

# CHAPTER 16: STATE AND FEDERAL REGULATIONS

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## ORIGIN OF ENVIRONMENTAL, SAFETY AND HEALTH REGULATIONS

In the past, state and federal governments did not regulate the disposal of domestic and industrial wastewaters. This situation led to disposal practices that left much to be desired. Municipal wastewater was simply dumped into rivers and lakes and industrial wastes were buried, discharged to surface waters and even pumped underground. Because of the sparse population of our state and the fact that most of our rivers are fast flowing, the pollution problems of the past were not always as obvious as in heavily populated states with slow moving rivers and estuaries. Whether obvious or not, environmental pollution problems are the result of allowing un-restricted practices. The laws that have been enacted by the state and federal governments for the purposes of environmental protection represent the recognition by the society at large that it is in our best interest to protect the quality of our air, soil and water.

Along these same lines, laws have been developed to protect workers from unsafe conditions on the job. In the United States in the past, (and in other countries today), there were no safety protections for workers. This often left employees in the position of working in unsafe conditions or finding another job. Now laws are in place to protect employees from hazards associated with their work. These protections are particularly important to wastewater treatment plant operators and wastewater collection system operators because of the danger inherent in these professions.

What follows is an overview of the environmental, safety and health regulations that pertain to the wastewater treatment field. This overview is not intended for regulatory decision-making. For the purposes of meeting regulatory requirements, refer to the actual statute.

## FEDERAL CLEAN WATER ACT

The Clean Water Act (CWA) is the legislative basis for federal water pollution control regulations. Originally passed in 1972 as the Federal Water Pollution Control Act, the primary stated goal of the CWA is to “restore and maintain the chemical, physical and biological integrity of the nation’s waters”. One aim of the CWA was to make all of the nation’s waters “fishable and swimmable” by 1983. Much progress has been made toward the goals, but much more work needs to be done.

The primary elements of the CWA include:

- A system of minimum national effluent standards based upon available treatment technology;

- A system of water quality standards;
- A discharge permit program, known as the National Pollutant Discharge Elimination System (NPDES), which provides enforceable limitations on dischargers;
- A set of provisions for special problems such as toxic chemicals and oil discharges; and
- A construction grant/loan program for Publicly Owned Treatment Works (POTWs).

Wastewater treatment systems that discharge into surface waters of the United States are required by the CWA to have a NPDES permit. NPDES permits require a minimum level of treatment (based upon secondary treatment processes). Other limitations may be imposed if it is deemed necessary to protect the water quality of the receiving waters. Most states have enacted laws that give the state the authority to issue NPDES permits. This is known as “primacy”. However, in New Mexico NPDES permits are issued by the Environmental Protection Agency (EPA) region VI out of Dallas TX because NM has never enacted the legislation that is necessary for the state to seek primacy. NPDES permits are typically issued for a period of five (5) years. Application for renewal is the responsibility of the permit holder.

The limitations set forth in individual NPDES permits can vary, although the vast majority issued to dischargers in NM follow the standard limitations outlined in Table 16.1. In addition to the limitations outlined in Table 16.1, limitations are placed on the **loading** of BOD and TSS that can be released into the receiving stream (measured in lbs./day).

The NPDES permitting program provides for “self monitoring”. This means that the permit holder can perform the laboratory tests used to prove permit compliance in their own laboratory provided the tests are done in accordance with specific methods. Most medium to large treatment plants in New Mexico with NPDES permits perform self monitoring, while the smaller plants use contract laboratory services to analyze some or all of their effluent samples. The results of effluent monitoring samples are reported to the NMED-Surface Water Quality Bureau (NMED-SWQB) and EPA in Dallas on a quarterly basis on a form known as a discharge monitoring report (DMR).

