

DEP's Enterprise Information Technology Tools

Online Capabilities/Electronic Submittal

DEP gathers a multitude of data in many different ways. From regulated entities DEP gets data on paper, disk, email, fax and through online applications built to provide for electronic submittal. DEP's current online portal www.njdeponline.com allows the following data to be submitted electronically:

- Private Well Testing Results (PWTA)
- Water Discharge Monitoring (DMR)
- Air General Permits
- Air Excess Emission Reports
- Right to Know Chemical Inventory Surveys (CRTK)
- Process Air Permit/Certificate Renewals
- Underground Storage Tank Closures, Registrations, Modifications, and Renewals
- Release and Pollution Prevention Reports (RPPR)
- Pollution Plan Summaries (P2)
- Laboratory Analysis Data of Drinking Water (eDWR)
- New Jersey Quantification Limits (NJQL) (in development and testing)
- Ambient Water Monitoring Results (VWM and WQDE) (in development)

Laboratory Portal (E2) - DEP developed an electronic reporting system for use by laboratories and water systems to submit data to NJDEP. This tool provides laboratories with one consistent way to submit more reliable data, faster and easier and allow DEP to process the data and respond to environmental and public health concerns more quickly. This is especially important in the submission of drinking water analysis data.

The following submissions are in production: eDWR which replaces a paper submission of drinking water analysis data, allows analysis data to be sent from the laboratory or water system directly to the DEP database for immediate analysis. PWTA is the required electronic submittal of private well sampling analysis information which is required to be tested during the sale of a property in accordance with the PWTA rules.

DEP has completed design and development of electronic flows for laboratories to submit quantitative limit (NJQL) information from 800 labs in order to collect Maximum Detection Limits related to their analyses. This flow of data is undergoing final system testing and will go online this summer.

DEP is working to make electronic and integrate all of its ambient water monitoring data. System development for submission of data from local water monitors who volunteer to help the DEP collect surface water quality information was completed and implemented. This will allow the DEP to use data never before possible to evaluate surface water quality. The second and larger part of the water monitoring data integration effort, funded by an EPA grant, provides for electronic submission and integration of the freshwater and marine water monitoring data collected by the department. Combined these efforts will allow DEP and the public, access to all of the water monitoring data through DEP Data Miner and iMapNJ DEP tools (see below for more information on these public access tools).

eNJEMS - In addition to the lab portal, DEP has redesigned and developed its ePermitting system, eNJEMS, building off of its existing capabilities but with a framework tool that will allow DEP staff to build permit application and data submittal capabilities in-house, more quickly and cheaply.

The new and improved ePermitting solution allows an applicant to submit their application and payment electronically, evaluate the submittal to determine its completeness, and process the application. In some cases, like Air General Permits, that application can be processed entirely online allowing the applicant to immediately generate an approved permit. In other cases it generates the data necessary to complete the application in the department's enterprise data system, New Jersey Environmental Management System (NJEMS), and assign it to a permit reviewer. In all cases the applicant can receive emails notifying them of receipt, application completeness and processing status.

DEP is currently linking its iMapNJ tool, to eNJEMS, allowing the applicant to identify the proposed project location with over 40 GIS data layers. This will provide the applicant and the DEP with a way to determine if environmentally sensitive areas would potentially be impacted. For example, a well driller will be notified that the proposed well is located within an area of ground water contamination, giving the driller a chance to relocate the well before submitting the permit application. Phase 2 of this system will go further and allow the applicant to draw and submit a proposed project area. This will show the location of proposed projects and proximity to environmentally sensitive areas, and facilitate dialogue between the applicant and DEP.

This ePermitting solution not only provides regulated entities with a way to submit easier, faster and more reliable permit applicants, but provides the applicant and DEP with more information upfront in the permit process and identifies areas of concern that may impact the project. For DEP it helps to reduce data entry and some administrative and technical completeness processing work, cutting the time it takes to perform these tasks.

Diesel retrofits and Land Use Permits go online soon.

