CHAPTER 2: OVERVIEW OF DIVISION OF WATER QUALITY'S WATER QUALITY PROGRAMS

2.1 INTRODUCTION

The Utah Division of Utah (DWQ) is responsible for a variety of programs that monitor, assess, and protect the surface and ground waters of the state. DWQ has seven sections to address point sources, nonpoint sources, waste water plant construction, ground water protection, and monitoring. These sections and their attendant responsibilities form the State's water pollution control programs, which are summarized in this chapter.

2.2 WATER POLLUTION CONTROL PROGRAMS

2.2.1 Watershed Approach - 305(b) Program

Monitoring for the assessment of rivers and streams in the 2010 Integrate Report was based on a 5-year rotating basin approach assess the rivers and streams. The rotating basin approach is derived from 5 aggregates of 10 larger watershed management watersheds and allows efficient intensive monitoring can be conducted in statewide every five years. In addition, DWQ has cooperative monitoring programs with the United States Forest Service, United State Bureau of Land Management, National Park Service, and the local governmental agencies to help augment monitoring conducted by DWQ. These monitoring needs are subsequently compiled into a yearly water quality monitoring to efficiently allocate monitoring resources throughout the year. This monitoring plan identifies each of the sites that are to be monitored and what parameters are to be obtained in the field and analyzed for in the laboratory.

2.2.2 Clean Lakes Program - 314 Program

Assessments of lakes for the 2010 Integrated Report was based on a monitoring approach where DWQ conducted biennial monitoring of all priority lakes and reservoirs. Approximately, half of the lakes are monitored during the odd and even number years. However, if additional data are required to develop a Total Maximum Daily Load (TMDL) analysis for a lake or reservoir, the monitoring frequency and additional sites are incorporated into the monitoring scheme to obtain more data.

2.2.3. Nonpoint Source Program Overview -319 Program

The mission of the Utah Nonpoint Source Pollution Management Program is to support the environmental protection goals of the state as described in the Utah Administrative Code R317-2 in part to: 1) to conserve the waters of the state, 2) to protect, maintain, and improve the quality of the waters of the state for public water supplies, species protection and propagation and for other designated uses; and 3) to provide for the prevention, abatement and control of new or existing sources of polluted runoff. The Utah NPS Management Program works to achieve these goals by working in concert with numerous local, state and federal agencies and private parties to perform the objectives and tasks identified in the NPS Pollution Management Plan.

Nonpoint source pollution generally originates from sources rather than from a discrete point such as a pipe. Sources include land runoff, percolation, precipitation or atmospheric deposition. Rain and other forms of precipitation wash pollutants from the air and land and into our streams, lakes, reservoirs and groundwater. Such pollutants can include sediment, nutrients, pathogens (bacteria and viruses), toxic chemicals, pesticides, oil,

grease, salt and heavy metals. In Utah our most common problems are sediment, nutrients, metals, salts and pathogens. These pollutants alter the chemical, physical and biological quality of the water and can impair their designated uses.

Some common sources of NPS pollution include various agricultural activities, natural sources, runoff from parking lots and streets and residential areas, mining and forestry operations, recreational activities, underground wastewater treatment systems, construction and stream/riparian habitat degradation and other forms of hydrologic modification.

The Utah Department of Environmental Quality and Utah Department of Agriculture & Food are working together in a partnership with commodity groups and farm organizations in the development of an Air Quality Strategy similar to the AFO/CAFO strategy developed for water quality. DEQ has signed an MOU with EPA which establishes a collaborative working relationship to develop and implement the Utah Animal Feeding Operation Air Quality Strategy. The purposes of the strategy are to gather air emissions information from AFOs and implement programs to reduce emissions.

The NPS staff and Task Force partnership will continue to support TMDL development and implementation through the watershed approach in dealing with the NPS challenges in Utah. This program will continue to utilize the local delivery system of the Utah Conservation Districts and other entities such as counties, water conservancy districts to assist with planning and implementation of best management practices to meet Total Maximum Daily Loads contained in their respective TMDL Plans and watershed-based implementation plans. This is being carried out through the establishment of more local watershed coordinators in priority watersheds where TMDLs have been approved by EPA and are being implemented.

