Exchange Network Strategic Plan

2007 - 2012

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Prepared by the
Exchange Network Leadership Council

Environmental Information
Exchange Network

Signature Page

We, the members of the Exchange Network Leadership Council (ENLC), submit this report to the Exchange Network Community. This plan establishes strategic direction for the Exchange Network and codifies our commitment to building and implementing a state-of-the-art and preferred means of exchanging environmental data in support of better environmental decision-making.

By signing, we are endorsing this plan and signaling our commitment to continue working with our Exchange Network governance partners and supporting the Exchange Network community to successfully implement a complete, significant, and relevant Exchange Network by 2012.

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List of Acronyms

ADB	Assessment Database
AFS	Air Facility System
ASTSWMO	Association of State and Territorial Solid Waste Management Officials
AQS	Air Quality System
BEACH	Beaches Environmental Assessment and Coastal Health Act
BEACON	Beach Advisories and Closings Online Notification
CAFO	Concentrated Animal Feeding Operation
CDC	Center for Disease Control
CDX	Central Data Exchange
C/E	Compliance and Enforcement
C/E/P	Compliance/Enforcement/Permit
CME	Compliance, Monitoring and Enforcement Schema
COFA	Closeness of Fit Analysis
CY	Calendar Year
DMR	Discharge Monitoring Report
ECOS	Environmental Council of the States
eDMR	Electronic Discharge Monitoring Reports
EIS	Emissions Inventory System
eLRN	Environmental Laboratory Response Network
ENDS	Exchange Network Discovery Service
ENLC	Exchange Network Leadership Council
EPA	U.S. Environmental Protection Agency
ESAR	Environmental Sampling and Results
FCD	Facility Configuration Document
FTP	File Transfer Protocol
GEOSS	Global Earth Observation System of Systems
GIS	Geographic Information System
IAG	Interagency Agreement
ICIS	Integrated Compliance Information System
ICR	Information Collection Requests
IPT	Integrated Project Team
IT	Information Technology
LIMS	Laboratory Information Management Systems
MDRs	Minimum Data Requirements
MOU	Memorandum of Understanding
NAAS	Network Authentication and Authorization Service
NEI	National Emissions Inventory
NEPAssist	National Environmental Policy Act Assist
NetDMR	Exchange Network Electronic Discharge Monitoring Report
NGO	Non-Governmental Organization
NOB	Network Operations Board
NPAT	Network Planning Action Team
NPDES	National Pollutant Discharge Elimination System
NPRG	Network Partnerships and Resources Group
NTG	Network Technology Group

OECA	EPA Office of Enforcement and Compliance Assurance
OEI	EPA Office of Environmental Information
OSW	EPA Office of Solid Waste
OSWER	EPA Office of Solid Waste and Emergency Response
PCS	Permit Compliance System
PDF	Portable Document Format
PPA	Performance Partnership Agreement
PPG	Performance Partnership Grant
PRAWN	Program tracking, beach Advisory, Water Quality standard, and Nutrient database
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
ROI	Return on Investment
SDWIS	Safe Drinking Water Information System
SEDD	Staged Electronic Data Deliverable
STORET	Storage and Retrieval
TRI	Toxic Release Inventory
TRI-ME	Toxic Release Inventory – Made Easy
UI	Universal Interface
UTIL	State Utility for Reporting
USGS	United States Geological Survey
WQS-X	Water Quality Standard Exchange
WQX	Water Quality Exchange
XML	Extensible Markup Language
3Q	Third Quarter

Introduction and Overview

Summary

The Exchange Network Governance is committed to building a state-of-the-art Environmental Information Exchange Network (Exchange Network) which will become the preferred method for exchanging environmental data in support of better environmental decision-making. The Exchange Network governance seeks to achieve an Exchange Network that, by 2012, is:

- Complete—Exchange Network infrastructure is fully implemented, and operated and maintained in a way that assures reliability and continuity;
- Significant—Use and application of the Exchange Network has been expanded in a way that supports environmental decision-making; and
- Relevant—The Exchange Network is responsive to customer needs.

This strategic plan establishes objectives and strategic targets for the Exchange Network and identifies strategies for achieving these by 2012.[1] The Exchange Network Leadership Council (ENLC) has developed this plan in support of its mission to establish strategic direction and oversee implementation of the Exchange Network.

This plan:

- Identifies objectives and strategic targets for Exchange Network growth and operations through 2012.
- Links the objectives and strategic targets to performance metrics.
- Identifies corresponding partner milestones and governance responsibilities for achieving the strategic targets.
- Provides the ENLC with a tool to help manage resource allocation to most effectively implement and grow the Exchange Network.

Better Environmental Decisions— the Exchange Network Vision and Mission

The vision[2] for the Exchange Network is:

> The Exchange Network is a partnership to support better environmental decisions through improved access to, and exchange of, improved environmental information.

The mission of the Exchange Network is:

> To improve environmental data exchange, quality, access, and analysis for a growing community of partners by providing a shared information management approach that is

[1] This plan provides a succinct and singular description of the vision, mission, goals and implementation strategies for the Network. The strategic plan builds upon previous Exchange Network documents (including the Blueprint, Implementation Plan, and Exchange Network Business Plan), the experience of the Network community, and the experience of the Network governance. This strategic plan supersedes the content of the previous documents unless explicitly stated or referenced.

[2] The ENLC adopted these mission and vision statements in 3Q 2006.

secure, reliable, and cost-effective, and that meets program needs, fuels innovation, and enhances partnerships.

Strategic Plan Audience

The primary audience for this plan is the Exchange Network community. The Exchange Network community is all actual and potential users of environmental information, including states[3], tribes, territories, the U.S. Environmental Protection Agency, health agencies, Non-Governmental Organizations, local governments, and other federal agencies, who share and consume electronic information to support better environmental decision-making.

Strategic Plan Use and Maintenance

The Exchange Network community can expect the Exchange Network governance[4] to use this strategic plan as a basis for more detailed planning. The Exchange Network governance will annually create work plans or action plans that identify specific implementation activities to assure steady progress towards accomplishing the strategic targets identified in this plan. The Exchange Network Coordinator (Coordinator) is responsible for tracking progress towards these strategic targets and regularly reporting progress to the Exchange Network governance and community. This document is a living document intended to guide development of the Exchange Network through 2012 as the Network completes the transition from initial implementation into an operational system. The ENLC will periodically revisit this strategic plan to assure its relevancy as the Exchange Network evolves. Future plan updates will establish additional objectives and strategies, including some related to regional and local regulatory authorities, territories, and an expanded network of partners.

Context for this Strategic Plan

There are four primary reasons to create the strategic plan now:

1. To unify previously disparate planning efforts enabling the ENLC to prioritize resource allocations, provide greater clarity on future growth, and assure continued growth of the Exchange Network.
2. To establish strategic targets based on current experience[5].

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[3] In the context of this plan and targets contained within, the term *state* refers only to the organized political and administrative districts which constitutes one, more or all of the fifty districts in the United States, and not other political or administrative entities that might also occupy the same area (e.g. tribes, municipal governments, etc.)

[4] Exchange Network governance consists of the Exchange Network Leadership Council, the Network Operations Board (NOB), the Network Technology Group (NTG), and the Network Partnership and Resources Group (NPRG). The ENLC is the executive leadership of the Exchange Network. The NOB reports to the ENLC and is responsible for the day-to-day operations and management of the Exchange Network. The NTG and NPRG are NOB workgroups. The Exchange Network Coordinator is a full-time employee working on behalf of the Exchange Network and takes direction from the ENLC Co-Chairs. For detailed information about the Exchange Network governance please visit the Exchange Network website. http://www.exchangenetwork.net/operations/index.htm

[5] The most recent Exchange Network planning effort is two years old. The *Exchange Network Business Plan* ***(2005)***, prepared by the State/EPA Network Planning Action Team, contains a comprehensive discussion of strategies and proposals intended to guide the Network's operation, evolution, and growth, as well as detail about other Exchange Network components and use, governance, and financing imperatives.

3. To codify the commitment of and provide a sharpened focus for the energy of the Exchange Network governing bodies.
4. To ensure that collectively Exchange Network partners and governance make the best possible use of the public funds being used to build and deploy the Exchange Network.

Performance Metrics

A workgroup comprised of Exchange Network partners is finalizing a set of Exchange Network performance metrics. This document references linkages between these performance metrics and the strategic targets contained in this plan. The performance metrics provide the Exchange Network governance and community the ability to gauge progress towards the objectives and targets delineated in this plan. Furthermore, the performance measures are a useful diagnostic tool to consistently evaluate Exchange Network customer satisfaction, Exchange Network operational and governance performance, and aspects of how Exchange Network partners are using the Exchange Network. The Performance Metrics workgroup has collected baseline information for only a subset of the performance metrics. This plan references the full suite of performance metrics, even those metrics that are not included in the initial baseline information collection, with the expectation that the performance measurement effort will be expanded going forward. Detailed information about the performance metrics is available on the Exchange Network website (www.exchangenetwork.net).

Summary of Objectives and Strategic Targets

On the whole, the objectives, sub-objectives, and strategic targets in this plan describe an ambitious, exciting, and achievable Exchange Network future. The 5-year time horizon of this plan is long enough that some unanticipated opportunities and obstacles will certainly challenge the Exchange Network community. The ENLC accommodates this by identifying sub-objectives and targets that ensure success through finalization of a stable infrastructure, aggressive growth in mature opportunity areas, and the creation of space for the governance to respond when unique opportunities emerge (see sub-objective 2.2). The objectives, sub-objectives, and strategic targets are identified below and described in detail in the remainder of this document.

Objective 1: Exchange Network infrastructure is complete, and operated and maintained in a way that assures Exchange Network reliability and continuity

Sub-Objective 1.1: An Exchange Network Node in every state
Strategic Target: By 2007 all 50 States' Nodes are operational

Sub-Objective 1.2: State participation on the Exchange Network is ongoing
Strategic Target: By 2010 all 50 States' Nodes remain operational

Sub-Objective 1.3: The Exchange Network is reliable
Strategic Target: Exchange Network Central Services will be routinely available with a minimum of 97% availability during normal business hours

Sub-Objective 1.4: The Exchange Network is increasingly easy for partners to use

Strategic Target: Rework required to flow data decreases over time

Sub-Objective 1.5: The Exchange Network is financially sustainable and partner funding responsibilities are clear

Strategic Target: The Exchange Network has a long-term sustainable financing plan and implements it

Objective 2: Use of the Exchange Network has been expanded in a way that supports environmental decision-making

Sub-Objective 2.1: EPA regulatory flows are all using the Exchange Network

Strategic Target: By 2012 the EPA and States have implemented all national system flows

Sub-Objective 2.2: Governance stimulates Exchange Network growth by supporting innovative, value-added Exchange Network uses

Strategic Target: Each year, the Exchange Network governance will identify, scope, and support at least two new focus areas and/or business processes where the application of the Exchange Network uniquely provides innovative opportunities

Strategic Target: Each year, the Exchange Network governance supports the creation or linkage of one shared tool that uses Exchange Network data or is Exchange Network-enabled

Sub-Objective 2.3: The Exchange Network updates and/or adopts data standards to ensure data quality and supports expansion of the types of data exchanged

Strategic Target: The ENLC will annually identify data standards development and maintenance priorities based on the critical and anticipated Exchange Network business needs

Sub-Objective 2.4: Use of the Exchange Network has expanded among tribal partners

Strategic Target: The Exchange Network will focus on strategies to assist and encourage tribal use of the Exchange Network where appropriate

Objective 3: The Exchange Network is responsive to customer needs

Sub-Objective 3.1: Exchange Network customers are satisfied

Strategic Target: The Exchange Network will continually demonstrate customer service improvements

Objective 1: Exchange Network infrastructure is complete, and operated and maintained in a way that assures Exchange Network reliability and continuity

Sub-Objective 1.1: An Exchange Network Node in every state

Strategic Target: By 2007 all 50 States' Nodes are operational

Successful implementation of nodes in all 50 states is important for all Network partners; completion of this target enables Network partners to immediately access or exchange any information with any state environmental agency in a standardized way. Since the inception of the Exchange Network, the Network governance has assumed full participation by state environmental agencies. The ENLC expects that all states will have built and connected Exchange Network nodes by the end of calendar year 2007. The Exchange Network governance defines a state node as operational when it conforms to the technical specifications delineated in The Exchange Network Protocol v1.1 and The Network Node Functional Specification v1.1, and successfully executes one data exchange.

