- Both delegations indicated strong interest in future collaborations, including having Mt. Lulin join the NADP/AMNet and having the NCU laboratory participate in the NADP /USGS wet mercury deposition, round-robin laboratory inter-comparisons. The NADP will send an official letter inviting EPAT/NCU to join NADP. The NADP offered EPAT/NCU access to the AMNet database, a copy of the QA screening tool code, and various network QA documents. More information about the worldwide laboratory intercomparison study may be found at http://bqs.usgs.gov/srs/. This website is a good starting point for further discussions of the topic between both delegations. As a next step, EPAT/NCU should consider having a call with David Schmeltz, David Gay, and Greg Wetherbee - USGS coordinator of the ongoing inter-laboratory study.

November 12, 2010
US delegation met with EPAT and NCU in the morning to complete the workshop, including discussion of potential next steps (see below). After lunch, the U.S. delegation, and members of EPAT and NCU departed for Central Taiwan, to Mt. Lulin.

Key points/findings from day two of the workshop:
- Within a two year time frame, EPA, EPAT, NCU, and NADP would like to collaborate to hold a regional Asian workshop, coordinating with atmospheric mercury monitoring experts from Korea, Japan and other Asian countries. The goal would be to develop an Asian regional monitoring network that would be consistent with and modeled after the North American monitoring program. It would be useful to have a network of sites in Asia with comparable measurements, producing data that may be used to understand mercury transport and deposition in Asia and around the globe. EPA is interested in working with EPAT, NCU and NADP to help make that happen, starting perhaps, with a workshop in Taiwan. David Schmeltz and David Gay will draft an initial proposal for EPA/OITA, EPAT, and NCU.

- The US delegation met with the EPAT Minister Shen and Director General Chu and briefly discussed Taiwan's mercury monitoring program, including the importance of coordinating our atmospheric mercury monitoring programs to track the atmospheric mercury contributions from Asia.

- Ms. Quo from EPAT mercury monitoring/inventory group and Dr. Tsung-Wen Chien from the National Cheng Kung University participated, inquiring about the calibration of mercury CEMS. We mentioned EPA/CAMD/EMB's work and suggested that Jeremy Schriefels (EPA) would follow up.

November 13-14, 2010
Mark Olson and Tim Sharac evaluated the Mount Lulin Tekran System, performed maintenance, and trained the NCU site operators – Ferret and Hsieh, on techniques for troubleshooting the system. The Mt. Lulin station checklist was compared to the NADP AMNet checklists and differences were discussed. Attached are NADP recommendations on how performance of the Tekran mercury speciation system at Mt. Lulin may be improved (See attached Field Report).

Proposed Next Steps

- NADP will send a letter to the Taiwan delegation, inviting Mt. Lulin mercury monitoring station to join the National Atmospheric Deposition Program/AMNet.
- NADP will provide more information for EPAT and NCU to participate in the US mercury wet deposition laboratory inter-comparison. A conference call with Greg Wetherbee (USGS), David Gay, David Schmeltz, if EPAT and NCU would like to pursue this.

- Schmeltz and Gay will draft an initial proposal to scope out planning for an international workshop to establish regional Asian mercury monitoring network.

"Agreement between TECRO and AIT for Technical Cooperation in the Field of Environmental Protection"—
Atmospheric Mercury Monitoring Quality Assurance Workshop
Agenda

2010.11.11-2010.11.14

Taiwan Environmental Protection Administration, 2F Meeting Room

& Mt. Lulin Atmospheric Background Monitoring Station

2010.11.11	
Time	**Topics**
10:20-11:20	**Taiwan and U.S. mercury monitoring programs** - Overview of North American Atmospheric Mercury Monitoring Program - National Atmospheric Deposition Program/Atmospheric Mercury Network (NADP/AMNet) - Global Mercury Observation System (GMOS) - Overview of Taiwan Atmospheric Mercury Monitoring Program
11:20-12:20	**Instrument operations and maintenance in the U.S. and Taiwan** - Introduction of Field site and physical set-up - Basic sampling, temperature, calibration and thermal desorption settings i. NADP/AMNet Tekran 1130/1135 Controller Program Worksheet ii. Onsite equipment maintenance and QA checks
12:20-14:00	**Lunch Time**
14:00-15:00	**Data management information on processed data for quality assurance** - Data retrieval - Data validation i. AMNet Data QA Program ii. Mt. Lulin Data QA approach (es)/procedures iii. Data flagging and validation codes - Data reduction and calculations i. Gaseous Oxidized Mercury (GOM) and Particle Bound Mercury ($PBM_{2.5}$) calculation routines ii. Database overview
15:00-16:00	**Data validation comparison exercise** - Report on comparative analysis of NADP/AMNet and Environment Canada (RDMQ) data quality control schemes - Example raw Tekran data from Mt. Lulin and U.S. monitoring sites (shared prior to meeting, if approved) - Run raw speciated mercury data from Mt. Lulin through the AMNet data QA Program (Prior to meeting) and through Mt. Lulin data QA procedures - Present summary results from the QA of Mt. Lulin data The differences in data output validation from AMNet QA/Mt. Lulin QA procedures.
16:00-16:30	**Coffee Break**
16:30-18:00	**Example data products and the use of speciated mercury concentration data in mercury assessments** - Example data displays - Source-receptor relationships for atmospheric mercury

	- Atmospheric mercury model evaluation
18:00-19:00	**Dinner time**

2010.11.12	
Time	**Topics/Activities**
10:00-11:20	**Reactive gaseous mercury (RGM) standard/RGM calibration/RGM validation**
11:20-12:20	**Mercury wet deposition/dry deposition**
12:20-14:00	**Lunch Time**
14:00-18:00	**Move to Nanto county.**
18:00-19:00	**Dinner Time**

2010.11.13	
Time	**Topics/Activities**
9:00-10:30	**Move to Mt. Lulin Atmospheric Background Monitoring Station.**
10:30-12:30	**Data setting experiments**
12:30-14:00	**Lunch Time**
14:00-16:00	**Instrument Operation and systems comparison.**
16:00-18:00	**Result Discussion**
18:00-19:00	**Dinner Time**

