Department of Environmental Conservation
Fiscal Year 2015
Performance Outcomes and Measures
Department of Environmental Conservation

Total (FY14) Full Time Equivalent (FTEs) Employees: 291
VT Department of Environmental Conservation
FY14 Budget Appropriated* by Major Funding Source

General Funds: $9,350,054 (47%)
Special Funds: $22,557,487 (47%)
Federal Funds: $5,733,499 (12%)
Interdepartmental: $10,251,824 (21.5%)

*After Section B.1202 of Act 50 Management Savings Initiative
VT Department of Environmental Conservation
FY2014 Budget "As Passed" By Major Expenditure Object Code

- Personal Services: $25,216,387 (52%)
- Contracts: $4,174,720 (9%)
- Operating: $14,233,501 (30%)
- Grants: $4,349,377 (9%)

Total: $44,974,295
VT Department of Environmental Conservation
FY2015 Budget "Proposed" By Major Funding Source

General Funds: $9,383,304 (19%)
Special Funds: $22,867,418 (47%)
Federal Funds: $10,846,407 (22%)
Interdepartmental: $5,881,148 (12%)
VT Department of Environmental Conservation
FY2015 Budget "Proposed" By Major Expenditure Object Code

- Personal Services: $25,426,826 (52%)
- Operating: $14,431,789 (29%)
- Contracts: $4,768,434 (10%)
- Grants: $4,351,228 (9%)
Facilities Engineering Division

2015 Performance Measures

Adamant Pond Dam
~Calais, VT
Division Mission

• To provide engineering and financial support for maintaining and improving public facilities and infrastructure to promote public health, safety, recreation, and environmental protection.
Description of Work

• **Dam Safety** provides dam inspections, emergency support and planning, dam construction and alteration permits and oversight, and maintenance and improvements to Agency of Natural Resources’ dams.

• **Agency Facilities** provide Professional Engineering/Consulting Services for maintaining and improving Agency of Natural Resources’ Facilities and Infrastructure, including: State parks, fish hatcheries, fishing access areas, conservation camps, wildlife management areas, dams, and state forests.

• **Water Infrastructure Financing** provides loan and grant administration, financing and project development services, and engineering review and construction oversight for public drinking water and municipal clean water (wastewater and stormwater) improvements projects to optimize the use of public funds, and meet all federal obligations and state environmental standards. Assistance is provided to water infrastructure representatives to ensure long term managerial and financial sustainability.
DEC Facilities Engineering Division
FY14 Budget By Major Funding Source

- **General Fund**: $909,993
- **Special Funds**: $600,490
- **Federal Funds**: $579,787
- **Interdepartmental**: $322,238
Dam Safety Program

Mill Pond Dam, Windsor, VT
High Hazard Dam
Vermont Dam Safety Program:
5 Year Average Inspections vs. Target Inspections
2009-2013

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>5 Year Avg.</th>
<th>Annual Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Significant</td>
<td>33</td>
<td>39</td>
</tr>
<tr>
<td>Low</td>
<td>19</td>
<td>59</td>
</tr>
</tbody>
</table>

Number of Dams

Hazard Class Key

Potential Loss of Life

HIGH = More than a few
SIGNIFICANT = Few
LOW = None Expected

Potential Economic Loss

HIGH = Excessive
SIGNIFICANT = Appreciable
LOW = Minimal
Vermont Dam Safety Program:
Dam Rehab or Removal Projects by Hazard Class ($Millions) 2010-2014*

- High: 10 Projects, $2.4M
- Significant: 6 Projects, $0.7M
- Low: 10 Projects, $2.2M

* Projected
Before

Significant Hazard Dam

Dufresne Pond Dam, Batten Kill
~Manchester, VT
After
No Hazard

Batten Kill Restored, Dufresne Pond Dam Removal
Fall 2013
Vermont Dam Safety Program:
Emergency Action Plans for High Hazard Dams

Percentage of High Hazard Dams with Emergency Action Plans

* Projected
Vermont Dam Safety Program:
Permitting and Approvals
2009-2013

Facilities Engineering Division – Dam Orders (Permits)

- Cumulative Number of Applications
- Number of Days
- Average Days in DEC

Performance Goal = less than 45 days

2009-2013
Agency Facilities

• **In-sourcing** - Considerable savings and increased value compared to private sector consultants (approximately 50% $ savings) which includes benefits attributable to intrinsic knowledge of the agency’s structure, processes, and stakeholders.

• **Misc. Duties** - Inspect wastewater systems at 9 major state parks, consultant oversight, and provide professional engineering consulting to the agency.
Agency Facilities:
Total Number of Projects by Department

<table>
<thead>
<tr>
<th>Year</th>
<th>DEC</th>
<th>F&amp;W</th>
<th>FP&amp;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td>2013</td>
<td>1</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>2014* projected</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>
Agency Facilities:
Total Project Dollars by Department ($Millions)

Calendar Year

2013

FP&R $1.3
F&W $1.7

2014*

DEC $0.1
F&W $1.5
FP&R $1.5

*Projected
Before

Kent Pond spillway- after TS Irene
~ Killington, VT
Drinking Water Project Financing

Total Coliform Notice—

DRINKING WATER NOTICE

Tests show presence of coliform bacteria in water

VERMONT ENVIRONMENTAL CONSERVATION
Drinking Water & Groundwater Protection Division

PUBLIC NOTICE CERTIFICATION

Pursuant to the Vermont Water Supply Rule (Chapter 21, Subchapter 21-10), water public notification in a manner that ensures that all users of the system are notified and the system is notified of each type of notice that you issued to the below of issuing the public notice.