2.2.4 Water Quality Standards Program

In 2007, the triennial review was initiated. The process included the creation of a Water Quality Standards Work Group composed of interested agencies and the public to provide input to the Division. The areas of major concern were total dissolved solids (TDS), *E. coli*, redefinition of the recreational use classifications, antidegradation, and the triennial review process in rule. The next triennial review is 2011.

2.2.5 Point Source Control Program

Point source discharges, both municipal and industrial, are regulated through the Utah Pollutant Discharge Elimination System Program (UPDES). Regulatory authority was delegated to the State in July of 1987, and includes permit, compliance, and enforcement authority. In addition to municipal and industrial discharge regulation, program authority was granted for general permits, federal facilities and industrial pretreatment programs. Program authority to issue biosolids (sludge) permits was delegated to Utah in 1996.

Permits are issued for up to five years and reflect both technology-based controls, and where appropriate, water quality based controls using wasteload analyses, current water quality standards and final TMDL results. Water quality parameters for which effluent limitations have been developed to protect the waters of the State include ammonia, total dissolved solids; DO, total residual chlorine, BOD, temperature, various nutrients and toxics.

Upon issuance of a discharge permit, the monitoring phase of the State's UPDES program is initiated to ensure that all conditions of a permit are being met. This includes compliance monitoring. Compliance monitoring requires self-monitoring by the permittee as well as State monitoring to determine if effluent violations are occurring. Self-monitoring results are reported to the State and to EPA in a Discharge Monitoring Report (DMR) that is sent to the State and EPA as required by the permit. Additionally, all UPDES facilities are inspected on a regular basis to determine if they are meeting the conditions of their permit and are being operated in the prescribed manner necessary to ensure that effluents do not cause violation of State water quality standards for receiving water.

The permittee may also be required to implement biomonitoring as part of their discharge permit. Specific rules and guidelines are published in the Division of Water Quality's Enforcement Guidance Document for Whole Effluent Toxicity Control Manual (Utah DWQ, 1991). In general the following standards in conjunction with the volume of the discharge are used in determining whether biomonitoring is required or not: (1) there is a reasonable potential to discharge toxics, and/or (2) the receiving water has a low flow dilution greater than 20; 1, and/or (3) the discharge is intermittent, and/or (4) the receiving water has a use-classification of 3A, 3B, 3C, 3E, or 4.

All permits, new or renewal of a permit must go through waste load allocation analysis and review before they are issued. Based upon the results of the waste load allocation analysis, stricter effluent limitations may be placed on the permittee to ensure that state water quality standards are not violated.

The Utah Pollutant Discharge Elimination System (UPDES) Storm Water Permitting Program requires individual permits or general permits for storm water discharges from: 1. Construction activities; 2. Industrial sites and; 3. Municipal separate storm sewer systems, which meet certain criteria. Each of these programs is implemented somewhat differently as follows:

Control of Storm Water Pollution Associated with Construction Activities

Storm water runoff from construction activities can have a significant impact on water quality. Construction activities can remove vegetation, disturb and compact soils, and largely replace absorbent soils with impermeable roofs, pavements, or shallow sods.

As storm water flows over a construction site, it can pickup sediment, debris, chemicals thermal and other pollutants. Polluted storm water runoff can harm or kill fish and other wildlife, and can increase costs to use the water for municipal, irrigation, or other beneficial uses. Sedimentation from construction activities can destroy aquatic habitat, degrade stream aesthetics, and high intensity runoff can significantly increase stream bank erosion.

The UPDES Storm water program requires operators of construction sites of one acre or larger (including smaller sites that are part of a larger common plan of development) to obtain a permit coverage under the UPDES General Storm Water Permit for Construction Activities. To obtain the required UPDES permit, the operator of construction sites, or of parcels within a larger common plan, must first develop a stormwater pollution prevention plan (SWPPP) and submit a "notice of intent (NOI)" to the Division of Water Quality to obtain the permit coverage. The NOI has been automated and is available for electronic submission on the Internet.

The development and implementation of storm water pollution prevention plans (SWPPP's) is the focus of UPDES storm water permits for regulated construction activities. DWQ, municipalities, and counties evaluate SWPPP's and their implementation through onsite inspections.

Control of Storm Water Pollution Associated with Industrial Activities

Activities that take place at industrial facilities, such as material handling and storage, are often exposed to the weather. As runoff from rain or snowmelt comes into contact with these materials, it picks up pollutants and transports them to nearby storm sewer systems, rivers, lakes, or coastal waters.