2010.11.14	
Time	**Topics/Activities**
9:30-11:30	Mercury monitoring data QA troubleshooting from both sides.
11:30-12:30	Final Discussion
12:30-14:00	Lunch Time
14:00-16:00	Leave Mt. Lulin

National Atmospheric Deposition Program

NADP Program Office

Illinois State Water Survey
2204 Griffith Drive
Champaign, Illinois 61820-7463
Phone (217) 333-7871
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National Atmospheric Deposition Program

Observation Report of the Mt. Lulin Measurement Site

(Mercury Monitoring)

Yushan National Park, Taiwan

November 13-14, 2010

Report Date: November 29, 2010

The U.S. Environmental Protection Agency requested that NADP evaluate the operation and performance of the mercury observational system (the high-altitude Mt. Lulin monitoring location) operated by the National Central University and supported by the Taiwan Environmental Protection Agency (EPAT). EPA is interested in understanding the comparability of the Mt. Lulin monitoring station with operations under NADP/AMNet, and in providing quality assurance/quality control training to enhance mercury monitoring performance. This review was conducted between November 13 and 14, 2010. Evaluation of the system was conducted by Mark L Olson (NADP Atmospheric Mercury Network Site Liaison, AMNet) and Tim Sharac (USEPA, AMNet Advocate). Also in attendance were David Schmeltz (USEPA, AMNet Advocate) and David Gay (NADP Coordinator). Representing the Taiwan monitoring team were Dr. Guey-Rong Sheu and operators Ferret Kuo and Hsieh Shin Chen (NCU), and Ms. Si-Yu Yu (EPAT). Drs. Sheu and Gay, Mr. Schmeltz and Ms. Yu were present for the early portion of the review.

The NADP was requested to a) evaluate the operation of the Tekran Inc. mercury monitoring instrumentation (Tekran system), b) note any differences from the AMNet protocols, c) make suggestions that may improve performance of the system, and d) note any other recommendations that could improve operation of the EPAT system or make that system operate more in keeping with AMNet protocols.

In summary, we found the overall performance of the system and the operating team to be excellent. The Mt. Lulin site was operating very close to AMNet Standard Operating Procedures for field measurements, and a few changes and recommendations were made for full compliance. Overall, our impression was that the site was run very well by competent scientists and operators, and that it was generating mercury concentrations that were accurate and scientifically sound. Tekran mercury speciation instruments are very sophisticated and require a great deal of attention and care. The remote location of Mt Lulin adds additional challenges to the collection of high quality data. The AMNet Site Liaison commends the investigators and operators for producing high-quality mercury data at this remote location. We have a few suggestions that could help matters, but for the most part these are relatively minor. The specific steps of the review are shown in the attached Field Report.

Many of the suggestions were harmonization of the timing of maintenance tasks, additional glassware to have on hand for emergencies, and a few additional maintenance suggestions. All of these were relatively small changes and suggestions. Additional inspection noted a cracked pump diaphragm and a flow adjustment. The most important finding was a malfunctioning heater (shipped to the site). Additionally, the recommended instrument software upgrade would have shown this heater malfunction.

Several basic parts needed by the Lulin site were provided from the NADP parts stock through EPA/CAMD support. These are listed in the attached Field Report. Parts were supplied to save time in ordering and minimize the downtime of the instrument.

For the future, NADP agreed to provide EPAT with several of our documents, including the current version of our Standard Operating Procedures for the AMNet, and the current database schema and source code. These are the AMNet logic functions that will allow EPAT to apply quality assurance flags to measured elemental mercury and mercury fraction concentrations in the same manner as the AMNet.

Second, the NADP would like to extend an invitation to the Taiwan EPA for the Mt. Lulin site to join the AMNet. AMNet is currently an international network (http://nadp.isws.illinois.edu/amn/), and Mt. Lulin would be a tremendous addition to our network. If this offer is accepted, Mt. Lulin data would be added to our database, be quality assured with other sites, made available on our public website, have site operation support, etc., as with all other sites. It is our understanding that the EPAT and NCU may need to negotiate some additional data-sharing agreements, but we are confident that a compromise could be achieved. The NADP will initiate this letter.

Finally, we would like to add the Taiwan mercury wet deposition network laboratory (part of the Mt. Lulin sampling system) to the NADP worldwide interlaboratory intercomparison program. If this is acceptable, several topics will need to be discussed. This intercomparison is run by the United States Geological Survey (USGS), and more information can be found here (http://bqs.usgs.gov/srs/).

We look forward to collaborating with EPAT and NCU, and for the EPA to bring Mt. Lulin into the NADP. We are also pleased to help out in any way to facilitate future coordination on future global monitoring efforts.

Sincerely,

David A. Gay
Coordinator, NADP

FIELD REPORT

Mount Lulin Tekran Evaluation Report November 14, 2010

Maintenance and training of the Mount Lulin Tekran system was performed on November 13 and 14, 2010.

AMNet: Mark L Olson (NADP/USGS) and Tim Sharac (USEPA)

Operators, Ferret and Hsieh

The Lulin site checklist was compared to the NADP AMNet checklists and differences were discussed

Potential additions to the Lulin checklist might include:

- Confirm the 2537 Perm light is blinking,
- Checking the Argon 2537 supply pressure to ensure it is > 30 psi,
- Confirm 1130 Pump switches are in the On and Auto positions,
- Confirm the 1102 is warm to the touch and dri-rite is blue in color (see site equipment recommendations below).

Operational checks and suggestions:

- Currently the soda lime trap is being changed weekly. AMNet recommends changing the soda lime trap every two weeks. The Site Liaison (SL) feels the system would run properly with the trap being changed every two weeks; this would allow the operators to avoid maintenance on weekly intervals and avoid placing the system into idle mode, increasing data capture.
- The inlet glassware is cleaned and reused every two weeks. The SL was informed the site only has one inlet assembly. If a piece were to break, the system would be down until a replacement could be delivered (several weeks). The SL recommends purchasing an additional inlet assembly to have on site (see site equipment recommendations below).
- Following glassware changes, the Lulin operators perform a leak check by covering the inlet during sampling; this procedure puts unnecessary stress on the pumps. The SL recommends purchasing an inlet adaptor to utilize a zero-air canister for the leak checks. The procedure is outlined in the AMNet Standard Operating Procedures (SOP).
- The Lulin particulate glassware is changed quarterly. AMNet recommends particulate glassware changes monthly or every six weeks. The SL feels quarterly changes are sufficient at the Lulin site due to the low particulate bound Mercury (PBM) concentrations. If the site experiences increased

concentrations of PBM or significant events, the operators should consider increasing the PBM glassware frequency.