Public Water System Name: TOWN OF WINSOR
Public Notice Issued for: WINSOR WATER SYSTEM
Date System First learned of Violation or situation: 9-13-13 2:30 pm
For Tier 1 violations: Consultation with Water Supply Division took place on (Tier 1 includes all MCL violations and disease outbreaks)

Montpelier Water Line Break
Drinking Water Project Financing

Water Storage Tank
~Williamstown, VT

Drinking Water Filtration Facility
~Newbury, VT
Drinking Water Project Financing:
Loans and Grants

- Annualized DW Need
- State and Federal Funds
- Linear (Annualized DW Need)

*Projected*
Clean Water State Project Financing

Wastewater Treatment Facility Secondary Lagoon
~Swanton, VT, 2013

Burlington Vermont
Clean Water State Project Financing

Solar Sludge Drying
~Troy, VT

Stormwater Pond
~Essex, VT

Vermont State Park

Wastewater Clarifier
~Brattleboro, VT
Clean Water Project Funding Sources

Funds Received – Actual and Projected 2000 through 2020

**Federal**
- USEPA: State Revolving Fund (SRF) $126.7M
- State and Tribal Assistance Grants (STAG) American $20.5M
- Resource Recovery Act (ARRA) $19.2M

**State**
- SRF: Requires 1:5 State Match Dollars $25.3M
- Phosphorus Grants $18.8M
- Septage Grants $5.7M
- Combined Sewer Overflow (CSO) Grants $14.8M
- Dry Weather Pollution Abatement Grants $12.9M
- SRF Loan Repayments $148M
Clean Water State Project Financing:
Loans and Grants

- **Dollars ($ Millions)**
- **Fiscal Year**

**State and Federal Funds**

**Linear (Annualized CW Need)**

*Projected*
Facilities Engineering Division:
Annual Infrastructure Investment 2009-2014*

- Dam Safety Construction Projects Awarded
- Agency Facilities Total Project Cost
- DW Construction Bids Awarded
- CW Construction Bids Awarded

* Projected
Education and Outreach

• Financial Capacity Outreach – 75 municipal entities
• Operator Training – Statewide training to operators of public water systems
• Davis Bacon Education Seminar – 60± participants
• Provide Speaker for VT Rural Water and Green Mountain Water Environment Association Meetings: 30-60 attendees each meeting
• Wastewater Solutions for Vermont Communities: Technical and Funding Options, presented to 3 Regional Planning Commissions representing 80± towns.
Curtis Pond Dam
~Calais, VT
MAR 20, 2007
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

2015 Performance Measures
Watershed Management Division
Mission Statement

To protect, maintain, enhance and restore the quality of Vermont's surface water resources.
Description of Work

• Support both healthy aquatic ecosystems and public uses in; and on more than:
  
  – 800 lakes and ponds
  – 7,100 miles of rivers and streams
  – 300,000 acres of wetlands that exist within the State of Vermont.

• Three media-specific programs provide for the comprehensive management of Wetlands, Rivers, and Lakes.

• The Division also supports the integrity of surface waters by administering programs to regulate wastewater discharges and stormwater runoff.

• New Monitoring, Assessment and Planning program serves to integrate the Division’s efforts across these programs through the use of our Statewide Surface Water Management Strategy, and to develop watershed basin plans consistent with this strategy.
Watershed Management Division
Surface Water Management Process

- Monitoring & Assessment
- Implementation
- Tactical Basin Planning
- Regulation
- Outreach & Education
Recent Division Accomplishments:

- Developed Vermont Surface Water Management Strategy
- Launched Watershed Division Blog
- Implementing Tactical Basin Planning
- Developing Long Island Sound TMDL Implementation Plan
- Collaborate with EPA on development of Lake Champlain TMDL
- Working in Cooperation with Agency of Agriculture, Food and Markets on farm water quality issues
- Implementing Division Strategic Planning
Recent Division New Initiatives:

- Ecosystem Restoration Program 
  (former “Clean & Clear program)
- Wastewater and Residuals Program
- Green Infrastructure Initiative
- Agricultural Stormwater Runoff
- Hydrology Program
- Water Quality Certification Program
- Water Rules from Water Resources Panel
  - VWQS
  - Use of Public Waters Rule
  - Surface Level Rule
  - Designation of Class I Wetlands and Outstanding Resource Waters
New Regulatory Responsibilities:

• General Permit for the application of pesticides over surface waters

• CAFO (Concentrated Animal Feed Lot Operation) General Permit

• General Permit for discharges to water from large boats

• Expansion of stream alteration permits, including emergency permits
DEC River Engineering working to reduce emergency measures and restore the natural stream processes that mitigate flood damage

2013 Stream Alteration Permits and Authorizations

- 43% Departure Minimized
- 30% Departure Avoided
- 27% Equilibrium Restored

DEC River Engineers:

- Technically assist ~800-1000 project per year
- Permit ~500 projects per year
FEMA Public Assistance Projects from 1999 through 2013

All Public Assistance Projects Through October 2013

- A - Debris Removal
- B - Protective Measures
- C - Roads & Bridges
- D - Water Control Facilities
- E - Public Buildings
- F - Public Utilities
- G - Recreational or Other
- Z - State Management
Roaring Branch Floodplain Restoration
Bennington, VT
DEC Streamflow Protection working to restore and protect streamflow and connectivity of Vermont rivers to improve water quality and aquatic habitat

- Provide technical assistance and monitor compliance of 85 hydroelectric projects
  - In 2013: Assessment of 120 miles of the Connecticut River to restore streamflow, water quality, and aquatic habitat through project relicensing

- Provide technical assistance to and monthly compliance monitoring for 14 alpine and cross country ski areas
  - In 2013: 2.2 billions gallons of water withdrawn from surface waters for snow making without major non-compliance event

- Restoration of altered river systems
  - 15 dams removed since 2003. Resulting in greater than 100 river miles of connectivity restored
Lakes and Ponds

More Vermont lakes rank in poor condition for lakeshore and shallow water habitat conditions than for acidification or phosphorus pollution. Development in close proximity to the lake, alterations of the natural shoreline, and loss of shoreline vegetation are the main reasons for degradation of lakeshore and shallow water habitat.

