Groundwater Quality Protection in Oregon

January 2009
This report has been prepared by the Department of Environmental Quality in accordance with the requirements of the Groundwater Quality Protection Act of 1989:

**Oregon Revised Statute 468B.162(3):**

*In addition to its duties under subsection (1) of this section, the department shall, on or before January 1 of each odd-numbered year, prepare a report to the Legislative Assembly. The report shall include the status of ground water in Oregon, efforts made in the immediately preceding year to protect, conserve and restore Oregon’s ground water resources and grants awarded under ORS 468B.169.*
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Executive Summary

Groundwater makes up approximately 95% of available freshwater resources in Oregon. Approximately 70% of all Oregon residents rely solely or in part on groundwater for drinking water. Over 90% of rural Oregonians rely on groundwater for drinking water. The goals of the Oregon Groundwater Quality Protection Act of 1989 (ORS 468B.150 – 468B.190) are to prevent contamination of groundwater resources, conserve and restore groundwater, and maintain the high quality of Oregon’s groundwater resource for present and future uses. The Act established a policy that all state agencies’ rules and programs are to be consistent with this goal of protecting drinking water resources and public health.

Groundwater is present beneath almost every land surface and is sometimes at very shallow depths. It is vulnerable to contamination from activities that take place on the land as well as from discharges of wastes and pollutants at or below the ground surface. Once groundwater becomes contaminated it is very difficult to clean up. Because groundwater moves very slowly, the contamination may persist for tens, hundreds, or even thousands of years. Likewise, groundwater that is currently being contaminated may not affect beneficial uses until some time far into the future. This contamination may impair groundwater for use as drinking water and may affect the quality of the surface waters where it comes to the surface.

DEQ has primary responsibility for implementing groundwater protection in Oregon. DEQ uses a combination of programs to help prevent groundwater contamination from point and non-point sources of pollution, clean up pollution sources, and monitor and assess groundwater and drinking water quality. DEQ implements some programs through partnerships with the Oregon Department of Human Services- Environmental Public Health (DHS), Oregon Water Resources Department, Oregon Department of Agriculture (ODA), Oregon State University, and other state, local, and private organizations, businesses, and individuals.
Introduction

The Oregon Groundwater Quality Protection Act of 1989 (ORS 468B.150-190) sets a broad goal for the State of Oregon – to prevent contamination of the groundwater resource, to conserve and restore this resource, and to maintain the high quality of Oregon’s groundwater resource for present and future uses. The Act established a policy that all state agencies’ rules and programs are to be consistent with this goal of protecting drinking water resources and public health.

The Department of Environmental Quality (DEQ) has primary responsibility for implementing groundwater protection in Oregon. However, because of dwindling budget resources and other water quality priorities, DEQ’s groundwater quality protection efforts have decreased significantly in the last decade and have become increasingly fragmented among multiple programs administered out of multiple offices. In the early 1990’s, DEQ had 12 staff dedicated to the Groundwater program; this was reduced to five in the early 2000’s. DEQ does not have the resources to provide a coordinated groundwater quality protection program or to provide ongoing groundwater monitoring and assessment. With this level of staffing, DEQ’s groundwater program consists of technical assistance, minimal statewide coordination, and implementation of groundwater monitoring and restoration activities in three Groundwater Management Areas (GWMAs).

Groundwater in Oregon has many valuable uses and functions:

- Groundwater makes up approximately 95% of available freshwater resources.
- Groundwater is the primary source of drinking water and its use is increasing.
  - Approximately 70% of all Oregon residents rely solely or in part on groundwater for drinking water.
  - Over 90% of rural Oregonians rely on groundwater for drinking water.
  - There are over 350,000 individual private domestic wells.
- Oregon's businesses require clean groundwater for industries such as food processing, dairies, manufacturing, and computer chip production.
- Groundwater provides irrigation water for Oregon agriculture and water for livestock.
- Groundwater supplies base flow for most of the state’s rivers, lakes, streams, and wetlands. In many streams, the inflow of cool groundwater may be essential to reduce stream temperatures to the range required by sensitive fish species.

As surface water resources are used to capacity, Oregonians are becoming more dependent on groundwater resources and they expect those resources to remain clean, available and useable. As the population of Oregon grows, the importance of the groundwater resource to meet the demands of that population will increase. Figure 1 shows the distribution of water wells in the state that tap groundwater resources for drinking water, irrigation, and industrial uses.

This report will present information on the:

- Groundwater assessment and monitoring activities in Oregon;
- Groundwater restoration activities in three GWMAs;
- Groundwater protection activities by DEQ and other agencies;
- Funding for groundwater quality projects in Oregon; and
- Future directions for groundwater quality protection.
Groundwater Assessment in Oregon

DEQ Groundwater Monitoring and Assessment Program

One of the requirements of Oregon’s Groundwater Quality Protection Act (ORS468B.190) is to conduct an ongoing statewide groundwater monitoring and assessment program to identify and characterize the quality of Oregon’s groundwater resources. DEQ does not have the resources to continue to conduct a statewide groundwater assessment and monitoring program. Consequently, DEQ’s Groundwater program conducts on-going monitoring only within the existing GWMAs (Appendix 1). Specific requirements of the Groundwater Quality Protection Act are to:

- evaluate areas of the state that are especially vulnerable to contamination;
- identify long-term trends in groundwater quality;
- evaluate the ambient quality of groundwater resources; and
- identify emerging groundwater quality problems.

Past Groundwater Assessments
Between 1980 and 2000, DEQ conducted 45 groundwater quality assessments. These assessments covered approximately 6.4% of the total land area of the state, and 30.8% of the area in Oregon where
groundwater is used. The assessment data provide a general rating of the overall quality of the groundwater resource available in Oregon for use as drinking water. The data show nitrate is the most commonly detected contaminant, followed by pesticides, volatile organic compounds, and bacteria. To evaluate impairment, the levels of detected contaminants are compared to the federal drinking water standards. However, many organic chemicals, pesticides, and herbicides do not have drinking water standards and the detection of any level of these contaminants in groundwater indicates a potential concern. In 35 of 45 studies completed through 2000, the assessment results show some impairment or reason for concern. In Oregon, the detection of contaminants in groundwater at one half the drinking water standard, or at 70% of the nitrate drinking water standard, can be the basis for declaring a Groundwater Management Area.

DEQ Laboratory - Drinking Water Source Monitoring.

In spring 2008, the DEQ Laboratory and Environmental Assessment Division (LEAD) sampled wells at seven public water systems around the state as part of the DHS source water protection program. This project was funded by U.S. Environmental Protection Agency (EPA). Nine wells were sampled in the spring of 2008 and three of the wells were resampled in the fall of 2008. The samples were analyzed for contaminants commonly found in treated domestic wastewater including new synthetic chemical compounds, strong microbial pathogens, and pharmaceuticals. Many of the parameters analyzed do not have federal drinking water standards nor are addressed in the Safe Drinking Water Act. The data provided state agencies with information on where to prioritize resources for preventing the contamination of the source waters used for public systems.

DEQ Laboratory - Sutherlin Arsenic Study

In June and July 2008, DEQ in collaboration with DHS tested over 100 wells in the Sutherlin Oregon area. The work was funded by a DHS grant. The wells were tested for arsenic, nitrate, pH, specific conductance and temperature during a two week sampling event. Coordination for the project was a collaborative effort by DEQ and DHS. DEQ analyzed the samples and released the results to DHS and ultimately to the individual well owners. The study provided valuable information to the public about their drinking water and potential health effects related to naturally occurring arsenic in the groundwater.

The data showed that thirteen sites were over the drinking water standard for arsenic (10µg/L) with some over 20 times the drinking water standard at or above 200µg/L. Well owners with results over the standard were re-sampled and confirmed by DEQ staff. The owners were also notified by DHS of the results along with information on potential arsenic treatment options. The nitrate results show that no wells exceeded the drinking water standard of 10mg/L. The highest concentration found was 4.5mg/L. The majority of the results were less than 0.0050mg/L.

Other Groundwater Monitoring and Assessment Activities

Private drinking water supply wells are not routinely tested for water quality, but state law requires testing at the time of a real estate transaction (RET). A home owner selling a property with a drinking water well must test the water for nitrate and total coliform bacteria. The owner submits the test results to the DHS Drinking Water Program. Between 1989 and 2003, about 24,633 nitrate tests were performed by home owners. This data is not routinely evaluated due to a lack of resources. However, in 2004, DEQ obtained a grant from the EPA to create a database and summarize the RET data through December 2003. These data provide a broad overview of groundwater quality in the state. Most of the domestic well tests (82%) show nitrate levels below 2 mg/L and reflect background groundwater quality. Approximately 14% of the tests showed nitrate levels above background groundwater quality and about 1.7% of the wells tested exceeded the federal drinking water standard of 10 mg/L.
Groundwater Restoration in Oregon

Groundwater Management Areas

Data from past groundwater assessments done were used to identify localized or area-wide groundwater contamination problems. If area-wide contamination is found at consistently high enough levels, an area can be declared a GWMA under Oregon law. When this situation arises, the Groundwater Quality Protection Act requires the establishment of a local GWMA Committee comprised of affected and interested parties. This committee works with state agencies to develop and implement an action plan to reduce groundwater contamination originating from point and non-point source activities in the area.

Oregon currently has three GWMAs (Figure 2) including the Northern Malheur County GWMA, the Lower Umatilla Basin GWMA, and the Southern Willamette Valley GWMA. All three GWMAs were declared for widespread nitrate contamination. In infants and developing fetuses, nitrate greater than 10 mg/L can interfere with the ability of blood to carry vital oxygen to body tissues resulting in methemoglobinemia or “blue baby” syndrome. DEQ is currently assisting with the implementation of the GWMA Action Plans which includes maintaining groundwater quality monitoring networks, reviewing existing data to assess groundwater quality trends, and supporting local efforts to implement best management practices (BMPs) to maintain and restore groundwater quality.

Figure 2. Location of Oregon’s Groundwater Management Areas

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ORS 468B.180. The Department of Environmental Quality shall declare a ground water management area if, as a result of information provided to the department or from its statewide monitoring and assessment activities under ORS 468B.190, the department confirms that, as a result of suspected nonpoint source activities, there is present in the ground water:

(a) Nitrate contaminants at levels greater than 70 percent of the levels established pursuant to ORS 468B.165; or
(b) Any other contaminants at levels greater than 50 percent of the levels established pursuant to ORS 468B.165.
Northern Malheur County Groundwater Management Area

The Northern Malheur County (NMC) GWMA was declared in 1989 after significant groundwater contamination was identified in the northeastern portion of the county. In 1985, DEQ sampled 107 wells in northern Malheur County. Thirty-four percent of the wells sampled had nitrate levels above the drinking water standard of 10 mg/l. Oregon Revised Statutes 468B.180 require that DEQ declare a GWMA if nitrate concentrations exceed the Maximum Measureable Level of 7 mg/L. The presence of the pesticide Dacthal was an additional concern. Sampling confirmed that most of the contaminated groundwater is present in the shallow alluvial sand and gravel aquifer which receives a large proportion of its recharge from infiltration of irrigation canal leakage and irrigation water. Land use in the GWMA is dominated by agriculture.

The NMC Action Plan, dated December 1991, includes recommendations that allow farmers to customize BMPs to their farm’s needs. The Committee chose to implement the Action Plan on a voluntary basis recognizing that individuals, businesses, organizations, and governments will, if given adequate information and encouragement, take positive actions and adopt or modify practices and activities to reduce contaminant loading to groundwater. The success of the action plan is gauged by both the adoption of BMPs and improvement of water quality within the GWMA.

The Natural Resources Conservation Service and the local Soil and Water Conservation District are working with farmers to develop water quality plans to address groundwater concerns. Alternative irrigation and fertilization management practices have been designed and recommended for the area.

Currently, DEQ samples a network of approximately 35 wells every other month for analysis of nitrate and Dacthal and does a more complete analysis approximately once a year. A formal trend analysis of nitrate concentrations was conducted in 2006 using the 14.5 years of data since implementation of the Action Plan. The analysis indicated that the area-wide nitrate trend was slightly decreasing. Individual wells showed a mix of decreasing (55%), increasing (32%), and statistically insignificant (13%) trends across the area. Progress is being made at the land surface through the implementation of BMPs. However, it may take years or even decades for groundwater quality to return to natural background levels.

Lower Umatilla Basin Groundwater Management Area

The Lower Umatilla Basin (LUB) GWMA was declared in 1990 after nitrate contamination was identified in the northern portions of Umatilla and Morrow Counties. Between 1990 and 1993, DEQ sampled 252 wells in the LUB study area. Groundwater samples from private wells identified nitrate contamination above the 10 mg/L drinking water standard in 33% of the samples. DEQ worked together with the Oregon Water Resources Department and DHS Drinking Water Program on a comprehensive study of the area in the early 1990s that identified five sources of nitrate loading to groundwater:

- Irrigated agriculture;
- Land application of food processing water;
- Septic systems (rural residential areas);
- Confined animal feeding operations; and
- Washout lagoons at the Umatilla Chemical Depot.

The LUB committee finalized the LUB Action Plan in December 1997. This voluntary plan focuses on education and outreach, identifying and encouraging adoption of appropriate BMPs and making
soil sampling and groundwater nitrate testing equipment and supplies available for local use. In addition, over 90% of the total acres in the LUB GWMA are covered by individual farm-specific irrigation water management plans.

Similar to NMC, DEQ samples a network of approximately 33 wells every other month for analysis of nitrate. Approximately once a year, these wells are sampled for a larger list of contaminants including major ions, metals, and pesticides. These data are being used to evaluate changes in groundwater quality over time in response to adoption of BMPs. Implementation of the Action Plan also includes ongoing community outreach and education efforts highlighting groundwater quality concerns and solutions.

In October 2008, the LUB committee finalized the “Second Four-Year Evaluation of Action Plan Success and 2005/2006 Annual Progress Report. The report concludes that “because measurable progress has been made towards the Action Plan goal using the criteria set for the Action Plan, the voluntary nature will continue for now, but BMP efforts, particularly documentation, need to be increased.”

**Perchlorate in the LUB GWMA**

Perchlorate is a chemical contaminant that is found nationally at low levels in the environment including water, milk and some foods. It can be anthropogenic but is also naturally occurring. Perchlorate was detected near military facilities in the LUB GWMA in 2001 and 2003. In fall 2003, perchlorate was included in a regional groundwater sampling event that was part of the ongoing nitrate investigation to see if perchlorate was localized or generally present in the area. Perchlorate was detected in about half of the 133 wells sampled.

Multiple, subsequent sampling events have been conducted by DEQ, EPA, the United States Navy, and private companies. A total of 391 groundwater samples have been collected from 288 locations with perchlorate concentrations ranging from non-detect to 29.2 parts per billion (ppb) with an average of 3.3 ppb. Concentrations were generally low and do not appear to represent a single contaminant plume. The full geographic extent of perchlorate in groundwater has not been determined but it is clear that it occurs at low levels over a wide area. The source(s) of perchlorate in the LUB GWMA remains unknown. It is possible that both naturally occurring and manufactured sources of perchlorate are contributors. Perchlorate concentrations typically decrease with depth, especially in the basalt wells. Wells with properly constructed seals may aid in reducing exposure to perchlorate. Additional research would be needed to identify the specific perchlorate source(s) in the LUB GWMA.

There currently is no federal or Oregon drinking water standard for perchlorate. EPA has adopted a reference dose that translates to 24.5 ppb, if all exposure comes through drinking water. However, if exposure also comes from food, the “safe” level in water would be lower.

State and federal agencies (including DEQ, Oregon Department of Agriculture (ODA), DHS, Oregon State University extension, EPA, and the Agency for Toxic Substances and Disease Registry (ATSDR)) are working to assess perchlorate in the area and ensure that food and water supplies are safe. For example, EPA is conducting crop sampling while DHS and ATSDR are working on finalizing their exposure investigation.

**Southern Willamette Valley Groundwater Management Area**

Over the last 20 years, many studies and sampling programs have focused on groundwater quality in the Southern Willamette Valley (SWV). Although low levels of nitrate may be naturally present, the probable causes of nitrate contamination in the SWV are from sources related to human activity such as fertilizers, commercial and municipal wastewater facilities, animal waste, and septic systems.
Over 20% of the 476 wells sampled by DEQ in 2000 and 2001 had nitrate concentrations in excess of 7 mg/L nitrate-N. 7mg/L is the MML for nitrate which can trigger the declaration of a GWMA under Oregon law. The highest level detected within the study area was 23 mg/L. In 2002, DEQ resampled those wells that tested greater than 7 mg/L during the 2000-2001 study. In addition to the nitrate analyses, DEQ included testing for pesticides, bacteria and a variety of other geochemical parameters and potential contaminants. Nitrate was confirmed at levels significantly above 7 mg/L, with a maximum value of 28 mg/L. The nitrate data from this and previous groundwater studies in the area document a regional groundwater quality concern. The pesticide data did not provide adequate information to characterize the entire study area. However the results were sufficient to conclude that pesticides are present, although they are below any health advisory standard and below 30% of any applicable standard.

On May 10, 2004, the DEQ declared a GWMA for portions of the SWV. The location of this GWMA is depicted as the shaded area in Figure 3. The DEQ was designated as the “Lead Agency” and a GWMA Committee was appointed to develop an Action Plan. This committee met regularly and worked with many stakeholders for almost 20 months to produce a draft Action Plan. A final Action Plan was approved at the November 9, 2006 SWV GWMA Committee meeting. The voluntary Action Plan provides 60 strategy recommendations related to agriculture, residential, commercial/industrial/municipal, and public water system to reduce nitrate contributions and prevent further groundwater contamination.

Education and outreach are key components of the Action Plan. DEQ installed 24 monitoring wells in the SWV, and obtained the approval from 17 residents to include their domestic wells in a long term monitoring program. Baseline and on-going monitoring is providing data to track the trends in groundwater quality. 100 Volunteer Monitors, working with OSU Extension, have been self-testing their well water on a monthly basis. A nitrogen/nitrate budget has been completed by Lane Council of Governments for the GWMA Committee, identifying that agricultural sources contribute approximately 95% of the nitrate found in the SWV groundwater. Further information can be found at: http://gwma.oregonstate.edu/.

Figure 3: Southern Willamette Valley Groundwater Management Area
Groundwater Protection in Oregon

Groundwater is present beneath almost every land surface and is sometimes at very shallow depths. It is vulnerable to contamination from activities that take place on the land as well as from discharges of wastes and pollutants at or below the ground surface. Once groundwater becomes contaminated it is very difficult to clean up. Because groundwater moves very slowly, the contamination may persist for tens, hundreds, or even thousands of years. Likewise, groundwater that is currently being contaminated may not affect beneficial uses until some time far into the future. This contamination may impair groundwater for use as drinking water and may affect the quality of the surface waters where it comes to the surface.

DEQ has primary responsibility for implementing groundwater protection in Oregon. DEQ uses a combination of programs to help prevent groundwater contamination from point and non-point sources of pollution, clean up pollution sources, and monitor and assess groundwater and drinking water quality. DEQ implements some programs through partnerships with the Oregon DHS, Oregon Water Resources Department, ODA, Oregon State University, and other state, local, and private organizations, businesses, and individuals. Appendix 2 summarizes Oregon’s groundwater protection programs and identifies the primary responsible state agency.

La Pine National Demonstration Project

The La Pine area of central Oregon is a rural residential area that is experiencing rapid development and population growth. In the 1960s, large tracts of land were subdivided into 15,000 lots as small as one-half acre. The primary source of drinking water for the 12,000 residents of the area is shallow groundwater tapped by over 4,000 individual domestic wells that are typically less than 50 feet deep. In addition, there are about 100 community public water system wells serving small-scale subdivisions, schools and businesses in the region. Most homes in the area use individual onsite wastewater treatment systems (onsite septic systems). The porous and permeable pumice soils, shallow groundwater table, and relatively high development densities in the region created a threat to shallow groundwater.

Groundwater assessments in the 1990s found nitrate concentrations in drinking water wells that approached the drinking water standard (10 mg/L) in several of the oldest and most densely developed areas. The Deschutes and Little Deschutes Rivers, both listed as water-quality limited streams by DEQ, flow through the region and potentially receive discharge from the shallow aquifer. In the mid-1990s, Deschutes County and DEQ assessed the potential impact of residential development in the La Pine region on groundwater quality. Preliminary studies and 2-dimensional groundwater modeling at that time predicted that nitrate levels in groundwater would exceed 10 mg/L within 20 years. These preliminary findings were based on the best available information at the time on groundwater recharge and flow velocities.

In 1999, the United States Congress awarded a $5.5 million 5-year grant to DEQ, Deschutes County, and the U.S. Geological Survey as part of the National Decentralized Wastewater Treatment and Disposal Demonstration Project. The objective of the study is to protect the La Pine area groundwater quality because it is the sole source of drinking water for the region. The study evaluated innovative nitrogen reducing onsite septic system technologies, and developed and used a three-dimensional groundwater flow and contaminant transport model to determine a comprehensive groundwater protection strategy.
The La Pine Demonstration Project included elements to:

- Install and monitor (system effluent and monitoring well samples) up to 50 innovative nitrogen reducing systems;
- Initiate an onsite system maintenance program;
- Conduct 3-dimensional groundwater flow modeling and nitrogen contaminant fate and transport modeling and assess optimum lot density and treatment standards based on model results; and
- Establish a low-interest loan fund for septic system repair or replacement.

DEQ and Deschutes County Environmental Health Division staff conducted baseline groundwater sampling of 199 domestic and public water supply wells in 2000. Similar data collection and evaluation continued in 2001 and 2002. Results show 10% of the wells sampled had nitrate concentrations above background levels of nitrate. These results and other data from the study show that groundwater moves slowly in the area, and that nitrate from onsite septic systems are in the early stages of creating groundwater contamination. Onsite septic systems have been discharging nitrate for over 40 years, but contamination has only begun to reach the groundwater tapped for drinking water supplies in the past 10 to 15 years. The predicted quantity of nitrogen contributed to groundwater is high as contaminants continue to move into the groundwater from an ever increasing population of existing systems. The contaminant load to the aquifer will increase with the population as the remaining vacant buildable lots are developed.

In total, 15 types of innovative onsite septic systems and 3 types of control (standard, pressure distribution and sand filter systems) onsite systems have been installed. The La Pine project monitored a total of 49 onsite systems beginning in 2000 and ending in December 2004. The effect of these systems on groundwater quality was monitored through a network of nearly 200 shallow monitoring wells and several extensive sampling events involving public and private domestic water wells. Data from the shallow monitoring wells capturing the influence of onsite systems drainfields indicate significant impacts from those systems, particularly those systems that do not reduce nitrogen. Conventional systems, including standard tank and gravity drainfield, pressure distribution systems, and sand filters provide minimal nitrogen reduction, and therefore minimal protection for the groundwater in this area. Some data have been collected to evaluate groundwater and surface water interaction along the Deschutes and Little Deschutes Rivers within the study area, although a full evaluation was beyond the scope of this project. Several reports and papers have been published by the US Geological Survey based on research conducted during the demonstration project:

In 2005, the EPA awarded a grant to Deschutes County to implement findings from the La Pine National Demonstration Project on a local level. The new project allowed the county to undertake creation of a Pollution Reduction Credit Program as one part of a financial assistance program to help pay for groundwater protection measures. The county also developed, as part of this project, a new county code to require the use of onsite wastewater treatment systems that provide increased protection for groundwater quality. This new code was adopted by the Board of County Commissioners on July 23, 2008. The effective date of the code was October 23, 2008, however, opponents of the code have submitted a petition to refer the code to a county-wide vote. This action defers the effective date of the adopted code pending the outcome of a vote held in spring 2009.

**Source Water Assessment and Drinking Water Protection Programs**

In 1996, the Federal Safe Drinking Water Act required states to develop Source Water Assessments for public water supply systems (surface water and groundwater sources). DEQ and the DHS Drinking Water Program implements this program in Oregon. Between 2000 and 2005, DEQ and DHS completed the assessments for 2,460 public water systems using groundwater sources. The assessment report provided to every system gives the community officials detailed information on the watershed or recharge area that supplies the well, spring or intake (the “drinking water source area”) and identifies potential risks within the source area.

In 2007, DEQ completed a statewide “susceptibility analysis” which used the results of the Source Water Assessments to determine the overall susceptibility of each drinking water source (well, spring, or surface water intake). Each public water system was evaluated based on the number and type of potential contaminant sources within the drinking water source area and the level of sensitivity of the source area. The analysis rankings are being used by DHS and DEQ to prioritize outreach and technical assistance, to evaluate cross-program opportunities, and to select toxic monitoring locations based on high potential risks.

The information in the source water assessments provides the basis for a community to voluntarily develop strategies or a plan to protect the source area that supplies their drinking water. Drinking water protection strategies generally focus on reducing the impact of one or two high-priority pollutants within the source area. The primary incentive for local communities to develop and implement drinking water protection is the benefit of a more secure source of high quality water. Other incentives may include a reduction in public water supply monitoring requirements and the reduced likelihood of costs for replacement and/or treatment of contaminated drinking water. DEQ and DHS provide direct technical assistance to communities as they develop and implement strategies to protect their local public drinking water sources.

The source water assessment data is readily accessible to others electronically and in hard copy. The assessment data is used by other DEQ programs, to prioritize areas for permit modifications, inspections, technical assistance and cleanup. It has been provided to several other state and federal agencies including Oregon Emergency Response System, Oregon Department of Transportation, Oregon Department of Forestry, ODA, Department of Lands, Conservation and Development, U.S. Forest Service, and U.S. Bureau Land Management to facilitate incorporation of protection strategies into their respective programs. Both maps and downloadable statewide GIS shapefiles of drinking water source
area coverages and identified potential sources of contamination are available to the public on the DEQ Drinking Water Protection website at [http://www.deq.state.or.us/wq/dwp/dwp.htm](http://www.deq.state.or.us/wq/dwp/dwp.htm). The drinking water source areas can also be identified (and selected as a search criteria) for both DEQ’s Facility Profiler (a location based system showing DEQ permit holders and cleanup sites) and LASAR (DEQ’s Laboratory Analytical Storage and Recovery for air and water quality monitoring data).

The contaminant source inventories in the delineated wellhead protection areas provide useful information as the community or agencies evaluate the risks and prioritize protection strategies. Typical contaminant sources identified in groundwater source areas include high density housing, septic systems, auto repair shops, gas stations, irrigated crops, managed forest land, grazing animals, and transportation corridors. DEQ developed a BMPs database for the 88 most common potential contaminant sources in Oregon (available under “technical assistance” in DEQ’s Drinking Water Program website). The database details activities that range from educational outreach to regulatory approaches that public water systems or communities can take to reduce their risk. The database can be used to pull the BMPs for a public water system or geographic area from GIS layers into a format that communities can use to choose their drinking water protection strategies for groundwater.

Currently, DEQ has 1 FTE, funded by the Safe Drinking Water Act through a Memorandum of Agreement between DEQ and DHS, to provide technical assistance for groundwater protection for public water systems. This position is funded to work only on public water system groundwater protection issues.

**Other Groundwater Protection Efforts**

There are several programs within DEQ that contribute to the protection of groundwater through the implementation of regulations, standards and permitting activities. These programs include underground storage tanks, solid waste landfills, remediation sites, underground injection control systems (UIC), on-site systems, and permitting of industrial, municipal, or domestic wastewater facilities having a discharge of wastewater to land.

The Underground Storage Tank (UST) program helps to protect groundwater by handling issues related to regulated tank registration, testing, and compliance, and cleanup of releases of leaking petroleum tanks including releases from home heating oil tanks. Compliance and prevention requires the registration of tanks and specifies the technical requirements for new and existing UST systems. Service provider and supervisor licensing requires both companies (service providers) and individuals (supervisors) to obtain a license before performing UST work. Cleanup activities within this program require the timely reporting of petroleum releases, and the investigation and remediation of soil and groundwater contamination resulting from leaks and spills of petroleum products. There are over 25,000 USTs that have been decommissioned in Oregon and thousands more operating under permits.

The Solid Waste program permits several different types of solid waste disposal facilities including municipal solid waste landfills, petroleum contaminated remediation facilities, and compost operations. These permitting activities help to protect groundwater resources by requiring liners and other standards to control leachate of liquids from these facilities and groundwater protection programs.

The Site Response program works to investigate and clean up contaminated hazardous waste sites throughout Oregon. Many of these sites have historically contributed to the contamination of groundwater. By cleaning up these sites future contamination of groundwater by chemicals or pollutants is prevented.

DEQ operates Oregon’s UIC program through authorization from the EPA. The UIC program works to protect groundwater through the approval and permitting of drywells, sumps, and other injection devices that discharge a variety of residential, commercial, and industrial fluids below the ground. Injection
systems are required to be designed, installed, maintained, and, in many cases, monitored so that they are protective of groundwater resources. There are over 46,000 injection systems registered in Oregon, most of which handle stormwater flow from streets, parking lots and businesses. Previously, the level of funding (1 FTE) for the UIC program was inadequate to run the statewide program. However, in 2007, new fees were approved (HB 2118) to allow the phase-in of new staff (5.5 FTE total) to allow DEQ to deliver the basic elements of a statewide UIC program and retain primacy of the program. The new staff will be phased-in as revenue is available.

The Onsite Septic System program (onsite systems) consists of the permitting of hundreds of thousands of onsite septic systems throughout Oregon. Approximately one-third of all Oregonians rely on onsite systems as a means to treat residential wastewater. This program helps to protect groundwater resources by requiring systems to be designed and installed according to state regulations that include prescriptive siting and performance standards.

The Wastewater Permitting program regulates thousands of industrial, municipal and domestic wastewater treatment facilities in Oregon. Municipal and domestic facilities collect and treat sewage from residences and industrial facilities generate and treat manufacturing and processing wastewater. Through the use of Water Pollution Control Facility and National Pollutant Discharge Elimination permits DEQ regulates domestic, municipal and industrial facilities activities (such as lagoons and land application systems) to protect groundwater resources.

**Funding Groundwater Quality Projects in Oregon**

The 1989 Groundwater Protection Act authorized DEQ to fund research and development projects related to groundwater quality, particularly in GWMAs. However, no dedicated funding source was established for this purpose. A fee on fertilizer products purchased in Oregon was instituted as part of the act to fund groundwater quality research associated with the interaction of pesticides or fertilizer and groundwater. The grant fund is administered by ODA. In previous biennia, the grant fund has been used for research projects in the first two declared GWMAs in the state. Revisions to the fertilizer law in 2001 expanded the use of the fund to include research related to the interaction of fertilizer, agricultural mineral or agricultural amendment products and groundwater or surface water, eliminated research on pesticides and groundwater, and established a committee to advise ODA on funding of research grants.

DEQ has allocated federal grants available through Clean Water Act Section 319 to groundwater projects in limited areas. Funding for below market loans to public agencies is also available through the Clean Water State Revolving Fund. A summary of groundwater related projects funded by DEQ and ODA during 2005 and 2006 is included in Appendix 3.

**Future Direction**

DEQ’s objectives for groundwater quality protection in the 2009-2011 biennium include the following activities.

- Coordinate the SWV GWMA committee and implementation activities to reduce area-wide groundwater contamination.
- Continue monitoring 41 wells in the SWV GWMA to determine groundwater trends.
- Evaluate the effectiveness of conservation enhancement practices in reducing nitrate pollution to the groundwater in the SWV GWMA.
- Continue to implement the LUB and NMC GWMA Action Plans and evaluate the performance or success of the management plans in reducing groundwater contamination. Also, continue regional groundwater monitoring networks in the two GWMAs.
- Continue to work cooperatively with Deschutes County to implement groundwater protection programs in the La Pine area.
- Complete additional Drinking Water Source Water Assessments as new systems come online and provide technical assistance to communities developing drinking water protection plans.
- Continue funding and support of research, education, and implementation of BMPs for groundwater protection, as funding allows.
### Appendix 1 - Groundwater Quality Assessment Projects

**Summary as of November 2008**

<table>
<thead>
<tr>
<th>Basin</th>
<th>Project Name</th>
<th>No. of Sample Events</th>
<th>No. of Wells Sampled</th>
<th>Groundwater Quality Rating (I)</th>
<th>Contaminants Of Concern</th>
<th>Contaminants Found (II)</th>
<th>Suspected Contaminant Sources</th>
<th>Date Last Monitored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malheur</td>
<td>Northern Malheur County GWMA</td>
<td>Ongoing</td>
<td>40</td>
<td>4</td>
<td>Nitrate, Pesticides</td>
<td>Nitrate, Dacthal</td>
<td>Agriculture</td>
<td>2008</td>
</tr>
<tr>
<td>Willamette</td>
<td>Southern Willamette Valley GWMA</td>
<td>Ongoing</td>
<td>40</td>
<td>2</td>
<td>Nitrate, Pesticides</td>
<td>Nitrate, Pesticides</td>
<td>Agriculture, Onsite Septic Systems</td>
<td>2008</td>
</tr>
<tr>
<td>Umpqua</td>
<td>Sutherlin Arsenic Study</td>
<td>2</td>
<td>114</td>
<td>3</td>
<td>Nitrate, Arsenic</td>
<td>Arsenic</td>
<td>Naturally occurring</td>
<td>2008</td>
</tr>
<tr>
<td>Statewide</td>
<td>Drinking Water Source Monitoring</td>
<td>2</td>
<td>7</td>
<td>* (IV)</td>
<td>Pesticides/herbicides/fungicides, pharmaceuticals, organics, metals, bacteria</td>
<td>* (IV)</td>
<td>Sewage treatment plants, agriculture, industry, urbanization, industry, naturally occurring</td>
<td>2008</td>
</tr>
</tbody>
</table>

**Notes:**

I. **Groundwater Quality Rating:**
   1 = Means less than 10% of wells had a contaminant level over the drinking water standard.
   2 = Means 25% or more of wells had nitrate levels between 5 to 10 mg/L, or any well had an organic compound detected.
   3 = Means 10% to 25% of wells had a contaminant level over the drinking water standard.
   4 = Means more than 25% of wells had a contaminant level over the drinking water standard.

II. **Contaminants:** 1,2 DCP = 1,2 dichloropropane; EDB = Ethylene dibromide; PCE = Perchloroethylene or tetrachloroethylene; PCP = Pentachlorophenol; VOC = Volatile organic compound.

