

State Revolving Fund 101: The Regulations

Water Quality Control Division - Grants and Loans Unit

Department of Local Affairs - Division of Local Government

Colorado Water Resources and Power Development Authority



Meet the Presenters...

Mark Henderson is the Unit Manager for the Water Quality Control Division Grants and Loans Unit. Prior to his current role, Mark spent seven years as a Senior Review Engineer in the division engineering section and ten years as an environmental engineering consultant. Mark's expertise is focused on the funding as well as design and construction of water/wastewater treatment facilities. He has authored and edited numerous articles for Rocky Mountain Water Magazine (formerly Rumbles) including articles for Rural Community Assistance Partnership and contributions to the ASCE Infrastructure Report Card. He is a Colorado native and enjoys trail running, mountaineering, backpacking.



Meet the Presenters...

Evan Butcher is the Central Region Project Manager for the Water Quality Control Division Grants and Loans Unit. Evan has spent four and a half years managing water related projects with the Division and another eleven years managing construction projects in the private sector. When Evan is not at work he enjoys spending time with his family, riding mountain bikes and fishing.



Meet the Presenters...

Matt Alms is the Compliance Specialist for GLU and performs and coordinates the necessary environmental reviews. Prior to working in GLU, Matt was in the TMDL unit working towards remediation of impaired waterbodies. Matt is a family man and enjoys all of the adventures his family provides, including hiking, traveling, and escape rooms.



Important Regulations Impacting the SRF

1. State Environmental Review Process
2. Preliminary Effluent Limits and Water Quality Planning Targets
3. Discharger Specific Variances
4. Disinfection Outreach Verification Effort



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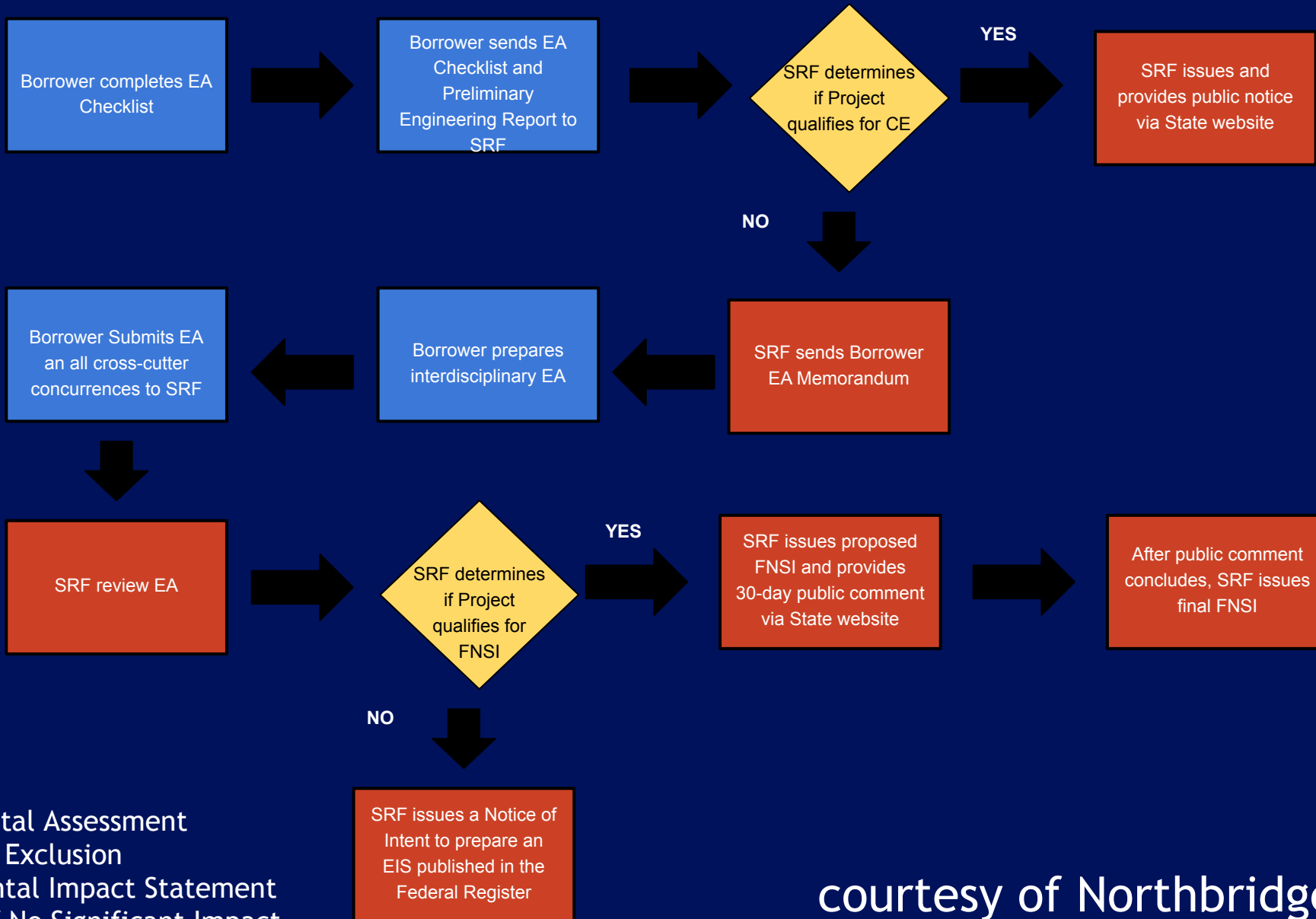
State Environmental Review Process (SERP):