Vermont has many undeveloped lakeshores, especially on our smaller lakes. The Lakeshore Bill (H.526) would provide protection for this threatened resource. The Lakes and Ponds Management and Protection Program conducts scientific surveys of lakeshore conditions, provides education to property owners about good lakeshore management practices, and supports policies to protect Vermont’s lakeshores.
Managing Aquatic Invasive Species

The aquatic invasive plant water chestnut was first confirmed in Southern Lake Champlain in the 1940s. The infestation can be controlled by mechanical harvesting and hand-pulling. Consistent funding over the last decade has allowed for notable progress in reversing the northward spread of the plant.

Dense mats of water chestnut limit boat traffic and recreational use, outcompete native plants and create an oxygen-depleted zone uninhabitable by aquatic organisms like fish.
Aquatic Invasive Species Spread Prevention …

Preventing the introduction of aquatic invasive species is critical to Vermont’s ecological and economic health. Vermont property values can decrease by as much as 16% where Eurasian watermilfoil infestations are densest.¹

Public Access Area Greeter Program (2006-2012)

<table>
<thead>
<tr>
<th>Year</th>
<th># Boats Inspected</th>
<th># Carrying Plant/Animal Material</th>
<th>% Carrying Plant/Animal Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2,916</td>
<td>50</td>
<td>1.7</td>
</tr>
<tr>
<td>2007</td>
<td>4,040</td>
<td>49</td>
<td>1.2</td>
</tr>
<tr>
<td>2008</td>
<td>4,598</td>
<td>27</td>
<td>0.6</td>
</tr>
<tr>
<td>2009</td>
<td>5,364</td>
<td>53</td>
<td>1.0</td>
</tr>
<tr>
<td>2010</td>
<td>8,337</td>
<td>190</td>
<td>2.3</td>
</tr>
<tr>
<td>2011</td>
<td>9,838</td>
<td>169</td>
<td>3.4</td>
</tr>
<tr>
<td>2012</td>
<td>17,557</td>
<td>152</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Wetlands Program

Over 5% of Vermont is wetland (391,000 acres)

Goal: To conserve the significant wetlands of Vermont for the values and functions they provide, with no net loss of wetland functions and values, and no net loss of significant wetland acreage.
Wetlands Program

Number of site visits = avoidance and minimization of wetland impacts

- Over 600 site visits in 2013

No permits issued unless applicant demonstrated no loss of wetland function or value.

- 86 permits issued in 2013
The Watershed Management Division’s Stormwater Management Program regulates stormwater runoff from construction activities, new impervious surfaces, industrial activities, concentrated animal feeding operations, large municipalities, and impervious surfaces in stormwater impaired watersheds.

### Regulatory Programs and Thresholds Over Time

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>State stormwater permitting commences</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>State stormwater permit threshold lowered</td>
<td>2 acres of impervious</td>
</tr>
<tr>
<td>1997</td>
<td>First Construction General Permit (CGP)</td>
<td>5 acres of disturbance</td>
</tr>
<tr>
<td>2003</td>
<td>Municipal Separate Storm Sewer System (MS4) Permit</td>
<td>Census designated municipalities (within Chittenden Co.)</td>
</tr>
<tr>
<td>2005</td>
<td>State stormwater permit threshold lowered</td>
<td>1 acre of impervious</td>
</tr>
<tr>
<td>2006</td>
<td>CGP threshold lowered</td>
<td>1 acre of disturbance</td>
</tr>
<tr>
<td>2006</td>
<td>First Multi-Sector General Permit (MSGP)</td>
<td>Categories of industrial activity</td>
</tr>
<tr>
<td>2009</td>
<td>First Residual Designation Authority (RDA) permit</td>
<td>Properties in stormwater impaired watersheds</td>
</tr>
<tr>
<td>2012</td>
<td>MS4 with stormwater TMDL implementation</td>
<td>Expanded to St. Albans &amp; Rutland</td>
</tr>
<tr>
<td>2013</td>
<td>Concentrated Animal Feeding Operations (CAFO) General Permit</td>
<td>Medium and Large farms</td>
</tr>
</tbody>
</table>
The number of active permits has increased over the last several years due to introduction of new permit programs and the lowering of jurisdictional thresholds. Authorizations issued for Multi-Sector or Operational coverage remain active as long as the industrial activity or impervious surface remains, so the number of these permits generally increase from year to year.
Sediment in urban runoff degrades aquatic habitat and carries attached pollutants and nutrients, such as phosphorus. By requiring treatment of runoff from impervious surfaces, the state stormwater program prevents an increasing amount of sediment from impacting our water resources every year.

Annual Sediment Removal Resulting from the State Permit Program

![Graph showing annual sediment removal from 2004 to 2014. The graph shows a steady increase in sediment removal each year.]
Wastewater Management Discharge Program

- Major Direct Industrial Users
- Significant Industrial Users
- Minor Municipal Users
- Minor Industrial Users

# of facilities vs. # of inspections (FY2014)
Residuals Management (Biosolids) Program

Program provides regulatory and technical oversight of the management of wastewater treatment biosolids, including:

- septage
- wood ash
- short paper fiber
- some dairy wastes.

State and federal regulations provide for three basic means of management for biosolids:

- Landfilling
- Incineration
- application to the land as an agronomic supplement.

From this...

Land application of biosolids are effective in the reclamation of gravel pits, strip mines, and other areas where productive topsoil has been removed.