III. GWMA = Groundwater Management Area

IV. Pending analysis
### Appendix 2: Oregon Groundwater Protection Programs and Responsibilities

<table>
<thead>
<tr>
<th><strong>AGENCY</strong></th>
<th><strong>GROUNDWATER PROTECTION RESPONSIBILITIES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department of Environmental Quality</strong>&lt;br&gt;<strong>(Due to lack of resources and staff, DEQ no longer, wholly or in part, performs these responsibilities.)</strong>&lt;br&gt;<strong>Coordinates interagency management of groundwater to achieve state goal to prevent groundwater contamination.</strong>&lt;br&gt;<strong>Designs and conducts targeted groundwater quality investigations statewide.</strong>&lt;br&gt;<strong>Maintains a groundwater quality database and data repository.</strong>&lt;br&gt;<strong>Responds to area-wide groundwater contamination by working with agencies and local citizens to develop an action plan to address sources.</strong>&lt;br&gt;<strong>Promotes public education and community involvement in groundwater protection programs and citizen monitoring.</strong>&lt;br&gt;<strong>Establishes groundwater quality reference levels and concentration limits.</strong>&lt;br&gt;Issues wastewater discharge permits for Water Pollution Control Facilities (WPCF) that include groundwater protection requirements.<strong>&lt;br&gt;Administers federal National Pollutant Discharge Elimination System (NPDES) program and issues wastewater discharge permits that include groundwater protection requirements.</strong>&lt;br&gt;Administers onsite sewage system program, contracting with some counties.<strong>&lt;br&gt;Shares implementation of the drinking water source water assessment and protection program with DHS.</strong>&lt;br&gt;Certifies drinking water protection plans for public water supply systems.<strong>&lt;br&gt;Administers federal Underground Injection Control program.</strong>&lt;br&gt;Administers a federally funded (Clean Water Act 319) nonpoint source grant program.<strong>&lt;br&gt;Administers solid waste and hazardous waste management programs.</strong>&lt;br&gt;Administers and implements federal Resource Conservation and Recovery Act program.<strong>&lt;br&gt;Administers Underground Storage Tank program.</strong>&lt;br&gt;Administers state environmental cleanup program.<strong>&lt;br&gt;Administers Oregon Dry Cleaner program.</strong></td>
<td>Characterizes aquifers and groundwater availability.<strong>&lt;br&gt;Approves water right applications for withdrawals of groundwater.</strong>&lt;br&gt;Implements regulations regarding well construction and decommissioning.<strong>&lt;br&gt;Maintains database of location and construction of wells.</strong></td>
</tr>
<tr>
<td><strong>Water Resources Department</strong>&lt;br&gt;(WRD)</td>
<td></td>
</tr>
<tr>
<td>AGENCY</td>
<td>GROUNDWATER PROTECTION RESPONSIBILITIES</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Department of Human Services (DHS)</strong></td>
<td>Coordinates reviews issues permits for aquifer storage and recovery projects.</td>
</tr>
<tr>
<td></td>
<td>Administers public water system monitoring programs.</td>
</tr>
<tr>
<td></td>
<td>Administers real estate transaction well-testing program.</td>
</tr>
<tr>
<td></td>
<td>Administers and shares implementation of the drinking water source water assessment program with DEQ.</td>
</tr>
<tr>
<td></td>
<td>Certifies delineation of wellhead protection areas.</td>
</tr>
<tr>
<td></td>
<td>Provides technical assistance to public water systems on well construction issues.</td>
</tr>
<tr>
<td><strong>Oregon Department of Agriculture (ODA)</strong></td>
<td>Administers programs regulating farming practices to protect groundwater, wellhead protection, groundwater management areas, and areas of groundwater concern.</td>
</tr>
<tr>
<td></td>
<td>Develops and implements water quality management plans for groundwater protection.</td>
</tr>
<tr>
<td></td>
<td>Administers a groundwater quality research grant program funded by fee on fertilizer product distribution.</td>
</tr>
<tr>
<td></td>
<td>Develops and implements a pesticide management program.</td>
</tr>
<tr>
<td></td>
<td>Implements Confined Animal Feeding Operations regulations.</td>
</tr>
<tr>
<td></td>
<td>Develops or assists in development of management plans for agricultural areas per ORS 468B.184.</td>
</tr>
<tr>
<td></td>
<td>Provides pesticide analytical services for groundwater assessments.</td>
</tr>
<tr>
<td><strong>Oregon State University (OSU), Agricultural Extension Service and Experimental Stations</strong></td>
<td>Assists with identification of areas vulnerable to groundwater contamination and conducts nitrate testing of local wells.</td>
</tr>
<tr>
<td></td>
<td>Conducts research regarding soil and groundwater contamination and BMPs to prevent contamination.</td>
</tr>
<tr>
<td><strong>Department of Land Conservation &amp; Development (DLCD)</strong></td>
<td>Reviews comprehensive plans for communities to ensure they are consistent with goal of the Groundwater Quality Protection Act (ORS 468B.155).</td>
</tr>
<tr>
<td><strong>Oregon Department of Transportation (ODOT)</strong></td>
<td>Ensures that the goals of the Groundwater Protection Act are incorporated in all aspects of highway and road design and construction.</td>
</tr>
<tr>
<td><strong>Department of Geology and Mineral Industries (DOGAMI)</strong></td>
<td>Ensures that the goals of the Groundwater Protection Act are incorporated.</td>
</tr>
<tr>
<td></td>
<td>Regulates drilling and permitting of geothermal wells.</td>
</tr>
</tbody>
</table>
### Appendix 3 – Funding for Groundwater Projects

<table>
<thead>
<tr>
<th>Date</th>
<th>Project</th>
<th>Amount</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2007 – June 2011</td>
<td>Oregon State University Environmental &amp; Molecular Toxicology Dept.</td>
<td>$74,595</td>
<td>Fate of Bioaccessible Metals from Prior Metal Rich Fertilizer Applications and Preserving Established Select Field Sites</td>
</tr>
<tr>
<td>2007</td>
<td>Integration TMDL and GW priorities into Willamette Ag. Demo Project</td>
<td>$171,000</td>
<td>Implement agricultural water quality projects in priority watersheds and the correspondent GWMA. These efforts will be augmented with education and outreach efforts.</td>
</tr>
<tr>
<td>2007</td>
<td>Private Well Outreach and Monitoring</td>
<td>$58,892</td>
<td>Work will focus on the Southern Willamette Valley Groundwater Management Area but efforts will be extend to other priority areas, as identified by DEQ, if local partners express interest and offer support. This may include but is not limited to the Northern Malheur County GWMA, Lower Umatilla Basin GWMA, and La Pine area.</td>
</tr>
<tr>
<td>2008</td>
<td>Southern Willamette Valley Groundwater Management Area Action Plan Implementation</td>
<td>$99,893</td>
<td>The project will address: a) need to develop a Land Management Action Kit; b) coordination of the Septic System Technical Group; c) coordination of the GWMA Committee; and d) outreach/education/communication actions.</td>
</tr>
<tr>
<td>2008</td>
<td>Groundwater Quality Outreach for Rural Residents</td>
<td>$38,103</td>
<td>Program staff and cooperators will offer outreach and education to enable rural residents to assess, manage and protect their drinking water supply and in doing so, safeguard Oregon’s groundwater resources. This project will also provide an educational program for three rural secondary school’s natural resource and agricultural classes. This project will support regional efforts to restore groundwater quality including residential strategies outlined by the Southern Willamette Valley Groundwater Management Area (GWMA) Action Plan.</td>
</tr>
<tr>
<td>2006</td>
<td>City of Madras</td>
<td>$4,632,181</td>
<td>Expansion of the wastewater treatment plant includes sewer collections in areas previously served by onsite systems.</td>
</tr>
<tr>
<td>Date</td>
<td>Project</td>
<td>Amount</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------</td>
<td>---------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2008</td>
<td>Farmer’s Irrigation District</td>
<td>$3,000,000</td>
<td>Replace open distribution ditches with piping in an area served by old onsite systems.</td>
</tr>
<tr>
<td>2008</td>
<td>Miles Crossing Sanitary District</td>
<td>$4,893,000</td>
<td>New sewage collection system to replace failing and marginal on-site disposal systems in area of high groundwater.</td>
</tr>
</tbody>
</table>
Certification Programs for Water and Wastewater System Operators

A joint report of the Department of Human Services, Drinking Water Program and the Department of Environmental Quality, Wastewater Program

January 2009
The Department of Human Services Drinking Water Program (DHS-DWP) and the Department of Environmental Quality (DEQ) prepared this report in accordance with the requirements of ORS 448.409. The report describes the activities of DHS-DWP and DEQ under their respective water and wastewater operator certification programs from January 1, 2007 to December 31, 2008.
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  Program Activities ........................................................................................................ 3
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  Water System Classification ..................................................................................... 4
  Operator Certification for Grades 1-4 and Filtration Endorsement ............ 4
  Technical Assistance and Training ......................................................................... 5
  Compliance and Enforcement ............................................................................... 5
  Small Water System Operator Certification ......................................................... 5
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  Coordination and Development ............................................................................ 8
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Executive Summary

Oregon law requires owners of drinking water and wastewater systems (public and private) to have their systems under responsible control and direction of certified operators. Trained and certified operators are necessary to ensure that the systems are managed in a manner that fully protects public health and the environment. Certified operators also improve facility operation and compliance, protect the public’s investment in the facilities, and instill public confidence in the safety and certainty of services. The Department of Human Services Drinking Water Program (DHS-DWP) administers the certification program for drinking water system operators, and the Department of Environmental Quality (DEQ) administers the program for domestic wastewater system operators.

DHS-DWP and DEQ coordinate activities to benefit their respective certification programs. Coordination efforts include, but are not limited to, representation and input at advisory committee meetings on program activities, effectiveness and rulemaking, general program administration in areas such as testing, efficiencies and the sharing of operator work experience records. Another important area of coordination includes input to trainers and educators through the Oregon Environmental Services Advisory Council (OESAC) for workforce training and continuing education. Program staff also works with the Associated Boards of Certification (ABC), a national accreditation organization on issues germane to certification program operation.

This report includes an overview of program activities and accomplishments. Several initiatives have been undertaken to improve program efficiency, including the use of standardized tests and increased use of electronic communication and data base systems. Other program highlights for 2007 and 2008 are noted below.

The DHS-DWP learned of some nationwide industry survey results that raised concerns about the number of operators retiring in the next five to seven years and that states should develop strategies to address workforce succession planning issues. As a part of the 2008 certificate renewals, DHS-DWP conducted a workforce survey of water system operators in Oregon as to their individual retirement year, if known. Fortunately, our survey indicated that Oregon can expect an orderly transition within the water operator community that can be handled through normal attrition processes. However, to highlight career opportunities in the water/wastewater fields, the DHS-DWP and DEQ collaborated to produce a brochure titled “Environmental Careers, Drinking Water and Wastewater Operators” that presented the opportunities, rewards, preparation, requirements and experience working as an operator in the water and wastewater industry protecting public health and the environment. Over 2,500 copies were distributed to community colleges, professional-technical workforce coordinators, and the interested public.

The DHS-DWP program had no turnover of staff during this report period. The DHS-DWP re-established a sub-committee of members of its Drinking Water Advisory Committee to work on issues specific to Operator Certification. This committee’s work will be on-going. The DHS-DWP investigated three reports of misconduct during this report period. Two were resolved without any disciplinary action due to the inability to substantiate the complaints. One individual’s license was suspended for six months for negligence at the plant the individual worked at. The individual was prohibited from being the Direct Responsible Charge (DRC) at any facility for one year. The total number of persons certified in drinking water system operation is 1,803 in Oregon. The Small Water System certification has 930 operators who are certified following attendance at a DHS-DWP sponsored water training course specifically designed for operators of small water systems. Figures for this group are separated from the larger public water supplier group because small water system operators have unique characteristics (e.g. certifications are not transferable, there is no fee, there is no reciprocity, certificates are good for three years and they take no exams). The DHS-DWP has increased overall compliance rates from the previous biennium’s 91% to 92.4%. We have increased the opportunities for operators to take “special” exams by arranging for testing at their local community college on dates other than the two set each year by DHS-DWP. The program is piloting on-line certification renewal for the 2009 renewal year.

DEQ investigated and resolved all complaints of misconduct or improper operator supervisory designations. The number of persons certified in wastewater system operation is 1,749, including 104 persons holding renewable expired certificates. DEQ worked with ABC to evaluate and revise wastewater collection and treatment system operator tests during the biennium. The average number of DEQ operator certification Web page visits each month has increased to 700 from 600 in 2006, with a corresponding reduction in requests by phone for certified operator information and hard copy application forms.

DHS-DWP and DEQ Operator Certification Program comparative information for 2007 and 2008 is summarized in Table 1.
<table>
<thead>
<tr>
<th>Category</th>
<th>DHS WATER</th>
<th>DEQ WASTEWATER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Persons Certified</strong></td>
<td>1803</td>
<td>1749</td>
</tr>
<tr>
<td>Persons Holding Two Certificates</td>
<td>588 (33%)</td>
<td>750 (43%)</td>
</tr>
<tr>
<td>DHS-DWP or DEQ (Distribution &amp; Treatment)</td>
<td></td>
<td>(Collection &amp; Treatment)</td>
</tr>
<tr>
<td>Persons Certified by DHS-DWP and DEQ</td>
<td>687 (38%)</td>
<td>782 (45%)</td>
</tr>
<tr>
<td>Certificate Applications Reviewed(^1)</td>
<td>1021</td>
<td>894</td>
</tr>
<tr>
<td>Applications Denied</td>
<td>186</td>
<td>197</td>
</tr>
<tr>
<td>Certificates Issued by Reciprocity</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td>Examinations (scheduled)</td>
<td>797</td>
<td>755</td>
</tr>
<tr>
<td>Operator-In-Training(^2)</td>
<td>N/A</td>
<td>78</td>
</tr>
<tr>
<td>Continuing Education Required</td>
<td></td>
<td>2.0 CEUs every two years</td>
</tr>
<tr>
<td>Certification Renewal Period</td>
<td>Annual</td>
<td>Biennial</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Certificates</th>
<th>Distribution</th>
<th>Treatment</th>
<th>Collection</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisional Grade I Certificate</td>
<td>N/A</td>
<td>N/A</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Grade 1 Certificate</td>
<td>602</td>
<td>345</td>
<td>489</td>
<td>425</td>
</tr>
<tr>
<td>Grade 2 Certificate</td>
<td>627</td>
<td>237</td>
<td>480</td>
<td>326</td>
</tr>
<tr>
<td>Grade 3 Certificate</td>
<td>234</td>
<td>113</td>
<td>174</td>
<td>198</td>
</tr>
<tr>
<td>Grade 4 Certificate</td>
<td>132</td>
<td>101</td>
<td>138</td>
<td>253</td>
</tr>
<tr>
<td>Filtration Endorsement</td>
<td>N/A</td>
<td>291</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Total Certificates by Type</td>
<td>1595</td>
<td>1087</td>
<td>1281</td>
<td>1209</td>
</tr>
<tr>
<td><strong>Total Certificates</strong></td>
<td><strong>2682</strong></td>
<td></td>
<td></td>
<td><strong>2490</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Systems Where Certified Operators Required</th>
<th>Distribution</th>
<th>Treatment</th>
<th>Collection</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>174</td>
<td>63</td>
<td>131</td>
<td>150</td>
</tr>
<tr>
<td>Class 2</td>
<td>132</td>
<td>95</td>
<td>132</td>
<td>91</td>
</tr>
<tr>
<td>Class 3</td>
<td>28</td>
<td>22</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Class 4</td>
<td>11</td>
<td>5</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>Total Systems by Type</td>
<td>347</td>
<td>185</td>
<td>333(^3)</td>
<td>326</td>
</tr>
<tr>
<td><strong>Total Entities</strong></td>
<td><strong>354</strong></td>
<td></td>
<td></td>
<td><strong>379</strong></td>
</tr>
</tbody>
</table>

| Certificate Fee (application, exam & license document) | One certificate $75.00 (1 yr.). | One cert. $100.00 to $160.00 (2 yrs.) |
|-------------------------------------------------------|-----------------------------------------------|
| Renewal Fee — One Certificate | All Grades $40.00 for one year | All Grades $100.00 for two years |
| Renewal Fee — Second Certificate | All Grades $20.00 for one year | No Additional Fee |
| Program Staffing | 1.0 Compliance Specialist 2 | 1.0 Natural Resource Specialist |
| | 1.0 Office Specialist | 1.0 Office Specialist |

<table>
<thead>
<tr>
<th>SMALL WATER SYSTEM OPERATOR PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of “S” Operator Certificates</td>
</tr>
<tr>
<td>Number of Systems with “S” Required</td>
</tr>
</tbody>
</table>

---

\(^1\) “Application” count does not include continuing education evaluations for renewal or reinstatement eligibility.

\(^2\) A “non-certified” applicant who has passed an examination, but has not yet qualified by education and/or experience or a certificate. These numbers are not included in the total certificate count.

\(^3\) Of this number, 53 are regulated upstream or “satellite” wastewater collection systems that are connected to other regulated entities providing wastewater collection and/or treatment.
Certification Program for Drinking Water System Operators

Under ORS 448, the Drinking Water Program of the Department of Human Services (DHS-DWP) classifies all drinking water treatment and distribution systems and certifies individuals qualified to operate these systems. All community water systems using surface water sources, and those using groundwater sources with more than 150 service connections, must be under the supervision of an operator with a certificate equal to or higher in grade than the water system classification (Levels 1-4). Beginning in 2001, pursuant to House Bill 2239 and subsequent administrative rules (OAR 333-061-0228), all community and non-transient non-community water systems using only groundwater and having fewer than 150 connections were required to be under the supervision of a certified operator. In 2004, rule changes added small systems that purchase water from a community or non-transient non-community and which do not add any additional treatment to this category, and changed the name from “Small Groundwater Systems” to “Small Water Systems”. This group must simply attend training every three years in order to remain in compliance.

Program Activities

Coordination and Development:
1. Network with other certifying authorities, organizations, and states
2. Manage data, receipts, refunds, and reports
3. Manage services agreement contract for exams and grading by the Association of Boards of Certification
4. Participate in the activities of the Oregon Environmental Services Advisory Council, which evaluates and assigns Continuing Education Units (CEUs) to courses offered for professional growth and assists in coordinating statewide training in environmental technology
5. Provide staff support for the Certification Subcommittee of the Drinking Water Advisory Committee
6. Attendance and presentations at industry sponsored training conferences.

Water System Classification:
1. Classify systems in the areas of distribution, treatment, and filtration method to determine operator certificate grade level requirements

Operator Certification for Grades 1-4 and Filtration Endorsement:
1. Review, evaluate, and verify applications for certification including new exams, special exams, upgrades, reciprocity, renewal and reinstatement for applicants in the four levels of treatment, four levels of distribution, and filtration endorsement
2. Schedule exams, secure sites, order exams, schedule proctors, and proctor exams
3. Provide information on examination study materials; notify examinees of exam results
4. Review and amend Water Operator Certification Rules as needed.
5. Issue Certificates

Technical Assistance and Training:
1. Respond to inquiries on certification requirements, and procedures
2. Provide lists of qualified operators to systems recruiting for vacancies
3. Provide technical assistance and data management support to DHS-DWP staff regarding system operator and certification compliance

Compliance and Enforcement:
1. Track compliance by water systems with requirements to have certified and qualified operator and report performance measures quarterly
2. Respond to complaints and investigate allegations of fraud, misconduct, or false reporting
3. Track professional growth for individual operators
4. Initiate enforcement against non-compliers
5. Revoke/Suspend certificates when necessary

Small Water System Operator Certification:
1. Work with contractors to develop appropriate training materials for small water system operators.
2. Assure appropriate classification of small water systems according to current rules
3. Schedule small water system trainings for operators

Efficiency and Service Improvements:
1. Automated exam score results
3. Update website information for operators and water systems
4. Certification program staff worked with field staff to monitor compliance and assure proper system classification
5. Coordinate special exams with community colleges
6. Improvements in our training website make it easier for operators to identify and access approved training
7. Work with Department Information Services program staff to implement and customize the License2000 data system to support Operator Certification Program needs for the future.
Coordination and Development

Program staff participates in the activities of the Oregon Environmental Services Advisory Committee (OESAC) which reviews proposed training for qualifications of instructors, determines relevancy of course material, assigns continuing education units, and coordinates the training opportunities around the state. OESAC is composed of representatives from community colleges, professional organizations in the water and wastewater industry, the office of Professional Technical Education of the Department of Education, DHS-DWP, and DEQ. Coordinated efforts have helped to improve the OESAC website www.oesac.org, which is updated monthly for the benefit of operators and trainers.

Reciprocity certificates are granted on a case-by-case basis when an operator’s experience, education, and examination results meet established criteria. The criteria closely follow the Model Certification Program Standards, developed by the Association of Boards of Certification (ABC) whose membership consists of over 90 certifying authorities representing more than 40 states and 10 Canadian provinces. Program standards, uniform testing, and networking among certifying authorities help enable operators certified in Oregon to receive reciprocity in other states or provinces.

The Program contracts with the ABC testing service. These tests are given throughout North America under strict standards set by ABC. To maintain this contract, staff is closely involved with the training procedures of all proctors. We have agreements to have community colleges throughout the state proctor our exams; thus allowing operators to save costs and travel time for specially scheduled exams.

Water System Classification

All water systems are classified as small water, water distribution, or water treatment based on size and complexity, as determined by the DHS-DWP. A water system is classified as a Small Water System if it has fewer than 150 connections and either uses only groundwater as its source or it purchases water that needs no further treatment once reaching the purchasing system. Distribution systems, with four levels of complexity, are classified based on population served. Water treatment plant classification, also with four levels of complexity, is based on a point system assigned to reflect the complexity of the treatment process used at the plant. A filtration endorsement is required for treatment plants that use conventional. These classifications are used to determine the qualifications required of personnel in direct responsible charge of each water system. There are currently 354 water systems that require Level 1-4 certified operators, and 847 systems classified as Small Water Systems.

Operator Certification for Grades 1-4 and Filtration Endorsement

Regular certification exams are scheduled and administered by program staff and are held in May and October of each year at multiple locations around the state. A total of 1,021 applications for exams or reciprocity were reviewed and 797 exams were given during this two-year period, including requests for special exams which numbered 118.

Successful applicants (scoring 70% or above) may become certified. All candidates are provided with individualized exam results noting the areas of deficiency. Staff evaluates exams and works with trainers to develop training intended specifically to improve areas of deficiency.

The Operator Certification Program has continued to show wide acceptance by the water industry. The number of certified operators in grades 1-4 has increased from 1,394 in 1990, to 1,803 today. The small water system operators were not listed in the total count of earlier reports, and therefore, not included in the comparison above. The increase over the years in certified operators represents the growing professionalism in the industry and the support for certification by water systems.

Certificates for Water Treatment and Water Distribution Grades 1-4 are renewed annually. Certified Operators are required to demonstrate professional growth in the field by completing two (2.0) Continuing Education Units (CEUs) every two years in order to renew their certificates. One CEU is equivalent to 10 contact hours of lecture or formalized training in water treatment or distribution and related fields. Continuing education ensures that operators maintain and enhance their skills and keep pace with changing regulations and technology. Training opportunities are plentiful in the state and well attended.
Technical Assistance and Training

During the past two years, program staff responded to thousands of requests for assistance from system owners, operator personnel, training providers, vocational counselors, and regional staff regarding operator certificate qualifications, application forms, continuing education, system classification, and rule interpretation. Upon request, a list of qualified operators is provided to communities, water systems, and organizations, etc. to assist them in recruiting new operators or sending technical course information mailings. Operators are now given an opportunity to opt out of this list, but very few have done so. Staff routinely provides educational presentations at industry sponsored conferences to facilitate better understanding of program goals and requirements. These presentations are well received by industry groups.

Compliance and Enforcement

DHS-DWP staff responds to allegations of fraud or misconduct from employees from water systems regarding compliance with applicable rules and standards. The program is typically able to resolve these issues by contacting the appropriate parties and clarifying the regulatory requirements. Compliance with Operator Certification requirements is included with any administrative orders generated by the Drinking Water Program. The program suspended one operator’s license for six months and prohibited him from serving as Direct Responsible Charge operator at any public water system for one year due to neglect of duties at his treatment plant. Two other reports of unprofessional conduct were investigated but were found to be unsubstantiated.

Certification Staff routinely work with other DHS-DWP staff to provide compliance assistance to system owners, respond to requests for time extensions for operator hiring and examination, proctor regular and special exams, and/or initiate enforcement as needed.

Systems have 30 days to inform DHS-DWP of any change in the operator designated in direct responsible charge of their water system. Compliance is tracked quarterly, and staff makes contact with systems out of compliance. Plans for compliance are initiated, and these informal actions have been successful in gaining compliance. About 92.4% of systems are currently in compliance with certification requirements.

Program rules allow DHS-DWP to suspend an operator’s certificate of competency for violation of any portion of the certification rules if the Department finds that such violation(s) constitute(s) a serious danger to the public health or safety.

Small Water System Operator Certification

This element of the Certification program is supported by a grant from the Environmental Protection Agency (EPA) that is allotted to states to fund the training and certification for the operators of Small Water Systems which are defined as community or non-transient non-community systems serving fewer than 150 connections from a groundwater source.

The grant has been utilized to fund a contract with the Rural Community Assistant Corporation for the development of updated training materials suitable for small water operators. The materials are based on a “Need to Know” criteria document developed by a group of drinking water stakeholders. The training materials will consist of a manual with individual, updatable Fact Sheets on various program elements, an on-line distance learning component which will make the training more accessible to rural community operators and a classroom oriented power point program. The materials are undergoing final staff review and approval at the time of this report.

Efficiency and Service Improvements

Certification staff presented training around the state to update operators on rule changes. Systems and operators are advised of the latest program information via the website and the Pipeline, our quarterly newsletter, which is sent to operators and water systems. Technical staff works closely with the certification staff to monitor certification compliance of systems, advise of system upgrades, and assure proper system classification.

The web page for each water system on our website now includes operator’s names, certification numbers, and their expiration date. This provides certification compliance information to DHS-DWP staff, water systems, and the public.

Starting with the May 2008 exams, ABC is providing DHS-DWP exam score results via email with a password protected spreadsheet. Certification staff is able to import the score results into the new database, License2000, taking only a matter of seconds to upload, and saves time from manually keying the results. The number of exam applicants who took the May and October 2008 exam was 352.
Since early 2007, DHS-DWP has been working on setting up an on-line renewal process. This on-line web based certification renewal will enable operators to pay renewal fees on line and will streamline the renewal process. We have advised operators of the new process (called MyLicense) through conference presentations and our Pipeline newsletter and expect it to be going to production for the 2009 certification renewal period. This first year we anticipate up to 30% of the operators will utilize this new process.

In early 2007 at the annual ABC conference, studies were presented that predicted that the number of operators retiring nationally was estimated at 50% in the next five to seven years raising concerns about future succession problems within the industry workforce. Because of this information, DHS-DWP responded by:

1. Conducting a Workforce Survey during the 2008 renewal to ascertain the number of drinking water operators in the State of Oregon who will be retiring over the next twenty years. The final results of this information will soon be printed in the DWP Pipeline Newsletter but the survey indicated that Oregon does not reflect the national trend and can look to an orderly rotation of staff over the next twenty years.

2. Developing (in collaboration with the DEQ) an Environmental Careers for Drinking Water and Wastewater Operators brochure that discusses the opportunities, rewards, preparations, requirements and experience working as an operator in the water and wastewater industry protecting the public health and the environment in collaboration with DEQ. This brochure has been distributed to high school career counselors and community colleges to assist in recruitment efforts.

Operators continue to make good use of the OESAC website to check if the course they have attended or want to attend has been approved for renewal CEUs for their drinking water certification. This has proven to be a great asset to water system supervisors and operators.

Certification staff continues to make contact with several community college proctoring departments to find sites willing to proctor water operator exams. We currently have 12 sites available for these exams. For the operators or water systems, paying the $20-$25 extra proctoring fee is often preferred over the added cost and time away from work to have their operator drive to our regular sites (Portland, Bend, Pendleton, Eugene, Roseburg and Medford) for an exam.

Taking special exams at community colleges is expected to increase during the next reporting period. The future offers the possibility of conducting on-line exams, depending on availability of hosting sites. These exams will give instant results so that operators and their systems know immediately if certifications can be upgraded. Operators have stated that this will be of great benefit to them.

The number of exams now available for Level 1-4 operators is 13. The latest types of exams are “multiple entry” exams, which are used when operators take an exam out of sequence. These exams have 120-180 questions and cover material from the lower exams that were skipped.

Oregon law requires owners of drinking water (public and private) to have their systems under the responsible control and direction of certified operators. Trained and certified operators are necessary to ensure that the systems are managed in a manner that fully protects public health and the environment. DHS-DWP administers the certification program for drinking water system operators.
Certification Program for Wastewater System Operators

ORS 448 requires the Department of Environmental Quality (DEQ) to certify persons operating or supervising the operation of sewage treatment works (wastewater systems). Wastewater systems include collection systems, treatment systems and combined collection and treatment systems, whether publicly or privately owned. The Wastewater System Operator Certification Program (program), as adopted in rule by the Environmental Quality Commission (EQC), requires DEQ to:

- Classify systems and define requirements of system owners;
- Certify persons qualified to operate and supervise systems;
- Set forth a system of penalties for rule violations;
- Revoke or refuse to issue certificates for established grounds;
- Provide for variances to the rules; and,
- Establish certification fees based on the principle of cost recovery.

**Program Activities**

**Program Coordination & Development:**
1. Develop forms and guidance material
2. Manage data and reports
3. Review and amend rules, including fees
4. Coordinate and provide staff support for DEQ’s Operator Certification Advisory Committee
5. Communicate with trainers to assess training needs and career development ladders, and participate in activities of Oregon’s Environmental Services Advisory Council for work force training and continuing education
6. Act as liaison with the Association of Boards of Certification (ABC), North American certifying authorities, and organizations that represent wastewater system operators, owners, vocational-technical educators, and the water quality control industry

**Wastewater System Classification:**
1. Compile, evaluate and interpret design summary, operation, maintenance, and operational compliance information for wastewater systems statewide
2. Classify systems to determine operator or supervisor certificate grade requirement
3. Coordinate permit notification to system owners

**Operator Certification & Examination:**
1. Evaluate education, training and experience qualifications for certification including provisional and standard certificates, certificate by reciprocity, continuing education, renewal and reinstatement.
2. Evaluate and provide examination accommodations for the disabled
3. Develop, validate, maintain, and secure examinations
4. Prepare and distribute exam study guidance
5. Schedule exams and proctors
6. Score exams and provide notice of results
7. Issue certificates and periodic certificate validation
8. Review and amend Wastewater Operator Certification Rules as needed.

**Technical Assistance & Training:**
1. Respond to inquiries and provide guidance and interpretation of certification requirements regarding system owner, supervisor, operator, and contractor operability issues
2. Provide technical assistance, clerical and record support for the Oregon Environmental Services Advisory Council (OESAC) committee on Continuing Education.
3. Provide technical assistance and data management support to DEQ staff regarding system owner and operator certification compliance

**Compliance, Variance & Enforcement:**
1. Track compliance of system owners and operators
2. Respond to complaints and inquiries, including evaluation of compliance investigations and actions, and certificate sanction or revocation
3. Evaluate and prepare responses to variance applications
Coordination and Development

DEQ program staff routinely provides technical assistance to system owners, responds to requests for time extensions for operator hiring and examination, administers examinations, and may initiate enforcement activity as warranted to compel compliance.

Program staff is represented on the OESAC. DEQ supports and participates with OESAC to identify, develop and evaluate workforce training and assign Continuing Education Units (CEUs) to qualifying courses including those approved for certificate renewal.

DEQ rules provide for a standing Operator Certification Advisory Committee to provide advice and make recommendations to the program. Advisory committee members are appointed by DEQ’s Director and represent wastewater system owners and operators, professional technical education and training, and interested parties including the Oregon Association of Clean Water Agencies, League of Oregon Cities, Oregon Association of Water Utilities, and the Pacific Northwest Clean Water Association. DHS-DWP staff also plays an important program advisory role.

Wastewater System Classification

Wastewater systems are classified by DEQ in two areas, collection or treatment, and at one of four levels based upon a system’s size, complexity and degree of difficulty to operate. These classifications establish the certificate type and grade level requirement for the operator. Some entities have both a collection and treatment system classification, while others have only one type of system. As of December 31, 2008, there were a total of 379 classified systems where certification of operators is required (Table 2). Additionally, there are about 58 systems where voluntary certification is encouraged by DEQ.

<table>
<thead>
<tr>
<th>Classified Wastewater Systems</th>
<th>CERTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MANDATORY</td>
</tr>
<tr>
<td>Collection &amp; Treatment</td>
<td>280</td>
</tr>
<tr>
<td>Collection Only</td>
<td>53</td>
</tr>
<tr>
<td>Treatment Only</td>
<td>46</td>
</tr>
<tr>
<td>TOTAL</td>
<td>379</td>
</tr>
</tbody>
</table>

* These systems are not required to have certified operators but choose to have them anyway.

DEQ conducts classification reviews for a system whenever a permit action occurs (new permit, permit renewal or modification) or a technical evaluation is required (plan review). Over the past two years, DEQ staff reviewed system classifications for about 85 facilities, including five new ones. Forty nine systems were re-classified higher or lower, or dropped from operator certification requirements.

Operator Certification and Examination

Oregon has a long history of operator certification dating back to the beginning of the former all-voluntary program in 1956. Today, as then, an operator must meet minimum standards for education and operator work experience and pass an examination to obtain a renewable certificate. DEQ examinations are closed-book tests scheduled by notice at least twice each year (spring and fall) at several sites around the state. DEQ administers validated standardized tests that are developed jointly by DEQ and ABC. After scoring and analysis by ABC, all test results are evaluated by DEQ.

In 2007 and 2008, program staff continued to participate on the ABC Validation and Examination Committee to evaluate and revise wastewater collection questions and tests in follow-up to a survey of essential “need-to-know” job tasks, duties and responsibilities. All wastewater treatment tests were revised by a similar process in 2005, and several questions were evaluated by committee again in 2008. During this reporting period, DEQ scheduled 755 examinations, including 24 that were scheduled on dates to accommodate individual operator or employer needs.

DEQ has 14 tests for Grades 1 to 4 available from ABC that include one standardized “sequential” test for each of four grades in collection and treatment, and a standardized “multiple entry” test for collection and treatment Grades 2, 3, and 4. The multiple entry tests are appropriate when operators apply for an advanced grade level and have not progressed through lower grade examinations. The number of questions increase in these tests to 120, 150 and 180 respectively, and each include the 100-question sequential test for Grade 1, plus additional essential “Need-to-Know” questions from each lower level test.
As of December 31, 2008, 1,749 persons were certified in wastewater system operation, including nine holding provisional certificates that enable on-the-job training. The total number of valid certificates on this date was 2,490, as about 43 percent or 750 persons hold both a certificate in collection system operation and a certificate in treatment system operation. The following graph (Figure 1) shows how the number of scheduled examinations, valid certificates and persons certified has grown since 1987.

Figure 1: Oregon’s Wastewater Operator Certification Program
1987 - 2008

Continuing Education

To be eligible to renew a certificate, an operator needs to accumulate a minimum of two (2.0) Continuing Education Units (CEUs) or equivalent, or two hours of community college, college or university credit. One CEU equals ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instruction. CEUs or credit must have direct application to wastewater system (collection or treatment) operator job tasks and required knowledge. Continuing education promotes professional growth, helps ensure that operators maintain their skills in keeping with changing technology and regulations, and ultimately enhances safe and effective practices in the field. During this reporting period, all the operators who were required to report were able to document the continuing education claimed.

Technical Assistance and Training

During the past two years, program staff responded to hundreds of requests for assistance from system owners, operator personnel, training providers and DEQ regional staff regarding operator certificate qualifications, application forms, continuing education, system classification and rule interpretation. DEQ also provides certified operator and classified system information to system owners (employers), operators, vocational counselors, organizations, etc., to help with operator training, recruiting, and job placement.

Training of operators is accomplished by a host of non-profit organizations, community colleges, foundations, public and private sector consultants and professional trainers. In addition to classroom and formalized on-the-job training, numerous opportunities exist for traditional correspondence and distance learning, such as over the Internet, of which there were 30 offerings. In Oregon in 2007 and 2008, there were over 158 documented opportunities via seminar, workshop, specialty “schools” or conferences for face-to-face operator continuing education providing 142.2 CEUs (equal to 1,422 contact hours) approved by OESAC and DEQ for certificate renewal or advancement. DEQ staff routinely assists in developing operator training, and often deliver training topics including certification requirements, system operation and compliance issues at regional technical conferences and “short schools” around the state. During this time period, DEQ staff assisted with or made presentations at 20 of these events.

Compliance, Variance and Enforcement

DEQ determines permit compliance by reviewing self-monitoring reports, written operator designations, file records, and through field inspections, surveys, and other investigative techniques. DEQ has significant enforcement authority to compel compliance should it be needed and program rules call for the Director of DEQ to revoke or to refuse to issue an operator’s certificate for grievous acts.
DEQ investigates complaints alleging operator violations of permit conditions for various acts such as failure to perform proper sampling and testing, improper facility operation, false or fraudulent records or reports, or failure to obtain proper certification. DEQ works with system owners and operators who are out of compliance, as well as those in marginal compliance, to help them find efficient and cost effective ways to come into compliance. DEQ encourages and often recommends a course of action to assure both operator and operator training deficiencies are corrected in the shortest possible time. When there is a sudden loss or departure of a system supervising operator, upon written request, DEQ may grant a conditional time extension to allow for recruiting or contracting with a certified operator or for examination of operator personnel. During this reporting period, several requests were granted. During the biennium, DEQ issued four Notices of Noncompliance for failure to comply with certification requirements and assessed three civil penalties in other cases for operating or supervising a wastewater treatment system without proper certification. DEQ did not revoke or suspend any certificate during this period and was able to resolve non-compliance issues without assistance from the Department of Justice.

The number of systems in compliance with operator certification requirements is near 93%, with the balance working to achieve full compliance. About one in four wastewater system owners meet operator certification compliance through some type of contractual agreement that includes the services of a certified operator to supervise system operation.

**Efficiency and Service Improvements**

A program coordinator and a clerical support person currently staff DEQ’s Operator Certification Program. Continued efficiency efforts have helped offset any need for increased staffing despite some increase in the number of persons certified and applying for certification. For example, the program has increased use of the Internet for communication, guidance, application and other document distribution. The Certification Web page now includes a “Certified Operator Query” that provides name, certificate type, grade and expiration date, and county of residence, and an “Examination Query” that gives the names of person passing by exam type and date. Web page visits average more than 700 per month with a corresponding reduction in telephone requests for information and mailing of material.

DEQ uses a licensing data management system, License2000, made available through the Department of Administrative Services. This proprietary database management tool replaced our outdated system beginning in November 2005, and allows for more reliable support from our information services group. The database will be instrumental to implementing E-commerce through the License2000 feature MyLicense, including online completion of applications and payment of fees.

DEQ’s staggered certificate expiration dates and corresponding two-year continuing education reporting distributes workload and revenue flow over the biennium. DEQ continues to benefit in reduced examination development, maintenance and validation costs as a member and testing service client of ABC. An increasing number of operators find it necessary to schedule examinations at times other than set by DEQ in the spring and fall, so open-schedule exams are allowed by rule where operators may test at one of a number of DEQ regional offices or at a local community college testing center. ABC has developed computer-based testing and some states have moved over to this new format. DEQ will be talking with the various programs to learn more in an effort to improve efficiencies and services in this area.