The department is working to develop the following ePermitting/eSubmittal capabilities:

- Well Permitting
- Stormwater Permits
- Dental Waste Amalgam
- NO_x RACT
- Solid and Hazardous Waste Vehicle Registration
- Self Compliance Checklists
- Water Allocation Monitoring Reports
- Exam and Licensing
- Site Remediation Sampling Results and Remediation Integration

Enterprise Data Systems

NJEMS - Whether DEP captures data online, through hard copy, disk or email; data related to its regulated entities and their activities are captured in the New Jersey Environmental Management System (NJEMS). NJEMS is the DEP's department-wide enterprise database system that integrates all data related to its regulated activities for the purposes of sharing and reporting data, improving workflow and business practices, and making better environmental decisions. NJEMS serves as the day to day business tool for over 3000 staff. NJEMS stores, tracks and reports data related to all certifications, registrations, permits, cases, inspections, violations, enforcement actions and assessments and collections. NJEMS tracks the data associated with those activities, as well as documents (ie. Word, Excel) and DEP workflow tasks, staff assigned and processing time for each of those activities. NJEMS tracks each permit requirement, facility submittal and inspection requirement to provide for automated compliance determination where possible. For example discharge monitoring reports, air emissions, water withdraw requirements and monitoring reports are captured in NJEMS so that Nightly Cycle processing can evaluate the data for missing submittals or exceedances and autogenerate violations for the department's response and enforcement action. NJEMS provides all staff with access to any DEP data related to regulated entities and provides the department a way to track and report this data easily to the public.

Programs Using NJEMS

- Air Permitting
- Air Emission Statements
- Air Diesel Retrofit Program
- Air Enforcement
- Safe Drinking Water Permitting
- Water Allocation Permitting
- Well Permitting
- Water Supply Enforcement
- Wastewater Permitting
- Stormwater Permitting
- Waste Water Enforcement
- Hazardous Waste Generators
- Hazardous Waste Manifests
- Hazardous Waste Transporters
- Medical Waste Permitting
- Solid Waste Permitting
- Hazardous Waste Permitting
- HW/SW /Waste Enforcement
- Pesticide Licensing
- Pesticide Enforcement
- RTK
- TCPA
- DPCC
- Radiation Enforcement
- XRAY Enforcement
- XRAY Billing
- Lab Certification
- Land Use Permitting
- Land Use Enforcement
- Watershed Management
- Site Remediation
- UST Permitting and Closure
- Emergency Response
- Communication Center (Environmental Incidents)
- Site Remediation Direct Billing
- Department-wide Billing and Collection
- Exams and Licensing
- Historic Preservation

Programs Being Integrated into NJEMS

- Scorecard
- Imaging for all programs
- Office of Legal Affairs
- Site Remediation – Business Process Reengineering
- Dental Waste Amalgam
- Radiological Material Permitting
- Solid Waste Vehicle Registration
- Tidelands
- Site Remediation Sampling
- Site Remediation – Technical Review Panel
- Solid Waste Landfill Permitting
- Dam Safety Permitting
- Dam Safety Enforcement
- Grants and Loans

Eight states have purchased NJEMS (marketed as a product called Tempo): MS, KY, LA, TN, NM, MD, UT and IN. DEP received about 1.3 million dollars in royalties from the sale of NJEMS. DEP serves on a multi-state user group, represented by the states above) once a month to discuss shared enhancements and lessons learned regarding NJEMS/Tempo.

FACITS - FACITS maintains chemical inventory, discharge prevention and toxic catastrophe information. FACITS is integrated with NJEMS and eNJEMS, to provide electronic submittal of chemical inventories, imaging and document management, a complete masterfile of regulated entities and billing and payment information.

SDWIS - the Safe Drinking Water Information System, built by DEP's federal counterpart, USEPA, for states to manage safe drinking water data, is integrated with NJEMS to use its very complex water analysis compliance determination. SDWIS is also integrated with eNJEMS/E2 to electronically accept drinking water analysis results from laboratories.

PAS and PPS - maintain information related to pesticide applicator and business certification and registration, and pesticide producer and pesticide registration information. PAS and PPS are linked to NJEMS to provide a complete masterfile of regulated entities and billing and payment information.

Radiation/XRAY/RADON - maintains information related to radiation and x-ray facilities and inspections and is being integrated with NJEMS and eNJEMS to provide electronic submittal of payment information, a complete masterfile of regulated entities and billing and payment information

DEP also gathers significant amounts of data not associated with regulated entities, but ambient data such as water, biota, radiation, and air.

Air/Radiation Monitoring and Early Warning System - DEP is in the final stages of replacing its Air Pollution/Radiation Data Acquisition and Early Warning System. The system has been in operation since 1991 and is jointly operated by the Bureau of Air Monitoring (BAM) and the Bureau of Nuclear Engineering (BNE). It was designed to retrieve air and radiation data once every minute from 150 monitors throughout the State for comparison to health standards and other limits. The new system provides for increased data retrieval, automatic error checking, data validation, and increased alarm notification and can be accessed from DEP desktops or remotely.

The user has the capability to set alarm conditions and specify whether the alarm is to be sent via email, pager or phone. For example, an alarm can be configured to page a specific DEP staff person if ozone levels at a site exceed 0.12 parts per million.