- Under the Clean Water Act, and 40 CFR Parts 6 and 35, EPA requires SRF funded projects to undergo environmental review based on NEPA.
- NEPA (National Environmental Policy Act) requires federal agencies to complete an environmental review on proposed actions prior to decisions. However, EPA allows (with approval) each state to conduct reviews based on State Environmental Review Process.



State Environmental Review Process (SERP)...continued

- One of the conditions of SRF project funding is environmental review to determine any potential impacts due to project implementation
- Environmental review, following NEPA, is usually one of 3 levels of analysis and depends on the complexity of the project and levels of criteria
 - Categorical Exclusion
 - Environmental Assessment
 - Environmental Impact Statement/Study



EA= Environmental Assessment
CE= Categorical Exclusion
EIS= Environmental Impact Statement
FNSI= Finding of No Significant Impact

courtesy of Northbridge Environmental



Environmental review conditions

Categorical Exclusion (Cat Ex)

- replacement of equipment; pipeline, treatment works, etc.
- within facility footprint

Environmental Assessment (EA)

- New discharge
- New disturbances
- Potential effect to endangered species, wetlands, floodplain
- Requires coordination/approval with other agencies (USFWS, USACE, CPW, NRCS, SHPO, CO State Engineer, CDPHE APCD)
- Link to EA template:
- <https://www.colorado.gov/pacific/cdphe/wq-environmental-reviews>

Environmental Impact Statement/Study (EIS)

- Only significant or adverse impacts (SRF projects rarely require this)



What to look for...

- Critical habitat, endangered species
- Migration patterns, spawning season
- Wetlands
- Floodplain
- Prime farmland
- Depletions (South Platte, Colorado)
- Wild and scenic river (Poudre only)

ALL projects, regardless of Cat Ex or EA, are required to obtain approval/clearance from the State Historic Preservation Office (SHPO), and organize a public meeting.



State Historic Preservation Office (SHPO)

For every project in the SRF program, a SHPO review is required:

- Determine Area of Potential Effect (APE)
- Request for a file search
- Refine APE, if necessary
- Determine level of impact, if any
- Letter to SHPO requesting approval



Public meeting requirements

For every project in the SRF program, a public meeting is required:

- Meeting for public education
- Posting of meeting at least 30 days prior
- Discussion of proposed project (CE, EA, or EIS)
- Submit meeting minutes, list of attendees, and affidavit of publication

Preliminary Effluent Limits, Water Quality Planning Targets and the SRF Process

(reflects updates to Regulation 22 and 61)



What are Water Quality Planning Targets (WQPTs)?

- Water Quality Planning Targets are provided to help guide the design process towards achieving the required discharge permit limits.
- A WQ Planning Target is a requirement for the site location approval process for wastewater treatment facilities.
- The site location approval process is the first step in the design approval process required for changes to wastewater treatment facilities



WQPTs and PELs - Then and Now

THEN: **PELS, PELS, PELS!!!**



- PELs = Preliminary Effluent Limits
- Purpose: Prevent potential exceedances of water quality standards
- New treatment facilities, expansions, major process changes required PELs as a first step in design approval and permitting process.
- Intended to be both prospective and conservative
- Not a permit (no public comment period, etc.)
- Division still has resources to do 12-15 surface water PELs per year.
- Permittees were frustrated by the long timelines for PELs



WQPTs and PELs - Then and Now

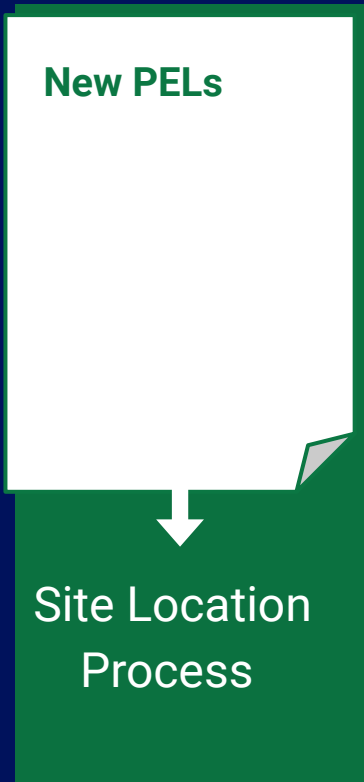
NOW: Options!



