



Testimony

Before the Environment, Energy, and Natural Resources  
Subcommittee, Committee on Government Operations,  
House of Representatives

For Release  
on Delivery  
Expected at  
9:30 a.m. EST  
Thursday  
November 21, 1991

HAZARDOUS WASTE

U.S. and Mexican Management  
of Hazardous Waste From  
Maquiladoras Hampered by Lack  
of Information

Statement of  
Richard L. Hembra, Director  
Environmental Protection Issues  
Resources, Community, and Economic Development Division



052955/145326

---

---

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the United States' and Mexico's efforts to manage hazardous wastes produced by companies located in Mexico that are known as "maquiladoras." These companies, some of which are owned by U.S. parent companies, use materials imported into Mexico to produce finished goods. By agreement, any hazardous waste resulting from this production is to be readmitted by the country that provided the source material. Maquiladoras are located in Mexico, primarily along the border with the United States. They are subject solely to Mexican laws and regulations. While these companies have been operating for more than 25 years, a comprehensive environmental protection law has been in place in Mexico for only 3 years.

United States and Mexican officials have recognized the potential for problems caused by hazardous waste generated by the maquiladoras. If improperly stored, transported, or disposed of, hazardous waste can seep through the soil into the groundwater and cause serious public health and environmental problems on both sides of the border. Concerned about whether such problems were being addressed, you asked us to (1) compare U.S. and Mexican hazardous waste laws and regulations, resources, and enforcement practices and (2) assess how the generation and ultimate disposal

of hazardous wastes from maquiladoras is being managed. This testimony provides the results of our review.

In summary, although hazardous waste laws and regulations in both nations are generally similar, some differences exist. However, Mexico is still developing additional regulations, which in some instances will make the regulations more compatible with those of the United States. Unlike laws and regulations, U.S. and Mexican resources and enforcement practices cannot be fully compared, primarily because of different organizational structures in the two countries. While the United States has a more mature hazardous waste management program and a sizable budget, Mexico is continuing to develop its relatively new enforcement program in an effort to ensure that all companies, including the maquiladoras, comply with hazardous waste requirements. Likewise, Mexico is making significant additional resources available to support its evolving program.

Unfortunately, neither the United States nor Mexico currently has accurate and complete information on the number of maquiladoras that generate hazardous waste, the amount of hazardous waste they generate, or the final disposition of that waste. Until this information is developed, the U.S. and Mexican governments will not be able to effectively implement a cooperative effort to track hazardous waste as called for in their August 1991 draft Integrated

Border Environmental Plan, which has a goal of jointly solving pollution problems along the border.

Before I discuss these issues in more detail, let me present some background concerning the maquiladora industry.

#### BACKGROUND

The maquiladora program was initiated in 1965 by the Mexican government specifically to attract labor-intensive industries to Mexico. As I stated earlier, maquiladoras are under the sole jurisdiction of Mexico's laws and regulations. Under these laws and regulations, industries can bring materials into Mexico without paying import duties provided they export the finished products and ship any related hazardous wastes generated to the country from which they obtained their source materials. Such waste can remain in Mexico, however, if it can be recycled and reused in accordance with Mexican law. This requires Mexican approval and the payment of import taxes. The United States is the major source for materials used by maquiladoras and thus should be the major recipient of the waste generated.

As of September 1990, the government of Mexico estimated that there were about 2,000 maquiladoras, employing about 420,000 people. About 850 U.S. companies operate one or more maquiladora plants. Maquiladora industries that typically produce hazardous

waste include semiconductor manufacturers, paint companies, and component assembly and finishing plants. The hazardous waste produced includes spent solvents, acids, caustic materials, and paint waste.