To this...
Ecosystem Restoration Program

Provides grants to municipalities and organizations
Targets polluted runoff & erosion - the leading cause of water quality degradation

Fiscal Year 2014 Grant Awards

- Applying Tactical Basin Planning to target high priority projects
- 64 grants awarded
- Over $2 million in grant funds allocated across the State

Grant Funds Allocated by County or Regionally
Ecosystem Restoration Program

Fiscal Year 2014 Grant Awards (Continued)

Grant Funds Allocated by Project Type

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Grant Funds (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Channel, Lake Shoreland Mitigation</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Stormwater Mitigation</td>
<td>$600,000</td>
</tr>
<tr>
<td>Road Infrastructure Stability</td>
<td>$400,000</td>
</tr>
<tr>
<td>Agricultural Runoff Mitigation</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

Improving road drainage, Randolph
Mitigating stormwater runoff, Hardwick
Restoring vegetated buffer, Woodstock
Water Quality Testing

Vermont’s water testing network is supported by VTDEC and volunteer citizen scientists, the LaRosa Environmental Laboratory. VTDEC (♦) and citizens (♦) sampled approximately 700 sites in 2012.

In 2013 this network supported:

- **TMDLs:** Lake Champlain, Lake Memphremagog, 16 ag. streams, 2 acid lakes.
- **Condition reports:** White R., Deerfield R., Lower CT R., statewide lakes.
- **Tactical Basin Plans:** Six plans issued.

**Tactical Basin Plans Issued**

- Black-Ottauquechee
- Memphremagog
- Otter Creek
- Winooski River
- Missisquoi River
- White River
The Watershed Management Division’s Tactical Basin Planning Process identifies high-priority opportunities for Ecosystem Restoration grant-funded actions, and for proactive protection efforts. In FY2013 and 2014, Tactical Plan priorities were translated into $4.4M of water quality improvement.

The tactical planning process promotes partnerships with stakeholders, and allows the Division to transparently balance funding among watersheds to ensure pollution reduction is occurring statewide.
Drinking Water and Groundwater Protection Division

2015 Performance Measures
Division Mission

The Division protects human health and the environment for this and future generations by:

– protecting the quality and quantity of Vermont’s groundwater resources;

– ensuring the proper operations & management of Vermont's drinking water supplies; and

– regulating those wastewater disposal activities that could adversely affect groundwater.

This mission is met through outreach, education, assistance, and regulatory activities.
Description of Work

• Permitting

• Compliance & Enforcement

• Licensing

• Outreach & Education
DEC Drinking Water Groundwater Protection Division
FY2014 Budget By Major Funding Source
DWGWP Division Permit Programs

- Drinking Water Program
  - Source water permits
  - Construction permits
  - Operating permits
  - Groundwater withdrawal permits

- Indirect discharge permits

- Underground injection control permits

- Water/Wastewater permits
Public community & Non-transient Non-community (NTNC) Water Systems

- Operating Permits Issued
- Survey Inspections Completed
DWGWP Division Compliance & Enforcement

• Review of submitted monitoring data
• Technical Assistance
• Inspections
• Notices of Alleged Violation
• Enforcement referrals
Compliance with Health Based Standards
Public Community and Public Non-Transient Non-Community Systems

Public community water system means a public water system which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least 25 year-round residents.

Public non-transient non-community water system means a public water system that regularly serves at least 25 or more of the same persons daily for more than six months per year. Examples include: schools, factories, office buildings.
Regional Office Wastewater System & Potable Water Supply Permits

Number of Actions

- # of Applications Received
- # of Permits Issued
- # of Permits Meeting Performance Standards (DEC Days)

Year:
- 2007: 3700
- 2008: 3400
- 2009: 2800
- 2010: 2500
- 2011: 2200
- 2012: 2400
- 2013: 2500
Licensed Designer Program
Education Opportunities

# DEC Sponsored Classes
# Licensed Designers Trained

- 2010: 5
- 2011: 4
- 2012: 7
- 2013: 12

Trend Line
Indirect Discharge Program

• Program regulates indirect discharges of sewage (>6,500 gpd)

• New VT statute in 1986 affected future proposed indirect discharges:
  – Must meet a biological standard in receiving stream. No significant change to aquatic biota allowed
  – Clear & convincing evidence required
Indirect Discharge Program

- **Challenge**: How can you permit a development before it is built and ensure that the discharge meets that standard and the stream water quality is protected?
Indirect Discharge Permit Program Assessment

100% SUCCESS

During the period 2000-2013 there were 71 stream assessments made and all 71 met the requirements of the Indirect Discharge Rules.
Division Mission

Pursuant to 10 VSA §551, the AQCD’s mission is to:

• Achieve and maintain air quality levels that protect human health;
• Prevent injury to plant, animal life and property;
• Promote economic and social development; and
• Facilitate the enjoyment of Vermont’s natural attractions.
Description of Work

To carry out the AQCD’s mission, the AQCD:

• Operates five monitoring sites where air samples are collected to determine compliance with ambient air quality standards for criteria pollutants and air toxics;

• Inventories Vermont’s emissions of criteria pollutants, air toxics, and greenhouse gases;

• Develops and implements programs to control air pollution from stationary sources and mobile sources in Vermont and conducts inspections to ensure compliance; and

• Works closely with other states and entities to develop regional and national air pollution control strategies and to address the interstate transport of pollution, which significantly impacts Vermont’s air quality.
Air Quality and Climate Division

- Director
  - Engineering Services/Permitting
  - Air Planning
  - Mobile Source Control
  - Technical Services
  - Field Services
DEC Air Quality and Control Division
FY2014 Budget By Major Funding Source

- General Fund: $1,540,210
- Special Funds: $921,093
- Federal Funds: $563,042
- Interdepartmental: $51,973
The AQCD issues two types of permits: (1) Construction Permits, which are required for new or modifying sources before they can commence changes, and (2) Operating Permits, which are renewed every five years to incorporate any new requirements adopted in the interim. Whenever possible, these permits are combined into one.