NPDES permits also provide for inspection of the treatment works and collection of compliance verification samples by the issuing agency. In New Mexico, the NMED Surface Water Quality Bureau (NMED-SWQB) contracts with EPA

Parameter	30-Day Average	7-Day Average	Maximum	Minimum
Flow	Report	NA	Report	NA
BOD, mg/L	<30	<45	NA	NA
TSS, mg/L	<30	<45	NA	NA
Fecal Coliform, organisms/100ml	<500	NA	NA	NA
pH	NA	NA	9.0	6.0
Total Residual Chlorine, mg/L	NA	NA	<0.099 or "non-detectable"	NA

**Table 16.1 - Standard NPDES Limitations**

to perform compliance inspections and EPA performs some compliance inspections of it's own. The types of permit violations that can be identified during a inspection include: failure to practice proper sampling, monitoring and reporting, failure to properly operate and maintain the treatment works, failure to properly perform laboratory analysis of reporting samples, allowing industrial wastes to be discharged into the collection system, and improper sludge disposal/re-use practices. Permit violations can result in fines and even criminal prosecution.

## **NEW MEXICO ENVIRONMENTAL PROTECTION LEGISLATION**

The state of New Mexico has enacted a variety of laws designed to protect our land, air and water. These environmental protection laws are promulgated in the New Mexico Administrative Code (NMAC), Title 20.

### **NMAC, TITLE 20, CHAPTER 6, PART 2**

The regulations for the protection of ground and surface waters are found under NMAC, Title 20, Chapter 6, Part 2. Because our state does not have primacy with regard to the CWA, surface water dischargers receive their permits from EPA. Systems that discharge to ground water, however, must be permitted by the NMED Ground Water Quality Bureau (NMED-GWQB) under the regulations set forth in NMAC 20.6.2. This requirement applies to systems that discharge >2000gpd only. The vast majority of dischargers in New Mexico discharge to ground water and therefore hold these types of permits, which are known as discharge plans (DPs).

Permits issued by the NMED-GWQB are somewhat different than NPDES permits. While NPDES permits always set specific effluent limitations, DPs may require effluent limits or may rely on ground water monitoring. Sometimes DPs are issued that allow for the discharge of effluent containing nitrate over the NM water quality standards if the discharge is applied to a crop at no more

than 125% of the agronomic uptake rate. (The intention of this type of DP is that the nitrogen is used by the crop and therefore does not contaminate the ground water). The depth and direction of ground water and the potential for public contact with the discharge greatly affect the requirements set forth in ground water DPs.

DPs are issued for five years and, like NPDES permits, the responsibility for renewal of the permit lies with the permit holder. Samples taken for monitoring purposes must be analyzed in accordance with methodologies specified in NMAC, Title 20. Large facilities typically analyze their own monitoring samples but virtually all small and medium sized dischargers utilize contract laboratories. Monitoring reports are generally required quarterly and must be filed with NMED-GWQB. If the DP allows nitrate discharges in excess of NM water quality standards for the purposes of crop irrigation, the total nitrogen application (in lbs./acre) must be reported on a Land Application Data Sheet (LADS). An example LADS is shown in Figure 16.1.

### **NMAC, TITLE 20, CHAPTER 6, PART 4**

The regulations that pertain to operator certification and facility classification are located in NMAC 20.6.4, (commonly called the certification regulations). This regulation makes it illegal for anyone to operate a wastewater treatment facility in NM without the proper license. The licensing requirements for facilities are determined from a table that specifies the population served and the technology employed. Operator licenses are granted to individuals after three requirements have been met; (1) a designated number of years experience operating wastewater facilities must be demonstrated (one year minimum), (2) education requirements must be met for each level sought (minimum of 10 training credits), (3) a written examination at the appropriate level must be passed with a score of at least 70%.