- Linear calibration checks using manual injections are suggested by AMNet once a year. Currently the Lulin site performs linearity checks quarterly. AMNet requires only one point calibration checks quarterly. The quarterly linearity checks are good but excessive. The system should always be calibrated to the permeation source for analysis. Permeation source calibration was discussed in detail with the site operators. An alternate injection procedure was discussed and demonstrated. The alternate increases injection efficiency minimizing downtime. A quick spreadsheet was developed and left with the operators.
- Ambient air injections should be performed quarterly. Ambient air injections were performed on Nov. 14, 2010.
- Flow rates on the 2537, 1130 pump module and inlet should be performed quarterly. The 1130 pump was recently replaced. The SL suggests checking the diaphragm on the retired pump. If the diaphragm is in need of replacement, the old pump may be fine and used as a replacement in the future.
- The instrument shelter air should be analyzed quarterly and a concentration of less than 10 ng/m3 should be maintained. The instrument shelter air analysis procedure is outlined in the AMNet SOP. The shelter air was analyzed for GEM at 1315 on Nov. 14, 2010 and found to be 4.782 ng/m3.
- The soda lime trap inlet and outlet tubing should be rinsed quarterly.The tubing was rinsed during 2537 flow checks.
- The 1130 pump tubing should be rinsed at time of zero air canister replacement.
- The 2505 calibration unit should be stored on the first floor when not in use. The 2505 is a potential contamination source.
- The syringe's stop point adjustment in frozen. The SL recommends recertifying the syringe at the manufacturer.

Maintenance performed and suggestions:

- The 1130 pump was inspected and the diaphragm was found to have a slight crack. The diaphragm will need to be replaced soon. The SL recommends 1130 pump diaphragm replacement annually along with pump brush inspection. The 1130 pump brushes were inspected and found to be ~1.5 cm in length. New 1130 pump brushes typically last 2 years.
- The 1130 pump flow was checked and the MFM was adjusted. The current sample flow was greater than the set point (6.4 vs. 6.2) and the pump pod was adjusted so they matched. The DVM was then adjusted to the flow meter and set point adjusted to match 6.2. When the pump diaphragm gets replaced the operator should recheck and adjust if required.
- The 2537 flow rate was checked and found to be 0.71 with a target of 0.69. AD1 USC was adjusted from 2.03 to 2.09 and the flow equaled 0.69.
- The 1130 controller (model 1100) User 3 program was changed to identify the pyrolyzer step as flag 2, the particulate step as flag 3, and Gaseous Oxidized Mercury (GOM/RGM) step as flag 4.
- The 2537 lamp was aligned and the voltage adjusted to 9.5 volts. A correction to lamp voltage adjustment was made in the 2537 site manual as per Tech note 2537_13.
- The 2537 cuvette was cleaned. The initial BL voltage was 0.213 and changed to 0.111 indicating a cleaner cuvette.

- The SL suggests having a 2537 V2 valve available.
- The 2537 was adjusted to initiate sample collection at the top of the hour. *NOTE: The 2537 clock was adjusted to 5 minutes ahead of actual time. Five minutes will need to be subtracted from the sampling times.*
- The 2537 operation menu was discussed and explained.
- The SL recommends having the syringe certified by Hamilton annually.
- Upon inspection of the 1130 and 1135 exterior sampling heads, the particulate heater on the 1135 is non-functional and needs to be replaced. A heater will be shipped from the AMNet NED and the details worked out later.
- The 1130 case heater was malfunctioning and replaced by the SL.
- Upgrading the system with Tekran Data Communication software would have identified the malfunctioning heaters (1135 and 1130 case) from a remote location. The operators verified the heaters were operating the week prior.
- The inlet heater desorption temperature was increased from 60 to 75, operation was completed by SL.

Electronic copies of the Tekran Tech Notes were provided to the operators.

An electronic version of the 3 day AMNet training course was provided to the site operators. The AMNet SL recommends future training.

Tekran Equipment recommendations:

- 1135 heater replacement (shipped)
- Tekran Data Communication hardware and software
- 1102 upgrade
- Inlet assembly
- 1130 pump diaphragm (shipped)
- 2537 pump diaphragm (shipped)
- 2537 V2 valve
- Case heater (shipped)
- Two case heater shields
- 2537 Lamp Block assembly
- Plug for 1130 zero air valve

Quality assurance recommendations:

- Inlet leak adaptor and non iodated zero air canister (shipped adaptor)
- Syringe certification
- Ambient air injections performed quarterly.
- Annual or bi-annual (every two years) independent audit of the Tekran system
- Move 2505 calibrator to lower level when not in use. Leave unit plugged in until ready for use, then move into shelter for period of use.

Site equipment recommendations:

- A Leaf wetness sensor should be added to the meteorological equipment to relate changes in Mercury concentration to dew and moisture.
- A web camera to observe instrumentation, cloud cover and movement of the atmospheric boundary layer as it relates to changes in atmospheric mercury concentrations.

Parts Supplied

- Tekran 1135 heater with 2 thermocouples
- 1130 Pump Diaphragms (qty 2)
- 2537 pump Diaphragm & check valve
- Case Heater
- Inlet Zero Air QA Adaptor.

