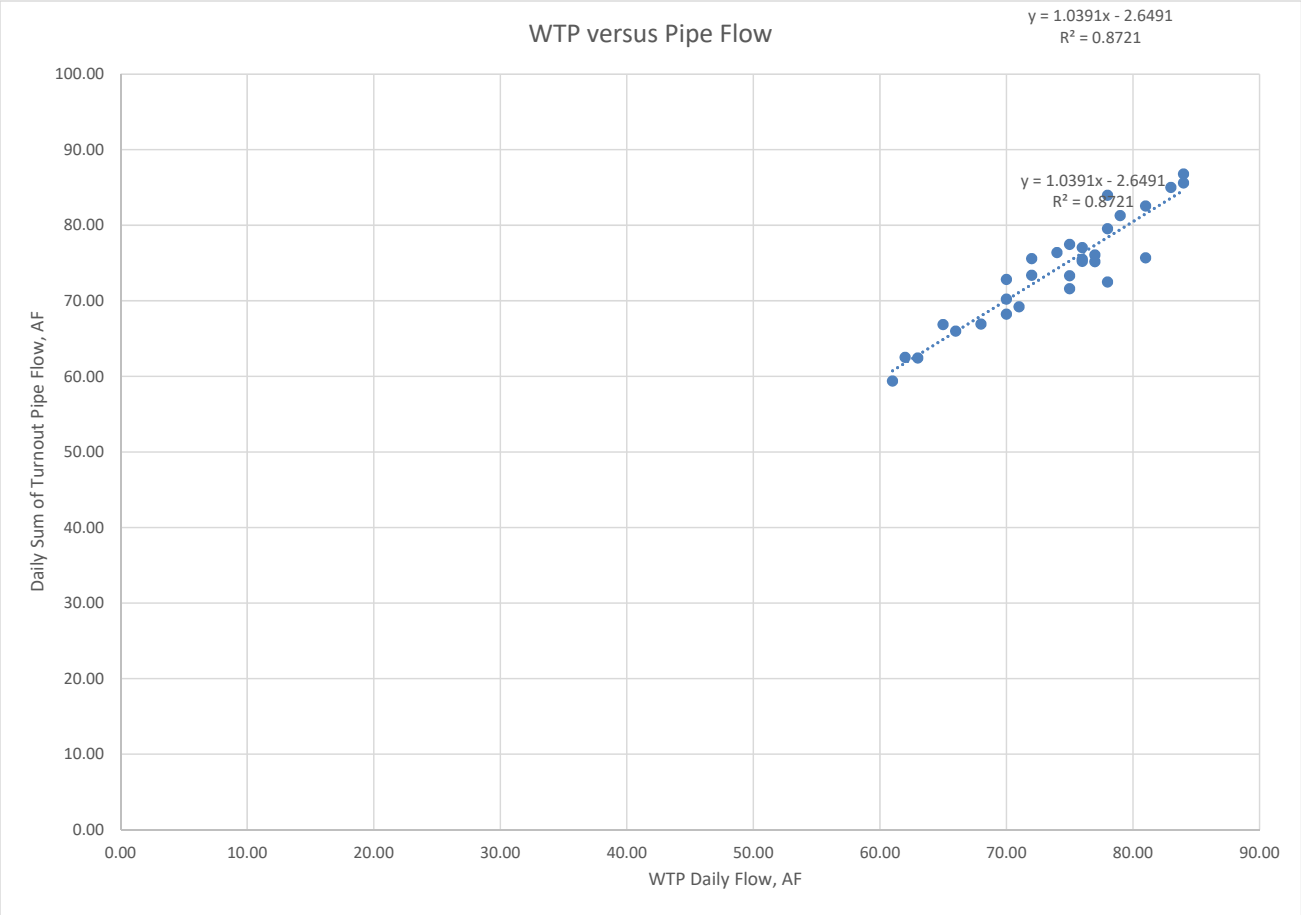

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

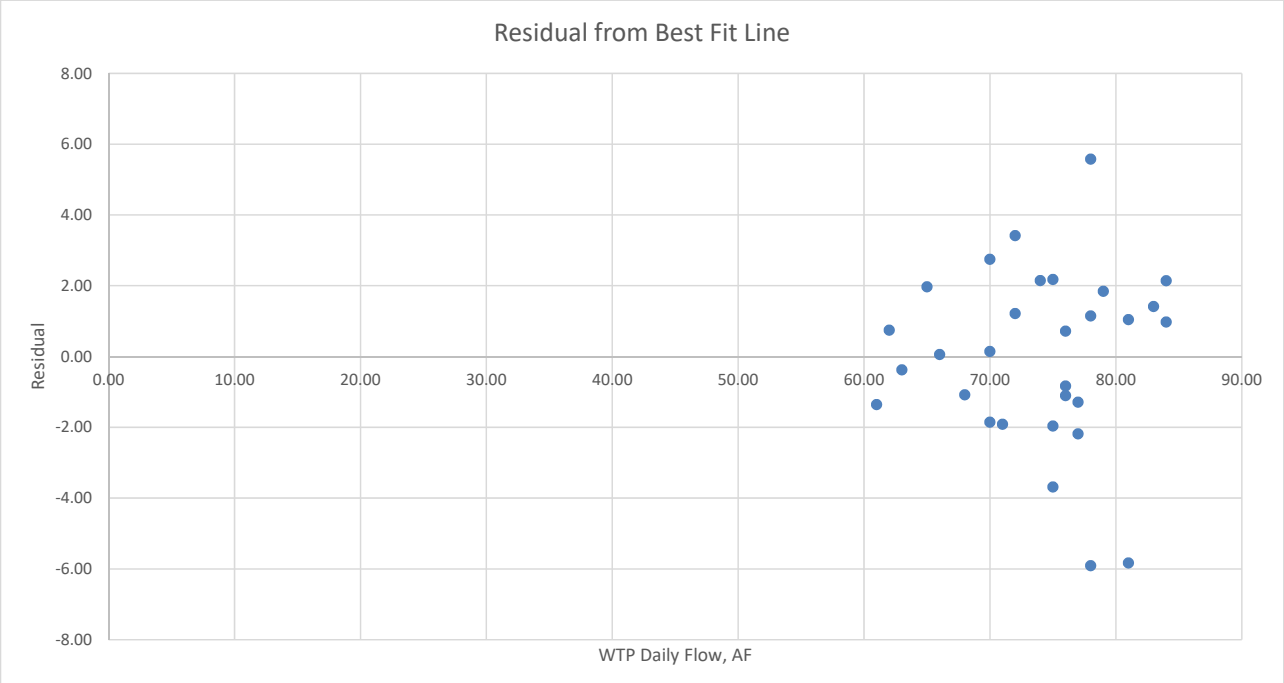
May 2019


WTP versus Pipe Flow
y = 1.2187x - 13.195
R² = 0.8979
y = 1.2187x - 13.195
R² = 0.8979
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

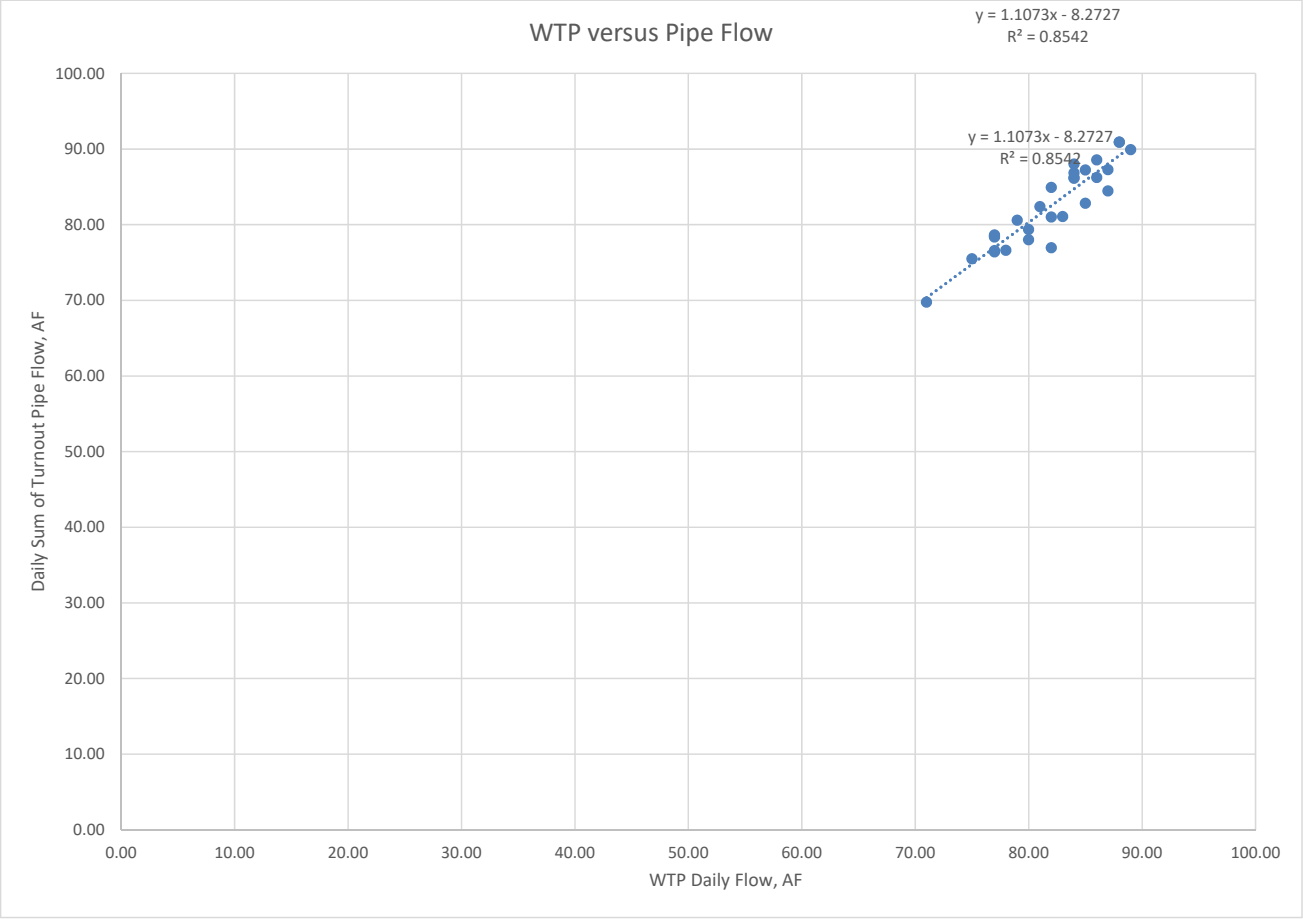

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
15.00
10.00
5.00
0.00
-5.00
-10.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

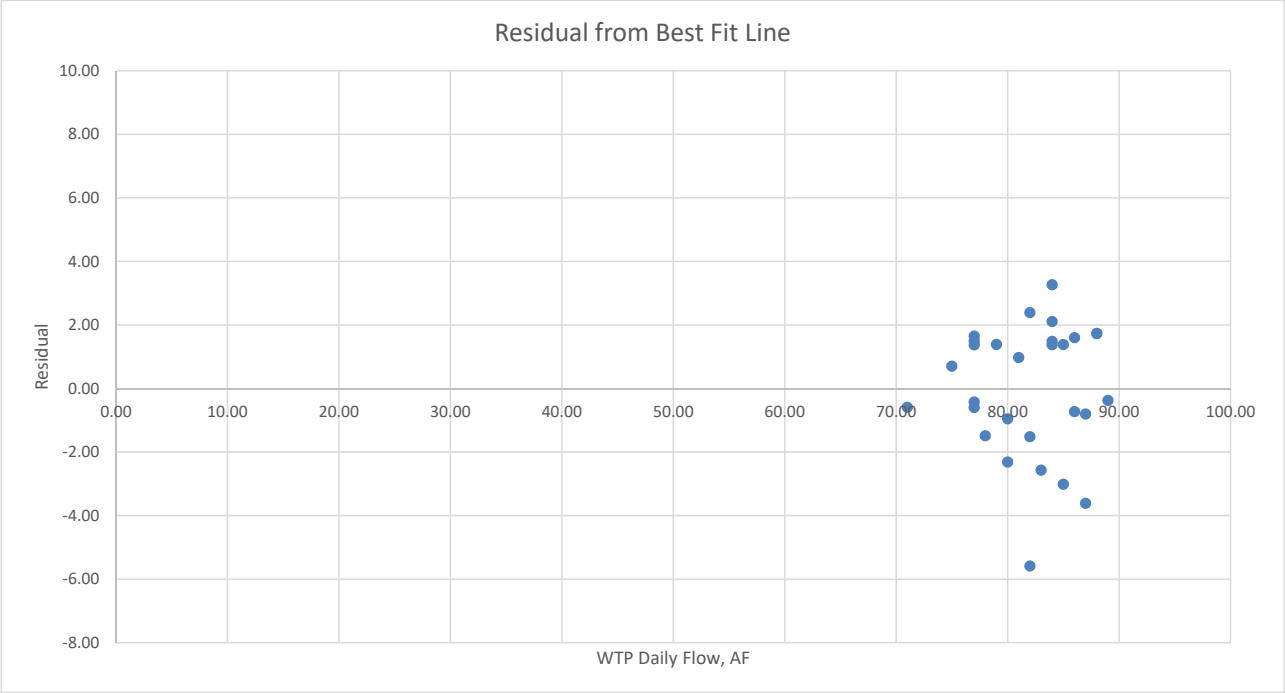
June 2019


WTP versus Pipe Flow
y = 1.0391x - 2.6491
R² = 0.8721
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

