



Transfer of Title Inspections and Water Quality in Southwest Colorado

Brian Devine, MS

Environmental Health Director, SJBPH

October 4, 2021

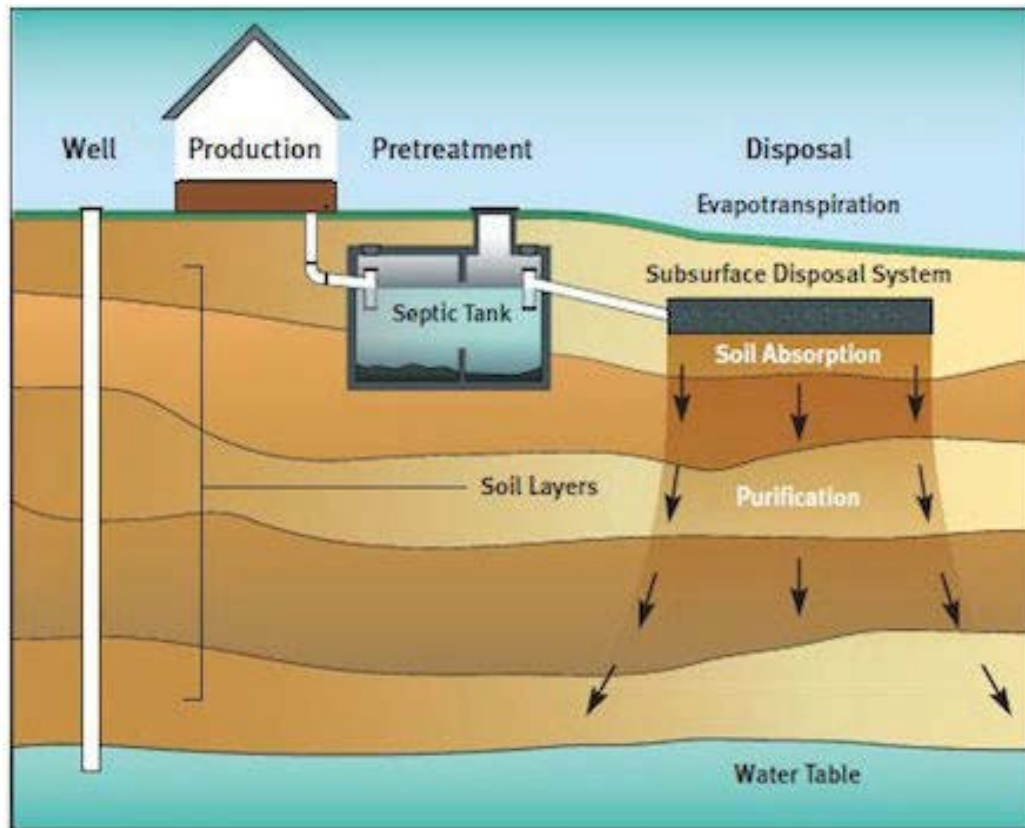
How
are
you?

SAN JUAN BASIN
public health

Today's topics

- What is an OWTS and how do they treat wastewater?
- History of OWTS design and regulation in Colorado
- How do OWTS fail and what do inspections identify?
- Trends of inspections and repairs
- Discussion from other states
- Next steps?

What is an OWTS?



What is an OWTS?

- Components

- Septic tank
 - Or aeration tank
- Soil treatment area
 - Or lagoon
- Effluent filter