**Conclusion**

The objectives of the Wastewater System Operator Certification Program are to help protect public health, Oregon’s environment and water resources, and capital investment in infrastructure through safe and effective operation of Oregon’s domestic wastewater collection and treatment systems. The Operator Certification Program helps ensure that there are an adequate number of qualified persons available to provide these services throughout the state.

Oregon’s wastewater utilities continue to raise minimum employment qualifications for both supervisory and non-supervisory personnel. Certification has established a much-needed minimum standard for education, training and experience that helps ensure an effective and efficient workforce that properly operates and maintains facilities to minimize adverse effects on water quality.

The continued acceptance and support of the program is evidenced by increased employer preference for certification, recruiting preferences, promotional and pay incentives, and increased employer support for continuing professional skill training. Another indicator of support is the high number of employer-paid certification fees for their operators estimated to be around 68%, with certificate renewals alone at 76%.

The Wastewater System Operator Certification Program is working well in Oregon. For the near future, the main program development issues DEQ will be addressing include continued validation of examinations and continued process efficiency improvement.
20th Annual Environmental Cleanup Report

Submitted to:

Governor Ted Kulongoski
Oregon Legislative Assembly
Environmental Quality Commission

by

Dick Pedersen, Director

January 2009
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Introduction

Oregon's environmental cleanup program:

- evaluates and prioritizes for further action sites that are contaminated with hazardous substances;
- oversees the investigation and cleanup of sites presenting significant risks to human health or to the environment;
- assists property owners and local communities in restoring properties to productive use through voluntary cleanup, brownfield redevelopment, and prospective purchaser agreements; and
- conducts investigations and cleanups at “orphan sites” in cases where the responsible party is unknown, unwilling or unable to complete required cleanup actions.

The purpose of the Environmental Cleanup Report is to summarize major developments in the state’s environmental cleanup program, identify accomplishments from fiscal year 2008, and forecast future activities. The Department of Environmental Quality (DEQ) is required by ORS 465.235 to prepare this report annually for the Legislature, the Governor, and the Environmental Quality Commission. Every fourth year, the report must also include an updated four-year plan.

The report includes:

- Statistics on environmental cleanup program activities in fiscal year 2008 and anticipated activities from fiscal years 2009 to 2011;
- Descriptions of environmental cleanup program components; and
- A report on a potential funding shortfall in the Orphan Site Account, and the effects such a shortfall could have on Oregonians and our environment.

Highlights

In the past year, the state’s cleanup program initiated and completed cleanup actions at a large number of sites. Specifically, DEQ:

- Added 181 sites to the database of suspected releases of contaminated sites;
- Completed 12 preliminary assessments and equivalents;
- Completed 8 removal actions;
- Completed 3 remedial investigations;
- Completed 5 feasibility studies;
- Completed 4 records of decisions;
- Initiated 12 final cleanup (remedial) actions; and
- Completed no-further action determinations at 79 sites.
Accomplishments – Fiscal Year 2008

Sites Discovered
DEQ has identified over 4,000 contaminated and potentially contaminated sites in Oregon since 1988. 181 new sites were identified in Fiscal year 2008 (FY 2008). DEQ added these sites to its Environmental Cleanup Site Information System (ECSI) for tracking and public-reporting purposes.

The Cleanup Process in Oregon
DEQ screens sites where hazardous substances may have been released to determine priorities for further action. If a release appears likely, a preliminary assessment may be conducted to investigate the presence of contamination. A site investigation may also be conducted to delineate the extent of contamination. However, if an emergency situation exists, a removal action may be needed to stabilize the site.

Sites on the Confirmed Release List
Of the approximately 4,350 sites recorded in ECSI, 762 are on the Confirmed Release List. The Confirmed Release List comprises sites where the presence of contamination has been documented (rather than just being suspected). DEQ added 31 sites to the Confirmed Release List in FY 2008. DEQ removed (“delisted”) 6 sites in FY 2008. Sites are delisted when contamination has been eliminated or reduced to levels that pose no unacceptable risks to human health or the environment.

Sites on the Inventory
The Inventory of Hazardous Substance Sites is a list of sites with confirmed contamination that DEQ has determined poses clear risks to human health or the environment. There are 475 sites on the Inventory. In FY 2008, 25 sites were added to the Inventory, and 4 sites delisted. Sites that rely on engineering or institutional controls to manage risks (see sidebar at right) must remain listed. All sites on the Inventory are also on the Confirmed Release List.

Removals
At sites with high levels of contamination in limited areas, a removal can be used to prevent further spread of contamination and protect the public. A removal is a cleanup that occurs before (or in lieu of) a Remedial Investigation and Feasibility Study. In FY 2008, 11 removals were initiated under DEQ supervision, and 8 were completed. Because some removal actions may take months or years to complete, the number of removals completed during a fiscal year is not always the same as the number started.

For sites where the necessary cleanup is relatively straightforward and simple, an initial removal action may be all that is required. However, if the cleanup will be more difficult and complex, a formal cleanup decision (called a Record of Decision) will be adopted by DEQ after a public comment period. The resulting cleanup is referred to as a remedial action. In addition to (or instead of) removing or eliminating the contamination, an engineering control (such as a cap or fencing) may be put in place to isolate the contamination. Or an institutional control may be recorded to limit future activities at the site so that people aren’t exposed to the contamination.

A site receives a No Further Action designation when DEQ determines that the site poses no significant threat to human health or the environment. This may occur at any point during the investigation and cleanup process.
Preliminary Assessments
A Preliminary Assessment is an investigation of a site and its surroundings. The history of a site is reviewed, and a walk-through is conducted, to determine whether contamination may be present and what its effects could be. Sampling of environmental media is usually not conducted. Characteristics of the site vicinity (land use and population, nearby streams, depth to groundwater, etc.) are also reviewed to determine the likelihood of contamination migrating off-site. DEQ uses this information to determine the site’s priority for further investigation and cleanup.

In FY 2008, DEQ or parties working with DEQ initiated Preliminary Assessments at 13 sites, and completed assessments at 12 sites. Because Preliminary Assessments generally take just a few months to complete, the majority of assessments started in FY 2008 were also completed in FY 2008.

Remedial Investigations
A Remedial Investigation is an extensive sampling effort at a site to determine the contaminants that are present, their locations, concentrations, and migration patterns. Remedial Investigations typically include an evaluation of risks that contamination poses to human health and the environment. DEQ reviews and approves the investigations. DEQ initiated 7 Remedial Investigations in FY 2008, and completed 3. Because Remedial Investigations often take more than a year to complete, investigations started in a given fiscal year are generally completed in a subsequent fiscal year.

Feasibility Studies
Feasibility Studies provide detailed comparisons of different methods to clean up a site. Because various approaches or technologies can be used, each is evaluated for effectiveness, protectiveness, and cost, among other criteria. A preferred option is then chosen and recommended as the final cleanup strategy. In FY 2008, DEQ began 4 Feasibility Studies and completed 5. Because Feasibility Studies often take more than a year to complete, the number of studies started and completed during a given time period may differ.

Routes to Cleanup in Oregon
DEQ’s cleanup program has many options to help owners and operators of contaminated property move through the investigation and cleanup process. A popular option is Voluntary Cleanup. Willing parties and their contractors sign up to have DEQ staff oversee their projects, to ensure that their work meets all appropriate requirements. Parties can choose the standard Voluntary Cleanup approach or Independent Cleanup, depending on the complexity of the project and the amount of oversight they need.

DEQ also “discovers” contaminated properties through Site Assessment. DEQ learns about potential contamination from phoned-in complaints, unsolicited reports, and from other government agencies, in addition to conducting its own inquiries. Sites are evaluated and ranked according to their potential threats. Responsible parties are often encouraged to address their contamination through Voluntary Cleanup.

If a site is a high priority, DEQ may choose to take control of remedial activities, rather than wait for responsible parties to do so. DEQ can require cleanups to be conducted through Site Response. Parties can also enter Site Response voluntarily, if they want to conduct cleanup under a legally-enforceable order or judgment. If no responsible parties are able or willing to clean up a high-priority site, or if responsible parties are unknown, DEQ may designate the site an Orphan, and conduct the cleanup using its Orphan Site Account. Qualifying Dry Cleaner sites are also addressed through their own separate account.

Other types of cleanups are conducted under separate statutory authority. Hazardous material spills are cleaned up through Emergency Response. Releases of petroleum from regulated Underground Storage Tanks (USTs) are likewise addressed via the UST Program.
**Records of Decision**

A Record of Decision documents the cleanup approach that DEQ will use at a site, after evaluating public comments on the proposed approach and adjusting it as needed. The Record of Decision incorporates information from the Remedial Investigation and Feasibility Study to summarize the nature and extent of contamination, risks posed by contamination, and the method that will be used to implement a remedy. DEQ initiated 7 Records of Decision in FY 2008, and completed 4. It takes several months for a Record of Decision to be written, released for public comment, and approved. As a result, for a given period of time, the Records of Decision started are generally not the same as those completed.

**Remedial Actions**

A Remedial Action is the final cleanup action taken at a site; it may involve eliminating contamination from a site, or isolating the contamination through institutional controls such as deed restrictions, or engineering controls such as caps, fencing, or barrier walls. In FY 2008, DEQ initiated 12 Remedial Actions, and completed 12. Because Remedial Actions may take years, the number of such actions started and completed during a given time period can differ.

**No Further Action Decisions**

DEQ makes a No Further Action determination when the agency concludes that a site no longer poses risks to human health or the environment, and no further investigation or cleanup is necessary, or when DEQ determines that suspected contamination at the site does not present an unacceptable risk. Since its inception in 1988, DEQ’s cleanup program has issued No Further Action letters for 1,342 sites. This amounts to nearly one-third of all sites in the ECSI database. During FY 2008, DEQ issued No Further Action decisions at 79 sites.

**Brownfields Redevelopment**

A brownfield is a vacant or underused property where actual or perceived environmental contamination is hindering expansion or redevelopment. These sites are often highly visible community eyesores where uncertainty about potential cleanup liability has derailed opportunities to bring new site uses and jobs that would revitalize the community. While DEQ has no stand-alone brownfields program, the cleanup program supports brownfield identification and cleanup, and seeks to partner with local communities and prospective purchasers to develop the strategies and resources needed to return abandoned sites to productive use.

DEQ works with local governments, nonprofit groups and staff from the Oregon Economic and Community Development Department to find state and federal funding for brownfields investigation and cleanup. In FY 2008, DEQ’s cleanup program provided technical assistance to five local governments that won EPA brownfield grants worth over $1 million. DEQ also distributed $250,000 in EPA grant money to evaluate and clean up contamination at eligible brownfield sites. Brownfields redevelopment is a key objective of the Oregon’s Economic Revitalization Team efforts that DEQ actively supports and participates in.

**Voluntary Cleanups**

The 1991 Legislature authorized a Voluntary Cleanup Program to provide willing parties with DEQ oversight while they investigate and, if necessary, clean up
contamination from their properties. This cooperative process helps parties move through the process efficiently, and meet sometimes tight funding and redevelopment deadlines.

In 1999, DEQ added a second Voluntary Cleanup “pathway.” Independent Cleanup is a process by which parties complete their own investigations and cleanups with minimal DEQ oversight. If a party provides DEQ with 90 days’ notice, DEQ staff can arrange to review and approve a final cleanup report within 60 days after the report is submitted. This process allows parties to proceed at a pace that suits their needs. The Independent Cleanup option is available for slightly or moderately contaminated sites that may exceed acceptable risk levels, but do not pose imminent threats to human or environmental health.

There are approximately 428 active Voluntary Cleanup sites, with 324 sites following the traditional pathway, and about 104 in Independent Cleanup. Since 1991, Voluntary Cleanup has issued No Further Action decisions for 713 sites, far more than Site Response alone could have completed.

**Prospective Purchaser Agreements**

DEQ uses Prospective Purchaser Agreements as a tool to facilitate the cleanup and productive use of properties contaminated with hazardous substances. A Prospective Purchaser Agreement (PPA) is a legally binding agreement between DEQ and a prospective purchaser, which limits the purchaser’s liability to DEQ for environmental cleanup at the property in exchange for providing a “substantial public benefit” such as partial cleanup and economic reuse of an otherwise vacant or underutilized property. Since approval of the Prospective Purchaser Agreement provisions by Oregon’s Legislature in 1995, DEQ has negotiated more than 100 PPAs throughout Oregon, including 6 in the most recent fiscal year, notably the Reynolds Metal site in East Multnomah County, which facilitated construction of a multi-million dollar Fed Ex distribution center.

PPAs have clearly proven to be a significant tool for both cleanup and economic development.

**Orphan Sites**

Orphan sites are highly contaminated properties or areas where parties responsible for the contamination are unknown, unwilling, or unable to clean it up. The 1991 Legislature authorized an Orphan Site Account to clean up contamination that poses potentially serious threats to human health or the environment.

Orphan sites include a range of contaminated sites such as small businesses, abandoned mines, and larger, “areawide” sites where hazardous substances have affected sources of drinking water. Since 1992, the Account has funded work at more than 60 high-priority Orphan sites, about 25 of which are currently active.

DEQ designated two sites as Orphans in FY 2007, and six more in FY 2008. The Account is funded through the sale of long-term bonds and cost recovery from responsible parties. Since 1992, the Oregon Legislature has approved DEQ’s issuance of bonds totaling about $41.6 million including $4.8 million authorized by the 2007 Legislature.
Orphan Funding Shortfall

Oregon faces a looming shortfall in revenue available for cleanup of Orphan Sites, and DEQ is taking steps now to prudently manage available funds in the 2009-11 biennium. DEQ anticipates the beginning balance of the Orphan Site Account available for project work will be approximately $3.4 to 3.7 million.

Of this amount, approximately $700,000 will be needed in the 09-11 biennium for federal requirements. Specifically, the State of Oregon is required to pay 10% of the cost of federal Superfund National Priority List (NPL) remedial action costs for remedies. Oregon is also required to pay for 100% of the long-term operation and maintenance costs of these sites once the U.S. Environmental Protection Agency (EPA) completes a final remedy. These NPL Superfund sites include McCormick and Baxter, Taylor Lumber, and NW Pipe and Casing.

An additional estimated $1 million in the 2009-11 biennium will be required to maintain other previously-constructed remediation systems such as engineered soil and sediment caps as well as groundwater treatment systems. These sites include: Surgichrome (Clackamas County), Keno Areawide (Klamath County), NuWay Oil (Multnomah County), Lebanon Areawide (Linn County) Frenchglen (Malheur County), Nyssa (Malheur County), and Lone Elk Market (Wheeler County). In most cases, these already installed systems provide ongoing protection of drinking water supplies. Typical operation, maintenance and associated monitoring costs at these sites range from $10,000 to $75,000 per year per site.

DEQ has also identified nearly $2.3 million of work needed in the 09-11 biennium for investigation and cleanup of other known highly-contaminated sites where a final remedy has not yet been constructed. Because of limited available Orphan Site Account funds, DEQ intends to restrict spending in the 2009-11 biennium to less than half this amount for activities at only the very highest priority sites. It should be noted that DEQ has always held some Orphan Site Account funds in reserve for environmental emergencies or as-yet-unidentified sites.

While DEQ is taking steps to responsibly manage the limited funds available in the 2009-11 biennium, we plan to request authorization in 2011 for a bond sale, or recurring revenue source, to pay for future Orphan Site work. For example, the known obligation of the State of Oregon for Superfund NPL site matching funds alone in the 2011-13 biennium is estimated to be between $1.0 and $2.4 million, and Legislative action will be needed to meet these State obligations.

For More Information

More information about specific cleanup projects and programs is available from the Environmental Cleanup section of DEQ’s web site at http://www.deq.state.or.us/lq/cu/index.htm. In addition, if you have questions or comments about this report, please contact Jeff Christensen, Cleanup and Emergency Response Program Manager at christensen.jeff@deq.state.or.us.
### Cleanup Phases Initiated and Completed, Fiscal Year 2008 (Actuals) and 2009 (Projections)

<table>
<thead>
<tr>
<th>Site actions</th>
<th>Fiscal Year 2008 (Actual)</th>
<th>Fiscal Year 2009 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initiated</td>
<td>Completed</td>
</tr>
<tr>
<td>Suspected Release Sites Added to Database</td>
<td>NA</td>
<td>181</td>
</tr>
<tr>
<td>Added to Confirmed Release List</td>
<td>NA</td>
<td>31</td>
</tr>
<tr>
<td>Added to Inventory</td>
<td>NA</td>
<td>25</td>
</tr>
<tr>
<td>Site Screenings</td>
<td>53</td>
<td>46</td>
</tr>
<tr>
<td>Preliminary Assessments &amp; Equivalents</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Removal Actions</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Remedial Investigations</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Feasibility Studies</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Records of Decision</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Remedial Actions</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>No Further Action Determinations</td>
<td>NA</td>
<td>79</td>
</tr>
</tbody>
</table>

**Note:** Projections for initiated and completed cleanup phases were established in the 2007 - 2011 “Four Year Plan of Action.” As provided by ORS 465.235, the four year plan is part of this year’s annual report; actions expected to be completed over that period appear in the table below. The current four year plan is unchanged from last year’s Annual Report.
4 Year Plan - Actions Projected to be Initiated and Completed:  
7/1/07 – 6/30/11

<table>
<thead>
<tr>
<th>Site actions</th>
<th>2007-2009 Biennium</th>
<th>2009-2011 Biennium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initiated</td>
<td>Completed</td>
</tr>
<tr>
<td>Suspected Releases Added to Database</td>
<td>NA</td>
<td>300</td>
</tr>
<tr>
<td>Added to Confirmed Release List</td>
<td>NA</td>
<td>65</td>
</tr>
<tr>
<td>Added to Inventory</td>
<td>NA</td>
<td>40</td>
</tr>
<tr>
<td>Site Screenings</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Preliminary Assessments &amp; Equivalent</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Removal Actions</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Remedial Investigations</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Feasibility Studies</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Records of Decision</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Remedial Actions</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>No Further Action Determinations</td>
<td>NA</td>
<td>160</td>
</tr>
</tbody>
</table>

This four-year plan assumes stable program funding through June 30, 2011. Projections are based on: 1) the number of actions initiated and completed between July 2003 and June 2007; and 2) the effects of an approximately 25% FTE reduction in DEQ’s Cleanup Program during 2005 and 2006. Voluntary Cleanup sites are both more numerous and (generally) simpler than Site Response sites; therefore, they move more quickly through the investigation and cleanup process. DEQ often makes No Further Action determinations during the site screening and preliminary assessment phases, and there are fewer removals, remedial investigations, etc. conducted at these sites.
Solid Waste Management Program Information Update for 2007-2008

January 2009
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Executive Summary

Oregon Solid Waste Management 2007-2008 Update

The purpose of this report is to provide current data and other information about solid waste generation and management in Oregon and to satisfy legislative reporting requirements (ORS 459A.015 and 459A.020, the state solid waste management plan update).

This is a summary of the information contained on the DEQ Solid Waste Program’s webpage at http://www.deq.state.or.us/lg/sw/index.htm. In order to conserve natural resources, only this executive summary is being distributed in hard copy.

This report includes data for 2006 and 2007 (the most recent data available), as well as historical trend information. The waste composition data are for 2005, and the recovery data are for 2007.

General Trends

In the report submitted in 2006, DEQ noted that the total amount of solid waste generated each year continued to increase steadily after leveling off in 2000 and 2001, with corresponding increases in recovery softening the environmental impact of the increases in waste produced. However, in 2007, both per capita and total waste generation actually decreased slightly, for the first time since DEQ started keeping these records in 1992.

- Annual waste generation per person increased from 5.7 pounds per day in 1992 to 8.5 pounds per day in 2006, then declined slightly to 8.4 pounds per day in 2007. Consequently, in 2007, Oregon met its waste prevention goal of no increase in the per capita generation rate for the first time.

- Total waste generation also declined slightly in 2007, from 5,728,518 tons in 2006 to 5,722,100 tons in 2007. Consequently, in 2007, Oregon also met its waste prevention goal of no increase in the total waste generation rate for the first time.

- In both 2006 and 2007, Oregon’s recovery rate was above the state’s interim goal of 45% for the year 2005, but the rate declined slightly in 2007, from 47.3% in 2006 to 46.7%. The recovery rate peaked at 49.1% in 2005. The recovery rate includes materials recycled by households and businesses or sent offsite for composting. It also includes some materials burned for energy recovery.

- The energy and greenhouse gas savings attributable to the state’s successful recovery programs are significant. The estimated greenhouse gas reductions from recycling, composting, and energy recovery in 2007 are equal to 3.6 million metric tons of carbon dioxide, or the equivalent of reducing the emissions from 790,000 passenger cars (a reduction of about 5.1 percent of 2007 estimated statewide greenhouse gas emissions).

- Solid waste disposed of at Oregon municipal waste (i.e., non-hazardous) facilities, including waste from out-of-state, contaminated soil, and other special wastes, has increased from 3.6 million tons in 1994 to 6.9 million tons in 2007, an increase of 3.3 million tons or almost 92%.

- Oregon continues to receive a significant amount of waste for landfilling that is generated outside of Oregon. In 2007, more than 37% of the waste disposed of in Oregon’s municipal solid waste facilities was from out-of-state.

- Oregon exports only a small fraction of its waste for disposal in other states. In 2007, only 1.4% of Oregon’s municipal solid waste was landfilled out-of-state.

Waste Generation & Waste Reduction Data

This section summarizes the work that the DEQ Solid Waste Program does to gather and analyze data on waste generation, recovery rates, disposal tonnages, and waste characterization.

Waste Generation

Waste generation is defined as the sum of materials disposed and recovered. It is a rough measure of the total amount of materials discarded by households, businesses, institutions, and governments. It includes garbage as well as materials separated for recycling, energy recovery, and off-site composting.

Methods to reduce waste generation include:

- Waste prevention – Using and wasting less by acquiring fewer items as raw materials, packaging, or consumables or by purchasing more durable goods;

- Reuse – Using something again in its original form (as opposed to recycling’s reformulating materials into new products);

- Composting on site so that materials do not enter the solid waste stream.
Generation of solid waste in Oregon grew between 1993 and 2006, from 3.3 million to 5.7 million tons/year. While population growth contributed to this increase, Oregonians, including individuals and businesses, produced on average 46% more discards per-capita in 2006 than in 1993. In 2007, waste generation decreased slightly. On a per-capita basis, measured solid waste generation in Oregon grew from 5.8 pounds per day in 1993 to 8.4 pounds per day in 2007, down from 8.5 pounds per day in 2006. The table below illustrates Oregon’s waste generation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Generation (tons)</th>
<th>Per Capita Year (lbs.)</th>
<th>Per Capita Day (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>3,255,196</td>
<td>2,128</td>
<td>5.8</td>
</tr>
<tr>
<td>1995</td>
<td>3,623,705</td>
<td>2,277</td>
<td>6.2</td>
</tr>
<tr>
<td>2000</td>
<td>4,544,280</td>
<td>2,645</td>
<td>7.2</td>
</tr>
<tr>
<td>2001</td>
<td>4,643,157</td>
<td>2,676</td>
<td>7.3</td>
</tr>
<tr>
<td>2002</td>
<td>4,772,537</td>
<td>2,724</td>
<td>7.5</td>
</tr>
<tr>
<td>2003</td>
<td>4,913,666</td>
<td>2,775</td>
<td>7.6</td>
</tr>
<tr>
<td>2004</td>
<td>5,240,525</td>
<td>2,926</td>
<td>8.0</td>
</tr>
<tr>
<td>2005</td>
<td>5,549,824</td>
<td>3,057</td>
<td>8.4</td>
</tr>
<tr>
<td>2006</td>
<td>5,728,518</td>
<td>3,104</td>
<td>8.5</td>
</tr>
<tr>
<td>2007</td>
<td>5,722,100</td>
<td>3,055</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Environmentally, the decline in both total and per capita waste generation is a positive development. Generation is a crude measure of consumption, and for many materials, the environmental impacts of production (the corollary of consumption) is many times higher than the impacts of disposal.

Recent analysis by the U.S. EPA suggests that roughly half of the country’s greenhouse gas emissions are associated with the production and transportation of goods. The leveling off of waste generation in 2007 may indicate a leveling off in the emissions of unwanted greenhouse gases in all stages of the life cycle of materials. Further research is needed to evaluate this hypothesis.

Recovery Rates
Oregon recovered 2,458,041 tons of materials in 2007, which is a decrease of 65,326 tons from 2005. Thus, the state’s calculated recovery rates decreased slightly in 2006 and 2007 from its high of 45.5% in 2005 (see table). However, these calculated rates do not include the 2% credits for wastesheds that operate reuse and backyard composting programs. These activities decrease waste generation, but are hard to quantify, so the Legislature created these credits and mandated their inclusion in the state’s official recovery rate, starting in 2001.

Materials. Oregon’s 2007 recovery rate of 46.7% includes materials collected for recycling or composting, as well as some material burned for energy recovery. Major categories of recyclables include:

**Metal:** 397,882 tons recovered. The amount of recovered metal increased 7.7% from 2006. This partially counters the large drop in metals recovery that occurred between 2005 and 2006.

**Paper:** 792,505 tons recovered. Overall, paper recovery rose less than 1%.

**Organic material (wood waste, yard debris, food waste):** 1,021,494 tons recovered. The amount of organic materials recovered decreased almost 5%, which may be due to a decrease in construction in 2007.

**Electronics:** 9,813 tons recycled. While this is a relatively small number, it represents a huge increase of 54.7% from 2006’s figures.

**Glass:** 97,827 tons recovered. This is a 1% increase in the past year.

Wasteshed rates. Eighteen of Oregon’s 35 wastesheds had recovery rates in 2007 that were greater than or equal to their 2006 rates. Twenty wastesheds are already exceeding their 2009 recovery goals. In addition to updating their recovery plans (required in 2005 and 2010), wastesheds that do not meet their recovery goals must prepare a technical review to determine why they aren’t meeting them and find ways to achieve their goals. DEQ will provide assistance in this process if requested by wasteshed representatives. Wastesheds may also petition DEQ for a change in their goals.

Energy savings. Manufacturers save large amounts of energy when they use recycled materials instead of virgin resources. Recycling in Oregon in 2007 (not including composting or energy recovery) saved about 30 trillion BTU (British thermal units), which is the equivalent of 241 million gallons of gasoline. It is also equivalent to 2.7 percent of 2007 estimated total statewide energy use.
Greenhouse gas reductions. The estimated greenhouse gas reductions from recycling, composting, and energy recovery in 2007 are equal to 3.6 million metric tons of carbon dioxide, or the equivalent of reducing the emissions from 790,000 passenger cars. It is also equivalent to reducing 5.1 percent of 2007 estimated statewide greenhouse gas emissions. The greenhouse gas benefits of waste recovery are partly the result of the large energy savings industries gain by using recycled materials in manufacturing.

More detailed information on waste generation, material recovery, and specific wasteshed programs can be found in the 2007 Oregon Material Recovery and Waste Generation Report on the DEQ solid waste webpage at http://www.deq.state.or.us/lq/sw/index.htm

Disposal Data
The amount of “counting” solid waste disposed in Oregon in 2007 was 3,264,059 tons or 1,743 pounds per person per year, based on a statewide population of 3,745,455. The total amount of material disposed increased by only 30,844 tons from 2006 to 2007. With the increase in population, this means that the per capita disposal actually fell 9 pounds per person or just under 1% between 2006 and 2007. This is not as insignificant as it may appear. For years, the per capita disposal amounts have risen drastically. This is the first year of decreasing per capita disposal, which could represent a potential shift toward real sustainability.

Disposal facilities. Oregon has 26 operating municipal solid waste landfills, one mixed solid waste energy recovery facility, and one mixed solid waste incinerator. With so many landfills that have closed in the past two decades, Oregon has the potential for some of them to leak contamination. Thus, the need for regulatory oversight continues well beyond the date at which a facility stops accepting waste for disposal. Continued monitoring of groundwater and methane gas levels may be necessary for decades after a facility closes.

Many of the landfills that remain open are larger facilities that accept waste on a regional rather than a local basis. Some of these landfills are among the nation’s largest, providing Oregon with sufficient disposal capacity for many years to come.

Santosh Landfill. In October 2008, DEQ completed installation of a state of the art landfill cap at Santosh Landfill in Scappoose. The impermeable cap prevents precipitation from coming into contact with the waste, and therefore reduces the risk of groundwater contamination. The 15-acre landfill accepted waste from 1970 to 1983. DEQ has monitored environmental conditions at the site since 2004, when contaminated water was observed leaching out of the south side of the landfill.

The construction involved regrading the landfill with about 43,000 tons of imported soil and rock to promote drainage. The impermeable cap is a geocomposite clay liner consisting of a layer of processed clay sandwiched between two layers of geotextile fabric. The landfill improvements also include a landfill gas venting system and a storm water collection system. The site was covered with 48,000 tons of topsoil and seeded with native grasses. In 2007, a portion of the landfill was regraded and capped, and DEQ constructed and fenced an enhanced wetland area nearby, where about 700 native trees, shrubs, and ground cover species were planted. The $3.5 million dollar project was funded by the Solid Waste Orphan Account.

For more detailed information about disposal facilities and amounts and types of waste disposed, see the 2007/2008 Disposal Status document on the DEQ webpage at http://www.deq.state.or.us/lq/sw/index.htm, where you can also look up the locations of disposal facilities in Oregon on the Facility Profiler.

Waste Characterization
Oregon regularly conducts solid waste composition studies as required by state law (Oregon Revised Statutes 459A.035). A new study will begin in 2009. Previous studies were conducted in 2005/06, 2002, 2000, 1998, 1994/95, and 1992/93. Data for a recycling composition study were also gathered in 2004/05. The Metro regional government also conducted studies in 1993/94 and earlier. Metro, the cities of Portland and Eugene, and Marion County have all contributed to some or all of the composition studies conducted since 1998.

The information gained by these studies allows local governments and recycling businesses to target recycling efforts toward materials that are still being thrown away. It is also used to determine the recycling rate for rigid plastic containers. Oregon law establishes recycling or reuse requirements for rigid plastic containers sold or offered for sale in Oregon. One way that all plastic container manufacturers and product manufactures can be assured that they are in compliance with Oregon law is if the aggregate recycling rate for compliance purposes remains above 25%. DEQ has determined that the rate will be above 25% for 2009.

The recent statewide waste composition studies show some positive trends. The percentage of recyclable paper, glass, and scrap metal being disposed was less in 2002 than in earlier studies. This decrease appears to be caused by increases in recovery of these materials. Paper (recyclable and non-recyclable) remains the largest group of materials disposed by weight, and food waste remains the largest single material disposed.

Complete results of 2005 and earlier waste composition studies can be viewed or downloaded from DEQ’s webpage at http://www.deq.state.or.us/lq/sw/index.htm.

1 “Counting” solid waste includes municipal solid waste, waste tires, construction and demolition debris, animal waste and grease, and some inerts such as gypsum.
2007 Legislation

Electronics Recycling Program (Oregon E-Cycles)

Legislation passed in 2007 created a new statewide electronics recycling program financed by manufacturers, beginning in January 2009. Covered devices (CEDs) are computers, laptops, monitors, and televisions. The program is branded Oregon E-Cycles and provides convenient recycling opportunities for households, nonprofits, and small businesses. Manufacturers must participate in the program in order to sell their covered products in Oregon. Program information is available at a new website (www.Oregonecycles.org) and hotline (1-888-5ecycle). Oregon E-Cycles also educates and encourages electronics recycling via retailers’ point-of-sale information and outreach through local governments and solid waste haulers.

Oregon E-Cycles has a number of requirements for manufacturers and retailers. It:

- Directs manufacturers to annually register all brands of CEDs with DEQ by December 31.
- Requires manufacturers to choose, by July 1 of each year, to participate in the DEQ-managed state program or implement their own recycling plan.
- Requires the state contractor and manufacturer recycling programs to be operational by January 1, 2009.
- Prohibits retailers from selling CEDs as of January 1, 2009 unless the manufacturer is in compliance with statutory requirements.
- Prohibits the final disposal of CEDs as of January 1, 2010.

Program Status

Registration. In the first cycle (calendar year 2008), 205 manufacturers registered. Registration takes place between October 15 and December 31 each calendar year. After manufacturers register, DEQ staff review their data before placing them on an online list of registered brands.

State contractor program. DEQ contracted with the National Center for Electronics Recycling to run the program on behalf of 179 participating manufacturers. Their collection goal for 2009 is 4.2 million pounds.

Manufacturer programs. Four manufacturer plans, representing 27 manufacturers, were submitted for 2009. DEQ’s conditional approval of these plans allowed representatives to finalize statewide collection networks. Three programs were approved. The 2009 total collection goals for these programs is 8 million pounds.

Retailers. DEQ has developed a variety of point-of-sale materials for retailers to be able to download and print in order to meet their requirement to provide program information to consumers. DEQ updates its web-based list of registered brands on the first of every month. Retailers can check the list to ensure they are selling only registered brands. As of December 2008, 1,427 brands are listed.

Program Financing. The total 2008 registration fees, which are used to administer the program, are $389,160 ( invoiced). The total 2009 recycling fee amount is projected to be approximately $1,400,000. Recycling fees are used for state contractor program costs. On Sept. 26, 2008, the E-Board approved DEQ’s request for limitation to pay for the state contractor program. Manufacturer programs pay their own costs.

DEQ role

DEQ staff promoted the program at the Oregon State Fair and other venues. They have distributed media kits, planned kickoff events for early January, and prepared toolkits for retailers and local governments, FAQs, and fact sheets. DEQ is continuing to meet with the E-Waste Advisory Group to implement the program. In 2009, DEQ will coordinate the recycling programs, design a sampling strategy for returns, develop enforcement strategies, prepare for the 2010 disposal ban, continue to work with the advisory group and legislative subcommittees, and start rulemaking.

Expansion of the Bottle Bill

Oregon enacted the first bottle bill in the country in 1971, primarily as a litter control measure. The bottle bill remained unchanged (except for minor modifications) until the 2007 Legislature expanded it by adding a 5-cent refundable deposit to water and flavored water beverage containers, effective January 1, 2009. In 2005, Oregonians bought nearly 200 million bottles of water, with an estimated 125 million thrown in the trash. In 2007 and 2008, these numbers were likely substantially higher. Adding water bottles to the refundable deposit program will encourage recycling, help conserve energy, reduce greenhouse gas emissions, and reduce solid waste.

Although beverage container litter has been substantially reduced as a result of the bottle bill, the bill’s effect on waste reduction and resource conservation has been its most remarkable feature. During the last 35 years, return rates for beverage containers in Oregon have exceeded 80% and some years have been as high as 94%. Although the estimated return rate for bottle bill containers has dropped to 83% for 2005 (latest data available) and possibly lower in later years, the rates for other beverage containers are considerably lower, as shown below. The 2005 estimated total return rate for all non-deposit beverage containers is only 37 percent.

Studies of solid waste disposal show that fewer than 20 percent of the 1.5 billion deposit beverage containers used in Oregon in 2005 were disposed of in landfills, while more than 1 billion were recovered and recycled. DEQ estimates that Oregonians purchased almost 2 billion beverage containers (deposit and non-deposit, not including paper containers such as juice boxes) in 2005.
### General Programs

#### Waste Prevention

It has long been the policy of Oregon that prevention and reuse, which both reduce waste generation, have priority over recycling, composting, energy recovery, and landfilling as methods of managing solid waste. The 2001 Legislature set Oregon’s first statutory waste prevention goals, noting that: “There are limits to Oregon’s natural resources and the capacity of the state’s environment to absorb the impacts of increasing consumption of resources, including waste generation and increasing solid waste disposal….It is in the best interests of the people of Oregon to conserve resources and energy by developing an economy that encourages waste prevention and recycling.” The goals are:

- For the calendar year 2005 and subsequent years, no annual increase in per capita municipal solid waste generation; and
- For the calendar year 2009 and subsequent years, no annual increase in total municipal solid waste generation.

In December 2007, DEQ adopted a Waste Prevention Strategy as a framework for its work to reduce solid waste generation in Oregon over the next 10 years. The strategy also contains a summary of actions DEQ proposes to undertake in the next three years in specific focus areas.

**Vision:** Oregon residents and businesses have made a value shift from a “throw-away” society to living and prospering sustainably and making choices in their consumption and use of resources that result in decreased waste generation and a healthier environment.