Signed,

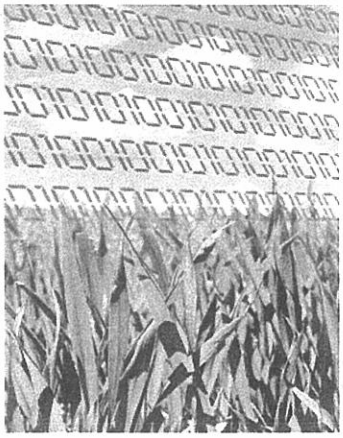
Mark L. Olson

NADP AMNet Site Liaison

Mount Lulin Equipment Suggestions						
Item	**Priority**	**Cost (USD)**	**Reason**	**Vendor**		
Spare Inlet Glassware	1	$489.50	Back up	URG		
Inlet Leak Check Adaptor	1	$50.00	QA	Tekran	NADP NED	
Activated Carbon Zero Air Canister	1	$50.00	QA	Koby	Estimate	
1135 Replacement Heater	1	$1,148.00	Malfunctioning	Tekran	NADP NED	
1130 Pump Diaphragm (6)	1	$81.00	Malfunctioning	Tekran	35-13171-06	Diaphragm, Pkg 6, for 910CDC22/12 (Thomas Pump)
2537 Pump Diaphragm	1	$90.00	Back up	Tekran	35-25075-00	Diaphragm and Valve Plate kit, for KNF N79 Pump
Case Heater	1	$100.00	Back up	Carr		
Data Communcation upgrade	1	$8,640.00	Upgrade	Tekran		
Syringe Certification	1	$95.00	QA	Hamilton		
Leaf Wetness Sensor	1	$800.00	Data quality	Cambell Sci.	Estimate	Depends on Met set up
2537 Lamp Block Assembly	1	$863.00	Back up	Tekran	80-25110-00	Lamp Block Assembly, with L/S Board Mounted
2537 V2 Valve	2	$1,575.00	Back up	Tekran		
Case heater sheilds (2)	2	$200.00	Safety	Tekran	Estimate	
Tekran Speciation System	2	$125,000.00	Back up	Tekran	close	
Web Camera	3	$2,500.00	Data quality		Estimate	
		$141,681.50				
Shipping		$10,000.00				
Estimated total		$200,000.00				
Contact Mark L.Olson, AMNet Site Liaison with questions						
mlolson@usgs.gov						
608-335-4232						

附件五　環境資訊交流合作資料

EPA



Central Data Exchange

The Central Data Exchange (CDX) is EPA's center of excellence for electronic reporting and data exchange via the web and as EPA's point of presence on the Environmental Information Exchange Network. CDX manages thousands of data transactions with States, Tribes, industry, and other federal agencies through a service oriented architecture. CDX provides standardized and secure information collection services that meet the needs of many EPA Program partners throughout the Agency. CDX will continue to expand, adding more data flows and services to simplify reporting, improve data quality and reduce burden for its customers.

Background

The Government Paperwork Elimination Act (GPEA) establishes a framework that requires and promotes electronic reporting when it can contribute to reduced burden on the public. CDX is EPA's response to GPEA to help with this burden reduction. In addition, the States and EPA, recognizing the need for an information exchange system to meet the needs of environmental decision-makers at all levels, committed to a partnership to build an environmental data exchange system. EPA and States proposed the development of the Exchange Network. The Exchange Network connects EPA and state environmental databases over the Web using CDX as EPA's exchange Node on the Exchange Network.

Current Status

Over the past two years, CDX has delivered an average of 110,000 submissions annually to EPA. Currently, CDX has over 234,000 user registrations. CDX supports 60 environmental data exchange activities with their electronic reporting and data exchange needs. In addition, 10 Programs are currently in varying stages of planning or design for future deployment. EPA is also in the process of expanding CDX to support data exchanges with other federal agencies as well as internationally. The Office of Environmental Information has continued to drive down the cost reporting and data exchange by making available centralized services that can be leveraged by multiple EPA Programs.

CDX BENEFITS

- Simplified reporting: Complete one electronic form instead of multiple paper forms.
- Improved data collection: Increased data quality, timeliness, accessibility, and security
- Reduced burden: Reduce time and resources expended to fill out and process submissions.
- Reduced costs: Centralized, shared services eliminates the need for redundant data systems and reduces data collection and management costs
- CROMERR support: Centralized services to comply with the Cross-Media Electronic Reporting Rule

On-going Activities

• Operating, maintaining and enhancing CDX, and continuing to evolve with new technology to provide the most cost effective data flow services

• Partnering with States, Tribes, EPA Programs and Regions to implement successful information sharing on the Exchange Network;

• Deploying new data flows and services, such as automated fee collections and messaging/alerts subscriptions; and

• Implementing services that allow for electronic reporting of confidential business information.

For More Information

Charles Freeman
Chief, Information Exchange Technology Branch
Freeman.Charles@epa.gov
202-566-1694
www.epa.gov/cdx
http://intranet.epa.gov/cdx/

Progress to Date: CDX currently collects data and distributes it on behalf of 60 Agency Programs

OA
- eDisclosure - Self-Disclosure Form Request
- Environmental Appeals Board

OAR
- Air Quality System
- AQS Data Mart
- Electronic Greenhouse Gas Reporting Tool (e-GGRT)
- Emission Inventory System (EIS)
- EnviroFlash
  - CAP Module
  - Office of Transportation and Air Quality Module
  - UV Index Module
- EPA Moderated Transaction System (EMTS)
- Ozone Depleting Substances Tracking System/CBI
- OTAQ DCFUEL
- Radiation Network (RadNet)
- Vehicle Engine Regulation Information For You (VERIFY)
  - Heavy Duty In-use Diesel (HDIU) Certification Module
  - Light Duty Engine Certification Module
  - Light Duty Certification and Fuel Economy Information System (CFEIS) Interface Module
  - Locomotive Certification Module
  - Maintain Manufacturer Information
  - Motorcycle/All Terrain Vehicle (MC/ATV) Certification Module
  - Non-Road
  - Request for New Manufacturer Code
  - Upload Compliance Document

OARM
- Integrated Grants Management System/ Grants Information and Control System

OECA
- eDisclosure - EPCRA Self-Disclosure
- Integrated Compliance Information System - National Pollution Discharge Elimination System (ICIS-NPDES)
- Interim Data Exchange Format (IDEF)/ Pass Through
- Electronic Discharge Monitoring Report (eDMR)
- Network Discharge Monitoring Report (NetDMR)

