

**Mechanisms for Tracking Mercury  
Imports and Exports for  
Use and Disposal in Canada, Mexico  
and the United States**

**Summary**

**Final Report**

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## 1. Introduction

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### 1.1 Background

The Commission for Environmental Cooperation's (CEC) North American Regional Action Plan (NARAP) on Mercury is intended to assist the governments of Canada, Mexico and the United States in reducing the exposure of North American ecosystems, fish and wildlife and humans to mercury, through the prevention and reduction of anthropogenic releases of mercury to the North American environment.

Phase II of the NARAP includes two specific action items requiring the attention of the CEC's Enforcement Working Group (EWG):

#### Action Item 2a (1)

“[to] review and assess the adequacy of existing methodologies and processes for tracking imports and exports of mercury designated for manufacture or use in processes and products, with the goal of stimulating life-cycle management practices at the national level”; and

#### Action Item 3a (iv)

“to undertake a review of national programs to determine the adequacy of national reporting mechanisms used to track the ultimate fate of mercury-containing wastes within North America, particularly waste transported across national boundaries for storage, handling, processing, disposal or long-term containment, and to make recommendations to improve such mechanisms.”

The CEC is taking a two-stage approach to completing the review of the two action items noted above. In the first stage, the EWG, in concert with the CEC's Sound Management of Chemicals (SMOC) program, has prepared this report on national regulatory/policy frameworks in the three CEC countries respecting mercury imports and exports for processing, and mercury waste for recycling or final disposal. This report describes the relevant import/export mechanisms, the type of information generated, data quality, and data usability. The report also provides conclusions and recommendations.

This report will help form the basis for the second phase of the study, in which recommendations will be made for corrective measures and/or further work to improve reporting systems and address any problems arising from differences in regulatory approaches.

### 1.2 Objectives

The objectives of this report are the following:

- Identify and assess existing mechanisms and processes for tracking imports and exports of mercury designated for manufacturing or use in processing or products.
- Identify and assess reporting mechanisms and processes used to track the ultimate fate of mercury-containing wastes within North America, particularly wastes transported across national boundaries for storage, handling, processing, disposal, or long-term containment.
- Recommend improvements to these tracking and reporting systems.

### 1.3 Methodology

The mechanisms were assessed against the following criteria:

- data comprehensiveness, including the degree to which the mechanism can be expected to capture all imports and exports on the basis of such considerations as reporting trigger thresholds and sectoral coverage;
- data reliability and quality, including whether data are gathered as a result of a regulatory requirement, with penalties for non-compliance, or on a voluntary basis, and whether the data are subject to any quality control reviews; and
- data usability, including whether data are submitted and assessed in a timely manner, and are stored in a format that facilitates access and analysis, such as electronic databases, as opposed to hard-copy records requiring manual searches.

Gaps in the mechanisms are highlighted and recommendations presented to address these shortcomings.

The information regarding each mechanism is summarized in tables, using the criteria of comprehensiveness, quality and reliability, and usability for analysis, as follows:

<b>Mechanism</b>	<b>Comprehensiveness</b>	<b>Quality / Reliability</b>	<b>Usability/ Feasibility of Analysis</b>	<b>Comments</b>
	How complete is the information provided by the mechanism (e.g., what portion of imports, exports, and uses are likely covered, as a result of such factors as reporting thresholds or sectoral coverage)?	Are there any factors that compromise the reliability of the source (e.g., are the data collected as a result of a regulatory mandate or on a voluntary basis; are the data checked for accuracy and completeness)?	Does the form of information allow for efficient tracking and analysis (e.g., are the data stored in electronic databases that facilitate access and analysis, or would manual searches of records be required to generate useful information)?	Synthesis of the criteria in the preceding columns and any additional relevant information.

## **2. CANADA: MECHANISMS FOR TRACKING MERCURY IMPORTS AND EXPORTS FOR USE AND DISPOSAL**

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### **2.1 Information Sources Surveyed**

The following mechanisms were reviewed:

1. The Canadian Environmental Protection Act, 1999:
  - Sections 48–53 in Part 3 (“Information Gathering”), including National Pollutant Release Inventory (NPRI) reporting requirements issued annually by notice published in the Canada Gazette, Part I.
  - Sections 100–103 in Part 5 (“Toxic Substances”), establishing rules for control of exports of toxic substances (including the Export Control List Notification Regulations).
  - Sections 185–192 in Part 7 (“Controlling Pollution and Managing Wastes”), Division 8 (“Control of Movement of Hazardous Waste and Hazardous Recyclable Material and of Prescribed Non-Hazardous Waste for Final Disposal”) and Export and Import of Hazardous Waste Regulations.
  - Sections 64–99 in Part 5 (“Toxic Substances”), establishing other regulatory requirements for toxic substances (e.g., any reporting requirements under the Chlor-Alkali Mercury Release Regulations) as well as the Chlor-Alkali Mercury Liquid Effluent Regulations made under the Fisheries Act.
2. Information collected by the Canada Customs and Revenue Agency (CCRA), on the basis of customs forms and other sources.
3. Information collected by Statistics Canada through surveys of manufacturing or sales of mercury-containing products conducted under the Statistics Act.
4. Information gathered as result of the Canadian Council of Ministers of the Environment’s Canada-wide Standards for Mercury.
5. Information collected by Natural Resources Canada and Environment Canada through surveys of mercury-using facilities and of manufacturers, sellers or distributors of mercury-containing products.
6. Information collected through the Transportation of Dangerous Goods Act, Hazardous Products Act, or Pest Control Products Act.

### **2.2 Conclusions**

There is no single comprehensive data source in Canada regarding the import, export, manufacturing, use, and disposal of mercury or mercury-bearing products and wastes.

There are a number of sources that do provide useful information about particular aspects of the life cycle and use of mercury in Canada. In general these sources provide much better coverage of the disposal of mercury and mercury-containing wastes than of the use or manufacturing of mercury-containing products

Perhaps the most significant and useful source of information on the fate of mercury wastes is the NPRI, particularly in the context of the reduction of the reporting threshold for the manufacturing, processing or use of mercury or mercury compounds to 5kg per year, beginning with the 2000 reporting year. Facilities

meeting this threshold are required to report their mercury releases and transfers to the NPRI. This includes direct environmental releases to air, land, water, and underground injection, off-site releases, and transfers for treatment or recycling, including transfers to recipients in other countries. Recipients of transfers of NPRI substances are identified in facility reports.

The NPRI does suffer from a number of limitations from a life-cycle perspective. While facilities have to identify themselves as users or processors of mercury if they meet the 5kg threshold, the actual amounts used or processed do not have to be reported. Nor do transfers of mercury in product.

Other gaps in the NPRI exist as well. Exemptions from reporting exist for a number of sectors that may be significant users or processors of mercury, or generators of mercury wastes. These include education, training and research facilities, mining operations, and dental practices. Employee thresholds for reporting remain in place for all sectors except hazardous waste and sewage sludge incinerators, large biomedical, hospital and municipal waste incinerators, and wood preservation facilities. In addition, the lack of unique identifiers for recipients of transfers means that analyses of the fate of transfers can only be conducted on the basis of manual searches of facility reports, rather than through the NPRI databases.

Significant information regarding the fate of mercury wastes may also be obtained through the information contained in notices and manifests for transboundary hazardous waste movements filed under the CEPA Export and Import of Hazardous Wastes Regulations. Except for what are likely to be unusual situations where mercury or mercury product wastes are specifically identified through Product Identification Numbers, the information on imports of mercury-containing wastes generated through these mechanisms may be incomplete. This is particularly true where wastes may be mixtures of a number of contaminants, as would be the case with contaminated soils. In such cases, the presence of mercury might be indicated by a constituent code within the IWIC number in the notice of intent to import or export. However, the indication of the presence of mercury in this manner is at the discretion of the notifier, and may not be provided if mercury is one of many contaminants present. Furthermore, in such situations, as the IWIC code is not included in the waste manifest, it would only be possible, by correlating manifests with notices, to know that mercury was present in a shipment but not how much was actually present.

Gaps also exist in the tracking framework with respect to the full life cycle of products. The hazardous waste import/export regime is set up to track wastes from their point of export in one country to their point of disposal in another. However, in many cases the point of export may not be the point of generation. Rather the exporter may be a waste transfer facility operated for the purpose of consolidating waste shipments prior to export. In such cases the generator of a waste cannot be identified through the EIIHW regulation notice and manifesting system. Instead, it would be necessary to review the domestic waste manifests from the country of origin to identify the original waste generator. As the CEC has concluded before, under the current rules the tracking of hazardous waste from cradle to grave, where the cradle is in one country and the grave is in another, is extremely difficult.

The third major source of information on mercury imports and exports would be information gathered through customs forms accompanying imports and exports of mercury and mercury-containing products. However, as with other information sources, the information that can be generated in this way suffers from some significant limitations. Customs tariff codes only exist for some mercury-containing products, and in some cases, tariff codes cover categories that could include products that both do and do not contain mercury. In addition, customs forms only identify the exporter and importer, who may not necessarily be the manufacturer and end user of a product. In some cases the importer and exporter could be product distributors on each side of the border.

In theory exports of mercury and certain mercury-bearing compounds are required to be reported under the Export Control List Notification Regulations made under CEPA. The information provided in these

reports is limited to identifying the exporter, substance, country of import and importer. Information is not provided on exports of mercury-containing products, or identifying the end user in the country of import.