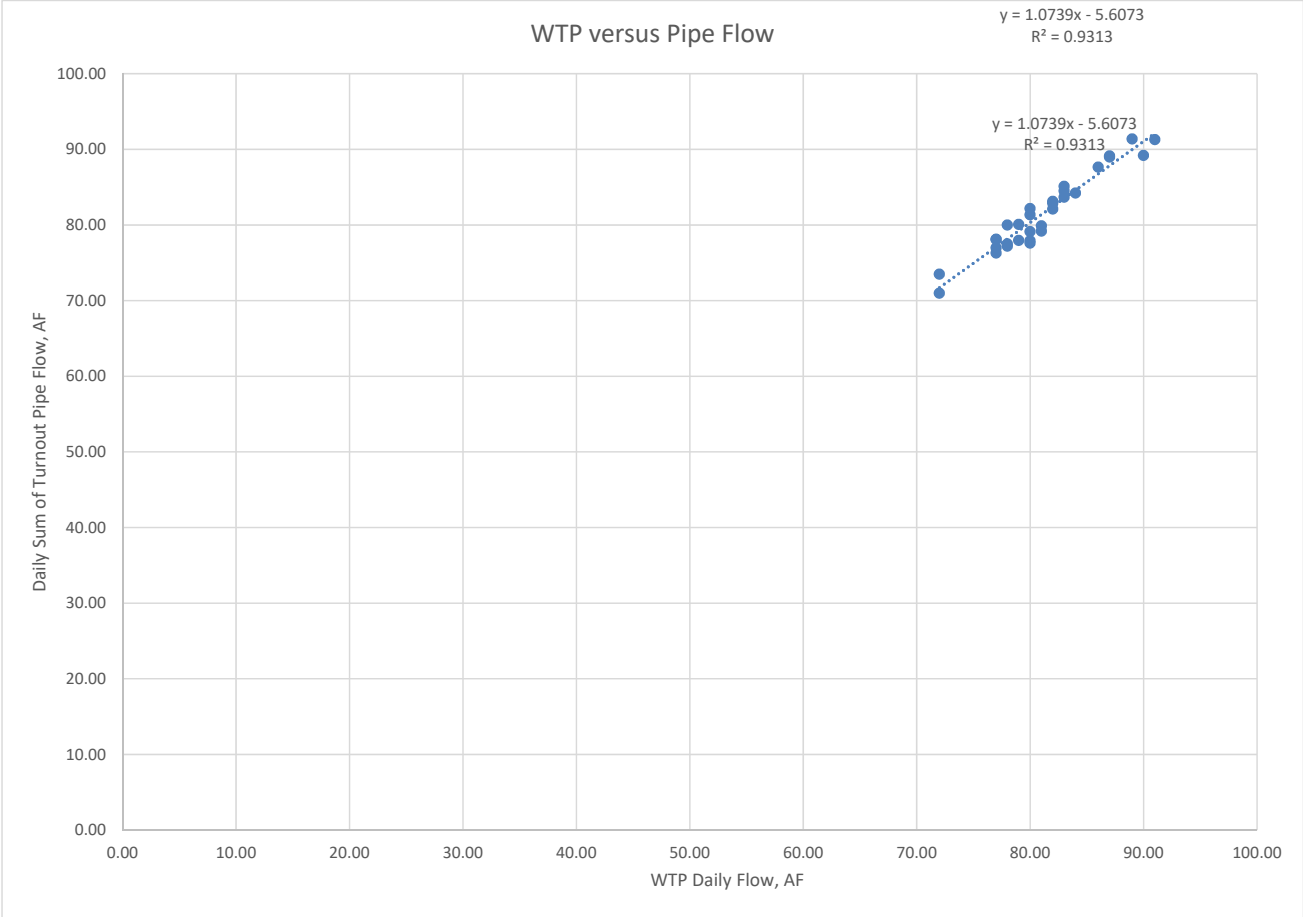

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

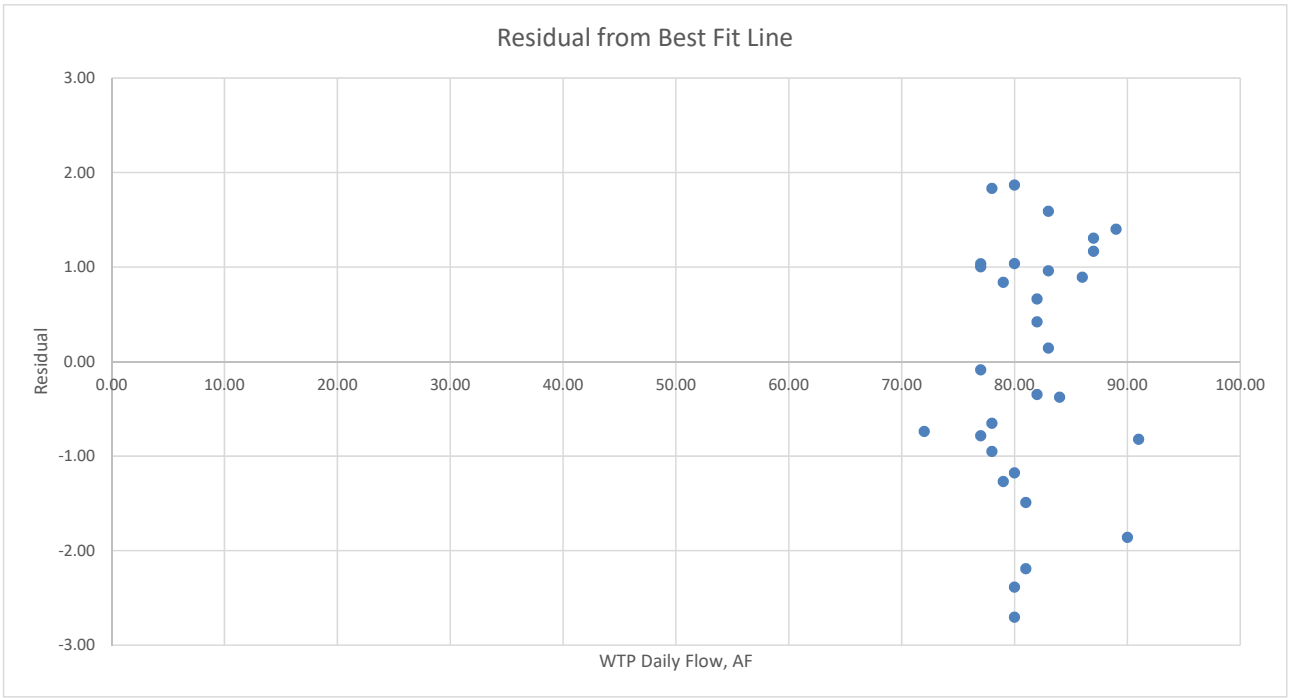
July 2019


WTP versus Pipe Flow
y = 1.1073x - 8.2727
R² = 0.8542
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

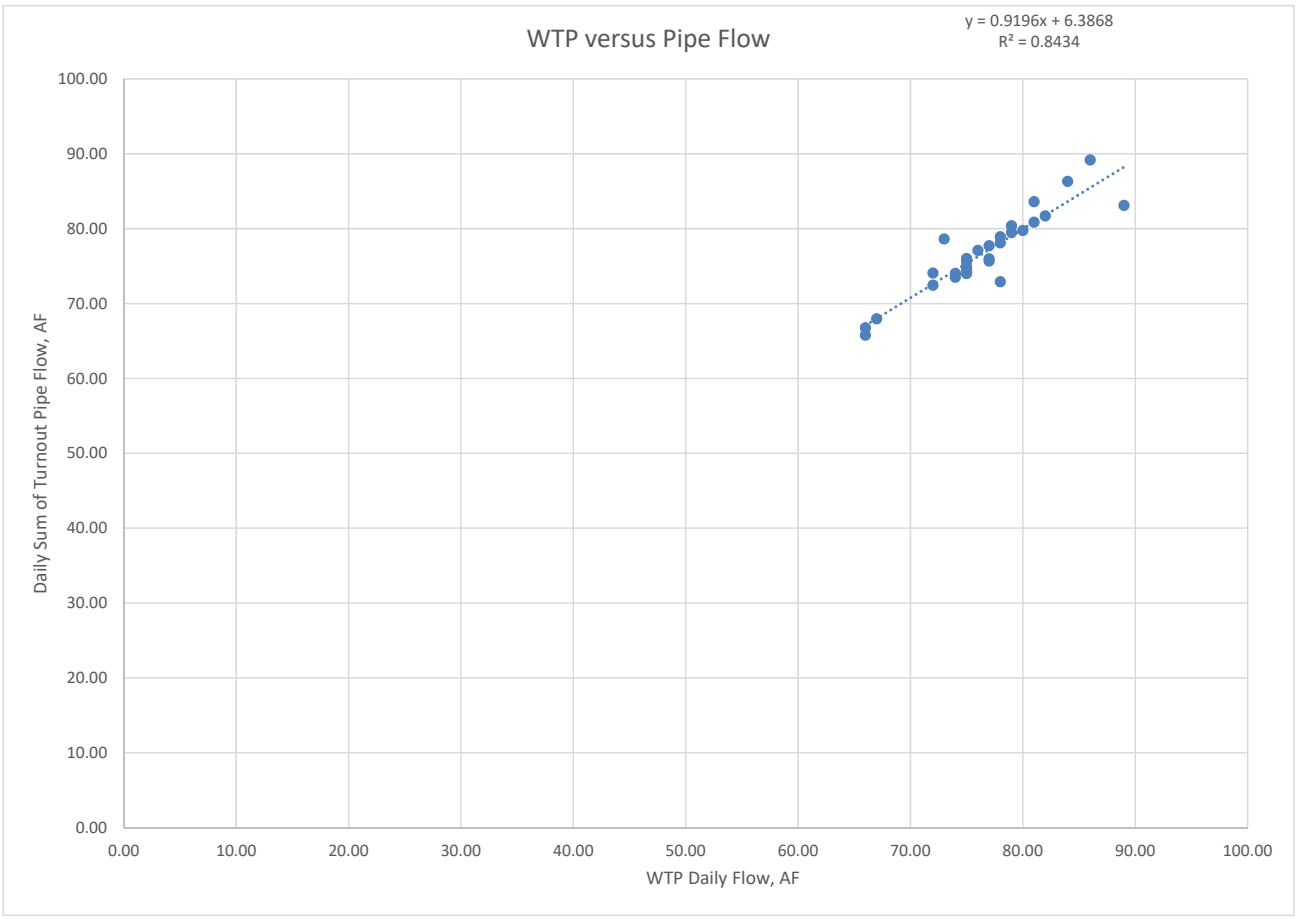

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

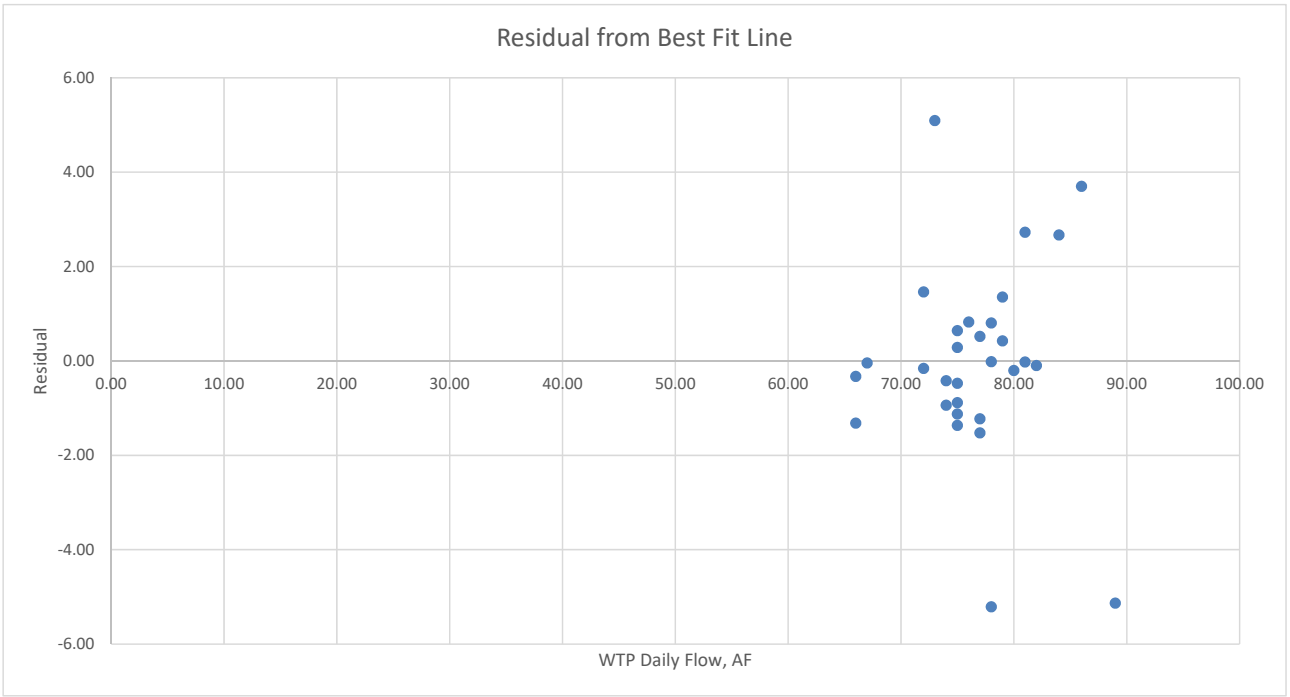
August 2019


WTP versus Pipe Flow
y = 1.0739x - 5.6073
R² = 0.9313
y = 1.0739x - 5.6073
R² = 0.9313
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