This target is a critical early indication of likely long-term Network success as use of the Network depends on robust implementation of infrastructure. Success of this target allows governance to shift its focus from infrastructure implementation to Exchange Network use. When all 50 state nodes are operational, the Exchange Network Grant Program, the primary Exchange Network funding source, can focus its' resources and attention on flow implementation. Specific targets for territories and other potential partners will be considered later.

Success of this target is uniquely important for the US Environmental Protection Agency (EPA). As state partners migrate to using the Exchange Network as the primary mechanism for regulatory reporting, the EPA will be able to successfully reduce and eventually eliminate older and/or multiple regulatory reporting mechanisms. This is consistent with the EPA's strategy of using their Central Data Exchange (CDX), EPA's Exchange Network node on the Exchange Network, as the enterprise reporting portal.

As of June 2007, this target is 98 percent complete; 49 states have operational Exchange Network nodes.

Barriers, Critical Challenges, and Opportunities
The barriers to achieving this goal are minimal. The remaining state has received an Exchange Network grant to support infrastructure development, and is currently in the process of implementing infrastructure.

Currently, there are some nodes that successfully conform to the operational definition above, but are turned on and available only a few times a year. If the vision of the Exchange Network is that Exchange Network infrastructure is available and nodes are publishing data, then simply

expecting partners to have their nodes operational may not enough. It is essential to long-term success that partners treat and maintain their Exchange Network infrastructure as they would any other production system (See Sub-Objective 1.2).

Stakeholder Responsibilities and Target-Specific Strategies
The state Network Operations Board (NOB) co-chair and the Coordinator are responsible for monitoring and facilitating the successful implementation of this target. The Coordinator can ensure that the necessary Exchange Network resources and expertise are available.

Performance Metrics
This target is measurable by two performance metrics:

- **1.3.1, New partners using existing services**, which measures whether the customer base expands for current services by calculating the actual number of nodes versus the planned number of nodes for the quarter, and
- **3.2.2, How easy it is to bring on new users**, which measures how easy it is to use the Exchange Network by surveying users on whether all users needed training and whether documentation is available to them.

Resources
The resources needed to achieve this target are already allocated. As of June 2007, this goal is 98% complete. The remaining state has received the necessary grant resources and has the intention of building the necessary infrastructure.

Communications and Outreach
Communications and outreach necessary to reach this target is very low. The audience is small, aware, and supportive of the expectation. A larger and unique opportunity exists to communicate the completion of this target as an important success of the Network. This target is tangible to senior officials and others not familiar with the technical details of the Exchange Network. Governance groups preceding the creation of the ENLC have touted this as an important milestone, as the completion of this target legitimizes the Exchange Network. The ENLC will use the Exchange Network's the successful implementation of all 50 state nodes, as a marketing opportunity.

Sub-Objective 1.2: State participation on the Exchange Network is ongoing

Strategic Target: By 2010 all 50 States' Nodes remain operational

Use and participation in the Exchange Network must continue for the Network to be successful. This target establishes an expectation that partners maintain a continued presence on the Network and currency through infrastructure updates. Attrition of any kind on the Exchange Network is a liability and likely symptomatic of larger systemic Exchange Network issues.

Barriers, Critical Challenges, and Opportunities
Long-term stability of the Exchange Network depends on institutionalization within partner agencies. Institutionalization assumes state partners are allocating appropriate resources for ongoing maintenance and participation on the Exchange Network. To date, institutionalization in many agencies is tenuous and participation on the Network is personality-driven; in many cases, the loss of key staff would set a state's participation and progress back substantially. Implementation and operational funding for all partners is also a critical challenge to this and all Exchange Network activities discussed in this document.

A significant challenge to meeting this target is assuring all partners keep pace with the technological evolution of the Network. Governance will develop technological transition plans to avoid driving people away. If the Exchange Network loses partners because they decide participation is not worth the effort or is too aggravating, the Exchange Network will fail. The first major technological change will likely occur in late 2007 and continue through 2008 with the anticipated introduction of Node 2.0, which will represent an opportunity for governance to develop and implement technological transition support to partners.

A key aspect of partner retention and continued participation will be the extent to which the Network is relevant to their business needs. Success of other targets laid out in this plan, particularly the development of innovative Network uses and exchanges will add value to the Network and enhance continued Network use. (Sub-Objective and Strategic Target 2.2)

Stakeholder Responsibilities and Target Specific Strategies
CY2007—NOB/NTG: Document Node 2.0 transition strategy and determine appropriate resource/support mechanism for Node 2.0 migration.

CY2007-2008—NOB: Conduct a Vulnerability Assessment that analyzes infrastructure vulnerability and provides management recommendations to mitigate risks.

CY2008—NOB: Manage migration of all Nodes to 2.0 technical specifications.

CY2008—ENLC: As part of the larger financial plan discussions, the ENLC will determine the level of ongoing infrastructure technical support the Exchange Network governance will commit to (i.e. How much support is governance willing to provide during mandatory technical upgrades?).

Performance Metrics
This target is measurable by two performance metrics:

- **1.3.1, New partners using existing services**, which measures whether the customer base expands for current services by calculating the actual number of nodes versus the planned number of nodes for the quarter, and
- **3.2.2, How easy it is to bring on new users**, which measures how easy it is to use the Exchange Network by surveying users on whether all the needed training and documentation is available to them.

Resources
Exchange Network governance will establish the minimum level of resources and support that can be made available to partners for the management of operations and maintenance of Exchange Network infrastructure and for infrastructure migration. This is likely going to be minimal in terms of dollars, but a significant communications and outreach effort. The governance will assure that expectations are articulated and shared by partners, which implies a concerted level of effort on the part of governance.

Communications and Outreach
Each state has identified at least one individual as the Node Administrator. Clear channels of communication between the Network governance and the Node Administrator are imperative to ensure awareness of any technical issues or changes required of Network nodes.

Two vehicles in particular will be useful for establishing and communicating expectations and resource opportunities with partners: Environmental Council of the States (ECOS) resolutions, and the Network grant guidance. ECOS offers the unique opportunity to get state commissioner-level support.

Sub-Objective 1.3: The Exchange Network is reliable.

Strategic Target: Central Services will be routinely available with a minimum of 97% availability during normal business hours.

Exchange Network partners benefit from several different types of central services. Central services are the common technical services and infrastructure that support or enhance a flow. The central services are key pieces of the Exchange Network architecture and, in many instances, when the central services become unavailable, the Exchange Network cannot function. Exchange Network reliability depends on the availability of central services. Current Exchange Network central services include the Network Authentication and Authorization Service (NAAS), The Exchange Network Discovery Service (ENDS), Data Quality Service (Schematron), and the Exchange Network node testbed. This target is successfully met if the central services listed above are available to authorized users at least 97% of the time during regular business hours for the contiguous United States. 97% is the operational target EPA has established for CDX. Scheduled maintenance does not count against the 97% uptime availability and the ENLC expects scheduled maintenance to be deferred in the event of emergencies. Regular maintenance schedules will be made available to Exchange Network partners.

Central services allow lower per capita cost of implementation for services, streamlined administration and maintenance, and more rapidly deployable and available services to the community. However, if any of the central services are mission-critical, the system becomes brittle— if the mission-critical services are unavailable, the Exchange Network is unavailable.

Barriers, Critical Challenges, and Opportunities
To date, EPA and the ECOS are the two organizations responsible for maintaining all of the Exchange Network's central services. Currently, there are no service agreements that document the expected level of service or commitment to host the central services. As use of the Exchange

Network increases, there will be greater demand for services potentially resulting in an increased cost of maintaining the central services and a greater dependency on EPA and ECOS. Questions of funding operations and maintenance of the central services are difficult and as yet unanswered. Lastly, the research and development of new services is largely done through the time and resource investments of individual partners.

Stakeholder Responsibilities and Target Specific Strategies
The Coordinator is responsible for monitoring and reporting outages, communicating the maintenance schedule, and ensuring that maintenance does not interfere with major anticipated uses of the Exchange Network.

Partners who host central services are responsible for the operation and maintenance of the central services.

CY2008—ENLC: Determine who and how to support and fund existing services and the role of research and development for creation and implementation of future services.

CY2008—NOB/ENLC: Scope the need for service agreements for shared services and develop as needed. Ensure that these agreements are consistent with resource availability and long-term funding arrangements.

Performance Metrics
This target is measurable by:

- **Performance metric 3.1.1*, Network Availability from the Exchange Network's perspective**, which measures whether the Network performs as designed by calculating Network availability in scheduled and defined operational times.

Resources
The resource implications for this target are linked to the ENLC's responsibility for defining and answering the longer-term Exchange Network funding questions, such as how the central services should be supported, and who will be responsible for supporting them. To date, a key assumption has been that partners providing central services commit to funding and maintaining them, but given the anticipated growth and increasing use of the Exchange Network, continued reliance on this distributed and ad hoc approach raises questions of equity and reliability in the provision of these services.

Currently, there are no centralized research and development efforts. Research and development efforts on the Exchange Network, often funded by Exchange Network grants, have always originated from a partner's interest and willingness. For instance, the EPA supported the research and development of the Exchange Network authentication services and the Oregon Department of Environmental Quality supported the research and development of ENDS. The ENLC and NOB will explore how the governance can support research and development of other necessary or desired central services.

* This plan references the full suite of performance metrics, including those that are not yet part of the baseline. An asterisk (*) is used throughout this plan to denote any performance metric for which baseline information has not yet been collected

Communications and Outreach
The three most important communication and outreach efforts that governance will undertake to support success of this target are:

1. Assuring the central services are documented.
2. Making partners aware of their availability.
3. Communicating changes and outages of services.

Sub-Objective 1.4: The Exchange Network is increasingly easy for partners to use

Strategic Target: Rework required to flow data decreases over time

Exchange Network governance will actively identify and resolve data exchange issues to allow trouble-free implementations of data exchanges, work towards development of more meaningful error messaging, and when problems arise, work to resolve them the first time. The result of achieving this target is a more intuitive and easier-to-use Network. Much of the time and resources partners invest in the Exchange Network occurs during the implementation of the infrastructure and data exchanges. Early implementations face a greater burden as the design of data exchanges and/or creation of supporting artifacts (e.g., Schema, Flow Configuration documents) often occur concurrently. This is inevitable and leads to rework. However, once a data exchange is established, the Exchange Network governance assumes that subsequent partners have an easier time implementing the data exchange.

Barriers, Critical Challenges, and Opportunities
It is imperative that constant progress is made in making the Exchange Network easier to use. As the Exchange Network grows, both the challenge and importance of this target grows. As an increasing number of partners use the Exchange Network to conduct an increasing amount of their business, the Exchange Network governance will have less time and resources to give to each data exchange and partner.

To achieve this target, the Exchange Network governance will have a major role in all phases of a data exchange implementation. During data exchange design, Exchange Network governance will play a role in making sure that the design leverages the strengths of the Exchange Network and incorporates the lessons learned from other data exchange designs and implementations. During the data exchange implementation phase, the Exchange Network governance will work to assure that proper documentation is available to partners and work with partners to identify and leverage all possible support resources.

Stakeholder Responsibilities and Target Specific Strategies
Ongoing - Coordinator and NOB: Work with data exchange designers (Integrated Project Teams (IPT)) to ensure that design and documentation of data exchanges and data exchange artifacts are adequate. For Data Exchanges updates (e.g., Facility ID), the Coordinator and NOB will help the Exchange Network community through the Change Management Procedure.

Ongoing—NOB: Provide early assistance to data exchange developers.

Ongoing—Coordinator: Work closely with the Exchange Network Help Desk to regularly identify trends, recurrence of errors, and documentation of solutions, and report on needed governance intervention to the ENLC/NOB.

CY2008—ENLC/NOB: Evaluate resource needs to maintain Exchange Network Help Desk and identify available resources to meet needs.

CY2007-2008—NTG/NOB: Review all existing documentation to identify and fill gaps, identify and correct inconsistencies, and streamline documentation in part by eliminating dated materials. Work to develop better error messaging and identify opportunities for applying Quality Assurance (QA)[6] support tools to improving data exchanges.

Ongoing—Exchange Network website administrator: Work with governance and partners to maintain website currency.

Performance Metrics
This target is measurable by four performance metrics:

- **3.1.3*, Percent of successful transactions**, which measures whether the Network performs as designed by calculating success in transactions completed in a given time frame and errors recognized when transactions do not complete due to an error.
- **3.3.2*, Percent of problems resolved during the first call (or email) by the user**, which measures whether customers are helped in an efficient and effective manner using the percentage of problems closed with a single call to the help desk vs. total calls received.
- **3.3.4*, Percent of repeat problems by category**, which measures if customers are helped in an efficient and effective manner by examining the number of problems showing up as chronic in help desk logs and other sources as a percentage of total problems, and identifying trends.
- **4.2.1, Fewer errors in services and features discovered by users**, which measures constant improvement in the services provided to users by counting the errors discovered in operation for existing services by users.