No exports of mercury were reported under the regulations in 1999. Underreporting may be occurring, as Statistics Canada and Natural Resources Canada reported exports of 1778 kg of mercury and mercury compounds in 1999, on the basis of customs information. There are no reporting requirements regarding imports of mercury under CEPA, except for the provisions of the Export/Import of Hazardous Wastes Regulations regarding mercury and mercury-containing wastes.

The Chlor-Alkali Mercury Release Regulations, made under CEPA, and the Chlor-Alkali Mercury Liquid Effluent Regulations, made under the federal Fisheries Act, include reporting provisions on air and water releases of mercury by Canada's only operating chlor-alkali plant, located in Dalhousie, New Brunswick. The Fisheries Act regulations also require information on mercury use and disposition in product and waste, permitting a mass-balance calculation to account for the fate of all mercury used by the facility.

Commitments to national reporting on mercury use on a mass-balance basis are provided under the Canada-wide standard on Waste Dental Amalgam, adopted in May 2001. Mercury levels in lamps sold in Canada are to be reported under the Canada-wide Standard on Mercury-containing Lamps, adopted in September 2001. However, reporting under both standards is not to begin until 2004, and the requirements regarding data consistency and quality among jurisdictions are uncertain. Similar considerations apply to data to be gathered on mercury emissions from the base metal smelting and incineration sectors under the June 2000 Canada-wide Standard on Mercury Emissions.

Statistics Canada conducts surveys on the use, manufacturing and sales of certain products, such as electric lamps and fuel use by electrical power generating stations, which may contain useful information regarding mercury-containing products. Surveys are conducted on both voluntary and mandatory bases. However, the data gathered through these surveys are subject to strict confidentiality requirements under the Statistics Act, and cannot be made available to law enforcement agencies. Aggregate data on mercury use or the sale of mercury-containing products could be provided, along with information indicating that individual companies or facilities manufacture or sell mercury-containing products. However, information on specific quantities of products manufactured or sold by individual companies or facilities cannot be made available to other government agencies or the public.

Natural Resources Canada conducts annual surveys on mercury use in Canada for the purposes of the Canadian Mineral Yearbook. However, data are gathered on the basis of a voluntary survey of known mercury-using facilities, and are subject to confidentiality commitments regarding facility- or company-specific data. Environment Canada has conducted surveys of mercury use along similar lines. No use has been made of the compulsory information-gathering powers available to the Minister of the Environment under section 46 of CEPA with respect to mercury or mercury compounds or products, other than the reporting requirements contained within the NPRI.

There are no reporting requirements regarding the transportation of dangerous goods, such as mercury or mercury-containing products, under the Transportation of Dangerous Goods Act or Regulations, except with respect to transboundary movements of mercury-containing wastes, where the provisions of the EIIHW regulations apply. Similarly there are no regular reporting requirements regarding the mercury content of products or their sale, import or use under the Hazardous Products Act or Regulations.

All mercury-based pesticides have been de-registered under the Pest Control Products Act and therefore are no longer available for legal sale in Canada. However, the Act and regulations contain no

requirements regarding reporting on the use or sale of registered pesticides. As a result, no information is available regarding historical use or sale of mercury based pesticides.

In summary, there is no comprehensive data source available able to track the life cycle use and disposal of mercury in Canada, or mercury imports or exports from their point of origin to their ultimate fate.

Fragments of information can be assembled from individual data sources. However, all of the data sources surveyed suffered from significant limitations—in terms of comprehensiveness, data reliability and usability—from the perspective of the CEC's goals. Information from these sources would also form the basis of any reporting activities that Canada has undertaken through international agreements, such as the OECD Prior Informed Consent Convention, the UNECE Heavy Metals (Aarhus) Protocol and the UNECE Basel Convention.

## **2.3 Recommendations**

1. Amend the NPRI Order to remove exemptions from reporting for facilities in the research, education, testing and mining sectors.
2. Establish common unique identifiers for recipients of transfers of wastes and recyclables reported under NPRI (Canada), TRI (USA) and RETC (Mexico), to facilitate electronic analysis of the fates of transfers for treatment, recovery, recycling and disposal across North America.
3. Expand the reporting requirements under the CEPA Export Control List Notification Regulations to include exports of designated mercury-containing products, and to require that information be provided on the recipient and intended end use of mercury, mercury compounds and mercury-containing products exported from Canada.
4. Establish requirements for notifications of imports of mercury, mercury-containing products or wastes under Canada's regulations currently being developed to implement the Rotterdam Convention on Prior Informed Consent (PIC).
5. Modify the Export and Import of Hazardous Wastes Regulations to require the identification of mercury as a waste constituent where wastes containing mercury are not identified as mercury wastes with a TDG PIN number, and to require information on the specific quantity or concentration of mercury contained by such wastes in the waste manifest.
6. In cooperation with the United States and Mexico, establish mechanisms under each country's hazardous waste manifesting systems to permit the tracking of wastes from cradle to grave (i.e., generator to site of disposal/recycling) where the cradle is in one country and the grave is in the other. Among other things, this would involve the creation of a document that accompanies a waste shipment from its point of generation to its final fate, even when these occur in different countries.
7. In cooperation with the Canada Customs and Revenue Agency, establish Tariff Codes specific to mercury-containing products that are currently reported under Codes that may currently combine both mercury-containing and non-mercury-containing versions of products
8. Use the information-gathering powers provided to the Minister of the Environment under section 46 of CEPA to require that facilities that import, manufacture or sell mercury-containing products report annually their use of mercury, and/or their imports or sales of mercury-containing products.





### 3. MEXICO: MECHANISMS FOR TRACKING MERCURY IMPORTS AND EXPORTS FOR USE AND DISPOSAL

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#### 3.1 Information Sources Surveyed

The following mechanisms were reviewed:

1. Customs Law and import and export regulation (*Ley Aduanera y su reglamento en materia de importación y exportación*)
2. Decree listing tariff codes that require authorization for import and export by the Intersecretarial Commission for the Control of Pesticides, Fertilizers and Toxic Substances (*Decreto por el que se especifican las fracciones arancelarias que requieren autorización de importación y exportación del Comité Intersecretarial para el Control de Plaguicidas, Fertilizantes y Sustancias Tóxicas—Cicoplafest*)
3. General Health Law and its Regulation on Control of Establishments, Products and Services.
4. Federal Firearms and Explosives Law (*Ley Federal de Armas de Fuego y Explosivos*) and Regulation
5. General Law on Ecological Balance and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección al Ambiente—LGEEPA*), its Regulations and other related provisions:
  - LGEEPA Regulation on Environmental Impact (*Reglamento de la Ley General del Equilibrio Ecológico y Protección al Ambiente en Materia de Impacto Ambiental*)
  - LGEEPA Regulation on Air Pollution Prevention and Control (*Reglamento de la Ley General del Equilibrio Ecológico y Protección al Ambiente en Materia de Prevención y Control de Contaminación Atmosférica*)
  - National Water Law (*Ley de Aguas Nacionales*)
  - Water Pollution Prevention and Control Regulation (*Reglamento para la Prevención y Control de la Contaminación de Aguas*)
  - LGEEPA Regulation on Hazardous Waste (*Reglamento de la Ley General del Equilibrio Ecológico y Protección al Ambiente en Materia de Residuos Peligrosos*).
  - Executive order establishing the classification and coding of goods whose import and export is subject to regulation by the Ministry of the Environment, Natural Resources and Fisheries
  - Executive order establishing the procedure for returning hazardous waste (SIRREP)
6. Regulation on Ground Transportation of Hazardous Materials and Waste (*Reglamento para el Transporte Terrestre de Materiales y Residuos Peligrosos*) of the Ministry of Communication and Transportation (*Secretaría de Comunicaciones y Transporte—SCT*).

### **3.2 Conclusions**

A variety of legal provisions in Mexico establish procedures for regulation and control of operations involving mercury, as well as substances, products and hazardous waste containing it. However, most of these procedures are not designed to generate information and records which would make it possible to track movements of these materials from cradle to grave.

The Federal Firearms and Explosives Law is one legal provision that does provide some mechanisms for tracking the use and disposal of the materials it regulates. However, since very few explosives or fireworks contain mercury (e.g., mercury fulminate), the law has limited applicability to it.

SAAI is the most complete information source available on imports and exports occurring from month to month. This database indicates the goods and quantities imported and exported, as well as the importers and exporters. However, due to the manner in which some goods are identified and classified under the Tariff of the General Import and Export Law, it is not always possible to distinguish or describe articles or devices containing mercury separately, since they are grouped under a single heading with similar items or devices not containing mercury. This is the case, for example, with glass for glass thermometers, with or without mercury, which are all classified under a single tariff heading. This feature of the goods identification and classification system makes it impossible to ascertain the total volume of imports and exports of mercury and its compounds.

In any event, the recording mechanisms established by the Customs Law and regulation do not make it possible to track the movement of imported goods beyond the importer's premises. As for exports, there is no way to determine the fate of goods once they leave the country.

LGEEPA contains various provisions specifically designed to gather the information necessary to track hazardous waste, including waste derived from mercury or containing it. However, there are some gaps and deficiencies that make it difficult to use these tracking features fruitfully and that undermine the institution's capacity to track wastes from cradle to grave, that is, from its generation or importation into the country through its final disposal, whether domestically or abroad.

