

Laboratory Services

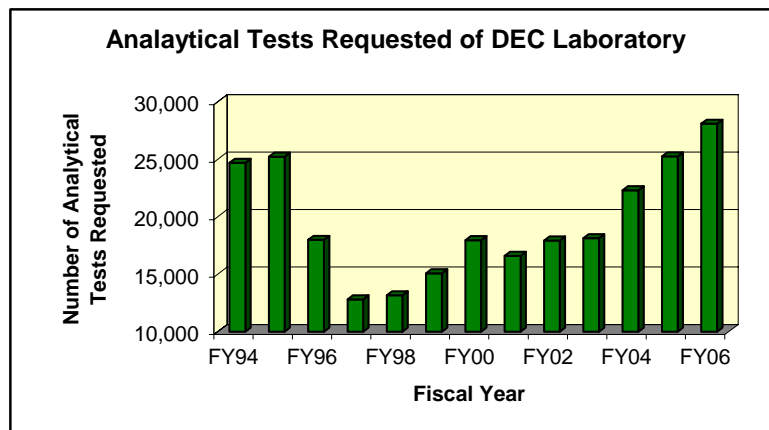
R. A. LaRosa Environmental Laboratory

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Results:

Maintain and enhance analytical services so as support DEC environmental analyses, monitoring, management, and surveillance programs. Data generated by the Laboratory is essential to understanding the health of the resource, compliance of certain regulated activities, and provides a sound scientific basis to policy development and implementation.

Key Indicators:



Story Behind Baseline Performance:

The Department of Environmental Conservation's Environmental Laboratory is a full-service chemical and bacteriological analytical laboratory providing analyses of air, water and soil contaminants. The data generated by the Laboratory is essential to the development of sound public policy, wise management and ongoing evaluations of the health and well being of environmental resources of Vermont.

The Laboratory is an internal service operation, providing high quality analytical and non-analytical services to the Department of Environmental Conservation and other units of Vermont state government including chemical analyses of certain agricultural products, and supporting needs at the Agency of Transportation, the Department of Buildings and General Services, and the Department of Health.

In the period FY93 to FY97, the Laboratory resources were reduced from 13.1 FTEs to 9.8 FTEs. Other Divisions of the Department experienced similar cuts. The indicators chart, above, displayed the diminished vigilance of environmental monitoring as a result of those budget decisions. In January 1999 management oversight of Laboratory was transferred from the Water Quality Division to the Air Pollution Control Division, and in FY2001 a major policy decision was implemented that affected the way this internal service operation was funded. Prior to this change, each analysis requested of the Laboratory had to be paid for by invoice to the requesting program. The past policy was instituted to address budget reduction targets established in the mid-90s. While it was successful in achieving budget reduction targets, it severely impeded access to analytical services by staff scientists and added layers of processing within the Department for processing transfer of payments. The data presented above demonstrates the negative impact in processing samples for environment management and monitoring that the mid-90s policy had, and how the policy changes implemented in 99-01 has turned this around.

For the FY04/05/06 period increases in demand for services are anticipated from the Air Division as their air toxic monitoring network becomes integrated with the federal air toxics monitoring effort; from Water Supply as they address the concerns and needs of transient water systems; from Water Quality as they expand surveillance and assessments of lakes, ponds and rivers throughout the state, from Waste Management as more responsibility to manage Superfund sites falls to state government; and from Geology as they address the risks of the geo-chemistry of groundwater.

Strategies/ Performance Measures / Proposed Accomplishments :

Proposed Accomplishments –

2004- Institute new and updated Laboratory Information Management System (LIMS). This electronic information management system will provide a seamless system whereby data generated by major analytical instruments in the Laboratory will flow electronically from the instrument to the database, passing through quality assurance and quality control checks and then reported to the program that submitted the original sample. With the current system, the passing of the data from instrument and to the program is dependent on manual data transfer. It is very labor intensive and requires numerous checks and crosschecks to ensure proper data reporting.

Develop Standard Operating Procedures (SOPs) and complete Initial Demonstration of Ability (IDA) for analyses of toxic elements by means of Inductively Coupled Plasma/Mass Spectrometry (ICP/MS) for water, soil and air matrices. An ICP/MS was acquired in FY03. The instrument is installed and staff has been trained in its use. With this technology the Laboratory has the ability to provide significantly more information to program scientists with significantly less time being spent on the analytical effort. Prior to obtaining this instrument, elemental analysis was performed by flame and furnace atomic absorption techniques. Capability was limited to a few elements and the analytical instrument had to be set up for each element to be analyzed; elements could only be analyzed one element at a time. The ICP/MS provide broad spectral analyses, so a suite of elements can be identified and quantified with one set up. As an example, for a common request by programs that previously took 2 ½ days to complete can now be done in 2 ½ hours.

Complete NELAC Certification and continually add analytes to the certification.

Maintain Drinking Water Certification from the Vermont Department of Health for Mercury and expand that certification to include Nitrate, Turbidity, E-Coli and Total Coliform.

Develop a Multi-Year Capital Instrument replacement plan.

Use the dedicated Gas Chromatograph with dual electron capture detectors to provide chlorinated pesticide and PCB analysis. Implement a congener PCB method.

Implement method 5035 to allow for the analysis of volatiles in soils at levels needed to assess the potential for groundwater contamination.

2005 – Continue to expand the number of parameters for which the Laboratory has Drinking Water Certification from the Vermont Department of Health, by seeking certification for metals

Implement the Multi-Year Capital Instrument replacement plan developed in FY2004.

Be fully competent to support Air Pollution's Toxic Monitoring program for organics and metals.

Develop new methods in support necessary to support initiatives of the Department.

2006 – Use the LIMS to electronically move analytical data from private labs to Water Supply and to verify certification and quality control requirements.

Replace instruments in accordance with the FY2004 plan.

Implement clean room techniques deemed necessary by client requirements.

Develop the infrastructure to support drinking water certification for volatiles, provide TOC analysis and liquid chromatography/mass spectral analysis.