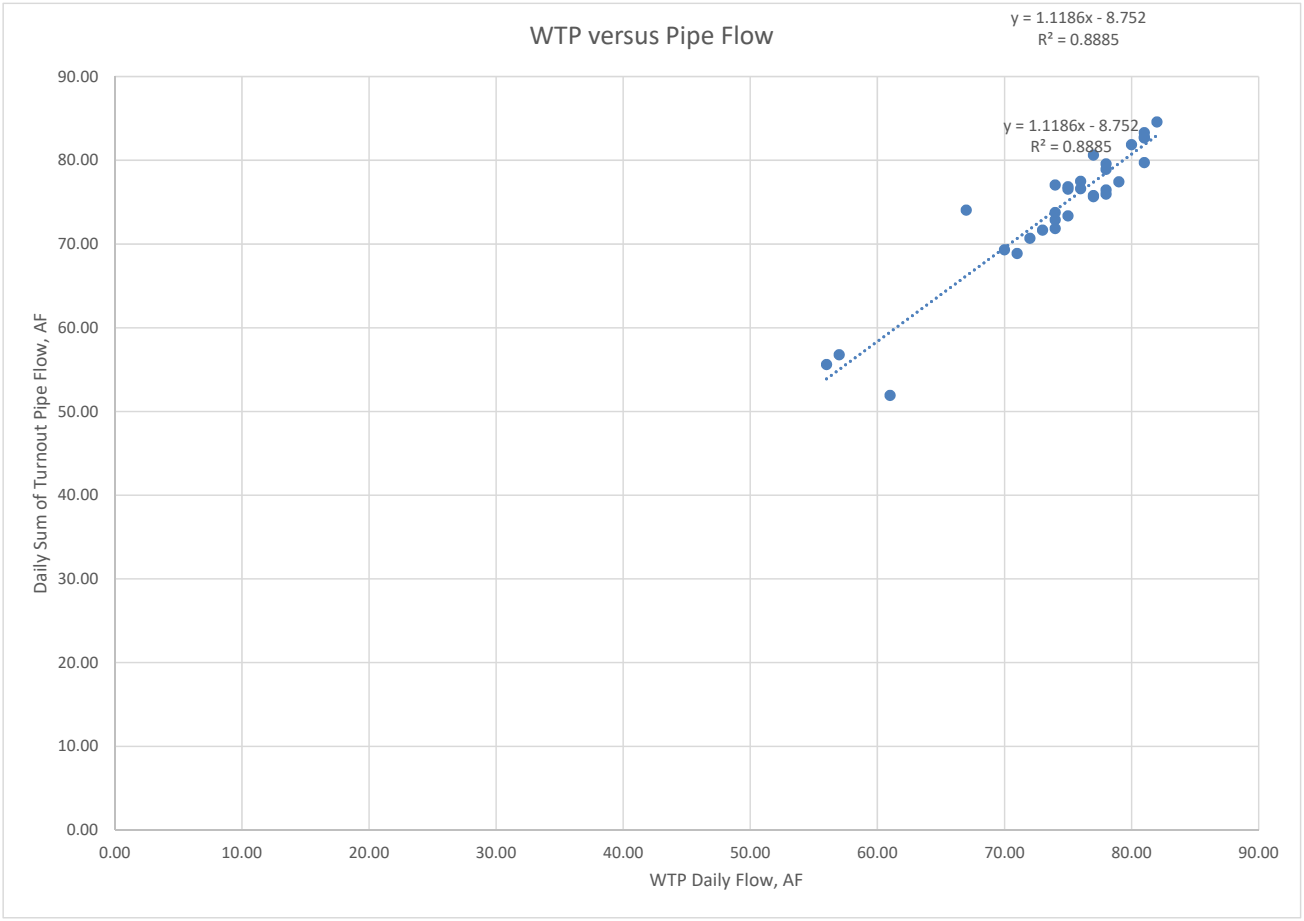

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

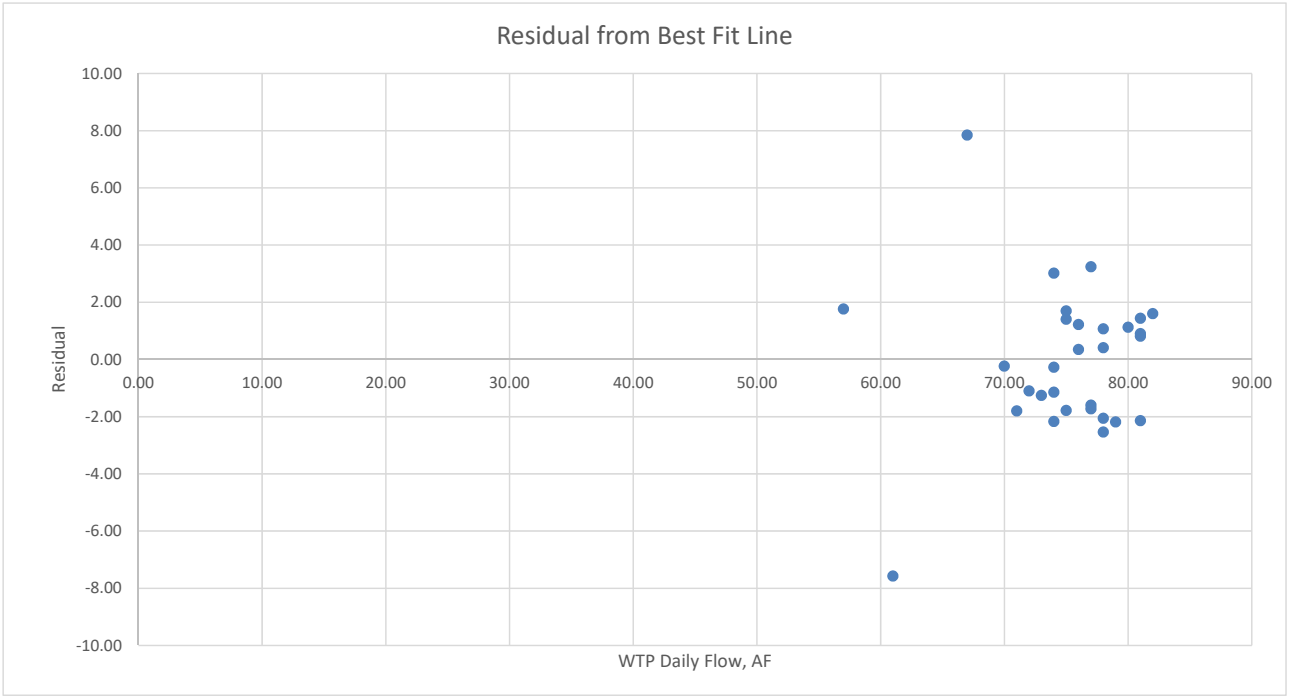
September 2019



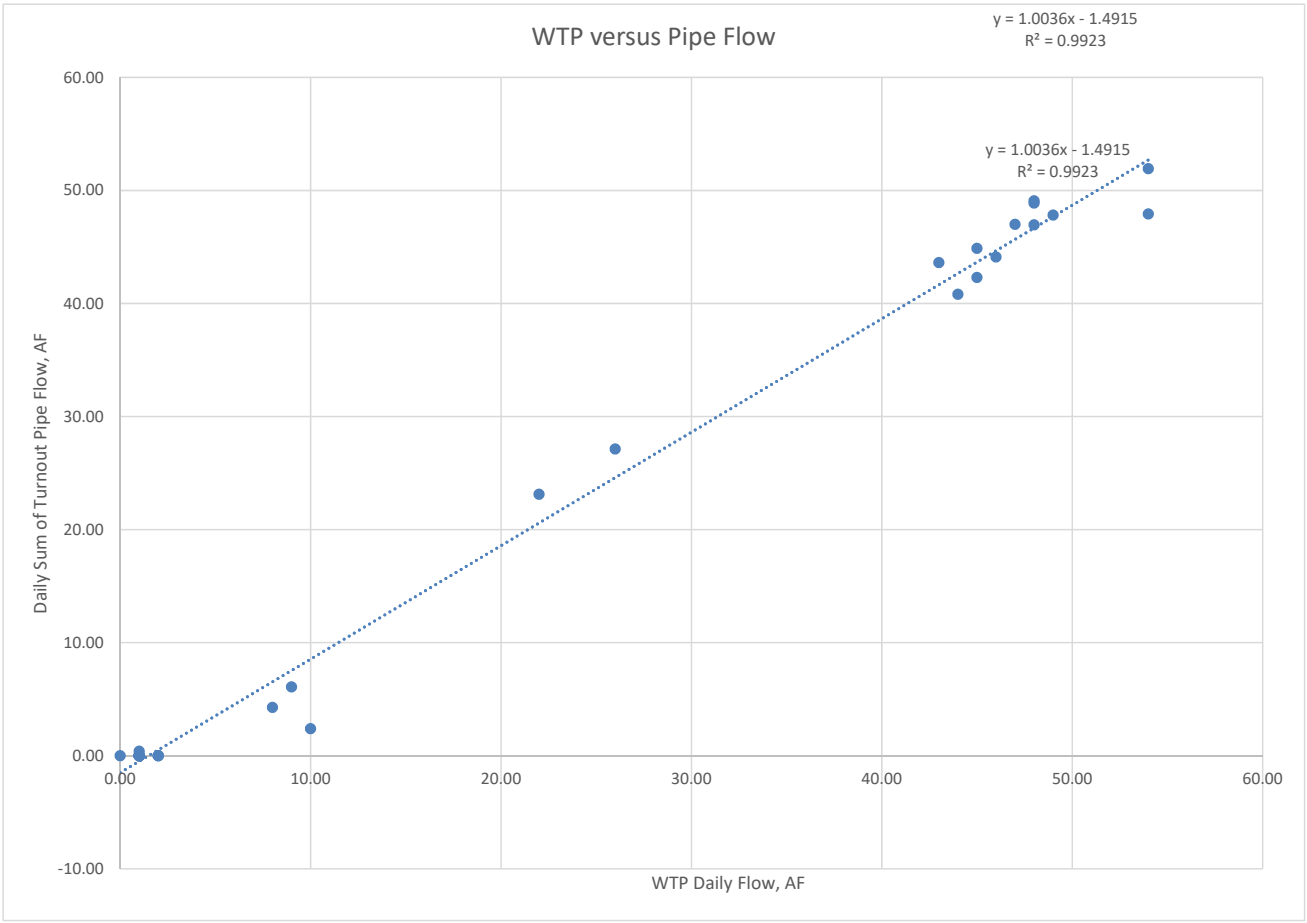


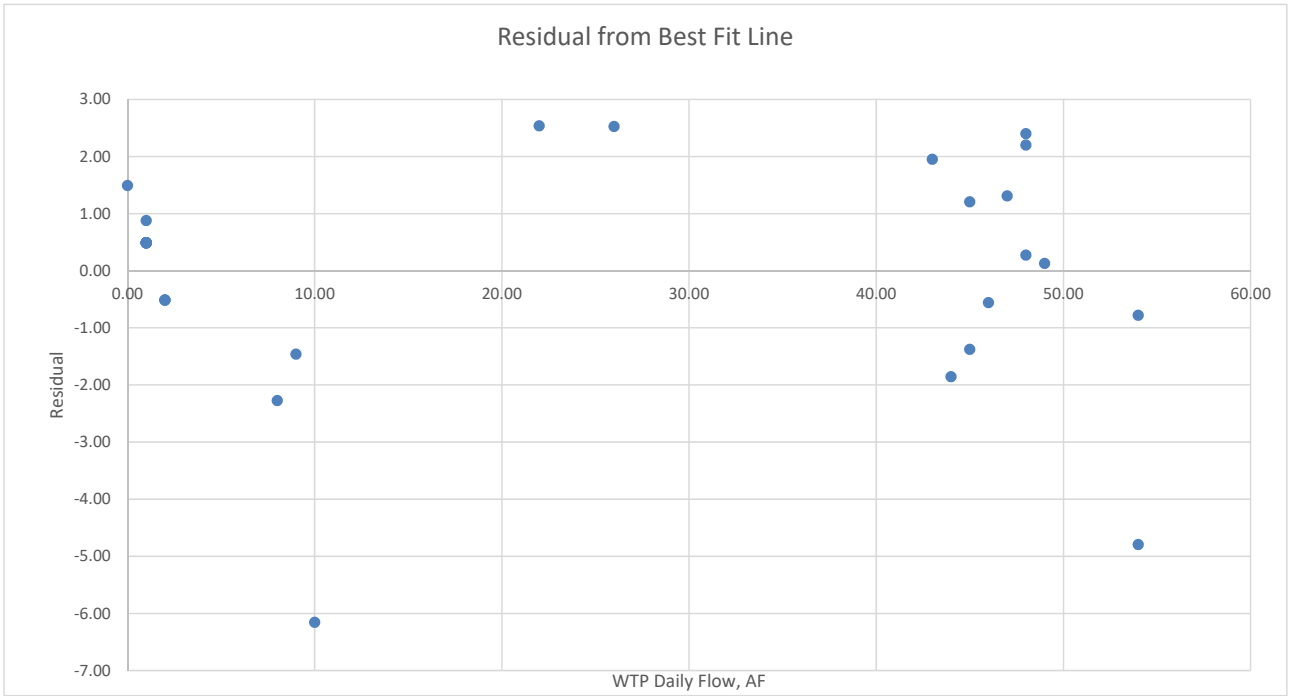
October 2019



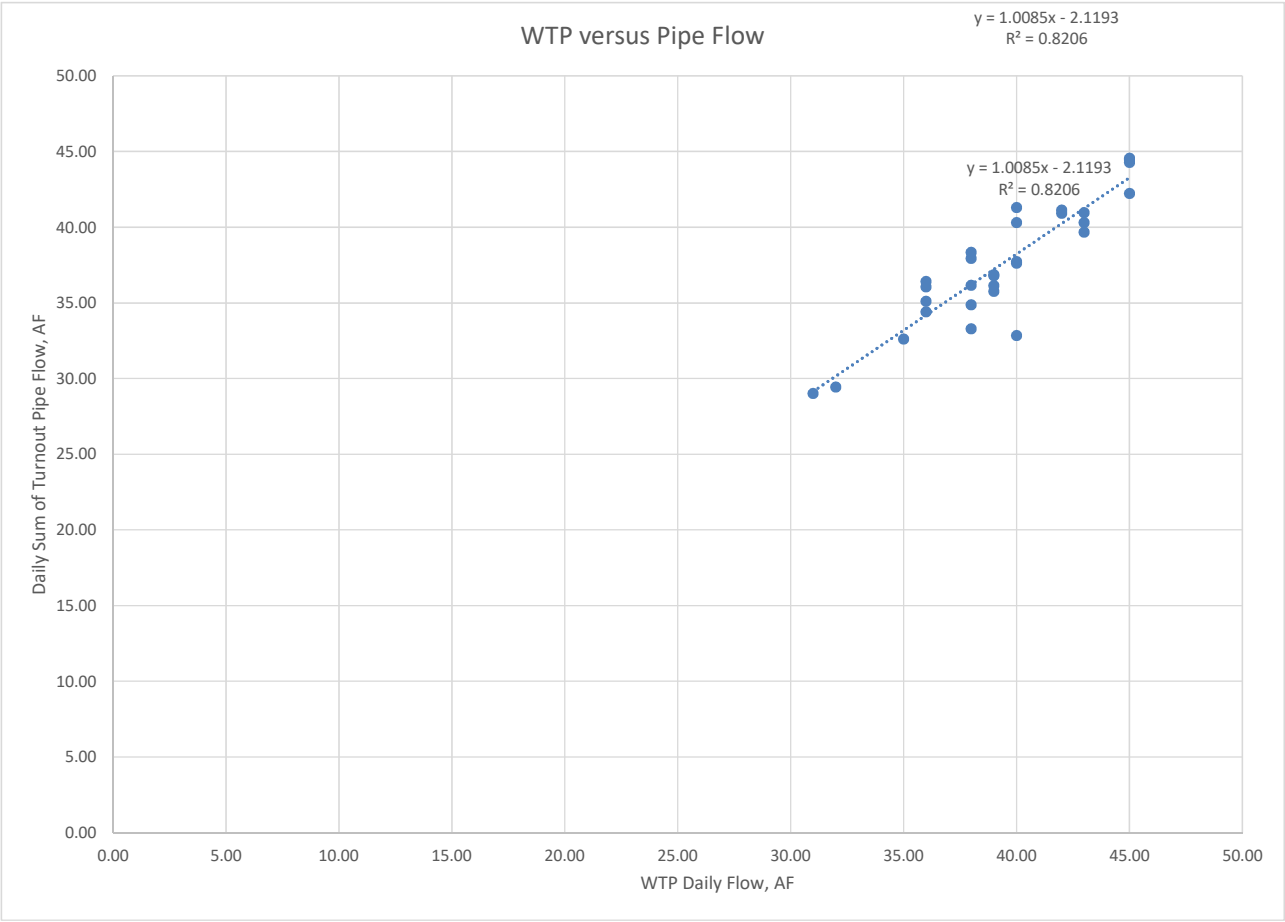