** For Construction Permits, performance goals range from 80 days for minor permits with no public comment to 175 days for major sources with public comment. In 2013, 73% of construction permit projects met their goal.
## Compliance and Enforcement

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Engineering Compliance Inspections</td>
<td>45</td>
<td>33</td>
</tr>
<tr>
<td>Open Burning Permits Issued</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>Review of CEMS/COMS Excess Emissions Reports from Stationary Sources</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Stack Testing Observations and Report Reviews</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Complaints Addressed</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>Enforcement Actions Referred to Compliance and Enforcement Division for Prosecution</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
This performance measure indicates that Vermont’s measured ambient air concentrations for the six “criteria” pollutants have generally been declining over time, and all of Vermont is currently “in attainment” with EPA’s NAAQS.
Number of Registered Stationary Sources in Vermont and Associated Emissions of Criteria Air Pollutants
While ambient air concentrations of many hazardous air contaminants have declined in VT over time, benzene remains well above VT’s standards. The difference between the urban sites in Rutland and Burlington and the rural site in Underhill indicates that local sources (e.g., motor vehicle exhaust, refueling, and residential wood burning) are primarily responsible for VT’s benzene levels.
This performance measure shows a decline over time in emissions of HACs from registered stationary sources, which is an indicator that the AQCD’s air pollution control strategies (e.g., registration fees, permitting requirements, compliance and inspection efforts, etc.) are working.
Motor vehicles are the largest source of air pollution in Vermont. Decreasing motor vehicle emission standards help to offset increases in VMT and vehicle population in Vermont. The AQCD also supports efforts to ensure emission control systems are properly maintained and repaired.
While new vehicle emissions have decreased dramatically, vehicles remain clean only if their emissions control systems are properly maintained. In 2013, the AQCD conducted 6 training classes for more than 150 automotive technicians in Vermont to help ensure effective emissions repairs.

In 2013, the AQCD partnered with the American Lung Association of Vermont to conduct an outreach campaign to promote the benefits of reducing unnecessary vehicle idling, such as positively impacting lung and heart health, protecting the environment, reducing fuel consumption, and increasing vehicle longevity.
Because Air Pollution Does Not Recognize Borders...

The characteristic transport wind vectors for the highest 20% ozone days in New England are shown here. To reduce the amount of air pollution transported to Vermont, the AQCD works with regional, national and international partners.
This performance measures shows 5-yr avg. reductions in sulfate and nitrate pollution (red) and visibility improvements (blue) from 1996-2012. The split image photo shows a view from Lye Brook as seen on the haziest 20 % days in 1996 (left), in 2012 (center), and projected to 2064 (right) to comply with EPA’s Regional Haze Rule.
Education & Outreach: Air Quality

• Through a partnership with US EPA, the AQCD provides real-time air quality measurements and forecasts via the EPA AIRNOW website and EnviroFlash notices, which are available by e-mail, text message, and an iPhone App, to allow Vermonters, especially those with sensitivities to adjust their lifestyles when necessary.

• The AQCD raises public awareness about the effects of air pollution on visibility by displaying pictures and corresponding air quality and weather conditions on NESCAUM’s CAMNET website.

This performance measure tracks progress in meeting Vermont’s GHG reduction goals. Vermont did not achieve its 2012 goal of reducing GHG emissions to 25% below 1990 levels. Vermont now must focus on reducing GHG emissions to 50% below 1990 levels by 2028 as set forth by state statute.
Education & Outreach: Climate Change

The AQCD provides Vermonters with science and technical information on climate change through a number of channels:

• Climate Change website: >4,500 visitors in 2013
• Climate Connections newsletter (produced quarterly) is direct e-mailed to 245 subscribers, plus available on website
• @vtclimatechange on Twitter – 149 followers and growing
Waste Management and Prevention Division
Waste Management and Prevention Division
Description of Work

WMPD regulates Solid and Hazardous Waste management facilities to prevent waste generation where possible, to minimize impacts to the environment and human health when necessary, and to remediate, restore and redevelop contaminated sites to sustain community vitality.
Waste Management and Prevention Division
Organizational Structure

- Director
  - Sites Management & Brownfields Redevelopment
  - Solid Waste Management
  - Hazardous Waste Program
  - Salvage Yards
  - Underground & Above Ground Storage Tanks
  - Spills and Emergency Response
DEC Waste Management and Pollution Prevention Division
FY2014 Budget By Major Funding Source

- General Fund: $10,256,286
- Special Funds: $1,770,524
- Federal Funds: $247,494
- Interdepartmental: $114,032
Solid Waste Management Program

- Materials Management through hierarchy of waste prevention, reduction, reuse and recycling.
- Product Stewardship (e.g. Mercury, Electronic waste, Paint)
- Solid Waste Management Assistance Fund
- Planning
- Certification and Compliance
Change our view from “waste” to...
Materials Management
Materials Disposal and Diversion Vermont

*Past, present and future estimates*

**Amount of Material (in tons)**

- **Population (Census data)**
- **Tonnage Disposed (actual)**
- **Tonnage Diverted (actual)**

*Diversion* refers to materials that are recycled or composted. Waste prevention and re-use is not currently tracked by ANR.
Current Disposal Rate
2013 Waste Composition Study

Residential
- Special Wastes: 21%
- Paper: 22%
- C&D: 10%
- Plastic: 11%
- Organics: 28%
- Metal: 4%
- Glass: 2%
- Electronics: 2%
- HHW: 0%

Industrial, Commercial and Institutional
- Special Wastes: 22%
- Paper: 28%
- C&D: 15%
- Plastic: 12%
- Organics: 18%
- Metal: 3%
- Glass: 1%
- Electronics: 1%
- HHW: 0%
E Cycles
Vermont Electronic Waste Recycling Program
E Cycles Program

Measure: Millions of Pounds / year

Banned and Covered Electronic Waste Collected in Vermont

- *January 1 - December 31, 2009: 1.75
- *January 1 - December 31, 2010: 1.63
- July 1, 2011 - June 30, 2012 E-Cycles Program Year: 5.44
- October 1, 2012 - September 30, 2013 E-Cycles Program Year: 5.40