To start with, Semarnat has not thus far exhibited the capacity to enter and process all mandatory data filed by generators and service companies in relation to their hazardous waste activities, i.e. generation, shipping, storage, reuse, recycling, treatment and disposal. At best, the databases are not updated, and in some cases there are backlogs of over a year. In addition, some information is simply unavailable, such as that concerning the real quantities of hazardous waste exported or returned, since the persons responsible for these operations do not always report them.

The new monthly and semi-annual report form that must be filed by service companies and generators, respectively, creates another significant gap in the chain of information necessary to manage hazardous waste. Hazardous wastes are identified on these forms by the INE number and the generic codes for each waste type. In some cases, it is impossible to determine from the INE number or generic code whether a hazardous waste contains mercury. Thus, an opportunity is being lost to collect information that could serve to determine the fate of some mercury-containing hazardous waste.

Semarnat does not receive copies of the transfer, shipping and receipt manifests with the periodic hazardous waste movement reports, so it cannot use the manifests to verify the accuracy of the data contained in these reports. Profepa, on the other hand, can make this verification during its inspections. However, the new report forms call for the total quantity of each hazardous waste managed during the reporting period, not for each movement, as previously. It is no longer possible to directly compare the

quantities reported with those contained in the manifests, and this hampers the management of the information. Furthermore, neither Semarnat nor Profepa verify that the waste code or number has been properly identified.

An additional obstacle to tracking hazardous waste, even for Profepa, is that the service companies and hazardous waste generators file their monthly and semi-annual reports, respectively, with the Semarnat office in the state in which they are domiciled. For example, a generator in Sonora that sends its waste to a landfill site located in Nuevo León files its semi-annual report with the Semarnat Sonora state office, while the landfill company files its report with the Nuevo León state office. Neither Semarnat nor Profepa has a program for comparing data on a single waste contained in inspection reports filed in different states.

Moreover, there is no control over the printing of manifests. Any company can print them and arbitrarily assign folio numbers. As a result, it is difficult to distinguish between a legitimate manifest and a spurious one.

Finally, concerning hazardous waste exports, neither Semarnat nor Profepa has the information necessary to determine the fate of waste once it crosses the border.

The difference in the classification of hazardous wastes among the countries makes it highly difficult to exchange hazardous waste information among them.

### **3.3 Recommendations**

Based on the conclusions above, and considering that the key control and reporting mechanisms for the improper disposal of hazardous materials and waste involve the generation, handling, transportation and final disposal of hazardous waste, this section will only include recommendations to improve the tracking of movements of such waste.

1. Official control should be established over the issuance of transfer, shipping and receipt manifests, with a unique numbering system, so that no two manifests can have the same number or folio.
2. Manifests should only be available directly from Semarnat, which should keep a record of the form numbers issued to generators and service companies. In this way, it will be possible to identify the legitimate user of the manifest from its number. To improve the information management, the folio numbers may also be printed with bar codes.
3. The above measure could be complemented by updating the register of generators and service companies. Each manifest would include the numbers of the generator, carrier and recipient, also using bar codes. Due to the magnitude of this measure, the updating of companies receiving the final disposal of waste could be included.
4. Sufficient resources must be allocated to enable Semarnat to enter and process the data it receives in a timely manner. This would allow Semarnat the advantage of being able to authorize or deny the import, export or return of waste, depending on whether the applicant has given prior notice of the shipments.
5. Profepa should establish a central-server database, in which the regional offices could enter information on waste obtained in the corresponding inspections, allowing for the full and timely

tracking of the waste, and of the handling thereof, from the generator to the carrier and to the final recipient. This database would allow for the detection of discrepancies in the information on persons involved in the waste handling, in order determine the need to establish new inspections with regard thereto.

6. The monthly and semi-annual reports filed by the generators and service companies should indicate the quantities of waste involved in each movement and the corresponding manifest numbers. These reports would also be more useful to generators and service providers by having bar codes.
7. Consideration should be given to homologation of North American hazardous waste classifications, which could require legislative changes that the countries are not always willing to undertake. A relatively simple automatic reporting procedure could be attempted for the movement of waste classified as hazardous in one country but not in the other.

This procedure could establish that importers or exporters of this type of waste are required to report such movements to the respective environmental authorities of the country where the waste is not deemed hazardous, and to obtain confirmation of receipt of such notice. The classification, number and codes of the country where the waste is hazardous would be used.

For example, if a waste classified as non-hazardous in the United States or exempt from the paperwork required for handling hazardous waste is imported into Mexico or exported from Mexico, where it is classified as hazardous, the importer/exporter in Mexico would have to notify the EPA of the movement undertaken and obtain confirmation of such notice. Similarly, in the case of a waste classified as hazardous in the United States but not in Mexico, the US importer/exporter of the waste would be required to give notice of the movement to Semarnat and/or Profepa. This would generate a database that could be shared among the three countries in the region.

The Mexican and US working groups on the transboundary movements of hazardous waste, under Annex III of the La Paz Agreement, could develop this procedure and define the details thereof.

## **4. UNITED STATES: MECHANISMS FOR TRACKING MERCURY IMPORTS AND EXPORTS FOR USE AND DISPOSAL**

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### **4.1 Information Sources Surveyed**

The following regulatory agencies and mechanisms were reviewed:

1. Environmental Protection Agency
  - Resource Conservation and Recovery Act (RCRA)
    - Land Disposal Restrictions
    - Universal Waste Rule
    - Mercury-Containing and Rechargeable Battery Management Act
    - Hazardous Waste Lamps Rule
  - Comprehensive Environmental Response, Compensation, and Liability Act, 1980 (CERCLA, also known as “Superfund”)
  - Emergency Planning and Community Right-To-Know Act (EPCRA), Section 313
  - Pollution Prevention Act (PPA), Section 6607
  - Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - Clean Air Act (CAA)
  - Toxic Substances Control Act (TSCA)
  - US EPA, Office of Solid Waste, RCRA Program, electronic Uniform Hazardous Waste Manifest program
2. Department of Transportation
  - Federal Hazardous Materials Transportation Law
3. Department of Homeland Protection
  - Bureau of Customs and Border Protection automated import/export manifest requirements
4. Department of Commerce
  - Census Bureau—administration of “Schedule B” trade codes for export goods, compilation of trade statistics from Customs Service shipping manifests
  - Bureau of Export Administration—licensing and tracking exports of goods with national security significance; participates in approval/denial of Department of Defense (DOD) strategic stockpile mercury sales through the Market Impact Committee
  - International Trade Administration—participates in approval/denial of DOD strategic stockpile mercury sales through the Market Impact Committee
5. International Trade Commission
  - Administration of import trade codes; addition of new classifications as necessary
6. Department of Defense
  - Defense Logistics Agency—management of strategic mercury stockpile
7. Department of State/Department of Commerce

- Participates in approval/denial of DOD strategic stockpile mercury sales through the Market Impact Committee

## **4.2 Conclusions**

### **4.2.1 Mercury Waste Tracking Systems**

Waste manifests are often incomplete, inaccurate and untimely. This frustrates the ability of enforcement officials to track waste shipments from cradle to grave and can result in the circumvention of both domestic waste management laws and international agreements regarding the transborder movement of hazardous waste.

Lack of a “harmonized” system of hazardous waste identification makes it difficult to track international shipments of mercury waste from cradle to grave. This also holds true for a number of forms of commodity mercury and mercury products. One option for mercury waste is the OECD red-amber-green waste classification system.

A standardized numbering system for transborder waste shipments would greatly simplify cradle to grave tracking and linking of existing tracking systems. A standardized numbering system for transborder waste shipments would be a major improvement over the current system, which has no sequential numbering of any kind. Standardized numbering systems are commonplace in the package delivery business. There is no practical constraint on imposing such a system on waste shipments. One unique situation with regard to waste shipments, however, involves bulking and transshipment. Where waste shipments are combined at a storage/bulking facility, new shipping numbers of the bulked shipment would have to be linked to all originating numbers of the individual shipments comprising the bulked shipment.<sup>1</sup>

Electronic filing and scanning of documents also can reduce compliance costs for the regulated community and reduce paperwork burdens on government entities. Options include electronic manifests, bar codes and specialized hardware to read and enter data, query status of shipments, and update files on individual shippers or customers. Package and document shipping companies (FedEx and UPS for example) use these technologies currently for realtime tracking of shipments and have demonstrated their effectiveness.<sup>2</sup>

EPA is revising its electronic Uniform Hazardous Waste Manifest system to reduce paperwork burdens, hopefully to prescribe one universal form that would replace the various state forms now in use. The system will be supported, where feasible, by automated information technologies that would facilitate electronic completion, signing, and transmission and storage of manifest data. The proposed rule included standardized electronic formats and other measures, but assumed that electronic manifests would be developed by private firms and not centralized within a national system. This policy is currently under review, based on the approximately 60 sets of comments received during the 2001 comment period. A final rule is expected in later 2003.

The Bureau of Customs and Border Protection is in final rulemaking (summer 2003) on the Trade Act of 2002—Advance Electronic Information, which will put in place a fully electronic import/export tracking system. One purpose of the fully electronic database tracking systems is to permit Customs

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<sup>1</sup> 1999 CEC. *Tracking and Enforcement of Transborder Hazardous Waste Shipments—A Needs Assessment*.