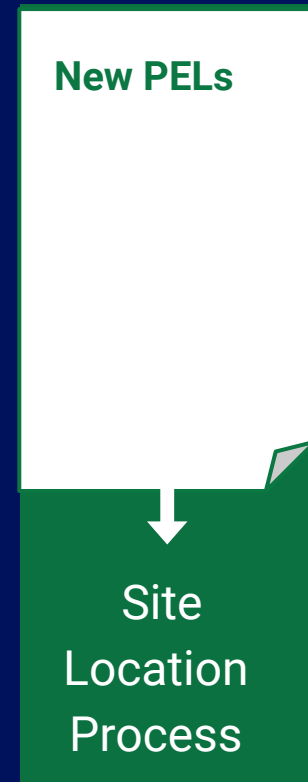
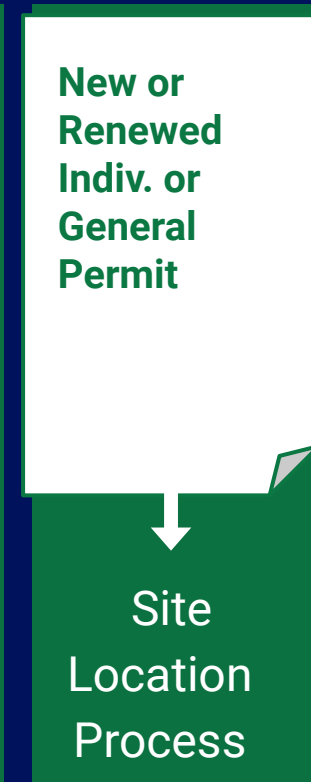
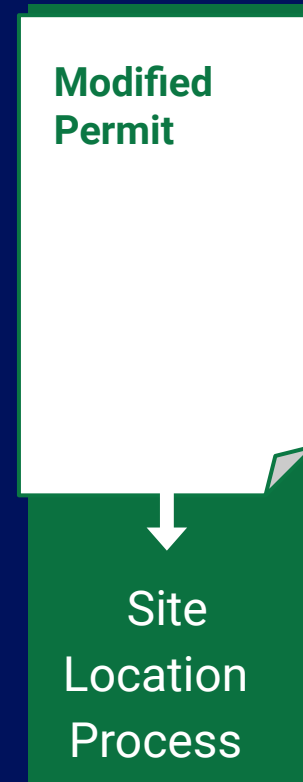
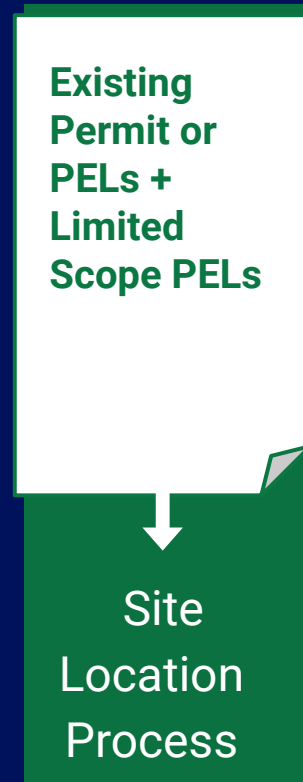
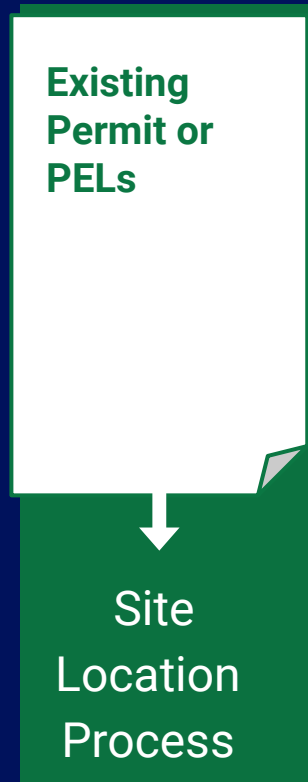
- PELs are not the only option.
- More options have been created and collectively referred to as Water Quality Planning Targets.
- Updates have been made to the Water Quality Control Commission Regulations 22 and 61 to address the use of WQPTs in the design and permitting process for domestic wastewater treatment facilities.