In order to minimize the impact of stormwater discharges from industrial facilities, the UPDES program includes an industrial stormwater permitting component. Operators of industrial facilities included in one of the 11 categories of stormwater discharges associated with industrial activity that discharge or have the potential to discharge stormwater to a municipal separate storm sewer system (MS4) or directly to waters of the State require authorization under a the UPDES Storm Water Multi-Sector General Permit, DWQ also includes storm water requirements at many of the facilities with an individual UPDES permit for wastewater discharge. (Construction activity is one of the 11 categories, but because of the nature of its operations, it's discussed separately from the other 10 categories, and is permitted separately.)

The focus is again on the implementation of an SWPPP for the facility. DWQ reviews SWPPP's at the industrial facility.

Municipal Separate Storm Sewer Systems

Under the UPDES storm water program, operators of Medium and regulated small municipal separate storm sewer systems (MS4s) (There are no Large MS4's in Utah) require authorization to discharge pollutants under a UPDES permit.

Medium MS4 operators include Salt Lake County, Salt Lake City and UDOT. They were required to submit comprehensive permit applications and were issued individual permits.

Regulated small MS4 operators have the option of choosing to be covered by an individual permit, a general permit, or a modification of an existing Phase I MS4's individual permit. In the case of the municipalities within Salt Lake County, they chose to be co-permitted with the county. Small MS4's outside of the county chose to obtain general permit coverages.

The MS4 permits require the development and implementation of a Storm Water Management Program (SWMP). These programs must be implemented to address the six minimum controls measures in the permit. The six control measures are as follows:

1. Public Education
2. Public Outreach
3. Illicit Discharge Detection and Elimination
4. Post Construction and Redevelopment Controls
5. Good Housekeeping for Municipal Operations

The MS4 SWMP's are reviewed by DWQ through audits.

2.2.6 Total Maximum Daily Load (TMDL) Program

The State of Utah's Total Maximum Daily Load (TMDL) and Watershed Planning Program is focused on restoring the beneficial uses of all of the State's impaired Assessment Units. It is responsible for developing TMDLs for assessment units that are listed on the state's 303(d) list of impaired waters. Through the TMDLs process, the sources of the pollutants of concern are identified and the allowable loads are allocated amongst the various point, non-point, and natural sources. DWQ then develops implementation plans to reduce pollutant loadings and improve water quality.

A key element in restoring the beneficial uses in a watershed is soliciting the involvement and leadership of local stewards through the formation and support of watershed stakeholder groups. TMDL Coordinators are assigned primary coordination responsibilities for one or more of the ten watershed management units within the State. At the initiation of a TMDL water quality study local stakeholders, representatives from the regulated community and relevant partner agencies are invited to participate throughout the entire process, from preliminary data review to implementation plan development. Once the TMDL/Watershed plan is complete the TMDL Coordinators are responsible for ensuring that appropriate limits are incorporated into discharge permits and to assist in obtaining funding to address non-point sources of pollutants. During the implementation phase the TMDL Coordinators are also responsible for tracking and reporting progress towards achieving water quality goals.

There are currently over 30 local watershed groups throughout the State of Utah in various phases of plan development or implementation. These groups are supported by the Utah Watershed Coordinating Council, initiated by the Division of Water Quality to disseminate information, training opportunities and guidance on successful watershed planning and implementation efforts. The Support Team for the Watershed Council is made up of agency representatives from the Utah Association of Conservation Districts, Utah State University Extension Service, Utah Department of Agriculture and Food, and the Natural Resources Conservation Service. In addition, through the support of EPA Section 319 funds nine local watershed coordinators have been hired by local watershed groups to help facilitate the planning and implementation of best management practices in their high priority watershed.