Resources
The Exchange Network governance will commit governance resources to the Exchange Network Help Desk, for data exchange designers, and for the preparation and provision of selected documentation. All of these activities are actively occurring and will continue. The Exchange Network is entering a significant growth phase and the Exchange Network governance is committed (see Sub-Objective 3.2) to the financial stability of the Exchange Network, including appropriate level of resources to support this target.

[6] Quality Assurance (QA) support tools and services allow data to be analyzed against business rules to detect and prevent non-compliance with established standards. Schematron, a validation tool, is an example of a QA support tool.

Communications and Outreach
To succeed in this target, the governance will provide the Exchange Network community two communication services—the ability to easily report errors and easily obtainable information on solutions. Two major communication venues are the Exchange Network Help Desk and the Exchange Network website.

Sub-Objective 1.5: The Exchange Network is financially sustainable and partner funding responsibilities are clear.

Strategic Target: The Exchange Network has a long-term sustainable financing plan and implements it.

The ENLC will develop and implement a long-term sustainable financing plan that combines an assessment of current Network costs with implications of continued growth in order to ensure ongoing and long-term success of the Exchange Network.

Individual flows do not necessarily each produce a positive return on investment, but implementing multiple flows in a common manner reduces maintenance and operational costs for partners, It is incumbent upon Exchange Network governance to document these economy-of-scale benefits so that they can be incorporated into future planning and demonstrated to participating partners.

Barriers, Critical Challenges, and Opportunities
Developing a financing plan is a critical responsibility of the ENLC, but one that is challenged by varying partner capacity, and political and legal constraints. The ENLC will need to identify ways to engage in constructive conversations on financing while managing relationships between existing and potential partners.

Stakeholder Responsibilities and Target Specific Strategies

CY2007/2008—ENLC: Develop and begin to implement the long-term sustainable financing plan.

CY2007/2008—NPRG/NOB: Conduct a Baseline Cost Assessment using the Exchange Network Return on Investment model to analyze baseline EPA Network costs, extrapolate costs for state flows, and incorporate costs for CDX and shared infrastructure for implementing a flow nation-wide. The ENLC will use the outcome of this assessment to compare the costs associated with the current methods of doing business to begin to quantify Network benefits.

CY2008—ENLC State, EPA and Tribal Members: Engage in conversations to further delineate shared expectations for Exchange Network participation and support of Exchange Network shared services.

CY2008—ENLC: Examine opportunities to recoup costs (e.g. enter into interagency agreements with other federal agencies). Identify additional financing questions that the Exchange Network needs to answer.

Performance Metrics
This target is directly measurable by five performance metrics:

- **2.2.1, Requirement in PPGs, PPAs, and Exchange Network Grants**, measures the number of PPGs, MOUs, and Grants requiring Exchange Network usage as a percent of total.
- **2.4.1*, Understanding of the Exchange Network grant process**, which measures whether the funding process is understandable and aligned with strategic priorities through a survey of involved partners (ones accepted and in process and others rejected or those that just did not apply) from the last 12 months.
- **2.4.2*, Alignment of grants with strategic priorities,** which assesses whether the funding process is understandable and aligned with strategic priorities through an assessment of whether grants are aligned with the strategic vision and priorities of the Exchange Network.
- **4.1.1*, Implementation costs,** which measures reductions in the implementation costs through an assessment of the cost per developed item (service, feature) compared to prior periods.
- **4.1.2*, Business process cost,** examines whether users' Exchange Network business processes reduce their costs for accessing and exchanging environmental data.

Resources
The resource commitment for completing this target is low. Exchange Network governance has resources to support development of this plan.

Objective 2: Use of the Exchange Network has been expanded in a way that supports environmental decision-making

The most powerful and far-reaching implementation of the Network will implement two design patterns, each with specific benefits and functions: fully automated flows and the "publishing" of data as Web services. Data publishing is a key Network concept and the growth mechanism that will most directly contribute to Exchange Network success.

Automated flows involve automation of routine and batch transactions to enable other business processes (such as reporting, additional data processing, or aggregation). Automated flows provide scheduled and predictable transfers of predetermined data. Their primary value is in establishing low maintenance routine exchanges where the recipient needs a copy of the data for aggregation or processing. The Exchange Network most commonly adds value to National system flows by enabling automation.

Data publishing involves Network partners making data available as Web services. The purpose of data publishing is to enable dynamic access to data and dynamic integration of data into local applications. Data publishing is an essential part of the Exchange Network and provides dynamic parameter driven access to data and enables end user tool development.

Automation and data publishing often work together, servicing different partners for the same flow. For example, states might use an automated flow to provide data to EPA. EPA might then publish that data as a Web service for local integration. Further, for that same flow, states might publish additional, more detailed or more specific data for reported entities, not collected/aggregated by EPA. Sub-objective 2.1 and 2.2 ensure that the Exchange Network focuses on both automation and data publishing while continuing to grow the Exchange Network portfolio. The ENCL must balance the effort to complete regulatory flows with innovation to test the boundaries of services and/or technology.

Sub-Objective 2.1: EPA Regulatory Flows are all using the Exchange Network

Strategic Target: By 2012 the EPA and States have implemented all national system flows

(Measures for each specific national system are located in the Appendix.)

The national system flows represent a significant portion of Exchange Network partner resource investment to-date, Network cost-savings, and the interests of state and EPA partners. The ENLC has set both a general target, and individual flow-specific targets. This target assumes that, where appropriate, a successful national system flow implementation contains *both* a data publishing element (outbound flow) and data submission (inbound flow) element for exchanges between states and EPA.

Barriers, Critical challenges, Opportunities
Success for this target is full implementation of all identified national system flows. Full implementation timelines and participation are determined on a flow-by-flow basis. However, there are general strategies governance will use to maximize resources in meeting this strategic target:

- *Focus on flow implementation activities that are responsive to multiple flows,* e.g., implementing efficient governance processes, such as schema conformance, to provide flow developers and implementers as much support as possible.
- *Engage early in the Flow development process,* e.g., the NOB has set aside resources for 'early engagement' as Integrated Project Teams (IPTs) begin the work of developing flows.
- *Emphasize flow implementation activities that accomplish multiple Network targets*, e.g., could the Exchange Network support development of an analytic tool or data standard that would hasten completion of a national system flow?

Stakeholder Responsibilities
There are several activities that generally support the implementation of flows. The suggested approach is to front-load most of this work in order to provide the broadest support to as many partners as possible. In 2009 and beyond, partner-specific activities and support will become more necessary to ensure remaining partners have the support needed to meet the flow-specific goals. General support strategies for governance in meeting the goal of 100% participation in all national system flows include:

Ongoing NOB/ENLC: Identify and implement actions to get regulatory flows over hurdles to get data flowing. .

CY2007/2008—ENLC**:** Include the current status of state exchanges and costs of implementation in the Exchange Network Baseline Cost Assessment.

CY2007/2008—ENLC: Vet this target widely with various partners, and explore the possibility of a resolution passed by ECOS membership to generate support for this goal.

CY2007/2008—NOB and Network Partnerships and Resources Group (NPRG): Continue to track/conduct Return on Investments (ROI) assessments and assess the cost of Network activities to provide content for communicating Network benefits.

CY2007—ENLC: Scope additional efforts and opportunities for programmatic grant alignment. These efforts may also be incorporated into flow-specific strategies as the ENLC explores programmatic grant alignment as a strategy for achieving specific flow development goals (i.e. Beach Act grant guidance).

CY2008—ENLC: As follow-up from the scoping of programmatic grant alignment activities, identify and support leads in each program, and pursue a Memorandum of Understanding (MOU) between CDX and the Program Office. Develop one example of programmatic grant alignment.

CY2007/2008—ENLC: Complete and implement a regional strategy to coordinate with regions and identify who specifically needs to be involved at the regional level and what they need to do. Explore opportunities for headquarters and regions to reach agreement on how data is submitted and reviewed.

CY2007/2008—NOB/NTG: Launch activities to address Network design issues, including schema architecture, which will broadly support continued improvement of the schema development process.

CY2007/2008—NOB: Develop a generic model for supporting Integrated Project Teams through outreach, marketing, and transparency around flow implementation activities and progress. This would play a coordinative function and have ancillary benefits of ensuring the highest practical level of Network interoperability.

CY2008—NOB/NTG: Conduct an assessment of the efficacy of change management principles, and conduct any modifications or continued education efforts as needed. (Full implementation of change management principles is an important component of ensuring that the stage is being set to make future changes as seamless as possible.)

CY2007—NOB: Consider how to support and develop QA services and tools.

Annually—ENLC/NOB: Reevaluate the system flows to ensure that old ways of doing business are being turned off when appropriate. This annual check in will allow refinements of flow implementation targets, and adjustments to timing as necessary.

CY2007/2008—NOB/NPRG: Continue to track/conduct Return on Investments (ROI) assessments and assess the cost of Network activities to provide content for communicating Network benefits.

Performance Metrics
For aggregated flows, there are a total 530 national system flows (flows x states) to implement, including outbound flows where appropriate. As part of ongoing tracking the Exchange Network Coordinator, should continually update the number of partners and their flow activities.

This target is measurable by:

- **Performance metric 2.2.2, Percent of data exchanges that use Exchange Network**, which measures whether the Exchange Network is "the" mechanism of choice for exchange of environmental data with EPA by measuring the percentage of data exchanges that could use the Exchange Network that actually do.

Resources
Resources are described for each flow individually in the Appendix.

Communications and Outreach
The governance communication responsibilities are virtually the same for each flow. For each flow the governance has the ongoing responsibility to communicate the opportunities for

implementation to partners. A key outreach activity is continued emphasis on coordination and education of State and EPA program offices. Governance will also identify which resources, if any, are available. The ENLC has identified the importance of articulating the value of using the Exchange Network and specifically for each flow, the return on investment (ROI) when this type of information is available.

Sub-Objective 2.2: Governance adds value to the Exchange Network by encouraging innovative Network uses

Strategic Target: Each year, the Exchange Network governance will identify, scope, and support at least two new focus areas and/or business processes where the application of the Exchange Network uniquely provides innovative opportunities

Applying the Exchange Network to uses outside of the national system flows will be the growth mechanism that most directly contributes to Exchange Network success. This strategic target is the companion to the strategic target for Sub-Objective 2.1. Completion of the national system flows is important—they are core data exchange—but they also, when fully built out, only comprise a small percentage of the potential of the Exchange Network. The 2005 Network Planning Action Team report identified that connecting the Exchange Network to innovative opportunities is the Exchange Network's key challenge: "If early implementation experience has taught Network participants anything, it is that designing a progressive Network of flows requires real, collective work. It is not simply a matter of switching

2007 Exchange Network Governance Focus Areas

The Air Force Emissions Project

This data exchange is being developed as part of a pilot project among the U.S. Air Force, the EPA, and environmental agencies from the states of Nebraska, North Carolina, Texas, Utah, and Washington. The pilot project will attempt to demonstrate the feasibility of using Exchange Network technology to streamline the submission of air emissions data from Air Force bases to the states and eventually to the EPA as part of the states' National Emissions Inventory (NEI) submittals. Support for the Air Force project from Network governance includes assisting schema development, encouraging the Air program, and ensuring that the flow fulfills business requirements of NEI and state reporting.

Lab Analytics

There are currently several external activities surrounding lab analytics and a unique opportunity for the Exchange Network to add value. Each project would be successful and proceed without Exchange Network if the governance did not target participation. The EPA Office of Emergency Management is mandated to provide environmental sampling and analyses in response to a terrorist incident and is developing an environmental laboratory response network program (eLRN). An inter-agency group, including EPA is developing a reporting format called Staged Electronic Data Deliverable (SEDD), which is layered (or staged) to provide users with a range of quality control options, depending on their lab analytic reporting needs. This feature also enables labs to adjust to the variability in reporting requirements without having to adapt existing applications or adopt new applications. SEDD allows users to handle and interpret data without specialized knowledge of XML, and establishes both data standards and quality assurance/control safeguards for users. EPA Emergency Response and Superfund programs already require submissions to be in SEDD format. The submitters are often Environmental and State Labs, already Exchange Network partners for other flows. The opportunity for the Exchange Network is in potentially providing a delivery mechanism and or providing some type of QA tools. Further, if the Exchange Network proves to be a useful tool for the exchange of lab analytic information and a demand is created for the Exchange Network, the governance could reach out to makers of laboratory information managements systems (LIMS) to integrate Exchange Network into their off the shelf products. The immediate action for the Exchange Network governance is to convene the interested parties and jointly identify if and how the Exchange Network can be applied. Following this meeting, the Exchange Network governance will decide how it wishes to be involved.

from a flat file to XML, or using CDX. The key challenge facing the Network now is how to support partners in designing and managing the flows that will leverage the value of the Network, and, in doing so, expand it."