The Facility Operation Section (FOS) of the NMED-SWQB administers the utility operator certification program. The FOS is responsible for exam application review and



DP#: \_\_\_\_\_ FACILITY NAME: \_\_\_\_\_

FIELD: \_\_\_\_\_ ACRES: \_\_\_\_\_ REPORT PERIOD - FROM: \_\_\_\_\_ TO: \_\_\_\_\_

CROP 1: \_\_\_\_\_ YIELD: \_\_\_\_\_

CROP 2: \_\_\_\_\_ YIELD: \_\_\_\_\_ TOTAL NITROGEN UPTAKE OF CROP(S): \_\_\_\_\_ lbs/ac

CROP 3: \_\_\_\_\_ YIELD: \_\_\_\_\_

**Effluent**

DATE/MONTH OF APPLICATION	CROP IN AT TIME OF APPLICATION	A VOLUME OF EFFLUENT APPLIED <sup>1</sup> gal	B LAB RESULTS <sup>2</sup> (TKN + NO <sub>3</sub> -N) mg/l	C NITROGEN CONCENTRATION (B x 8.3452 x 10 <sup>-6</sup> ) lbs/gal	D TOTAL NITROGEN (A x C) lbs N	E NITROGEN (D/acre) lbs N/acre	APPLICATION METHOD Flood, Sprinkler, etc.
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Total Nitrogen Applied from Effluent (lbs/ac)							

**Figure 16.1 - Land Application Data Sheet ( LADS)**

approval, exam development and administration, certification reciprocity with other states as well as enforcement of the certification regulations. The FOS also provides training at various events throughout the state and through contracts with training providers.

**STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE**

Federal regulations for the use or disposal of sewage sludge were promulgated in 1993 under 40 CFR Part 503. These regulations replaced the original sludge regulations found under 40 CFR Part 257. The 503 sludge regulations were developed with considerable input from the public and the wastewater treatment industry. 503 applies to virtually any primary and secondary sludge and scum produced as a result of wastewater treatment and even covers some disposal practices for domestic septage. The regulation specifies two types of activity; (1) beneficial use and (2) disposal. The beneficial use practices regulated by 503 include:

- Land Application, either in bulk or in bags to public contact sites.
- Land Application, in bulk to non-public contact sites.

The disposal practices regulated by 503 include:

- Surface Disposal
- Incineration

Placing sludge in a municipal landfill is an acceptable disposal practice, however, it is covered under NM Solid Water Bureau regulations, not 40 CFR 503.

Each of the beneficial use and disposal practices allowed by 503 sets requirements for:

- Reduction of pathogens
- Reduction of the vector attraction of the sludge
- Pollutant limits for heavy metals and PCBs
- Restrictions for land application and surface disposal sites, and
- Management practices for land application and surface disposal activities.

503 also sets a limit on how long sludge can be stored at a wastewater treatment plant before it must be beneficially re-used or disposed. If sludge remains in storage for more than two (2) years, the site is considered a surface disposal site and all applicable aspects of the 503 regulations must be met, unless the owner/operator can demonstrate the storage constitutes treatment based on operational practices.

## **OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS**

The Occupational Safety and Health Administration (OSHA) is a federal governmental agency under the U.S. Department of Labor. Its purpose is to enforce the laws concerning worker and work place safety.

New Mexico has an approved state OSHA program that works in conjunction with the federal OSHA program. Enforcement is done by the state. OSHA administers laws that cover the entire spectrum of worker health and safety. Wastewater operators should be concerned with the following areas that are regulated by OSHA (at minimum):

- Personal protective equipment (steel toe boots, gloves, face shield, goggles)
- Confined space entry
- Equipment lock-out/ tag-out
- Hazard communication standard (material safety data sheets (MSDS))
- Excavation Safety
- Blood-borne pathogen standard

Most OSHA laws require that employers establish workplace procedures to protect workers in the manner described by the law. For instance, the hazard communication standard requires that employers provide employees information concerning hazardous chemicals used in the workplace in the form of Material Data Safety Sheets (MSDS).

### ***References***

Federal Clean Water Act  
NMAC, Title 20, Chapter 6, Part 2  
NMAC, Title 20, Chapter 6, Part 4  
40 Code of Federal Regulations, Part 503  
OSHA Confined Space Entry Standard  
OSHA Lock Out/ Tag Out Standard  
OSHA Hazard Communications Standard  
OSHA Personal Protective Equipment Standard  
OSHA Blood-borne Pathogen Standard