Waste Water

CENTENNIAL 1912-2012

NM C

NEW MEXICO

LAND OF ENCHANTMENT

Overview: Waste Water

Public sewer service is only provided to approximately 73% of the households in New Mexico. In these cases, most New Mexico metropolitan areas have replaced septic systems with advanced treatment methods. Sometimes, though, even in these areas there are some densely developed pockets with setback between wells and septic systems with old leach fields. This circumstance has allowed/caused ground-water and drinking-water pollution.

With approximately 90% of New Mexico's population depending on ground water for drinking and with the majority of rural areas having shallow groundwater for their sources this pollution can be a serious problem. The other approximately 27% of New Mexico households use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools) and 24,000 privies or other systems.

According to The New Mexico Water Quality Control Commission, "Household septic tanks, cesspools, and leaky transmission lines constitute the single largest source of shallow ground water contamination in the state."

In the desert, water is everything, so New Mexico must protect its valuable ground water resource from contamination. The infrastructure needs to be addressed to accomplish this; whether it is setbacks or leaky sewer transmission lines, or advanced waste water treatment systems.

New Mexico's streams and lakes are a great natural resource and everything depends on clean water in New Mexico for continued development, growth and health and safety.

Overview (cont'd)

A bright spot for New Mexico waste water is becoming a reality. Waste water effluent will help meet our future water demands by becoming a new source of water called reuse. Reuse projects in metropolitan areas are supplying the water for parks, golf courses and sports complexes.

Final clarifier at SWRP. WUA photo (no date).

Another example of reuse for New Mexico is grey water; it is essentially, any water, other than toilet wastes, draining from a household. Grey water can serve many purposes in an arid land: it reduces the amount of freshwater needed to supply a household, irrigates vegetation and gardens, and reduces the amount of waste water entering sewer or septic systems.

A recent data/ needs survey was taken by NM ASCE Drinking Water Committee (DWC) of the larger domestic water/ waste water generators and the collected data was used as a guide to grade the public water systems.

The DWC also consulted with the New Mexico Rural Water Users Association Board about the grades for the categories being used to obtain the final grades.

Capacity

The main source of water for the state's public sewer services is ground water. 92% of New Mexico's water systems use groundwater, and only 48% of the population served by GWS also consume surface water.

About 70% of New Mexico's Community Water systems (CWS) serve populations under 500; however, those same small systems provide water to only four percent of the total population served by CSW.

New sources of capacity are being explored for New Mexico with non-replaceable brackish water being one of them and another being reuse effluent and grey water for another. But the common element in all of this is that they are expensive compared to the existing costs of service to the consumers.

There will need to be a marked increase in infrastructure investment to obtain this added capacity. New Mexico has liquid waste water systems in place/ being built that will handle the amount of waste the population is putting out; it is the future that is in question. Therefore New Mexico receives a C+ for waste water capacity.

Primary clarifier (solids at SWRP settling). WUA photo (no date).

Condition

As previously mentioned in the Drinking Water section, New Mexico is a very rural state and has many small systems. It ranks 5th in the nation for a population living below the poverty level and has waste water systems that are more than 80 years old. It is the 5th largest state in area in the nation, but ranks 37th in population and 47th in population density.

As a result, New Mexico has a wide diversity of waste water systems, sizes, and a large number of small systems.

About 27% of New Mexico residents use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools), with 2,400 using advanced waste water treatment systems, and 24,000 using privies or other systems. The system conditions vary as much as there are differing systems.

Most rehabilitation is done when a system fails or there are outside regulations/ enforcement agency requirements to do so. The systems have been serving their communities very well over the years with marginal to safe waste water treatment but routine maintenance and rehabilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations. Therefore New Mexico's waste water systems receive a C for current condition.

Sludge drying bed at SWRP.
WUA photo (no date).

Funding

Because of the many infrastructure needs of New Mexico water systems and the persistent management problems and needs of some of the smaller systems in New Mexico, there is a considerable short fall in available revenues/funds.

The Capital outlay portion (free) from the State legislature was last made available in 2009. EPA, WTB and CDBG matching funds money is available on a limited basis for loans or matching grants.

To help obtain the means to get available funding for the smaller systems in New Mexico, there is a multi-agency effort to support the appropriate regionalization of PWSs in this state. The NMDWB staff, working in coordination with Rural Community Assistance Corporation, New Mexico Rural Water Association, regional Councils of Government and other organizations, is assisting regionalization groups with the myriad of tasks required to successfully regionalize.

New Mexico has $160 million in waste water infrastructure needs, not including the Albuquerque Bernalillo County Water Utility Authority area waste water plant rebuild, where costs will exceed $150 million.

Anaerobic digesters at the SWRP. WUA photo (no date).