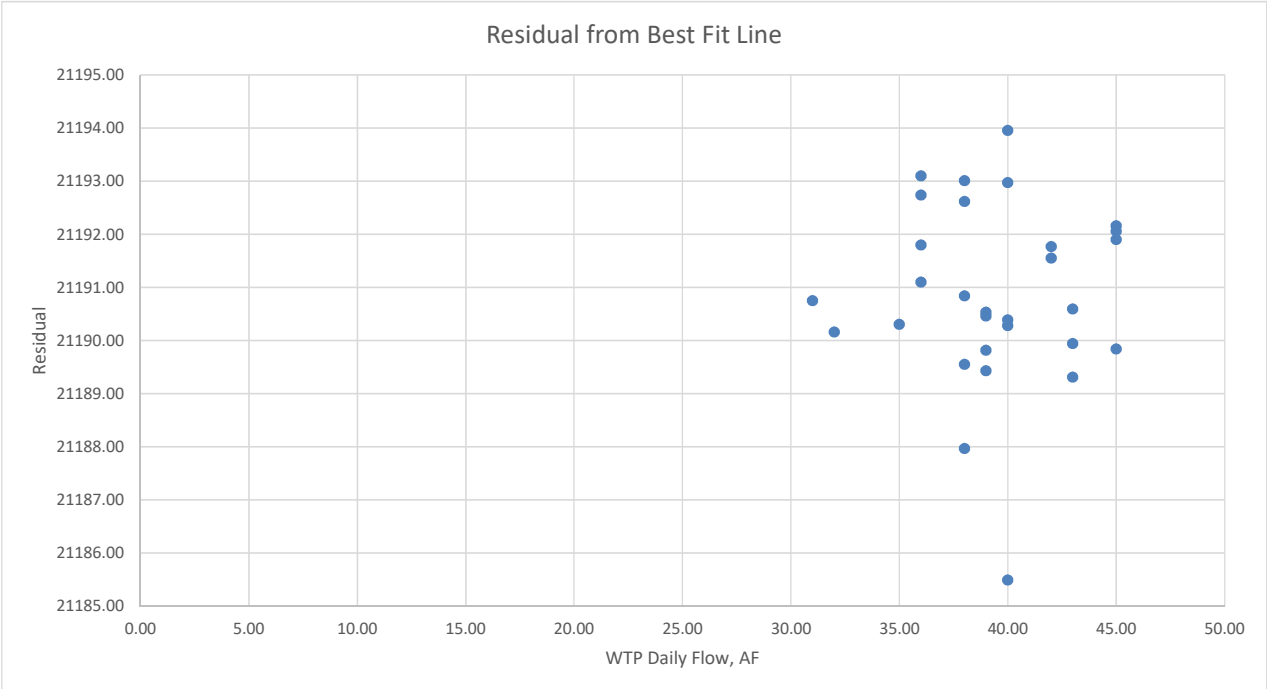
November 2019



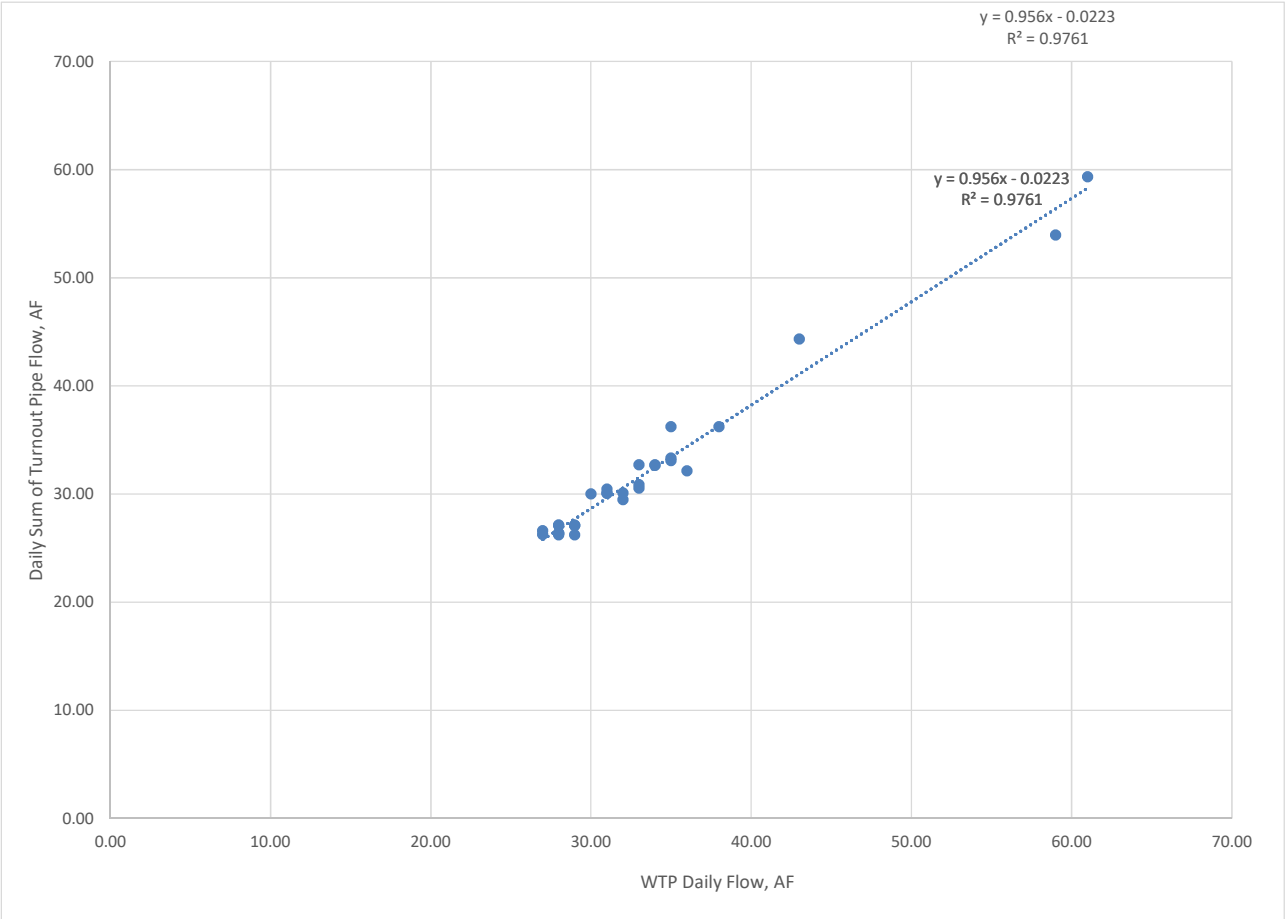


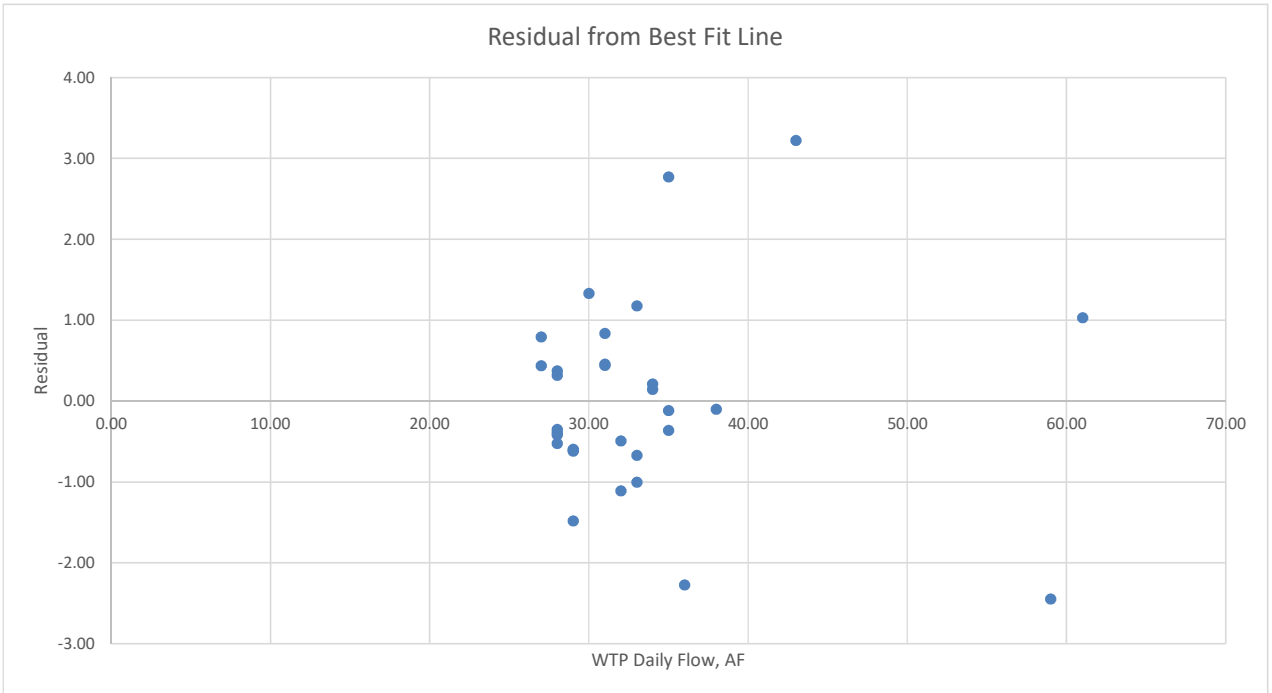
December 2019



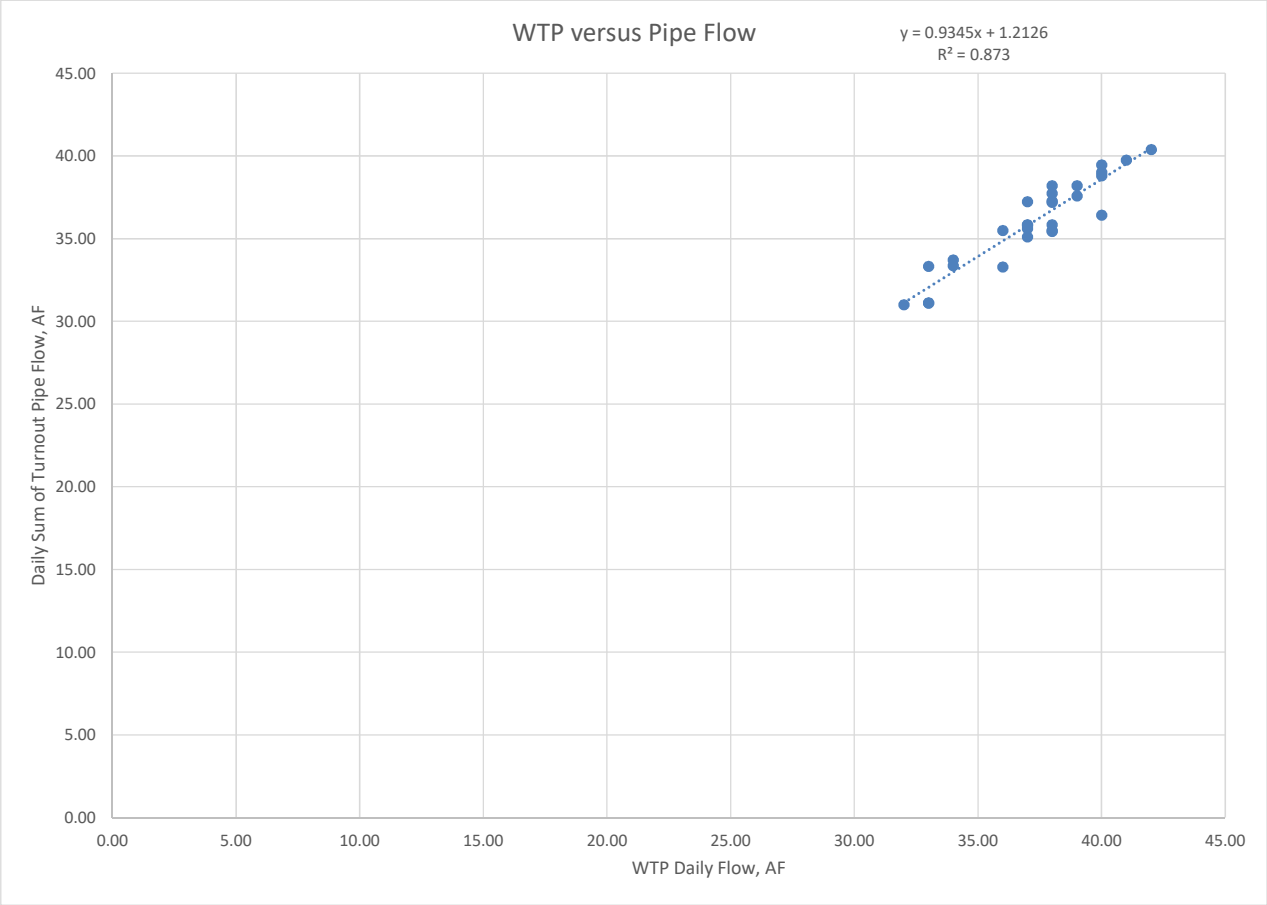


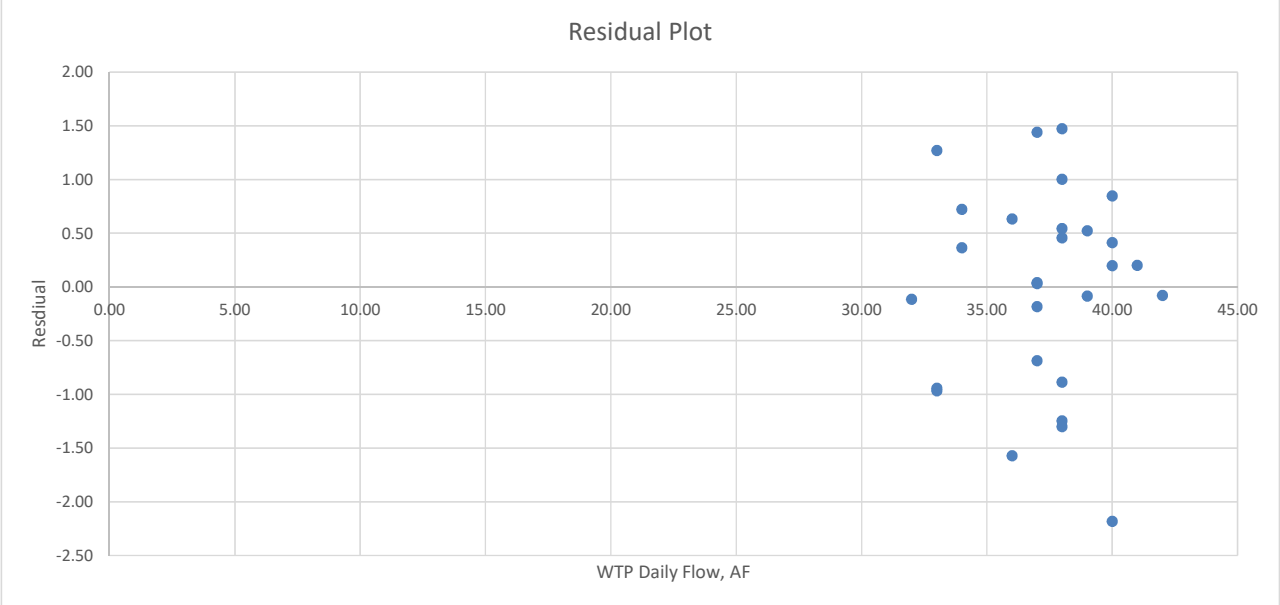
January 2020