---

### Estimates of Beverage Container Redemption, Recycling, 2005

(in millions of containers)

<table>
<thead>
<tr>
<th></th>
<th>Disposed</th>
<th>Recycled*</th>
<th>Redeemed</th>
<th>Total</th>
<th>Percent Recycled/Redeemed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beer &amp; soft drink-deposit</strong></td>
<td>254.8</td>
<td>63.0</td>
<td>1163.1</td>
<td>1480.9</td>
<td>82.8%</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>125.5</td>
<td>60.7</td>
<td></td>
<td>186.2</td>
<td>32.6%</td>
</tr>
<tr>
<td><strong>Juice/tea/other</strong></td>
<td>126.0</td>
<td>54.1</td>
<td></td>
<td>180.1</td>
<td>30.0%</td>
</tr>
<tr>
<td><strong>Milk</strong></td>
<td>43.6</td>
<td>37.2</td>
<td></td>
<td>80.8</td>
<td>46.1%</td>
</tr>
<tr>
<td><strong>Wine</strong></td>
<td>11.5</td>
<td>26.4</td>
<td></td>
<td>37.9</td>
<td>69.6%</td>
</tr>
<tr>
<td><strong>Liquor</strong></td>
<td>9.3</td>
<td>7.4</td>
<td></td>
<td>16.8</td>
<td>44.4%</td>
</tr>
<tr>
<td><strong>Total no-deposit</strong></td>
<td>316.0</td>
<td>185.9</td>
<td></td>
<td>501.8</td>
<td>37.0%</td>
</tr>
<tr>
<td><strong>Beer/soft drink/water/juice</strong></td>
<td>506.4</td>
<td>177.8</td>
<td>1163.1</td>
<td>1847.2</td>
<td>72.6%</td>
</tr>
<tr>
<td><strong>All beverages (no paper)</strong></td>
<td>570.8</td>
<td>248.9</td>
<td>1163.1</td>
<td>1982.8</td>
<td>71.2%</td>
</tr>
</tbody>
</table>

*Recycled, but not redeemed

---

In addition to adding water bottles to the bottle bill, the 2007 legislation allows small stores to further limit the number of empty containers they accept for refunds and to continue to refuse to take back container brands they do not sell. Stores occupying less than 5,000 square feet of space may limit customers to returning no more than 50 empty containers per day, while larger stores must continue to accept up to 144 containers per person per day. Beginning January 1, 2009, large stores occupying 5,000 square feet or more must begin accepting empty containers of any brand or size, if they sell the same kind of beverage. For example, a large store that sells soft drinks must accept and pay a refund on any brand of soft drink container.

The 2007 legislation also created a task force to study and make recommendations on bottle bill matters such as whether other beverages should be added to the bottle bill, the refund value should be raised, and new redemption centers should be established. DEQ staff provided extensive research and data on these issues to help inform the task force’s recommendations. The task force recommended that the 2009 Legislature:

- Support an industry proposal to run a statewide system of redemption centers;
- Expand the list of beverages to include sports drinks, coffees, teas, juices, liquors and other beverages (except milk or milk substitutes), effective January 1, 2013;
- Increase the refund value to 10 cents, effective January 1, 2011;
- Allow the state to collect unredeemed deposits only if the industry-run redemption center system is not successful and a state-run system is implemented.

The full report is available at [http://www.leg.state.or.us/comm/commsrvs/Bottle_Bill_Final_Report.pdf](http://www.leg.state.or.us/comm/commsrvs/Bottle_Bill_Final_Report.pdf). DEQ is proposing a 2009 legislative concept, based on the task force’s recommendations. More information is available at [http://www.deq.state.or.us/lq/sw/bottlebill/index.htm](http://www.deq.state.or.us/lq/sw/bottlebill/index.htm).
Design, Construction, Remodeling and Demolition of Buildings

An increase in construction, remodeling and demolition waste is one of the largest contributors to the recent growth in Oregon’s waste generation. Broadly speaking, choices about building design, materials, construction, and remodeling practices all have significant bearing on Oregonians’ overall environmental impacts. Because buildings are long lasting, design choices made in the next 10 years will impact the environment for decades.

In 2008, DEQ hired a waste prevention specialist to research building practices and environmental impacts and to design and implement projects to reduce environmental impacts through partnerships with architects, builders, remodelers, and the organizations that serve them, such as deconstruction operations. In 2009, a variety of waste prevention practices will be screened for their environmental benefits, cost, feasibility, and ease of implementation, in order to select those that offer the most potential for achieving environmental improvements.

Business Practices — Packaging

Businesses may generate almost half of all municipal solid waste, and 20-30% of all municipal solid waste is packaging. In addition, product design and packaging decisions made by businesses shape the waste generated by other sectors (households, construction). Enhancing business sector waste prevention efforts also supports the state’s efforts to be more sustainable in its own operations.

DEQ’s short-term focus on packaging capitalizes on our recent experience in this area and the burgeoning interest in “sustainable packaging” at the national level. For example, DEQ is a member of the Steering Committee of Wal-Mart’s Sustainable Packaging Value Network and in this capacity is helping Wal-Mart achieve greater levels of waste prevention and broader environmental improvement through its far-reaching influence up the supply chain.

DEQ also periodically provides information to Oregon businesses seeking to prevent waste in packaging.

Foundation Research and Analysis

Ongoing research and analysis will improve DEQ’s effectiveness in preventing waste. DEQ will continue to research changes in and causes of waste generation and build capacity in Oregon around environmental analysis of materials and wastes. DEQ also plans to conduct special studies, including but not limited to, an evaluation of the impact of waste prevention on Oregon’s economy.

Water bottle life cycle analysis. Water bottles are one of the fastest-growing components of waste generation: 32 million bottles were disposed in Oregon in 1998, rising to 125 million disposed in 2005. There is growing interest in the impacts of bottled water, but limited transparent evaluation on its impacts, particularly for the United States. To help DEQ and Oregonians understand the relative environmental benefits (and impacts) of disposal, recycling, and prevention, DEQ is commissioning a life cycle inventory and impact analysis of options for delivering drinking water. The study is evaluating the impacts of: choice of packaging materials, recycled content, distance traveled, end-of-life recycling rate, washing of reusables, and many other factors for single-serving bottles, 5-gallon reusable water coolers, and tap water. The study will analyze energy requirements and environmental emissions for fuel consumption, material production for containers, fabrication processes, drinking water treatment, water bottling operations, bottled water distribution, drinking water cooling processes, container washing, and waste management.

Greenhouse gas accounting. The conventional method for inventorying greenhouse gas emissions at the level of a state or community significantly undercounts the emissions resulting from waste generation and the “upstream” consumption (and production) of goods. Further, by mixing consumption- and production-related emissions together, conventional inventories mask some of the ultimate drivers of emissions. In 2009 a contractor will draft a report for DEQ on the greenhouse gas impacts associated with consumption of materials by Oregonians and relate these emissions back to the conventional state greenhouse gas inventory. This inventory will include the emissions resulting from the consumption of goods, regardless of where the emissions actually occur, which is consistent with how Oregon counts emissions resulting from consumption of electricity. The inventory will help policymakers and the general public better understand the role of consumption, imports, and local, domestic, and international supply chains in contributing to greenhouse gas emissions.

DEQ is also working with other state and local governments and EPA to encourage changes in greenhouse gas inventory protocols for state and local governments to better document and understand the role of materials and the potential benefits of waste prevention and recycling.

Other Waste Prevention Work

DEQ Solid Waste Program technical assistance staff provides guidance to individuals, private businesses, and local governments on many aspects of waste prevention and recovery. These staff members are located in DEQ’s regional offices in Eugene, Salem, Portland, Bend, Pendleton, and The Dalles.

Waste prevention information is available on DEQ’s webpage, including a commercial waste reduction clearinghouse. DEQ staff also provides numerous presentations on waste prevention to audiences such as industry groups and Master Recycler organizations.

Solid waste grants. Since 1991, DEQ has awarded 216 solid waste reduction grants to local governments (another 51 grants have been awarded for household hazardous waste collection and facilities and 19 for waste tire collections). Beginning in 2000, DEQ made it easier for projects that reduce waste generation to receive funding by designating waste prevention projects eligible for additional scoring points. Of the 216 solid waste reduction grants, 79 have been for projects with significant waste
requirements can be similar from state to state.

Harmonize legislation where possible so that programs and similar legislation. The states are collaborating to Washington, California, and Minnesota are working on representatives, and others to develop the concept.

DEQ is working with the Northwest Product Stewardship Council, local governments, Recycling Advocates, product representatives, and others to develop the concept. Washington, California, and Minnesota are working on similar legislation. The states are collaborating to harmonize legislation where possible so that programs and requirements can be similar from state to state.

Product Stewardship

Product stewardship calls on those involved in a product’s life cycle to share responsibility for reducing the environmental impacts of the product. In the product stewardship model, everyone from designers, manufacturers, retailers, consumers, waste managers, and disposers, is responsible for the products they create or use. The greater the ability of a party to influence the life cycle of a product, the greater the responsibility.

Both voluntary and regulatory product stewardship is a growing trend nationally and internationally as waste streams change and become more complex and costly to manage. Although current efforts focus primarily on end-of-life management issues, the long-term goals are to affect the design of products so that they are less toxic, have minimized environmental impact, and are more readily reused or recycled. Besides dealing with waste management issues, product stewardship can result in conservation of resources and protection of air, land, water, and human health. To encourage these changes, it is important to internalize the costs of end-of-life management into the costs of producing and selling products so that government and the tax-paying public do not bear costs for dealing with the discarded products.

Legislative framework. In 2008, the Environmental Quality Commission (EQC) made a product stewardship approach to waste management a priority and approved moving forward with proposed legislation to create a common framework or system for producer responsibility for toxic and difficult-to-manage products found in the solid waste stream. The framework would set up a consistent approach for adding products and implementing programs where the producer is responsible for products throughout their life cycle, including financing and implementing reuse and recycling programs. The concept also includes incentives for:

- Reduced use and/or elimination of toxics in products;
- Lower environmental impacts such as greenhouse gas emissions; and
- Changes that will make products more readily upgradeable, reusable, and recyclable.

DEQ is also working on a number of individual products, including thermostats, paint, pharmaceuticals, fluorescent lamps, and rechargeable batteries.

Mercury thermostats. Following national product stewardship discussions between governments (including DEQ) and manufacturers, the amount of mercury used in thermostats has decreased significantly. However, DEQ estimates that there are many mercury thermostats still in use or being replaced with programmable digital devices. The Thermostat Recycling Corporation (TRC), operated by the National Electronics Manufacturers Association (NEMA), provides free collection of mercury thermostats for HVAC contractors through the wholesale distribution system. In 2006 and 2007, DEQ participated in an incentive pilot project with the TRC, thermostat manufacturers, Product Stewardship Institute, Portland General Electric (PGE), and the State of Indiana to increase participation and the recovery of mercury. The program provided $4 rebates that could be used on the future purchase of Energy Star thermostats to contractors who turned in old mercury thermostats. The one-year pilot resulted in a doubling of the rate of thermostats collected, increased wholesaler and contractor participation, and collection of more than 54 pounds of mercury. The final report on the project is available online on the DEQ Land Quality Mercury web page.

Following the pilot, in late 2007 DEQ began working with a subset of contractors who are eligible to have their own TRC bins. In the first two months, 17 TRC collection bins were ordered. DEQ conducted outreach to contractors and offered to pay the one-time cost ($25) to purchase the collection bins. In 2008, DEQ initiated efforts to expand retail collection programs in Oregon by working with TRC and the corporate office of a national hardware store chain. Again, DEQ is offering to purchase collection bins for the stores. Two stores signed up in 2008.

Paint. DEQ has participated in the national Paint Product Stewardship Initiative since 2003 in an effort to develop a nationally coordinated system to collect leftover paint. As a result of this work, Oregon will be in the first group of states to begin a paint collection system (in 2009 or 2010) after a demonstration is completed. In addition, DEQ has played a lead role in the development of a national life cycle analysis and cost benefit analysis, both funded by the paint industry, to evaluate the full social and environmental costs and benefits of various methods of handling leftover latex paint.

Pharmaceuticals. DEQ participated in and helped to fund the Oregon Pharmaceutical Take Back Stakeholder Group, which was facilitated by the Oregon Association of Clean Water Agencies. The group met for one year and produced a final report and recommendations in July 2007. The stakeholder group recommended a product stewardship program. The pharmaceutical manufacturers and over-the-counter drug companies were requested to devise and implement a convenient and effective program for consumers to dispose of unwanted medicine. DEQ’s director, the EQC, and many others have endorsed this program. The report is available at www.oracwa.org.
**Fluorescent lamps.** With the recent emphasis on energy conservation, the use of fluorescent lighting is increasing, creating a need for safe end-of-life handling systems as well as improved product design to eliminate concerns related to mercury releases from broken lamps. DEQ is currently participating in a national dialogue with manufacturers, retailers, environmental groups, and state and local governments. The purpose of the dialogue is to reduce the environmental impact of lamp manufacturing, increase the use of environmentally preferred lighting, and maximize the safe collection and recycling of fluorescent lamps, including compact fluorescent lamps, through a product stewardship and producer responsibility approach.

**Rechargeable batteries.** For many years, the Rechargeable Battery Recycling Corporation (RBRC), a voluntary manufacturer organization, has been sponsoring the collection and recycling of rechargeable batteries in Oregon through a retail collection program. However, the program collects a very low percentage of batteries for recycling. DEQ is currently working with an Oregon-based group, including RBRC, state and local governments, and an environmental group, to look at the barriers and opportunities for improving the rechargeable battery recycling program in Oregon.

**Chemical policy reform.** Many harmful chemicals are used in manufacturing processes and in products without adequate laws to protect human health and the environment. DEQ participates in and supports statewide and regional conversations about chemical policy reform. The intent of these efforts is to address deficiencies in federal chemical regulations, primarily the Toxic Substances Control Act (TSCA), and gaps in the laws that allow known chemical hazards to be used in products and processes and prevent disclosure of the chemicals used in products and materials and the information used to assess chemical hazards or identify safer alternatives.

In June 2007, DEQ participated in a one-day chemical policy workshop held in conjunction with the regional conference of NAHMMA (the North American Hazardous Materials Managers Association). Following the workshop, the Oregon Chemical Policy Roundtable was formed. The Roundtable is a coalition of state and local government staff and non-governmental organizations that are working to identify, develop, evaluate, and disseminate key chemical research and policy questions. The Roundtable is working to identify and craft innovative ideas for executive and legislative actions that support new chemical policies and toxics reduction in the state.

**Household Hazardous Waste**

Opportunities to safely dispose of household hazardous waste (HHW) continue to expand. In 2007, 64% of Oregon residents had local access to facilities that collect HHW on multiple days throughout the year, and another 18% had convenient access to at least one special collection event. With the goal to address the highest risks first, DEQ continued to award HHW grants and to provide collection events for households and conditionally exempt generators (CEGs) in those areas without locally-sponsored service.

**DEQ-sponsored HHW collections.** DEQ sponsored six household hazardous waste collection events in 2006-2007 that attracted 1,624 participants who disposed of their waste free of charge. The average amount of waste collected per participant was 115 pounds and included pesticides; mercury; and paint, automotive and cleaning products. One of the events (Lexington) was subsequently paid for by Morrow County. DEQ also provided emergency HHW collections after the December 2007 floods in the Vernonia area.

DEQ offered collection of conditionally exempt generator (CEG) and agricultural pesticide waste at all DEQ-sponsored HHW events. The participants pre-registered with DEQ’s contractor and paid for disposal.

DEQ continues to focus on increasing the collection of mercury and mercury-containing products.

- DEQ continued a program to collect mercury and mercury-containing goods free of charge from conditionally exempt generators at local and DEQ-sponsored collection programs.
- DEQ began a new program designed to collect elemental (liquid) mercury from homeowners who have three or more pounds of mercury. DEQ’s contractor collects the mercury if the household is unwilling or unable to deliver it to a permanent HHW facility.
- DEQ continued to offer a mercury thermometer exchange program. At most locally-sponsored and all DEQ-sponsored events, DEQ provided digital thermometers to participants who brought in mercury thermometers for disposal.

In 2007, DEQ changed its process for selecting communities for DEQ-sponsored HHW events. DEQ no longer requires local governments to submit event applications. Instead, events rotate around the state according to a standardized “queue”. This new approach reduces work for local governments, provides access to events to a larger number of Oregonians, and improves predictability and DEQ’s ability to inform local governments and residents of upcoming events.

**Local government HHW collection programs.** Many local governments provided HHW collection services in 2006-2007 at permanent facilities, one-day events, or a combination of facilities and events. Eleven of these locally-sponsored events were provided under DEQ’s
“purchaser program” that allows local governments to use DEQ’s contract and contractor, although the local governments pay for the service.

HHW grants. In 2006-2007, DEQ awarded grants to help Tillamook, Crook, Curry/Coos (regional plan), and Union/Baker/Wallowa (regional plan) counties develop local HHW management plans. DEQ also awarded grants to help Tillamook County and the Union/Baker/Wallowa County HHW consortium build collection facilities.

HHW priority assessment. In 2006-2007, DEQ developed a “priority assessment” tool to help allocate DEQ resources to address the materials and situations that pose the greatest risks to human health and the environment. As a result of this assessment:

- Beginning in 2008, DEQ is discouraging the delivery of latex paint to its collection events and will conduct outreach on alternative management options.
- The geographic component of the tool was used to evaluate the communities selected for DEQ-sponsored collection events in 2008.
- The materials portion of the tool was used to focus potential product categories for a comprehensive waste prevention project.

HHW prevention. DEQ continues to distribute two educational resources to help Oregonians reduce their use of toxic substances at home: Natural Gardening and The Hazardless Home Handbook, which was updated with information on managing unwanted pharmaceuticals. DEQ distributes both documents via the Internet and in hard copy to city and county governments and nongovernmental organizations that distribute them to interested residents. DEQ also provides financial and technical assistance to local governments to conduct outreach and education efforts focused on using less toxic substances.

HHW survey. In 2008, DEQ commissioned a statewide telephone survey of Oregonians to help in the design and evaluation of public information and outreach efforts and for broader program development and evaluation purposes. The survey addressed many hazardous household substances, including unwanted pharmaceuticals, compact fluorescent light bulbs, paints, lawn pesticides, strong household cleaners, and lead fishing weights.

Compost Facility Rulemaking

When DEQ began permitting compost facilities in 1999, 24 facilities composted about 300,000 tons of organic materials. The industry has grown, more types of materials are collected for composting, and new technologies are under consideration or in use. In 2007, there were 46 permitted facilities, and more than 525,000 tons of materials were reported received by compost facilities under DEQ permit. DEQ and composters decided that it was time to update DEQ’s rules regulating composting facilities to protect human health, water quality, and the environment, while continuing to support Oregon’s composting industry.

To accomplish those goals, the Solid Waste Program proposed amendments to the compost facility administrative rules in 2007. After reviewing many responses received in an extensive public notification process, DEQ decided to withdraw the proposed amendments and take a new approach. DEQ is now proposing amendments that would create a performance-based regulatory system, screen individual sites for environmental risks, and tailor operating plan and permit requirements to each facility. The proposed changes will also clarify financial assurance requirements for solid waste disposal facilities and public notice requirements for renewal of several types of solid waste permits.

Beneficial Use of Solid Waste

In Oregon and elsewhere, awareness of potential opportunities to convert wastes to resources is increasing. DEQ receives numerous requests every year to approve beneficial uses of various solid wastes that would otherwise require permitted disposal. In 2007, the Solid Waste Program began researching how other states regulate the beneficial use of solid wastes. In 2008, DEQ started working closely with a group of affected stakeholders to scope beneficial use issues and initiated a rulemaking process to develop beneficial use rules.

Beneficial use often involves either using an industrial waste in a manufacturing process to make a product or using the waste as a substitute for fill materials. Examples are the use of spent foundry sand from the steel industry as a substitute for virgin sand in making concrete, or the upland placement of dredged sediments as construction fill material. The use of industrial waste materials conserves energy, reduces the need to extract virgin resources, diverts waste from landfills, and supports DEQ’s goal of promoting sustainability.

The rulemaking will continue into 2009 with a public comment period on the draft rules followed by a proposal to the Environmental Quality Commission for rule adoption in fall 2009. The intent of the new rules will be to provide a regulatory process and funding mechanism for DEQ to respond to and authorize requests for approval to use wastes as an alternative to landfill disposal.

Complete Report

Executive Summary (this document)

Appendices (available at www.deq.state.or.us/lq/sw/index.htm)

2007/2008 Disposal Status, State of Oregon
Oregon DEQ Waste Prevention Strategy: Ten-Year Framework and Short-Term Plan
Executive Summary

The 2007 Oregon Legislature passed Senate Bill 235 to address the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement the federal Clean Air Act requirements for agriculture. (Section I). Additionally, SB 235 established a Task Force on Dairy Air Quality, legislated its membership, (Section II) charged it with, among other things, studying the emissions from dairy operations, evaluating available alternatives for reducing emissions, and presenting findings and recommendations to the DEQ and ODA.

The Task Force met seven times from January through June 2008. It studied, explored, and debated the current state of the science, regulatory frameworks outside of Oregon, and various options from doing nothing to traditional regulation. The members reached a consensus on the included Findings (Section III) and Recommendations (Section IV). The package recommendation was the thoughtful and deliberate result of the Task Force members navigating through very thorny issues and collaboratively balancing deeply held, diverse opinions.

By way of overview, the Task Force found that under certain circumstances, air emissions from dairy operations might become subject to regulation under the Clean Air Act. However, the current uncertainties in our quantitative knowledge of air emissions from dairies make the application of Clean Air Act requirements uncertain. There is a need to improve our understanding of emissions from dairies and improve our ability to quantify these emissions, especially if those estimates are to inform future regulatory decisions. While we build our knowledge and certainty of dairy emissions, there is a desire by the Task Force to reduce these air emissions to prevent future problems from arising.

Specifically, the Task Force recommends the EQC, working with ODA, DEQ, and the Department of Human Services (DHS), should adopt rules to implement the proposed “Oregon Dairy Air Emissions Program” (Program), as a whole, (Section IV. A.), based upon carefully crafted Guiding Principles (Section IV. B.). The Program (Section IV. C.) would start as a voluntary program, and move into a state mandatory program pursuant to the recommended conditions and schedule. The Task Force also recommends that DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about the Program implementation details. (Section IV. D.) It recommends the needed resources (Section IV. E.) that are essential to implement and administer the Program. Finally, the Task Force provides an overall recommended program structure, staging and funding. (Section IV. E.)

In conclusion, The Task Force thanks the Legislature for the opportunity to serve and formulate this consensus package of recommendations. Taken as a whole, the recommendations represent an optimal balance between the need to protect air quality and ensure the viability of Oregon’s dairies, and they chart a clear and positive path forward for all Oregonians. These recommendations were created because the Task Force worked hard to achieve the necessary levels of understanding, trust, and respect. In order to maintain this positive and balanced momentum, the Task Force believes it is imperative that the Legislature provide the funding for this necessary and evolving program. The monetary requests are modest and responsibly staged over time to ensure the Program can accomplish its purposes without negatively affecting the state’s other priorities.
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I. Background

Until 2007, Oregon law exempted agricultural operations from air quality regulations with the exception of field burning in the Willamette Valley. In the fall of 2005, several environmental and public interest groups petitioned the U.S. Environmental Protection Agency (EPA) asserting that Oregon’s air quality program was deficient because Oregon statute exempted agriculture from regulation if those regulations were necessary to comply with the Clean Air Act.

Senate Bill 235 addressed the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement federal Clean Air Act requirements for agriculture. In addition, it established a Task Force on Dairy Air Quality, and charged it with, among other things, studying the emissions from dairy operations, evaluating available alternatives for reducing emissions, and presenting findings and recommendations to the DEQ and ODA by July 1, 2008. The findings and recommendations could include technical studies, voluntary actions, regulation, and proposed legislation. The recommendations are not limited to current requirements of the federal Clean Air Act and may recommend that the EQC adopt rules beyond the authorities in the Clean Air Act. The Task Force Charter can be found in the Technical Supporting Document.

The Task Force’s work plan follows:

A. Study the emission of air contaminants from dairy operations, including but not limited to, emissions regulated under the Clean Air Act.

B. Study available data on the emission of air contaminants, including but not limited to, the United States EPA national air study of animal feeding operations.

C. Determine the problem(s) that need to be solved.

D. Formulate a plan to reduce emissions.

E. Identify the option(s) to reduce emissions:
   1) voluntary measures, including education, demonstration projects, and incentives;
   2) regulatory measures;
   3) legislative measures or funding; and
   4) other recommendations.

F. Select the solutions(s) for fixing the problem(s) and accomplishing the goals by taking into consideration:
   1) The diverse nature and economic viability of dairies and the economic contribution dairies make to the state economy;
   2) The impact that federal Clean Air Act regulations have, and that actions to address air emissions would have, on Oregon’s dairies in the Pacific Northwest markets;
   3) The protection of human health, the environment, and scenic and cultural resources; and
   4) The impact of available alternatives on other environmental media, energy, the cost of producing dairy products, and the feasibility of implementation.
G. Make Other Observations and Recommendations

The Task Force began its work in January 2008 and has studied the air emissions associated with dairy operations, including but not limited to, emissions regulated under the Clean Air Act. It has evaluated alternatives for reducing air emissions, and explored voluntary measures, including education, demonstration projects, and incentive options, together with regulatory and/or legislative options for emission reduction.

This summary Report provides a broad overview of the Task Force findings and the information related to quantifying, managing, and reducing air emissions from dairy operations. The Technical Support Document (TSD), [http://www.deq.state.or.us/aq/dairy/report.htm](http://www.deq.state.or.us/aq/dairy/report.htm), accompanying this Report provides considerably more detail, served as the foundation for some of discussions, contains the Task Force Meeting Notes, and is intended for background purposes only. This Report contains the final Task Force findings and recommendations.
II. Task Force Members

- Two members of the Senate, appointed by the President of the Senate:
  - Senator Betsy Johnson
  - Senator David Nelson

- Two members of the House of Representatives, appointed by the Speaker of the House:
  - Representative Debbie Boone
  - Representative Jackie Dingfelder

- One representative from the Oregon Department of Environmental Quality (DEQ), appointed by the DEQ Director:
  - Andrew Ginsburg, Air Quality Division Administrator, DEQ

- One representative from the Oregon Department of Agriculture (ODA), appointed by the ODA Director:
  - Lisa Hanson, Deputy Director, ODA

- One representative from the Department of Human Services (DHS) having expertise in public health, appointed by the Director of Human Services:
  - Gail Shibley, Administrator, Environmental Public Health, ODHS

- Three representatives, appointed by the governor from the dairy industry:
  - Dan Bansen, Dairyman, Forest Glen Jerseys, Forest Glen Heifer Ranch, and Forest Glen Oaks
  - Martin Myers, General Manager, Threemile Canyon Farms
  - Dr. Mark Wustenberg, Vice President, Dairy Services Tillamook Creamery Association

- Three representatives, appointed by the governor from environmental-public interest organizations:
  - Jeremiah Baumann, Environment Oregon
  - Dana Kaye, Executive Director for Oregon Chapter American Lung Association
  - Kendra Kimbirauskas, Friends of Family Farmers

- Two representatives, appointed by the governor from institutions of higher education listed in ORS 352.002 having expertise in science and technology relevant to air emissions generated by dairy operations:
  - Dr. Jim Males, Department Head Animal Science, OSU
  - Dr. Jim Moore, Professor Emeritus, OSU
III. Findings

A. Oregon Dairy Farm Overview

There are currently more than 60,000 dairy farms in the United States. Seventy seven percent of these dairies have herds of less than 100 mature cows. The remaining dairies provide 77% of all milk sold in the United States. To place Oregon within the national context, as of October 31, 2007, there were 370 permitted dairy operations. Of those 370 permitted dairy operations, 39 of them were heifer raising facilities and 331 of them were milking operations with 116,335 milking cows contained in the milking operations. Of the 331 permitted dairy operations, 39 were registered as large federal concentrated animal feeding operations (CAFOs), meaning that they had 700 or more dairy milking cows. All dairies in Oregon that provide milk for public consumption (grade A licensed) are permitted by the ODA Confined Animal Feeding Operation (CAFO) Program.

Oregon dairies are an important component of the state’s economy. Milk products were the fifth most valuable agricultural commodity in Oregon in 2006 with a farm gate value of $329,574,000. Oregon dairies range in size from 25 to 16,000 milking cows and produce both conventional and organic milk; most are family farms and a few are corporately owned. Dairy production in Oregon spans across the state with at least one permitted dairy operation in 27 of Oregon’s 36 counties. Currently, dairy production systems in Oregon include pasture-based production systems, partial confinement in free stall barns, total confinement in free stall barns, and dry lot operations.

During the last decade, the increased cost of fuel, feed, and transportation have had a direct effect on the cost of operating a dairy and, therefore, net dairy income. Milk price volatility has become greater in recent years, and this increased volatility has added significant challenges for dairy farm businesses. The number of dairy operations in Oregon has remained fairly constant over the last several years, but following a national trend, the Oregon industry has seen smaller farms ceasing milking operations or consolidating and the newer operations coming into production tending to be larger than the ones going out of business.

While the three new dairy facilities registered to the CAFO Permit in the last five years are all located on the east side of the Cascades, a large geographic movement or relocation of facilities does not seem to be occurring in Oregon at this time. This is because niche marketing of artisan cheeses and organic production have provided opportunities for dairies to remain in their current locations and current sizes.

There are significant regional differences in the conditions under which Oregon dairies operate. These include variations in climate (i.e. temperature, humidity, rainfall) and site characteristics (soil types for growing crops, availability of grassland for feed, etc.). The variation in these conditions affects what types of approaches and challenges operators evaluate when considering changing the production system to address existing and future environmental regulations.

B. Environmental Regulations

The EPA, under the authority of the federal Clean Water Act (CWA), primarily drives today’s environmental requirements for large dairies. The Oregon CAFO program began in the early 1980s to prevent CAFO wastes from contaminating groundwater and surface water. When the program began, the DEQ was the permit issuing and enforcement authority, and the ODA acted as program administrator and investigating authority. This relationship has been modified and changed over time so that currently ODA operates the program under Memoranda of Agreement (MOA) with DEQ and EPA.
All CAFOs that require a permit are required to prepare an animal waste management plan. This plan is a detailed description of facilities and operations with respect to containment, treatment, storage, and disposal of waste including wastewater. The plan also describes how compliance with permit conditions and water quality laws will be achieved and maintained. The level and amount of information required will depend upon the size, complexity, and other specifics of each facility. The Oregon CAFO Program is a national leader in adopting and implementing innovative and effective ways to address water quality. Good communication with the industry and regular routine inspections of permitted operations have contributed to the participants actively seeking opportunities that meet, and in many cases exceed, state water quality expectations. It serves as a strong model and foundation to address air quality issues.

Other states have recently begun regulating dairy air emissions through permitting and by requiring the adoption of “best management practices.” These regulations have targeted specific emissions of local concern.

Current Regulations for Air Quality in Oregon:

1. Federal Clean Air Act
   a) National Ambient Air Quality Standards (NAAQS) – The EPA establishes standards to protect public health, including sensitive people. State and local air agencies determine if these standards are being met, and devise emissions reduction strategies in any location where standards are exceeded.
   
   b) Hazardous Air Pollutants - Congress provided EPA with a list of hazardous air pollutants and EPA has identified categories of sources for control of these pollutants. Currently, dairies are not one of the identified categories, although methanol emissions may be large enough to require an air quality permit.
   
   c) Regional Haze – The Clean Air Act requires air agencies to protect visibility in wilderness areas and National Parks. Visibility degradation in the Columbia River Gorge Scenic Area, however, is not subject to authorities in the Clean Air Act.

2. Oregon Air Program
   a) Air Toxics – Oregon has established a program to complement the federal approach by focusing on urban areas where many smaller sources contribute to air toxics concentrations that affect public health.
   
   b) Nuisance – DEQ has the authority to identify and reduce certain nuisance odors through existing rules. (OAR 340-208-0300). However, this state authority does not include odors from agricultural operations under ORS 30.930. Finally, odors are not subject to regulation under the Federal Clean Air Act.

3. Other Federal Authorities
   a) Occupational Safety and Health - Worker health concerns are within the authority of OR-OSHA, which has established standards for exposure.
   
   b) Emergency Planning and Community Right to Know Act (EPCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Reporting to EPA is
required for both episodic and continuous releases of regulated substances by facilities that meet certain criteria.

C. Air Emissions from Dairies
The National Research Council of the National Academy of Sciences, in its 2003 report titled *Air Emissions from Animal Feeding Operations: Current Knowledge and Future Needs*, identified these air pollutants from animal feeding operations in general, not specifically from dairies. The report identified: Ammonia (NH₃); Nitrous Oxide (N₂O); Nitrogen Oxides (NOₓ); Methane (CH₄); Volatile Organic Compounds (VOC); Hydrogen Sulfide (H₂S); and Particulate Matter (PM₁₀ and PM₂.₅). In addition, the Task Force identified Methanol, a Hazardous Air Pollutant, and Odors as important emissions.

D. Human Health and Dairy CAFOs
There is very sparse research regarding human health issues related to dairy CAFO air emissions. No Oregon industry-wide study was presented to the Task Force that established there was or was not a human health problem associated with dairies. However, if inhaled at sufficiently high concentrations, each of the emissions types associated with dairy CAFOs could be harmful to human health. Health impacts may be acute (immediate) or chronic (long-term). This dairy-specific data gap is important to fill, in order to better understand and protect human health because conclusions drawn from other livestock CAFO studies are not directly transferable to dairy operations.

Research in this area is needed to identify, quantify health risks, and determine appropriate measures to protect: 1) worker health (because of their proximity to emission sources, people working and residing on dairies have the greatest risk of experiencing health effects.) 2) community health (little is known about health effects on nearby people that are a direct result from dairy air emissions), and 3) odors (sensitive individuals experience these effects at lower levels than the general population, and concentrated odors over time are known to cause changes in behavior.)

E. Environmental Impacts
Air emissions from dairies, together with emissions from many other sources, contribute to the following environmental effects:

1. Visibility Degradation: Ammonia plays a key role in the formation of small sulfate and nitrate particles leading to haze pollution, thus degrading scenic vistas in our wilderness areas, National Park, and the Columbia River Gorge Scenic Area.

2. Acidic Deposition: The same pollutants that affect visibility (sulfates and nitrates) can also increase acidic deposition, increasing risks to ecosystems and cultural resources.

3. Climate Change: Methane is a potent Greenhouse Gas (GHG). The role that methane emissions from Oregon dairies play in overall statewide greenhouse gas emissions is not well understood.

In summary, dairy operations have the potential to release several different kinds of air emissions that under certain circumstances could contribute to environmental degradation. The extent to which this occurs in Oregon is currently unclear because of uncertainty in quantifying air emissions from dairies (discussed below).

F. Quantifying Emissions from Oregon Dairies
DEQ estimates air emissions from all types of sources. A compilation of emissions estimates from all source sectors is known as an “emissions inventory.” These inventories are routinely developed by DEQ
and updated over time to reflect changing conditions. Each source category in the emissions inventory (such as transportation, industry, burning, and agriculture) has its own state-of-knowledge and level of uncertainty inherent in its emissions estimate.

In the absence of a national emissions estimation method, DEQ currently estimates dairy emissions by simply multiplying the number of animals reported for each dairy operation by a fixed amount of emission per animal for each air pollutant, using the best available factors from the scientific literature. This methodology does not reflect what occurs on individual dairies, as it does not consider the variation of emissions over time or the variation in mitigation practices that may be in place. Using the current methods and understanding their limitations, initial statewide dairy emissions estimates indicate that they are a notable portion of Oregon's ammonia and methane emissions, but are a relatively small portion of other types of emissions on a statewide level.

In 2006, the National Air Emission Monitoring Study (NAEMS) was initiated to address the lack of scientific data needed to estimate emissions accurately from individual agricultural operations, including dairies. It originated from a voluntary air compliance agreement (also known as a consent decree) between the EPA and the pork, dairy, egg, and broiler industries. Livestock producers have provided the financial support for the NAEMS so that emissions data can be collected at select sites to:

1. Accurately assess emissions from livestock operations and compile a database for estimation of emissions rates, and

2. Promote a national consensus for emissions estimation methods/procedures from livestock operations.

This study is being led by Purdue University and researchers are currently collecting data at twelve sites across the nation. While interim results from these studies will provide useful information, improved national guidance on estimating emissions from individual dairies will not be available until approximately 2012. EPA has said that the results from this research will be used to construct the official method for estimating CAFO emissions, and that it will be of sufficient quality to be used in regulatory decisions.
IV. Recommendations

The Task Force respectfully and strongly makes the following recommendations:

A. Program Development
The EQC, working with ODA, DEQ, and DHS, should adopt the rules to implement the following “Oregon Dairy Air Emissions Program” (Program), as a whole, as authorized by ORS 468A.020(2)(c) (SB 235). The Program consists of and is guided by this Recommendation. (Report Section (IV). Over time, Program adjustments should be made, as needed, to implement the intent of these recommendations.