Water Quality Planning Targets Overview

THEN:



NOW: Water Quality Planning Targets

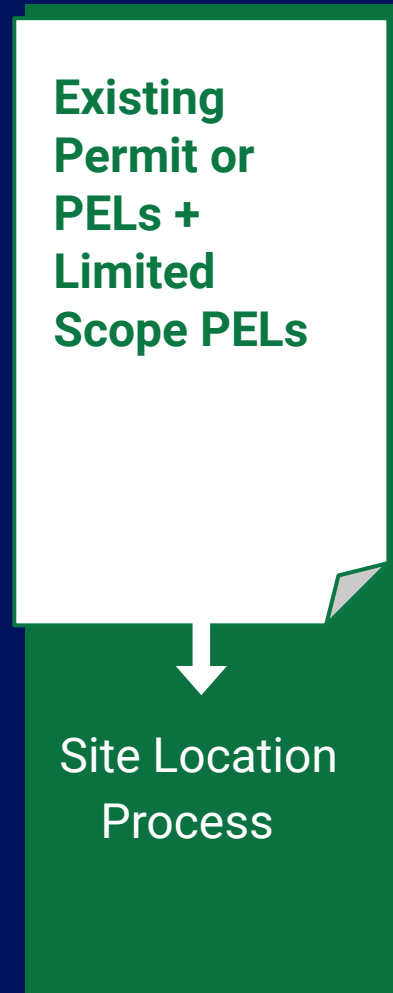


Allows Use of Existing Documents



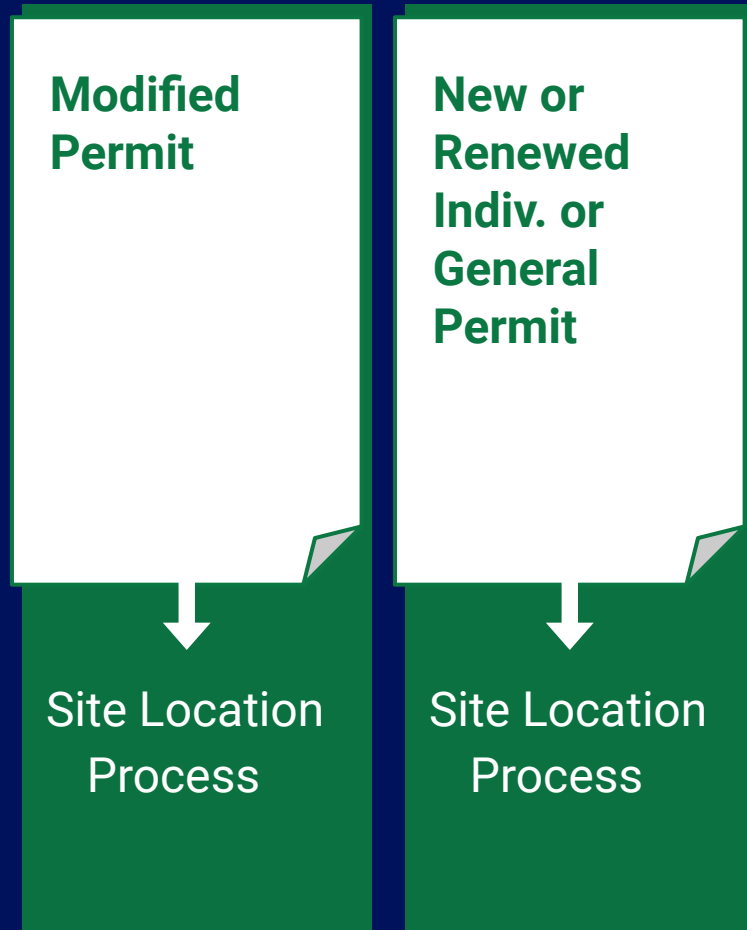
- Potential examples include:
 - A site plan change solely affecting a technology based limit
 - Existing PEL is less than 3 years old without a subsequent basin hearing
 - Permit is active and the proposed change, standing alone, is not likely to affect the current permit's limits or the facility's ability to meet those limits.

New Option for “Limited Scope PEL”



- Useful for permittees who solely need information about future nutrients limits (including ammonia) or temperature for site approval
- Often can be completed within 8-10 weeks

New “Permits First” Option



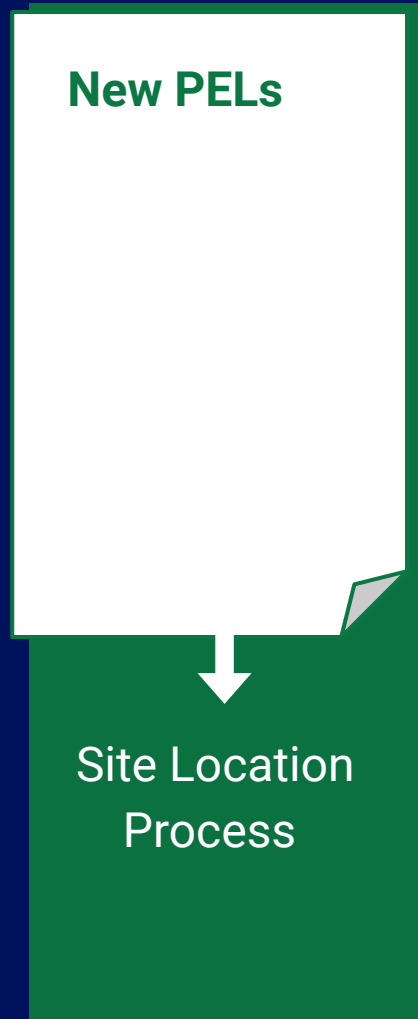
- Will allow permittees to obtain a permitting document first and use it as their Water Quality Planning Target
- Reduces uncertainty between PEL and permit
- Allows individual permittees access to full notice and comment process for WQPTs
- 180-day deadlines for new permits and modifications would apply