Mexico's requirement that maquiladoras ship their waste to the country of origin unless properly recycled and reused was set out in a 1983 "Maquiladora Decree." In 1986 the United States formally agreed to readmit maquiladora hazardous waste. In 1988 Mexico enacted its General Law of Ecological Equilibrium and Environmental Protection (the General Law), which provides the nation with its first comprehensive law to protect air, water, and soil. The General Law also included a requirement with respect to exporting hazardous wastes from maquiladoras. Mexico's Secretary of Urban Development and Ecology (SEDUE) is responsible for enforcing requirements imposed by the General Law, including requirements that hazardous waste be documented, or accompanied by a manifest, when transported for storage or disposal. SEDUE carries out its hazardous waste responsibilities (1) by requiring facilities to submit semiannual reports on the amounts and types of hazardous waste generated as well as its management, and other information on waste activities and (2) by carrying out on-site inspections of maquiladoras and other hazardous waste facilities.

According to U.S. Customs Service regional officials, hazardous waste shipped to the United States from Mexico can be

received at 19 U.S. Customs Service points of entry in Arizona, California, New Mexico, and Texas. When the waste enters the country, Customs inspectors at the points of entry process the initial entry documents. While Customs has not established regulations specifically governing the entry of hazardous waste, the Southwest and Pacific Regional Offices have recommended that importers/receivers of hazardous waste provide Customs with a 72-hour notice of any hazardous waste shipments from Mexico. They have also recommended that Customs staff in those two regions obtain information on each shipment, including the U.S. manifest and laboratory analyses of the wastes being imported. According to regional Customs officials, this policy was adopted to protect staff and the public if an accident occurs while the hazardous waste is being transported. For this reason, Customs prefers to have these shipments enter the country at night, when traffic is minimal.

Once hazardous waste from maquiladoras enters the United States, it is regulated as domestic hazardous waste under the Resource Conservation and Recovery Act (RCRA), as amended.<sup>1</sup> RCRA is enforced by the Environmental Protection Agency (EPA) and authorized states. Under RCRA, hazardous waste shipments must be accompanied by manifests that show the generator as well as the amount, type, transporter, and final destination of the waste.

---

<sup>1</sup>In addition, EPA regulations (40 C.F.R. 264.12) require facilities expecting to receive foreign waste to notify EPA before receiving the first shipment.

To help both countries enforce their domestic environmental laws, the United States and Mexico signed the Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area (Border Agreement) in 1983. Annex III to the Border Agreement, signed in 1986, addresses transborder shipments of hazardous wastes. The annex states that the United States and Mexico will exchange information on transborder shipments of hazardous waste and will readmit hazardous waste generated from materials temporarily exported out of the country.

Now let me discuss our major findings in more detail.

#### HAZARDOUS WASTE LAWS AND REGULATIONS

#### ARE GENERALLY SIMILAR

Both the United States' and Mexico's laws and regulations provide for a comprehensive program to manage hazardous waste. However, some differences exist. Also, because Mexico's General Law was enacted only 3 years ago, it is still developing regulations and enforcement standards that implement hazardous waste requirements similar to those in the United States.

Hazardous waste regulations implementing the General Law, like those for RCRA, provide for (1) federal classification of hazardous waste, (2) reporting and manifesting of hazardous waste, (3)



federal standards for generators, transporters, and storage and disposal facilities, (4) registration of facilities through a permitting program, (5) authorization of state programs, (6) inspection and enforcement to ensure compliance with environmental regulations, and (7) civil and criminal penalties for violators, which include fines and imprisonment.

Some Mexican regulations are more comprehensive or stringent than those of the United States, others are less so. For instance, Mexico considers as hazardous the wastes produced from mining operations as well as waste from oil and natural gas exploration drilling. However, the United States currently excludes these wastes from RCRA hazardous waste regulation. In contrast, Mexico does not specifically regulate underground storage tanks, but RCRA does. In these areas where regulations appear to be less stringent than those of the United States, Mexico is still developing regulations. For example, unlike the United States, Mexico does not yet ban the disposal of untreated liquid hazardous waste in land disposal facilities. Mexico is considering this ban as well as others.