Barriers, Critical Challenges, and Opportunities
The most critical challenge is connecting individuals within Partner agencies who have Exchange Network expertise with those who need the types of solutions that the Exchange Network is uniquely positioned to address. The Exchange Network governance will facilitate these connections through its broader efforts in 'marketing' the Exchange Network. Further, the Exchange Network governance will, once it identifies an innovation, encourage its use.

Probably the greatest opportunity to spur innovation is through the Grant Program. The role of the Grant Program in supporting innovative applications of the Exchange Network is paramount. Agency budgets are regularly under strain and the additional resources provided by the Grant Program have funded many successful projects that would not have otherwise been undertaken. While the decision of which grants to fund are strictly an administrative function of the EPA, the governance will set goals for the EN that the grants can help to achieve. Only EPA can decide what criteria to use for selecting projects for Exchange Network Grant funding. However, EPA's choice of criteria can be informed by Exchange Network governance. In this advisory role, Exchange Network governance will suggest to EPA that the criteria encourage innovative and sustainable projects.

Stakeholder Responsibilities and Target Specific Strategies
Exchange Network governance will support this target by actively promoting use of the Exchange Network and raising awareness about potential uses. The EPA and ECOS have developed a list of meetings in all program areas. The Exchange Network Coordinator is responsible for identifying an appropriate Exchange Network presence at each meeting.

The additional areas the ENLC has identified and is in the process of scoping for 2008 support and beyond are:

- Interoperability opportunities between the Exchange Network and the Environmental Health Tracking Network
- Greenhouse Gas Emissions
- Other Homeland Security Exchanges
- eManifest
- Environmental Justice
- Geospatial Flows
- Pollution Prevention
- Global Earth Observation System of Systems (GEOSS)

Performance Metrics
This target is measurable by three performance metrics:

- **4.2.2.1*, Filling the perceived data gaps**, which measures users have increasing access to data on the Exchange Network by nodes showing availability of datasets through data discovery capability.

- **4.2.4*, Expansion and enhancement of web services**, which measures constant improvement in the ease of user access for both new and existing customers through inventory tracking of the number of web service offerings planned vs. actual implementations.
- **4.3.2, Environmental program/decision making improvements**, which measures that the Exchange Network is providing services that are important and useful to the partners through a survey of users to determine the impact that Exchange Network has had on their environmental decision-making.

Resources
The resource implication depends on the project. The Exchange Network governance will always be in the position of having more projects and demands for resources than resources available. For the Air Force Emissions project, the resource commitment for governance is and has been negligible, taking the form of some assistance in schema development and executive level support. For the lab analytics project, the support is not yet known; at a minimum, the governance will convene the interested parties and document how the Exchange Network can add value to this effort.

Communications and Outreach
As identified above, the most important focus is to connect programmatic interest with Exchange Network capabilities. The ENLC tasked the Coordinator and the NPRG to identify the meetings for the next year that should have Exchange Network presence and the messages and partners appropriate to deliver the messages.

Strategic Target: Each year, the Exchange Network governance supports the creation or linkage of one shared tool that uses Exchange Network data or is Exchange Network-enabled

A Network-powered tool provides an end user the ability to use and analyze data published through the Network. As partners publish more information, the usefulness of existing tools improves, as does the universe of potential tools. Governance support may range from facilitating the linking of information and partners to supporting the development of actual tools. Specific governance activities to support this target are below.

Barriers, Critical Challenges, and Opportunities
The most prominent governance challenge is identifying good opportunities for involvement while tempering the burden of involvement. Failure would be the governance slowing down or interfering with partners with good ideas. The Exchange Network governance will continue to be opportunistic, receptive, and unobtrusive. Experience has shown that some governance involvement as early as possible, preferably no later than the design phase, can result in tools that are more easily shared.

The Exchange Network governance will clarify how to manage shared tools. The answer is in part linked to clarifying the long-term funding strategy for centralized services and infrastructure. The Exchange Network community cannot assume that the ENLC will support

the development, operations, and maintenance cost of all shared tools. To date, the governance support is determined on a case by case basis

Stakeholder Responsibilities and Target Specific Strategies

Two ways the Exchange Network governance can support this target is by, providing political support, and/or providing expertise (in-house or contractor). Historically, a reliable source of tool development has been innovative Network grants, e.g., Challenge Grants. When the EPA awards a grant that has identified a tool need, the Exchange Network governance will determine whether there should be a governance role. If so, the earlier the governance can begin interacting with the grant recipient, the greater the likelihood of efficient development.

For this target to be successful, the Exchange Network governance will always be working from a queue. As mentioned above, the outputs from Grant Program are important inputs to the queue. The Exchange Network governance will look at the outputs from completed grants to identify if any completed tools could be shared or modified for greater Network use. In addition, the Exchange Network governance will also scan grants in progress to ascertain potential uses.

Performance Metrics

This target is measurable by:

- **Performance Metric 4.3.2, Environmental Program/Decision Making Improvements**, which measures that the Exchange Network is providing services that are important and useful to the partners through a survey of users to

Example Shared Tools

Exchange Network Browser

For 2007, the Exchange Network governance has identified the Exchange Network Browser as the tool receiving Exchange Network governance support. The Exchange Network designed and deployed a set of web services that describe the information available on the Exchange Network. As part of a Challenge grant, the grantees developed an interface to allow secured users the ability to 'browse' the available services. The ENLC made the decision to take this tool, make minor modifications, and enable its use centrally as the Exchange Network Browser. The tool is expected to be available in 2007.

NEPAssist

NEPAssist is a web services application that facilitates the environmental review process and EPA's project planning. NEPAssist draws environmental data from the Geographic Information System (GIS) servers within EPA and from non-EPA servers on the Internet. In addition to providing a preliminary environmental assessment of a project's potential environmental impacts, the tool includes a feature that enables scoping notices to be automatically sent to EPA for comment. These features contribute to a streamlined review process that potentially raises important environmental issues at the earliest stages of project development. The Exchange Network governance will evaluate how the Exchange Network can support this tool.

AIRNow-Tech

AIRNow-Tech is a technical Web resource that allows users to monitor, control, and analyze their data that reside in the EPA AIRNow system. AIRNow-Tech allows users to perform queries to extract hourly or summary data; receive automated e-mail queries on a daily, weekly, or monthly basis; and analyze data using AIRNow-Tech's GIS Navigator (Navigator). Navigator enable users to overlay air quality and meteorological data, compute forward and backward HYSPLIT trajectories, and overlay fire location and smoke plume data. The Exchange Network governance will evaluate how it might be able to support this tool.

Exchange Network Electronic Discharge Monitoring Report Project (NetDMR)

The Texas Commission on Environmental Quality is leading a multi-state team on the development of a generic, open standards-based electronic discharge monitoring report system called NetDMR. Building on previous Electronic Discharge Monitoring Reports (eDMR) efforts, the NetDMR system will include a web-based application for accepting electronic DMRs from permittees as well as interfaces to Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES)—U.S. EPA's database for the permitting, compliance monitoring, and enforcement components of the NPDES program. With reusability as a guiding principle, the project team intends to build a system that can be implemented by EPA, a state, or any other organization with the authority to accept DMRs. The NOB currently monitors the progress of the NetDMR project and the Network Governance will continue to evaluate the progress of this tool and if there are any.

determine the impact that the Exchange Network has had on their environmental decision-making.

Resources
While shared tool development has more significant resource implications, providing the governance support envisioned in this target has low resource implications. Most likely resource implications will either be costs associated with development support and longer-term operations and maintenance costs.

Communications and Outreach
Communications and outreach are the efforts associated with the marketing of shared tools and discovery of the 'right' tools to support. As the Coordinator and other Exchange Network partners participate in non-Network meetings, i.e., Association of State and Territorial Solid Waste Management Officials (ASTSWMO) meetings, these Exchange Network partners will listen to needs from communities of interest and try to translate potential Network applications to program area business needs and problems.

Sub-Objective 2.3: The Exchange Network updates and/or adopts data standards to ensure data quality and supports expansion of the types of data exchanged

Strategic Target: The ENLC will annually identify data standards development and maintenance priorities based on the critical and anticipated Network business needs

Data Standards are a central component of the Network and the purpose of this target is to assure focused attention on data standards development and maintenance necessary to facilitate data exchange. Success for this target is annually developing or adopting data standards which governance has identified as the most pressing to meet upcoming Network business needs.

Barriers, Critical Challenges and Opportunities
Development and maintenance efforts are usually resource intensive and in many instances, the Exchange Network will materially support the development of a data standard. However, in some instances, Exchange Network governance is not suited to develop any given data standard, but it can bring together the require community of interest with the expertise, and oversee the development process. The outcome of the data standards effort is important for the Exchange Network. Opportunities often exist for governance to leverage external standards development activities for the benefit of the Exchange Network with a minimum resource investment.

Stakeholder Responsibilities and Target Specific Strategies
Specific Exchange Network governance data standard development and maintenance responsibilities are detailed in documents available on the Exchange Network Website.

In 2006, State, Tribal, and EPA Exchange Network partners identified candidate data standards for development and maintenance. Results indicated a unanimous demand and need for the Water Quality Conditions/Integrated Assessment Data Standard and the need to track the

development of the Toxicity and Population/ Community Biological Assessments Data Standard. Following are the four standards development and maintenance efforts that have been identified for 2007 and 2008:

- **Data Standard Development: Toxicity and Population/Community Biological Assessments Data Standard**—This standard covers monitoring for water quality where the toxicity of water to biological life is being tested, and will link to the Environmental Sampling and Results (ESAR) data standard for chemical and microbiological analytes. This standard is being developed by the Advisory Council on Water Information.
- **Data Standard Development: Water Quality Conditions/Integrated Assessment**—A unified set of data elements for electronic reporting under 303(d) and 305(b), including standard definitions for designated use and criteria are needed. This standard would support two regulatory flows, Water Quality Standard Exchange (WQS-X) and the Assessment Database (ADB). The Exchange Network governance initiated a feasibility analysis of this standard in January 2007.
- **Data Standard Maintenance: Enforcement and Compliance Data Standard**—This data standard must be updated to reflect the most current formatting guidelines. Partners have also identified the potential need to add values to a permissible values list. In March 2007, the ENLC approved formatting changes for this standard, and charged the NOB with scoping implications of additions to the permissible values list. The Exchange Network governance will also consider whether to undertake augmenting this data standard with compliance assistance information.
- **Data Standard Maintenance: Tribal Identifier Data Standard**—The Tribal Identifier Data Standard will be expanded to include Tribal bands, consortia, and associations consistent with the Bureau of Indian Affairs code set. This data standard will also add fields that capture the disposition (start/end date and previous names) of each Tribe, Tribal Band, Consortia, and Association.

State, Tribal, and EPA partners also identified candidate data standards for development that did not have consensus across all parties. Future governance efforts may address these candidate data standards:

- **RCRA Manifest Standard—**This standard would meet the EPA Office of Solid Waste's (OSW) revised requirements for the Uniform Hazardous Waste Manifest regulations, and the manifest and continuation sheet forms used to track hazardous waste from a generator site to the site of its disposal. Congressional approval is still pending for the new requirements.
- **Open Dump Cleanup Standard**—This standard would provide a standardized way of tracking and monitoring unauthorized land disposal sites on Tribal Lands. The Open Dumps are used to dispose of solid waste in a manner that does not protect the environment. The Indian Health Services has developed open dump standards thru an Inter-agency workgroup. In August 2006, the Inter-agency workgroup delayed finalizing the standards for another year.

Performance Metrics

This target is measurable by two performance metrics:

- **4.2.5*, Information Quality**, which assesses constant improvement in the ease of user access for both new and existing customers by measuring pre-Exchange Network information quality vs. post-Exchange Network information quality, using business case analysis as CDX management does.
- **4.3.2, Environmental Program/Decision Making Improvements**, which measures that the Exchange Network is providing services that are important and useful to the partners through a survey of users to determine the impact that Exchange Network has had on their environmental decision-making.

Resources
The cost to the Exchange Network of leading data standards development efforts varies depending on the length of the data standards effort and its complexity. These efforts generally take between 6- 18 months to complete. A relatively low resource commitment is required to monitor and adapt external data development efforts. Given cost and time investments, the Exchange Network governance will pursue a balance of both development and monitoring/adoption approaches that best leverage resources and meet partner needs.