<sup>2</sup> *Ibid.*

representatives to make on-the-spot “go/no go” decisions on: 1) goods that are subject to export controls, and 2) goods that are banned or restricted in some manner from importation to the US.

A rigorous manifest system is in place for domestic shipments of hazardous waste, although the current patchwork of recordkeeping databases (hardcopy, electronic) make it difficult or impossible to track domestic hazardous waste shipments in realtime. One complicating factor for domestic tracking of some forms of mercury waste is the streamlined UWR recordkeeping structure. Shipments of common forms of waste mercury-containing goods, such as batteries, fluorescent lamps, thermometers, do not require written (or electronic) manifests under the UWR.

The US could consider imposing a series of fees and penalties on waste shipments to help ensure that information is complete and accurate. Even if all information is complete, accurate and timely on a manifest, a portion of each pre-shipment performance bond would be retained to cover the costs of processing waste tracking information. One disadvantage of this recommendation is that waste shippers will have incentives to circumvent the regulatory system to the extent that costs of entering the system increase.<sup>3</sup>

Some critical information, such as company enforcement and compliance history, is not available or linked to existing databases that track pre-notifications and consents and/or actual waste shipments (manifests). Linking the current tracking systems to other sources of relevant information regarding the environmental and economic performance of firms that participate in transborder shipping of hazardous waste would be of value in identifying potentially suspect shipments.<sup>4</sup>

The current US ad hoc “freeze” on international sales of large quantities of elemental mercury, from either closure of domestic mercury cell chlor-alkali plant(s) or the DLA strategic mercury stockpile, is providing a two- to three-year window of opportunity to put an effective international tracking and control program in place that will potentially reduce or eliminate the potential environmental damage caused by bulk sales of this type.

#### **4.2.2 Import/Export of Mercury-containing Commodity Goods**

Realtime electronic tracking of import/export of mercury-containing commodity goods is currently carried out by the Bureau of Customs and Border Protection. This information is proprietary, primarily to protect importers/exporters from competitors who could use the manifest information to determine unit prices of goods and gain a competitive advantage. Public dissemination of aggregate data on each HTS code is available approximately 45 days after the end of the month in which the data were collected. Existing administrative tools, including the CCL and NID, are potentially available that would permit realtime tracking on a shipment-specific basis.

#### **4.2.3 Domestic Shipments of Mercury-containing Commodity Goods**

DOT HAZMAT regulations were not developed to track the flow of hazardous materials. The intent is to accurately identify the hazardous material, ensure that the material is properly packaged for shipment, and provide emergency personnel with sufficient chemical information to effectively address accidental spills or releases of the material. There are a relative handful of companies handling significant amounts of mercury on a routine basis in the US. A more fruitful approach to tracking domestic mercury shipments might be to establish a mandatory registry of companies that use/handle/recycle mercury above some *de*

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<sup>3</sup> Ibid.

<sup>4</sup> Ibid.



*minus* level and require prior notification through a dedicated electronic database tracking system of all domestic mercury shipments.

### 4.3 Recommendations

1. There is no compelling reason to maintain three essentially unlinked US waste tracking systems: HAZTRAKS, WITS and Exports. A single uniform electronic database is necessary to eventually attain realtime shipment tracking capability. One possibility is to utilize the Customs import/export tracking system. A major potential hurdle to this approach is the timely incorporation of customs tariff codes that are consistent with US mercury and mercury waste identification codes.
2. Adoption of the OECD waste identification system would harmonize waste tracking systems in the US with those of most of Europe and many other industrialized nations. The US should request additional tariff codes via the US ITC that effectively identify commodity and waste mercury substances that do not currently have unique tariff codes.
3. A standardized numbering system for transborder waste shipments would be a major improvement over the current system, which has no sequential numbering of any kind. Standardized numbering systems are commonplace in the package delivery business. There is no practical constraint on imposing such a system on waste shipments.
4. The US could consider imposing a series of fees and penalties on waste shipments to help ensure that information is complete and accurate. Even if all information is complete, accurate and timely on a manifest, a portion of each pre-shipment performance bond would be retained to cover the costs of processing waste tracking information.
5. Linking the current tracking systems to other sources of relevant information regarding the environmental and economic performance of firms that participate in transborder shipping of hazardous waste would be of value in identifying potentially suspect shipments.
6. EPA should establish an interagency committee with the US ITC and develop/establish a comprehensive list of HTS codes for mercury-containing commodity goods. This should be a relatively straightforward assignment, as the number of mercury-containing commodity goods is relatively limited and many are already specifically identified or indirectly identified (e.g., liquid-containing thermometers) by HTS codes. A number of refinements to existing HTS codes, as well as a few new codes, should be sufficient to cover the vast majority of commodity goods containing mercury.
7. EPA should establish an interagency committee with the departments of Commerce, Treasury, State, and Defense to develop ground rules for adding environmentally sensitive materials, such as elemental mercury and mercury-containing goods, to the CCL. Addition of elemental mercury and mercury-containing goods to the CCL would allow the EPA to take advantage of a sophisticated existing export tracking system, and potentially restrict the flow of these goods only to countries with adequate in-country mercury handling and disposal infrastructure. The NID administrative tool is also potentially available to conduct realtime tracking of mercury exports. A very persuasive case would have to be made to obtain an NID on environmental security grounds.

## **5. ANALYSIS TABLES**

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## **5.1 Introduction**

This document is a summary analysis of the following reports:

- Mechanisms for Tracking Canadian Mercury Imports and Exports for Use and Disposal (May 2002);
- Assessment of Mechanisms in Mexico for Tracking Imports and Exports of Mercury for Use and Disposal (August 2002); and
- Mechanisms for Tracking United States Mercury Imports and Exports (March 2003).

The objective of this document is to analyze the three country reports and summarize the information in a format that facilitates comparison among the three countries and allows for a systematic approach to identifying gaps and areas for improvement.

Although the above reports focus on imports and exports, they also provide some indication on reporting mechanisms and data available on domestic use, emissions, and wastes. Since this information may be useful to other NARAP processes aimed at tracking progress on action items, it is included in this analysis.

The tables in this document summarize the information from the three country reports according to the following:

- the “category” column corresponds to life cycle, and cross-references the major actions in the NARAP on use, wastes, and emissions;
- the “mechanism” column identifies the applicable reporting mechanisms, their application and the types of data that are generated;
- the “analysis” column is a summary of the key conclusions and limitations from the report (note that not all limitations are listed here since they summarized in the tables in the reports); and
- the “recommendations” column contains the formal recommendations from the reports.

## 5.2 Canada: Analysis of tracking mechanisms by life cycle

### Acronyms

CCRA	Canada Customs and Revenue Agency
EIHW	Export and Import of Hazardous Wastes Regulations
IWIC	International Waste Identification Code, EIHW
MSDS	Material Safety Data Sheet, Hazardous Products Act
NARAP	North American Regional Action Plan on Mercury, Phase II
NPRI	National Pollutant Release Inventory
PIN	Product identification number, EIHW
TDGA	Transportation of Dangerous Goods Act, 1992
TDGR	Transportation of Dangerous Goods Regulations

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
	<b>GENERATION</b>			
1	Primary Production	<b>NRCan Canadian Minerals Yearbook</b> • provides data on total annual production (no mercury production in Canada)	• sufficient to monitor primary mercury production	
2	Secondary Production	• report does not address secondary production	• report does not address secondary production	
3	Imports/Exports	<b>NRCan Canadian Minerals Yearbook</b> • provides data on annual total exports and imports of mercury (based on CCRA data)	• does not generate facility- or company-specific data	
4		<b>CCRA</b> • applies to all imports and exports of goods • provides data on total imports/exports of elemental mercury and mercury oxides	• specific data on industries and quantities may be confidential	

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
5		<b>Export Control List Notification Regulations</b> • applies to "mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds" • provides data on exporter, name of the substance, country of destination, date of export and quantity, tariff code, importer	<ul style="list-style-type: none"> <li>• data not always timely</li> <li>• deals with exports only</li> <li>• does not capture all mercury-bearing products</li> <li>• apparent underreporting problems</li> </ul>	<ul style="list-style-type: none"> <li>• expand reporting requirements to include exports of designated mercury-bearing products, require information on the recipient and the intended end use of mercury, mercury compounds and mercury-bearing products</li> </ul>
6	Stores	• report does not address stores except chlor-alkali plants	• report does not address stores except chlor-alkali plants	
<b>USE (PROCESSES, OPERATIONS, AND PRODUCTS)</b>				
7	General	<b>Export Control List Notification Regulations</b> • applies to "mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds" • provides data on exporter, name of the substance, country of destination, date of export and quantity, tariff code, importer	<ul style="list-style-type: none"> <li>• data not timely</li> <li>• deals with exports only</li> <li>• does not capture all mercury-bearing products</li> <li>• apparent underreporting problems</li> </ul>	<ul style="list-style-type: none"> <li>• expand reporting requirements to include exports of designated mercury-bearing products, require that information be provided on the recipient and intended end use of mercury, mercury compounds and mercury-bearing products</li> </ul>
8		<b>Statistics Canada Surveys</b> • can be used to identify facilities and products they produce, manufacture, process, transport, store, purchase or sell	<ul style="list-style-type: none"> <li>• no targeted surveys on mercury to date</li> <li>• specifics on industries and quantities are confidential</li> </ul>	
9		<b>NPRI</b> • applies to incineration and wood preservation facilities that manufacture, process or use 5 kg of mercury or compounds per year; other facilities have threshold of 20,000 worker-hours • provides data on facility, quantities released and transferred, nature of activity, types of release/transfer, etc.	<ul style="list-style-type: none"> <li>• very limited information on use; no data on quantities "manufactured, processed, or otherwise used"</li> <li>• not appropriate for tracking mercury-containing products</li> </ul>	