OEI
- Exchange Network Grant Semi-Annual Report
- Facility Registry System (FRS) Node
- Facility Registry System Update Service V3
- Substance Registry System (SRS)
- Toxic Release Inventory-Made Easy (TRI-MEweb)
- Toxic Release Inventory – State Data Exchange

OCSPP
- Electronic Toxic Substances Control Act (eTSCA)
  - electronic Inventory Update Reporting (eIUR)
  - e-Pre-Manufacture Notice (ePMN)
- Lead Certifications
- Lead Notifications of Abatement Activities
- Lead Notifications of Abatement Training

ORD
- Public Health Air Surveillance Evaluations (PHASE)/Center for Disease Control (CDC)

OSWER
- Assessment Cleanup and Redevelopment Exchange System (ACRES)
- Resource Conservation and Recovery Act (RCRA) Info V5
  - Handler
  - Compliance Monitoring and Enforcement
  - Permitting
  - Corrective Action
  - Financial Assurance
  - GIS
  - Biennial Reporting
- Risk Management Plan (RMP*eSubmit)

OW
- eBEACHES
- Storm Water Electronic Notice of Intent (eNOI)/ Notice of Termination (eNOT)
- Long Term 2 Enhanced Surface Water Treatment Rule (LT2)/Stage 2 Data Collection and Tracking System (LT2/Stage2 DCTS)
- Office of Water Integrated Reporting (OWIR)
- Safe Drinking Water Access and Review System (SDWARS) / Unregulated Contaminant Monitoring Regulation 2 (UCMR 2)
- Safe Drinking Water Information System Operational Data Store (SDWIS ODS)
- Underground Injection Control (UIC) V2.0
- Water Contaminant Information Tool (WCIT)
- Water Quality Exchange (WQX)

STATES/REGIONS
- Region 5 Great Lakes Environmental Database Query System (GLENDA)
- eDisclosure - Region 6 Audit Policy

Using CDX and the Exchange Network Services

US Environmental Protection Agency
Office of Environmental Information

Environmental Information exchange Network

CDX CENTRAL DATA EXCHANGE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Topics

- What is CDX?
- What is the Exchange Network?
- Network Nodes and Web Services
- Setting Up and Using Services

What is CDX?

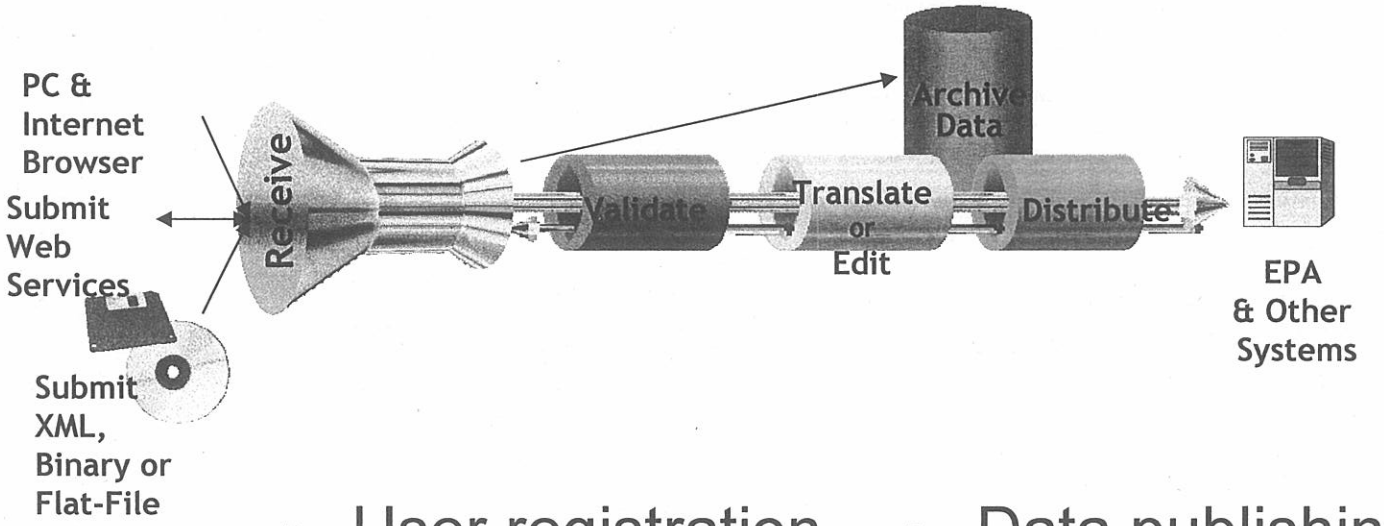
- The Central Data Exchange (CDX) is the central point through which environmental data enters the Agency

- EPA's Node on the Environmental Information Exchange Network (Inflows and Outflows of Data to Partners)