Communications and Outreach
The primary communication responsibility is the governance groups marketing the existence and use of available standards.

Sub-Objective 2.4: Use of the Exchange Network has expanded among tribal partners

Strategic Target: The Exchange Network will focus on strategies to assist and encourage tribal use of the Exchange Network where appropriate

The goal of a tribal strategy is to make progress in facilitating better information sharing amongst and between tribes. The ENLC will work with tribal partners to identify paths forward where progress can be made and codify this commitment of governance support in an explicit strategy. The goal of the Exchange Network governance is to support tribal participation on the Network appreciating the spectrum of tribal capacity and need for the Exchange Network.

Next Steps in Developing a Tribal Strategy
Region 7 is undertaking a consortia project that potentially offers a successful model for governance support of tribes and tribal participation on the Exchange Network. The National Congress of American Indians is also in the process of conducting outreach and assessing which consultation and collaboration approaches that EPA has taken with tribes are working, the outcome of which will inform development and execution of a Network strategy. EPA is working to identify funding opportunities for consortia, and reduce barriers to funding opportunities.

In addition, three efforts have been identified to facilitate tribal utilization of the Exchange Network where appropriate.

1. There appears to be need for a baseline evaluation of tribal interest, capacity and value in participating in the Exchange Network. A baseline benchmarking effort will be developed and implemented by the NPRG to identify where utilization of the Exchange Network would be worthwhile for a tribal entity or consortium.

2. Each EPA region has a Tribal Coordinator whose responsibility it is to work with tribes within their EPA region. The Exchange Network governance will reach out to Tribal Coordinators and EPA's American Indian Environmental Office to engage them in developing an understanding of the Exchange Network and to identify a role for the Tribal Coordinators in helping tribal partners use the Exchange Network.

3. The Exchange Network will identify models of Tribal coordination, state-tribal coordination, and EPA-tribal coordination that may be appropriate to utilize by other tribes in capacity development and utilization of the Exchange Network.

Objective 3: The Exchange Network is responsive to customer needs

Sub-Objective 3.1: Exchange Network customers are satisfied

Strategic Target: The Exchange Network will continually demonstrate customer service improvements

A key objective of the ENLC is that the Exchange Network governance is always working towards improving the Exchange Network customer experience. Exchange Network customer service helps current and potential Exchange Network partners by answering their questions or referring them to other helpful resources. For the Exchange Network there are several different layers of the customer service experience; how effective/responsive the Exchange Network governance is to its constituents; how effective the support services such as the help desk are; whether the Exchange Network customers are satisfied with the central services such as Network Authentication and Authorization Service (NAAS); and whether the appropriate level of support is available (e.g. flow documentation).

Barriers, Critical Challenges, and Opportunities
There will be growing pains for the Exchange Network and a measurement of customer service improvement must accommodate this reality. The most important aspect of this goal is that governance is responsive to the problems causing any issues for partners.

Stakeholder Responsibilities and Target Specific Strategies
CY2007—NPRG/NOB: Reporting the results of customer service measure from the initial Network Balanced Scorecard to generate a baseline for evaluating this target.

Annually—NPRG/NOB: The NPRG assures the survey instrument is administered and a customer service score is attained, and works with the NOB to interpret the score and identify reasons behind the trends in the score.

Ongoing—NOB/ENLC: The NOB will work with the ENLC on being responsive to the identified issues. The NOB will document the action taken and follow-up with customers to assure the issues are resolved.

Performance Metrics
The baseline for this target will be the results obtained from the initial Baseline Scorecard measures. The annual customer service score for this target will be derived from four performance metrics:

- **1.1.1, Customer Satisfaction score with current services**, which assesses whether current customers are satisfied through a survey of customers on a recurring basis.

- **2.1.1**, **Satisfaction with governance**, which measures whether the governance process provides value to partners through a survey asking current users (non governance users of Exchange Network) their satisfaction level.
- **3.3.3, Level of satisfaction with Customer Support services,** which measures whether customers are helped in an efficient and effective manner through a survey of completed calls and satisfaction levels.
- **3.4.1, Planned vs. actual customer satisfaction**, which measures whether the current features and services meet the needs of the current users by surveying whether current services and features are working and meeting customer needs.

Resources

Resources are required to maintain support of the survey instrument. Currently the EPA is supporting the development of the performance metrics and balanced scorecard. The NPRG has assumed the stewardship of the performance metrics and the ENLC will annually evaluate the level of support required to support this responsibility as well as to support appropriate responses to address partner needs.

Communications and Outreach

Successful communications and outreach efforts are inherent in assessing customer needs and ensuring that responses are adequate. ENLC and NOB governance members in particular assume the responsibility of establishing open channels of communication with customers to assure their satisfaction with the Exchange Network.

Appendix: Flow Specific Targets and Strategies

Flow-Specific Targets and Strategies

Overview

This appendix includes flow-specific targets and strategies for the EPA and States implementing all 10 national system flows by 2012. These targets assume full participation and in some cases full participation may be difficult to achieve. The ENLC feels that the importance of the goal justifies keeping pressure on Exchange Network partners and EPA's programs to meet this ambitious target. It is important to note that the ENLC does not intend to use the progress towards the flow-specific targets to measure individual partner performance but rather use is to evaluate the Exchange Network's growth trajectory. These targets are contingent upon national system flow operators having appropriate budget allocations.

For each national system flow, this appendix describes the flows, issues for each flow, and what will determine successful implementation. The Exchange Network governance will begin to manage to the targets in this appendix and work to continually implement strategies that take into account the many variables of partner and system differences.

The information contained in this section has been collected from a variety of sources, including flow tracking conducted by Environmental Council of States (ECOS) in the management of the Exchange Network website; Appendix B of the 2006 EPA Exchange Network Grant Guidance; flow-specific research conducted by members of the ENLC and NOB in 2006; and discussions with flow system owners. For future work, the ENLC will consider development, implementation, and maintenance of a system to track the status, barriers, issues, and lessons-learned for all Network flows; such a system could function as a tool for both tracking flow implementation as well as identifying needed activities to further the success of the Network.

While non-state partners are encouraged to participate where appropriate in the national system flows, the flow targets measure only the data exchanges occurring between States and EPA. The denominator for each flow indicates anticipated partner participation, and is based on which states are delegated for a particular system, which flows are regulatory or not, which have already implemented the flow or similar flows, and/or which states are planning to participate in the flow.

Facility ID

The Facility ID flow populates EPA's Facility Registry System (FRS). The FRS is a centrally managed database that provides access to a single source of comprehensive information on facilities subject to environmental regulations or of particular environmental interest. This integration of accurate and comprehensive environmental information into environmental program data allows the EPA and the public to gain access to all environmental information reported from and about specific facilities.

Facility ID Milestones and Target	
CY07—Milestone	68%
CY08—Milestone	80%
CY09—Target	100%
Production Date	Fall 03
Outbound	Yes
Denominator (# of State partner Flows)	50

Flow Status CY2007
The Facility ID flow has been in production since Fall 2003. The current version of the Facility ID data exchange is version 2.3.

An IPT is actively designing the next generation Facility ID flow emphasizing data publishing. The IPT expects the documentation of the updated flow to be available in FY2007 . The new schema will add new tribal data elements, and more latitude and longitude data. The Facility ID flow design will include both detailed and summary schema (schema with minimal elements). A summary schema will allow a user, prior to gathering a large amount of data, to preview available information before drilling down to the details. The Facility ID IPT is beginning the mechanical process of updating the schema and is intending to create an exemplary Flow Configuration Document (FCD) to use as a template.

Facility ID Status Summary	Count (# States)	2007 Status (%)
States in production	39	78%
States in development	8	16%
States planning	3	8%
States with no plans	0	0%

Importance of Flow for Exchange Network
Facility data is foundational environmental information for both states and EPA, and becomes increasingly important as more data is exchanged.

Flow Barriers/Critical Challenges/Opportunities
The Facility ID IPT is addressing several of the challenges related to the Facility ID data exchange, including whether the Network can function less like a repository and more like a reference; issues around data ownership; and data update responsibilities. Another barrier

involves data quality and the stewardship responsibility of the data source owners to exchange high quality, complete facility data.

Supplementary Flow Opportunities

- Google Earth, Yahoo, and Microsoft are interested in building environmental data layers with access to environmental interests that could be fed by a publication-oriented facility flow.
- Pilot work has been done around institutional controls, which represent another area that facility data functions as foundational to other data exchanges that meet partner business needs. Other opportunities in cleanup programs include linking facility information to "No Further Action" letters.

Available Documentation/Resources

The following resources are for the current version of the Facility ID data exchange (version 2.3). Resources for previous versions are available in the Exchange Network Registry. Network governance is currently working to provide a step-by-step implementation guide that will supplement these resources:

- Flow Configuration Document
- XML Schema
- Data Exchange Template
- Model Trading partner Agreement

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY2007/2008—ENLC/NOB: Request recommendations from the Facility IPT on addressing issues around data ownership and update responsibilities, and building out the Web Services to help publish facility identification data more easily throughout the Network. Assess feasibility and implement ideas.

CY2007—ENLC: Recommend that grant guidance include development of implementation procedures to publish or consume facility data through Web Services.

CY2007—NOB/NTG/Data Standards: Revisit the idea of field lengths and general best practices for standards. Present recommendations to ENLC.

CY2008—IPT: Define the "getfacility" service. The "getfacility" service is a generic service that, once defined, can be used by all partners to publish their facility information

CY2008—NOB/NTG: Building off of the work of the facility IPT, begin to define, vet and build a comprehensive standard set of Web Services for facility data. This would advance the Network and serve as a model for other data service publishing.

CY2009—ENLC/NOB: Explore the connection to other federal state and local agencies for facility data exchanges (e.g. Underground Storage Tanks, Underground Injection Controls, Open Dumps, Enforcement Compliance Assistance Reporting).

Governance Resource Implications for Network Governance
Completing implementation of Facility ID has limited resource implications for Network governance as almost 80% of partners are in production, and all partners have at least initiated planning for participating in the data exchange. A Facility IPT to update the Facility ID flow has begun testing an updated flow and will develop recommendations for action; additional governance action is already captured in governance operations and maintenance expenses.

The ENLC will consider investments targeted at building out the Web Services to help publish facility identification data more easily throughout the Network in conjunction with the analytical tool development or innovation targets.

Safe Drinking Water Information System (SDWIS)

The Safe Drinking Water Information System (SDWIS) receives and stores basic inventory and regulatory compliance data for all public drinking water systems in the country. Data flows using XML from state primacy agencies to EPA.

SDWIS Milestones and Target	
CY07—Milestone	40%
CY08—Milestone	60%
CY09—Milestone	90%
CY10—Target	100%
Production Date	October 2005
Outbound	—
Denominator (# of State partner Flows)	39

Flow Status CY2007

Version 2.0 of the SDWIS schema is in production. Future enhancements are continuing to streamline automation. An application designed to allow regions to better manage EPA enforcement data will be in production in early 2007.

SDWIS Status Summary	Count (# States)	2007 Status (%)
States in production	18	46%
States in development	9	23%
States planning	11	28%

Supplemental Flow Opportunities

- SDWIS data is routinely provided to United States Geological Survey (USGS) and Centers for Disease Control (CDC), which might represent a growth opportunity for the Network.

- EPA is working to build a laboratory reporting tool which would allow laboratories to report sample results electronically to state primacy agencies.

Available Documentation/Resources

The SDWIS data flow is currently in version 2.0. The following implementation resources are available for this most recent version (resources for previous versions are available in the Exchange Network Registry):

- XML Schema and Read Me File
- SDWIS Documentation Description
- SDWIS List Elements by Business Object
- SDWIS List Validations by Element
- Structure Diagrams—Actions, Inventory and Samples
- Map Element to XML Schema

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY2007—NOB—Scope whether explicit investment of governance resources will help increase the implementation of SDWIS, considering in particular the possible activities (and more, as needed):

- Defining a node call for FedRep and determine whether that could or should be standardized;
- Figuring out the reprocessing loop;
- Improving the conversion of PDF standard reports that allow different ways for people to access their data;
- Increasing automation (delays in state emails to regions lengthens the process); and
- Exploring integration opportunities within the Office of Water and EPA's Office of Enforcement and Compliance (OECA) between clean water and drinking water system exchanges as well as compliance data and Integrated Compliance Information System (ICIS) exchanges.

CY2008—NOB/NTG: As indicated by the SDWIS scoping outcomes, begin to address SDWIS issues and assign resolution paths, with solutions or recommendations for the issues identified.