Funding (cont'd)

Potential funding sources for New Mexico systems include:

- NMFA - PPRF, Planning Fund, DWRL, WTB, Colonias (Drinking Water Revolving Loan) (Water Treatment Board)
- NMED - CWSRF (Community Water System Revolving Fund), RIP
- USDA - Rural Development Loans/Grants <10k
- DFA - CDBG (Main Street Stimulus Grant)
- IDA - TIF (Tribal Infrastructure Fund)

The EPA and the State expect projects to promote sustainability. All applications will be reviewed for minimum criteria to determine their level of compliance with sustainability goals. A possible new source of funding to increase investment in water infrastructure has been outlined by the Water Environment Federation. It is called the Water Infrastructure Finance and Innovation Act (WIFIA). Even though there are several funding sources available for New Mexico sewer/water systems, coming up with matching funds or paying for loans will be a hard choice for systems with large rehabilitation needs. The shortfalls in revenue and available "free" funding result in a grade of D+ for Funding for New Mexico.

Old reuse tank at SWRP.
WUA photo (no date).

Operation and Maintenance

The operators of CWS in small rural areas are typically overwhelmed by the conditions and responsibilities of operating and maintaining a waste water system as new rules and regulations come in. And the operators of larger water/ waste water systems are short on revenues/ funds to adequately rehabilitate the system they have to operate at desired levels.

Due to the requirements of new environmental rules and regulations and to apply and use most funding sources, there will be a major increase in the number of hours required to manage and operate a waste water system. This increase will be seen most significantly in the need for more detailed and accurate record keeping and in the hours needed to operate a waste water system in compliance with the SDWA.

Also a problem for smaller systems is getting qualified operating and construction assistance. So the NMDWB and other assistance providers such as the New Mexico Rural Water Association, the Rural Community Assistance Corporation and regional Councils of Government are coordinating to ensure that (minimal cost) assistance for educating and training is directed where needed and is available.

Also a Contract form for use by PWS when contracting certified operators has been standardized by NMDWB. The contract helps protect a PWS when contracting for operator/maintenance services. It provides waste water systems guidance on many important aspects of contracting with an operator/contractor.

These aspects include: what type of tasks the operator is expected to complete; how the operator will be paid; how to terminate the contract; and if the operator will be required to obtain liability insurance, what is the contract duration and liability of the contractor.

Public Safety

Security is an essential function of all waste water systems. It is not only about protecting a waste water system from contamination, spills, vandalism and terrorism, but also preparation for other threats such as accidents, natural disasters, and fires.

For example, New Mexico may not get much precipitation, but even small amounts of rain can cause floods that damage a waste water system. Also, the desert winds/storms can produce powerful tornadoes.

The New Mexico Drinking Water Bureau (DWB) is participating in the New Mexico Water and Waste Water Alert Response Network (NM WARN) which is an intrastate mutual aid network. It facilitates assistance by other water systems to those water systems in need. The DWB is sending minutes of all meetings out to all community water systems (CWS) serving more than 3300 people (and other interested parties).

It is hoped that the NM WARN will keep larger water systems in an information loop and encourage all water systems to participate in the NM WARN. Please click on the WARN link above to view the WARN agreement.

DWB has created a Security Team to enhance waste water system security and emergency response through training and assistance throughout New Mexico. The Security Team has a trained water security staff member in each DWB District.

Public Safety (cont'd)

Some system problems and failures have included:

- Outbreaks of waterborne disease in New Mexico have been traced to drinking water supplies contaminated by sewage and to people swimming in surface water contaminated by sewage.

- Ground water nitrate pollution has caused the "blue baby syndrome" in New Mexico.

- Ground water manganese levels in some anoxic ground waters in New Mexico are up to ten times greater than the level considered to be protective against neurological disease.

The concerns attendant to the condition of the waste water infrastructure for New Mexico have mainly to do with its age and the issues and costs that stem from that age. Most basic systems in New Mexico are 50 – 70 years old (some are even older). Though many of these systems serve limited populations, and are therefore not generally targets for terrorism or sabotage, a waste water problem/ overflow or outage, when it occurs, will manifest quickly, and the ensuing damage even though contained can be extensive. In such cases, the local communities and small municipalities have few ways to replace/rebuild their systems and can only repair and maintain them with their minimal revenue funds.

Additionally, they may need to bypass to holding lagoons longer than is normal. There will be odor complaints and other out extra-ordinary obstacles to handle.