(*as reported from solid waste facilities for 2009 and 2010)
59 Closed Landfills Under the Program’s Regulatory Authority

Majority are regulated under Post-Closure Certification (PCC)

Typically this requires:

- Annual inspection by engineer
- Semi-annual or annual groundwater quality monitoring
- Annual cap maintenance (mowing)
300+ old landfills across the State

Majority closed prior to Federal RCRA, Subtitle D and Act 78 implementation:

• had no closure procedure

• Little to no data on environmental impact
Custodial Care – End of mandated regulatory care

If the landfill is stable and proven to have little to no environmental impact:

• Apply for custodial care after completion of mandatory ± 20/30 year post-closure period
  • 63% of the regulated landfills have completed 20 yrs PCC
• Move out of 5-yr certification cycle, and into minimal regulatory authority

To do this

Need to evaluate the current risk associated with each of these landfills
Goals:

1. Develop a *quantifiable* risk evaluation methodology
   - Use the data collected over the post-closure period
   - Evaluated land-use changes in vicinity of landfill
   - Field and map based investigations
2. Test the methodology
3. Prioritize sites of risk and stability
4. Identify actions that high risk sites can take
Closed Landfills: Managed by the Solid Waste Program

Total Managed

Potential Custodial Care Candidates – within next 5 years

Previously Released From Required Environmental Monitoring
Sites Management and Brownfields Redevelopment Program

- Petroleum Cleanup Fund
- Environmental Contingency Fund
- Brownfield Response Program
- Remediation of contaminated sites
- Redevelopment of Sites to restore Community vitality
Measure of Success:

Above ground storage heating oil tank (AST) releases and annual clean up costs are decreasing
Brownfields Development Program leverages funding from other sources

**BROWNFIELD Site** means real property, the expansion, redevelopment, or reuse of which may be complicated by the release or threatened release of a hazardous material.”

**BROWNFIELD Development** promotes: Positive Environmental Outcomes, Downtown Development, Job Creation, Increased Property Tax Revenue, Private Investment and much more!

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**EPA Assessment**
Federal money used for site assessments – Phase 1, Phase 2, and Corrective Action Plans

**EPA Cleanup**
Federal money used for implementation of Corrective Action Plan

**Leveraged Funding**
All funding allocated for total project redevelopment (examples include: Community Development block grants, HUD, private funding (loans) etc.)

This chart represents data from 63 Sites out of 244 total Brownfields sites in Vermont. Data source is an EPA database.
Funding Gap: Increasing number of Brownfields sites per year with decreasing federal funding

*Money/year represents EPA money awarded to all applicants in Vermont (VTDEC, ACCD, RPC, Municipal, Non-profits)
Brownfields Program:
Environmental Protection, Economic Growth and Redevelopment

Downtown Cores, Rivers & High Concentrations of Brownfields (2012)

City Place, Barre City
Technical Services

– Regulation of Hazardous Waste Generators
– Regulation of Underground Storage Tanks
– Regulation of Salvage Yards
Hazardous Waste Program
Hazardous Waste Generation and Inspection Coverage

Hazardous waste in Vermont

• 13 million pounds generated in 2012
• 4.9 million pounds handled by permitted storage facilities

Inspection Frequency by Generator Status

- Facilities that handle the most hazardous waste are inspected most frequently
Small Quantity Generator Self-Certification

• Annual self-certification of compliance by small-quantity generators (SQGs)
• Distill applicable regulations to a manageable number of questions on self-certification checklist
• Use statistically significant number of random inspections to compute compliance rate for entire SQG population
• Why SQGs?
  – Generate 7-8% of all waste but inspected only about once every 20 years
  – Generally have lower compliance rates than larger facilities
Why Self-Certification?

• Requires all SQGs to annually review regulatory requirements and fill out checklist
• Improves awareness of regulations and therefore compliance
• It works – results from other self-cert. programs:
  – Colorado SQG initiative: compliance rates improved from 32% to 84% in 4 years
  – VT underground tank program: compliance rates improved from 66% to 80% in 5 years
Underground Storage Tank Program

Number of inspections vs. Percent in Compliance (SOC)

Number of Facility Inspections

Percent of Facilities in Compliance (%)
Underground Storage Tank Program

Number of emergency responses and confirmed releases from underground storage tanks over time

- # Confirmed releases
- # Emergency responses
Salvage Yard Program

3 year plan
Year 1 Focus: Program Development
- Visit/inspect registered yards
- Write rules
- On-going cases with enforcement division
- Develop database

Year 2 Focus: Unregistered/unpermitted yards
- Visit/inspect known unregistered yards
- Process annual registrations/permits
- Continue/develop cases with enforcement division
- Sector specific training

Year 3 Focus: Focus: Review and Revise
- Inspections at certified yards
- Inspections at unpermitted yards
- Continue cases with compliance and enforcement
- Rule revision
- Statutory change
Salvage Yard Program
Performance Measures
(to be measured moving forward)

• Compliance rate at permitted facilities

• Number of first-time permits issued

• Number of cases referred to Enforcement Division
Salvage Yard Program

Collaboration with Compliance & Enforcement Division

- GOALS:
  - Compliance
  - Closure of non-compliant yards

- Support prosecution of existing cases

- Develop new cases
Spills and Emergency Response

Response to spills of hazardous wastes and other emergencies is accomplished using a team approach, with a team coordinator, drawing on resources within the existing programs. The Spill Team primarily responds to hazardous releases, most often petroleum related, and trains regularly for such events.
Administration & Innovation Division