General Permits (Surface Water)

- **COG 589000** - minor domestic facility, under 1 MGD, cannot have an industrial pretreatment program or accept hazardous waste. Facility must discharge to an unclassified, use-protected, or reviewable surface water body
- **COG 588000** - facility must meet all the requirements above for the COG589000 permit, and receiving stream must provide 100:1 dilution.
- **Advantages:**
 - Issued quicker than individual permits
 - More certainty than individual permits.
 - Possibility of modification after the general permit has been administratively extended (as long as the general permit itself does not need to be modified).
 - General permit PELs can be completed more quickly than individual permit PELs.
 - Permit fees are lower



New PELs



- The Division has determined that new PELs are needed for submitted site approval request
- The facility cannot use the “permit-first” or “permit modification-first” approach.
- Internal goal to issue the PEL document 180 days from payment for PELs.

Possible Water Quality
Planning Target
Documents:

WQPT Process



Permit Resources

- General Permits Webpage

<https://www.colorado.gov/pacific/cdphe/clean-water-sewage-systems-general-permits-surface-water>

- Webpage for the new WQPT process:

[https://www.colorado.gov/pacific/cdphe/WQ Planning Targets and PELs](https://www.colorado.gov/pacific/cdphe/WQ_Planning_Targets_and_PELs)

- Online WQPT application:

<https://drive.google.com/file/d/18OmLOvVpJs5FOgDOZE139I0oWhCGeQD3/view>

- Permits Section Contact:

Michelle Delaria, Unit 2 Manager at michelle.delaria@state.co.us





Discharger Specific Variance Process (from Regulation 31 and Policy 13-1)



What is a Discharger Specific Variance (DSV)?

- Relatively new: DSV provisions became effective in 2013.
- Temporary
- Requires an Alternatives Analysis
- DSV represent the BEST feasible Water Quality
- DSVs are a last resort
- DSVs must be approved by the Water Quality Control Commission (WQCC) and reviewed by EPA. They are re-evaluated every 5 years.

How are DSVs Implemented?

- DSVs can only apply to Water Quality Based Effluent Limits (WQBEL)
- DSVs authorize an alternative effluent limit from the standard.
- May require interim milestones, monitoring requirements and other narrative conditions (e.g. special studies) to implement the DSV.
- Once the variance expires, the WQBEL will be implemented in the permit, with a compliance schedule, if necessary.

The three feasibility tests...

- DSVs require an Alternatives Analysis that must address one or more of the three following tests:
 1. Technologically Feasible Test
 2. Economically Feasible Test
 3. Other Consequences Test
(are there other environmental consequences that make this alternative infeasible?)



Technologically Feasible:

- Pollutant removal techniques are not available or it is technologically infeasible to meet the standard.
- Evidence needed: Results of pilot studies, publications, and/or results from other facilities that have used this technology. Explanation of the limitations of existing treatment plant and compatibility with new technology.

Economically Feasible:

- Demonstration that attaining the water quality standard is not feasible because meeting the standard will cause substantial and widespread adverse social and economic impacts in the area where discharge is located.
- Considerations include: cost and affordability of pollutant removal techniques.
- Evaluation of affordability factors: Based on MHI, number of ratepayers, capital and annual O&M cost per household

CASE STUDY: Town of Nucla WWTF

- Project included DSV and SRF funding
 - Town of Nucla, population of 708, Sewer taps = 296.
 - Economy is agriculture and industry.
 - Nucla MHI: \$29,391 vs. CO MHI (in 2016): \$65,685
- Objective: Ammonia compliance
 - WQBELs for ammonia = 2 - 5 mg/L vs. current effluent up to 26 mg/L.
 - Economic feasibility results: Compliance would have required user fees equivalent to 4.3% of MHI.
 - Limit of economic feasibility determined to be 1.5% median household income.