CDX Exchange Mechanisms

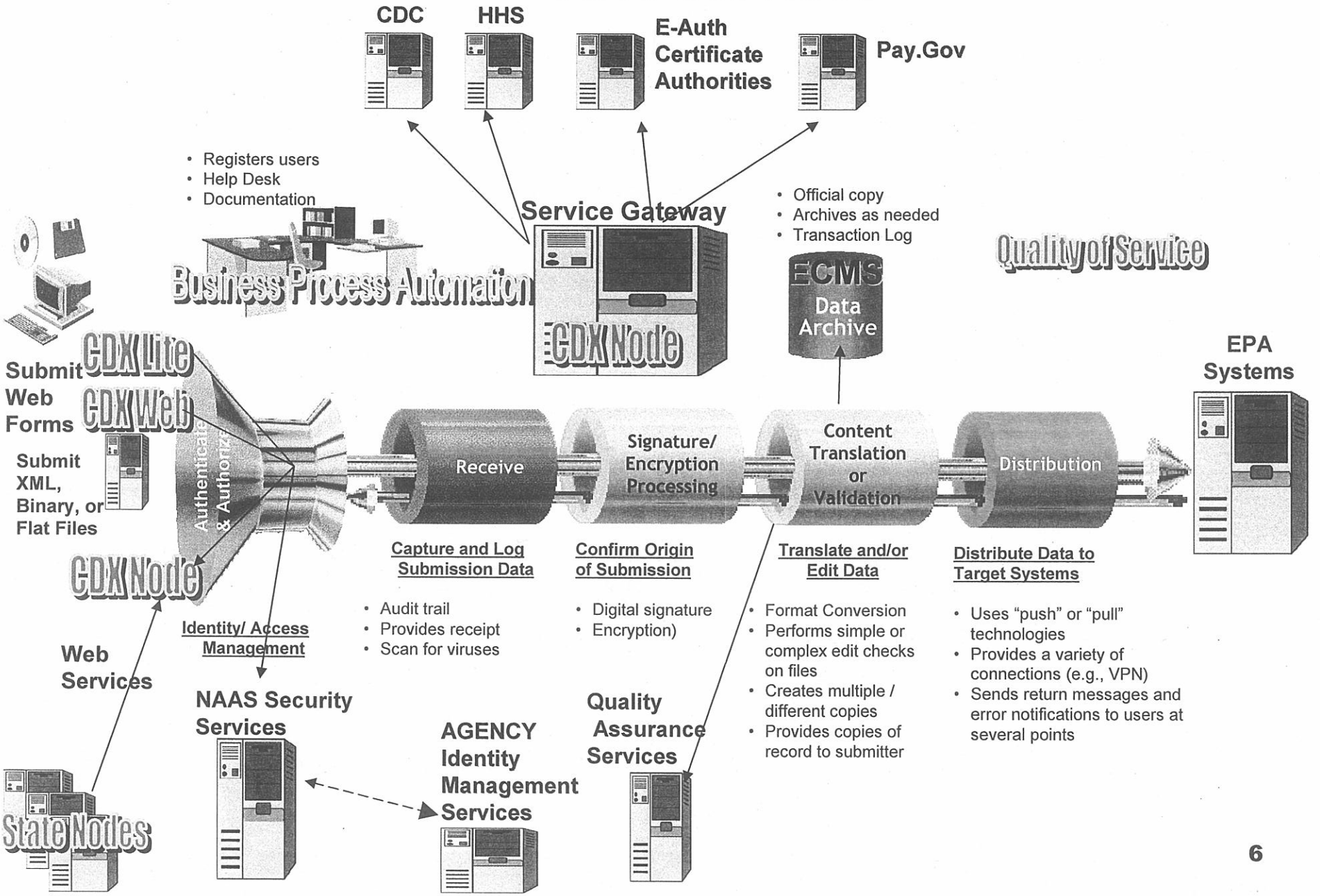
- ***CDX Web*** – EPA's site for submitting environmental information via standard Web browsers
  - Users submit data via Web-based forms and file uploads (flat file, XML file)
  - Users receive submission confirmation/processing reports
- ***CDX Node*** – EPA's Web services infrastructure on the Exchange Network
  - Supports machine-to-machine data exchanges
  - Standardized Web service protocols and XML schemas used

What Functions Does CDX Provide?



- User registration
- Authentication
- Enhanced Security
- Translation
- Data validation
- Data publishing
- Archiving
- Distribution
- Messaging services
- Customer support

CDX Services

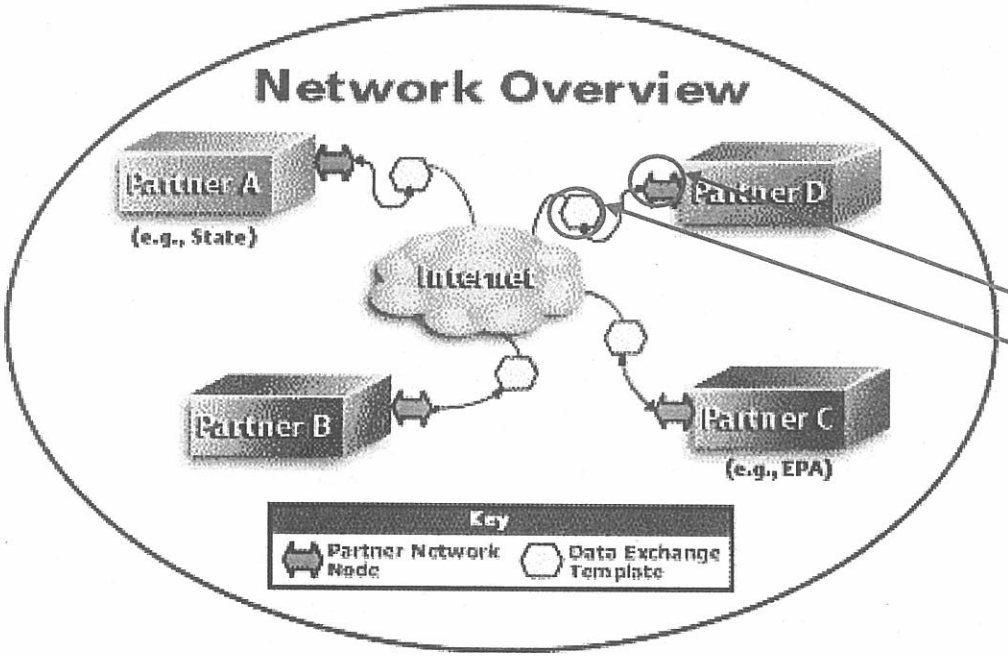


User Benefits of CDX

- Responds to Industry/state/program desires for a common point of exchange with EPA
- Provides common registration process for industry
- Provides standard interface and formats for users
- Integrates receipt, security, translation, archiving and distribution functions
- Maintains centralized customer support

What is the Exchange Network?