B. Guiding Principles

Program development, implementation and compliance are guided by the following principles:

1. Initially focus on reducing ammonia, methanol, and odors, and instill public confidence in the Program.

2. Make technical decisions based on a review of the available existing science.

3. Allow flexibility for dairy farmers to make decisions that are compatible with their operations and other environmental obligations.

4. Provide economic feasibility and stability for dairy farmers.

5. Model program implementation after the development of Oregon’s CAFO Program to prevent water pollution, which was phased from a voluntary program to a regulatory program in a gradual manner as information and experience were obtained.

6. Encourage early, voluntary action and efforts to go beyond requirements.

7. Tailor Program over time to the realities of the state budget, and regularly review and update it as more is learned about dairy emissions.

8. Ensure level playing field and equity for all Oregon dairy producers within Oregon and in the Northwest.

9. Recognize that the Clean Air Act, the Clean Water Act, and the Occupational Safety and Health Act still apply.

10. Create a solution that all interests can support.

C. Program Elements

The Program development, implementation, and compliance are guided by the following elements:

1. Apply to all existing Grade A dairies in Oregon that have or need a CAFO permit;

2. Based on a Best Management Practices (BMP) approach using California and Idaho models as
points of reference and the recommendations of a Dairy Air Advisory Committee (DAAC) as specified in section IV. D., below. The BMPs should:

a. Include structural and management practices to reduce air emissions while considering other impact factors specified herein;

b. Establish clearly defined BMP targets that are economically feasible for Oregon dairy producers; and

c. Provide guidance on implementation;

3. Start as a voluntary program, known as “Phase I” at the completion of the Dairy Air Quality Task Force process. Move into a state mandatory program during “Phase II,” pursuant to the conditions and schedule contained below, and as adequate resources to implement and administer the Program become available. New dairies should be required to comply with the Program upon startup.

4. ODA and DEQ develop an interim list of recommended air BMPs in collaboration with the Oregon Dairy Farmers Association (ODFA), Oregon State University (OSU), National Resources Conservation Service (NRCS), and the stakeholders identified for DAAC. Collect and assess baseline data about what is currently occurring on Oregon dairies to decrease air emissions as soon as practical after the creation of an interim list of air Best Management Practices (BMPs). This data set should be as inclusive as resources allow.

5. Level of implementation, monitoring, and compliance may change over time as resources and research results become available;

6. Tax incentives should be provided to encourage dairies to meet BMP targets established for Phase I and should be provided for dairies to create an incentive for early action. Any proposed tax credits should be transferable to a third party and should be phased out over time. Tax credits should be reauthorized beyond five years for those dairies that go beyond the minimum requirements in Phase II. If tax credits are adopted by the legislature, DEQ or ODA could administer the tax credits. Tax incentives will require approval of the Governor and legislative authorization. They should be subjected to the usual restrictions (e.g. only available for voluntary capital investments made for the primary purpose of reducing emissions).

7. DEQ, ODA, DHS, NRCS, and OSU, working with the industry, should provide technical assistance, education and outreach, as follows:

a. develop and maintain technical expertise in BMPs to reduce ammonia, methanol, and odors;

b. provide technical assistance to dairies in selecting BMPs that are compatible with water quality and other factors pursuant to the Guiding Principles;

c. develop and distribute educational materials encouraging dairies to participate in the Program hold a series of meetings held around the state to describe the Program to all dairy producers;

d. provide information to dairies about potential federal requirements, including the potential
for methanol emissions to trigger Title V permitting;

e. provide information about dairies, emissions, and health to the public, the media, and neighboring communities; and

f. provide information of federal regulations and the new state Program; and

8. ODA should receive funds necessary to determine compliance, provide technical assistance, and conduct any enforcement. ODA should develop a periodic report of BMPs in use based on reports and inspections. ODA should check Program implementation and compliance at the time of the annual CAFO water quality inspection. The annual reports should be provided to EQC and the Board of Agriculture, posted on the web, and otherwise communicated to the public. ODA should communicate to CAFO permit holders the requirements for air BMPs, record keeping, and reporting. ODA should determine compliance, provide technical assistance, and conduct any enforcement.

D. Dairy Air Advisory Committee
DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about Program implementation details. While the overall Program direction is within the purview of the EQC in consultation with ODA and DHS, DAAC should be structured and empowered as follows:

1. A balanced committee with knowledge of the dairy industry, such as representatives from OSU, NRCS, ODA, USDA, DEQ, DHS, ODFA, dairy farmers, health, environmental groups and the public The initial members of DAAC should include members of the Dairy Air Quality Task Force;

2. Use of consensus decision making. If no consensus can be reached, a majority and minority report should be prepared;

3. Make implementation detail recommendations for both Phases that are designed to accomplish the Program in a fashion consistent with these recommendations;

4. Have, if it desires, subcommittees to manage the work, (e.g. a technical committee and a policy subcommittee), each with balanced representation;

5. Create a program that accommodates the diversity of the Oregon dairy industry;

6. Recommend BMPs as soon as possible, including:

   a) Structural and management approaches to reduce ammonia, methanol, and odors;

   b) Guidance for the implementation of the BMPs;

   c) Tiers based on dairy size/resources (for example, 700 cows and above could be one level, 200 - 699 could be another level, and less than 200 cows could be another level); and

   d) Phase I and II BMP targets for each tier;
7. Evaluate BMP effectiveness on air emissions while considering other impact factors like compatibility with water or land quality issues, affects on other air emissions and livestock health. DAAC should also consider existing third party standards when evaluating BMPs. To the extent possible, the menu should be coordinated with BMPs developed by neighboring states, particularly Washington.

8. Consult with DEQ, ODA, and DHS on procedures and criteria for evaluating the potential for public health risks from any air emissions from dairy operations. These procedures could be used, as needed, if public health concerns at specific dairies need to be investigated. Criteria and procedures to be discussed may cover topics such as emissions estimation, air quality analysis methods, and risk assessment procedures.

9. Report regularly to DEQ, ODA, and DHS on the progress and success of the Program; and

10. Recommend changes to the Program, as needed over time, based on new scientific information and an evaluation of Program effectiveness. This could include updates to the emissions of concern. DAAC should not make recommendations that change the core of this recommended Program and this Task Force’s intent.

E. Overall Program Resources
The Task Force recommends that the following resources be provided to implement the recommended Program:

1. Tax credits for voluntary participation during Phase I and exceeding the requirements during Phase II if the tax credit program is extended;

2. Resources to ODA for Program implementation, monitoring and compliance;

3. Resources to DEQ for rule development, Program implementation, and air monitoring;

4. Resources to DHS for technical assistance, consultation, and risk communication; and

5. Funding for OSU to conduct research and development of demonstration projects, BMPs tailored to Oregon’s needs, the effectiveness of BMPs, their impact on air emissions, and funds for education, outreach, and technical assistance.
## F. Overall Recommended Program Structure, Staging and Funding Summary

The Task Force recommends that the following structure, staging and funding:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2008</td>
<td>Oregon Dairy Air Quality Task Force (With Co-Chairs) report to ODA and DEQ.</td>
</tr>
<tr>
<td>Sept 2008</td>
<td>Task Force, ODA, and DEQ report (with Co-Chairs) to interim legislative committees.</td>
</tr>
<tr>
<td>Oct/Nov 2008</td>
<td>Possible Task Force reconvening based upon interim legislative committee input.</td>
</tr>
<tr>
<td>Late 2008</td>
<td>ODA and DEQ approve an interim list of recommended air BMPs in collaboration with ODFA, OSU, NRCS, and the stakeholders identified for DAAC.</td>
</tr>
<tr>
<td>Jan 2009</td>
<td>ODFA begins outreach to educate industry about the Program and encourages the use of the interim air BMPs.</td>
</tr>
</tbody>
</table>

**Jan-July 2009**

- **2009 Legislative Session:**
  - Request initial staffing for the program: 1 ODA and 1 DEQ staff to do outreach and assistance, conduct a baseline survey, develop rules, and implement tax credits;
  - Request $500K for OSU research and development of BMPs that are specific to Oregon’s needs; and
  - Request tax credits for voluntary BMPs to begin in 2010 and continue through 2014.

**Late 2009**

- 1) EQC adopts initial program rules under ORS 468A.020(2)(c) based upon the Dairy Air Quality Task Force recommendations in section IV of this report, including:
  - a) Framework for Program;
  - b) Membership and structure of the Dairy Air Advisory Committee (DAAC);
  - d) Tax credits if EQC is authorized by the 2009 legislature.
- 2) DAAC starts. Initial focus is to refine the air BMP list. Subsequent focus is to refine the program structure.
- 3) ODA conducts baseline survey of air BMPs in use in Oregon.

**2010**

- **Phase I Begins:**
  - ODA/DEQ/OSU Outreach / Education begins to encourage voluntary participation in phase 1 of the Program and provide assistance to dairies in the selection of BMPs;
  - DEQ implements the tax credits for dairies that meet the phase 1 targets.
  - DAAC recommends Program revisions, including revisions to the BMP list, targets and program structure.

**2011 Legislative Session:**

- Request increased staffing for the program: 2 additional ODA staff to expand outreach implementation, and 1 DHS FTE (parts of three positions) to conduct risk communication.
- Request additional funding for BMP research and development if needed.
- Request $500K for OSU research and development of BMPs that are specific to Oregon’s needs.

DAAC continues to evaluate Program and make recommendations, including mandatory targets to apply in 2015.

**Late 2011 and 2012**

- EQC revises rules to incorporate DAAC recommendations.
- ODA expands outreach and assistance, conducts follow-up survey of BMP use in Oregon, and issues Annual Program Report.
- DEQ continues to implement tax credits for dairies that meet the phase 1 targets.
- DAAC continues to evaluate Program; assess EPA’s NAEMS preliminary results; make recommendations as needed.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
</table>
| 2013 | **2013 Legislative Session:**  
- Request increased staffing for the program: 2 additional ODA staff to further implementation, monitoring, and compliance.  
- Request $500 K for OSU research and development of BMPs that are specific to Oregon’s needs.  
DAAC continues to evaluate Program and make recommendations as needed. |
| Late 2013 and 2014 |  
- EQC revises rules to incorporate any further DAAC recommendations.  
- ODA conducts follow-up survey of BMP use in Oregon, and issues Biennial Program Report.  
- DEQ continues to implement tax credits for dairies that meet the phase 1 targets.  
- DAAC continues to evaluate Program; assess EPA’s NAEMS results; make recommendations as needed. |
| 2015 | **2015 Legislative Session:**  
- Request $500 K for OSU research and development of BMPs that are specific to Oregon’s needs. |
| 2015 | **Phase II begins:**  
- Targets become mandatory.  
- ODA implements the program, ensures compliance, and issues annual Program Report.  
- DAAC continues to evaluate Program and make recommendations, as needed. |
V. Conclusion

In conclusion, The Task Force thanks the Legislature for the opportunity to serve and formulate this consensus package of recommendations. Taken as a whole, they represent an optimal balance between the competing interests and chart a clear and positive path forward for all Oregonians. These recommendations were created because the Task Force worked hard to achieve the necessary levels of understanding, trust, and respect. In order to maintain this positive and balanced momentum, the Task Force believes it is imperative that the Legislature provide the funding for this necessary and evolving program. The monetary requests are modest and responsibly staged over time to ensure the Program can accomplish its purposes without negatively affecting Oregon’s other priorities.

Respectfully Submitted on July 1, 2008

Oregon Dairy Air Quality Task Force
Department of Environmental Quality
Customer Satisfaction Survey:
Results Report

Survey Conducted May, 2008

Report for the
Oregon Department of Environmental Quality

June 24, 2008

by Tara Horn, M.A.A.P.D., Amber B. Johnson, Ph.D., and Debi Elliott, Ph.D.
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METHODOLOGY

Since 1994, the Oregon Department of Environmental Quality (DEQ) has conducted a survey to better understand the perceptions and satisfaction of its customers. The 2008 survey is the fourth in a series of four surveys (200, 2004, 2006, and 2008) that measures customer satisfaction. The primary objective of the 2008 survey is to measure the satisfaction of on-site septic permit customers and air and water quality permit customers.

The survey questions were developed by DEQ and include questions about respondent contact with DEQ, location and other demographics, and satisfaction with services provided by DEQ. The complete survey script can be found in Appendix A. The Portland State University Survey Research Lab (SRL) conducted the survey between May 13th and May 20th, 2008, resulting in a sample of 507 Oregonians. A total of 304 surveys were conducted with air and water quality permit customers, which were primarily small businesses, and 203 surveys were conducted with on-site septic permit customers, who were primarily homeowners. A detailed description of survey programming, interviewer training, and data collection oversight can be found in Appendix B. The average length of a completed survey was 4.83 minutes.

Response Rate

The response rate was calculated two different ways for each respondent group. The response rate was first calculated using all eligible numbers in the denominator. That included the numbers listed in Table B-1 coded as a completed interview, cell phone refusal, language/disability barrier, refused to provide name and/or continue survey, suspend without callback, refusal-never call back, and all active numbers except for those not yet called. This calculation resulted in a response rate of 44.7% for on-site septic customers, 49.4% for Air and Water Quality customers, and 47.4% for the full combined sample. The second response rate was based on only resolved numbers, representing the proportion of all resolved numbers that are actually completed surveys. This second calculation resulted in a response rate of 50.4% for on-site septic customers, 57.8% for Air and Water Quality customers, and 54.6% for the full combined sample.

The refusal rate was also calculated, including any numbers classified as a cell phone refusal, refused to provide name or continue, suspended without callback, refusal-never callback, soft refusal, or hang up. These counts were considered relative to the total number of used sample therefore the denominator only included numbers that had been called at least once. The refusal rate was 19.4% for on-site septic customers, 14.6% for Air and Water Quality customers, and 13.6% for the full combined sample.
DEMOGRAPHIC AND SUPPORTING DATA

A total of 507 respondents completed the DEQ Customer Satisfaction Survey. Just over half of all respondents (53.4%) were businesses, while 35.3% were individuals. Respondents were spread throughout 32 counties in Oregon, with the largest proportion of all respondents coming from Coos (10.6%) and Multnomah (10.2%) counties. The following sections present tables and figures with data for Air and Water Quality customers and on-site septic customers.

On-Site Septic Customers

A total of 203 on-site septic customers completed the DEQ Customer Satisfaction Survey, with 88.2% representing a residential household, and 11.8% representing a business. Table 1 shows the distribution of respondents by county, listed in descending order of frequency. On-site septic respondents came from 19 counties, although only the top six counties had more than 10 respondents each. Figures 1 and 2 respectively show the percentage of on-site septic respondents who had their first contact with the program, and who the contact was with. Half of the on-site septic customers (52.2%) had had their first contact with DEQ’s on-site septic program within the last year, and just over half (57.1%) had that contact with an inspector.

<table>
<thead>
<tr>
<th>In what county are you located?</th>
<th>Percent</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coos</td>
<td>21.7%</td>
<td>44</td>
</tr>
<tr>
<td>Josephine</td>
<td>20.7%</td>
<td>42</td>
</tr>
<tr>
<td>Umatilla</td>
<td>12.3%</td>
<td>25</td>
</tr>
<tr>
<td>Clatsop</td>
<td>11.8%</td>
<td>24</td>
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<tr>
<td>Baker</td>
<td>7.4%</td>
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<tr>
<td>Union</td>
<td>5.9%</td>
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</tr>
<tr>
<td>Grant</td>
<td>3.4%</td>
<td>7</td>
</tr>
<tr>
<td>Wallowa</td>
<td>3.4%</td>
<td>7</td>
</tr>
<tr>
<td>Harney</td>
<td>2.5%</td>
<td>5</td>
</tr>
<tr>
<td>Lake</td>
<td>2.5%</td>
<td>5</td>
</tr>
<tr>
<td>Multnomah</td>
<td>1.5%</td>
<td>3</td>
</tr>
<tr>
<td>Morrow</td>
<td>1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Washington</td>
<td>1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Wheeler</td>
<td>1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Clackamas</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
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<td>Douglas</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Lincoln</td>
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<td>1</td>
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<td>Marion</td>
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<td>1</td>
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<tr>
<td>Sherman</td>
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<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Dont Know</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
</tbody>
</table>
Air and Water Quality Customers

A total of 304 respondents with Air and Water Quality permits for a business completed the DEQ Customer Satisfaction Survey. Table 2 shows the distribution of counties where the central offices of Air and Water Quality respondents are located, listed in descending order of frequency. The Air and Water Quality customers were fairly distributed throughout Oregon, with 16.1% being the highest percentage of central offices located in one county.

Table 2: Central Office Location of Air and Water Quality Customers (n=304)

<table>
<thead>
<tr>
<th>In what county is your central office located?</th>
<th>Percent</th>
<th>Frequency</th>
<th>In what county is your central office located?</th>
<th>Percent</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multnomah</td>
<td>16.1%</td>
<td>49</td>
<td>Curry</td>
<td>1.3%</td>
<td>4</td>
</tr>
<tr>
<td>Jackson</td>
<td>10.2%</td>
<td>31</td>
<td>Polk</td>
<td>1.3%</td>
<td>4</td>
</tr>
<tr>
<td>Washington</td>
<td>8.9%</td>
<td>27</td>
<td>Baker</td>
<td>1.0%</td>
<td>3</td>
</tr>
<tr>
<td>Lane</td>
<td>7.2%</td>
<td>22</td>
<td>Crook</td>
<td>1.0%</td>
<td>3</td>
</tr>
<tr>
<td>Marion</td>
<td>6.6%</td>
<td>20</td>
<td>Columbia</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Clackamas</td>
<td>6.3%</td>
<td>19</td>
<td>Hood River</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Linn</td>
<td>5.6%</td>
<td>17</td>
<td>Lake</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Douglas</td>
<td>4.3%</td>
<td>13</td>
<td>Tillamook</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Yamhill</td>
<td>4.3%</td>
<td>13</td>
<td>Union</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Josephine</td>
<td>3.6%</td>
<td>11</td>
<td>Wasco</td>
<td>&lt;1.0%</td>
<td>2</td>
</tr>
<tr>
<td>Coos</td>
<td>3.3%</td>
<td>10</td>
<td>Harney</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Lincoln</td>
<td>3.1%</td>
<td>9</td>
<td>Jefferson</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Deschutes</td>
<td>2.3%</td>
<td>7</td>
<td>Malheur</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Benton</td>
<td>1.6%</td>
<td>5</td>
<td>Morrow</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Klamath</td>
<td>1.6%</td>
<td>5</td>
<td>Other</td>
<td>2.0%</td>
<td>6</td>
</tr>
<tr>
<td>Umatilla</td>
<td>1.6%</td>
<td>5</td>
<td>Don't know</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
<tr>
<td>Clatsop</td>
<td>1.3%</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 shows the number of reported business locations among Air and Water Quality respondents in Oregon. The majority of Air and Water Quality customers had businesses with just one location in Oregon (63.2%), while just 13.8% reported having six or more locations in Oregon. Figure 3 shows the length of time Air and Water Quality respondents have been regulated by DEQ. More than three-fourths (79.3%) have been served by DEQ for 6 years or more.

Table 3: Number of Oregon Locations among Air and Water Quality Customers (n=304)

<table>
<thead>
<tr>
<th>How many locations does your company have in Oregon?</th>
<th>Percent</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>63.2%</td>
<td>192</td>
</tr>
<tr>
<td>2</td>
<td>10.2%</td>
<td>31</td>
</tr>
<tr>
<td>3 to 5</td>
<td>8.9%</td>
<td>27</td>
</tr>
<tr>
<td>6 to 9</td>
<td>5.3%</td>
<td>16</td>
</tr>
<tr>
<td>10 to 18</td>
<td>4.9%</td>
<td>15</td>
</tr>
<tr>
<td>20 to 30</td>
<td>2.3%</td>
<td>7</td>
</tr>
<tr>
<td>100 to 200</td>
<td>1.3%</td>
<td>4</td>
</tr>
<tr>
<td>Don't know</td>
<td>3.6%</td>
<td>11</td>
</tr>
<tr>
<td>Refused</td>
<td>&lt;1.0%</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 3: Length of Time Regulated by DEQ for Air and Water Quality Customers (n=304)
Figure 4 shows the breakdown of Air and Water Quality permit customers by whether they have had contact with DEQ’s Air Quality program or Water Quality program in the last year. A majority (85.9%) of customers reported having contact with DEQ’s Water Quality program in the last year, however, less than half (45.7%) have had contact with DEQ’s Air Quality program in the same period of time. Just over half (54.2%) have only had contact with the Water Quality program, while 14.1% have had contact only with the Air Quality program in the last year.

**Figure 4: Contact with Air or Water Quality Program in the Last Year (n=304)**
CUSTOMER SATISFACTION RATINGS

Respondents were asked six questions to gauge their level of satisfaction with the services provided by the Department of Environmental Quality, in accordance with the following topics mandated by the Oregon Department of Administrative Services: 1. Timeliness, 2. Accuracy, 3. Helpfulness, 4. Expertise, 5. Availability of information, and 6. Overall service. The following six questions were asked of DEQ customers:

1. How would you rate the overall service you received from DEQ?
2. How would you rate the timeliness of the services provided by DEQ?
3. How would you rate the ability of DEQ to provide services correctly the first time?
4. How would you rate the helpfulness of DEQ Employees?
5. How would you rate the availability of information at DEQ?
6. How would you rate the knowledge and expertise of DEQ employees?

Respondents rated each item on a scale of 1 to 5, where 1 means “Poor”, and 5 means “Excellent”. Table 4 shows the distribution of ratings across all respondents (n=507). The highest percentage for each rating by column is highlighted in bold, while the highest rating per item across the rows is underlined. “Helpfulness of DEQ employees” had the highest percentage of respondents rating the item at a 4 or a 5 (76.5%), while “Timeliness of services provided by DEQ” had the highest percentage of respondents ranking the item at 1 or 2 (15%).

Table 4: Satisfaction Ratings among All DEQ Customers (n=507)

<table>
<thead>
<tr>
<th>Item</th>
<th>1 or 2 (Poor)</th>
<th>3</th>
<th>4</th>
<th>5 (Excellent)</th>
<th>Don’t know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>7.3%</td>
<td>13.4%</td>
<td>30.6%</td>
<td><strong>45.9%</strong></td>
<td>2.4%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>10.9%</td>
<td>13.6%</td>
<td>32.1%</td>
<td><strong>41.2%</strong></td>
<td>2.0%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>6.1%</td>
<td>16.6%</td>
<td>32.1%</td>
<td><strong>38.9%</strong></td>
<td>5.3%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>8.2%</td>
<td>15.8%</td>
<td><strong>35.7%</strong></td>
<td>38.3%</td>
<td>1.2%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td><strong>15.0%</strong></td>
<td>16.0%</td>
<td>34.1%</td>
<td>33.9%</td>
<td>&lt;1.0%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>10.0%</td>
<td><strong>19.5%</strong></td>
<td>34.5%</td>
<td>32.0%</td>
<td>3.4%</td>
<td>&lt;1.0%</td>
</tr>
</tbody>
</table>
Figure 5 shows the percentage of respondents that ranked each item at a 4 or a 5 on the scale of 1 to 5. Respondents had mostly favorable views of DEQ in each of the areas, with at least 66.5% of respondents ranking all items at a 4 or above.

**Figure 5: Combined Customer Satisfaction Ratings of a 4 or a 5 (n=507)**

- Helpfulness of DEQ employees: 76.5%
- Overall quality of service received from DEQ: 74.0%
- Ability of DEQ to provide services correctly the first time: 73.0%
- Knowledge and expertise of DEQ employees: 71.0%
- Timeliness of services provided by DEQ: 68.0%
- Availability of information at DEQ: 66.5%

Figure 6 shows the percentage of respondents that ranked each item at either a 1 or a 2 on a scale of 1 to 5. “Timeliness of services by DEQ” had the highest percentage of respondents (15.0%) who gave it low marks.

**Figure 6: Combined Customer Satisfaction Ratings of a 1 or a 2 (n=507)**

- Knowledge and expertise of DEQ employees: 6.1%
- Helpfulness of DEQ employees: 7.3%
- Overall quality of service received from DEQ: 8.2%
- Availability of information at DEQ: 10.0%
- Ability of DEQ to provide services correctly the first time: 10.9%
- Timeliness of services provided by DEQ: 15.0%
Figure 7 illustrates the average rating for each item on a scale of 1 to 5. Interestingly, the ranking of items according to the average rating varies from the ranking of the above figure based on the percentage of “4” or “5” responses on the scale of 1 to 5. Whereas “Helpfulness of DEQ employees” had the highest percentage of respondents rating it at a 4 or a 5, the average rating of this item is lower than the item “Knowledge and expertise of DEQ employees.”

**Figure 7: Combined Customer Satisfaction Average Ratings (n=507)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>4.34</td>
</tr>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>4.26</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>4.13</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>4.1</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>4.04</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>3.86</td>
</tr>
</tbody>
</table>
On-Site Septic Permit Customers

Table 5 represents the distribution of ratings across on-site septic customer respondents. The highest percentage for each rating by column is highlighted in bold, while the highest rating per item across the rows is underlined. Again, “Helpfulness of DEQ employees” garnered the highest percentage of excellent ratings from on-site septic customers, while “Timeliness of services provided by DEQ” had the highest percentage of poor ratings.

Table 5: Satisfaction Ratings among On-Site Septic Permit Customers (n=203)

<table>
<thead>
<tr>
<th>Item</th>
<th>1 or 2 (Poor)</th>
<th>3</th>
<th>4</th>
<th>5 (Excellent)</th>
<th>Don’t know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>6.4%</td>
<td>12.8%</td>
<td>24.6%</td>
<td>55.2%</td>
<td>&lt;1.0%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>9.8%</td>
<td>12.3%</td>
<td>24.6%</td>
<td>50.2%</td>
<td>3.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>4.9%</td>
<td>14.3%</td>
<td>24.1%</td>
<td>49.8%</td>
<td>5.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>8.3%</td>
<td>12.3%</td>
<td>33.0%</td>
<td>45.3%</td>
<td>1.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>14.3%</td>
<td>12.8%</td>
<td>28.6%</td>
<td>44.3%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>8.8%</td>
<td>18.7%</td>
<td>25.6%</td>
<td>42.4%</td>
<td>4.4%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Figure 8 shows the percentage of on-site septic permit customers that ranked each item at a 4 or a 5 on the scale of 1 to 5. Septic customers had mostly favorable views, with at least 68% of respondents ranking each item at a 4 or higher.
Figure 8: On-Site Septic Permit Customer Satisfaction Ratings of a 4 or a 5 (n=203)

- Helpfulness of DEQ employees: 79.8%
- Overall quality of service received from DEQ: 78.3%
- Ability of DEQ to provide services correctly the first time: 74.9%
- Knowledge and expertise of DEQ employees: 73.9%
- Timeliness of services provided by DEQ: 72.9%
- Availability of information at DEQ: 68.0%
Figure 9 shows the percentage of on-site septic customers that ranked each item at either a 1 or a 2 on a scale of 1 to 5. “Timeliness of services by DEQ” again had the highest percentage of respondents (14.3%) who gave it low marks.

**Figure 9: On-Site Septic Permit Customer Satisfaction Ratings of a 1 or a 2 (n=203)**

- Knowledge and expertise of DEQ employees: 4.9%
- Helpfulness of DEQ employees: 6.4%
- Overall quality of service received from DEQ: 8.3%
- Availability of information at DEQ: 8.8%
- Ability of DEQ to provide services correctly the first time: 9.8%
- Timeliness of services provided by DEQ: 14.3%

Figure 10 shows the average ratings of on-site septic customers for each of the six items. On-site septic customers had mostly favorable views of DEQ’s service in all areas, with five of the six items receiving an average rating between 4 and 5. Based on the averages, “Knowledge and expertise of DEQ employees” again comes out with the highest rating, with “Helpfulness of DEQ employees” receiving the second highest average rating. “Timeliness of services” again received the lowest average rating.
Combined Air and Water Quality Customers

A total of 304 respondents held DEQ Air and Water Quality Permits. The following tables and figures represent the combined results of all 304 Air and Water Quality customers, regardless of which department they had had contact with in the last year. Table 6 shows the distribution of satisfaction ratings across DEQ customers who hold Air and Water Quality permits. Although “Helpfulness of DEQ employees” again had the highest percentage of customers rating it as excellent, the percentage of Air and Water Quality customers rating any of the items as excellent was slightly lower than for on-site septic customers. “Timeliness of services provided by DEQ” again had the highest percentage of customers rating it as a 1 or 2 (15.4%).

Table 6: Combined Satisfaction Ratings among Air and Water Quality Customers (n=304)

<table>
<thead>
<tr>
<th>Item</th>
<th>1 or 2 (Poor)</th>
<th>3</th>
<th>4</th>
<th>5 (Excellent)</th>
<th>Don’t know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>7.9%</td>
<td>13.8%</td>
<td>34.5%</td>
<td>39.8%</td>
<td>3.6%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>11.5%</td>
<td>14.5%</td>
<td>37.2%</td>
<td>34.5%</td>
<td>1.3%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>8.2%</td>
<td>18.1%</td>
<td>37.5%</td>
<td>33.6%</td>
<td>1.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>6.9%</td>
<td>18.1%</td>
<td>37.5%</td>
<td>31.6%</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>15.4%</td>
<td>18.1%</td>
<td>37.8%</td>
<td>27.0%</td>
<td>1.0%</td>
<td>&lt;1.0%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>10.8%</td>
<td>20.1%</td>
<td>40.5%</td>
<td>25.0%</td>
<td>2.6%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>
Figure 11 shows the percentage of Air and Water Quality customers that ranked each item at a 4 or a 5 on the scale of 1 to 5. Although Air and Water Quality customers had mostly favorable views on each item, they had somewhat less favorable views than the on-site septic customers. Figure 12 shows the percentage of Air and Water Quality customers that ranked each item at a 1 or a 2 on the scale of 1 to 5.

**Figure 11: Combined Air and Water Quality Customer Satisfaction Ratings of a 4 or a 5 (n=304)**

- Helpfulness of DEQ employees: 74.3%
- Ability of DEQ to provide services correctly the first time: 71.7%
- Overall quality of service received from DEQ: 71.1%
- Knowledge and expertise of DEQ employees: 69.1%
- Availability of information at DEQ: 65.5%
- Timeliness of services provided by DEQ: 64.8%

**Figure 12: Combined Air and Water Quality Customer Satisfaction Ratings of a 1 or a 2 (n=304)**

- Knowledge and expertise of DEQ employees: 6.9%
- Helpfulness of DEQ employees: 7.9%
- Overall quality of service received from DEQ: 8.2%
- Availability of information at DEQ: 10.8%
- Ability of DEQ to provide services correctly the first time: 11.5%
- Timeliness of services provided by DEQ: 15.4%
Figure 13 shows the average ratings of Air and Water Quality customers for each item. Just four of the items received an average rating above 4, and no single item received an average rating higher than 4.23 on the 1 to 5 scale. “Helpfulness of DEQ employees” did receive the highest average rating, while “Timeliness of services provided by DEQ” again received the lowest average rating.

**Figure 13: Combined Air and Water Quality Customer Average Ratings (n=304)**

- **Helpfulness of DEQ employees**: 4.23
- **Knowledge and expertise of DEQ employees**: 4.21
- **Overall quality of service received from DEQ**: 4.07
- **Ability of DEQ to provide services correctly the first time**: 4.04
- **Availability of information at DEQ**: 3.94
- **Timeliness of services provided by DEQ**: 3.80
Air Quality Customers

A total of 43 respondents who held a DEQ Air or Water Quality permit had only had contact with DEQ’s Air Quality program in the last year. The following tables present the satisfaction ratings among these 43 Air Quality customers. Table 7 shows the distribution of satisfaction ratings across Air Quality customers. The highest percentage for each rating by column is highlighted in bold, while the highest rating per item across the rows is underlined. Although “Helpfulness of DEQ employees” still received one of the highest percentage of “5” ratings, “Overall quality of service” garnered more “excellent” ratings from Air Quality customers.

Table 7: Satisfaction Ratings among Air Quality Customers (n=43)

<table>
<thead>
<tr>
<th>Item</th>
<th>1 or 2 (Poor)</th>
<th>3</th>
<th>4</th>
<th>5 (Excellent)</th>
<th>Don't know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>4.7%</td>
<td>11.6%</td>
<td>30.2%</td>
<td>53.5%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>4.7%</td>
<td>7.0%</td>
<td>34.9%</td>
<td>51.2%</td>
<td>2.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>2.3%</td>
<td>14.0%</td>
<td>32.6%</td>
<td>48.8%</td>
<td>2.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>7.0%</td>
<td>11.6%</td>
<td>34.9%</td>
<td>46.5%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>2.3%</td>
<td>14.0%</td>
<td>37.2%</td>
<td>44.2%</td>
<td>2.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>2.3%</td>
<td>23.3%</td>
<td>39.5%</td>
<td>32.6%</td>
<td>2.3%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Figure 14 shows the percentage of Air Quality customers who rated each item at a 4 or a 5 on the scale of 1 to 5. Taken alone, customers who reported only having had contact with the Air Quality program in the last year gave a higher percentage of 4 or 5 ratings for the six items than either on-site septic customers or the combined Air and Water Quality customers. Figure 15 shows the percentage of Air Quality customers who rated each item at a 1 or a 2 on the scale of 1 to 5. Air Quality customers also gave fewer ratings of a 1 or a 2 to any of the six items than on-site septic or combined Air and Water Quality customers.
Figure 14: Air Quality Customer Satisfaction Ratings of a 4 or a 5 (n=43)

- Helpfulness of DEQ employees: 86.0%
- Overall quality of service received from DEQ: 83.7%
- Ability of DEQ to provide services correctly the first time: 81.4%
- Knowledge and expertise of DEQ employees: 81.4%
- Timeliness of services provided by DEQ: 81.4%
- Availability of information at DEQ: 72.1%

Figure 15: Air Quality Customer Satisfaction Ratings of a 1 or a 2 (n=43)

- Knowledge and expertise of DEQ employees: 2.3%
- Timeliness of services provided by DEQ: 2.3%
- Availability of information at DEQ: 2.3%
- Helpfulness of DEQ employees: 4.7%
- Overall quality of service received from DEQ: 4.7%
- Ability of DEQ to provide services correctly the first time: 7.0%
Figure 16 shows the average ratings of Air Quality customers for each item. Air Quality customers had mostly favorable views, with each of the items receiving an average score higher than 4 on the scale of 1 to 5. “Helpfulness of DEQ employees” received the highest average rating, while “Availability of information” received the lowest average rating. While “Timeliness of services provided by DEQ” received the lowest average rating for both the on-site septic customers and the combined Air and Water Quality customers, for the Air Quality customers alone “Timeliness” received the third highest average rating.

**Figure 16: Air Quality Customer Average Ratings (n=43)**

- Helpfulness of DEQ employees: 4.42
- Knowledge and expertise of DEQ employees: 4.37
- Timeliness of services provided by DEQ: 4.35
- Overall quality of service received from DEQ: 4.30
- Ability of DEQ to provide services correctly the first time: 4.19
- Availability of information at DEQ: 4.12
Water Quality Customers

A total of 165 respondents who held a DEQ Air or Water Quality permit had only had contact with DEQ’s Water Quality program in the last year. The following tables present the satisfaction ratings among these 165 Water Quality customers. Table 8 shows the distribution of satisfaction ratings across Water Quality customers. “Helpfulness of DEQ employees” again received the highest percentage of “excellent” ratings.

Table 8: Satisfaction Ratings among Water Quality Customers (n=165)

<table>
<thead>
<tr>
<th>Item</th>
<th>1 or 2 (Poor)</th>
<th>3</th>
<th>4</th>
<th>5 (Excellent)</th>
<th>Don't know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>7.9%</td>
<td>17.0%</td>
<td>29.7%</td>
<td>39.4%</td>
<td>5.5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>13.9%</td>
<td>11.5%</td>
<td>34.5%</td>
<td>37.0%</td>
<td>1.8%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>9.1%</td>
<td>22.4%</td>
<td>31.5%</td>
<td>32.7%</td>
<td>1.8%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>7.3%</td>
<td>18.8%</td>
<td>35.2%</td>
<td>30.9%</td>
<td>6.7%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>17.0%</td>
<td>19.4%</td>
<td>35.2%</td>
<td>26.7%</td>
<td>0.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>13.3%</td>
<td>18.2%</td>
<td>37.6%</td>
<td>26.1%</td>
<td>3.6%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Figure 17 shows the percentage of Water Quality customers who rated each item at a 4 or a 5 on the scale of 1 to 5. Taken alone, customers who reported only having contact with the Water Quality program in the last year gave a lower percentage of 4 or 5 ratings overall than either the Air Quality customers or on-site septic customers. Only one item, “Ability of DEQ to provide services correctly the first time,” received more than 70% of the ratings at a 4 or a 5. Figure 18 shows the percentage of Water Quality customers who rated each item at a 1 or a 2 on the scale of 1 to 5. While “Ability of DEQ to provide services correctly the first time” received the highest percentage of 4 or 5 rankings, it also received the second to highest percentage of 1 or 2 rankings on the scale of 1 to 5.
Figure 17: Water Quality Customer Satisfaction Ratings of a 4 or a 5 (n=165)

- Ability of DEQ to provide services correctly the first time: 71.5%
- Helpfulness of DEQ employees: 69.1%
- Knowledge and expertise of DEQ employees: 66.1%
- Overall quality of service received from DEQ: 64.2%
- Availability of information at DEQ: 63.6%
- Timeliness of services provided by DEQ: 61.8%

Figure 18: Water Quality Customer Satisfaction Ratings of a 1 or a 2 (n=165)

- Knowledge and expertise of DEQ employees: 7.3%
- Helpfulness of DEQ employees: 7.9%
- Overall quality of service received from DEQ: 9.1%
- Availability of information at DEQ: 13.3%
- Ability of DEQ to provide services correctly the first time: 13.9%
- Timeliness of services provided by DEQ: 17.0%
Figure 19 shows the average ratings of Water Quality customers for each item. Water Quality customers had slightly less favorable views than Air Quality customers, with just four of the six items receiving an average rating higher than 4. “Timeliness of services provided by DEQ” again received the lowest average rating.