CY2008—NOB/NTG: Use SDWIS as a test case as part of the work on data quality and the Network by exploring the role of FedRep validation in CDX QA services and the possibility of using Schematron and QA services instead. Encourage SDWIS users to take advantage of Schematron and other shared services through appropriate guidance.

CY2008—NOB/NTG: Determine and make explicit Network expectations for reprocessing information as automation increases.

CY2008—NOB/ENLC: Investigate opportunities with OECA to leverage new data integration approaches, including SDWIS—ICIS and SDWIS-WQX.

Governance Resource Implications

- Depends in part on the results of the CY2007 scoping exercise conducted by governance, but Flow development is not linked to governance resources.
- State capacity is highly variable and may require increased focus on specific partners, especially in 2Q CY2008 and beyond.

Toxic Release Inventory (TRI)

The Toxic Release Inventory (TRI) Data Exchange provides for simultaneous submission of TRI reports to both EPA and states via CDX. Benefits of the TRI Data Exchange include:

- For participating states and EPA, elimination of duplicative data entry, improved data quality, elimination of state data reconciliation, and faster access to the data.
- For facilities, reduced burden through simultaneous submission to both EPA and the state.

TRI Milestones and Target	
CY07—Milestone	48%
CY08—Milestone	70%
CY09—Target	100%
Production Date	May 2005
Outbound	Yes
Denominator (# of State partner Flows)	25

Flow Status CY2007

TRI has been in production since May 2005. Nineteen states have either joined or are in the process of joining TRI, and more have expressed interest. Data exchanges are moving from EPA to State environmental agencies to state emergency responders, and with the Stage 2 conversions, state partners will be provided complete datasets.

- Industry has been submitting electronically to EPA in Stage 1 of the TRI exchange.
- Stage 2, which began in December 2006, involves converting diskette, paper and first-time filer submissions to XML and providing complete datasets to states.
- TRI allows for burden reduction through a single submit and provides publishing from EPA.

TRI Status Summary	Count (# States)	2007 Status (%)
States in production	13	52%
States in development	6	24%
States planning	2	8%

Importance of Flow for Exchange Network

States are not waiting for grants to participate in TRI because of the benefits of participation, including burden reduction. A large return on investment is prompting states to join TRI even if they don't currently process TRI reports as the data exchange gives states a mechanism to enter TRI with very little investment.

Flow Barriers/Critical Challenges/Opportunities

- States participating in the TRI data exchange must also complete a Memorandum of Agreement with U.S. EPA if the data exchange is to meet the requirements for dual state federal reporting imposed by the TRI enabling legislation. Some states are continuing to print off of their back-end databases for their hard copy of record, even though the intent of the exchange was to eliminate the requirement of state hard copies.
- It will be important to clarify the turn-around time for the Stage 2 conversions.

- Managing change management with the schema revisions from version 1.2 to version 2.0 will be important.

Supplemental Flow Opportunities

- Developing a process and tools that allow facilities to report to EPA only; facility data would be available to both EPA and states simultaneously.

Available Documentation/Resources

The XML schemas and accompanying documentation for the TRI Data Exchange are currently being revised from version 1.2 to version 2.0. Draft version 2.0 XML schemas are available for reference purposes; these schemas have not yet been put through the NTG's schema conformance review process:

- Change Control Log - documents the changes made over the life of the TRI schema, including the most recent changes from version 1.2 to the draft of version 2.0.
- Copies of the Flow Configuration Document, Data Exchange Template, and Schema Users Guide are currently under revision and will be posted on the Exchange Network website as soon as they are available.
- The following files were used for reporting year 2005 (they are available for reference purposes only):
  - Flow Configuration Document (version 1.2)
  - XML Schemas (version 1.2)
  - Data Exchange Template (version 1.2)
  - TRI XML Schema User Guide (version 1.2)
- Model MOA
- Toxic Release Inventory – Make Easy (TRI-ME) Download

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY2007—NTG: Conduct schema review for the new TRI schema version 2.0

CY2007—EPA/CDX: Outbound flow opportunity: Provide electronic, easily analyzable data to states prior to Public Data Releases.

CY2008—NOB/NTG: Evaluate development, and opportunities to support development, of software tools that can allow states to participate immediately in TRI, such as database designs, XML converter to loadable copy, magnetic media converter to XML, and local tools for processing:

- Work with the TRI Program to modify existing tools and develop new tools/applications that states can use for TRI data that can be made available through Web Services using the TRI State Data Exchange.
- Use the TRI XML schema and develop loading/converter tools to populate the state database directly from incoming data sources such as CDX.

CY2008—NOB/NTG: Work with the TRI Program to test XML data exchange from EPA to state Nodes.

CY2008—States: Develop procedures that enable the import/export of TRI data into their systems. The procedures developed should support data received via their state Node and eliminate the reliance on the UTIL software.

Governance Resource Implications

- Flow development is not linked to governance resources.
- State capacity is highly variable and may require increased focus on specific partners, especially in 2Q CY2008 and beyond.

Air Quality System (AQS)

AQS is a national database managed by EPA's Office of Air and Radiation in North Carolina that contains ambient air quality monitoring data collected by state, tribal, and local governments. The data volume that flows into AQS is large, with thousands of files submitted per year containing a total of about 80,000,000 discrete data points. AQS collects air pollution exposure data from over 1,000 ambient air monitoring sites with over 200 parameters.

AQS has a long-history of business rules, legacy implementation, and electronic data collection; the current system is the fourth generation to store this data. The purpose of the AQS data exchange is to expand from the legacy File Transfer Protocol (FTP) domain to the Network.

AQS Milestones and Target	
CY07—Milestone	2%
CY08—Milestone	25%
CY09—Milestone	60%
CY10—Milestone	90%
CY11—Target	100%
Production Date	Winter 2006
Outbound	Yes
Denominator (# of State partner Flows)	50

Flow Status CY2007
Version 1 of AQS has been in production since winter 2006. Version 2 is in development as is the AQS Data Mart publishing service. The new schema will accommodate exchanges with the AQS system as well as with other Network partners, and open up the possibility of using the same schema to share real-time air quality data among states and other entities that share the same airshed. Most of the AQS data comes through CDX Web; almost none comes through nodes. The AQS application also allows all data to be entered and edited by a front-end application which ties into the submission of record.

The outbound publishing services of the AQS Data Mart are currently being tested for both node and stand-alone web services. There are plans to enhance services and potentially increase automation of the AQS business processes.

An inbound flow for AirNow that is analogous to AQS has been developed that uses node submissions. AirNow is in production for submission flows as of summer 2007.

AQS Status Summary	Count (# States)	2007 Status (%)
States in production	1	2%
States in development	10	20%
States planning	14	28%

Flow barriers/critical challenges/opportunities
AQS has the highest volume of data through CDX (with approximately 2 million data points/week) and likely the largest file size. The AQS system was well established before the

Network and has done QA at the backend for years. Therefore, AQS has a low value proposition for EPA programs and Exchange Network governance needs to focus on communicating the benefits for programs. Drivers for AQS participation on the Network include the opportunity to increase value through multi-media integration and public awareness.

States benefit from intra-state and other partner (i.e. Homeland Security) data sharing, and states will share more data as data-sharing becomes easier. The Network can play a meaningful role for states by providing QA services to improve data quality

Supplemental Flow Opportunities

- Integrating health research
- Linking monitoring devices to report directly to the Network

Available Documentation/Resources

The following implementation resources are available for the AQS data exchange, version 1.0:

- Flow Configuration Document (FCD)
  - Note: This version of the FCD contains known errors related to the contents of the header. At this time, a header document is not required for AQS submissions. EPA is working to finalize the contents of the header and will issue an update to the FCD in the coming months.
- XML Schema
- AQS Schema Read-Me File
- AQS Submission Guidance

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY 2007-2010—States (planning): Mapping data elements to the XML schema and configuring the Node/Web Services to flow the AQS dataset to EPA and other partners.

CY2007—NTG/CDX: CDX finalize the contents of the header and issue an update to the FCD. (At this time, a header document is not required for AQS submissions, and the FCD contains known errors related to the contents of the header).

CY2007—NOB/NPRG: As part of generating the cost baseline for the Network, determine the cost of outbound queries for AQS and the strain on the system of generating XML files.

CY2007—NTG/CDX: Evaluate the system cut-off point for the AQS Data Mart (the AQS Data Mart is anticipated to be able to fulfill high-volume queries, and if the query costs too much, it will generate a response instructing that the query be broken up). Develop recommendations for dealing with technical challenges associated with data standards and unexpected pressures encountered when the IT business rules of partners put pressure on legacy system rules.

CY2007—NOB/NPRG: Contact vendors who make air monitoring equipment have participated on AQS calls to follow-up about potential for integration with the Network and assess their needs, convey info to influence Exchange Network Grants requirements, etc.

CY2009—NOB/NTG: Explore the potential to integrate health data and to link monitoring devices that report directly to the Network

National Emissions Inventory (NEI)

NEI is a national database of air emissions information and includes information from numerous state and local air agencies, tribal nations, industry, and other federal databases. The NEI database contains information on stationary and mobile sources that emit criteria air pollutants and precursors, as well as hazardous air pollutants. NEI data are used for air dispersion modeling; tracking emission trends; and developing risk assessments, regulations, and regional pollution control strategies. The EPA Office of Air is beginning the process of re-engineering NEI with the Emissions Inventory System (EIS). EIS will require XML Schema for submittal along with the proposed Air Emissions reporting rule should reduce reporting time from 17 months to 12 months. Currently EIS is scheduled to be completed in 2009.

NEI Milestones and Target	
CY07—Milestone	18%
CY08—Milestone	50%
CY09—Milestone	60%
CY10—Milestone	90%
CY11—Target	100%
Production Date	May 2004
Outbound	Air Force Pilot
Denominator (# of State partner Flows)	50

Flow Status CY2007

NEI has been in production since May 2004, and the data exchange is currently accomplished using version 3.0 schema. EPA accepts submissions to NEI on an annual basis. A user's guide is being developed to help users follow their payload after submitting. The NEI business rules have been converted into Schematron code for use as a QA tool, and the error messages are being made more user-friendly for the next submittal period. NEI business process reengineering will be complete in December 2008.

NEI Status Summary	Count (# States)	2007 Status (%)
States in production	18	36%
States in development	4	8%
States planning	17	34%

Flow barriers/critical challenges/opportunities

One Exchange Network benefit for partners with NEI is the ability to use quality assurance services and governance agreed that this needs to be communicated. If data quality is a real benefit, governance should provide concrete examples. One communication strategy is to develop materials for state program people to present at their meetings. Governance must more clearly illustrate the real benefits for implementing the NEI flow on the Network.

The proposed Air Emission Reporting Rule shortens the reporting period for state, local, and tribal agencies to report their emissions data to EPA. EPA believes it may be possible to receive quality assured data faster than the current regulatory requirement of 17 months from the end of the calendar year, and the experience of states already receiving web-based emissions reports

from regulated facilities indicate it may be possible to achieve substantial reductions in the amount of time required to transfer data from facilities to the states and then from states to EPA. Governance can support the development of new approaches and tools that shorten the time required for facilities to submit quality-review NEI point source data using XML schema and quality control validation routines.

Supplemental Flow Opportunities

- The Air Force has been conducting a pilot project which is developing a universal reporting schema that may result in significant cost-savings for the Air Force. NEI has reviewed the schema with participating pilot states (Nebraska, North Carolina, Utah, Texas, and Washington) as well as Maine and South Carolina. Maine and South Carolina are developing direct reporting for their facilities and are interested in the universal schema as well.
- The Air Force universal schema, which is still being reviewed, could be expanded for use by other sectors; interviews are ongoing to establish other agency's needs.

Available Documentation/Resources

Updated resources will be made available prior to the June 2007 reporting period, including a user's guide to help users follow their payload after submitting, and conversion of the NEI business rules into Schematron code for use as a QA tool. Implementation resources for version 3.0 of the NEI data exchange were made available for the 2006 reporting period, and are available on the Exchange Network website, but for informational purposes only:

- Flow Configuration Document
- XML Schema
- Data Exchange Template
- NEI Lookup Codes

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY2007—NOB/NPRG: Assess data standard requirements for the NEI universal flow, and conduct a conformance review of the data elements.

CY2008—NOB/NPRG: Support NEI user community preparation, including training ahead of flow implementation as opposed to just-in-time training.

CY2007—ENLC/NPRG: Document concrete examples and communicate benefits for EPA Air programs of NEI, particularly benefits around data quality.

CY2007—ENLC/NPRG: Develop presentations for state program people to give at meetings to communicate with EPA programs NEI benefits.