An Internet and standards-based method for exchanging environmental information between partners

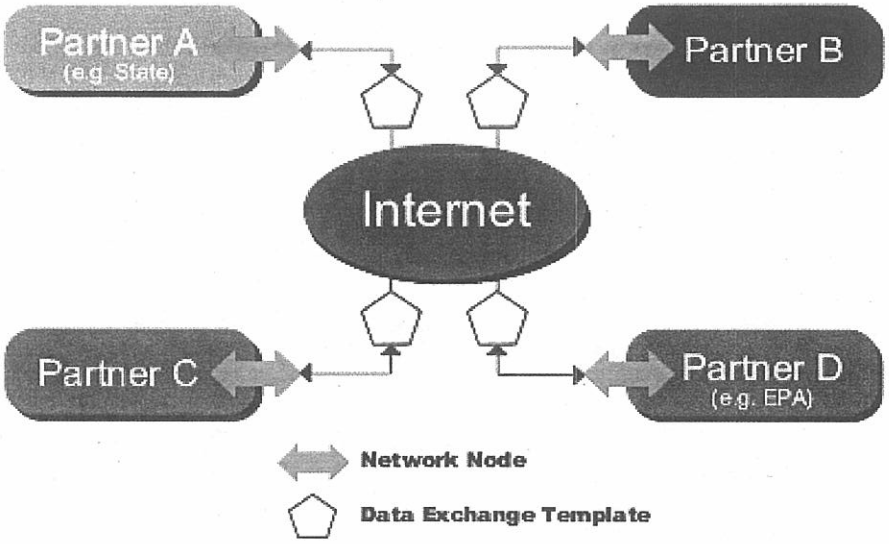


Key Components

- **Data Standards and Standard Protocols**
- **Nodes**
- **XML Schema/Registry**
- **Trading Partner Agreements**
- **Grant Program**

Purpose of Network

- Supports automated exchange of data
- Enables timely and accurate exchange
- Reduces reporting burden
- Improves data quality



Types of Data Exchanges on the Network

State-to-EPA

- Facility Data to FRS
- Water Quality Data to WQX
- Drinking Water Data to SDWIS
- Haz Waste Data to RCRAInfo
- Air Emissions Data to NEI
- Air Quality Data to AQS

EPA-to-State

- TRI Data Submissions
- Substance and Chemical Data
- Facility Data from FRS
- Air Quality Data

State-to-State

- Water Quality Data
- Hazardous Waste Transporters
- Air Quality Data
- Homeland Security Data

Intrastate

- Environmental Data to Health Departments
- Drinking Water Labs to States
- Homeland Security/Law Enforcement Data
- County Water Data

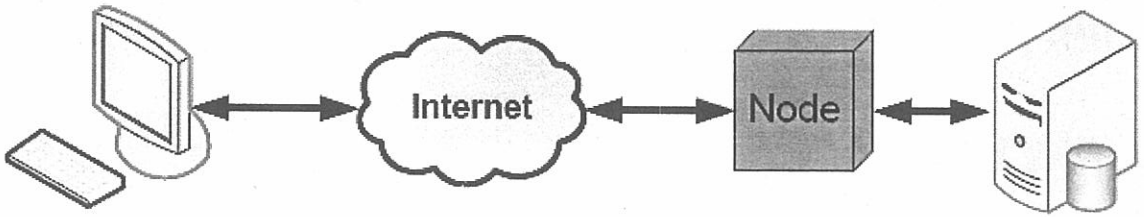
What is a Network Node?

*"A simple environmental information **Web service** that initiates requests for information, processes authorized queries, and sends/receives the requested information in a standard format."*

- Is a Server accessible on the Web
- Complies with the protocols to ensure secure exchanges
- Sends and receives standards-based messages
- Returns requested information as XML
- Each partner has only one Node

Node Client Applications

- Simplify access to services on full Network Nodes
  - Cannot listen (and respond) to requests from other nodes
- Human-to-Machine interaction
- Easy to install and use
- Available in .NET and JAVA versions
- Node Client Software Developer Kit (**SDK**) - simplifies integrating Node client functions (web service calls) with just a few lines of script



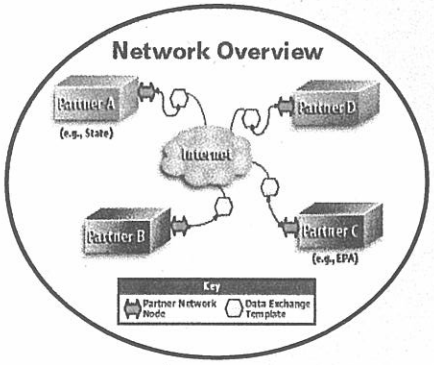
Summary

- Exchange Network and CDX have services being used by Thousand of industry users, all states and several tribes
- You can establish submit and query functions with EPA and other EN systems through the Exchange Network and CDX
  - Using a Full Network Node
  - Using a Network Desktop/ Node Client
  - Using a Desktop Web Browser

Resources

- EPA Exchange Network
  http://www.epa.gov/exchangenetwork
- Exchange Network
  http://www.exchangenetwork.net
  http://www.exchangenetwork.net/node/
- CDX
  http://www.epa.gov/cdx/
- Node Help Desk
  - nodehelpdesk@csc.com
  - 1-(888)-890-1995

CDX



State Environmental Department

Web Server

Single Integrated System

NODE

EPA

EPA NODE (CDX)

National Emissions Inventory Database

RCRAInfo

Internet

Emissions Reporting (based on TPA)

DET

TPA

Catalog

<Emissions Inventory Report>
<Site Information>
<Facility #><location>
<Chemical Info>
<limit>< 88ppm>

RCRAInfo Reporting (based on TPA)

<RCRA Facility Status Report>
<Site Information>
<Facility #><location>
<Status Code>

Relies on

- XML web services (using SOAP, WSDL, etc.) and schema
- Trading partner agreements
- Data Standards

Schools Monitory

http://www.epa.gov/schoolair/
Last updated on Tuesday, November 09, 2010

Assessing Outdoor Air Near Schools

'Our job is to protect the American public where they live, work and play – and that certainly includes protecting schoolchildren where they learn.' Administrator Lisa P. Jackson

As part of a new air toxics monitoring initiative, EPA, state and local air pollution control agencies will monitor the outdoor air around schools for pollutants known as toxic air pollutants, or air toxics. The Clean Air Act includes a list of 187 of these pollutants. Air toxics are of potential concern because exposure to high levels of these pollutants over many decades could result in long-term health effects.

EPA selected schools after evaluating a number of factors including results from an EPA computer modeling analysis, the mix of pollution sources near the schools, results from an analysis conducted for a recent newspaper series on air toxics at schools, and information from state and local air pollution agencies.