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
10		<b>CEPA</b> • section 46 provides wide information-gathering authority	• not currently being used for mercury	• use section 46 of CEPA to require that facilities that import, manufacture or sell mercury-bearing products report annually their use of mercury, and/or their imports or sales of mercury-bearing products
11		<b>Proposed import notification regulations</b> • applies Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade; not expected to require notices for imports of mercury	• proposed regulation is not expected to require notices for imports of mercury	• establish requirements for notifications of imports of mercury, mercury bearing products or wastes under regulations currently being developed
12		<b>CCRA</b> • applies to all imports and exports of goods • report does not identify types of data available	• does not have specific codes for all mercury-bearing products • specifics on industries and quantities may be confidential	• establish Tariff Codes specific to mercury-bearing products
13	Automotive sector (action 2b)	<b>CCRA</b> • applies to all imports and exports automotive switches, but not specific to mercury • report does not identify types of data available	• no specific category for mercury-containing switches • specifics on industries and quantities may be confidential	• establish Tariff Codes specific to mercury-bearing products
14	Chlor-alkali sector (action 2c)	<b>Chlor-Alkali Mercury Liquid Effluent Regulations</b> • specifies maximum concentrations in effluent • provides monthly reports on mercury input (use), mercury disposition (in effluents, products, solids, other), mercury in storage	• data on mercury use and disposition in product and waste, permits a mass balance calculation to account for the fate of all mercury used	
15		<b>Chlor-Alkali Mercury Release Regulations</b> • specifies allowable emissions to air • reports sent on request, include release measurements from three sources to ambient air during the preceding 60 days • may request information about plant operations, malfunctions or breakdowns, and air pollution control equipment used in the plant	• unlikely to provide useful data; Chlor-Alkali Mercury Liquid Effluent Regulations provide all data that are needed for this sector	

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
16		<b>NRCan Canadian Minerals Yearbook</b> • provides annual overall data on selected consumption (electrical apparatus, industrial and control instruments and electrolytic preparation of chlorine and caustic soda and other uses)	• may not capture all sources since data submission is voluntary • does not generate facility- or company-specific data	
17	Batteries (action 2d)	<b>CCRA</b> • applies to all imports and exports of mercuric oxide batteries • report does not identify types of data available	• good indication of total imports/exports of mercuric oxide batteries • specifics on industries and quantities may be confidential	
18	Electrical switches and relays (action 2e)	<b>CCRA</b> • applies to all imports and exports of switches but not specific to mercury • report does not identify types of data available	• no specific category for mercury-containing switches • specifics on industries and quantities may be confidential	• establish Tariff Codes specific to mercury-bearing products
19		<b>NRCan Canadian Minerals Yearbook</b> • provides annual overall data on selected consumption (electrical apparatus, industrial and control instruments and electrolytic preparation of chlorine and caustic soda and other uses)	• may not capture all sources since data submission is voluntary • does not generate facility- or company-specific data	
20	Lamps (action 2f)	<b>CCRA</b> • applies to all imports and exports of mercury vapor lamps, other classes of products that are known to contain mercury (e.g., fluorescent lamps) • report does not identify types of data available	• some categories do not specify mercury-containing products • specifics on industries and quantities may be confidential	• establish Tariff Codes specific to mercury-bearing products
21		<b>Statistics Canada Survey 2117</b> • electric lamps survey conducted • report does not give details	• report does not give details	
22		<b>CCME CWS</b> • sets reduction targets for mercury content • provides national reports that will consolidate jurisdictional reports and document progress, including average mercury content in lamps	• no reporting until 2004 • uncertain whether data will be useful (requirements, consistency, quality, availability among jurisdictions are uncertain)	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	Recommendations from Report
23	Health and dental care (action 2g)	<b>CCME CWS</b> <ul style="list-style-type: none"> <li>• sets reduction target for mercury in waste</li> <li>• provides national report that will consolidate jurisdictional reports and identify waste quantities collected, recycled and disposed of and number of dentists adopting best practices; average weighted mercury content of sewage sludge</li> <li>• other data includes: BC - annual inventory of mercury levels in municipal biosolids; EC - annual inventory of municipal sewage sludge quality; Yukon - estimated amount of release to sewers</li> </ul>	<ul style="list-style-type: none"> <li>• no reporting until 2004</li> <li>• uncertain whether data will be useful (requirements, consistency, quality, and availability among jurisdictions are uncertain)</li> </ul>	
24		<b>CCRA</b> <ul style="list-style-type: none"> <li>• applies to all imports and exports "medical instruments" and "other dental fittings" but not specific to mercury</li> <li>• report does not identify types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• categories do not specify mercury-containing products</li> <li>• specifics on industries and quantities may be confidential</li> </ul>	<ul style="list-style-type: none"> <li>• establish Tariff Codes specific to mercury-bearing products</li> </ul>
25	Cultural and artisanal uses (action 2h)	<b>HPA</b> <ul style="list-style-type: none"> <li>• prohibits the sale, advertisement or import of mercury-containing toys, equipment and other products for children</li> <li>• does not provide data; authority exists to obtain information on formula, composition, ingredients</li> </ul>	<ul style="list-style-type: none"> <li>• no data generated</li> </ul>	
26	Measuring and control instruments (action 2i)	<b>CCRA</b> <ul style="list-style-type: none"> <li>• applies to all imports and exports instruments but not specific to mercury</li> <li>• report does not identify types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• categories do not specify mercury-containing products</li> <li>• specifics on industries and quantities may be confidential</li> </ul>	<ul style="list-style-type: none"> <li>• establish Tariff Codes specific to mercury-bearing products</li> </ul>
27		<b>NRCan Canadian Minerals Yearbook</b> <ul style="list-style-type: none"> <li>• provides annual overall data on selected consumption (electrical apparatus, industrial and control instruments and electrolytic preparation of chlorine and caustic soda and other uses)</li> </ul>	<ul style="list-style-type: none"> <li>• may not capture all sources since data submission is voluntary</li> <li>• does not generate facility- or company-specific data</li> </ul>	



#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	Recommendations from Report
28	Other	<b>Pesticides - PCPA</b> <ul style="list-style-type: none"> <li>• data not generated regarding imports, use, or sale in Canada</li> </ul>	<ul style="list-style-type: none"> <li>• no data generated</li> <li>• does not apply to exports; a proposed new PCPA (Bill C-53) currently before Parliament would, if enacted, provide the legislative authority to establish export controls on pest control products</li> </ul>	
<b>WASTES</b>				
29	Imports/exports	<b>TDGA</b> <ul style="list-style-type: none"> <li>• applies safety standards for the handling, offering for transport, and transport of dangerous goods</li> <li>• no data generated except chemical composition upon request by Minister</li> </ul>	<ul style="list-style-type: none"> <li>• no data generated</li> </ul>	
30		<b>Export Control List Notification Regulations</b> <ul style="list-style-type: none"> <li>• applies to "mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds"</li> <li>• provides data on exporter, name of the substance, country of destination, date of export and quantity, tariff code, importer</li> </ul>	<ul style="list-style-type: none"> <li>• data not always timely</li> <li>• deals with exports only</li> <li>• does not capture all mercury-bearing products</li> <li>• apparent underreporting problems</li> </ul>	<ul style="list-style-type: none"> <li>• expand reporting requirements to include exports of designated mercury-bearing products, require that information be provided on the recipient and intended end use of mercury, mercury compounds and mercury-bearing products</li> </ul>
31		<b>EIHWR</b> <ul style="list-style-type: none"> <li>• applies to notification of import/export of 34 mercury-containing wastes; transportation of 4 additional mercury-containing items is prohibited; where waste is a mixture, must indicate from one to three components</li> <li>• provides notification data on intended shipments over 1 year and quantity; manifests provide actual quantities; receivers must confirm receipt</li> </ul>	<ul style="list-style-type: none"> <li>• does not track fate of mercury products</li> <li>• information on mercury in waste mixtures may not be reliable or complete; data not provided on manifest; no data on mercury quantities in mixtures</li> </ul>	<ul style="list-style-type: none"> <li>• modify regulations to require identification of mercury as a waste constituent and information on the specific quantity or concentration of mercury in the waste manifest</li> <li>• establish mechanisms under each country's hazardous waste manifesting systems to permit the tracking of wastes from cradle to grave (i.e., generator to site of disposal/recycling) where the "cradle" is in one country and the "grave" is in the other</li> </ul>