Town of Nucla DSV Process

- Alternatives Analysis
- Met economic feasibility test
- Reduce ammonia via insulating covers, baffle curtains, improved aeration and removing biosolids.
- Alternative Effluent Limits:
 - Winter: 13.8 mg/L ammonia
 - Summer: 8.3 mg/L ammonia

Ranked Alternatives best to worst water quality	Meets WQBEL	Technologically Feasible?	Economically Feasible?
Replace lagoon with mechanical plant	Yes	Yes	No
Consolidate with regional plant	Yes	Yes	No
Improvements to existing lagoon ★	No	Yes	Yes
On-site winter storage	No	Yes	Yes
Status quo	No	-----	-----
Move outfall	No	-----	-----

Town of Nucla - SRF Funding Process

- Started SRF process in 2014 and initial loan approved in 2014 but realized need for DSV.
- DSV approved by the WQCC October 2016
- PNA (based on DSV) approved May 2017
- WPCRF Loan approved September 2017 (\$600,000)
- Funding package:
 - \$600,000 SRF Loan + \$250,000 supplemental SRF Loan (2018)
 - \$135,257 D&E grant
 - \$735.000 DOLA EIAF Grant
 - Total Funding = \$1,720,257.16
- Construction started Feb. 2018 expected 2021 completion

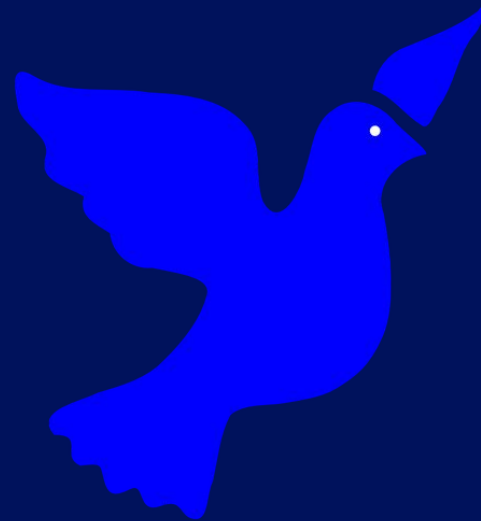


SRF Process Key Takeaways:

- Prior to determining need for DSV evaluate both treatment and permit options: i.e. facility capacity (de-rate options?), permit limits driving change (WQBELs vs. Anti-deg. limits), compliance schedule, general permit.
- DSV process takes time (around 1 year) and requires WQCC action - Plan ahead!
- The DSV process is a longer term path to compliance.
- Contact WQCD Standards Unit for more info on DSVs
barbara.bennett@state.co.us



Disinfection Outreach Verification Effort (DOVE) and the SRF Process (from Regulation 11 and Policy 4)



DOVE Background

- Applies to surface water and “ground water under the influence” (GWUDI) systems.
- Past rule of thumb: 30 minutes of chlorine contact time sufficient for disinfection.
- May not be enough based on the contact chamber configuration and other water quality characteristics.
- Update to Regulation 11 clarified entry point monitoring downstream of all contact time.
- Baffle factor guidance issued for disinfection contact chambers and configurations (WQCD partnered with CSU to publish baffle factor guidance in 2014)

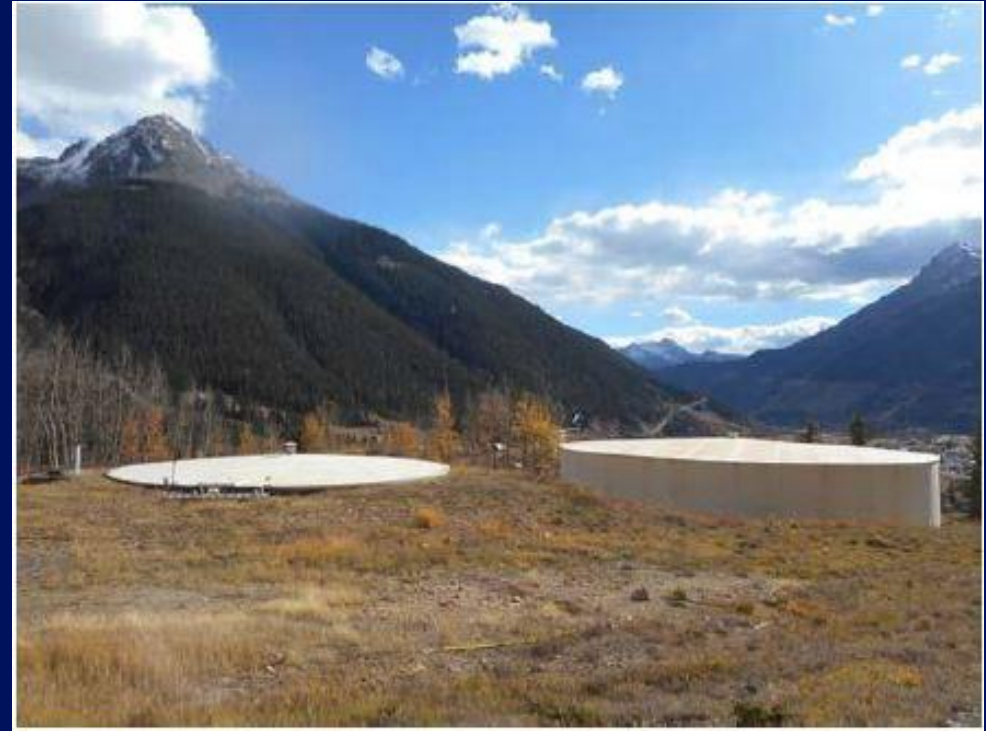


DOVE Outreach

- 2014: Division launched outreach effort to all surface water and GWUDI systems (~400 in state).
- Outreach includes desk review of treatment plant processes, disinfection methods, and contact time volume/configuration.
- Site visit to system to provide assistance.
- Review letter with conclusions of evaluation and recommendations for corrections (if needed).
- Issuing of new monthly operating report (MOR) for entry point monitoring.