Figure 19: Water Quality Customer Average Ratings (n=165)

- Helpfulness of DEQ employees: 4.28
- Knowledge and expertise of DEQ employees: 4.27
- Overall quality of service received from DEQ: 4.08
- Ability of DEQ to provide services correctly the first time: 4.07
- Availability of information at DEQ: 3.96
- Timeliness of services provided by DEQ: 3.75
Figure 20 shows the comparison of ratings of a 4 or 5 on the scale of 1 to 5 for on-site septic, Air Quality, and Water Quality customers. Air Quality customers gave the highest rankings for each item, while Water Quality customers consistently gave the fewest “4” or “5” ratings for each item.

Figure 20: Comparison of Septic, Air, and Water Quality Customer Ratings of 4 or 5
Figure 21 shows the comparison of ratings of a 1 or 2 on the scale of 1 to 5 for on-site septic, Air Quality, and Water Quality customers. Air Quality customers gave the lowest percentage of “1” or “2” ratings to each item, while Water Quality customers gave the highest percentage of low rankings to each item.

**Figure 21: Comparison of Septic, Air, and Water Quality Customer Ratings of 1 or 2**

<table>
<thead>
<tr>
<th>Service provided by DEQ</th>
<th>Air Quality Customers (n=43)</th>
<th>On-Site Septic Customers (n=203)</th>
<th>Water Quality Customers (n=165)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>2.3% 13.9% 13.3%</td>
<td>17.0% 14.3% 8.3%</td>
<td>14.3% 7.9% 9.1%</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>9.8% 8.8% 7.0%</td>
<td>9.1% 4.7% 4.7%</td>
<td>9.1% 4.7% 4.7%</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>7.0% 4.7% 4.7%</td>
<td>7.9% 4.7% 4.7%</td>
<td>7.9% 4.7% 4.7%</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>4.7% 4.7% 4.7%</td>
<td>7.3% 4.9% 4.9%</td>
<td>7.3% 4.9% 4.9%</td>
</tr>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>4.7% 4.7% 4.7%</td>
<td>4.7% 4.7% 4.7%</td>
<td>4.7% 4.7% 4.7%</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>7.0% 4.7% 4.7%</td>
<td>7.0% 4.7% 4.7%</td>
<td>7.0% 4.7% 4.7%</td>
</tr>
</tbody>
</table>

Figure 22 shows a comparison of the average ratings for each item across on-site septic customers, Air Quality customers, and Water Quality customers.

**Figure 22: Comparison of Septic, Air, and Water Quality Customer Average Ratings**

<table>
<thead>
<tr>
<th>Service provided by DEQ</th>
<th>Air Quality Customers (n=43)</th>
<th>Septic Customers (n=203)</th>
<th>Water Quality Customers (n=165)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeliness of services provided by DEQ</td>
<td>4.35 4.08 4.07</td>
<td>4.30 4.07 4.07</td>
<td>4.30 4.07 4.07</td>
</tr>
<tr>
<td>Overall quality of service received from DEQ</td>
<td>4.16 3.96 4.19</td>
<td>4.30 4.07 4.19</td>
<td>4.30 4.07 4.19</td>
</tr>
<tr>
<td>Availability of information at DEQ</td>
<td>4.30 3.96 4.12</td>
<td>4.30 4.07 4.19</td>
<td>4.30 4.07 4.19</td>
</tr>
<tr>
<td>Ability of DEQ to provide services correctly the first time</td>
<td>4.30 4.07 4.19</td>
<td>4.30 4.07 4.19</td>
<td>4.30 4.07 4.19</td>
</tr>
<tr>
<td>Helpfulness of DEQ employees</td>
<td>4.42 4.28 4.28</td>
<td>4.42 4.28 4.28</td>
<td>4.42 4.28 4.28</td>
</tr>
<tr>
<td>Knowledge and expertise of DEQ employees</td>
<td>4.37 4.27 4.27</td>
<td>4.37 4.27 4.27</td>
<td>4.37 4.27 4.27</td>
</tr>
</tbody>
</table>
In general, on-site septic, Air Quality and Water Quality customers were satisfied with the services they received from DEQ. “Helpfulness of DEQ employees” consistently received high ratings from all three groups when looking at either the average rating or the percentage of ratings at a 4 or a 5. “Timeliness of services provided by DEQ” and “Availability of information at DEQ” consistently received some of the lowest ratings from customers. When looking at the percentage of ratings at a 4 or a 5 for each item, Air Quality customers were consistently more satisfied with each area of service compared to either Water Quality customers or on-site septic customers. When looking at averages, Air Quality customers had lower average ratings for some items than on-site septic customers, but Water Quality customers still had the overall lowest rankings for each of the six items.
APPENDIX A

DEQ Customer Satisfaction Survey Script
**TZONE**

Computed Time Zone with area code.

<table>
<thead>
<tr>
<th>Area</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>03</td>
</tr>
<tr>
<td>Alaska</td>
<td>04</td>
</tr>
<tr>
<td>Pacific</td>
<td>05</td>
</tr>
<tr>
<td>Mountain</td>
<td>07</td>
</tr>
<tr>
<td>Arizona</td>
<td>08</td>
</tr>
<tr>
<td>Central</td>
<td>12</td>
</tr>
<tr>
<td>Eastern</td>
<td>13</td>
</tr>
<tr>
<td>Indiana (East)</td>
<td>15</td>
</tr>
<tr>
<td>Atlantic (Canada)</td>
<td>19</td>
</tr>
</tbody>
</table>

**ORGPH**

Imported original phone number

999-999-9999

**EXTN**

Extension

99999

**PHN2**

Imported original second phone number

999-999-9999

**SAMPL**

Imported original sample group

<table>
<thead>
<tr>
<th>Group</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air/Water Permit Holders</td>
<td>1</td>
</tr>
<tr>
<td>Septic Customer Service</td>
<td>2</td>
</tr>
</tbody>
</table>

**NAME**

Imported Target Respondent's Name

**TITLE**

Imported Target Respondent's Job Title

**BUSIN**

Imported Target Respondent's Business Name

**TYPE**

Imported business or individual

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>1</td>
</tr>
<tr>
<td>Individual</td>
<td>2</td>
</tr>
<tr>
<td>Should be a Business</td>
<td>3</td>
</tr>
<tr>
<td>Duplicate</td>
<td>4</td>
</tr>
</tbody>
</table>

**INTRO**

DEQ Presentation to Ways & Means Subcommittee on Natural Resources, April 2009
Phone number = $N Ext= EXTN Possible second number = PHN2

Permit = SAMPL
Type = TYPE
Business Name = BUSIN
Target R Job Title = TITLE
Target R = NAME

Callback Note 1: F6 Callback Note 2: F7 Callback Note 3: F8 Callback Note 4: F9

OK - Continue
Answering machine     01 => INT01
Busy                   02 => INT02
No answer              03 => INT03
FAX machine            04 => INT04
Number change - Operator intercept     05 => /TEL01
Cell phone refusal     06 => INT06
Non-working, disconnected number       07 => INT07
Language/Disability barrier      09 => INT09
Pay phone               10 => INT10
Group Home              11 => INT11
Calling for Individual but got a Business 22 => INT22
Calling for a Business but got an Individual 23 => INT23

NTRO

Hello, my name is $I and I'm calling on behalf of the Oregon Department of Environmental Quality. May I please speak to NAME?

IWR NOTE: If no name, say: May I please speak to the person who has been in contact with DEQ in the last year?

Type = TYPE Business Name = BUSIN Target R Job Title = TITLE

No, I will get them     0 => NTRO2
Yes, that is me         1D
Person not available now - Schedule CB w/specific time 2 => INT50
Not Interested/Not Now - General CB in 1 day 3 => INT55

******

Wrong number (Does not know who NAME is.) 7 => INT14
Hung up w/out saying anything - Automatic CB in 1 day 8 => INT95
Refused to start      9 => INT91
NTRO1

I assure you I am not selling anything. We are conducting a brief 5 minute survey about customer services provided by DEQ. Your responses will be kept completely confidential and your participation is voluntary. You can stop at any time or skip any item you don't want to answer. Would now be a good time to answer a few questions?

=> +1 if NOT (NTRO=1)

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, continue</td>
<td>1D</td>
<td>S1</td>
</tr>
<tr>
<td>Not a good time now - schedule CB w/specific time</td>
<td>2</td>
<td>INT50</td>
</tr>
<tr>
<td>Not Interested/Not Now - General CB in 1 day</td>
<td>3</td>
<td>INT55</td>
</tr>
<tr>
<td>Hung up w/out saying anything - automatic CB in 1 day</td>
<td>8</td>
<td>INT95</td>
</tr>
<tr>
<td>Refused to start</td>
<td>9</td>
<td>INT91</td>
</tr>
</tbody>
</table>

NTRO2

Hello, my name is SL and I’m calling from Portland State University on behalf of the Oregon Department of Environmental Quality. I assure you I am not selling anything. We are conducting a brief 5 minute survey about customer services provided by DEQ. Your responses will be kept completely confidential and your participation is voluntary. You can stop at any time or skip any item you don't want to answer. Would now be a good time to answer a few questions?

=> +1 if NOT (NTRO=0 OR S1A=1 OR AW1A=1)

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, not the right person</td>
<td>0</td>
<td>NTRO3</td>
</tr>
<tr>
<td>Yes, continue</td>
<td>1D</td>
<td></td>
</tr>
<tr>
<td>Not a good time now - schedule CB w/specific time</td>
<td>2</td>
<td>INT50</td>
</tr>
<tr>
<td>Not Interested/Not Now - General CB in 1 day</td>
<td>3</td>
<td>INT55</td>
</tr>
<tr>
<td>Person's VM</td>
<td>7</td>
<td>INT01</td>
</tr>
<tr>
<td>Hung up w/out saying anything - automatic CB in 1 day</td>
<td>8</td>
<td>INT95</td>
</tr>
<tr>
<td>Refused to start</td>
<td>9</td>
<td>INT91</td>
</tr>
</tbody>
</table>

NTRO3

May I please speak to the person who has been in contact with DEQ most regularly?

=> +1 if NOT(NTRO2=0 AND SAMPL=1)

<table>
<thead>
<tr>
<th>Response</th>
<th>Code</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, say &quot;Great! Is he/she available?&quot;</td>
<td>1D</td>
<td>NTRO2</td>
</tr>
<tr>
<td>Person not available - Schedule CB</td>
<td>2</td>
<td>INT50</td>
</tr>
<tr>
<td>Refused to provide name and/or continue survey</td>
<td>9</td>
<td>INT16</td>
</tr>
</tbody>
</table>
### NTRO4

May I please speak to the person who has been in contact with DEQ regarding a septic system?

=> +1 if NOT(NTRO2=0 AND SAMPL=2)

| Yes, say "Great! Is he/she available?" | 1D | => NTRO2 |
| Person not available - Schedule CB | 2 | => INT50 |
| Refused to provide name and/or continue survey | 9 | => INT16 |

### INT01

Answering machine | 01D | => /END |

### INT02

Busy | 02D | => /END |

### INT03

No answer | 03D | => /END |

### INT04

FAX machine | 04D | => /END |

### INT06

I am sorry to have bothered you. Is there a better number I can reach you at or may we call you at off-peak hours?

Cell phone refusal - Should only be used if R refuses to complete the survey using the cell phone.

| Cell phone refusal | 06D | => /END |
| R has land line - Number change | 12 | => /TEL01 |

### INT07

Non-working, Disconnected number | 07D | => /END |

### INT09

Language Barrier: Sorry to have bothered you. We do not have anyone that speaks your language.

Disability Barrier: Sorry to have bothered you. Thank you for your time today. Hearing Problem: Sorry to have bothered you. We are not able to complete this survey with a TTY system.

Should be used for R's who cannot complete the survey due to cognitive/mental/physical disability that prevents them from answering and/or understanding questions. If you deem a R to fit into one of these categories, the survey should NOT be conducted with that R.

| Language/Disability barrier | 09D | => /END |

### INT10

Sorry to have bothered you we are surveying households only. Thank you for your time today.

| Pay phone | 10D | => /END |
Sorry to have bothered you we are surveying single family households only. Thank you for your time today.

Should be used for communal phones. Should NOT be used for nursing homes, where residents have their own individual/residential lines.

<table>
<thead>
<tr>
<th>Group home, dormitory</th>
<th>11D =&gt; /END</th>
</tr>
</thead>
</table>

**INT14**

I'm sorry to have bothered you. Did I dial $N? Thank you for your time today.

If you dialed the wrong number, back up and re-dial.

<table>
<thead>
<tr>
<th>Wrong number</th>
<th>14D =&gt; /END</th>
</tr>
</thead>
</table>

**INT16**

I'm sorry to have bothered you.

<table>
<thead>
<tr>
<th>Refused to provide name and/or continue survey</th>
<th>16D =&gt; /END</th>
</tr>
</thead>
</table>

**INT22**

I'm sorry to have bothered you.

<table>
<thead>
<tr>
<th>Calling for Individual but got a Business</th>
<th>22D =&gt; /END</th>
</tr>
</thead>
</table>

**INT23**

I'm sorry to have bothered you.

<table>
<thead>
<tr>
<th>Calling for a Business but got an Individual</th>
<th>23D =&gt; /END</th>
</tr>
</thead>
</table>

**INT50**

When would be a better time for us to reach you?

<table>
<thead>
<tr>
<th>English specific callback</th>
<th>50D =&gt; /CB</th>
</tr>
</thead>
</table>

**INT55**

Not interested/Not now - automatic CB in 1 day

<table>
<thead>
<tr>
<th>English generic callback</th>
<th>55D =&gt; /END</th>
</tr>
</thead>
</table>

**INT91**

Hang up and code the refusal accordingly

General Refusal: We are calling a sampling of DEQ's customers to find out how they rate DEQ's customer services and if they have suggestions to improve service. The survey is very short, less than five minutes, and your answers are strictly confidential.

Purpose: The results of this survey will help DEQ provide better services to its customers and the public. If R asked how we go their phone number, say: DEQ has provided us with the contact information available from the permit you applied for. All information you provide will be held confidential.

If R wants contact information they may call any of the following: DEQ WEBSITE: http://www.oregon.gov/DEQ/ Joan Stevens-Schwenger at (503) 229-6585 or Stevens-schwenger.joanie@deq.state.or.us

If you have questions about the validity of the study or the Survey Research Lab you may
call Dr. Debi Elliott, the Director of the Survey Research Laboratory at Portland State University, at 503-725-5198 or visit the Survey Research Lab website at www.srl.pdx.edu.

If you have concerns or questions about your rights as a research subject, please contact the PSU Human Subjects Research Review Committee, at 503-725-4288.

Was this a refusal or a never callback?

<table>
<thead>
<tr>
<th></th>
<th>Refusal [please specify]</th>
<th>Never callback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>91O =&gt; /END</td>
<td>92 =&gt; /END</td>
</tr>
</tbody>
</table>

**INT95**

Hung up without saying anything - Automatic CB in 1 day

|                    | 95D => /END |

**S1**

Our records show that in the past year you had contact with DEQ regarding a septic system. Is this correct?

<table>
<thead>
<tr>
<th></th>
<th>=&gt; /AW1 if NOT (SAMPL=2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0 =&gt; /S1A</td>
</tr>
<tr>
<td>Yes</td>
<td>1D =&gt; /S2</td>
</tr>
<tr>
<td>Don't know</td>
<td>8 =&gt; /INT13</td>
</tr>
<tr>
<td>Refused</td>
<td>9 =&gt; /INT13</td>
</tr>
</tbody>
</table>

**S1A**

May I please speak to the person who has been in contact with DEQ?

<table>
<thead>
<tr>
<th></th>
<th>=&gt; /+1 if NOT(S1=0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, No such person</td>
<td>0 =&gt; /INT21</td>
</tr>
<tr>
<td>Yes</td>
<td>1 =&gt; /NTRO2</td>
</tr>
<tr>
<td>Person not available - Schedule CB w/specific time</td>
<td>7 =&gt; /INT24</td>
</tr>
<tr>
<td>Don't Know</td>
<td>8 =&gt; /INT21</td>
</tr>
<tr>
<td>Refused</td>
<td>9 =&gt; /INT21</td>
</tr>
</tbody>
</table>

**INT24**

When would be a better time for us to reach them?

<table>
<thead>
<tr>
<th></th>
<th>=&gt; +1 if NOT (S1A=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English specific callback</td>
<td>24D =&gt; /CB</td>
</tr>
</tbody>
</table>
INT21
I'm sorry we are only surveying people who have been in contact with DEQ in the past year about a septic permit. Thank you for your time.
Septic permit holder not in contact in last year
=> +1 if NOT (S1A=0,8,9)
Septic permit holder not in contact in last year 21D => /END

INT13
I'm sorry we are only surveying people who have been in contact with DEQ in the past year. Thank you for your time.
Not eligible to complete survey - No Contact with DEQ
=> +1 if NOT (S1=8,9)
Not eligible to complete survey - No Contact with DEQ 13D => /END

S2
Did you personally have most of the contact with DEQ or did you hire a contractor?
Dealt personally with DEQ 1
Hired a Contractor 2 => INT15
*****
Don't Know 8 => INT17
Refused 9 => INT17

INT15
I'm sorry but we are only surveying people who dealt with DEQ directly. Thank you for your time today.
=> +1 if NOT (S2=2)
Hired Contractor 15D => /END

INT17
I'm sorry but we are only surveying people who dealt with DEQ directly. Thank you for your time today.
=> +1 if NOT (S2=8,9)
DK/RF if Hired Contractor 17D => /END
### In what county are you located?

<table>
<thead>
<tr>
<th>County</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker</td>
<td>01</td>
</tr>
<tr>
<td>Benton</td>
<td>02</td>
</tr>
<tr>
<td>Clackamas</td>
<td>03</td>
</tr>
<tr>
<td>Clatsop</td>
<td>04</td>
</tr>
<tr>
<td>Columbia</td>
<td>05</td>
</tr>
<tr>
<td>Coos</td>
<td>06</td>
</tr>
<tr>
<td>Crook</td>
<td>07</td>
</tr>
<tr>
<td>Curry</td>
<td>08</td>
</tr>
<tr>
<td>Deschutes</td>
<td>09</td>
</tr>
<tr>
<td>Douglas</td>
<td>10</td>
</tr>
<tr>
<td>Gilliam</td>
<td>11</td>
</tr>
<tr>
<td>Grant</td>
<td>12</td>
</tr>
<tr>
<td>Harney</td>
<td>13</td>
</tr>
<tr>
<td>Hood River</td>
<td>14</td>
</tr>
<tr>
<td>Jackson</td>
<td>15</td>
</tr>
<tr>
<td>Jefferson</td>
<td>16</td>
</tr>
<tr>
<td>Josephine</td>
<td>17</td>
</tr>
<tr>
<td>Klamath</td>
<td>18</td>
</tr>
<tr>
<td>Lake</td>
<td>19</td>
</tr>
<tr>
<td>Lane</td>
<td>20</td>
</tr>
<tr>
<td>Lincoln</td>
<td>21</td>
</tr>
<tr>
<td>Linn</td>
<td>22</td>
</tr>
<tr>
<td>Malheur</td>
<td>23</td>
</tr>
<tr>
<td>Marion</td>
<td>24</td>
</tr>
<tr>
<td>Morrow</td>
<td>25</td>
</tr>
<tr>
<td>Multnomah</td>
<td>26</td>
</tr>
<tr>
<td>Polk</td>
<td>27</td>
</tr>
<tr>
<td>Sherman</td>
<td>28</td>
</tr>
<tr>
<td>Tillamook</td>
<td>29</td>
</tr>
<tr>
<td>Umatilla</td>
<td>30</td>
</tr>
<tr>
<td>Union</td>
<td>31</td>
</tr>
<tr>
<td>Wallowa</td>
<td>32</td>
</tr>
<tr>
<td>Wasco</td>
<td>33</td>
</tr>
<tr>
<td>Washington</td>
<td>34</td>
</tr>
<tr>
<td>Wheeler</td>
<td>35</td>
</tr>
<tr>
<td>Yamhill</td>
<td>36</td>
</tr>
</tbody>
</table>

******

Other (please specify) | 77O
Dont Know              | 88
Refused                | 99
### S4

**Was this the first time you have had contact with Oregon's DEQ on-site septic program?**

IWR NOTE: DEQ's On-site Septic Program permits, reviews plans and inspects residential septic systems.

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Don't know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### S5

**Was the contact primarily with an inspector or with clerical staff?**

IWR NOTE: Onsite (Septic) Inspections: The DEQ inspector checks a septic installation to help ensure that it was properly installed.

IWR NOTE: DEQ Clerical Staff: Answers questions, provides forms and information, takes payments, and schedules inspections.

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspector</td>
<td>1</td>
</tr>
<tr>
<td>Clerical Staff</td>
<td>2</td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### AW1

**Our records show that you have been in contact with DEQ sometime in the last year. Is this correct?**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Don't know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### AW1A

**May I please speak to the person who has been in contact with DEQ?**

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, No such person</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Person not available - Schedule CB w/specific time</td>
<td>7</td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>
**INT25**
When would be a better time for us to reach them?

=> +1 if NOT (AW1A=7)

English specific callback 25D => /CB

**INT18**
I'm sorry but we are only surveying people who have been in contact with DEQ in the past year. Thank you for your time.

=> +1 if NOT (AW1A=0,8,9)

A/W permit holder not in contact in last year 18D => /END

**INT19**
I'm sorry but we are only surveying people who have been in contact with DEQ in the past year. Thank you for your time.

=> +1 if NOT (AW1=8,9)

A/W permit holder DK/RF contact question 19D => /END

**AW1B**
Did you personally have most of the contact with DEQ or did you hire a contractor?

Dealt personally with DEQ 1
Hired a Contractor 2 => INT26

*****

Don't Know 8 => INT27
Refused 9 => INT27

**INT26**
I'm sorry but we are only surveying people who dealt with DEQ directly. Thank you for your time today.

=> +1 if NOT (AW1B=2)

Hired Contractor - Air/Water 26D => /END

**INT27**
I'm sorry but we are only surveying people who dealt with DEQ directly. Thank you for your time today.

=> +1 if NOT (AW1B=8,9)

DK/RF if Hired Contractor - Air/Water 27D => /END
<table>
<thead>
<tr>
<th>County</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker</td>
<td>01</td>
</tr>
<tr>
<td>Benton</td>
<td>02</td>
</tr>
<tr>
<td>Clackamas</td>
<td>03</td>
</tr>
<tr>
<td>Clatsop</td>
<td>04</td>
</tr>
<tr>
<td>Columbia</td>
<td>05</td>
</tr>
<tr>
<td>Coos</td>
<td>06</td>
</tr>
<tr>
<td>Crook</td>
<td>07</td>
</tr>
<tr>
<td>Curry</td>
<td>08</td>
</tr>
<tr>
<td>Deschutes</td>
<td>09</td>
</tr>
<tr>
<td>Douglas</td>
<td>10</td>
</tr>
<tr>
<td>Gilliam</td>
<td>11</td>
</tr>
<tr>
<td>Grant</td>
<td>12</td>
</tr>
<tr>
<td>Harney</td>
<td>13</td>
</tr>
<tr>
<td>Hood River</td>
<td>14</td>
</tr>
<tr>
<td>Jackson</td>
<td>15</td>
</tr>
<tr>
<td>Jefferson</td>
<td>16</td>
</tr>
<tr>
<td>Josephine</td>
<td>17</td>
</tr>
<tr>
<td>Klamath</td>
<td>18</td>
</tr>
<tr>
<td>Lake</td>
<td>19</td>
</tr>
<tr>
<td>Lane</td>
<td>20</td>
</tr>
<tr>
<td>Lincoln</td>
<td>21</td>
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<tr>
<td>Linn</td>
<td>22</td>
</tr>
<tr>
<td>Malheur</td>
<td>23</td>
</tr>
<tr>
<td>Marion</td>
<td>24</td>
</tr>
<tr>
<td>Morrow</td>
<td>25</td>
</tr>
<tr>
<td>Multnomah</td>
<td>26</td>
</tr>
<tr>
<td>Polk</td>
<td>27</td>
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<tr>
<td>Sherman</td>
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<tr>
<td>Tillamook</td>
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<tr>
<td>Umatilla</td>
<td>30</td>
</tr>
<tr>
<td>Union</td>
<td>31</td>
</tr>
<tr>
<td>Wallowa</td>
<td>32</td>
</tr>
<tr>
<td>Wasco</td>
<td>33</td>
</tr>
<tr>
<td>Washington</td>
<td>34</td>
</tr>
<tr>
<td>Wheeler</td>
<td>35</td>
</tr>
<tr>
<td>Yamhill</td>
<td>36</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>77O</td>
</tr>
<tr>
<td>Don't Know</td>
<td>88</td>
</tr>
<tr>
<td>Refused</td>
<td>99</td>
</tr>
</tbody>
</table>
### AW3

**ENTER NUMBER LOCATIONS 0-1000**

**How many locations does your company have in Oregon?**

<table>
<thead>
<tr>
<th>Option</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't Know</td>
<td>8888</td>
</tr>
<tr>
<td>Refused</td>
<td>9999</td>
</tr>
</tbody>
</table>

### AW4

**READ OPTIONS UNTIL STOPPED**

**How long has your organization been regulated by DEQ?**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>1</td>
</tr>
<tr>
<td>6 months to less than a year</td>
<td>2</td>
</tr>
<tr>
<td>1-5 years</td>
<td>3</td>
</tr>
<tr>
<td>6-10 years</td>
<td>4</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### AW5

**Over the past year, have you had contact with DEQ's air quality program?**

IWR NOTE: DEQ's Air Quality Program issues permits to businesses to regulate emissions of pollutants into Oregon's air. Examples of air quality permits include: Asbestos, Air Contaminant Discharge Permit (ACDP) Program, Open Burning Permits, Title V Permits, and Vapor Recovery.

<table>
<thead>
<tr>
<th>Contact Status</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### AW6

**Over the past year, have you had contact with the DEQ water quality program?**

IWR NOTE: DEQ's Water Quality Program issues permits to businesses and municipalities to regulate emissions of pollutants into Oregon's waters. Examples of water quality permits include: Storm water Discharge Permits, Underground Injection Control (UIC), Registration/Permits, NPDES and WPCF Domestic Permits.

<table>
<thead>
<tr>
<th>Contact Status</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>
I'm sorry, but we are only surveying those who have contacted either of those programs in the last year. Thank you for your time.

=> +1 if AW5=1 OR AW6=1

None, DK or RF Air and Water contact questions 20D => /END

**Q7**

On a scale of 1-5, where 1 is poor and 5 is excellent, how would you rate the overall service you received from DEQ?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

**Q8**

Again on the same scale of 1-5, where 1 is poor and 5 is excellent, how would you rate the timeliness of the services provided by DEQ?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

**Q9**

How would you rate the ability of DEQ to provide services correctly the first time? (On a scale of 1-5, where 1 is poor and 5 is excellent)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

**Q10**
### Q11
**READ SCALE IF NEEDED**

How would you rate the availability of information at DEQ? (On a scale of 1-5, where 1 is poor and 5 is excellent)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

### Q12
**READ SCALE IF NEEDED**

How would you rate the knowledge and expertise of DEQ employees? (On a scale of 1-5, where 1 is poor and 5 is excellent)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>*****</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

**THEND**

Thank you. Those are all the questions I have. Do you have any comments or questions about the survey?
**INT99**

On behalf of the Department of Environmental Quality, I'd like to thank you sincerely for your time and opinions on these questions. Good-bye.

Your time for this survey was: $T If R has questions about the survey: Joan Stevens-Schwenger at DEQ: (503) 229-6585 or Stevens-schwenger.joanie@deq.state.or.us Dr. Debi Elliott, the Director of the Survey Research Laboratory at Portland State University, at 503-725-5198 or visit the Survey Research Lab website at www.srl.pdx.edu. PSU Human Subjects Research Review Committee, at 503-725-4288.

Complete COD

<table>
<thead>
<tr>
<th>10</th>
<th><em><strong>Hang up with Respondent, then continue with next four questions</strong></em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Do you have any comments to the CLIENT about how the interview went?</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes - Please Specify</td>
<td>1O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>Overall, how much difficulty did R have in understanding the questions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Difficulty</td>
<td>1</td>
</tr>
<tr>
<td>A Little Difficulty</td>
<td>2</td>
</tr>
<tr>
<td>Moderate Difficulty</td>
<td>3</td>
</tr>
<tr>
<td>A Great Deal of Difficulty</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12</th>
<th>How cooperative was R?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td>1</td>
</tr>
<tr>
<td>A Little</td>
<td>2</td>
</tr>
<tr>
<td>Moderately</td>
<td>3</td>
</tr>
<tr>
<td>Very</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13</th>
<th>How distracted did R seem by other people or things (e.g. television) during the interview?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at All</td>
<td>1 =&gt; /END</td>
</tr>
<tr>
<td>A Little</td>
<td>2 =&gt; /END</td>
</tr>
<tr>
<td>Moderately</td>
<td>3 =&gt; /END</td>
</tr>
<tr>
<td>Very</td>
<td>4 =&gt; /END</td>
</tr>
<tr>
<td><strong>F6-F9</strong></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Callback Note 1</td>
<td></td>
</tr>
</tbody>
</table>

Type the first callback note here.

PLEASE INCLUDE DETAILED CB NOTES - DON'T CODE CALL "OUT" OF THE SAMPLE IF A 2ND # IS AVAILABLE.

<table>
<thead>
<tr>
<th><strong>F10</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Refusal Conversion &amp; Study Info</td>
</tr>
</tbody>
</table>

**General Refusal:** We are calling a sampling of DEQ's customers to find out how they rate DEQ's customer services and if they have suggestions to improve service. The survey is very short, less than five minutes, and your answers are strictly confidential.

**Purpose:** The results of this survey will help DEQ provide better services to its customers and the public.

If R asked how we got their phone number, say: DEQ has provided us with the contact information available from the permit you applied for. All information you provide will be held confidential.

If R wants contact information they may call any of the following: Joan Stevens-Schwenger at DEQ: (503) 229-6585 or Stevens-schwenger.joanie@deq.state.or.us

If you have questions about the validity of the study or the Survey Research Lab you may call Dr. Debi Elliott, the Director of the Survey Research Laboratory at Portland State University, at 503-725-5198 or visit the Survey Research Lab website at [www.srl.pdx.edu](http://www.srl.pdx.edu).

If you have concerns or questions about your rights as a research subject, please contact the PSU Human Subjects Research Review Committee, at 503-725-4288.

Press Enter to Continue 0D
APPENDIX B

DEQ Customer Satisfaction Survey: Survey Programming, Interviewer Training, and Data Collection Oversight
The survey instrument provided by DEQ was programmed in the Voxco Virtual Call Center (VCC)\(^1\) software and pilot testing was conducted to ensure the appropriate wording of questions, the correct functioning of all skip patterns, and the accurate recording of data. The SRL uses Computer Assisted Telephone Interviewing (CATI), is equipped with 10 CATI call stations, and is part of the extensive PSU Local Area Network (LAN) with high-speed access to the Internet. The SRL stations are fully computerized using Voxco software, as well as a range of software for word processing, database management, spreadsheet preparation, graphics presentations, and statistical analysis. The SRL data and software are stored on secure servers set aside for the sole purpose of conducting the SRL’s confidential surveys and securely storing the gathered data.

A total of 12 interviewers were trained to conduct the survey. The project training included DEQ staff, the SRL Project Manager, the SRL Research Assistant, the SRL Interview Coordinators, and the interviewers. DEQ staff gave an overview of the background and purpose of the survey to provide the interviewers with the context within which the survey was being conducted. This was followed by a round-table review of the entire survey in order to review the survey items, discuss issues related to the population being surveyed and clarify the investigator’s data needs. Finally, interviewers participated in on-line practice of the survey before going live.

Calls were made during morning, afternoon, and evening hours, Monday through Sunday. Businesses were called during business hours on weekdays, while homeowners were called primarily during the evenings after 5 pm and on weekends. Interview Coordinators provided on-site monitoring and supervision during all calling hours to ensure the highest quality data collection, as well as accurate data entry. For quality assurance purposes, the interview coordinators frequently monitored interviewers, with the level of monitoring varying depending upon the individual needs of each interviewer. The interview monitoring was live and involved the coordinator patching into the telephone conversation to listen to the interviewer conducting the survey, as well as viewing interviewer’s input of the data being collected. The CATI software allowed the Coordinators to view the live interview on their computer screen to observe the real-time typing away from the interviewer’s view for reduced distraction. Additional quality assurance checks were conducted throughout survey calling by the Project Manager reviewing the collected data. Any issues that came up during the survey were quickly resolved with the DEQ staff.

At the end of calling, the final status of all telephone numbers in the sample was submitted to DEQ. The numbers were divided into two groups, active and resolved, and these two groups were further subdivided into call disposition codes. Resolved numbers are those that have been finalized and do not need to be called back because a survey was completed, or a completed survey is not possible. Included in this category are households or businesses that do not qualify for the survey, respondents who could not complete the survey due to language or cognitive deficit, and respondents who requested that their number be removed from the list. Active numbers are those for which a completed survey could still be possible. The refusals in this category are considered “soft” in that the respondent refused in a less definitive manner. Also in the active category are numbers for which a callback had been scheduled, but not completed by

\(^1\) http://www.voxco.com
the time the calling ended due to achieving the necessary completes. All of the final counts for the resolved and active disposition codes are presented in Table B-1.

### Table B-1: Resolved and Active Disposition Codes

<table>
<thead>
<tr>
<th>Resolved Number Disposition Codes</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>Completed interviews</td>
<td>507</td>
</tr>
<tr>
<td>Fax machine</td>
<td>6</td>
</tr>
<tr>
<td>Cell-phone refusal</td>
<td>1</td>
</tr>
<tr>
<td>Non-working, disconnected number</td>
<td>90</td>
</tr>
<tr>
<td>Language/Disability barrier</td>
<td>5</td>
</tr>
<tr>
<td>Wrong number</td>
<td>38</td>
</tr>
<tr>
<td>Hired contractor-Septic permit</td>
<td>104</td>
</tr>
<tr>
<td>DK/RF hired contractor-Septic permit</td>
<td>2</td>
</tr>
<tr>
<td>Hired contractor-Air/Water Quality permit</td>
<td>43</td>
</tr>
<tr>
<td>DK/RF hired contractor-Air/Water Quality permit</td>
<td>6</td>
</tr>
<tr>
<td>Air/Water Quality permit holder not in contact in last year</td>
<td>13</td>
</tr>
<tr>
<td>Air/Water Quality permit holder NO/DK/RF contact question</td>
<td>30</td>
</tr>
<tr>
<td>Septic permit holder not in contact in last year</td>
<td>8</td>
</tr>
<tr>
<td>Called for an individual but got a business</td>
<td>3</td>
</tr>
<tr>
<td>Called for a business but got an individual</td>
<td>16</td>
</tr>
<tr>
<td>Suspend without callback</td>
<td>5</td>
</tr>
<tr>
<td>Refusal - never callback</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total Resolved Numbers =</strong></td>
<td>929</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Active Number Disposition Codes</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>Answering machine</td>
<td>280</td>
</tr>
<tr>
<td>Busy</td>
<td>7</td>
</tr>
<tr>
<td>No answer</td>
<td>14</td>
</tr>
<tr>
<td>Specific English callback</td>
<td>99</td>
</tr>
<tr>
<td>Suspend with English callback</td>
<td>1</td>
</tr>
<tr>
<td>Generic English callback</td>
<td>12</td>
</tr>
<tr>
<td>Refusal</td>
<td>78</td>
</tr>
<tr>
<td>Immediate Hang Up - timed callback</td>
<td>9</td>
</tr>
<tr>
<td>Not yet Called</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total Active Numbers =</strong></td>
<td>527</td>
</tr>
<tr>
<td>TOTAL SAMPLE</td>
<td>1,456</td>
</tr>
</tbody>
</table>
APPENDIX C

DEQ Customer Satisfaction Survey: Final Respondent Comments
After completing the survey respondents were asked if they had any additional comments about the survey. Table C-1 presents these final respondent comments. The comments are sorted in alphabetical order. Any names mentioned in the comments have been removed to protect the privacy of individuals.