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
32		<b>NPRI</b> • applies to incineration and wood preservation facilities that manufacture, process or use 5 kg of mercury or compounds per year; other facilities have threshold of 20,000 worker-hours • provides data on facility, quantities released and transferred, nature of activity, types of release/transfer, etc.	• manual search required to identify receivers • good data on transfers for treatment, storage, disposal and recycling • no data on on-site recycling, treatment, processing • excludes data from educational, research, testing, mining, and dental facilities • may exclude facilities with less than 20,000 worker-hours	• amend NPRI Order to remove exemptions from reporting for research, education, testing and mining facilities • establish common unique identifiers for recipients of transfers of wastes and recyclables reported under the NPRI (Canada), TRI (USA) and RETC (Mexico), to facilitate electronic analysis of the fates of transfers
33	Combustion and industrial processes and pollution control operations (action 3a)	<b>NPRI</b> • see 32	• see 32	
34	Incinerators (action 3b)	<b>NPRI</b> • see 32	• see 32	
35	Wastewater treatment (action 3c)	<b>NPRI</b> • see 32	• see 32	
36	Waste collection and handling (action 3d)	• report does not address domestic waste collection and handling	• report does not address domestic waste collection and handling	
<b>EMISSIONS</b>				
37	Major Stationary Sources(action 1a)	<b>NPRI</b> • applies to incineration and wood preservation facilities that manufacture, process or use 5 kg of mercury or compounds per year; other facilities have threshold of 20,000 worker-hours • provides data on facility, quantities released and transferred, nature of activity, types of release/transfer, etc.	• good data on releases to air, water, land • excludes data from educational, research, testing, mining, and dental facilities • may exclude facilities with less than 20,000 worker-hours • gaps may include copper/lead/zinc production	• amend NPRI Order to remove exemptions from reporting for research, education, testing and mining facilities • establish common unique identifiers for recipients of transfers of wastes and recyclables reported under the NPRI (Canada), TRI (USA) and RETC (Mexico), to facilitate electronic analysis of the fates of transfers for treatment, recovery, recycling and disposal across North America

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	Recommendations from Report
38	Electric power generation (action 1b)	<b>NPRI</b> • see 37	• see 37	
39		<b>Statistics Canada Survey 2196</b> • electric power thermal generating station fuel consumption survey; details not listed in report • report does not identify types of data available	• report does not identify types of data available	
40	Industrial/commercial/other sources (action 1c)	<b>NPRI</b> • see 37	• see 37	

### 5.3 Mexico: Analysis of tracking mechanisms by life cycle

#### Acronyms

COA	Annual Operating Report ( <i>Cédula de Operación Anual</i> ) under Operating Permits or LAU
HAZTRAKS	Hazardous waste tracking system
LA	Customs Law and Import and Export Regulations ( <i>Ley Aduanera y su reglamento en materia de importación y exportación</i> )
LAU	Comprehensive Environmental License ( <i>Licencia Ambiental Unica</i> ) under LGEEPA
Lfafe	Federal Firearms and Explosives Law ( <i>Ley Federal de Armas de Fuego y Explosivos</i> )
LGEEPA	General Law on Ecological Balance and Environmental Protection ( <i>Ley General del Equilibrio Ecológico y la Protección al Ambiente</i> )
NOM	Mexican Official Standard ( <i>Norma Oficial Mexicana</i> )
PRTR	Pollutant Release and Transfer Register
SAAI	Comprehensive Automated Customs System ( <i>Sistema Automatizado Aduanero Integral</i> )
SE	Ministry of the Economy (Secretaría de Economía)
SIRG	Integrated Direct Regulation and Environmental Management System ( <i>Sistema Integrado de Regulación Directa y Gestión Ambiental</i> )
SIRREP	Hazardous Waste Tracking System ( <i>Sistema de Rastreo de Residuos Peligrosos</i> )

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	• Recommendations from Report
<b>GENERATION</b>				
1	Primary Production	• report does not address primary production	• report does not address primary production	
2	Secondary Production	• report does not address secondary production	• report does not address secondary production	
3	Imports/Exports	Customs Law • applies to import/export of elemental mercury and some of its compounds (report does not indicate which compounds are covered) • provides data on importer/exporter, commercial value, country of origin/destination, tariff classification, qty, other required permits	• generated public reports not useful; SAAI, SHCP, and SE databases provide good indication of imports/exports of elemental mercury but data may be confidential • report does not identify which mercury compounds are reported	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis
4		<p>Cicoplafest</p> <ul style="list-style-type: none"> <li>• authorizes imports/exports of pesticides, fertilizers and toxic substances, including mercury, phenylmercury acetate or propionate, mercury cyanate, and mercury thiocyanate</li> <li>• report does not identify types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• no data generated on real quantities, only authorized quantities (estimates)</li> <li>• does not capture all mercury compounds</li> </ul>
5	Stores	<ul style="list-style-type: none"> <li>• report does not address stores</li> </ul>	<ul style="list-style-type: none"> <li>• report does not address stores</li> </ul>
<b>USE (PROCESSES, OPERATIONS, AND PRODUCTS)</b>			
6	General	<p><b>Customs Law</b></p> <ul style="list-style-type: none"> <li>• applies to imports/exports of mercury, mercury-containing substances and mercury wastes; however report implies that mercury-containing compounds/products are not specifically identified</li> <li>• provides data on importer/exporter, commercial value; country of origin/destination, tariff classification, qty, other required permits</li> <li>• some mercury-containing items subject instead to SE program; provides annual data on qty of goods returned, proportion of temporary imports, losses and/or waste not returned, goods intended for market</li> </ul>	<ul style="list-style-type: none"> <li>• does not provide specific codes for mercury-bearing products (report does not identify mercury-containing products that may be addressed)</li> <li>• generated public reports not useful; SAAI, SHCP, and SE databases provide good indication of imports/exports but data may be confidential</li> <li>• reporting under SE program occurs only annually</li> </ul>
7		<p>LGEEPA Environmental Impact Regulation</p> <ul style="list-style-type: none"> <li>• requires environmental assessment of proposed development projects; requires risk studies for high-risk activities that use toxic or flammable/explosive substances, including methoxymethyl mercury acetate, phenylmercury acetate, mercury chloride, and ethylmercury phosphate</li> <li>• data generated includes maximum estimates chemicals used, estimates of air emissions, wastewater discharges, hazardous waste generated</li> </ul>	<ul style="list-style-type: none"> <li>• report does not identify whether actual, ongoing data is generated</li> </ul>

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
8		Operating License or LAU <ul style="list-style-type: none"> <li>• requires operating licensees for fixed sources of air emissions under federal jurisdiction, including chemical, petroleum and petrochemical, paint and dye, automotive, pulp and paper, metallurgical, glass, electrical power generation, asbestos, cement and lime, or hazardous waste treatment industries; others of possible transboundary impact, others requiring federal involvement</li> <li>• provides data on raw material consumed, production levels, sub-product and hazardous waste generated, inventory of air pollutant emissions (composition of pollutants and quantities released)</li> </ul>	<ul style="list-style-type: none"> <li>• report does not identify whether mercury use/production is addressed</li> <li>• data only submitted upon application of renewal due to relocation, production increase, plant expansion or name change</li> <li>• unlikely to address all industry since some under state jurisdiction (report does not identify which)</li> </ul>	
9	Automotive sector (action 2b)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
10	Chlor-alkali sector (action 2c)	<ul style="list-style-type: none"> <li>• Report does not address chlor-alkali sector</li> </ul>	<ul style="list-style-type: none"> <li>• no specific category for mercury-containing products</li> </ul>	
11	Batteries (action 2d)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
12	Electrical switches and relays (action 2e)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
13	Lamps (action 2f)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
14	Health and dental care (action 2g)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
15	Cultural and artisanal uses (action 2h)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
16	Measuring and control instruments (action 2i)	Customs Law <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
17	Other	Firearms and Explosives Law <ul style="list-style-type: none"> <li>• requires permits, record-keeping and monthly reports for mercury fulminate</li> <li>• provides monthly data on quantities imported/exported, used, managed</li> </ul>	<ul style="list-style-type: none"> <li>• data generally not readily available--data entry not immediate or filed in manual form</li> <li>• only addresses mercury fulminate</li> </ul>	
<b>WASTES</b>				
18	Imports/exports	Import/Export of Hazardous Wastes <ul style="list-style-type: none"> <li>• requires permit for import (allowed for recycling or reuse only), export and returned shipment under SE program for hazardous wastes; report does not indicate whether specific mercury-containing wastes are identified</li> <li>• provides estimated data on name of importer/exporter, technical specifications of shipment, country/company of destination, OECD export notification form; receiver reports actual quantities</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate whether specific mercury-containing wastes can be identified</li> <li>• report does not indicate whether actual quantities of exports or imports are entered electronically</li> </ul>	<ul style="list-style-type: none"> <li>• The harmonization of North American hazardous waste classifications should be considered (refer to recommendation #7 in report)</li> </ul>
19		SIRREP/HAZTRAKS <ul style="list-style-type: none"> <li>• tracks volumes and types of waste imported/exported between US and Mexico</li> </ul>	<ul style="list-style-type: none"> <li>• notice of return data under SE filed electronically but not usually verified; report not clear on whether imports and other exports are tracked</li> <li>• data not entered into database in timely manner</li> <li>• data may be missing or incomplete</li> <li>• database not interactive with HWES or WITS databases</li> <li>• data compiled only for waste shipments—may circumvent laws by mislabeling hazardous/toxic waste as raw materials</li> </ul>	
20		Regulation on Ground Transportation of Hazardous Materials and Wastes <ul style="list-style-type: none"> <li>• requires permits for ground transportation of hazardous materials and waste</li> </ul>	<ul style="list-style-type: none"> <li>• data and reports are not generated under this regime</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
21	Combustion and industrial processes and pollution control operations (action 3a)	<p>Hazardous Wastes Regulations</p> <ul style="list-style-type: none"> <li>• requires generators of mercury wastes containing maximum contaminant limits (MCL) of 0.2 mg/l of mercury to register; management service companies (e.g., transport, storage, landfill, etc.) must also register; requires hazardous waste transfer, shipping and receipt manifest</li> <li>• provides monthly logs on hazardous waste generated and daily logs of entries/exits to/from storage—available upon inspection</li> <li>• provides semi-annual reports by generators on wastes sent for recycling, treatment or final disposal; by carriers/recipients on wastes received; monthly reports by landfills on wastes received</li> </ul>	<ul style="list-style-type: none"> <li>• actual quantities reported in manifests for domestic shipments but data is submitted in paper format (data entry in SIRREP may not be prompt) and there are apparent underreporting problems</li> <li>• detailed monthly/daily logs are only available upon inspection</li> <li>• semi-annual reports provide summary information only (specific dates and quantities generated/transferred are not reported); data are not filed electronically?</li> <li>• manifests are not uniquely numbered therefore difficult to track; report not clear whether manifest data is entered electronically</li> </ul>	<ul style="list-style-type: none"> <li>• Establish official control over the issuance of transfer, shipping and receipt manifests: <ul style="list-style-type: none"> <li>• unique numbering system;</li> <li>• available only from Semarnat;</li> <li>• printed with bar codes.</li> <li>• update the register of generators and service companies</li> <li>• manifests would include the numbers of the generator, carrier and recipient, also using bar codes</li> </ul> </li> <li>• The monthly and semi-annual reports filed by the generators and service companies should indicate the quantities of waste involved in each movement and the corresponding manifest numbers</li> <li>• Allocate sufficient resources for Semarnat to enter and process data</li> <li>• Profepa should establish a central-server database, in which the regional offices could enter information obtained during inspections</li> </ul>
22	Incinerators (action 3b)	<p>Hazardous Wastes Regulations</p> <ul style="list-style-type: none"> <li>• report not clear on whether incinerators are subject to these regulations</li> <li>• see 21</li> </ul>	<ul style="list-style-type: none"> <li>• see 21</li> </ul>	
23	Wastewater treatment (action 3c)	<p>National Water Law and Regulation</p> <ul style="list-style-type: none"> <li>• requires permits for discharges of wastewater into bodies of water under federal jurisdiction</li> <li>• upon application, provides data on quantities discharged and pollutants present in discharge</li> </ul>	<ul style="list-style-type: none"> <li>• report not clear on whether specific data on mercury are available or if they are actual/estimated</li> <li>• report not clear on extent of federal jurisdiction</li> <li>• the states control wastewater discharges into drainage and sewer systems; report not clear on whether reports or data on mercury available</li> </ul>	