Maquiladoras are subject to the same General Law and regulations as other hazardous waste generators in Mexico. For example, they are required to obtain permits and provide manifests for their hazardous waste. However, as stated earlier, Mexican regulations require that hazardous waste from maquiladoras be

returned to the country of origin of the raw materials unless the waste can be recycled and reused. In contrast, other Mexican hazardous waste generators can dispose of their hazardous waste in Mexico. The export requirement is important because Mexico's commercial capacity for the treatment and disposal of hazardous waste is limited. According to SEDUE officials, this capacity is insufficient to serve their own domestic needs.

#### RESOURCES AND ENFORCEMENT PRACTICES

##### CANNOT BE FULLY COMPARED

The United States' and Mexico's resources and enforcement practices cannot be fully compared because the two countries' organizational structures are different and the total number of Mexican hazardous waste generators is not known. SEDUE funding, staffing, and enforcement efforts are combined for air, water, and hazardous waste. In contrast, EPA has separate budgets, staffing, and enforcement efforts for all media. Because the exact number of generators is not known, a comparison of the countries on a per-facility basis is not possible.

EPA's hazardous waste budget for fiscal year 1991 is estimated to be \$311 million, while SEDUE's environmental protection budget is \$39 million. However, Mexico has taken steps to increase this budget. In this regard, the 1991 SEDUE budget is more than three times the 1990 budget. In addition, Mexico is currently

negotiating with the World Bank for a loan of about \$45 million that, with matching Mexican government funds, is expected to provide SEDUE with additional resources for enforcement activities. A World Bank official estimated that the loan would be approved in December 1991.

SEDUE carries out its multimedia responsibilities through an inspection and enforcement system designed to detect noncompliance with the General Law. Each inspector checks for compliance with air, water, and hazardous waste regulations. Enforcement in Mexico generally involves three techniques: voluntary compliance agreements, the imposition of fines, and/or temporary closings intended to lead to the negotiation of settlement agreements. SEDUE can also place facility owners/operators under administrative arrest for up to 36 hours. If a facility does not return to compliance within the time frames negotiated, SEDUE can impose daily fines. SEDUE can also revoke a facility's permit and license to operate if it determines that the violation is serious enough to warrant it.

RCRA is enforced by EPA and authorized states. As in Mexico, facility inspections are the primary tool for monitoring compliance with hazardous waste requirements. When noncompliance is detected, legal action may follow. This action includes the use of administrative orders as well as civil or criminal lawsuits, depending on the nature and the severity of the problem. In

contrast with Mexico, the United States may use judicial proceedings, which involve turning cases over to the federal or state attorney general's office. In Mexico this practice is extremely rare because of SEDUE's authority to take legal action against violators.

Consistent with its increased budget, SEDUE has increased its environmental inspection staff from 19 inspectors before 1991 to 113 inspectors as of September 1991. EPA has also participated with SEDUE in a number of cooperative training inspections. Since 1989 EPA and SEDUE inspection staff have conducted over 24 inspections at facilities on both sides of the border to improve inspection efforts.

Since passage of the General Law, SEDUE has taken enforcement actions to bring plants into compliance with the General Law and SEDUE regulations. From 1988 through 1990, SEDUE conducted 6,418 inspections resulting in 1,068 plant closings. From January through August 1991, SEDUE performed 1,144 inspections and closed about 706 plants. Of the 1,144 inspections, SEDUE officials said that 120 were at maquiladoras, resulting in 56 instances in which SEDUE temporarily closed down part of these maquiladoras' operations.

Three types of violations were found at these 56 maquiladoras:  
(1) air and water emissions violations, (2) improper hazardous

waste management, and (3) failure to export hazardous waste to the country of origin of the materials. In those instances in which maquiladoras were not exporting hazardous waste, SEDUE found that waste was either being sent to unauthorized recycling facilities, discharged into sewage systems and waterways, or disposed of in city landfills.

Although it is difficult to draw comparisons between U.S. and Mexican resources and enforcement, Mexico is doing more to increase its budget, hire more inspectors, and carry out an inspection program since passage of the 1988 General Law.