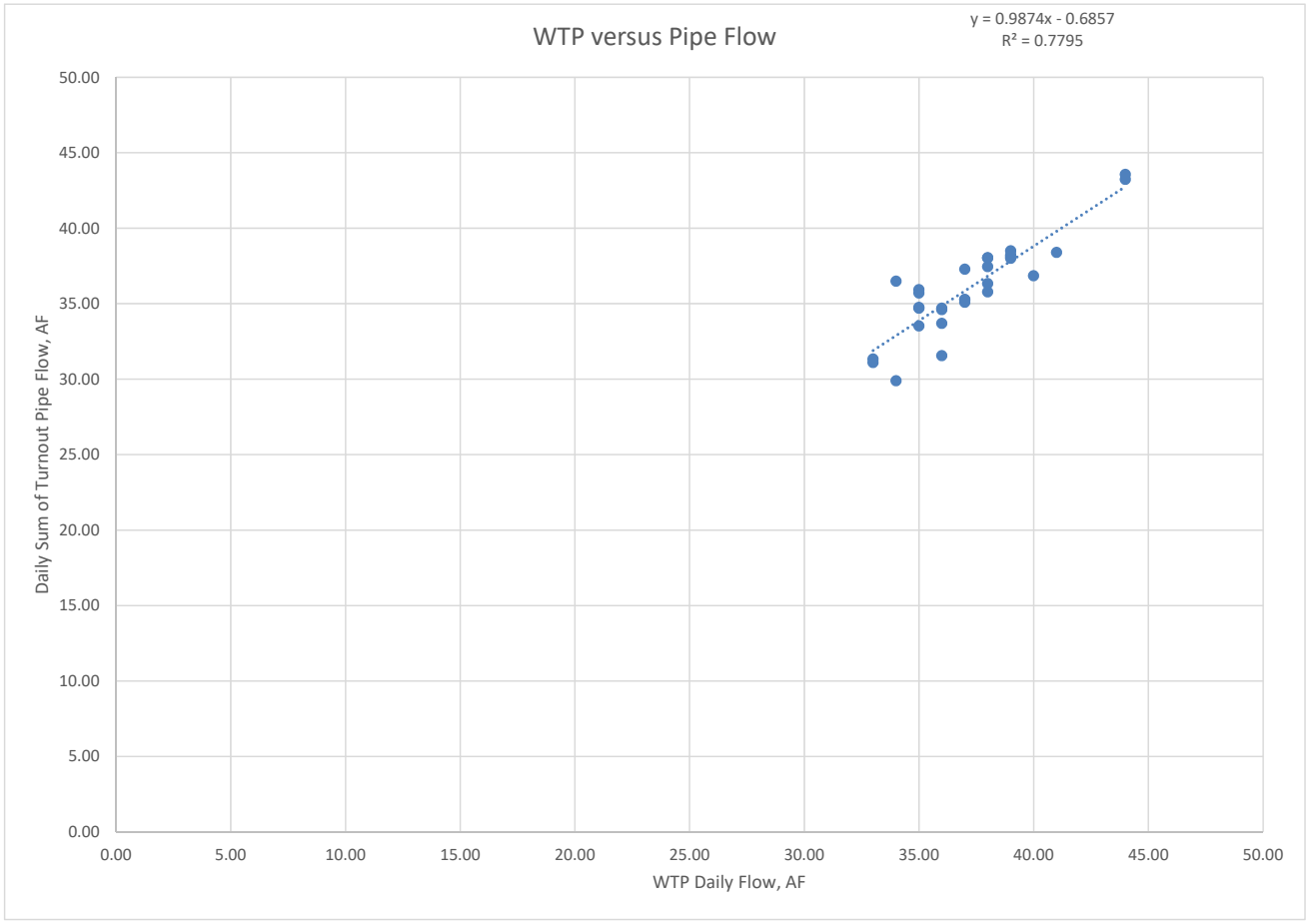


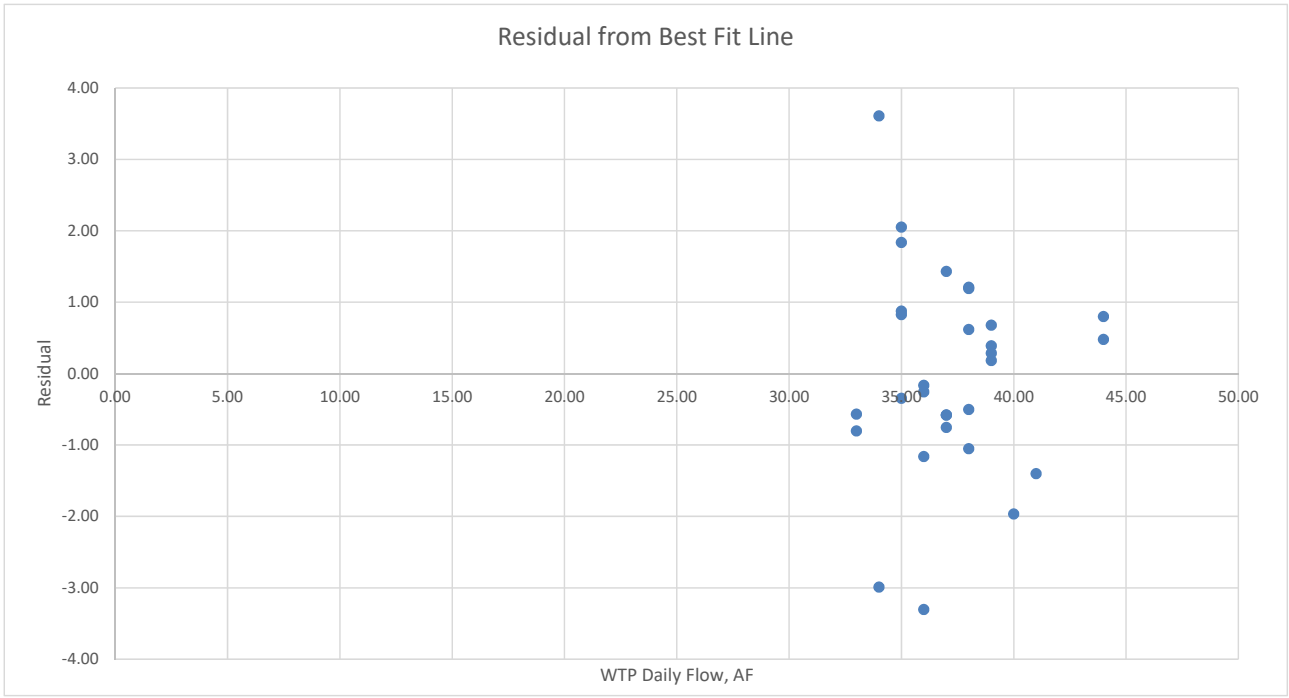
February 2020



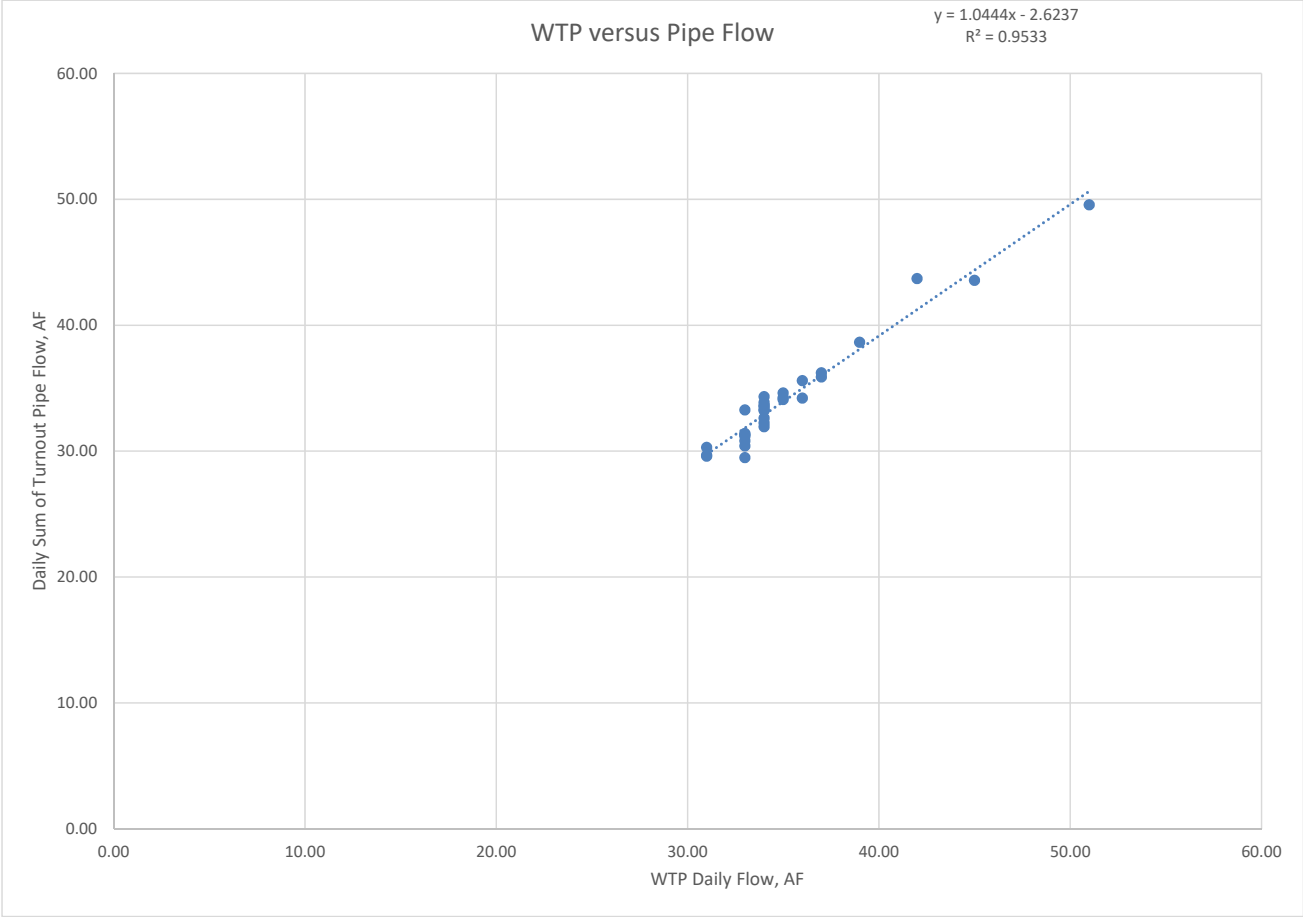


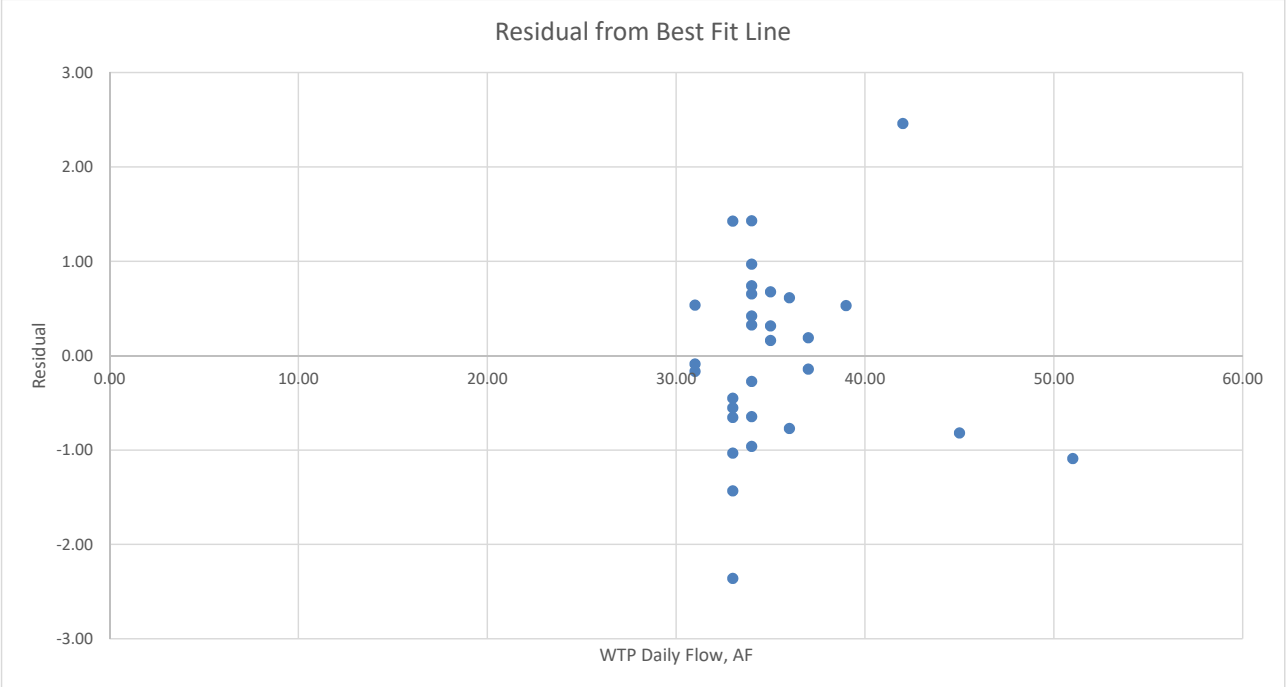
March 2020


WTP versus Pipe Flow
y = 0.9874x - 0.6857
R² = 0.7795
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00