#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
24		COA <ul style="list-style-type: none"> <li>• applies to holders or operating license or LAU under federal jurisdiction</li> <li>• provides annual data on pollutant release and transfer quantities to air, water and soil; quantities transferred for treatment, recycling, reuse or final disposal; pollution prevention and control activities, on-site treatment methods.</li> <li>• optional information includes water use and wastewater discharge, hazardous waste generation, treatment and transfer, annual releases and transfers of listed pollutants (optional).</li> </ul>	<ul style="list-style-type: none"> <li>• report not clear on extent of federal jurisdiction</li> <li>• industries under state jurisdiction required to report same info to state; report not clear on whether state reports are available or useful</li> <li>• only data on air emissions is mandatory; data submission is voluntary for wastewater discharges, wastes and transfers</li> <li>• report not clear on whether data is entered electronically</li> </ul>	
25	Waste collection and handling (action 3d)	Hazardous Wastes Regulations <ul style="list-style-type: none"> <li>• requires service companies (e.g., transport, storage, landfill, etc.) to register</li> <li>• provides semi-annual reports by generators on wastes sent for recycling, treatment or final disposal; by carriers/recipients on wastes received; monthly reports by landfills on wastes received</li> </ul>	<ul style="list-style-type: none"> <li>• see 21</li> </ul>	<ul style="list-style-type: none"> <li>• see 18</li> </ul>
<b>EMISSIONS</b>				
26	Major Stationary Sources(action 1a)	COA <ul style="list-style-type: none"> <li>• see 24</li> </ul>	<ul style="list-style-type: none"> <li>• see 24</li> </ul>	
27		NOM for hazardous and biological waste incinerators <ul style="list-style-type: none"> <li>• sets mercury emission limits</li> <li>• requires annual testing and reporting of compliance</li> </ul> Draft NOM for cement plants <ul style="list-style-type: none"> <li>• will set mercury emission limits</li> <li>• will require annual testing and reporting of compliance</li> </ul>	<ul style="list-style-type: none"> <li>• report not clear but likely that standards do not generate data on use, only for compliance verification purposes</li> </ul>	

#	Category (NARAP Action Item)	Mechanism • Application • Data Generated	Analysis	
28	Electric power generation (action 1b)	COA • see 24	• see 24	
29	Industrial/commercial/other sources (action 1c)	COA • see 24	• see 24	

## 5.4 United States: Analysis of tracking mechanisms by life cycle

### Acronyms

ACS	Customs Automated Commercial System (for imports)
AES	Customs Automated Export System
CAA	Clean Air Act
CCL	Commerce Control List
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, 1980
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
HMTL	Hazardous Materials Transportation Law
HWES	Hazardous Waste Export Systems database
IER	Import/Export Regulations under RCRA
LDR	Land Disposal Restrictions under RCRA
MACT	Maximum Achievable Control Technology under Clean Air Act
MBR	Mercury Battery Rule under RCRA
NTI	National Toxics Inventory under the CAA
PPA	Pollution Prevention Act, Section 6607
RCRA	Resource Conservation and Recovery Act
TRI	Toxic Release Inventory under the Emergency Planning and Community Right-To-Know Act Section 313
TSCA	Toxic Substances Control Act
UWR	Universal Waste Rule under RCRA
WITS	Waste Import Tracking System database

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	• Recommendations from Report
<b>GENERATION</b>				
1	Primary Production	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>	
2	Secondary Production	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis
3	Imports/Exports	Customs Service <ul style="list-style-type: none"> <li>• applies to products containing mercury identified in appendix E (missing from report)</li> <li>• tracks the flow of elemental mercury through tariff codes based on the international Harmonized Tariff System</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• all data in AES/ACS databases likely to be fully automated by end of 2002</li> <li>• report does not indicate types of data available</li> <li>• specific data on industries and quantities may be confidential</li> <li>• requests for National Interest Determination allows real-time tracking of individual import/export transactions</li> </ul>
4	Stores	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• report indicates that data are available but does not describe mechanism</li> </ul>
<b>USE (PROCESSES, OPERATIONS, AND PRODUCTS)</b>			
5	General	TRI <ul style="list-style-type: none"> <li>• applies to covered facilities that manufacture, use, or process toxic chemicals including mercury and mercury compounds greater than 10 lbs/yr</li> <li>• provides data on use of substance; maximum quantity present during the year; treatment or disposal methods used; releases to environment; transfers off-site for treatment or disposal; quantities entering any waste stream and recycled; quantities treated on- or off-site; source reduction practices used; quantities released in a catastrophic event, remedial action, or other one-time event</li> </ul>	<ul style="list-style-type: none"> <li>• chemicals that are incorporated into products are not reported</li> <li>• not appropriate for tracking mercury-containing products</li> </ul>