DISPOSITION OF HAZARDOUS WASTE  
FROM MAQUILADORAS IS UNKNOWN

Although Mexico is doing more to create a stronger program to manage hazardous wastes, it does not know how many maquiladoras are generating hazardous waste, the amount of hazardous waste generated, and the final disposition of that waste. Regardless of Mexico's progress in obtaining this information, the United States has an opportunity to ensure that waste received is identified and tracked. Until this information is available, EPA and SEDUE will not be able to effectively track hazardous waste from generation to final disposal. Such information would better enable EPA and SEDUE to carry out their respective laws and agreements.

While SEDUE has identified some maquiladoras that generate hazardous waste, it has not identified all maquiladoras or determined that the waste is being returned to the country of origin of the materials. In November 1990 SEDUE estimated that 1,035 of the approximately 2,000 maquiladoras--those located along the border and in the interior--may generate hazardous waste. Of this estimate, only 307 maquiladoras had provided SEDUE with copies of the required hazardous waste manifests. Although SEDUE had received manifests from these 307 maquiladoras, it was unable to provide us with data on the amount of hazardous waste these maquiladoras generated or the amount shipped to the United States in time for this hearing.

In an effort to better identify maquiladoras that are generating hazardous waste and track the disposal of that waste, SEDUE is taking a number of actions. SEDUE officials told us that they conducted a survey of border area maquiladoras during 1991 to determine whether these companies were generating hazardous waste and, if so, whether they were properly registered with SEDUE and were complying with manifesting and waste export requirements. SEDUE officials indicated that of the 1,449 border maquiladoras surveyed, as of September 1991, about 800 are hazardous waste generators but only 446 were registered.<sup>2</sup> To improve compliance with requirements for manifests, SEDUE and EPA have coordinated

---

<sup>2</sup>SEDUE officials told us that nationwide an additional 1,004 hazardous waste generators have registered with SEDUE. However, they did not know how many of these were maquiladoras.

four annual Maquiladora Environmental Educational Conferences to educate maquiladoras about Mexican and U.S. hazardous waste and import/export requirements.

SEDUE officials estimate that they will have identified all hazardous waste generators by 1992. However, the officials were not able to estimate when these generators would be in full compliance with the hazardous waste manifesting requirements.

Regardless of the progress Mexico makes in determining how and where hazardous waste from maquiladoras is disposed of, the United States has an opportunity to ensure that waste received from Mexico is identified and tracked. Once hazardous waste crosses the border, it must be accompanied by a U.S. hazardous waste manifest that identifies the foreign generator. Under Customs regional policy, manifests for shipments entering the United States along the Mexican border are to be provided to U.S. Customs officials by the U.S. importer. Regional policy does not, however, instruct Customs officials to obtain a copy of each manifest and provide it to EPA.

EPA has informally collected some data in an effort to determine the amount of hazardous waste being received from Mexico.

EPA's National Enforcement Investigations Center,<sup>3</sup> under an informal arrangement with U.S. Customs officials located along the border, has been obtaining manifests for some shipments of hazardous waste received from Mexico since 1990. The center has been providing copies of these manifests to EPA's regional offices located along the border. However, according to the Special Assistant at EPA's investigations center, EPA is not receiving all manifests. For example, the center received no manifests from one Customs District in Texas, even though the official was certain that hazardous waste was being shipped across the border at the district's eight ports of entry. In addition, the manifests received by the center do not always contain all the required information. According to Customs' national hazardous waste coordinator, Customs is not required to review the manifest for completeness before admitting a shipment. As a result, some manifests do not identify the foreign generator or the amount of waste imported.

In an attempt to obtain more comprehensive information, EPA Region VI has agreements with the states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas that they will provide EPA with hazardous waste import data. However, these data also have limitations. An EPA Region VI enforcement official told us that

---

<sup>3</sup>The National Enforcement Investigations Center is responsible for overall coordination of the hazardous waste exports enforcement program, including information management activities such as development and maintenance of hazardous waste export data base, manifest tracking, and related data processing.



the information supplied by the states is not complete because the data do not include some of the manifests the region has received from EPA's investigations center. We found that states may lack complete information on imported hazardous waste because a state (1) may not require copies of manifests or (2) may only require a manifest when the waste is sent to a facility within the state. For example, Arizona environmental officials said that if an importer and receiving facility was located in Utah, Arizona would not receive a copy of the manifest even though the waste was imported over its border with Mexico. According to the Texas maquiladora liaison, the state does not require copies of manifests. Instead, Texas receives only summary data on waste shipments.