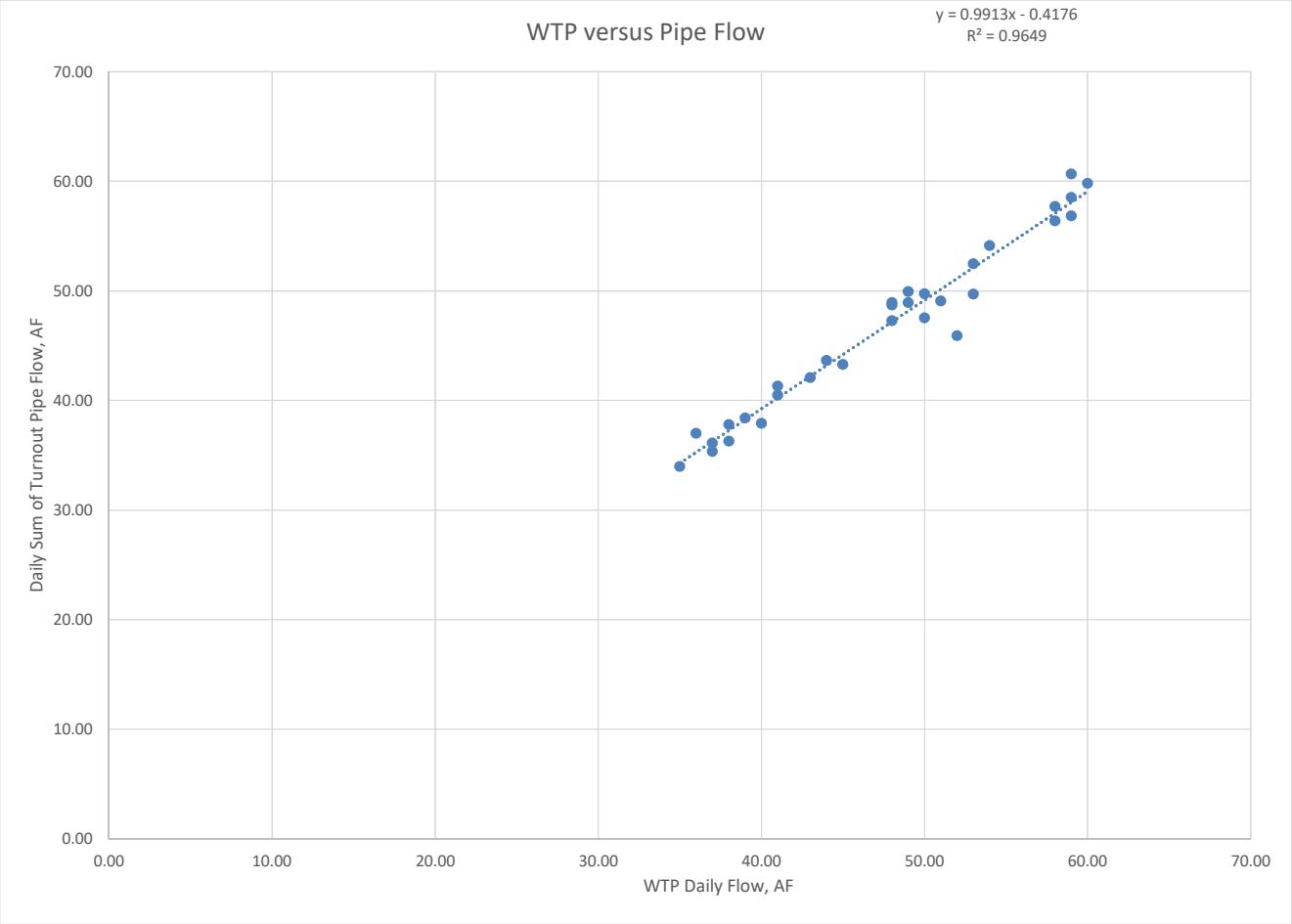

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00

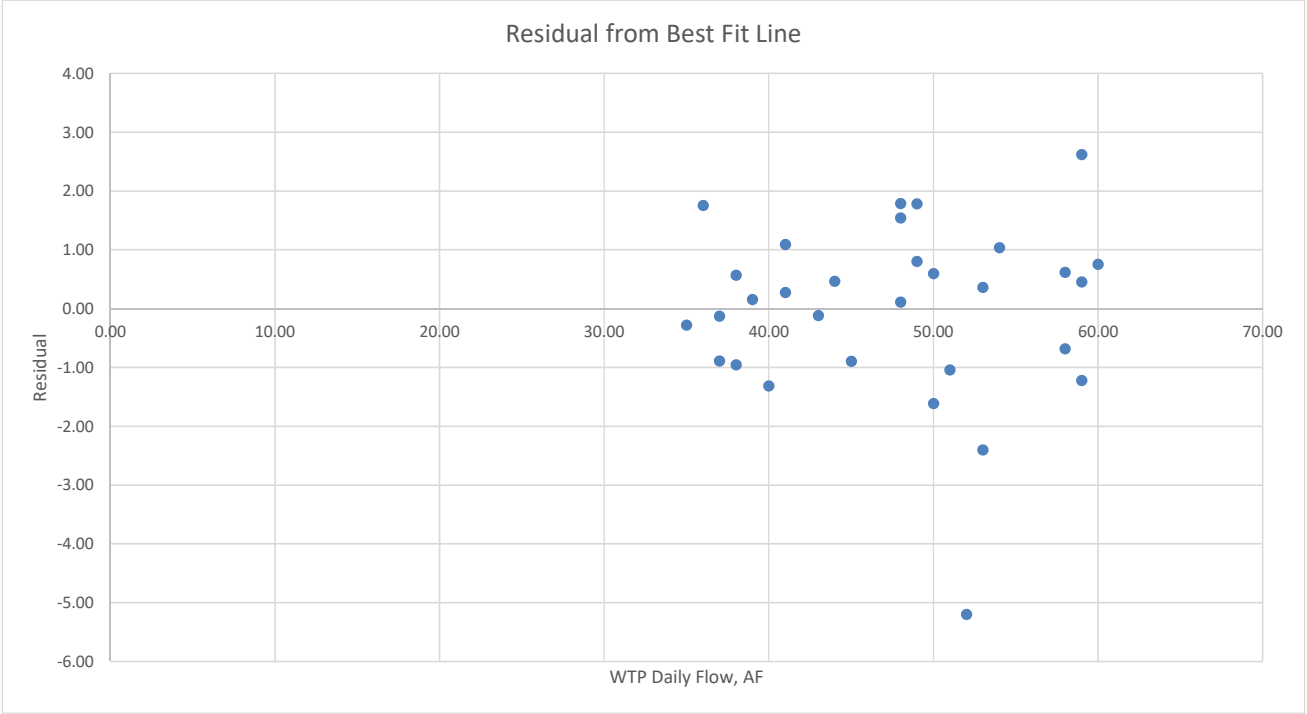
April 2020


WTP versus Pipe Flow
y = 1.0444x - 2.6237
R² = 0.9533
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00

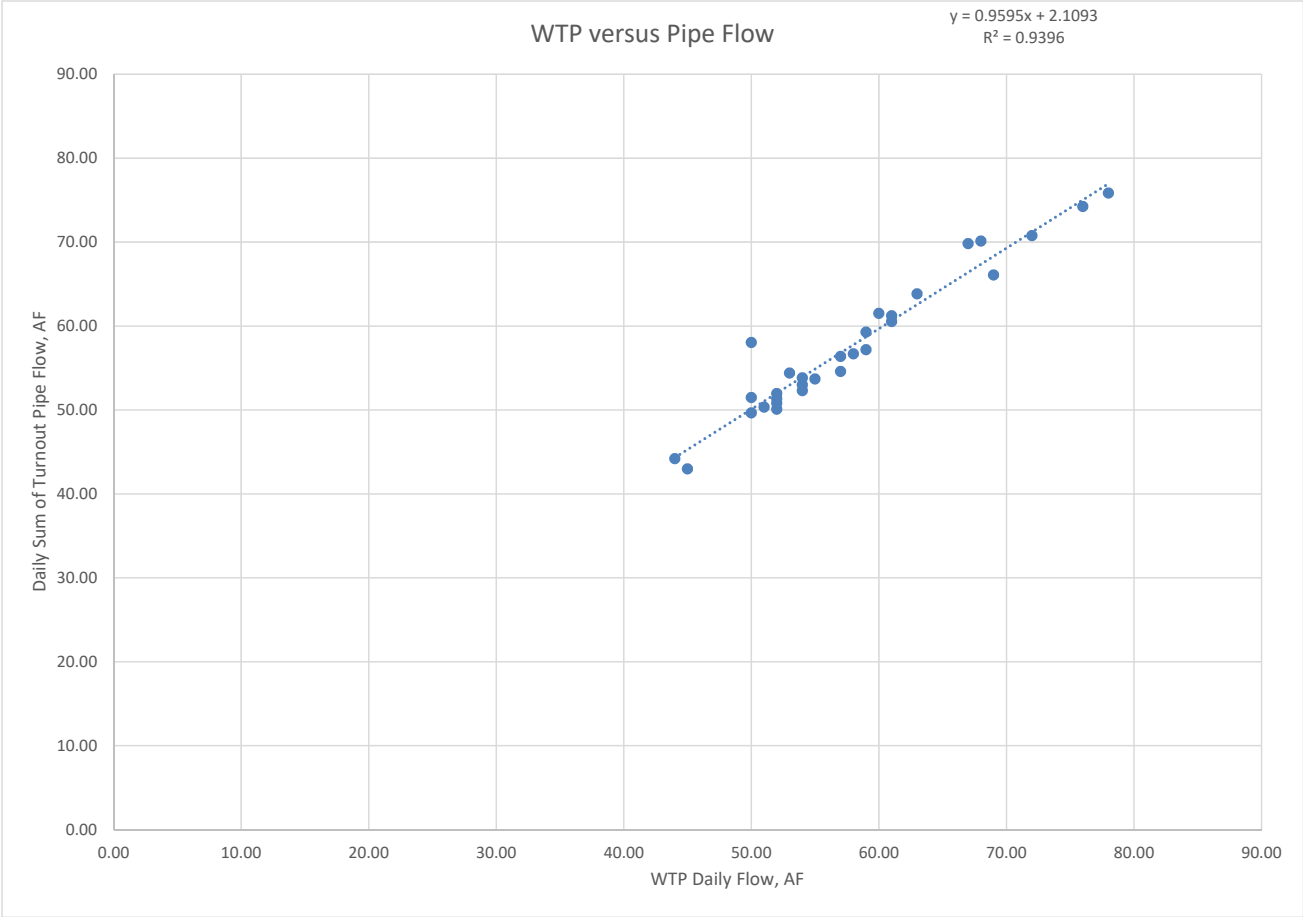

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00

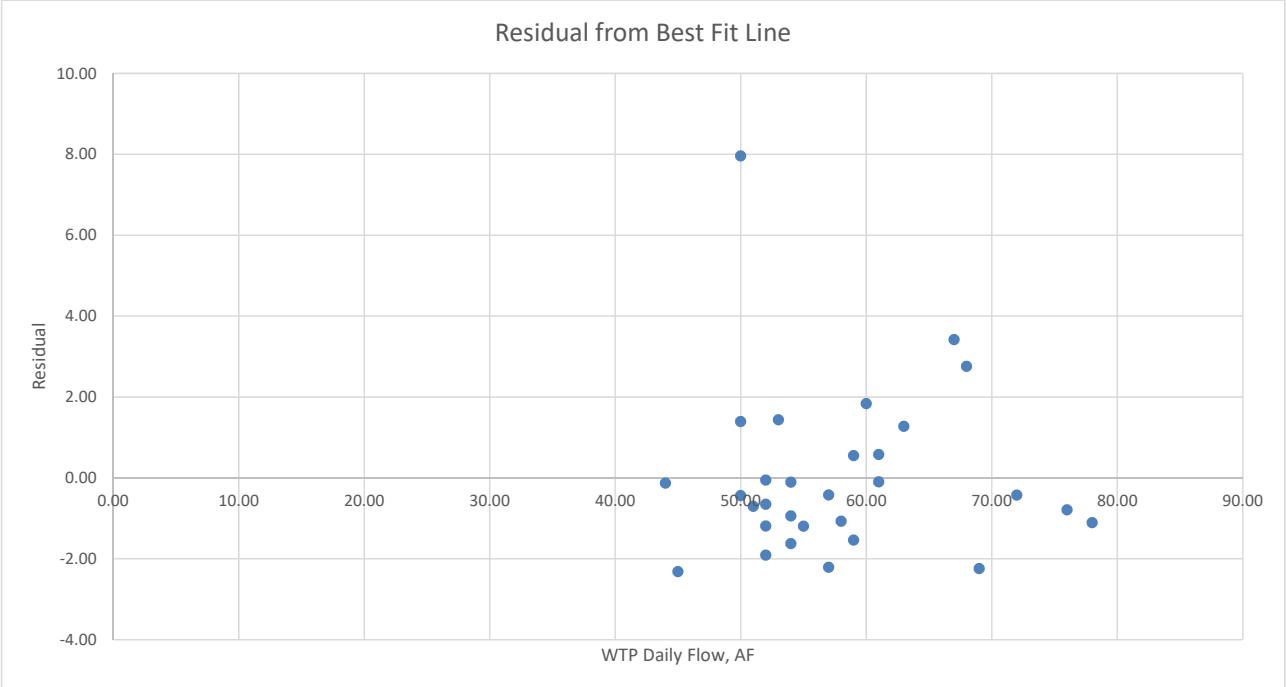
May 2020


WTP versus Pipe Flow
y = 0.9913x - 0.4176
R² = 0.9649
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