2.2.7 Ground Water Protection Program

Utah's Water Quality Board has been dedicated to providing a sound ground water anti-degradation policy for the State of Utah. As a result of this commitment, Administrative Rules for Ground Water Quality Protection (UAC R317-6) were promulgated in 1989 for the protection of Utah's ground water resources. These rules form the basis for a formal program to protect the present and probable future beneficial uses of ground water throughout the state. The intent of the rules is to require a permit for a facility or activity that, during normal operations or activities of the facility, may have a discharge that will affect ground water quality. The Ground Water Protection Section within the Utah Division of Water Quality administers the ground water permitting program. The majority of permits issued are for activities and operations primarily associated with agriculture and mineral extraction. Since 1989, the Ground Water Quality Protection Rules (UAC R317-6) have been revised three times, primarily to update Federal Drinking Water Standards established by EPA, which serve as the basis for Utah's ground water quality standards and permit-specific protection levels. In February 2007, the Water Quality Board approved a rulemaking action to adopt a set of agricultural liner criteria tables into the Ground Water Quality Protection Rules (UAC R317-6). These liner criteria tables are the product of an agricultural stakeholder best available technology

(BAT) work group formed in response to stakeholder feedback regarding more stringent liner requirements for animal wastewater lagoons. The BAT work group was comprised of agricultural stakeholders from Farm Bureau Federation, Utah State University Cooperative Extension Service, Natural Resources Conservation Service, Division of Water Quality, Department of Agriculture and Food, Utah Dairyman Association, and several agricultural producers. The liner criteria tables determine what type of liner is appropriate for any site based on the site-specific risk and vulnerability of contamination to waters of the state, including ground water.

The Ground Water Protection Section conducts annual permit site inspections, reviews quarterly and semi-annual compliance monitoring reports, and if necessary, implements enforcement activities for permit non-compliances. Additionally, the Section was actively involved in the finalization of two multi-million dollar ground water contamination Consent Agreements and associated Natural Resource Damage Claims. DWQ conducts outreach to encourage local governments to institute ground water protection measures.

Ground water quality protection priorities include: the administration of a Statewide Ground Water Protection Program; the annual assessment of ground water quality statewide; the integration of ground water protection measures into local planning; development of new partnerships to protect ground water quality statewide; and the continued commitment in establishing consistent ground water protection measures.

The second primary program administered within the Ground Water Protection Section is the federally-mandated 1422 Underground Injection Control (UIC) Program. The Utah UIC Program regulates underground injection of Class I, III, IV, and V injection wells by prohibiting injection activity which would allow movement of fluid containing any contaminant into underground sources of drinking water (USDWs) if the presence of that contaminant may cause a violation of any primary drinking water regulation (40 CFR Part 141 and Utah Primary Drinking Water Standards R309-200-5), or which may adversely affect the health of persons. Underground Injection means the subsurface emplacement of fluids through a bored, drilled, or driven shaft or a dug hole whose depth is greater than the largest surface dimension, or an improved sinkhole or a subsurface fluid distribution system consisting of an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground (UAC R317-7-2 and 40CFR 144.3).

An Underground Source of Drinking Water or USDW means an aquifer or portion thereof which:

- Supplies any public water system; or
- Contains a sufficient quantity of ground water to supply a public water system; and
- Currently supplies drinking water for human consumption; or
- Contains fewer than 10,000 mg/l total dissolved solids (TDS); and
- Is not an exempted aquifer as designated according to the procedures in 40 CFR 144.7.

As land development continues to increase in Utah, the potential for ground water contamination also increases from storm water drainage wells and from UIC-regulated on-site domestic wastewater disposal systems in communities without sanitary sewer or storm water drainage systems, respectively. Utah is also experiencing an increased interest in and application for subsurface disposal of industrial wastewater brought on by the restrictions in surface discharge through implementation of TMDLs and the Colorado Salinity Forum as well as prohibitions to surface discharge by the US Forest Service. The Utah 1422 UIC Program coordinates with the Utah Source Water Protection Program administered by the Division of Drinking Water by prioritizing its inspection and permitting activity for UIC regulated facilities that lie within ground waster based source water protection zones.

2.2.8 Wetlands Assessment Program

The DWQ initiated its wetlands assessment program in 2004 with focus on whether the beneficial use, support for waterfowl and shorebirds and the aquatic life in their food chain, is being fully supported in Great Salt Lake wetlands. The Primary objective is to establish appropriate nutrient criteria for Farmington Bay wetlands. The wetlands program is also developing a rapid assessment method with the anticipation of providing a protocol to be used for 404 permits for use by the US Corps of Engineers and Utah Department of Transportation. This method is currently being developed in the Great Salt Lake basin but its utility will eventually be expanded to statewide use and for 305(b) assessments.