2015 Performance Measures
Division Mission

The Administration and Innovation Division strives to provide effective and efficient services for cross departmental functions to all programs within the Department of Environmental Conservation. Our Division empowers programs with performance based budgeting and integrated planning to assist programs in identifying and sustaining long term revenue sources for providing environmental protection and resources for the people of the State of Vermont.
Description of Work

The Administration & Innovation Division provides cross departmental centralized services in the following:

- Finance (budget, revenues, procurement, etc.)
- Planning
- Innovation (information technology)
- Business Transformation Initiative
- Personnel
- Space/Logistics
Administration & Innovation Division
Organizational Structure

Director

Planning

Administration

Innovation
(Business Transformation Initiative)
Electronic Permit Application Program
Wastewater On-site Permitting Electronic Submittals

% of Applications

FY2013 | FY2014 | FY2015
---|---|---
Goal | Actual/Projected Performance

Note: Significant software system change in FY14/15. Projection includes contingencies needed to train users.
DEC Business Transformation Initiative
“Lean” Projects

Number of Projects Per Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Completed Projects</th>
<th>Total Lean Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2014</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>FY2015</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>FY2016</td>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

Total Lean Projects Complete by 2016: 28
Total Lean Project Ideas by 2016: 45
Records Management

Goal:
Public capability to search and access Records

- SharePoint 2013 selected as ANR software platform FY2014
- Configure and deploy to accept records according to VSARA & ANR Policies FY14
- Pilot DEC Sites and Licensing programs to demonstrate functionality FY14
- Develop a DEC/ANR records migration schedule to prioritize adding records FY14
- Begin migration of DEC records into SharePoint current and electronic records FY14
- Continue migration and scan paper records FY15
Environmental Assistance Office
Mission

• To improve the environmental performance of Vermont businesses and municipalities through non-regulatory compliance assistance, permit assistance and pollution prevention assistance

• To assist DEC regulatory programs improve compliance rates through outreach, assistance and coordination
Description of Work

• Permit Specialists in ANR Regional Offices assist permit applicants to identify necessary state permits or approvals

• Staff provide on-site compliance and pollution prevention consultation to businesses and municipalities

• Staff provide workshops and develop educational materials

• Recognition Programs
  – Annual Governor’s Awards for Environmental Excellence – applications from businesses, non-profits, public agencies, and individuals
  – VT Business Environmental Partnership – Green Business Program. Green Hotels, Green Restaurants, Green Grocers, Clean Marinas, and others business sectors meet sustainability standards; over 200 participating businesses
Organization Structure

Permit Specialists
(in five regional offices)

- Springfield
- St. Johnsbury
- Rutland
- Barre
- Essex

Pollution Prevention & Compliance Assistance

- Municipal Assistance
- Business Assistance
- Pollution Prevention Plans

Recognition Programs

- Business Environmental Partnership
- Governor’s Environmental Awards
### Pollution Prevention & Compliance Assistance

#### Cumulative Hazardous Waste & Toxics Use Reduction by Planning Facilities

<table>
<thead>
<tr>
<th>Year</th>
<th>Cumulative Hazardous Waste Reduction (lbs)</th>
<th>Cumulative Toxics Use Reduction (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>400,000</td>
<td>200,000</td>
</tr>
<tr>
<td>2008</td>
<td>600,000</td>
<td>300,000</td>
</tr>
<tr>
<td>2009</td>
<td>800,000</td>
<td>500,000</td>
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<tr>
<td>2010</td>
<td>1,000,000</td>
<td>600,000</td>
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<tr>
<td>2011</td>
<td>1,200,000</td>
<td>700,000</td>
</tr>
<tr>
<td>2012</td>
<td>1,400,000</td>
<td>800,000</td>
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</tbody>
</table>

###Pollution Prevention & Compliance Assistance Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td># of business/municipal workshops</td>
<td>2013</td>
</tr>
<tr>
<td># of workshop attendees</td>
<td>8</td>
</tr>
<tr>
<td># of business on-site assistance visits</td>
<td>218</td>
</tr>
<tr>
<td># of municipal on-site assistance visits</td>
<td>68</td>
</tr>
<tr>
<td># of municipal on-site assistance visits</td>
<td>31</td>
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</tbody>
</table>
## Permit Assistance

<table>
<thead>
<tr>
<th>Permit Specialist Activity</th>
<th>Year</th>
<th>2012</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Project Reviews</td>
<td></td>
<td>2389</td>
<td>2184</td>
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<tr>
<td>Outreach Contacts (phone/email)</td>
<td></td>
<td>4927</td>
<td>4515</td>
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<tr>
<td>Town Visits</td>
<td></td>
<td>44</td>
<td>51</td>
</tr>
</tbody>
</table>

### Permit Assistance Customer Satisfaction

![Graph showing Permit Assistance Customer Satisfaction](image)

- **Goal (95%)**
- **Above Average Customer Satisfaction (%)**
- **Year**
  - 2012
  - 2013

The graph above shows the customer satisfaction levels for Permit Assistance in 2012 and 2013, with a goal of at least 95%. The satisfaction levels are above average for both years.
Vermont Business Environmental Partnership

**Cumulative Resources Conserved by Partners**
(raw materials & waste reduction)

- **Year:** 2010, 2011, 2012
- **Resources Conserved (lbs/yr):**
  - 2010: 0
  - 2011: 2,000,000
  - 2012: 4,000,000

**Cumulative Water Conserved by Partners**

- **Water Conserved (gal/yr):**
  - 2010: 5,000
  - 2011: 10,000
  - 2012: 15,000

**Cumulative Greenhouse Gases Reduced by Partners**

- **CO2 Equivalent Reduced (Metric Tons):**
  - 2010: 0
  - 2011: 5,000
  - 2012: 10,000

**Cumulative Dollars Saved by Partners**
From All Resources Conserved

- **Dollars Saved ($):**
  - 2010: 2,000,000
  - 2011: 4,000,000
  - 2012: 6,000,000
DEC (LaRosa) Laboratory

2015 Performance Measures
Laboratory Mission

To provide high-quality analytical data to DEC programs, other state agencies and non-profits, in support of critical policy goals; while providing in-kind services to numerous citizen groups, further supporting DEC’s core mission.
DEC Laboratory
FY14 Budget By Major Funding Source

- General Fund: $499,030
- Special Fund: $30,000
- Federal Fund: $356,285
- Interdepartmental
The DEC Lab’s unique low detection limit is critical to phosphorus monitoring.