CASE STUDY: Town of Silverton WTP

- WTP Upgrades and Tank #1 Rehabilitation Project
- Project Components:
 - WTP upgrades and repair plus correct issues to due DOVE.
 - Rehabilitation of 0.20 MG Tank No. 1 to address corrosion and structural deficiencies.
 - Remove backwash, surface wash, and house water pumps from Tank No. 1 construct new pump station.



Town of Silverton WTP: DOVE Issues

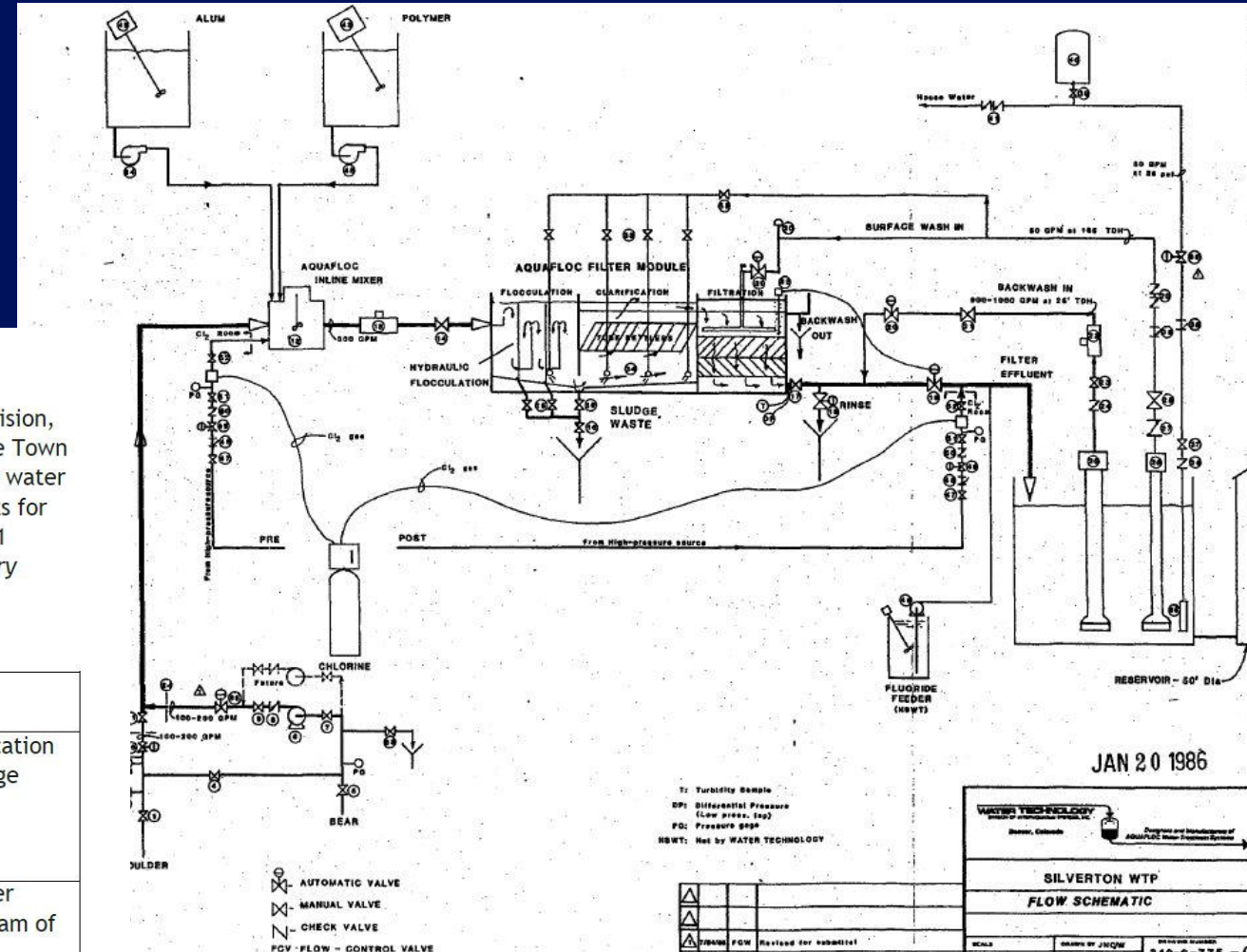
- Entry point sampling location
- House water supply

Dear Mr. Sites:

The Colorado Department of Public Health and Environment (department), Water Quality Control Division, has performed a review of the disinfection capabilities of the surface water treatment plant(s) at the Town of Silverton (supplier). The department and the supplier met on April 27, 2018 in order to review the water treatment configuration and to determine whether the treatment adequately meets the requirements for surface water disinfection. As a result of the site visit, the surface water plant (referred to in Table 1 below) does not appear to meet the disinfection requirements of Section 11.8 of the *Colorado Primary Drinking Water Regulations* (Regulation 11).