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
6		Customs Service <ul style="list-style-type: none"> <li>• applies to imports/exports of products containing mercury identified in appendix E of report (missing from report)</li> <li>• requires imports to be identified using tariff codes based on the international Harmonized Tariff System</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• does not have specific codes for all mercury-bearing products</li> <li>• all data in AES/ACS databases are likely to be fully automated by end of 2002</li> <li>• report does not indicate types of data available</li> <li>• specific data on industries and quantities may be confidential</li> <li>• requests for National Interest Determination allows real-time tracking of individual import/export transactions</li> <li>• does not track EPA's import/export data on environmentally controlled substances</li> </ul>	<ul style="list-style-type: none"> <li>• Establish an interagency committee with the US ITC and develop/establish a comprehensive list of HTS codes for mercury-containing commodity goods</li> </ul>
7		RCRA - UWR <ul style="list-style-type: none"> <li>• applies standards for storage, transportation, and record-keeping of wastes, including mercury-containing batteries, thermostats, and lamps. EPA is proposing to expand the UWR to include mercury-containing equipment: manometers, barometers, relay switches, regulators, meters, pressure and temperature gauges, and sprinkler system contacts.</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> <li>• manifests are hardcopy (24 states enter data electronically for own use)</li> <li>• electronic manifest system, expected in 2004, will be optional</li> </ul>	
8		TSCA <ul style="list-style-type: none"> <li>• contains authority to gather information from manufacturers and processors on the amount of substances that are manufactured and stored, as well as methods of disposal, but this authority is not being used for mercury or its compounds.</li> </ul>	<ul style="list-style-type: none"> <li>• not currently being used for mercury</li> </ul>	
9	Automotive sector (action 2b)	Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
10	Chlor-alkali sector (action 2c)	CAA <ul style="list-style-type: none"> <li>• sets MACT standards for municipal, hospital and hazardous waste incinerators and mercury cell chlor-alkali plants</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
11	Batteries (action 2d)	RCRA - MBR <ul style="list-style-type: none"> <li>• prohibits import of mercury-containing batteries</li> <li>• sets standards to encourage proper disposal and handling; applies UWR to the collection, handling, and recycling of rechargeable batteries; sets deadlines for phasing-out use of mercury in batteries</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
12		Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
13		RCRA - UWR <ul style="list-style-type: none"> <li>• see 7</li> </ul>	<ul style="list-style-type: none"> <li>• see 7</li> </ul>	
14	Electrical switches and relays (action 2e)	Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
15		RCRA - UWR <ul style="list-style-type: none"> <li>• see 7</li> </ul>	<ul style="list-style-type: none"> <li>• see 7</li> </ul>	
16	Lamps (action 2f)	RCRA - UWR <ul style="list-style-type: none"> <li>• see 7</li> </ul>	<ul style="list-style-type: none"> <li>• see 7</li> </ul>	
17		Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
18	Health and dental care (action 2g)	Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
19	Cultural and artisanal uses (action 2h)	Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
20	Measuring and control instruments (action 2i)	RCRA - UWR <ul style="list-style-type: none"> <li>• see 7</li> </ul>	<ul style="list-style-type: none"> <li>• see 7</li> </ul>	
21		Customs Service <ul style="list-style-type: none"> <li>• see 6</li> </ul>	<ul style="list-style-type: none"> <li>• see 6</li> </ul>	
22	Other - Pesticides	FIFRA <ul style="list-style-type: none"> <li>• prohibits manufacture for domestic use and import of mercury-containing pesticides; pesticides intended solely for export are not required to be registered</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
23	Other - Mercury cadmium telluride crystals and epitaxial wafers	CCL <ul style="list-style-type: none"> <li>• controls the export and re-export of sensitive items (e.g., military applications)</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• Establish an interagency committee with Commerce, Treasury, State, and Defense to develop ground rules for adding environmentally sensitive materials, such as elemental mercury and mercury-containing goods, to the CCL; the NID administrative tool is also potentially available to conduct real-time tracking of mercury exports</li> </ul>
	<b>WASTES</b>			

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
24	Imports/exports	RCRA <ul style="list-style-type: none"> <li>• report not clear on which mercury wastes are addressed under RCRA</li> <li>• sets standards for all mercury-containing hazardous waste shipments other than UWR items, including record-keeping and reporting, labeling of wastes, use of appropriate containers, provision of information on the wastes' general chemical composition to transporters, treaters, and disposers, and the use of a manifest system</li> <li>• manifest system tracks wastes from point of generation, transportation to final treatment, storage, or disposal</li> <li>• provides biennial reports by treatment, storage, or disposal facilities managing imported (and domestic) hazardous waste</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available or types of wastes that are addressed</li> <li>• manifests/biennial reports mostly in hardcopy, not currently entered into a central database</li> <li>• facilities generating less than 100 kilograms per month are exempt from manifest requirements</li> <li>• facilities generating up 1,000 kg/mo are exempt in many states from report to the biennial reporting system</li> </ul>	
25		RCRA - UWR <ul style="list-style-type: none"> <li>• applies standards for storage, transportation, and record-keeping of wastes, including mercury-containing batteries, thermostats, and lamps. EPA is proposing to expand the UWR to include mercury-containing equipment: manometers, barometers, relay switches, regulators, meters, pressure and temperature gauges, and sprinkler system contacts.</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> <li>• manifests are hardcopy and only entered electronically by 24 states</li> <li>• electronic manifest system, expected in 2004, will be optional</li> </ul>	



#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
26		RCRA - IER <ul style="list-style-type: none"> <li>• report not clear on types of mercury wastes covered by regulations</li> <li>• for exports, requires notification of intent to export, acknowledgment of consent, special manifest requirements, exception reports, annual reports, special regulatory requirements applicable to exports to OECD countries of hazardous waste destined for recovery operations; data tracked in HWES database</li> <li>• for imports, requires special manifest, foreign source notification applicable to treatment, storage, and disposal facilities, special regulatory requirements applicable to imports from OECD countries of hazardous waste destined for recovery operations; data tracked in WITS database</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> <li>• data available in HWES and WITS databases, but they are not interactive with each other or HAZTRAKS</li> <li>• import data may be limited since importers subject to their domestic reporting requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Link HAZTRAKS, WITS and HWES or establish a single uniform electronic database to attain real-time shipment tracking capability. One possibility is utilizing the AES/ACS system. Incorporate customs tariff codes that are consistent with US mercury and mercury waste identification codes</li> <li>• Adopt the OECD waste identification system. Request additional tariff codes via the US ITC that effectively identify commodity and waste mercury substances that do not currently have unique tariff codes</li> <li>• Institute a (standardized numbering system for transborder waste shipments)</li> <li>• Consider imposing a series of fees and penalties on waste shipments to help ensure that information is complete and accurate</li> <li>• Link current tracking systems to other sources of relevant information on environmental and economic performance of firms that participate in transborder shipping of hazardous waste to identify potentially suspect shipments</li> </ul>
27		HAZTRAKS <ul style="list-style-type: none"> <li>• tracks volumes and types of waste imported/exported between US and Mexico</li> <li>• provides data on volumes and types of waste</li> </ul>	<ul style="list-style-type: none"> <li>• data not entered into database in timely manner (1–2 year lag)</li> <li>• data may be missing or incomplete</li> <li>• database not interactive with HWES or WITS databases</li> <li>• data compiled only for waste shipments—may circumvent laws by mislabeling hazardous/toxic waste as raw materials</li> </ul>	
28		HMTL <ul style="list-style-type: none"> <li>• sets out UN recommendations on the transport of dangerous goods</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> <li>• manifests are retained by transporter; available only upon request/inspection by DOT</li> </ul>	

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
29	Combustion and industrial processes and pollution control operations (action 3a)	TRI <ul style="list-style-type: none"> <li>• applies to covered facilities that manufacture, use, or process toxic chemicals including mercury and mercury compounds greater than 10 lbs/yr</li> <li>• provides data on use of substance; maximum quantity present during the year; treatment or disposal methods used; releases to environment; transfers off-site for treatment or disposal; quantities entering any waste stream and recycled; quantities treated on- or off-site; source reduction practices used; quantities released in a catastrophic event, remedial action, or other one-time event</li> </ul>	<ul style="list-style-type: none"> <li>• good data on releases to air, water, land; transfers for disposal or recycling; quantities imported for manufacture</li> <li>• does not track transfers off-site for reuse</li> <li>• receivers of transfers only traceable through manual search</li> <li>• non-point and mobile sources are exempted from reporting -- report not clear on other facilities that may be exempt</li> <li>• data may be based on estimates</li> <li>• data only publicly available 18 months after reporting year</li> </ul>	
30	Incinerators (action 3b)	CAA <ul style="list-style-type: none"> <li>• sets MACT standards for municipal, hospital and hazardous waste incinerators and mercury cell chlor-alkali plants</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
31		TRI <ul style="list-style-type: none"> <li>• see 29</li> </ul>	<ul style="list-style-type: none"> <li>• see 29</li> </ul>	
32	Wastewater treatment (action 3c)	TRI <ul style="list-style-type: none"> <li>• see 29</li> </ul>	<ul style="list-style-type: none"> <li>• see 29</li> </ul>	
33	Waste collection and handling (action 3d)	RCRA - LDR <ul style="list-style-type: none"> <li>• sets standards for treatment prior to land disposal for brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used, characteristic mercury wastes, wastewater treatment sludge from the mercury cell process in chlorine production, mercury fulminate wastes, phenyl mercuric acetate wastes, and miscellaneous mercury wastes</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
<b>EMISSIONS</b>				

#	Category (NARAP Action Item)	Mechanism <ul style="list-style-type: none"> <li>• Application</li> <li>• Data Generated</li> </ul>	Analysis	
34		CAA - NTI <ul style="list-style-type: none"> <li>• contains estimates of emissions from major sources, area sources, on-road and off-road mobile sources of 188 pollutants, including mercury</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
35	Major Stationary Sources(action 1a)	TRI <ul style="list-style-type: none"> <li>• see 29</li> </ul>	<ul style="list-style-type: none"> <li>• see 29</li> </ul>	
36		CAA <ul style="list-style-type: none"> <li>• sets MACT standards for municipal, hospital and hazardous waste incinerators and mercury cell chlor-alkali plants</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
37	Electric power generation (action 1b)	CAA <ul style="list-style-type: none"> <li>• sets MACT standards coal-fired power plants</li> <li>• report does not indicate types of data available</li> </ul>	<ul style="list-style-type: none"> <li>• report does not indicate types of data available</li> </ul>	
38		TRI <ul style="list-style-type: none"> <li>• see 29</li> </ul>	<ul style="list-style-type: none"> <li>• see 29</li> </ul>	
39	Industrial/commercial/other sources (action 1c)	TRI <ul style="list-style-type: none"> <li>• see 29</li> </ul>	<ul style="list-style-type: none"> <li>• not all facilities/sources addressed by TRI</li> <li>• see 29</li> </ul>	