- Optional components

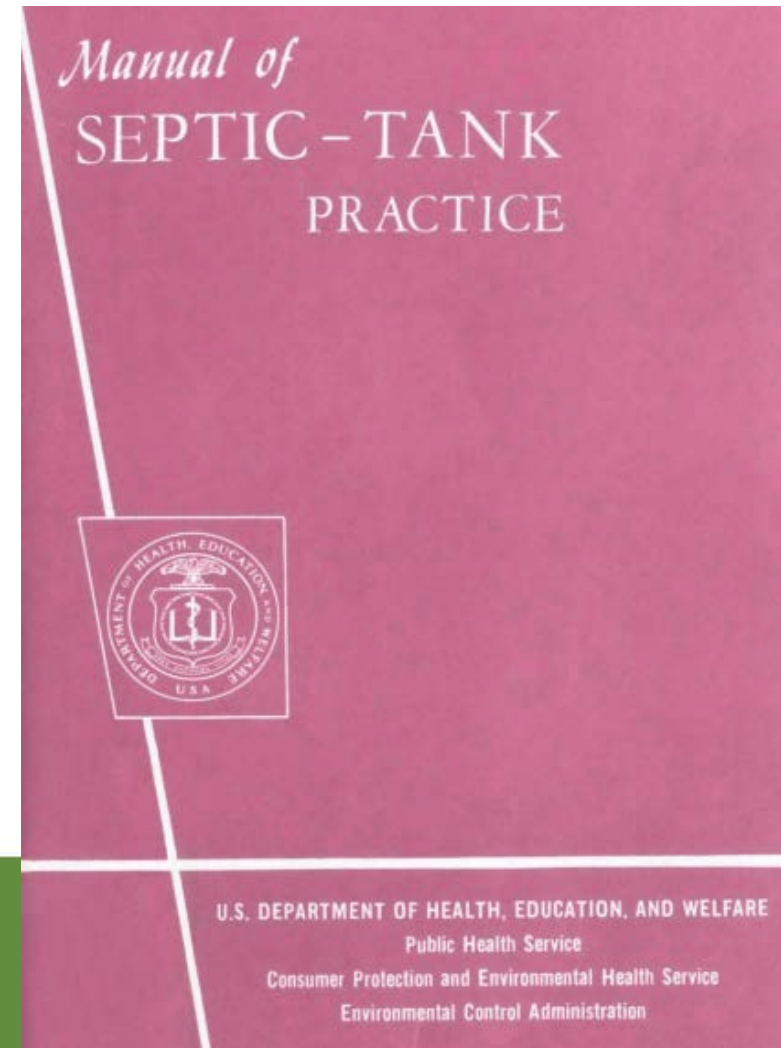
- Sand filter
- Higher-level treatment
- Constructed wetland...

- Pollutants

- Pathogens
- Organics
 - Protein, carbohydrates, fiber...
- Fats/oils/grease
- Nitrate/nitrite
- Pharmaceuticals?
- Industrial chemicals?
- Emerging contaminants?

History of OWTS in Southwest Colorado

- PHS Manual of Septic Tank Practice: 1957
- State ISDS Guidelines: 1963
- SJBHU Regulations: 1967
 - Periodically updated for decades
 - Counties formed health departments over the years
- WQCC Regulation 43: 2003
 - Significant revision in 2017
- Most recent SJBPH Regulations: 2018



History of OWTS in Southwest Colorado

- Pre-permit systems
- Early disposal systems
 - Hydraulic sizing
 - Or lagoon
 - One-chamber tanks (now undersized)
 - Wide beds, long trenches
- Later disposal systems
 - Hydraulic sizing
 - Or lagoon
 - Two-chamber tanks
 - Or aeration tanks
 - Soil pit or borehole (vertical setbacks)
- Modern OWTS
 - Biologic-hydraulic sizing
 - Two or more chambers
 - Effluent filter, additional components
 - Record drawing
 - Access to grade
- What has not changed?
 - Horizontal setbacks
 - Hydraulic acceptance rates
 - Basic installation principles
 - Construction inspection

How and why do OWTS fail?