Very small increases in concentration lead to accelerated plant growth, low oxygen levels, threatening of aquatic species and otherwise degrades stream and lake health.

Sound Laboratory data spans 30+ years.
Specialized Laboratory Analyses

Vt. Air Toxics monitoring station samples are analyzed by the laboratory and used to track trends in ambient levels of air toxic pollutants regulated under the Clean Air Act.

Toxic pollutants are associated with a wide variety of adverse health effects, including cancer and neurological effects.

Consistent high-quality Lab data (Acid Lakes Program) confirms reductions in air pollution, and improvements to northeast water quality.
**Education & Outreach**

The LaRosa Analytical Services Grant (LaRosa Partnership) is a partnership between some of Vermont’s volunteer (citizen) watershed groups, the Vt. DEC – Monitoring, Assessment and Planning Program and the DEC Laboratory. The Laboratory provides analysis at no cost.

This program is organized and coordinated to complement the Vermont DEC staff sampling, effectively furthering Watershed Management Division’s primary mission to protect, maintain, enhance and restore the quality of Vermont’s surface water resources.

Sometimes, local groups are able to discover, monitor and resolve some issues more effectively within their communities, than the State.
DEC Annual Analyses

• Nearly 25,000 tests analyzed annually with a throughput value of $600,000.

• More than 9,000 nutrient tests processed, valued at $220,000, to monitor the quality of Vermont’s ground & surface waters.

• The LaRosa Partnership, Citizen Watershed Groups, amounts to nearly 6,000 tests annually with a throughput value of almost $90,000.
Compliance & Enforcement Division

2015 Performance Measures
CED’s Mission

Investigation and prosecution of environmental violations to protect the health and well-being of Vermont’s citizens and our environment.
Description of Our Work

• Investigate citizen complaints.

• Prosecute environmental violations with the goal of environmental remediation and fair and consistent penalties.

• Coordinate with state and federal colleagues.

• Work strategically with our partners to further our mission.
DEC Compliance & Enforcement Division
FY14 Budget "As Passed" By Major Funding Source

- General Fund: $13,189
- Special Funds: $103,520
- Federal Funds: $1,375,912
- Interdepartmental: $1,375,912
Compliance and Enforcement Division

- Director
  - Investigation Section
  - Prosecution Section
What Our Complaints & Cases Look Like
Open Trash Burning
Logging activities– Discharge to State Waters
Logging Slash Filling a Brook
Bunker Oil Spill
Failed Septic System
Unpermitted Gravel Excavation
Diesel Spill
Oil Discharge to State Waters
Geology Division
[Vermont Geological Survey]

2015 Performance Measures
SCIENCE BASED AID AND ADVICE

HUMAN HEALTH

HAZARD MITIGATION

SUSTAINABLE RESOURCES AND LAND USE

ENERGY

ECOSYSTEM HEALTH

WATER SUPPLY AND PROTECTION
As per statute, the Geology Division provides aid and advice and conducts surveys and research of the geology, mineral resources and topography of the State.

Science-based analyses address a full range of environmental issues.
Description of Work

- Bedrock and surficial geologic mapping
- Digital data products
- Water and earth materials chemistry
- Applied studies address:
  - aquifer identification
  - groundwater resource protection and contamination analyses
  - naturally occurring contaminants such as radionuclides and arsenic
  - geothermal energy
  - landslide hazard maps
  - defining earthquake risk for critical facilities
  - land use issues such as forest health
Map shows projects related to Groundwater Resources

Map shows projects related to Hazards
Map shows projects related to:
Human Health
Water Quality (ex. Arsenic)
Radioactivity
Mineral Dust

Map shows projects related to:
Geothermal Energy
Land Use & Act 250
Geochemical Landscape
Sustainable Materials

VERMONT GEOLOGICAL SURVEY/GEOLOGY DIVISION
By statute, the State Geologist directs the Division. The Division employs two other full time geologists and conducts work in cooperation with academic institutions, government agencies and contractors.
DEC Geology Division
FY14 Budget By Major Funding Source

- $299,042 Interdepartmental
- $123,795 Federal Funds
- $33,738 Special Funds
- $800 General Fund
Highlighted Performance Measures

- Maps, Publications, Reports, Datasets
- Geoscience Applied to Permits and Plans
- Hazard Mitigation
- Public Outreach and Education
- Web visits
*Permits and plans numbers are an underestimate for 2013 since we do not have all tracking data available at this time.
Highlighted Performance Measures

• Maps, Publications, Reports, Datasets
  Maps produced and/or posted on-line
  Publications - papers, abstracts
  Reports completed
  Datasets produced, revised and made available to the public

• Geoscience Applied to Permits and Plans:
  Hazardous sites remediation plans
  Public Water Supply Source Protection Areas (SWPA) defined or revised
  Public Water Supply Well permits issued
  Underground Injection Control Permits Issued
  Indirect Discharge Permits issued
  Stream Geomorphic Assessments, Phases 1, 2, 3
  Act 250 applications - Criteria 9D and 9E

(continued on next page)
Highlighted Performance Measures

- **Hazard Mitigation**
  - Site visits
  - HAZUS (computer-based risk assessment) projects run
  - Reports submitted

- **Public Outreach and Education**
  - Presentations for towns, organizations, colleges/schools, libraries, government
  - Information requests
  - Presentations at professional meetings
  - Student Interns trained

- **Web visits**