The system updates the DEP web site once every hour with air monitoring data, showing a map of the state and each county is color coded green, yellow, or red. If a county is green it means that the system has not detected any problems at any of the sites or sensors in that county. Yellow means there is an operational problem of some type, such as an instrument or site not reporting. Red usually indicates that a sensor has detected an environmental problem such as unusually high air pollution levels. New reports will be developed and made available to the public once the system is in full production.

DEP is replacing costly and unreliable data lines with alternative transmission capabilities and enhancing system failover/recovery capabilities, to provide 24/7 operation. Air Quality monitoring data is essential to environmental trends analysis, health tracking and domestic security efforts. DEP is exchanging this data on the Exchange Network described below.

COMPASS - As DEP works to maintain more of its ambient data electronically, and improve older electronic ambient data systems, more data is being centralized in the department's data system COMPASS. This allows us to take advantage of existing enterprise software and hardware as well as the link to NJEMS, eNJEMS and the E2 system to provide for integration with other program data and electronic submittal. COMPASS is currently being used for PWTA data. COMPASS projects currently in development are Local Water Monitoring and Hazardous Site data.

BIOTICS - maintains information related to endangered species.

NJBMS - New Jersey Beach Monitoring System (NJBMS) – working with Earth911, a nonprofit organization, DEP developed a paperless, web accessible beach monitoring system. The system allows for collection and reporting of beach water quality data. Counties use this system to enter their water monitoring records, laboratories log on and add the water analysis information to those records, the system determines if a beach should be closed and emails both the county and state with the laboratory results. If the county closes a beach, the system automatically notifies the public by posting the beach closure to the DEP and Earth911 websites. The public can also sign up for email notification of closures.

The system includes automated reporting to our federal counterpart, EPA, and is available at no cost to any interested state. DEP is expanding the use of this system to record State Park swimming beach status. This will provide Park users with the same web and email notification.

OPRATS - DEP uses a copy of NJEMS, to record and track response to OPRA requests. As NJEMS is a rule based, document/case management system, the department is able to reuse the NJEMS hardware, software, and application for OPRA.

Assessing and Reporting Data

DEP developed the following tools to allow all DEP data to be easily integrated, evaluated and reported:

DEP Data Miner - DEP provides easy, free, 24/7 access to key environmental reports and other public documents through its website, DEP Data Miner. The site provides up to the minute information from DEP production enterprise data systems and now generates between 5,000 and 8,000 reports/day. This site not only provides our constituents with the best, most up to date, environmental information possible, but also reduces DEP's staff burden in producing that information.

The DEP Data Miner web site enables users to search for information on DEP-regulated sites by location, name, or identification number. Data Miner users obtain information and documents associated with the regulated sites by clicking on links to licenses and registrations permits, inspections, violations, enforcement actions, and environmental monitoring. Users can download data and analyze it with typical desktop software such as Excel or Access.

DEP is working to make all of its public information available on Data Miner. All Permitting Dashboards which track permits from application receipt to final decision, monitor permit workload and backlogs, and provide transparency for the public and increased accountability of the DEP are now online. We also recently released the Enforcement Blotter and several reports tracking Site Remediation activities.

One of our most popular reports was developed in response to DEP constituency requests, the Pending Permit Status Report. This report shows up to the minute status on permit applications in process, the name of the staff whose desk it's on, and "permit review clock". The "clock" shows the number of days

passed under DEP's review, review status, and whether the application is on time or backlogged. Based on standardized tasks for all DEP permit applications, it provides a consistent process regardless of program or type of application and was well received by developers, builders and business and industry constituents.

The Multi Media Release Report (MMRR) provides a summary of releases at a site or sites, by year, pollutant, and media. The purpose of the report is to provide a simple, direct method of obtaining information about possible environmental impacts from a facility. The report is used by permit writers, modelers, inspectors, and DEP analysts to compare site-wide releases for the pollutants present at each site. For example, the report aggregates pollutant release data across several DEP data sources such as Emissions Statements, Discharge Monitoring Reports, Air Permits, and Right to Know. The report is designed to visually flag values based on business rules to alert the user to potentially inconsistent or non-compliant data. The report will be made available to the public this summer via DEP Data Miner and the department's iMapNJ tool.

In addition to developing new reports, DEP is planning to update the Data Miner tool and hopes to convene interested constituents to gather user enhancement requests.

DEP Data Miner can be accessed at <http://www.nj.gov/dep/opra/online.html>.