**Table C-1: Final Respondent Comments**

<table>
<thead>
<tr>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a DEQ water permit holder it seems that they have been in a period of flux for the last two or three years. I have not changed my compliance. I have been complying with all their changes in paperwork. Being able to meet those paperwork requirements has been difficult.</td>
</tr>
<tr>
<td>Compared to other governments DEQ knows what they're talking about.</td>
</tr>
<tr>
<td>Contractor training is hard to deal with; needs to be more accessible in regards to place and time.</td>
</tr>
<tr>
<td>Dealing with DEQ water and air divisions were two very different experiences. The air quality division services were outstanding. They are technically supportive and generally phenomenal. The water division was much more difficult, it did not have the same level of support, constant delays, and duplication of paperwork.</td>
</tr>
<tr>
<td>[Name Removed] was the inspector and he was excellent.</td>
</tr>
<tr>
<td>DEQ has continued to delay projects of mine for many years.</td>
</tr>
<tr>
<td>DEQ is doing fine, they are under stress for funding and funded by the folks they are regulating which is a conflict of interest. I see that the squeakiest wheel gets the most attention, and then there is special interest. DEQ is caught in the middle. I feel for them. I think the state should fund them a little better, so they would not be beholden to the interest groups. I am the small guy, trying to comply. I just came from trade meetings where the new buzz is about carbon footprint. We use a lot of energy but our product is really light. We are trying to get a better sense of that. It would be nice to get more information that is valuable for that. You have to measure and understand something before you can change it. We could use more sources of information on that that are simply specific.</td>
</tr>
<tr>
<td>DEQ is too invasive into regular citizen and business life. It is not the DEQ's fault but it's a government issue, a one size fits all issue, it is not black and white, because every business is different.</td>
</tr>
<tr>
<td>DEQ should expedite their issuing of permits and improve their response time.</td>
</tr>
<tr>
<td>DEQ was a much better interaction than with Josephine County Planning.</td>
</tr>
<tr>
<td>[Name Removed] was a five across the board, but the rest of the staff at Pendleton was generally a three. I think it is important to let them know that she was really good, and the others did not have the level of commitment she has.</td>
</tr>
<tr>
<td>Either the staffing needs to be better taken care of by funding from the legislature or there needs to be other consideration made for timely response. Ross Island Sand and Gravel’s complaint is that it takes a great amount of time to get a permit.</td>
</tr>
<tr>
<td>Fee increases are too common and frequent. Regulations are confusing because they continue to change and increase.</td>
</tr>
<tr>
<td>I am aggravated by the discrepancies between the inspector and the clerical staff.</td>
</tr>
<tr>
<td>I am disappointed in the whole outfit.</td>
</tr>
<tr>
<td>I am not the only one in contact with DEQ.</td>
</tr>
<tr>
<td>I am very pleased with the helpful, informative service.</td>
</tr>
<tr>
<td>I am very pleased with them.</td>
</tr>
<tr>
<td>I am very unhappy with the service. The organization needs to refresh its people and policies. It is especially difficult working in an area where there is only one inspector and one clerical staff member, both of whom are very difficult to work with.</td>
</tr>
</tbody>
</table>
Additional Comments

I cannot figure out the answers to my questions regarding underground storage tanks. I have the DEQ books out in front of me right now, and I have been on the website, but I still can not find the info I need. If I call I know they will be able to help me, though.

I did not know that DEQ gets involved in dredging, although I understand that it has to do with the fish. They would not let me start until the 24th. I hope they are not tightening their restrictions. Hopefully they keep it at that level.

I did not like being charged another 400 dollars and another 200 dollars just to take everything back out to look at the septic tank.

I do not quite understand why I needed my septic checked when it was not broken and it cost me a high fee.

I feel like I was given no courtesy from inspector and inconvenienced by DEQ's mistakes.

I feel like the water department may be understaffed.

I feel like veterans should have to pay less or no fees.

I felt I was not dealt with professionally.

I have had great experiences with the DEQ except for one experience with one employee. I was told one thing and then told to do something else later. Then when we complied I was told that we did it wrong.

I have had really good experiences with all departments, all personnel contacted, both the air quality and water quality.

I have many years of experience dealing with DEQ, and generally I have been very happy with the inspectors. I think the design oriented folks and engineers do not always have the experience they need. The clerical staff is pretty straight forward; not great, not bad. The fee structure is difficult and changes depending on who you talk to. I have spoken to several people at DEQ to get the amount of the fee, just to write the check and have it be too much or not enough, and that can be frustrating.

I have struggled with the formatting. I did a survey on their website regarding that. It is not intuitive for me; the format of how the programs are outlined is very unclear.

I just took over this job a month ago and I have called DEQ with questions and they told me not to rely on them for answers. I have been getting my info from the internet but I do not have a whole program set up.

I just wanted to do some small panning for gold using two or three square yards during the summer. They changed their paperwork as if I were using five or six thousand yards. I know they have all gone environmentalist but they are extremist and think humans are out to destroy the world. I gave up and do not do that anymore.

I like the website and the availability of the forms online.

I think as far as water control, it probably needs some more education for the inspectors. They need to make their code uniform because the code is not standard.

I think everyone needs to be on the same page. I often get different directions from one inspector to the next.

I think that DEQ is doing a great job and they could not get any better.

I think that timeliness is an issue with DEQ, but it should be noted that it is probably because they are stretched a little too thin financially. I think they do the best with the resources they have, and it would be great if they had more resources to work with.

I think the recent change in policy is confusing and the water usage and rating of the different waterways has become questionable in my mind.
**Additional Comments**

- I think the survey should differentiate between local and regional offices. I have been more pleased with my dealings with the local office. I have also been more pleased with the air quality department than the water quality department.

- I think the whole process could be a lot more streamlined. Part of the problem was getting the building permit from the county. It was not clear what documents were necessary before the fact.

- I think they are understaffed in Clatsop County.

- I think they did very well.

- I think we could live without a DEQ in Oregon. I think it is a waste of money and the office should be shut down.

- I think we have had a really good relationship with DEQ.

- I wish they were a little bit more on the ball and moved a little quicker.

- I work directly with [Name Removed] and [Name Removed]. Anytime I have questions I can not answer, they assist me in getting the correct information. I have had an excellent relationship. They always take the time to get me the right information or connect me to the right people if they do not know.

- I would like DEQ to return my phone calls.

- I would like some educational materials for the average person to be provided.

- I would like to know if DEQ has a consultative branch. This would address compliance with OSHA.

- I would like to see Clatsop County kick DEQ out of the county again.

- I would like to see more help with the problem solving issues, like when a real issue comes up, and more partnership in the industry.

- I would say that you need more manpower. It is hard to make things happen with one or two men in a county as big as Umatilla. It is a special trip to make it all the way out to me. If you added just one more person, it would make a huge difference in the level of service. Initially, I would have rated the services I received very poorly. Over the nine month relationship I have had with DEQ, I have come to understand the process and what to expect a lot more. My inspector has been very good at educating me and getting me to see the big picture. I have come to appreciate his meticulousness.

- I would say they need some serious education when it comes to customer service.

- In the past four years we have worked with three representatives from DEQ, and our new representative is set to retire soon. Once you get to know someone and build a relationship, you have to start all over and it becomes very frustrating. We have also been complemented about our program, but we have been subjected to more negatives than positives. It is always "you are not doing this" or "you are not doing that", and we get little credit for what we are doing right. DEQ is also lacking in the amount and type of communication with us. We were defendants in a class action suit regarding the 1200 permits, even though we were not polluters and we did not hear anything about it until we were delivered with the subpoena. After that point, we had trouble getting a hold of anyone to talk to at DEQ.

- Individuals do not stand a chance if they do not agree with DEQ. If the issue does go to court, which most individuals can not afford, there is no jury, only a judge appointed by DEQ and this is not fair for the individual.

- Information can be hard to find on the DEQ website. For example, there is no easy or clear way to find information about storm water regulations.

- Inspector was very pleasant, very knowledgeable, I really liked the service and they were on time and helped the men doing the work.

- It is difficult to get and maintain permits for prospecting on public grounds.

- It takes too long and the process is discouraging.

- [Name Removed] the inspector from Bend was excellent and deserves an accolade.
<table>
<thead>
<tr>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Name Removed] was great. He really wants you to get what you need. However, some links on the website are broken.</td>
</tr>
<tr>
<td>My biggest comment is about the website, it was hard for me to find what I needed and to navigate.</td>
</tr>
<tr>
<td>My main issue is with the time that it takes for something to be reviewed and approved. Quite frequently, waiting for the DEQ review process can ultimately hurt the overall timeliness of the project.</td>
</tr>
<tr>
<td>My only problem was with the timeliness of the DEQ. We had to leave our septic tank uncovered for 6 weeks, which seems like a long time.</td>
</tr>
<tr>
<td>My overall rating was in the middle because at times it was a five, and other times it was a one. The permit process takes excruciatingly long. They need to do something to streamline the process.</td>
</tr>
<tr>
<td>Our overall working relationship with the DEQ is above average.</td>
</tr>
<tr>
<td>Out on the outer fringes of the Rogue valley, you can not burn because of particulates in the air based in Medford. I am 20 miles out of town, so it is different out here. There is excess smoke in the valley, but it cleans out where I live. We are just wood burning debris, leaves, and basic organic materials.</td>
</tr>
<tr>
<td>Overall I would say that government people are friendly and nice, but they have to implement bothersome programs. The problem is with the legislation, not the customer service.</td>
</tr>
<tr>
<td>Provide more info about what is required. The packet is in two sections, not in one. I had to make four trips to Pendleton to get info, and that is about forty miles away. The two step application packet should be rolled all into one. It would help us out in the long run to know the full process, and then we would have more info, and have fewer questions.</td>
</tr>
<tr>
<td>Regarding overall quality of service, I would have given them a two, but currently, they are at about a four.</td>
</tr>
<tr>
<td>Regarding the noise in new industrial areas, I understand the DEQ is not enforcing the noise ordinance regarding a chromite mine that is going in near me. This is being proposed by Oregon Resources Council and there is no testing being done for ambient noise, even though we have asked for them. DEQ also missed testing water quality for watersheds downstream from the project.</td>
</tr>
<tr>
<td>Some of the forms we file for tanks are difficult to download online.</td>
</tr>
<tr>
<td>Sometimes it takes two or three days for the DEQ to return a phone call. They could be more responsive but once you get someone on the line they are responsive.</td>
</tr>
<tr>
<td>Sometimes people get an attitude while working in the offices. The clerical staff is very rigid with specifics, while the inspectors understand sometimes things need to change while working in the field. Somehow the clerical staff needs to realize that in the real world things can change a little, and need to be flexible.</td>
</tr>
<tr>
<td>The air permit folks were excellent. The water permit people are extremely slow and incompetent.</td>
</tr>
<tr>
<td>The air quality services have been helpful, informative, reasonable and fair. Water quality services in past have been very good but currently lousy and do not reflect current practices in this county. It is a bureaucracy that sometimes believes it is above the law.</td>
</tr>
<tr>
<td>The answers were an average, because my experience with the MPDS permit I would give a five, but the No Exposure Certification I would give a rating of one.</td>
</tr>
<tr>
<td>The billing structure is unfair.</td>
</tr>
<tr>
<td>The company has changed hands a few times, but overall has been regulated by DEQ for more than ten years.</td>
</tr>
<tr>
<td>The DEQ appears to have too much work and not enough staff.</td>
</tr>
<tr>
<td>The DEQ charges too much for permits and there is unfairness from one client to the next.</td>
</tr>
</tbody>
</table>
**Additional Comments**

The eastern region for DEQ has more customer oriented employees, they are trustworthy. The west region for DEQ has employees that think they are knowledgeable when they really are not. Often they do not know the answers, then do not find the answers, or transfer me to the correct person who has the answers. My experience with the west region has been largely been a debacle and it is not only one particular instance but lots of instances built up. This would explain my usage of the number three when rating the DEQ it is an average of both regions.

The employee I had contact with was wonderful to work with.

The employee that I work with knows the regulations and is no nonsense. He is willing to work with you with proactive suggestions and ideas and is a very good asset for the DEQ. The Salem DEQ office is a bureaucracy who cannot solve problems or be proactive in projects that are outside the box.

The fee to inspect the hole I dug was outrageous.

The fees and charges are way to high.

The guy I dealt with locally was really good.

The inspector was delayed due to surgery so we had to wait for her recovery.

The local DEQ in Grant's Pass is awesome. The girls who staff behind the counter are always friendly and helpful. The inspectors we have had contact with are very professional and understanding and give you guys a good name.

The more we can eliminate red tape, the better.

The office staff treated me like a two-year old.

The only difficulty was trying to find information on the website and getting somebody on the phone.

The only problem I had with the whole thing was the time that it took to get it done. It seemed like the paperwork to get it from Baker to Pendleton County took a really long time.

The permit process for a home is only a year, and unless you are building a quick track type home, the expiration of that permit is every 12 months. They were not flexible at all, even though nothing had changed. Nothing can move forward without the permit. Twelve months is not even close to enough. That period of time needs to be lengthened. The people that work in DEQ make them ask the exact right question. They are not very helpful. They deal with this every day, but someone who builds one or two homes in a lifetime, that is very frustrating. They should know where a novice is trying to go, and be more helpful. The process was not pleasant or helpful. They have non-motivated employees in a bureaucratic process, just putting in their work time. Also, they took a long time to respond, yet they demanded things right away from us.

The permit was for Clatsop County.

The permits cost too much.

The person at DEQ held us for three minutes too long so we could not make the next office and ended up having to take three trips. If the staff had hurried us a little we could have made it but she did not.

The person who works in the office was exceptional, helpful, nice, pleasant, and reliable.

The reason I rated them low is, in my experience, they want to help but they are not as helpful as they could be on solutions. We look for suitable solutions to fit our situation, but they do not help us find them. When they talk to us, they say we can not tell you what to do, like they do not want to be held accountable, but it is counterproductive. We want to be good stewards of the environment, but when the regulatory body will not give you direction, it can be extremely frustrating.

The representative that comes out has been excellent.

The second correspondence was great. The first time I dealt with DEQ my experience was not that pleasant.
<table>
<thead>
<tr>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The survey does not separate departments and I have had different experiences. I have had very good experiences working with air quality, but I am very frustrated and unsatisfied with wetlands.</td>
</tr>
<tr>
<td>The survey should reflect distinctions between air and water inspectors. The air people did well; the water people did very poorly.</td>
</tr>
<tr>
<td>The water quality program is much better run than air quality.</td>
</tr>
<tr>
<td>Their permits are too expensive.</td>
</tr>
<tr>
<td>There seems to be a disconnect between sections of the same department, they do not share information, and are not returning calls as promised.</td>
</tr>
<tr>
<td>They always get back to you when they say they will and not a lot of places do that.</td>
</tr>
<tr>
<td>They are governed by too many regulations.</td>
</tr>
<tr>
<td>They have been really up front with us and we have had no problems with them.</td>
</tr>
<tr>
<td>There is an employee in the Pendleton office. He is very bad, extremely unhelpful and makes the whole DEQ thing very aggravating. The environmental watch dog mentality of DEQ is tough to work with. Sometimes it seems like the state is out to stop growth and projects laws, which makes it hard to get things done.</td>
</tr>
<tr>
<td>They made a courtesy call a couple years ago and I appreciated it.</td>
</tr>
<tr>
<td>They should try to be more user friendly. They were not very nice or helpful. They wouldn't help me fill out my paperwork. They told me to take it somewhere else and do it on my own. I had to go out in the hall and fill it out on a chair.</td>
</tr>
<tr>
<td>They were extremely helpful.</td>
</tr>
<tr>
<td>They were the best people that I dealt with throughout the whole thing with my house. They were very patient with me even though I am older.</td>
</tr>
<tr>
<td>They were very pleasant to work with. Things got done in an orderly manner and they worked well with the contractor.</td>
</tr>
<tr>
<td>We are currently being asked to sign a voluntary letter agreement we have to pay for oversight even though we do not know that it is our responsibility, and neither does DEQ. We will not get our money back regardless of whether it is our responsibility and I do not think this is very fair.</td>
</tr>
<tr>
<td>We had a weird smell in one of the tenant places, and the lady at DEQ yelled at me. She did fax me something, but they acted like there was plague or something. They did some testing, and it ended up being nothing, and then we never heard anything more. They were demanding and threatening. It was not a good interaction. I was upset at how this lady was treating me, and I wrote a letter to her supervisor, but I never heard a thing back. I am used to a certain level of professionalism.</td>
</tr>
<tr>
<td>We had problems with the rude DEQ water inspector 8 or 9 years ago, and then we did not see him for 8 years. The water quality was not inspected for all that time, even though the air quality was. We saw him again this year, and his service has improved. The air quality inspector from Pendleton on the other hand had been great; very helpful and answered our questions to keep us in compliance, rather than just trying to write a ticket. If all service was equal to the air quality people, everyone would be happy.</td>
</tr>
<tr>
<td>We have a good relationship with the DEQ; they are helpful and professional but the paperwork service is slow.</td>
</tr>
<tr>
<td>We have a great relationship with the DEQ and have for a long time.</td>
</tr>
<tr>
<td>We have always had great service from DEQ, and appreciate the lady who answers the phone taking the time to help us with the new forms.</td>
</tr>
<tr>
<td>We live in Washington County, but worked with Clatsop county office.</td>
</tr>
<tr>
<td>We were very pleased with the person we worked with.</td>
</tr>
<tr>
<td>When I call I always receive a recording and it takes a long time to get a return call.</td>
</tr>
<tr>
<td>Additional Comments</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Why did the visit cost 430 dollars when it only took a few minutes and I did most of the work?</td>
</tr>
<tr>
<td>With my experience it would be hard to improve on anything. I had heard horror stories and it was not my experience at all. I was told how to install my septic system incorrectly by the person who sold it to me, and the inspector caught it.</td>
</tr>
<tr>
<td>You have experts and people with general knowledge, and they will defer to the experts; that can take time. DEQ needs to be more proactive and allow for more technical consultation. DEQ has a willing regulated community and we are looking for DEQ as a technical resource.</td>
</tr>
</tbody>
</table>

| Total | 128 |
February 19, 2009

Dick Pedersen, Director
Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Dear Mr. Pedersen:

We have completed audit work of selected financial accounts at the Department of Environmental Quality (department) and federal compliance requirements relevant to the Capitalization Grants for Clean Water State Revolving Funds for the year ended June 30, 2008.

This audit work is not a comprehensive audit of the department. Instead, the audit work performed allowed us, in part, to achieve the following objectives: (1) express an opinion on whether the financial statements contained in the State of Oregon’s Comprehensive Annual Financial Report were fairly presented, in all material respects, in conformity with generally accepted accounting principles; (2) determine whether the state’s internal controls provided reasonable assurance of proper accounting, financial reporting, and legal compliance of transactions; (3) determine whether the state has complied with applicable legal requirements that may have a direct and material effect on the state’s financial statements; (4) determine whether the state has complied with laws, regulations, contracts or grants that could have a direct and material effect on each major federal program; and (5) obtain an understanding of the state’s internal controls over compliance with the laws, regulations, contracts and grants applicable to federal programs.

We audited the following accounts and transactions at the department to determine their fair presentation in accordance with generally accepted accounting principles in relation to the statewide financial statements.

<table>
<thead>
<tr>
<th>SFMA Account</th>
<th>Description</th>
<th>Audit Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0065</td>
<td>Unreconciled Deposit</td>
<td>$ 546,095</td>
</tr>
<tr>
<td>0070</td>
<td>Cash on Deposit with Treasurer</td>
<td>95,140,607</td>
</tr>
<tr>
<td>0931</td>
<td>Loans Receivable</td>
<td>386,556,011</td>
</tr>
<tr>
<td>2998</td>
<td>Reserved for Loans Receivable</td>
<td>(386,556,011)</td>
</tr>
</tbody>
</table>
Dick Pedersen, Director
Department of Environmental Quality
Page 2

<table>
<thead>
<tr>
<th>SFMA Account</th>
<th>Description</th>
<th>Debit (Credit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0212</td>
<td>Other Business Licenses and Fees</td>
<td>(20,329,505)</td>
</tr>
<tr>
<td>0228</td>
<td>Other Nonbusiness Licenses and Fees</td>
<td>(13,959,658)</td>
</tr>
<tr>
<td>0300</td>
<td>Federal Revenue</td>
<td>(16,012,383)</td>
</tr>
<tr>
<td>3111</td>
<td>Regular Employees</td>
<td>32,399,691</td>
</tr>
<tr>
<td>3221</td>
<td>Social Security Taxes</td>
<td>2,536,265</td>
</tr>
<tr>
<td>3263</td>
<td>Medical, Dental, Life Insurance</td>
<td>6,790,743</td>
</tr>
<tr>
<td>4xxx</td>
<td>Various Services and Supplies</td>
<td>19,603,885</td>
</tr>
</tbody>
</table>

We also audited the following federal program at the department to determine whether the department substantially complied with the federal requirements relevant to the federal program. Our audit does not provide a legal determination of the department’s compliance with the federal requirements relevant to this federal program.

<table>
<thead>
<tr>
<th>CFDA Number</th>
<th>Program Name</th>
<th>Audit Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>66.458</td>
<td>Capitalization Grants for Clean Water State Revolving Funds</td>
<td>$1,849,500</td>
</tr>
</tbody>
</table>

In planning and performing our audit of the selected financial accounts at the department in accordance with auditing standards generally accepted in the United States of America, we considered the department’s internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements of the State of Oregon but not for the purpose of expressing an opinion on the effectiveness of the department’s internal control. Accordingly, we do not express an opinion on the effectiveness of the department’s internal control.

We considered the department’s internal control over compliance with the federal requirements that could have a direct and material effect on the Capitalization Grants for Clean Water State Revolving Funds, in accordance with the OMB Circular A-133, in order to determine our auditing procedures for the purpose of expressing our opinion on compliance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the department’s internal control over compliance.

Our consideration of internal control was for the limited purpose described in the preceding paragraphs and would not necessarily identify all deficiencies in the department’s internal control. A control deficiency exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. As discussed below, we identified a control deficiency that management should consider for improving internal controls.
Cash Receipting Controls Could be Improved

The Oregon Accounting Manual (OAM) provides procedures to assist agencies in designing internal controls to minimize the opportunity for misappropriation of cash. Those procedures include having two people open the mail, create a cash receipts log, and restrictively endorse the checks. The department’s cash receipting process does not follow the above procedures. Consequently, the department’s controls could be improved to help minimize the risk of misappropriation of cash.

We recommend department management review, implement and maintain controls over cash receipting to ensure the opportunity for misappropriation of cash is minimized.

This matter does not require a written response. We will follow up on the department’s progress in addressing this matter during the next fiscal year audit.

Prior Year Uncorrected Findings

In the prior fiscal year, a material weakness was reported to you in a letter dated February 27, 2008, related to the department’s lack of environmental review and public notice documentation, and adherence to department procedures. This finding can also be found in the Statewide Single Audit Report for the fiscal year ended June 30, 2007; see Secretary of State Audit Report number 2008-03, finding number 07-21. During the current fiscal year, the department made progress in correcting this finding. This finding will be reported in the Statewide Single Audit Report for the fiscal year ended June 30, 2008, with a status of partial corrective action taken.

This communication is intended solely for the information and use of management, others within the department, the Environmental Quality Commission, federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than the specified parties.

Should you have any questions, please contact David Terry or me at (503) 986-2255.

Sincerely,
OREGON AUDITS DIVISION

Julianne Kennedy, CPA
Audit Manager

JK:brk
cc: Kerri Nelson, Management Services Division Administrator
    Dolores Passarelle, Accounting Manager
    Bill Blosser, Chair, Environmental Quality Commission
    Scott Harra, Director, Department of Administrative Services
February 12, 2009

Charles A. Hibner, Director
Oregon Audits Division
255 Capitol Street N.E., Suite 500
Salem, Oregon 97310

Dear Mr. Hibner:

We are providing this letter in connection with your audit of Department of Environmental Quality (department) compliance with requirements that could have a material effect on the following major federal program for the fiscal year ended June 30, 2008:

<table>
<thead>
<tr>
<th>CFDA#</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>66.458</td>
<td>Capitalization Grants for Clean Water State Revolving Fund</td>
</tr>
</tbody>
</table>

Certain representations in this letter are described as being limited to matters that are material. Items are considered material, regardless of size, if they involve an omission or misstatement of information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

We confirm, to the best of our knowledge and belief, as of February 5, 2009, the following representations made to you during your audit:

1. We are responsible for complying, and have complied, with the requirements of the U.S. Office of Management and Budget (OMB) Circular A-133.

2. We have identified and submitted to the Department of Administrative Services (DAS) all expenditures of assistance provided by federal agencies as stated below for inclusion in the statewide schedule of expenditures of federal awards (SEFA) in accordance with Circular A-133 and DAS requirements as stated in the Oregon Accounting Manual and the Year End Closing Manual. We have included expenditures made during the period being audited for all awards provided by federal agencies in the form of grants, federal cost-reimbursement contracts, loans, loan guarantees, property (including donated surplus property), cooperative agreements, interest subsidies, insurance, food commodities, direct appropriations, and other assistance.

3. We are responsible for complying with the requirements of laws, regulations, and the provisions of contracts and grant agreements related to each of our federal programs.
Charles Hibner, Director  
Oregon Audits Division  
Page 3

16. We have monitored subrecipients to determine that they have expended financial assistance in accordance with applicable laws and regulations and have met the requirements of Circular A-133.

17. We have issued management decisions on a timely basis after receipt of subrecipients' auditor's reports that identified non-compliance with federal laws, regulations, or the provisions of contracts or grant agreements, and ensure that subrecipients have taken the appropriate and timely corrective action on findings.

18. We have considered the results of subrecipient audits and have made any necessary adjustments to our books and records.

19. We are responsible for and have provided DAS with the information necessary to accurately prepare the summary schedule of prior audit findings in accordance with Circular A-133. We have followed up and taken corrective action on audit findings.

20. We have provided you with all information on the status of the follow-up on prior audit findings by federal awarding agencies and pass-through entities, including all management decisions.

21. We have accurately submitted information to DAS for the appropriate sections of the data collection form.

22. We have disclosed any known noncompliance occurring subsequent to the period for which compliance is audited.

23. We have disclosed whether any changes in internal control over compliance or other factors that might significantly affect internal control, including any corrective action taken by management with regard to reportable conditions (including material weaknesses), have occurred subsequent to the date as of which compliance is audited.

[Signature]
Neil Mullane, Administrator, DEQ Water Quality Division

[Signature]
Judy Johnsdahl, Manager, DEQ Water Quality Community and Program Assistance
November 14, 2008

Reply To: OMP-145

Ms. Wendy Wiles, Administrator
Land Quality Division
Oregon Dept. of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204

Re: Final Appeal Decision, OIG Audit Findings, EPA Cooperative Agreement V-99060103.

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Dear Ms. Wiles,

In my second interim appeal decision of July 30, 2008, I informed you that I was provisionally allowing previously disallowed costs in the amount of $297,569. I also advised you that this determination was contingent on receiving approval from EPA’s Office of Grants and Debarment for a deviation from certain requirements of 40 CFR Part 35, Sub-part O relevant to this matter, to allow the retroactive acceptance of the various re-worked analyses at issue. On July 29, 2008, EPA Region 10 submitted the deviation request on behalf of the Oregon Dept. of Environmental Quality (ODEQ). On October 14, 2008, the request was approved.

With that, I can now finalize the determination to allow the amount of $297,569. With my previous decision to allow $157,083.78 of the initially disallowed costs (see interim response of September 14, 2007), this reduces the amount of the principal disallowed costs to be recovered from ODEQ to $68,405.92.

Summary of OIG Audit Findings and EPA Actions

On September 29, 2005, the EPA Office of the Inspector General (OIG) issued an attestation report, which presented the findings of their audit of EPA Cooperative Agreement V-99060103, the ODEQ response to those findings, and the OIG’s final determination, set out in recommendations for follow up actions by EPA Region 10. As required, the Region developed a management decision which presented its response to each recommendation, and proposed or completed actions pursuant to each.
With some qualification, OIG accepted the Region’s management decision and approved its action plan. The Region then commenced to carry out the actions it committed to by initiating collection of the disallowed amounts, on January 7, 2007.

Summary of Appeal and Interim Determinations

On January 26, 2007, ODEQ responded to the above action by stating its intention to appeal the Region’s decision to disallow and recover the costs at issue, and requested additional time to prepare an appeal. At my discretion, I agreed to accept their letter as a partial appeal to formally initiate the appeals process, and suspend collection of the disputed costs. On April 9, 2007, ODEQ submitted a formal written appeal.

In considering this appeal, I looked for substantive information and/or arguments that had not been previously considered by the OIG in making its determination. I allowed for the possibility that such arguments might rely on and require a reevaluation of previously considered material. During informal discussions prior to the submission of the formal appeal, I advised members of ODEQ staff that in making their arguments they need not provide information, especially of the quantitative type, which had been previously provided, particularly that which had already been considered by the OIG in making their determination, as that information was already in my possession. Instead, I advised that if they were going to rely on such information in making their arguments to simply provide specific references so that it could be located with relative ease.

In reviewing the appeal, I determined that some of the disallowed costs could be adjusted or dismissed based on arguments presented by ODEQ, and on further information obtained from within EPA. The net effect of this determination was to reduce by $157,083.80 the amount to be collected by EPA. The determination on these costs was final, and subsequently accepted by ODEQ. I also determined that the remainder of the disallowed costs, in the amount of $307,587, was still provisionally disallowable. ODEQ had argued for a significant reduction in the amounts attributed to the five findings at issue. However, as discussed in the interim determination document issued on September 14, 2007, ODEQ’s case was built primarily on referrals to previously considered information without the benefit of new arguments from which to reconsider that information, and on previously unconsidered, but inadequate, analyses which failed to fully address the OIG’s findings.

Instead of issuing a final determination on the entire appeal, which would have upheld EPA’s decision to disallow the remaining disputed costs and close out the appeal process, at my discretion I elected to remand the portion of the appeal concerning the provisionally disallowed costs back to ODEQ for further consideration. I presented the option of either revisiting and properly completing its cost, price and profit analyses in order to have the remaining disallowed costs be considered further, or accepting the provisional determination as final. ODEQ chose the former course. With that, another element to this determination had also to be considered. The regulatory requirements for procurement under 40 CFR Part 35 Sub-part O stipulate that such analyses be performed at the time of the procurement action(s) at issue. In addition to a technical approval, the acceptance of the after-the-fact analyses would require a regulatory deviation from the
EPA Office of Grants and Debarment. At her discretion, the Regional Grants Management Official agreed to seek that deviation on ODEQ's behalf, provided technical approval was obtained. The deadline for submission of the revisited material was originally established as 45 days from the date of the September 14, 2007, interim determination, or October 29. ODEQ subsequently requested and received two extensions to that deadline, the last being January 31, 2008. The material was submitted to me on that date, with further clarifying and correcting material following on February 4 & 6.

As noted in the first paragraph above, a second interim decision was issued on July 30, 2008, which advised ODEQ of the acceptance of the reworked analyses and that regulatory deviation was being sought on their behalf.

**Basis for the Final Determination**

In my review of the material submitted by ODEQ in response to the remand of September 14, 2007, opinions and interpretations offered concerning aspects of the audit results, the timing and substance of my preliminary determination and the regulatory requirements at issue, were not considered in arriving at this Final Determination as they were not relevant to the issues presented to ODEQ in the September 14 remand. ODEQ had previously acknowledged that they were not in compliance with the regulations cited by the OIG in their review report. And though the weight they assigned to that non-compliance differed significantly from the OIG’s and EPA’s, that matter was and is considered closed. In addition, there is an ancillary issue raised by ODEQ’s response which, though not directly relevant to this determination, should be addressed. I have done so in Appendix One to this document.

As to the relevant material, I extracted the information which dealt with the issue of insufficient analyses and sought technical review assistance from the contracting office in EPA Region 7, the designated contracting office for Region 10. My request was to Region 7 was to examine the analyses offered in the revised appeal to determine, as much as possible, whether those analyses were done properly and meet the governing procurement requirements, and offer an opinion as to whether they would be considered acceptable.

After conducting the requested review, Region 7 offered a qualified opinion. Though they could not determine that the cost, price and profit analyses would be sufficient if conducted contemporaneously with the procurement action, it was their opinion that the material reviewed represented the best effort possible given the limitations inherent in performing such analyses after-the-fact. They were more confident concerning the justification for the Time and Materials decision questioned by the OIG. After reviewing their opinion, and discussing the matter with them, we reached the conclusion that what had been offered was the best effort possible and therefore acceptable to address the terms of the remand of September 14, 2007.
In addition to the above, I also considered the steps ODEQ has willingly taken to address other findings of the audit:

<table>
<thead>
<tr>
<th>OIG Requirements of ODEQ</th>
<th>ODEQ Actions Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update its procurement handbook to ensure compliance with all Federal regulations, including contractor's and subcontractor's compliance with the Federal Acquisition Regulations. Develop procurement policies to supplement the State's policies. Develop procedures for the negotiation of fair and reasonable contract prices, including cost and price analysis.</td>
<td>On May 1, 2006, ODEQ submitted their revised procurement policies and procedures to the Region for review. These were reviewed by the Region 7 contracting office and found to be in full compliance with Federal Acquisition Requirements and 40 CFR Parts 31 and 35.</td>
</tr>
<tr>
<td>Provide adequate training to staff involved in procurement and contract management on Federal procurement regulations and cost principles.</td>
<td>Region 10 received assurances from the State that a training plan was developed for relevant staff, and would be implemented. The Region is satisfied with that response.</td>
</tr>
<tr>
<td>Submit to EPA for review and approval all State solicitations and contracts under EPA grants and cooperative agreements, other than small purchases, until the Region determines that the State's procurement system meets Federal requirements and the self-certification can be accepted.</td>
<td>ODEQ complied with this requirement. Qualifying solicitations and contracts were reviewed by the Region 7 contracting office and found to be in accordance with applicable regulations.</td>
</tr>
<tr>
<td>Implement improvements to its Financial Status Report preparation process.</td>
<td>ODEQ addressed this requirement in conjunction with its application and work plan for Amendment C to V-99060103 The Region restated the requirements for FSR preparation with the inclusion of appropriate terms and conditions on Amendment C, issued on 11/17/05.</td>
</tr>
</tbody>
</table>

Finally, in making this determination I also considered the broader issue as to whether any material harm was done to the EPA-funded project as a result of the deficiencies identified in ODEQ's earlier procurement efforts by the OIG. In reviewing the findings related to the deficiencies in analyses and the OIG's discussion of them in the Attestation Report of September 29, 2005, I could find no assertion by the OIG that any material harm was caused by those deficiencies. The findings and questioning of related costs were based solely on non-compliance with regulatory requirements. This is a serious issue to be sure, and much effort has gone into making the best effort possible to ensure it is addressed and rectified in the resolution of this appeal. However, I do not see the benefit to the funded project or the larger mission of the agency for EPA to continue seeking recovery of the bulk of the disallowed costs associated with these findings. Given the above, and having obtained approval for a regulatory deviation to
accept the reconstructed analyses after-the-fact, I consider the findings of the OIG in this matter to have been properly addressed, and it is my determination that the principal amount of disallowed costs to be collected by EPA should be reduced to $68,405.92.

**Summary of Adjustments to Disallowed Costs**

For a complete accounting of the adjustments made over the course of the adjudication of this appeal, the following should be read in conjunction with the Interim Determination of September 14, 2007. The tabular references are to tables contained in that document.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial EPA Disallowance Determination – 1/4/07.</td>
<td>$523,058.70</td>
</tr>
<tr>
<td>Partial Final Determination Adjustment – 9/14/07 (see table #1).</td>
<td>($157,083.78)</td>
</tr>
<tr>
<td>Provisionally Disallowed – 9/14/07 (see tables #2 and 3).</td>
<td>$365,974.92</td>
</tr>
<tr>
<td>Final Determination Adjustment (this document).</td>
<td>($297,569.00)</td>
</tr>
<tr>
<td>Final Disallowable Cost Determination (adjusted principal amount due to EPA).</td>
<td>$ 68,405.92</td>
</tr>
</tbody>
</table>

Please note that a revised billing will be sent to ODEQ for the adjusted principal amount plus accrued interest on the adjusted amount.