Table 1: Summary of Surface Water Treatment Status

Issue	Water Plant Name (and ID)	Plant Type	Disinfection Status	Possible Solution(s)
1	Silverton SWTP01 (001)	Conventional	Inappropriate entry point monitoring location - system monitors chlorine residual before storage tanks that achieve log inactivation	Install monitoring location downstream of storage tank(s)
2	Silverton SWTP01 (001)	Conventional	House water for water plant is draw from Tank No. 1 prior to disinfection contact time and does not receive adequate disinfection contact time	Re-plumb house water connection downstream of storage tank(s) Install Point of use UV units



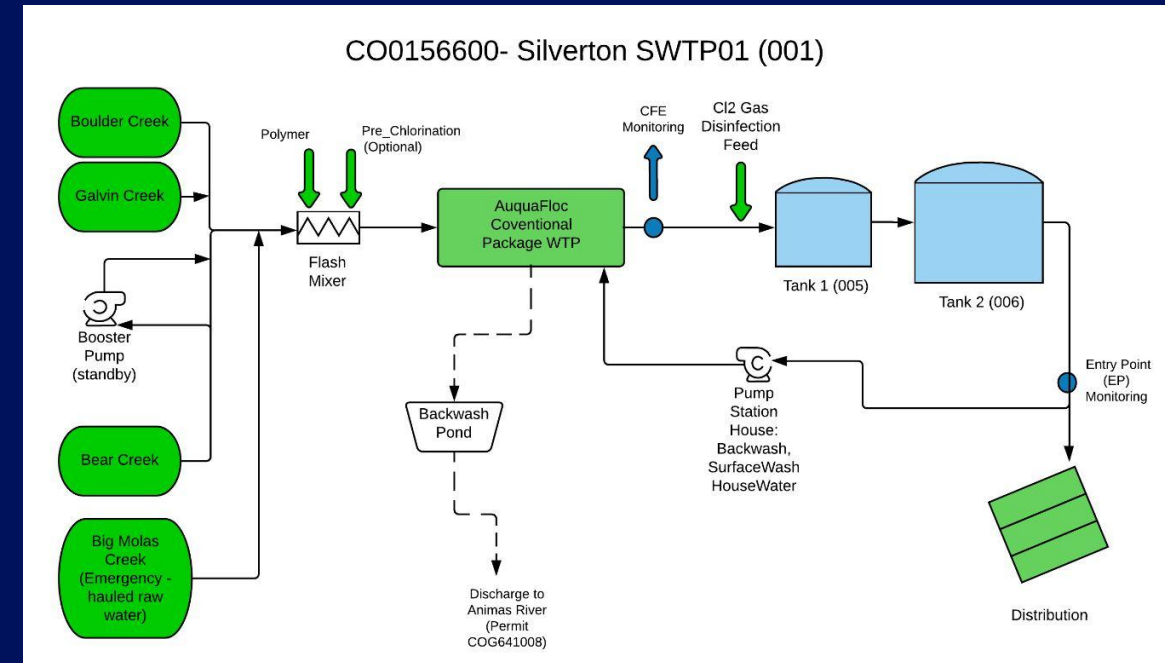
Town of Silverton - SRF Funding Process

- Pre-Qualification Meeting - February 2017
- PNA approval - October 2017
- DWRF Loan Approval - March 2018
- Final Plans & Specs Approval including Record of Approved Waterworks (RAW) - September 2018
- Funding Package:
 - Planning Grant \$10,000
 - Design & Engineering Grant \$45,797
 - DOLA EIAF Grant \$323,852
 - DWRF Loan \$313,852
 - Town Reserves \$20,000
 - Total = \$713,075
- Construction started Sep. 2018, completed Feb. 2020



Town of Silverton WTP: SRF Process Key Take-aways

- Potential DOVE issues identified early in the planning process
- Town & Consulting Engineer contacted Division to discuss proposed project and request DOVE evaluation.
- DOVE evaluation conducted concurrently with the PNA Review and Design Review



Questions?

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Websites

DOLA - <https://cdola.colorado.gov/>

CWRPDA - <https://www.cwrpda.com/>

WQCD GLU -

<https://www.colorado.gov/pacific/cdphe/wq-grants-and-loans>

Colorado Environmental Online Services system (CEOS) -

<http://ceos.colorado.gov/CO/CEOS/Public>