GIS Data and Tools - DEP Geographic Information System (GIS) data layers are developed by staff and made available in download format on our website. Many of these layers are available for viewing in the very successful iMapNJ series.

2002 Land Use Land Cover is a recently completed GIS data development project that maps land use and land cover from the 2002 digital imagery (photos) of the entire state of New Jersey. These images are highly detailed and allow the DEP to map natural habitats and the spread of development across our state down to .5 acres. DEP has been mapping land use land cover since 1986 so trends in habitat and development can therefore be identified and quantified by county, municipality, watershed management area or other area of interest. New watercourse delineations are included in this mapping effort critical to more accurate determinations of stream water quality, impaired waters, and stream classifications. This GIS data is essential to DEP, DCA, DOT and DOA, county, municipality, regulatee and public, land use planning and permitting activities.

DEP is now working to develop the 2007 Land Use Land Cover data from the 2007 aerial photography. This data is expected to be available in 18 months. DEP is also working with USGS to develop National Hydrography Data for New Jersey and is working with the State Office of Information Technology to develop statewide parcel data, both GIS data layers critical to permitting and planning efforts.

i-MapNJ - are interactive, internet accessible mapping tools. Each tool has GIS data and a view window to display different DEP program data for any location of interest in New Jersey. Each application has a tutorial to help new users learn how to use i-MapNJ. These applications can be found at:

<http://www.nj.gov/dep/gis/depsplash.htm>

i-MapNJ DEP - provides the best and most current versions of NJDEP's Geographic Information System (GIS) environmental data. Updated Category One Waters and Landscape data layers are included in i-MapNJ DEP.

i-MapNJ Geology - is an interactive mapping application that provides information about New Jersey's uniquely diverse and interesting Geology, Aquifers and their Wellhead Protection Areas, Abandoned

Mines from New Jersey's long history of mining for iron, copper and other minerals, Earthquake Epicenters, and more.

NJGeoWeb - is a new twist on existing DEP tools that combine the mapping application, iMapNJ, with the department's reporting tool Business Objects, allowing users to "map" DEP data system data with the push of a button and view it with over 40 other GIS layers. Users are able to pick from a list of DEP profiles in iMap that predefine the default GIS layers and reports to view environmental data from different perspectives. For example, one profile will allow the user to launch a report to locate all water quality monitoring stations where a particular parameter was detected, use the report filtering features to further refine the report to only certain limits, and with the click of a button send the station points to iMap to be viewed with Watershed data layers to assess impact. This bridge between iMapNJ and WebIntelligence results in an incredible reporting and analysis tool.

Currently only available to DEP staff, DEP is working to make this tool available on the Internet with a profile for What's in My Neighborhood and another for Smart Growth. These profiles are meant to help planners, builders, the public and environmental constituents determine where areas are considered environmentally sensitive and where existing regulated activities occur.

Exchange Network - DEP is an operational partner on the National Environmental Exchange Network (Exchange Network). The Exchange Network is a partnership between state environmental departments and the U.S. Environmental Protection Agency that is revolutionizing the exchange of environmental information. Partners on the Exchange Network share data efficiently and securely over the Internet using nationally standardized XML, web services and data formats. This new approach is providing automated machine-to-machine, real-time access to higher quality data while saving time, resources, and money for partner states, tribes, and territories.

This automated exchange eliminates DEP's double data entry efforts and its manual processing of data to provide electronic copies. This helps DEP reduce costs, save time, and overcome delays in making better decisions and responding to environmental emergencies. DEP is currently exchanging facility, air emissions, beach notification, hazardous waste, air monitoring, environmental incidents, and chemical inventory; and developing water quality monitoring data flows.

DEP reuses its Exchange Network Node and data flows to provide the same effortless data exchange with other states (ie. air quality monitoring) and other NJ state agencies (DHSS for health tracking, L&PS/OCT for homeland security, Treasury for licensed individuals). In addition, we are working with Michigan, Maine, and New Hampshire to demonstrate the machine-to-machine exchange of laboratory data information, starting with drinking water analysis data (eDWR). This exchange is being developed through an EPA Exchange Network Homeland Security Grant as it may be needed in domestic security response efforts when states need to utilize each other's laboratory facilities. We are also working with Michigan, Massachusetts, and Minnesota on the electronic exchange of hazardous waste manifest data.

The Future

DEP has made tremendous progress in maintaining and integrating our data, and there is more work to be done. Real success from this work comes from the use of our information and information tools to make better environmental decisions. "This not only makes good sense for the DEP but is essential for the regulated community and the general public to meaningfully interact with the department," Commissioner Lisa P. Jackson.