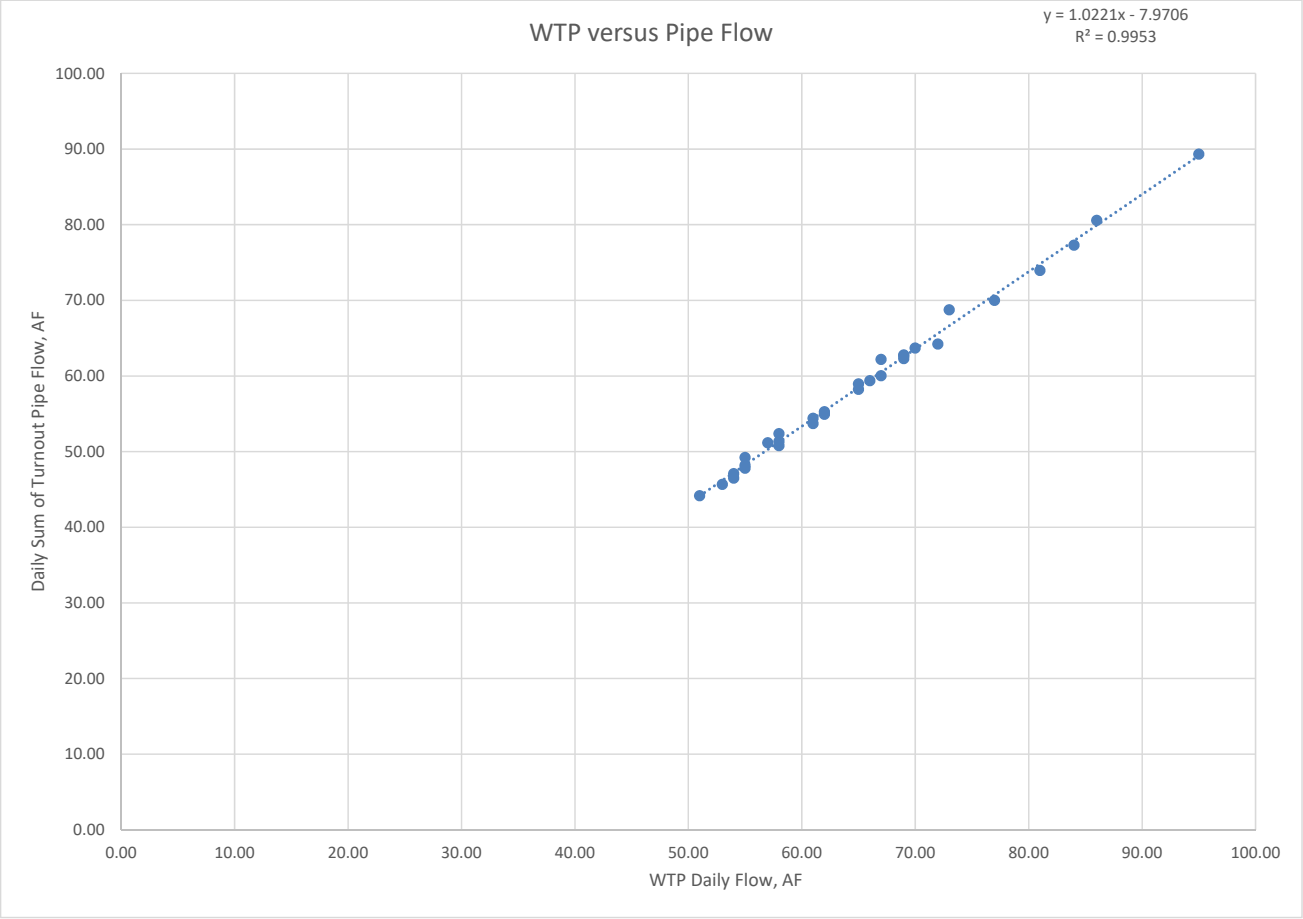

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00

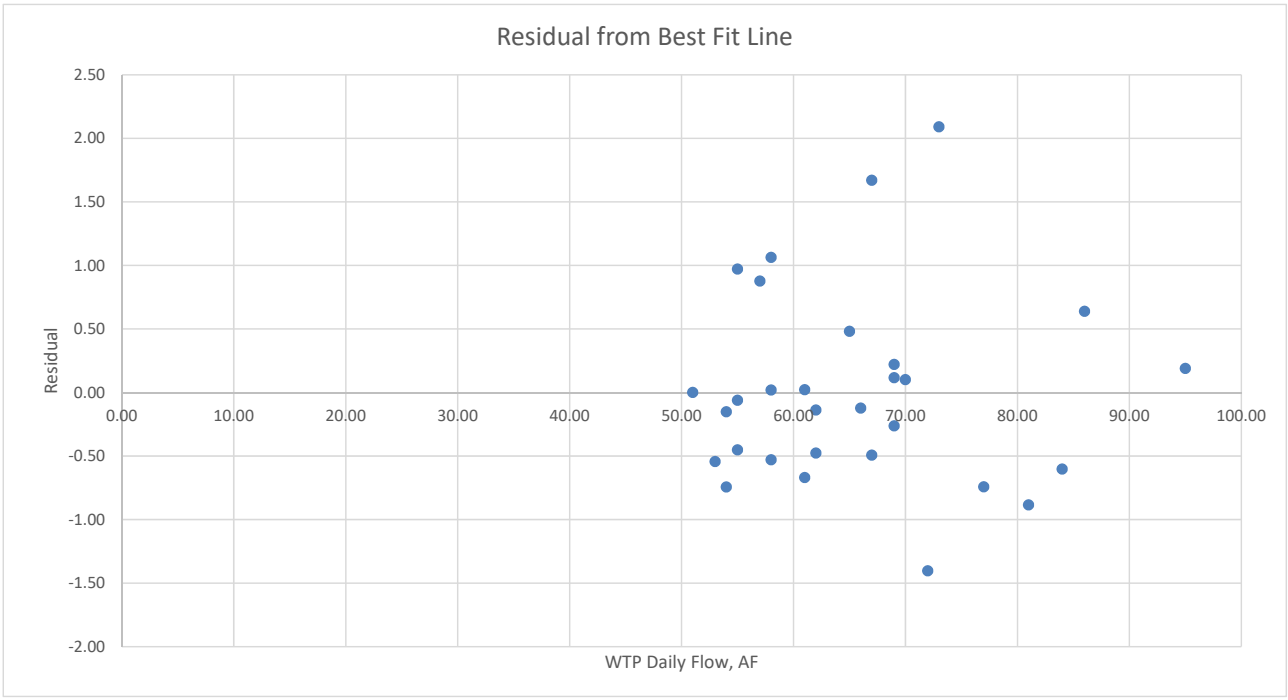
June 2020


WTP versus Pipe Flow
y = 0.9595x + 2.1093
R² = 0.9396
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

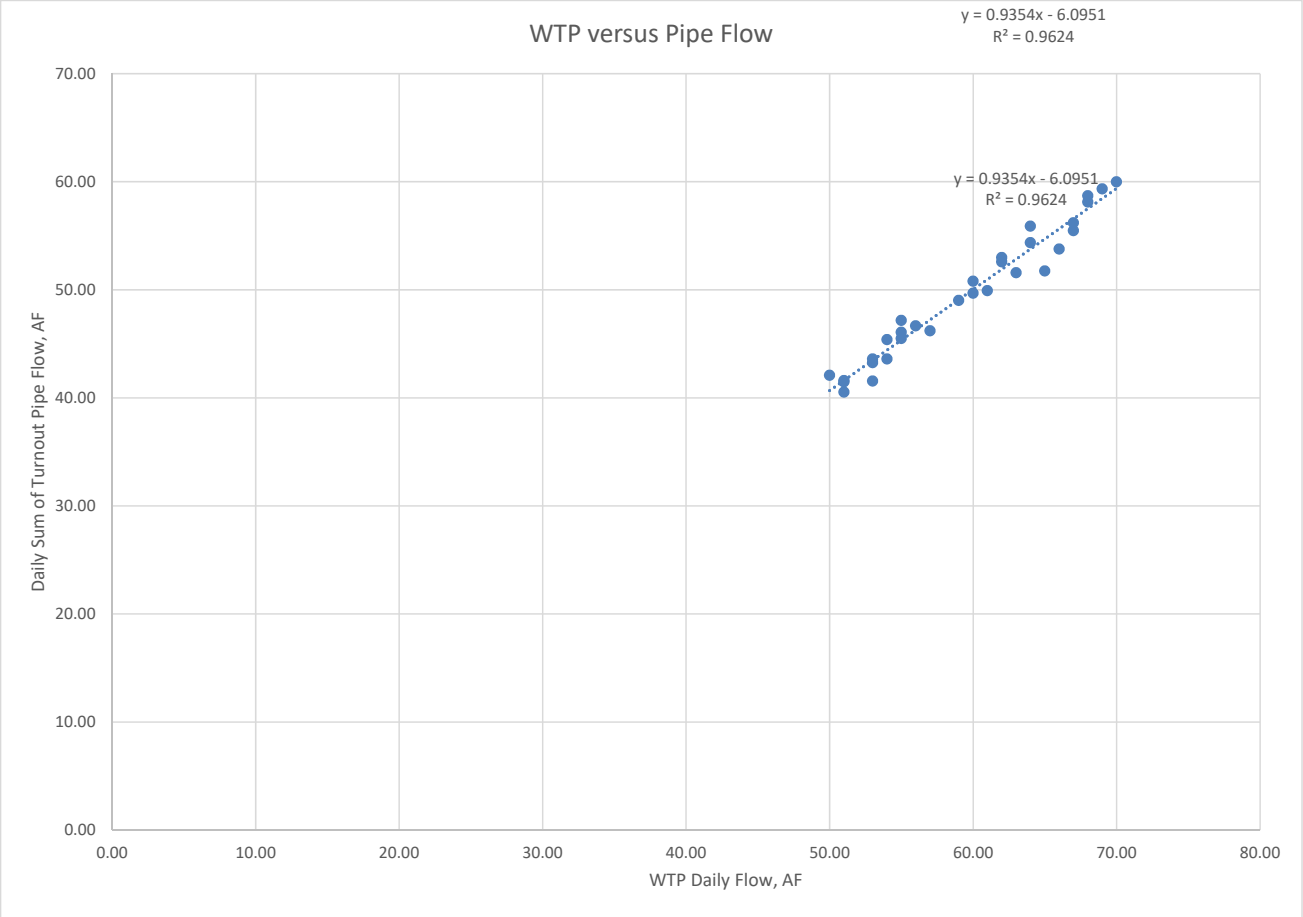

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00

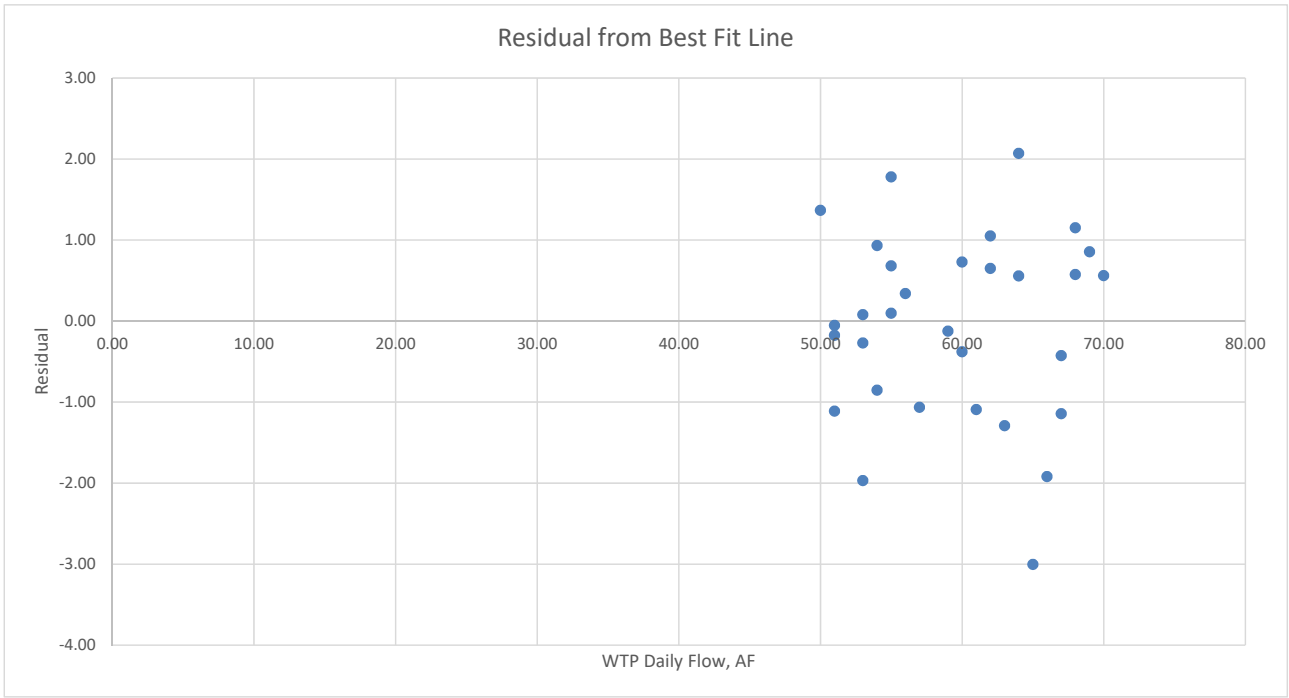
July 2020


WTP versus Pipe Flow
y = 1.0221x - 7.9706
R² = 0.9953
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

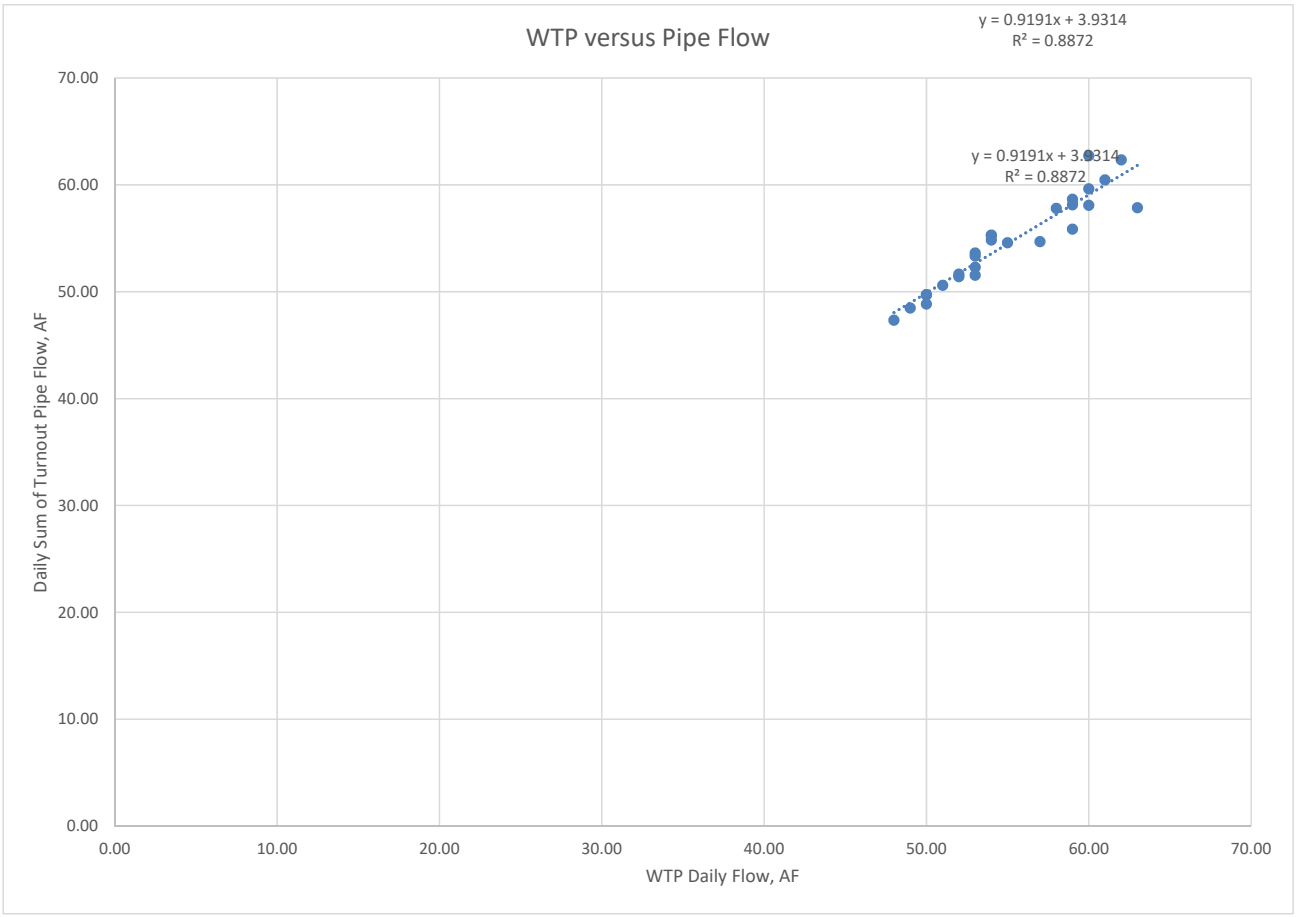

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00

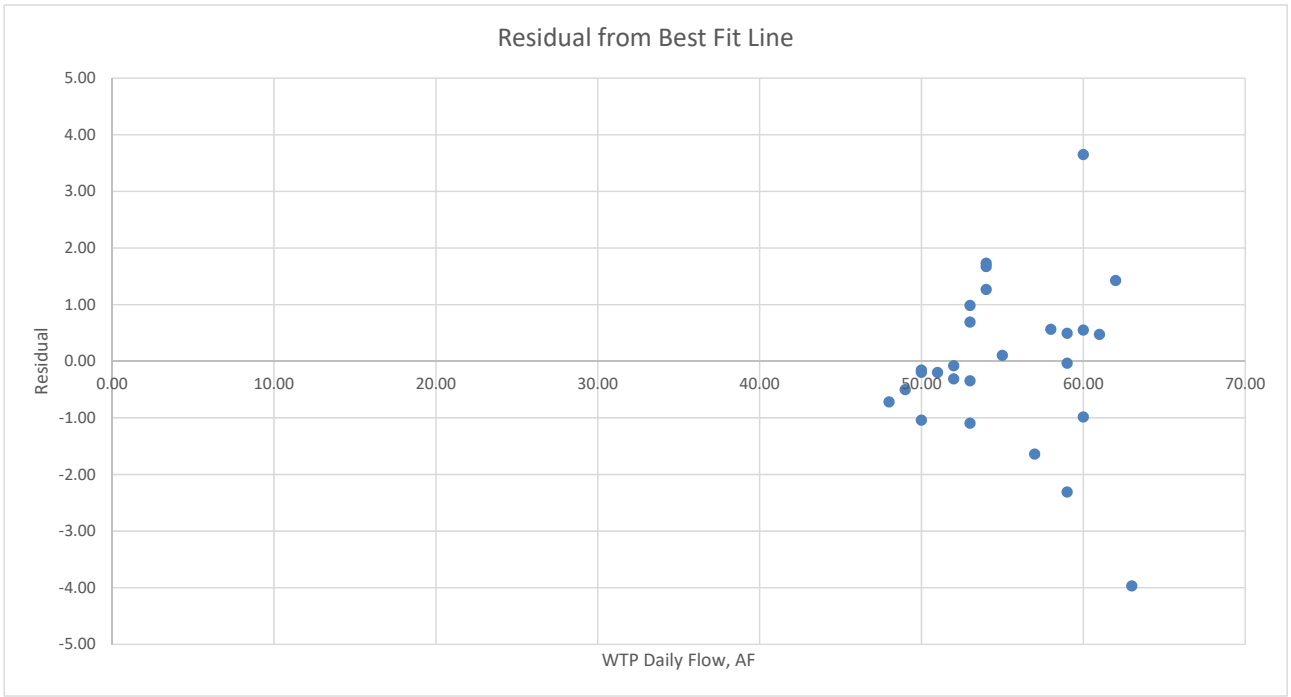
August 2020


WTP versus Pipe Flow
y = 0.9354x - 6.0951
R² = 0.9624
y = 0.9354x - 6.0951
R² = 0.9624
Daily Sum of Turnout Pipe Flow, AF
WTP Daily Flow, AF
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