CY2008—NOB/ENLC: Assess lessons learned from the Air Force pilot project, and investigate ways to support development of tools and approaches that shorten the time required for facilities to submit NEI data, expansion into other sectors and use of the Discovery Tool.

CY2008—ENLC: Address issues around connectivity and communication of benefits with the EPA Air program, including flow-specific cost-benefit estimates to address program concerns about costs they will incur in the long-run.

Governance Resource Implications

- Governance resources are primarily resources required to help document and communicate the value of using the Exchange Network for NEI.
- All other activities listed above are within day to day work of the Exchange Network Governance.

Beach Notification

eBeaches supports the Beaches Environmental Assessment and Coastal Health (BEACH) Act requirement to collect, store, and submit beach notification data to EPA, and display beach public right-to-know pollution occurrence data at least one time per year. eBeaches is a two-part flow of historical data consisting of (1) Beach Notifications data exchange: advisory and notification data that goes via CDX to the "Program tracking, beach Advisory, Water quality standard, and Nutrient" database (PRAWN); and (2) Beach Water Quality data exchange: water quality monitoring data that goes either directly to STORET, or via CDX and WebSIM to Beaches STORET, for periodic upload to the STORET Warehouse (i.e. eBeaches allows for non-STORET agency submissions). eBeaches plans to use WQX for submission of 2007 monitoring data. Both data types are planned to be viewable on the Internet using the "Beach Advisories and Closings Online Notification" system (BEACON): http://www.epa.gov/beaches/plan/whereyoulive_state.html

The resources for the Beach Notification data exchange deal only with the notification data elements required by EPA for BEACH Act Grants. Beach Notification is the electronic data transmission system that allows EPA to securely receive and display state beach water quality and swimming advisory data submitted by state and local agencies. The Beach Notification data exchange allows for the reporting of beach metadata, contact information, and beach advisory and closing data. There is a separate submission process for reporting beach monitoring data for BEACH Act Grants (Beach Monitoring).

Beach Notification Milestones and Target	
CY07 – Milestone	16%
CY08 – Milestone	50%
CY09 – Milestone	75%
CY10 – Target	100%
Production Date	Summer 2003
Outbound	Yes
Denominator (# of State partner Flows)	30

Flow Status CY2007

Beach Notification has been in production since summer 2003, and the data exchange is currently accomplished using version 1.2 schema. During 2007, the Beaches Program is assisting states in the XML transition to WQX to facilitate a node-to-node exchange of water quality data. With WQX operational February 2007, states should be up to speed with WQX and able to exchange data through CDX and WQX by January 31, 2008. Since Beach Notification is already collecting similar fields as WQX and using XML, the transition is expected to go smoothly. To avoid running parallel systems, web registration with WQX will end when the new system is ready.

Beach Notification Status Summary	Count (# States)	2007 Status (%)
States in production	5	16%
States in development	5	16%
States planning	3	10%

Flow barriers/critical challenges/opportunities
The Beaches flow has been in production for over three years and given a lack of interest for states to use the Exchange Network to submit Beaches data, success in this target is defined as helping states publish this data, and the ENLC has set a state participation target that is entirely a publication goal. The ENLC approved a publishing goal for states that have received Beaches grants, with a target of 100% grantee participation in XML publishing of Beaches data by the end of 2010.

Some critical challenges are:

- $10 million in BEACH Act grants are awarded annually, but the grant guidance does not include the Network as a requirement.
- Partners submitting Beach data include public health organizations at the state and county levels that may not be familiar with the Network.
- Beach data in states is also often distributed across multiple systems, which increases the challenge of creating a consistent national-level data set.
- The Office of Water is enabling states to submit more frequently than one time per year, but neither the grant guidance nor the Federal Register notice requires this, and there is no incentive for states.

Supplemental Flow Opportunities
Beaches may represent an opportunity for a distributed systems approach where states publish notification data to EPA using an outbound web service.

Additional opportunities in building-out the Beach Notification flow include:
- Providing access to real-time data
- Linking results with the most current science (i.e. indicator bacteria)
- Allowing for exchanges with outside agencies like universities
- Allowing for better predictions through links with environment and health data
- Incorporating more data (i.e. aerial data); and
- Simplifying the system.

Available Documentation/Resources
The Beach Notification data exchange is currently in version 1.2. Resources for previous versions are available in the Exchange Network Registry; the implementation resources for this most recent version include:
- XML Schema
- Beach Notification Users Guide
- BEACH Act Grant Information

Flow Stakeholder Responsibilities and Flow-Specific Strategies
CY2007/2008—NOB/NPRG: Participate on eBeaches calls to identify state needs, and discuss goals and vision for Network operations, including publishing opportunities and the potential to develop an IPT. Monthly calls are held at least the first Wednesday of the month.

CY2007—NOB/NPRG: More completely assess Beaches as a Network flow by ensuring there is clarity around roles and responsibilities and these are communicated, including:

- Facilitate communication and coordination between agencies, including awareness-raising of the Network with state and county public health organizations who may be submitting Beaches data
- Simplify the Beaches business process.

CY2007-2010—NOB/NTG: Support partner transition to Beach WQX

CY2008—NOB/NTG: Assess whether a distributed systems approach where states publish outbound notification data on a website, and develop a proposal for the development of a website that provides access to the most current data. Additional technical support for Beaches includes:

- Consolidating beach water quality and advisory/beach closure data into one central repository which meets all data requirements
- Mapping systems to the approved national XML schemas
- Running quality checks on the sample station to beach name (beach_id) relationship/link to ensure that correct stations are linked to the corresponding beach
- Check with other internal state offices for existing Node capability and before developing Node capability for each beach data flow.

Resource Conservation and Recovery Act (RCRA)

RCRAInfo is a national database containing data collected from States and Regions reporting on hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments of 1984. RCRAInfo contains both programmatic and enforcement information regarding the solid/hazardous waste program, including facility status, regulated activities, and compliance data.

RCRAInfo consists of 5 modules: Handler; Permitting; Corrective Action; Compliance, Monitoring and Enforcement (CME); and Biennial Waste Activity Reporting. The governance will identify participation for each module. This plan currently lists only the RCRAHandler module - the most common piece of information exchanged.

RCRAHandler Milestones and Target	
CY07—Milestone	40%
CY08—Milestone	60%
CY09—Milestone	90%
CY10—Target	100%
Production Date	December 2004
Outbound	Yes
Denominator (# of State partner Flows)	35

Flow Status CY2007

The RCRAInfo Handler module is available for data exchange with EPA and is considered operational on the Exchange Network. Of the RCRAInfo modules, Handler has the greatest number of states submitting their data to EPA's production database.

The Permitting and Corrective Action modules are being updated in response to the requirements enumerated by the Permitting and Corrective Programming Area Analysis Workgroup, which consists of EPA and state partners. States are being advised to wait for the 2008 version 4.0 release of the revised modules.

Compliance, Monitoring, and Enforcement (CME) Schema module version 3.0 is in testing (states can send their CME related data to CDX for processing under a test mode in a pre-production database pending validation to ensure the XML is received and processed correctly). Testing ensures that the exchange is working correctly, and the exchange is anticipated to be available shortly after RCRAInfo is migrated to a version 3.0 Schema. CME is the most complex of the RCRAInfo module.

RCRA Biennial Waste Activity Reporting schema has been developed, but has not been tested. Waste activity data will not be accepted until the next reporting cycle.

Ownership of the different data exchange components is currently undergoing transition. Currently, Office of Solid Waste (OSW) has the XML schema, and CDX has the converters. As the CME converters are tested and come into production, the current dual ownership between CDX and OSW will transition to OSW, who will assume ownership of RCRAInfo.

Governance has set the 2010 flow target for the RCRAInfo national system based on the Handler module. The decision to track this module was made because of the high data entry burden for the Handler module, the fact there are not as many updates for the Permitting and Corrective Action modules, because CME module is in a testing phase, and Biennial Waste Activity Reporting module has not yet been tested.

Currently 14 states are in production translating Handler data to RCRAInfo, nine using flat files and five using XML[7]. Three states are in testing for Handler, one using flat files and two using XML.

RCRA Handler Status Summary	Count (# States)	2007 Status (%)
States in production	14	40%
States in development	3	9%
States planning	11	32%

Flow barriers/critical challenges/opportunities

- Programs do not see much value in the RCRAInfo flow, but have reported that they will continue participating as long as it is cost-effective or other benefits (e.g. improved data quality) are derived from the Network.
- As long as CDX supports flat file and direct data entry, users will choose either, and since programs are not being incentivized to use the Network, they are maintaining the dual option, which undermines the value-proposition of the Network.

As CDX adopts a business model and programs are charged operations and maintenance costs, OSW increasingly wants to know what benefit they are receiving from the Network and the cost of CDX XML.

- The primary focus of RCRAInfo traditionally has been on generating in-bound flows to EPA. The Program Office (OSW) has concentrated on completing the inbound process and maintaining a stable, consistent, and successful environment for the inbound flow. States value RCRAInfo outbound services, and would like to use RCRAInfo data to "refresh" or populate their state systems with data contained in RCRAInfo. OSW understands the State's needs for outbound data and is committed to creating outbound data flows for all modules, once Version 4 is completed. The merits of an outbound EPA flow are being investigated by the RCRAInfo IPT that has been meeting on a regular basis. The proof of concept for an outbound flow has been developed, and the Office of Solid Waste (OSW) is working with states to prioritize the data they want published.
- Challenges have been created by having different parties work on different pieces of the flow, and are being addressed in part by the transition of RCRAInfo to OSW.

Available Documentation/Resources

In additional to supplemental guidance on the Exchange Network website, documentation for RCRAInfo version 3.0, including all but the CME Schema module, includes:

- Flow Configuration Document
- XML Schema (Updated available 3Q 2007)

[7] A "flat file" contains entities of a single type, whereas "XML" is a structured format that contains multiple levels of entities and their hierarchical relationship.

- Schema Design Change Log
- Data Exchange Template , for both Schema to RCRA and RCRA to Schema
- Translator Guide (a highly technical document describing business rules for loading data into RCRAInfo and appendices with detailed rules for every data field).
- Model Trading partner Agreement
- Validation Tool

The CME version 3.0 schema module is currently being tested, and has a production release data of Spring 2007. The Permitting and Corrective Action modules are being updated, and release of version 4.0 is anticipated in 2008.

Flow Stakeholder Responsibilities and Flow-Specific Strategies
CY2007—NOB: Continue to identify and connect with states and grantees who have RCRA projects and have received money to do this flow to ensure that governance is removing barriers and offering support where possible, including working closely with the IPT and monitor progress.

CY2007—NOB/NTG/State partners: Work with EPA to test the submission process for the CME modules; state involvement and commitment is important in the testing process to identify and work through issues that can only be recognized through "real" data submissions.

Governance Resource Implications
- The governance is currently paying for contractor support to the RCRA IPT. As the IPT finishes the work, in the 3Q of 2007, of defining the first modules, the governance will decide whether to keep supporting the group.

Air Facility System (AFS)

EPA receives a significant amount of air stationary source compliance and enforcement (C/E) data through Office of Management and Budget approved Information Collection Requests (ICR), program delegation assistance agreements, or as a result of specific federal regulations or program policy. AFS is a mainframe system that houses C/E data based on Minimum Data Requirements (MDRs) as outlined in approved ICRs with the ability to house limited permit information and other optional information. AFS has a diverse user community that includes states, locals and regional offices. The 650 AFS users include 56 state agencies, 43 local agencies, and 10 EPA regions.

AFS data includes source information, air programs and pollutants data, and C/E actions, required to be reported within 60 days of the date of the event. Data currently enters AFS via either an online mainframe session or through a batch file process. AFS is scheduled to be modernized via incorporation into the Integrated Compliance Information System (ICIS) application. Efforts are underway to establish an XML schema for reporting to AFS via the use of the Universal Interface (UI) program, a mapping application written and maintained by EPA to facilitate reporting batch files to AFS. The UI maps state fields to AFS and extracts the data. The UI can also be used as a Quality Assurance tool. 17 states and one local agency are currently using the UI.

States have requested a schema for submitting AFS data. The availability of the XML schema will provide state and local agencies with the ability to generate C/E data in a sharable format even though the AFS network exchange has not yet been established.

AFS Milestones and Target	
CY08 – Milestone	10%
CY09 – Milestone	30%
CY10 – Milestone	60% (4 methods of data entry complete)
CY11 – Target	100%
Production Date	March 2008
Outbound	Undefined
Denominator (# of State partner Flows)	50

Flow Status CY2007

The AFS flow is currently in planning. A draft schema is currently being developed through a grant with New York and NESCAUM. A draft AFS XML schema has been developed and programming continues to apply it to the UI. The UI will be modified to allow XML files into AFS by transferring XML into a flat file.