- Causes
 - Lack of maintenance
 - Saturation/bio-mat formation
 - Improper sizing or soil evaluation
 - Overuse
 - Progressive failure
- Manifestations
 - Cracked septic tank
 - Saturated soil treatment area
 - Broken pipes and distribution media
 - Failed lagoons



Inspection Process

- 2018 SJBPH Regulations
 - Effective January 2019, most OWTS serving a property that is sold must undergo inspection
- Third-party certified inspectors
- Apply to SJBPH with satisfactory inspection
- SJBPH issues Transfer of Title Acceptance Document
- Illegal to sell OWTS-served property without Acceptance Document
 - Unless exempt under Regulations
- Permit confirmation
- Use confirmation
- Operating inspection
 - Watertightness
 - Flow test
 - Soil moisture probe
 - Inspection ports?
 - Setbacks
- Add access to grade
- Septic tank servicing (usually)
- Record drawing (usually)

Inspection Process

Identifies...

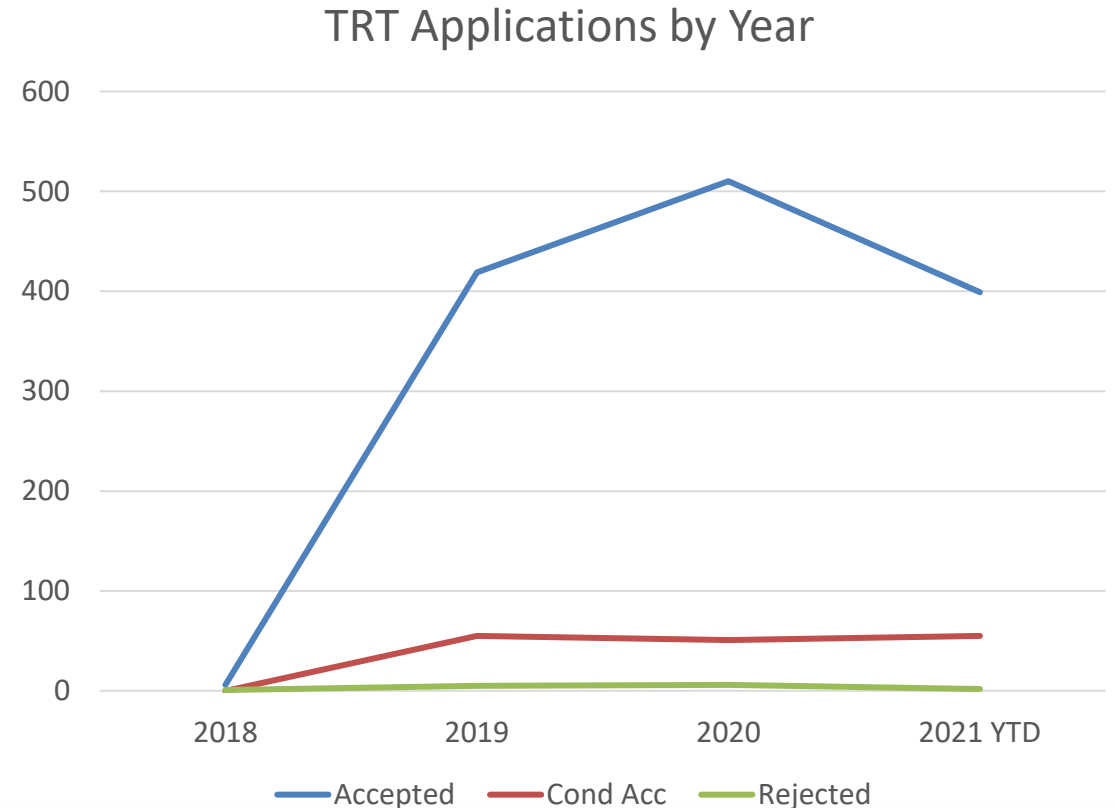
- Mechanical/hydraulic failures
- Unpermitted components
- Overuse through additional unpermitted uses
 - Additional bedrooms
- Component locations
 - Setback violations
 - Future maintenance
 - Future failure investigation

Does Not Identify...