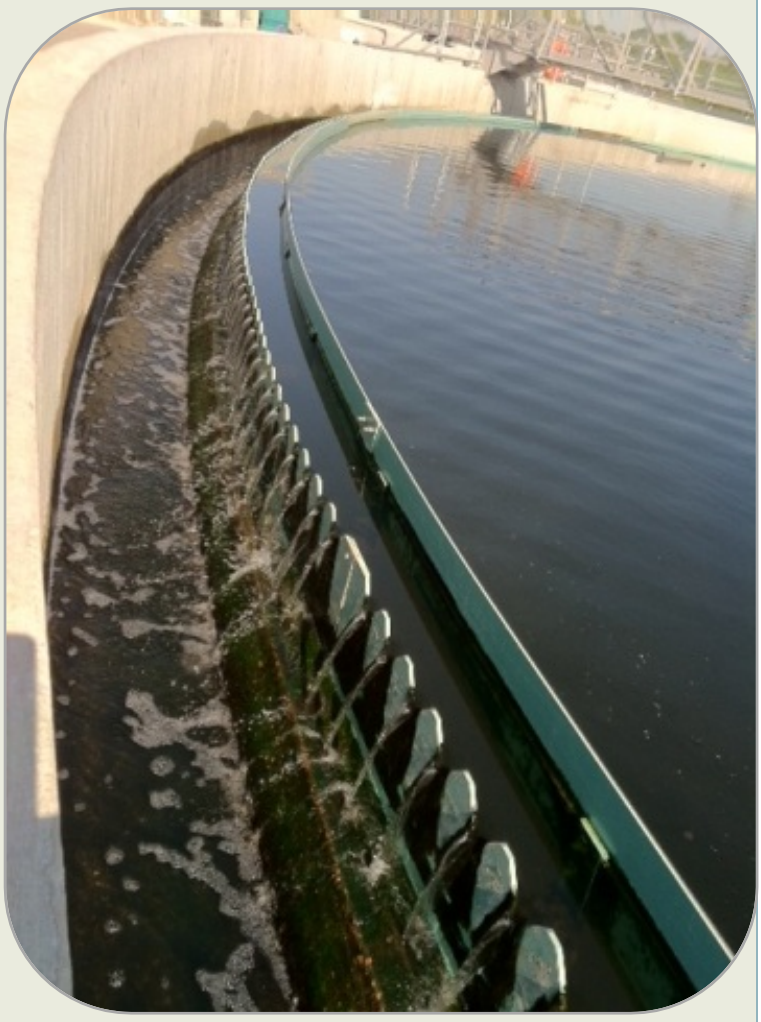
Larger waste water systems have emergency response plans and contractors to assist with system problems. They also have trained people, company rules, IT systems, and experience to handle spills and safety situations. Not so in the rural communities. But again, it is the rebuilding of treatment plants and collection systems that will be the greatest challenge.

Public Safety (cont'd)

The NMDWB and other assistance providers such as the New Mexico Rural Water Association, the Rural Community Assistance Corporation and regional Councils of Government are coordinating to ensure assistance for educating and training, and to ensure that assistance is directed where it is needed and is appropriate to any new regulations for public safety.

Also the WISE (Water Infrastructure Security Enhancements) training and videos are available to any water and waste water system.

With these measures in mind, and with the systems receiving assistance from state agencies for security measures, public safety receives a grade of C.



Weir on clarifier at SWRP. Photo by WUA (no date).

Resilience

The Resilience of a waste water system is based on the system's ability to clean effluent to State standards for reintroduction back to streams and ecosystems and protect its customers/ State residents on a continuing and sustainable basis.

Large water system operators reported an ability to repair or bypass system breakdowns within 12 hours or less. In addition under the State's DWSRLF program the Sustainable Water Infrastructure Management portal (SWIM), formerly referred to as the Uniform Funding Application, PWS when making funding applications are required to conduct capacity assessments.

The purpose of SWIM is to ensure projects are fully funded and meet minimum capacity requirements. Project interest forms submitted through the SWIM for water projects are forwarded to the NMDWB to perform a Capacity Assessment if the PWS did not have a recent assessment.

In addition to conducting the capacity assessments, NMDWB staff collaborates with the NMED Construction Programs Bureau to assist the PWS in identifying and determining qualifications for funding of infrastructure projects.

Most major public waste water systems in New Mexico in the past have constructed robust collection, primary and tertiary treatment systems and have adequate capacity for the near-term. The small water communities have reliable and safe systems but are on the edge when it comes to the ability to reliably operate and maintain their systems, and the individual septic and cesspools users are compliant.

New Mexico Waste Water Systems are given a C+ when it comes to Resilience.

WASTE WATER:

Additional Information Operations & Maintenance

Historically, the cost of waste water treatment in New Mexico has been low in many locations, because treating waste water was not a priority. So, those costs added to any new water conservation measures such as reuse and grey water has made the need for rehabilitating treatment systems slow to be realized. This has led to there being little opportunity or perceived need for new plants, improved system operations or even rehabilitating plants that already exist. Therefore, for waste water a grade of C for Operations and Maintenance is appropriate.

Summary NM Waste Water 2012:

C

Category	Grade
Capacity	C+
Condition	C
Funding	D+
Operation and Maintenance	C
Public Safety	C
Resilience	C+

Waste Water Final Grade = C (74.7)