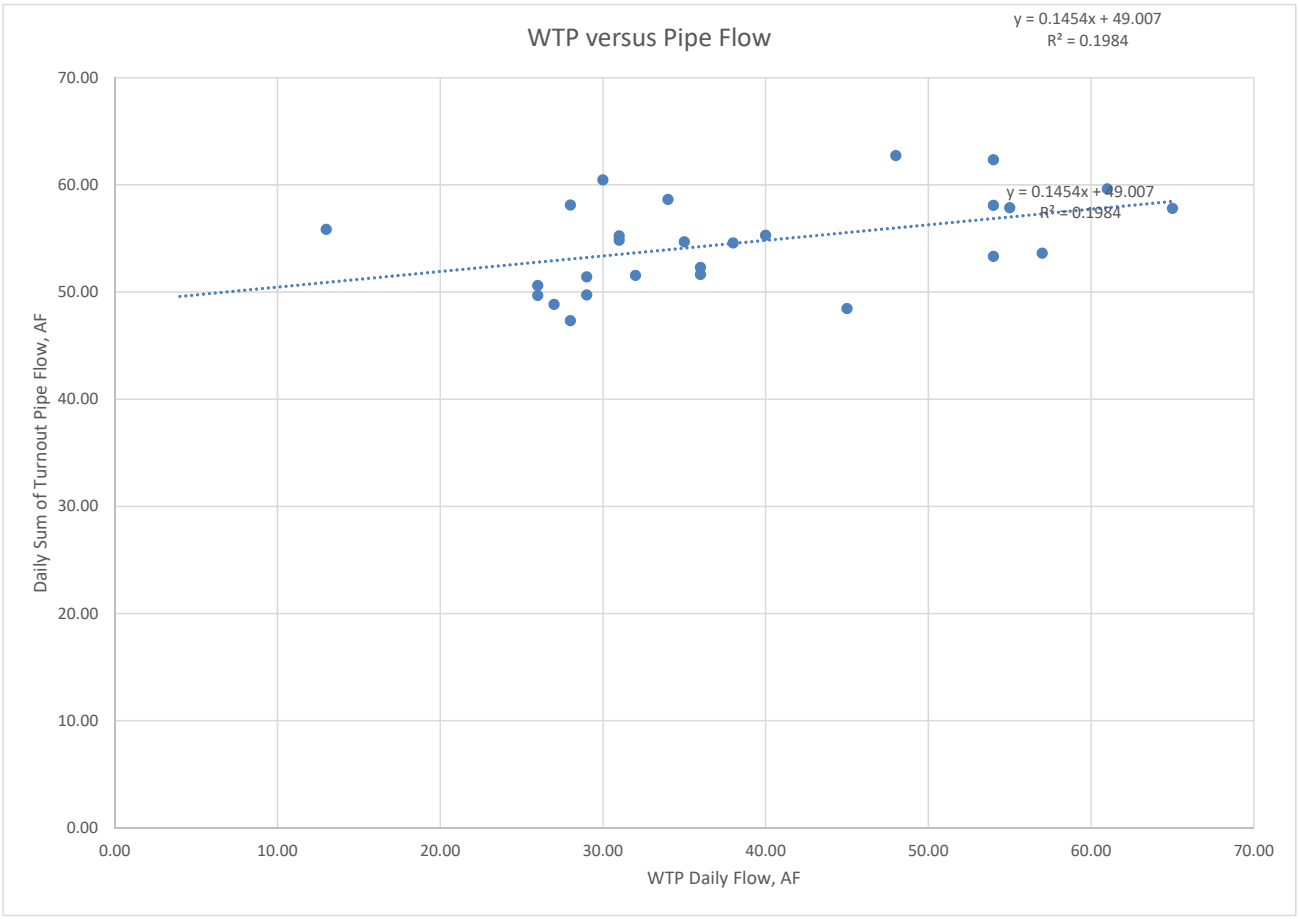

Residual from Best Fit Line
Residual
WTP Daily Flow, AF
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00

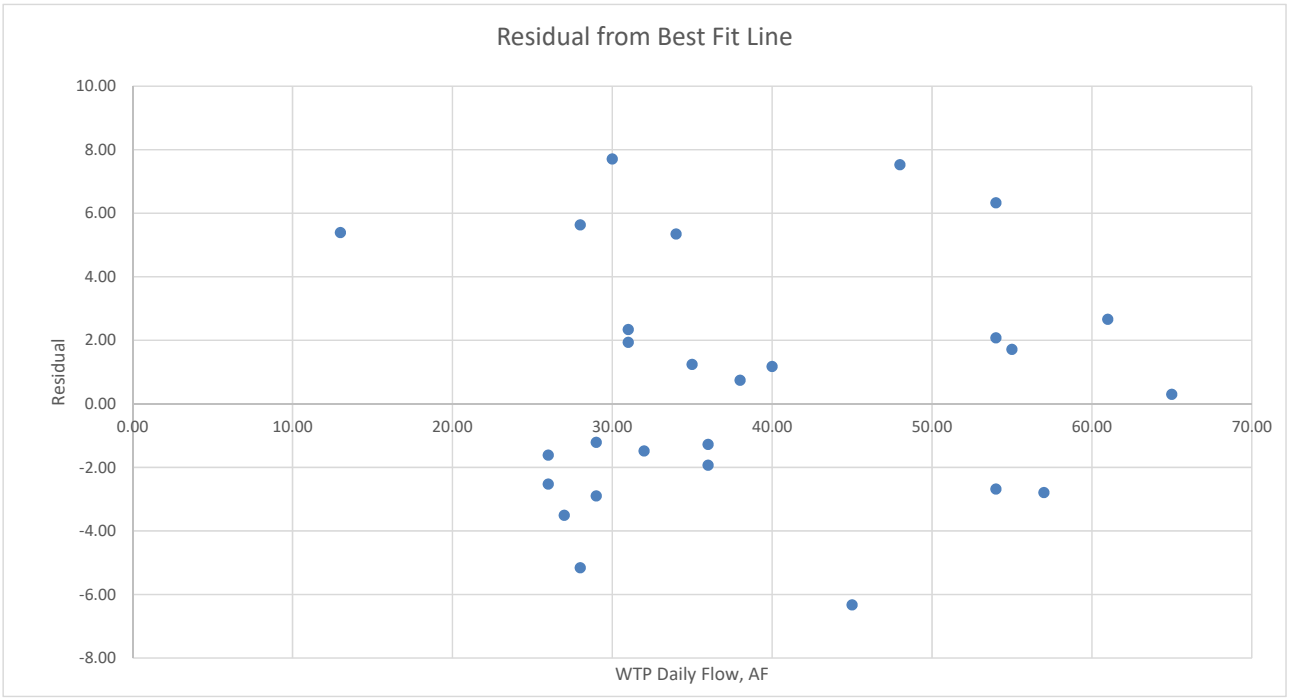
September 2020



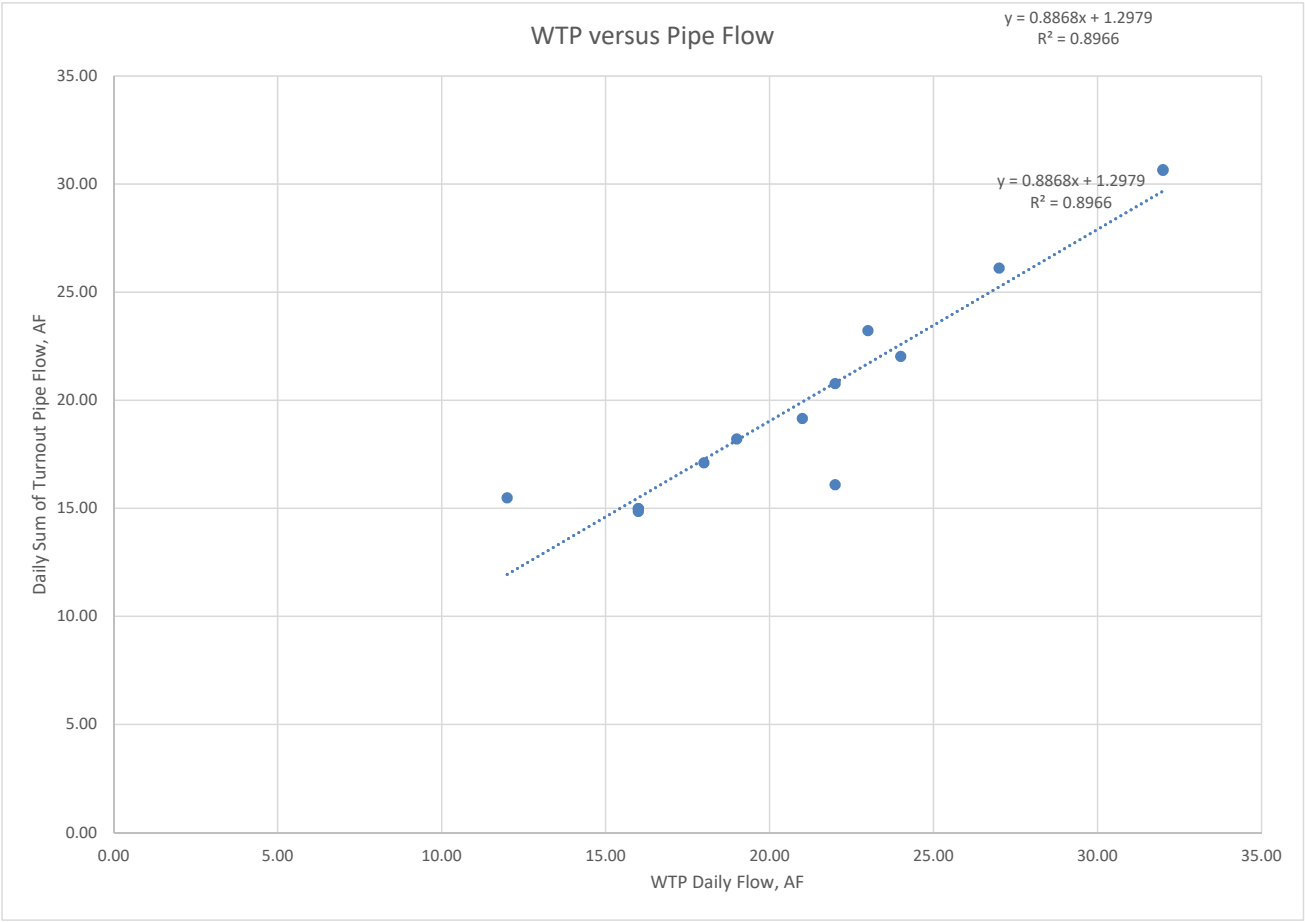


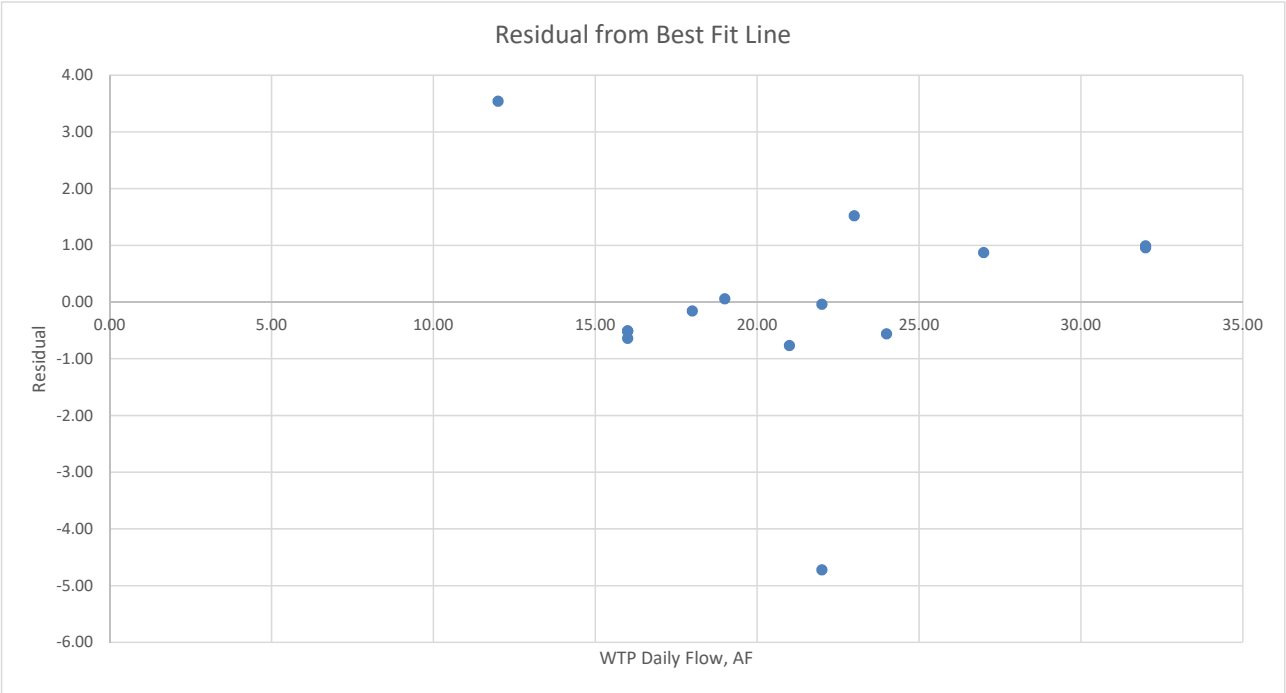
October 2020





November 2020





December 2020