- Failure of treatment
- Impacts to groundwater and surface water
- Specific cause of failure (usually)
- Duration of failure (usually)

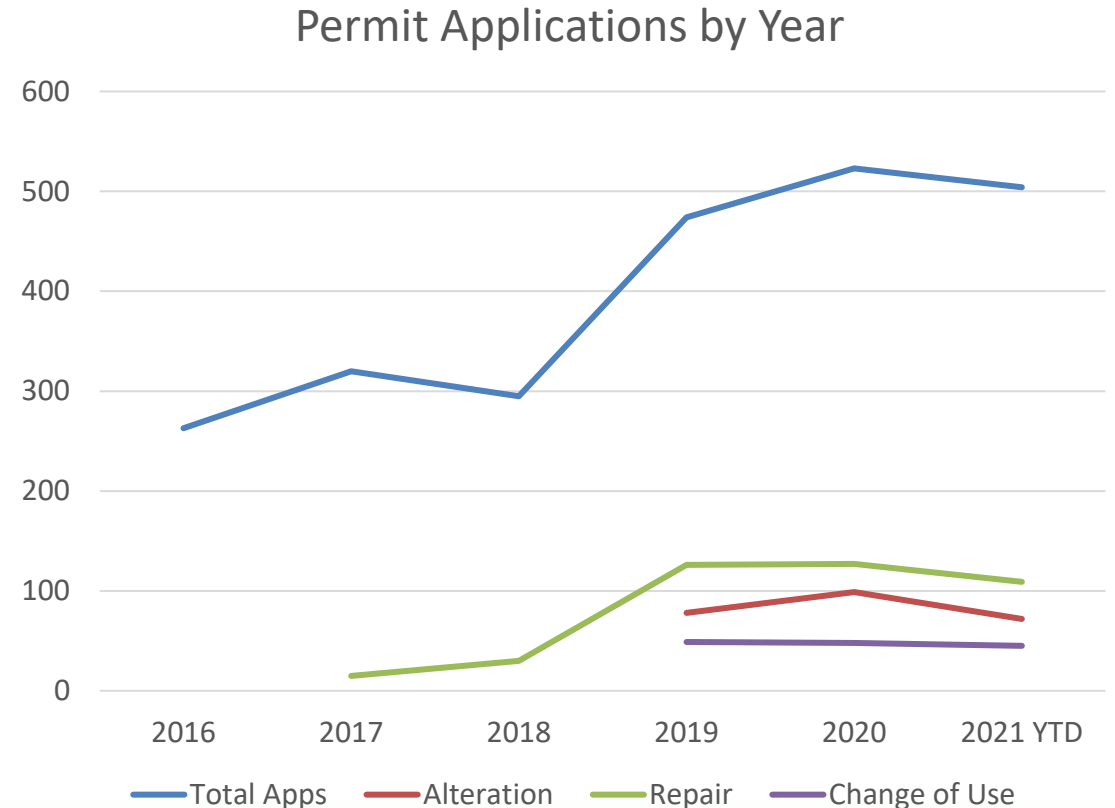
Trends

- 1602 transfer of title applications as of today
 - 1400 accepted or final
 - 97 conditionally accepted
 - 75 under review
 - 14 rejected
 - 1 expired
 - 15 void or withdrawn