Announcements

EPA completes analyses for 17 additional schools

Information for Schools

- School Environments

EPA and our partners at state and local air pollution control agencies will:

- collect samples of outdoor air near selected schools over 60 days,
- analyze those samples for air toxics of potential concern,
- report on levels of air toxics found and their potential for long-term health impacts,
- evaluate actions that may be needed to reduce levels of pollutants of concern, and
- take action as needed to ensure that nearby industries are in compliance with clean air regulations.

Part of EPA's mission is to reduce the amount of toxic air pollutants in the air we breathe. For several decades we have issued rules and regulations that have cut emissions of these compounds from automobiles; trucks; buses; and a wide array of industries ranging from large facilities like chemical plants, refineries, paper plants, and factories, to smaller facilities like gasoline stations and dry cleaners.

From 1990 to 2005, emissions of air toxics in the United States declined 41 percent, as a result of federal and state regulations, and local emission reduction programs. However, levels of different air toxics can vary widely from place to place depending upon a number of factors including the amount and types of industry nearby, proximity to heavily traveled or congested roadways, and weather patterns. This study will help us better understand the air around selected schools throughout the country.

This web site provides information on this initiative, the schools where we plan to begin monitoring, background information on air toxics, and links to other programs EPA has in place to protect communities and school environments. When monitoring results are available, likely starting in summer 2009 for some schools, EPA will post them on this site.

附件六　環境影響評估合作交流資料

http://www.epa.gov/ttn/fera/risk_atra_main.html
Last updated on Tuesday, May 22, 2007

Technology Transfer Network
FERA (Fate, Exposure, and Risk Analysis)

Risk Assessment and Modeling - Air Toxics Risk Assessment Reference Library

EPA is developing an air toxics risk assessment (ATRA) reference library for conducting air toxics analyses at the facility and community-scale. This library provides information on the fundamental principles of risk-based assessment for air toxics and how to apply those principles in different settings as well as strategies for reducing risk at the local level. A more detailed description of each volume of the ATRA library is provided below.

Risk Assessment and Modeling

- General Information
- Air Toxics Risk Assessment
- Criteria Air Pollutant Risk Assessment
- Links to EPA Risk Assessment Policy, Guidelines, and Related Materials

Volume 1: Technical Resource Manual

Volume 1 discusses the overall air toxics risk assessment process and the basic technical tools needed to perform these analyses. The manual, which covers both human health and ecological analysis, also provides a basic overview of risk management and communication. Other tools (such as the public health assessment process) are described to give assessors, risk managers, and other stakeholders a more holistic understanding of the many issues that may come into play during air toxics risk assessment and reduction projects.

Volume 2: Facility-Specific Assessment

Volume 2 builds on the technical tools described in Volume 1 by providing detailed procedures for source-specific or facility-specific risk assessments. Information is also provided on tiered approaches to source- or facility-specific risk analysis.

Volume 3: Community-Scale Assessment

Volume 3 builds on the information presented in Volume 1 to describe how to evaluate and reduce cumulative air toxics risks at the local level. The volume also discusses other multimedia risk factors that may affect communities, and strategies to reduce those risks.

Community Air Screening How-To Manual

The Community Air Screening How-To Manual provides a detailed step-by-by step guide to help community partnerships use one of the screening level approaches described in Volume 3 to understand and improve local outdoor air quality. The Manual explains how to form a partnership, clarify goals, develop a detailed source inventory, use a risk-based screening process to identify priorities, and develop options for reducing risks from priority sources and concentrations. The Manual provides a framework for bringing together technical staff and local residents to share information, deliberate, and build consensus on priorities for improving local air quality. The Manual places special emphasis on sharing information and

providing the background education needed to insure that all members of the partnership can participate fully in key partnership decisions.

The ATRA library is an ongoing endeavor and may be revised periodically. EPA welcomes public input on the library at any time. Comments may be sent to Dr. Roy Smith (smith.roy@epa.gov) or Dr. Kenneth Mitchell (mitchell.ken@epa.gov).

Health Data

http://www.epa.gov/ttn/atw/toxsource/summary.html
Last updated on Tuesday, August 24, 2010

Technology Transfer Network
Air Toxics Web Site

Dose-Response Assessment for Assessing Health Risks Associated With Exposure to Hazardous Air Pollutants

The information below presents tabulated dose-response assessments that the Office of Air Quality Planning and Standards (OAQPS) uses for risk assessments of hazardous air pollutants. Two separate tables are provided. Table 1 presents values for long-term (chronic) inhalation and oral exposures; Table 2 presents values for short-term (acute) inhalation exposures. It is important to note that only for the purpose of these tables that the compound categories use the CAS number for the element. However, all compounds having that element in their chemical structure are included in the compound category.

The tables compile assessments from various sources for many of the 188 substances listed as hazardous air pollutants ("air toxics") under the Clean Air Act Amendments of 1990. Sources of chronic dose-response assessments were arranged in priority order according to conceptual consistency with EPA risk assessment guidelines and level of peer review. Table 1 shows only the assessment result from the highest-priority source. The table also reflects decisions we made about several chemicals on the basis of chemical-specific information. For the oral exposure pathway, Table 1 shows only assessment results for persistent and bioaccumulative substances likely to pose important non-inhalation risks when emitted from air sources. Sources of acute dose-response assessments were not prioritized because we judged that many were not directly comparable. Table 2 shows all values from our list of sources.

The numbers in these tables support hazard identification and dose-response assessment, as defined in the National Academy of Sciences (NAS) risk assessment paradigm, for estimating the risk of contracting cancer and the level of hazard associated with adverse health effects other than cancer.

Each assessment in these tables is best visualized as an estimate within a range of possible values, surrounded uncertainty and variability. This range of possible values may change as better data become available. They are generally appropriate for screening-level risk assessments, including assessments to select contaminants, exposure routes, or emission sources of potential concern, or to help set priorities for further research. For more complex, refined risk assessments developed to support regulatory decisions for single sources or substances, we recommend evaluating dose-response in detail for each "risk driver" to incorporate appropriate new toxicological data.

- **Chronic Table 1**   (attached)
- **Acute Table 2**  

April 27, 2010
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Office of Air Quality Planning and Standards