This represents the final determination by the Region 10 Grants Disputes Decision Official on this matter. Per 40 CFR 31.70, ODEQ is entitled to further review of this determination by the EPA Regional Administrator. The request for review must be filed within 30 calendar days of the date of this decision and must include:

1. A copy of the Decision Official’s final decision (this document);
2. A statement of the amount in dispute;
3. A description of the issues involved; and
4. A concise statement of the objections to the final decision.

Further appeal rights and responsibilities are outlined at 40 CFR Part 31.70.

Please submit your request for review to:

Ms. Elin D. Miller, Regional Administrator  
U.S. EPA Region 10  
Regional Administrator’s Office, RA-140  
1200 Sixth Avenue, Suite 900  
Seattle, WA 98101
It is recommended that you submit your request via Certified Mail, Return Receipt Requested. Please also provide a copy of your request to the undersigned, either at the mailing address indicated, or via e-mail to: phillips.bob@epa.gov.

I appreciate the consideration given by ODEQ in responding to the remand of September 14, 2008, as well as the larger appeal effort. I realize that it entailed the commitment of more time and resources than originally thought necessary, however I am convinced that it was the best way to resolve the issues raised by the audit and subsequent appeal. If you have any further concerns related to this appeal or the appeals process, please feel free to contact me at (206) 553-6367 or at the e-mail address noted above. I cannot answer questions about billing matters. Please direct those to Armina Nolan at (206) 553-0530 or nolan.armina@epa.gov; or Paul Steele at (206) 553-0311 or steele.paul@epa.gov.

Yours truly,

/s/
Bob Phillips,
Grants Disputes Decision Official

Attach.

cc: Armina Nolan, Manager, Grants Administration Office, OMP-145
 Paul Steele, Grants Compliance Enforcement Officer, OMP-145
 Dan Opalski, Director, Office of Environmental Cleanup, ECL – 117
 Linda Anderson-Carnahan, Associate Director, Office of Environmental Cleanup, ECL – 117
 Nancy Harney, Project Officer, Office of Environmental Cleanup, ECL-115
 Anthony Barber, Director, Oregon Operations Office
 Jeff Christensen, ODEQ (via e-mail)
 Steve Campbell, ODEQ (via e-mail)
 Judy Hatton, ODEQ (via e-mail)
Final Appeal Decision, OIG Audit Findings, EPA Cooperative Agreement V-99060103.

Appendix One — Clarification of Terms and Processes under 40 CFR Part 31.70

In their supplemental appeal response of January 31, 2008 (amended on February 6, 2008), ODEQ makes several references which indicate a misinterpretation of the provisions and terms used in 40 CFR Part 31.70, which sets out the rights and responsibilities of parties to a dispute of an EPA grant-related enforcement action taken under Part 31.43 or Part 31.51. Though this has no relevance to the appeal determination at hand, because another appeal is pending on a similar action it is helpful to offer clarification to avoid any future misunderstanding.

ODEQ’s confusion seems to center around a misunderstanding of the term “final decision.” As indicated in sections I – III of their response, and related foot notes, ODEQ is under the impression that EPA’s January 4, 2007, request for payment constitutes a “final decision” under 40 CFR Part 31.70(b). This is not correct. Part 31.70 (titled “Disputes”) addresses disputes concerning such actions, so the term “final decision” refers to the appeal or dispute determination (I use the terms interchangeably), not the “decision” by EPA to take such action. As no dispute had been filed at the time of the January 4 letter, it could hardly represent a final dispute decision. The “final decision” to the appeal filed by Stephanie Hallock’s letter of January 26 is, in fact, the document to which this is appended.

Further, in footnotes # 2 & 3 ODEQ invokes Part 31.70(c)(2) concerning further appeal rights in the form of a review by the EPA Regional Administrator, and says that it is directing their “complete request for review” to the GDDO as they were directed to in our interim response of September 14, 2007. Again, this is a misunderstanding. At best such a declaration was premature at the time. As clearly stated in Part 31.70, the right of further review comes after the issuance of the GDDO’s final decision on the dispute. My final determination provides a complete statement of the right to further review to the Regional Administrator, along with instructions of how to file such a request, should ODEQ choose to do so. Similarly, if the results of the Regional Administrator’s review are not satisfactory, ODEQ has the final right of a discretionary review by the Assistant Administrator for the appropriate program. In this case, since the assistance agreement involved was issued by the Superfund program, the request for discretionary review would be to the Assistant Administrator for the Office of Solid Waste and Emergency Response, at EPA Headquarters.

It is hoped that the above clarifies the processes of and terms used in the resolution of disputes under 40 CFR Part 31.70.
July 2, 2008

Dick Pedersen, Interim Director
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Dear Mr. Pedersen:

The Audits Division has completed fieldwork at the Department of Environmental Quality (department) as part of a statewide audit of Measure 66 expenditures for the 2005-07 biennium. We conducted audit procedures to determine whether the department spent Measure 66 funds in compliance with constitutional restrictions and recorded those expenditures appropriately.

Based on documentation the department provided, we concluded that the department did expend its Measure 66 funds for the 2005-07 biennium in compliance with the state constitution and also classified and recorded the expenditures appropriately.

We plan to issue an audit report by the end of calendar year 2008 that will include a more detailed and comprehensive analysis of the state’s overall compliance with Measure 66 constitutional requirements. As that report nears completion, we will provide agencies that received Measure 66 funds through the Oregon Watershed Enhancement Board (Board) an opportunity to review the draft report and provide input to the Board for the formal response to the report. We also will conduct exit conferences with agencies that desire one.

Thank you for the cooperation we received from department staff. Please contact me at (503) 986-2283 if you have any questions concerning this letter or the scope of work we performed at the department.

Sincerely,

OREGON AUDITS DIVISION

James E. Scott, MM
Audit Manager

cc: Lynn Hampton, Chair, Oregon Environmental Quality Commission
    Kerri Nelson, Administrator, Management Services Division
    Judy Hatton, Accounting Manager
    Tom Byler, Executive Director, Oregon Watershed Enhancement Board

Management Letter No. 340-2008-07-01
Enterprise Fund of the
State of Oregon

Department of Environmental Quality
Clean Water State Revolving Fund
Loan Program

For the Fiscal Year Ended
June 30, 2007
The Honorable Theodore R. Kulongoski  
Governor of Oregon  
254 State Capitol  
Salem, Oregon 97310-4047

Dick Pedersen, Director  
Oregon Department of Environmental Quality  
811 SW 6th Avenue  
Portland, OR 97204-1390

This report presents the results of our audit of the Department of Environmental Quality (department), Clean Water State Revolving Fund (CWSRF) loan program.

As required by auditing standards, we performed the audit to obtain reasonable assurance about whether the financial statements and accompanying notes have been presented fairly by management. Our Independent Auditor’s Report and the financial statements for the fiscal year ended June 30, 2007, are included in the Financial Section of this report. We concluded that the financial statements are fairly presented in accordance with accounting principles generally accepted in the United States of America.

Auditing standards also require us to review the CWSRF program’s internal control and compliance with applicable laws, regulations, contracts, grant agreements and other matters. Our report on the results of those reviews is included in the Other Report section of this report. We noted no instances of noncompliance that are required to be reported under Government Auditing Standards. Our consideration of internal control was limited to the scope necessary to achieve our audit objectives and would not necessarily identify all deficiencies in internal control that might be significant deficiencies or material weaknesses as defined by generally accepted auditing standards. We did identify a control deficiency that we consider to be a significant deficiency in internal control over financial reporting.

We appreciated the cooperation and assistance of the department’s management and staff during the course of our audit.

Charles A. Hibner, CPA  
Director
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  Statement of Cash Flows –
  For the Fiscal Year Ended June 30, 2007 .......................................... 7

  Notes to the Financial Statements ....................................................... 9

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FINANCIAL SECTION
INDEPENDENT AUDITOR’S REPORT

We have audited the accompanying financial statements of the Clean Water State Revolving Fund (CWSRF) loan program, an enterprise fund of the State of Oregon, Department of Environmental Quality, as of and for the year ended June 30, 2007, as listed in the table of contents. These financial statements are the responsibility of the CWSRF program’s management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the CWSRF program’s internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As discussed in Note 1, the financial statements of the CWSRF program, an enterprise fund of the State of Oregon, Department of Environmental Quality, are intended to present the financial position, and the changes in financial position and cash flows that are attributable to the transactions of the CWSRF program. They do not purport to, and do not, present fairly the financial position of the State of Oregon as of June 30, 2007, the changes in its financial position and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the CWSRF program as of June 30, 2007, and the respective changes in financial position and cash flows thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with Government Auditing Standards, we have also issued our report dated September 9, 2008, on our consideration of the CWSRF program's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements, and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with Government Auditing Standards and should be considered in assessing the results of our audit. That report is separately presented in the Other Report section as listed in the table of contents.

OREGON AUDITS DIVISION

[Signature]

Bill Bradbury
Secretary of State

September 9, 2008
STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
CLEAN WATER STATE REVOLVING FUND LOAN PROGRAM  
ENTERPRISE FUND  
BALANCE SHEET  
JUNE 30, 2007

<table>
<thead>
<tr>
<th></th>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current Assets:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and Cash Equivalents</td>
<td>$ 50,438,056</td>
<td>$ 6,054,545</td>
<td>$ 56,492,601</td>
</tr>
<tr>
<td>Loan Interest Receivable</td>
<td>3,566,888</td>
<td></td>
<td>3,566,888</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>54,004,944</td>
<td>6,054,545</td>
<td>60,059,489</td>
</tr>
<tr>
<td><strong>Noncurrent Assets:</strong></td>
<td>351,907,784</td>
<td></td>
<td>351,907,784</td>
</tr>
<tr>
<td>Loans Receivable</td>
<td>601,678</td>
<td></td>
<td>601,678</td>
</tr>
<tr>
<td>Deferred Expenses</td>
<td>163,863</td>
<td></td>
<td>163,863</td>
</tr>
<tr>
<td><strong>Total Noncurrent Assets</strong></td>
<td>352,673,325</td>
<td></td>
<td>352,673,325</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>$ 406,678,269</td>
<td>$ 6,054,545</td>
<td>$ 412,732,814</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liabilities and Net Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current Liabilities:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts Payable</td>
<td></td>
<td>$ 6,999</td>
<td>$ 6,999</td>
</tr>
<tr>
<td>Payroll Payable</td>
<td>$ 56,246</td>
<td></td>
<td>56,246</td>
</tr>
<tr>
<td>Compensated Absences Payable</td>
<td></td>
<td>26,040</td>
<td>26,040</td>
</tr>
<tr>
<td>Loan Disbursements Payable</td>
<td>261,700</td>
<td></td>
<td>261,700</td>
</tr>
<tr>
<td>Due to Other Funds</td>
<td>$ 11,677</td>
<td></td>
<td>11,677</td>
</tr>
<tr>
<td>Bond Interest Payable</td>
<td>184,226</td>
<td></td>
<td>184,226</td>
</tr>
<tr>
<td>Bonds Payable</td>
<td>$ 685,000</td>
<td></td>
<td>685,000</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td>1,130,926</td>
<td>100,962</td>
<td>1,231,888</td>
</tr>
<tr>
<td><strong>Noncurrent Liabilities:</strong></td>
<td>$ 4,415</td>
<td>$ 4,415</td>
<td>$ 4,415</td>
</tr>
<tr>
<td>Bonds Payable</td>
<td>$ 11,075,000</td>
<td></td>
<td>11,075,000</td>
</tr>
<tr>
<td><strong>Total Noncurrent Liabilities</strong></td>
<td>11,075,000</td>
<td>4,415</td>
<td>11,079,415</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>12,205,926</td>
<td>105,377</td>
<td>12,311,303</td>
</tr>
<tr>
<td>Unrestricted Net Assets</td>
<td>394,472,343</td>
<td>5,949,168</td>
<td>400,421,511</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td>394,472,343</td>
<td>5,949,168</td>
<td>400,421,511</td>
</tr>
<tr>
<td><strong>Total Liabilities and Net Assets</strong></td>
<td>$ 406,678,269</td>
<td>$ 6,054,545</td>
<td>$ 412,732,814</td>
</tr>
</tbody>
</table>

*The accompanying notes are an integral part of the financial statements.*

-5-

DEQ Presentation to Ways & Means Subcommittee on Natural Resources, April 2009
STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
CLEAN WATER STATE REVOLVING FUND LOAN PROGRAM  
ENTERPRISE FUND  
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN FUND NET ASSETS  
FOR THE FISCAL YEAR ENDED JUNE 30, 2007

<table>
<thead>
<tr>
<th></th>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan Interest Income</td>
<td>$10,545,528</td>
<td>$-</td>
<td>$10,545,528</td>
</tr>
<tr>
<td>Interest Income on Cash and Cash Equivalents</td>
<td>3,757,009</td>
<td>294,285</td>
<td>4,051,294</td>
</tr>
<tr>
<td>Loan Fees</td>
<td>$-</td>
<td>1,115,992</td>
<td>1,115,992</td>
</tr>
<tr>
<td>EPA Grants Received</td>
<td>4,561,421</td>
<td>$-</td>
<td>4,561,421</td>
</tr>
<tr>
<td>State Match Deposits</td>
<td>62,408</td>
<td>$-</td>
<td>62,408</td>
</tr>
<tr>
<td><strong>Total Operating Revenues</strong></td>
<td>18,926,366</td>
<td>1,410,277</td>
<td>20,336,643</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bond Interest</td>
<td>605,091</td>
<td>$-</td>
<td>605,091</td>
</tr>
<tr>
<td>Other Bond Cost</td>
<td>14,869</td>
<td>$-</td>
<td>14,869</td>
</tr>
<tr>
<td>Salaries and Benefits</td>
<td>$-</td>
<td>743,462</td>
<td>743,462</td>
</tr>
<tr>
<td>Services and Supplies</td>
<td>$-</td>
<td>145,433</td>
<td>145,433</td>
</tr>
<tr>
<td>Indirect Costs</td>
<td>$-</td>
<td>145,552</td>
<td>145,552</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>619,960</td>
<td>1,034,447</td>
<td>1,654,407</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Income (Loss)/Change in Net Assets</strong></td>
<td>18,306,406</td>
<td>375,830</td>
<td>18,682,236</td>
</tr>
<tr>
<td><strong>Net Assets – Beginning</strong></td>
<td>376,165,937</td>
<td>5,573,338</td>
<td>381,739,275</td>
</tr>
<tr>
<td><strong>Net Assets – Ending</strong></td>
<td>$394,472,343</td>
<td>$5,949,168</td>
<td>$400,421,511</td>
</tr>
</tbody>
</table>
**STATE OF OREGON**
**DEPARTMENT OF ENVIRONMENTAL QUALITY**
**CLEAN WATER STATE REVOLVING FUND LOAN PROGRAM**
**ENTERPRISE FUND**

**STATEMENT OF CASH FLOWS**
**FOR THE FISCAL YEAR ENDED JUNE 30, 2007**

<table>
<thead>
<tr>
<th>Loan Fund</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash Flows From Operating Activities:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan Interest Repayments</td>
<td>$ 10,724,038</td>
<td>$</td>
</tr>
<tr>
<td>Loan Principal Repayments</td>
<td>16,087,584</td>
<td>-</td>
</tr>
<tr>
<td>Disbursed to Borrowers</td>
<td>(70,999,943)</td>
<td>-</td>
</tr>
<tr>
<td>Loan Fees</td>
<td>-</td>
<td>1,115,991</td>
</tr>
<tr>
<td>Treasury Interest Credits</td>
<td>3,757,010</td>
<td>294,285</td>
</tr>
<tr>
<td>EPA Grants Received</td>
<td>4,561,421</td>
<td>-</td>
</tr>
<tr>
<td>Funds Received from the State of Oregon</td>
<td>62,408</td>
<td>-</td>
</tr>
<tr>
<td>Payments to Suppliers</td>
<td>-</td>
<td>(142,379)</td>
</tr>
<tr>
<td>Payments to Employees for Services</td>
<td>-</td>
<td>(749,488)</td>
</tr>
<tr>
<td>Other Receipts (Payments)</td>
<td>-</td>
<td>(134,527)</td>
</tr>
<tr>
<td><strong>Net Cash Provided (Used) by Operating Activities</strong></td>
<td>(35,807,482)</td>
<td>383,882</td>
</tr>
</tbody>
</table>

| **Cash Flows from Noncapital Financing Activities:** |
| Principal Payments on Bonds | (650,000) | - | (650,000) |
| Interest Payments on Bonds | (613,716) | - | (613,716) |
| **Net Cash Provided (Used) in Noncapital Financing** | (1,263,716) | - | (1,263,716) |

| Net Increase (Decrease) in Cash and Cash Equivalents | (37,071,198) | 383,882 | (36,687,316) |
| Cash and Cash Equivalents – Beginning | 87,509,254 | 5,670,663 | 93,179,917 |
| Cash and Cash Equivalents – Ending | $ 50,438,056 | $ 6,054,545 | $ 56,492,601 |

**Reconciliation of Operating Income to Net Cash Provided (Used) by Operating Activities:**

| Operating Income (Loss) | $ 18,306,406 | $ 375,830 | $ 18,682,236 |
| Adjustments to Reconcile Operating Income to Net Cash | | | |
| Amortization of Bond Issuance Costs | 14,869 | - | 14,869 |
| Loan Interest Receivable | 178,508 | - | 178,508 |
| Loans Receivable | (51,837,179) | - | (51,837,179) |
| Loan Disbursements Payable | (3,075,177) | - | (3,075,177) |
| Accounts Payable | - | 2,934 | 2,934 |
| Payroll Payable | - | (6,119) | (6,119) |
| Due to Other Funds | - | 11,143 | 11,143 |
| Interest Payable - Bonds | (8,625) | - | (8,625) |
| Compensated Absences Payable | - | 94 | 94 |
| **Total Adjustments** | (54,113,888) | 8,052 | (54,105,836) |
| **Net Cash Provided (Used) by Operating Activities** | (35,807,482) | $ 383,882 | (35,423,600) |

*The accompanying notes are an integral part of the financial statements.*

-7-
1. Summary of Significant Accounting Policies

**Reporting Entity**

The Oregon Clean Water State Revolving Fund (CWSRF) was established pursuant to Oregon Revised Statutes 468.423 – 468.440. The purpose of the CWSRF is to provide low interest loans to local governments for constructing wastewater treatment facilities, implementing nonpoint source pollution management plans, and the design and implementation of estuary management plans. The loan repayment period is a maximum of 20 years, and all repayments, including interest and principal, must be credited to the State Revolving Fund.

The CWSRF program is administered by the State of Oregon’s Department of Environmental Quality (DEQ). The CWSRF program consists of several funds to record loan and related activity and an administrative fund that collects loan fees and pays the operating costs of the program, and are collectively referred to as the Fund. DEQ’s primary responsibilities for the CWSRF include obtaining capitalization grants from the U.S. Environmental Protection Agency (EPA), soliciting potential interested parties for loans, negotiating loan agreements with local communities, reviewing and approving payment requests from loan recipients, monitoring the loan repayments, and conducting inspection and engineering reviews to ensure compliance with all applicable laws, regulations, and program requirements.

DEQ charges the Fund for staff time spent on CWSRF activities, and the Fund pays those expenses from the Administration fund. The charges include the salaries and benefits of the employees, as well as indirect costs allocated to the Fund. The rate of indirect cost is negotiated annually with the EPA. Employees charging time to the Fund are covered by the benefits available to Oregon State Employees. The Fund is also charged indirect costs through the cost allocation plan for general state expenses.

The Fund financial statements and notes are presented for the U.S. Environmental Protection Agency. The Fund is included in the Oregon basic financial statements as a special revenue fund which uses the modified accrual basis of accounting. Due to differences in reporting methods, there may be differences between the amounts reported in these financial statements and the Oregon basic financial statements.

**Measurement Focus and Basis of Accounting**

The financial statements for the Fund are presented as an enterprise fund. As such, the Fund is accounted for using the flow of economic resources measurement focus and is maintained on the accrual basis of accounting, in accordance with State policy (OAM...
Notes to the Financial Statements (continued)
June 30, 2007

15.40.00. Under the accrual basis of accounting, revenues are recognized when earned and expenses are recorded at the time the liabilities are incurred. All revenues and expenses of the Fund are considered to be operating revenues and operating expenses. All assets and liabilities associated with the operations of the Fund are included on the balance sheet. The State has elected to follow the accounting pronouncements of the Governmental Accounting Standards Board (GASB), as well as statements issued by the Financial Accounting Standards Board on or before November 30, 1989, unless the pronouncements conflict with or contradict GASB pronouncements.

**Cash and Cash Equivalents**

All monies of the Fund are deposited with the Office of the State Treasurer, which is responsible for maintaining these deposits in accordance with Oregon law. The Fund considers all such deposits to be cash and cash equivalents. Interest earnings on these deposits are received by the Fund on a monthly basis. The Fund has no other cash deposits or investments.

**Loans Receivable**

The loans are funded by Federal capitalization grants, State matching funds, general obligation bonds, loan repayments and fund earnings. The SRF monies are disbursed to borrowers on a cost reimbursement basis. When borrowers have incurred qualifying expenses, they request a loan disbursement from the Fund, and at that time, a disbursement is made and recorded in the Fund accounting records. Interest begins accruing when funds are disbursed to the borrower. After the final disbursement, repayment begins with an interest only payment. Full repayment must be received by the Fund within 20 years of project completion. There is no provision for uncollectible accounts, as all repayments are current. There have been no loan defaults in the program since its inception. It should be noted, however that there is one borrower that may, within the fiscal year 2008, be in default of the agreed upon loan terms. DEQ is actively working with this borrower to help prevent a condition of default.

**Capital Assets**

Capital assets are those assets costing $5,000 or more and having a useful life of at least one year, under State policy (OAM 15.60.10). Capital assets must be capitalized and reported in the accounting records at historical cost, and depreciated over the useful life of the asset. The CWSRF loan program currently has no capital assets.

**Deferred Expenses**

The Deferred Expense that is shown on the Balance Sheet is the cost of issuing the State match bonds sold to raise the required matching for the federal capitalization grants. These expenses consist of both bond discount and issuance costs, and are amortized over the life of the bonds using the straight-line method. The $163,863 represents the unamortized costs of the remaining two bond issues (1997A and 2000A). There is presently no related arbitrage liability.
Compensated Absences

Employees accumulate earned but unused vacation and sick leave benefits. There is no liability for unpaid accumulated sick leave since the State does not pay any amounts when employees separate from State service. A liability for vacation leave (compensated absences) is accrued when incurred in proprietary funds as employees may be paid for up to a maximum of 250 hours of accrued vacation leave upon separation from State service.

2. Cash and Cash Equivalents

On June 30, 2007, the book balance of cash and cash equivalents was $56,492,601 and the bank balance was $56,497,640. All cash in the Fund is deposited in demand accounts with the State Treasurer who is responsible for maintaining and investing the pooled cash balances in accordance with State laws. State Treasurer demand deposit accounts and time certificates of deposit investments of the Short Term Fund held in state banks are insured or collateralized in excess of FDIC coverage for a minimum of 25 percent in accordance with State statute. ORS 295 requires that depository banks must pledge securities with a value of at least 25 percent of uninsured or uncollateralized deposits for the benefit of the State. Amounts in excess of FDIC insurance coverage or the 25 percent statutory requirement are considered exposed to custodial credit risk. The Fund's share of the investment income is based on the average daily balance for the period and is credited to the Fund monthly. Details of the investments can be obtained from the State Treasurer's Office.

3. Loans Receivable

The Fund makes loans to qualified entities at interest rates ranging from zero percent to the market rate. Interest rates vary depending on the length of the loan, the type of loan, and program rules. Rates range from 25 percent of the bond rate for 5 year loans to 65 percent of the bond rate for 20 year loans. Recipients make semiannual or, in some cases, annual payments, generally starting six months after project completion. The detail of loans receivable as of June 30, 2007 is as follows:

- Total loan disbursements to-date: $510,420,261
- Loan Disbursements Payable, June 30, 2007: 261,700
- Total principal payments received from borrowers: (158,774,177)
- LOANS RECEIVABLE, June 30, 2007: $351,907,784
Notes to the Financial Statements (continued)
June 30, 2007

4. Bonds Payable

In July 2003 EPA agreed to the use of the CWSRF Fund assets to pay the principal and interest on $23,765,000 of general obligation bonds that were previously issued by the State to provide the 20 percent state matching funds as required by the Clean Water Act. The following table summarizes bonds outstanding as of June 30, 2007:

<table>
<thead>
<tr>
<th>Series</th>
<th>Original Issue Due Dates</th>
<th>Interest Rate Range</th>
<th>Amount Ending Balance</th>
<th>Beginning Balance</th>
<th>Increases</th>
<th>Decreases</th>
<th>Ending Balance</th>
<th>Due Within One Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997 A</td>
<td>1998 – 2018</td>
<td>3.80% - 5.00%</td>
<td>8,000,000</td>
<td>5,700,000</td>
<td>350,000</td>
<td>5,350,000</td>
<td>370,000</td>
<td></td>
</tr>
<tr>
<td>2000 A</td>
<td>2000 – 2021</td>
<td>4.15% - 5.50%</td>
<td>8,000,000</td>
<td>6,710,000</td>
<td>300,000</td>
<td>6,410,000</td>
<td>315,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>16,000,000</td>
<td>12,410,000</td>
<td>650,000</td>
<td>11,760,000</td>
<td>685,000</td>
<td></td>
</tr>
</tbody>
</table>

The bond interest rates noted above differ depending on the term of the individual bond. Thus, those bonds with the longest term yield the highest interest rate.

Debt Service Requirements to Maturity:

The following table summarizes the amounts necessary to pay all future bonded debt principal and interest requirements as of June 30, 2007 for each year during the next five-year period ending June 30, 2012, and in five year increments thereafter:

<table>
<thead>
<tr>
<th>Years Ending June 30</th>
<th>Bond Principal</th>
<th>Bond Interest</th>
<th>Total Debt Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>$ 685,000</td>
<td>$ 582,678</td>
<td>$ 1,267,678</td>
</tr>
<tr>
<td>2009</td>
<td>720,000</td>
<td>549,494</td>
<td>1,269,494</td>
</tr>
<tr>
<td>2010</td>
<td>760,000</td>
<td>513,889</td>
<td>1,273,889</td>
</tr>
<tr>
<td>2011</td>
<td>795,000</td>
<td>476,059</td>
<td>1,271,059</td>
</tr>
<tr>
<td>2012</td>
<td>840,000</td>
<td>435,706</td>
<td>1,275,706</td>
</tr>
<tr>
<td>2013-2017</td>
<td>4,960,000</td>
<td>1,471,500</td>
<td>6,431,500</td>
</tr>
<tr>
<td>2018-2021</td>
<td>3,000,000</td>
<td>286,211</td>
<td>3,286,211</td>
</tr>
<tr>
<td>Total</td>
<td>$11,760,000</td>
<td>$4,315,537</td>
<td>$16,075,537</td>
</tr>
</tbody>
</table>

5. Loan Fees

In order to support administration and project management costs, loan fees are assessed on all loans originating after 1992. An annual fee of 0.5 percent is assessed on the outstanding loan principal balance and is collected annually, beginning with the second loan payment. Fees are deposited to a separate Treasury account and will be used only for administrative and project management costs. Also, fees on planning loans are not assessed, in order to encourage Oregon communities to complete more planning.
6. Employee Retirement Plan

The 2003 Oregon Legislature created the Oregon Public Service Retirement Plan (OPSRP). Public employees hired on or after August 29, 2003 become part of OPSRP, unless membership was previously established in the Oregon Public Employee's Retirement System (PERS). The OPSRP pension plan has two components: the Pension Program (defined benefit) and the Individual Account Program (defined contribution). PERS member contributions go into the Individual Account Program (IAP) portion of OPSRP. PERS members retain their existing PERS accounts, but member contributions are deposited in the member's IAP account, not into the member's PERS account. PERS issues a separate, publicly available financial report that includes audited financial statements and required supplementary information. That report may be obtained by writing to the Fiscal Services Division, Public Employees Retirement System, P.O. Box 23700, Tigard, Oregon 97281-3700.

**Oregon Public Employee's Retirement System (PERS)**

The department's employees who were plan members before August 29, 2003 participate in the Oregon Public Employee's Retirement System (PERS), a cost-sharing multiple-employer defined benefit pension plan. PERS is administered by the Public Employees Retirement Board under the guidelines of Oregon Revised Statutes, chapter 238. The PERS retirement allowance, payable monthly for life, may be selected from several retirement benefit options. Options include survivorship benefits and lump sum payments. PERS also provides death and disability benefits.

The department is required by statute to contribute actuarially computed amounts as determined by PERS (the agency). Rates are subject to change as a result of subsequent actuarial valuations. The rate of each covered employee's salary for fiscal year 2007 was 8.69 percent. Employer contributions for the years ending June 30, 2007, 2006, and 2005 were $43,688, $40,031, and $21,262, respectively, equal to the required contributions for each year.

**Oregon Public Service Retirement Plan (OPSRP)**

The Pension Program, a cost-sharing multiple-employer defined benefit pension plan, is the defined benefit portion of Oregon Public Service Retirement Plan (OPSRP). The Pension Program is administered by the Public Employees Retirement Board under the guidelines of Oregon Revised Statutes, chapter 238A. The Pension Program monthly pension benefit is payable for life and, after the death of the member, payable to the designated beneficiary at either the same amount or one-half of the amount, depending on the option the member chose at retirement. If the monthly pension benefit is less than $200, or the monthly death benefit payable to the beneficiary of a deceased member is less than $200, a lump sum payment that represents the actuarial equivalent of the present value of the pension or death benefit will be paid to the member or the deceased member's beneficiary.

The department is required by statute to contribute actuarially computed amounts as determined by PERS (the agency). Rates are subject to change as a result of subsequent actuarial valuations. The rate of each covered employee's salary for fiscal
year 2007 was 4.43 percent. The department did not have any permanently assigned CWSRF employees hired on or after August 29, 2003 and as such was not required to contribute to OPSRP Pension Program for fiscal years 2007, 2006 or 2005.

The Individual Account Program (IAP) is the defined contribution portion of OPSRP. The IAP is administered by the Public Employees Retirement Board under the guidelines of Oregon Revised Statutes, chapter 238A. Covered employees are required by State statute to contribute 6.0 percent of their salary to the plan. State agencies currently pay the 6.0 percent member contributions for their employees. The amount contributed by DEQ for the years ending June 30, 2007, 2006, and 2005 were $30,165, $27,639, and $27,086 respectively, equal to the required contributions for each year.

7. Commitments

The CWSRF loan program has active loan agreements in the amount of $248,800,188 as of June 30, 2007, and has disbursed a total of $122,797,400 in cash to these active borrowers. The amount of undisbursed loan commitments is, therefore, $126,002,788.

8. Risk Financing

The State Services Division of the Department of Administrative Services administers property and casualty insurance programs covering State government. It is the policy of the division to minimize purchases of commercial insurance for most of the risks of losses to which the State is exposed, as it believes it is more economical to manage the State’s risks internally. For accounting purposes, the division sets aside assets for actuarially forecasted losses in the Insurance Fund, an internal service fund. The Insurance Fund, established under Chapter 278 of the Oregon Revised Statutes, services claims for the following kinds of risks: direct physical loss or damage to State property; tort liability claims brought against the State, its officers, employees, or agents; inmate injury; workers’ compensation; and employees, elected officials, and members of commissions and boards for honesty and faithful performance. The Insurance Fund is backed by a commercial excess property policy with limits of $400 million and a blanket commercial excess bond with limits of $20 million. The division purchases commercial insurance for specific insurance needs not covered by the Insurance Fund.

All State agencies, commissions, and boards participate in the Insurance Fund. The division allocates the cost of servicing insurance claims and payments by charging an assessment to each State entity based on its share of services provided in a prior period. The total statewide assessment for each coverage is based on independent biennial actuarial forecasts and division expenses, less any available fund balance in the Insurance Fund from the prior biennium.

The division purchases workers’ compensation insurance for the State from SAIF Corporation. The Insurance Fund reimburses SAIF Corporation for the State’s workers’ compensation claim costs and service fees.
Notes to the Financial Statements (continued)
June 30, 2007

The CWSRF loan program participates in this risk financing program through DEQ, which, as a State agency, is a participant. Settlements have not exceeded insurance coverage in each of the past three years.

9. Subsequent Event

On April 17, 2008 DEQ issued $4,800,000 in general obligation bonds (series 2008A), to raise funds required to match federal grant money for the SRF loan program.
OTHER REPORT
The Honorable Theodore R. Kulongoski
Governor of Oregon
254 State Capitol
Salem, Oregon 97310-4047

Dick Pedersen, Director
Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204-1390

REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

We have audited the financial statements of the Clean Water State Revolving Fund (CWSRF) loan program, an enterprise fund of the State of Oregon, Department of Environmental Quality (department), as of and for the year ended June 30, 2007, and have issued our report thereon dated July 23, 2008. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States.

Internal Control Over Financial Reporting

In planning and performing our audit, we considered the department’s internal control over financial reporting relating to the CWSRF as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on effectiveness of the department’s internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of department’s internal control over financial reporting.

A control deficiency exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A significant deficiency is a control deficiency, or combination of control deficiencies, that adversely affects the entity’s ability to initiate, authorize, record, process, or report financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the entity’s financial statements that is more than inconsequential will not be prevented or detected by the entity’s internal control. We consider the deficiency described in the
accompanying schedule of findings and responses to be a significant deficiency in internal control over financial reporting.

A material weakness is a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the financial statements will not be prevented or detected by the entity’s internal control.

Our consideration of the internal control over financial reporting was for the limited purpose described in the first paragraph of this section and would not necessarily identify all deficiencies in internal control that might be significant deficiencies, and accordingly, would not necessarily disclose all significant deficiencies that are also considered to be material weaknesses. However, we believe that the significant deficiency described above is not a material weakness.

**Compliance and Other Matters**

As part of obtaining reasonable assurance about whether the CWSRF program’s financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

The department’s response to the finding identified in our audit is described in the accompanying schedule of findings and responses. We did not audit the department’s response and, accordingly, we express no opinion on it.

This report is intended solely for the information and use of the department’s management, the governor of the State of Oregon, the Oregon Legislative Assembly, and the Environmental Protection Agency and is not intended to be and should not be used by anyone other than these specified parties.

**OREGON AUDITS DIVISION**

Bill Bradbury  
Secretary of State  
September 9, 2008
Schedule of Findings and Responses

2007-1 Internal Controls Over Financial Reporting

Department management is responsible for establishing and maintaining internal controls that provide reasonable assurance of the reliability of the Clean Water State Revolving Fund’s (CWSRF) financial reporting. Controls over financial reporting help ensure that the CWSRF’s financial statements and accompanying note disclosures are complete, accurate and prepared in accordance with generally accepted accounting principles.

We found that the department does not have adequate internal controls over its CWSRF’s financial reporting. The department’s program staff initiates, authorizes, records and processes year-end adjustments and prepares the CWSRF financial statements without any review procedures being performed of their work. Without an effective review process in place, department management cannot be assured that the CWSRF’s financial statements and accompanying note disclosures are complete, accurate and prepared in accordance with generally accepted accounting principles.

We recommend department management implement adequate review processes over year-end adjustments and financial reporting.

Agency’s Response: The CWSRF loan program management agrees with this finding. The CWSRF loan program has already spoken with DEQ Business Office key personnel, and it has been agreed that the Business Office will perform a review of the CWSRF financial statements and accompanying documentation prior to issuance of those financial statements. This should help to ensure that the CWSRF financial statements are fairly stated and are prepared in accordance with accounting principles generally accepted in the United States. This review process will be implemented beginning with the CWSRF financial statements for the fiscal year ended June 30, 2008.
ABOUT THE SECRETARY OF STATE AUDITS DIVISION

The Oregon Constitution provides that the Secretary of State shall be, by virtue of his office, Auditor of Public Accounts. The Audits Division exists to carry out this duty. The division reports to the elected Secretary of State and is independent of the Executive, Legislative, and Judicial branches of Oregon government. The division audits all state officers, agencies, boards, and commissions and oversees audits and financial reporting for local governments.

Directory of Key Officials

Director Charles A. Hibner, CPA  
Deputy Director William K. Garber, MPA, CGFM  
Deputy Director Mary E. Wenger, CPA

Audit Team

Kelly L. Olson, CPA, Audit Manager  
David Terry, CPA  
Melaney Scott, MBA

This report, a public record, is intended to promote the best possible management of public resources. Copies may be obtained from:

internet: http://www.sos.state.or.us/audits/index.html  
phone: 503-986-2255  
mail: Oregon Audits Division  
255 Capitol Street NE, Suite 500  
Salem, OR 97310

The courtesies and cooperation extended by officials and employees of the Department of Environmental Quality during the course of this audit were commendable and sincerely appreciated.

Auditing to Protect the Public Interest and Improve Oregon Government