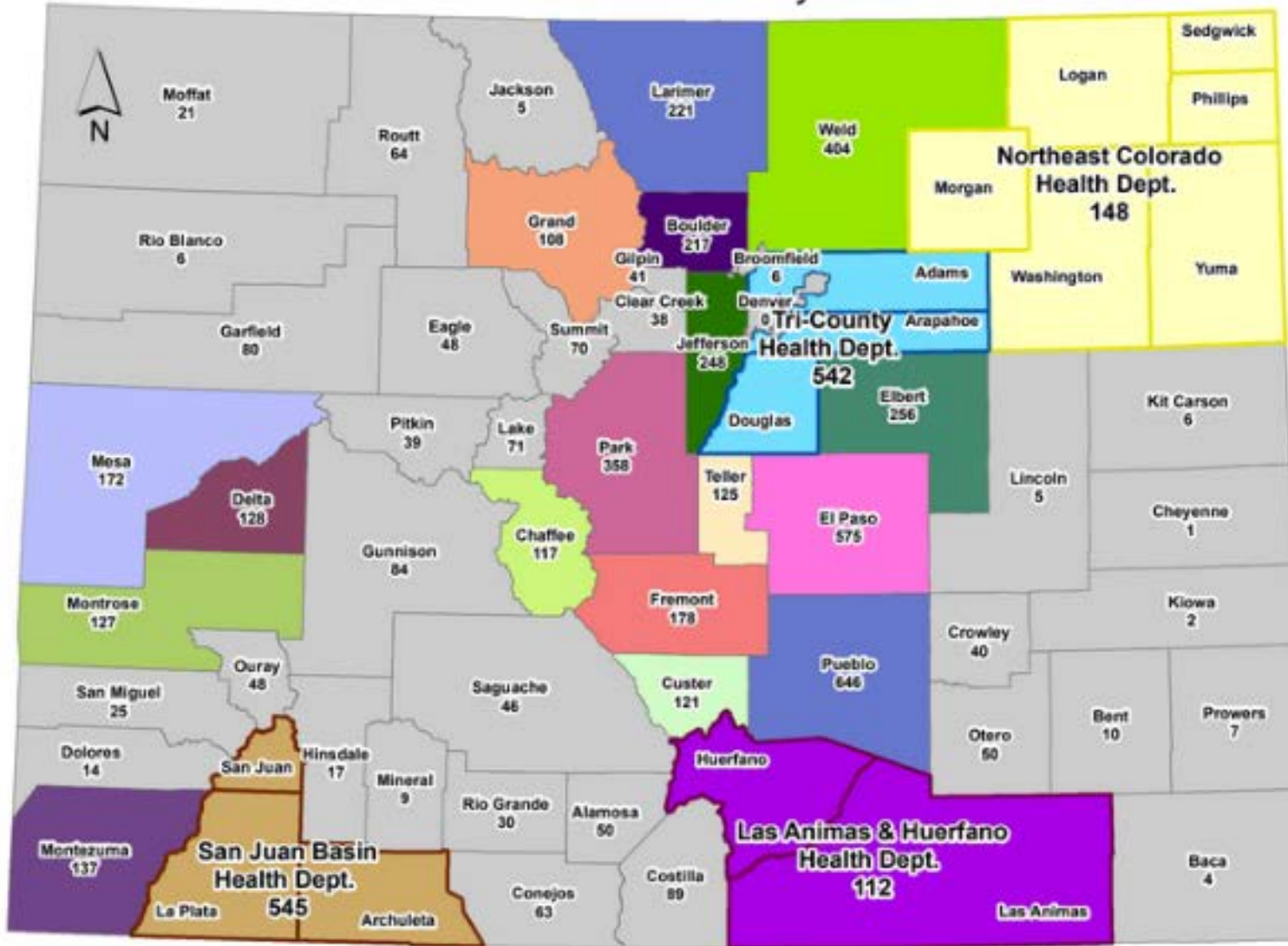
Trends

- Significant increase in repair and alteration permits
 - 300% increase in repair permits from 2018 to 2019
- Change in database in 2018 prevents exact comparison
- 2017: 4 licensed septic tank cleaning companies
 - 2021: 7 licensed companies



On-site Wastewater Treatment System Permits 2020

Trends



Counties with > 100 permits issued
2020 Rank



Source: OWTS Permit Surcharge Submittals
6574 permits reported; 4348 new / 2226 repair
7.7% increase over 2020



<https://cdphe.colorado.gov/OWTS>

Challenges and next steps

- Cost of installation and design
 - Proposing fee waiver program
 - Searching for financial assistance
- Cost of septic tank servicing
- Lack of groundwater data
 - Proposing three-county nitrate and *E. coli* study
 - Short hold time for nitrate/nitrite
- Multiple sources of pathogens in surface water
 - How to isolate effect of OWTS?



Discussion

- Any questions?
- Discussion from other states?
- Other next steps?