Even if the waste is treated or disposed of in a state, the manifest is the same as that used to import the waste at Custom's ports of entry. Thus the manifest will have the same omissions as a copy sent by Customs to EPA's investigations center. Even though the information collected by EPA Region VI was limited, the region has shared available information with SEDUE on shipments coming through Texas and New Mexico.

EPA Region IX, which includes the states of Arizona, California and Nevada, has begun receiving data from EPA's investigations center but does not have an agreement with these states to provide it with manifests.

BORDER PLAN CALLS FOR GREATER COOPERATIVE  
EFFORTS BUT SPECIFICS ARE LACKING

The August 1991 draft environmental border plan calls for increased cooperation between the United States and Mexico and a greater sharing of information related to hazardous waste shipments between the two countries. The first phase of the border plan establishes, among other things, a goal without time frames for developing a binational data base on the generation and disposal of hazardous waste and a transboundary shipment tracking system. Although the plan does not indicate how this goal will be carried out, EPA is exploring a data system under development in Region VI as a possible prototype for such a binational system.

CONCLUSIONS

EPA and SEDUE will still need to develop specific agreements on who will be responsible for the overall implementation of the goal, what resources will be required, and what specific tasks must be accomplished by what milestones. The agencies will also need to focus on closing the data gaps in order to ensure that the data base and the tracking system will effectively account for all transborder hazardous waste shipments.

As discussed earlier, Mexico has not yet been able to identify all hazardous waste generators, and not all generators are

providing manifests for their hazardous waste shipments. In the United States, EPA has indicated that it will use U.S. manifests to collect data for the binational data and tracking systems. However, these manifests do not always contain complete information, and EPA has not entered into any formal agreement with U.S. Customs to collect manifests and forward them to EPA for analysis and further distribution.

By obtaining complete information on hazardous waste shipments entering the United States and sharing it with SEDUE, EPA will help Mexico enforce its environmental regulations by having evidence of what hazardous waste is actually being shipped from Mexico to the United States. Furthermore, both countries would be better assured that human health and the environment are being protected along the border. Finally, the United States would have better information on the amount of hazardous waste being imported for final disposition at U.S. hazardous waste facilities.

#### RECOMMENDATIONS

To help ensure that the binational data base on the generation and disposal of hazardous waste and the tracking system for transboundary shipment are effectively implemented in a timely manner, we recommend that the Administrator of EPA work closely with SEDUE officials to jointly develop an implementation strategy that identifies (1) the parties in each country responsible for the

strategy's implementation, (2) the resources available to carry it out, (3) the specific tasks needed to accomplish its goals, and (4) the milestones by which these tasks must be accomplished.

To help ensure that the United States can fully cooperate with Mexico and provide it with information on hazardous waste shipments coming into the United States, we recommend that the Administrator of EPA work with the U.S. Customs Service to develop a formal agreement to (1) have Customs collect and forward to EPA copies of all hazardous waste manifests for shipments received from Mexican hazardous waste facilities and (2) ensure that Customs require complete manifests, including the name of the foreign generator and the amount and types of hazardous waste shipped, as a condition for the shipments' entry into the United States.

- - - - -

This concludes my prepared statement. I would be happy to respond to any questions at this time.

(160080)





---

---

**Ordering Information**

**The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.**

**U.S. General Accounting Office  
P.O. Box 6015  
Gaithersburg, MD 20877**

**Orders may also be placed by calling (202) 275-6241.**

---

**United States  
General Accounting Office  
Washington, D.C. 20548**

**Official Business  
Penalty for Private Use \$300**

**First-Class Mail  
Postage & Fees Paid  
GAO  
Permit No. G100**

---