AFS is expected to be modernized, and modernized AFS will accept XML using ICIS schema protocol. OECA is currently conducting a Business Case Analysis that will provide the justification for the modernization of AFS. A "Closeness of Fit Analysis" (COFA) evaluation will be completed to determine if the integration of AFS into ICIS is the most efficient option available. The Business Case Analysis is expected to begin during 4th quarter FY07.

AFS Status Summary	Count (# States)	2007 Status (%)
States in production	0	0%
States in development	0	0%
States planning	14	28%

Flow barriers/critical challenges/opportunities
There are currently three methods of data entry into AFS: On-line data entry, User-Maintained Batch Process files, and use of the Universal Interface to create Batch Process files. Resources are needed to update the current two-touch load process of the AFS mainframe to accomplish machine-to-machine transmission of AFS data. AFS schema is not currently flowing through partner nodes or CDX, as data is accepted through either the on-line or batch process mode. Batch processing requires the user to upload their file to the mainframe, submit the file through the AFS application, review output files for errors, and then correct errors. Batch processing also includes an optional "compare" step, where the user submits a batch file for comparison to production data and receives a file that contains only those fields appending or adding data records to the database. This optional but highly recommended process requires two manual submissions of batch files to AFS.

Supplemental Flow Opportunities
- The RCRA approach of using XML stylesheets to allow a 'submit' to CDX may be a possibility of AFS.
- AFS might be a candidate for a distributed systems model; the option to publish data would be attractive from the state perspective.
- Currently, much of the Compliance/Enforcement/Permit (C/E/P) regarding regulated facilities that support program implementation and public access (e.g. through enviroFacts/ECHO) is summary in nature. However, states have detailed electronic documents that could be an invaluable resource to a wide range of partners, and these supporting documents could be linked to this summary data using XML schema. This activity would occur after the AFS CDX node is established, but states might initially pilot access sharing or collaboration with state partners.

Available Documentation/Resources
N/A: AFS is currently in planning

Flow Stakeholder Responsibilities and Flow-Specific Strategies
CY2007—OEI/OECA: Scope an approach to adopting an XML stylesheet for AFS. Determine whether the required effort is warranted and feasible for an interim strategy.

CY2007—NOB/NTG/CDX : Work with OECA to explore placing the Universal Interface (UI) on the Network.

CY2007—State partners: Participate in the AFS Business Requirements Analysis.

CY2008—NOB/NPRG: Based on the AFS Network flow definition, outcomes from the AFS Business Requirements Analysis, and using a list of AFS grantees, develop and implement an AFS outreach plan to encourage states to develop the regulatory data exchanges for increased

efficiency, prepare for the modernization of AFS, and develop state capacity and experience with XML and EPA's CDX reporting of Compliance/Enforcement information.

Governance Resource Implications

- This is one of the few national system flows where the design of the Flow has yet to begin. The governance will consider supporting the development of the Flow documentation, similar to the governance support of the RCRAinfo Flow. The Exchange Network governance will also consider its role in helping with the system modernization effort.

Integrated Compliance Information System—National Pollutant Discharge Elimination System (ICIS-NPDES)

ICIS-NPDES is the modernized version of the Permit Compliance System (PCS). It supports traditional NPDES wastewater discharge program functions (e.g., permitting, compliance monitoring, and enforcement), as well as new functions for special regulatory programs, such as concentrated feeding operations (CAFO). ICIS-NPDES will allow for data exchanges using XML and Web services via the Exchange Network and provide links to other EPA databases (e.g., Facility ID).

ICIS-NPDES Milestones and Target	
CY08—Milestone	hybrid states begin flowing
CY09—Milestone	eDMR begins flowing, some batch states
CY11—Milestone	PCS shut-off
CY12—Target	100%
Production Date	September 2009
Outbound	y
Denominator (# of State partner Flows)	31

Flow Status CY2007

ICIS-NPDES has been released for direct users, and the release of ICIS-NPDES for batch is being completed in three parts: Hybrid states, netDMR states and full batch states.

Part 1 of the ICIS-NPDES development schedule is for hybrid states. Hybrid states are direct users of PCS but that batch some portion of their data (i.e., DMR data). In order to move to ICIS-NPDES, a hybrid state must migrate and clean-up their data, which can take up to a year in advance of target dates. Hybrid states began working with EPA on data migration and clean-up at the beginning of FY2007. The established schedule is for hybrid states to flow data beginning in FY2008.

Part 2 is Net DMR, an EN grant project (see below) managed by Texas with participation of 11 states. The project is to build a centrally-hosted electronic discharge monitoring report (eDMR) application directly compatible with ICIS-NPDES, as well as locally maintained state NPDES databases. The plan is to develop a tool (netDMR) to enable facilities to electronically sign and submit their DMRs to ICIS-NPDES over the Exchange Network using CDX. The current schedule is to complete development and testing of the netDMR tool by the end of FY2008, and to go into production in an EPA-hosted environment early in FY2009. Eventually ICIS-NPDES will offer an outbound service that provides a national tool to give states the benefits of electronic reporting for their facilities without having to develop their own software.

Part 3 is full-batch for those states that have their own NPDES information systems. The goal is for these states to electronically transfer all of their data to ICIS-NPDES. The schedule for full batch states is dependent on several years of future budget allocations and the resolution of policy issues concerning the data to be exchanged. Some batch states may begin in 2009, but it is unlikely that all batch states will be complete by 2009. The PCS shut-off date is projected to be 2011, based on budget estimates at the time this target was developed.

There are two Integrated Project Teams (IPTs) currently working on ICIS-NPDES flows, as well as a data migration and clean-up workgroup. The two IPTs are the ICIS-NPDES Batch IPT and the netDMR IPT. The Batch IPT was formed to focus first on the DMR flow for hybrid states. When key policy issues are resolved, this IPT will expand its focus and membership to full batch states as it examines other data flows. A key flow design lesson from ICIS-NPDES is that if schema is designed before the business process is considered, it may become necessary to rewrite the schema. The transactions to execute and the data that is needed to accompany those transactions need to be determined before schema is written.

ICIS-NPDES Status Summary	Count (# States)	2007 Status (%)
States in production	0	
States in development	0	
States planning	11	35%

Flow barriers/critical challenges/opportunities
The biggest challenges for the ICIS-NPDES flows reside in unresolved issues concerning required data elements for submission. Once these issues are resolved, the discussion about how to apply the Exchange Network can begin. The ICIS Expanded Steering committee is responsible for resolving these issues.

The PCS system modernization effort has experienced common system development challenges. In a few limited cases, some permits that should have been migrated from PCS to ICIS-NPDES were not properly identified in PCS and thus were not migrated. EPA was able to do a special migration for this state to fix this problem. There have also been challenges in learning to use the new reporting tool associated with ICIS-NPDES, but additional training in FY2007 and FY2008 should address this problem. A system fix to increase the speed of DMR data entry was put in place in the winter of 2007, and additional modifications and enhancements to speed up data entry for compliance monitoring are planned for FY2008..

Supplemental Flow Opportunities
Two separate Exchange Network Grants have generated supplemental flow opportunities.
A challenge grant has created a Network-powered software application allowing facilities to transmit DMRs via an online system to a state permitting authority and this information is sent from states to CDX.

The eDMR data exchange is currently in version 1.2, and implementation resources on the Exchange Network website include the XML schema and the eDMR toolset, a tool for programmers that allows them to more easily create or modify eDMR XML instance files. As of winter 2007, the e-DMR data exchange is in production in five states (Florida, Michigan, Mississippi, New Jersey, and Wisconsin) and in development in two states (Minnesota and Wyoming).

NetDMR
NetDMR refers to an ongoing collaboration of more than 10 states to build a common, centrally-hosted electronic discharge monitoring report (eDMR) application directly compatible with ICIS-NPDES. While most NetDMR states will use the centrally-hosted application, NetDMR's

open source configuration also allows use of shared code hosted on a state system and extends the functionality of existing eDMR tools. The goal of the NetDMR project is to develop a direct interface for facilities submitting eDMRs. This interface will integrate directly with the ICIS-NPDES database as well as with locally maintained state NPDES databases.

The NetDMR flow is in development in ten states (IL, IN, MI, MT, NY, PA, RI, TX, UT, WV) and in planning in two states (LA, OK).

Available Documentation/Resources
ICIS-NPDES has a guidance document that explains the rules and software that pulls the data to extract errors. No other documentation is currently available as ICIS-NPDES is currently in a planning phase.

Flow Stakeholder Responsibilities and Flow-Specific Strategies
CY2007—NOB—Provide governance support to the ICIS-NPDES Batch IPT, and offer a forum for resolving issues and reducing barriers.

CY2007-2012 State partners—Participate in the IPT and test processes for submissions to ICIS-NPDES; develop capability to generate the final XML schema for the ICIS-NPDES data flow; extract and convert the data from the state NPDES systems into the XML format needed to submit data to ICIS-NPDES; modify state systems to accommodate the new/revised data requirements for ICIS-NPDES; implement node-to-node communication with CDX, develop requirements and design for extraction tool to pull data out of ICIS-NPDES via the Network and import to state database; develop and implement extraction tool.

Water Quality Exchange (WQX)

The Water Quality Exchange (WQX formally known as STORET) defines the methods and the data systems by which EPA compiles water quality monitoring data that are collected by a number of entities via a shared schema. The WQX system includes the following types of data: the physical conditions in the environment at the time of a site visit; the chemical and bacteriological make-up of the water sampled; and chemical analyses of fish tissue collected. The purpose of the compilation of this data is to provide a seamless collection of monitoring data that is not restricted by jurisdictional boundaries. The WQX/STORET data exchange will replace EPA's STORET model for sharing water quality data by September 2009.

WQX Milestones and Target	
CY08—Milestone	20%
CY09—Milestone	65%
CY10—Target	100%
Production Date	January 2006
Outbound	Y
Denominator (# of State partner Flows)	50

Flow Status CY2007

WQX/STORET schema development was completed in November 2006, testing took place in January 2007, and the system was in production for in-bound and out-bound data by February 2007. Six to eight states, and two tribes, participated in the WQX/STORET development and are ready to flow data now that the system is ready. Currently Wisconsin is in production and six additional states are in development.

Approximately 10 states have never submitted data to the modernized STORET system. Four of these ten states are among those ready to flow data to WQX/STORET. The goal is to have 50 states flowing data with WQX/STORET by 2010; support for the distributed STORET database will end after 2009.

While the water quality flow is not a regulatory requirement, it is an exchange of data that is critical to EPA and states. WQX represents an opportunity for EPA to transition away from a distributed database model towards the Network model of sharing data.

The ENLC set a target for 100% state participation in WQX by 2010, with an understanding that the denominator may change if states opt out, given that WQX is not a regulatory requirement.

WQX Status Summary	Count (# States)	2007 Status (%)
States in production	1	2%
States in development	6	12%
States planning	4	8%

Flow barriers/critical challenges/opportunities

- Clarifying "what" flow this is to improve messaging and assist states who are transitioning out of STORET
- Communicating changes about STORET and the WQX roll-out

- Bringing in the other six states that have never flowed STORET and are not yet ready to flow data on WQX
- Developing data standards to flow biological (i.e. population abundance data) and habitat data

Supplemental Flow Opportunities

- Finding partners to flow additional data, including biological and habitat data
- Connecting WQX/STORET data to other monitoring information and information from 'other' partners, i.e., health agencies, non-state samplers.
- Making use of WQX data integration potential; the Office of Water has had discussions with the Office of Emergency Management in EPA Office of Solid Waste and Emergency Response (OSWER) about the data integration potential of WQX. During the response to Hurricane Katrina, STORET was used to access data, and OSWER is developing its own management system for tracking data following the same ESAR data standards that are used for WQX data.
- Potential for a environmental health flow on water borne disease

Available Documentation/Resources

The NTG Conformance Committee has recently reviewed and approved the schema and supporting documentation for version 1.0 of the WQX data exchange. Implementation resources available for WQX include:

- Flow Configuration Document
- XML Schema
- Data Exchange Template
- Sample XML Instance Files

Flow Stakeholder Responsibilities and Flow-Specific Strategies

CY2007/2008—NOB/NPRG: Develop messaging and transition materials to support state partners transitioning out of STORET.

CY2007/2008—ENLC/NOB: Communicate changes about STORET and the WQX roll-out.

CY2007/2008—NOB/Data Standards: Expand the ESAR data standards to flow biological and habitat data.

Governance Resource Implications

- The Governance resource implications are limited. 106 Grants support the development of WQX and most of the activities listed above are part of the governance operations and maintenance.