

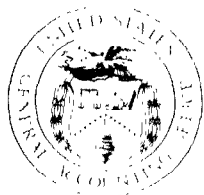
GAO

Report to the Chairman, Environment,
Energy, and Natural Resources
Subcommittee, Committee on Government
Operations, House of Representatives

February 1992

HAZARDOUS WASTE

Management of Maquiladoras' Waste Hampered by Lack of Information



**Resources, Community, and
Economic Development Division**

B-246632

February 27, 1992

The Honorable Mike Synar
Chairman, Environment, Energy, and Natural
Resources Subcommittee
Committee on Government Operations
House of Representatives

Dear Mr. Chairman:

About 2,000 "maquiladoras"—companies that use materials imported into Mexico to produce finished goods for export—are currently operating in Mexico, primarily along its border with the United States. Any hazardous waste resulting from maquiladora operations that use materials supplied from the United States is, by agreement, to be readmitted to the United States for ultimate disposal. About 850 U.S. companies operate one or more maquiladora plants, which are subject solely to Mexican environmental laws and regulations. While the maquiladora industry has been operating for more than 25 years, Mexico has had a comprehensive environmental protection law for only 4 years.

U.S. and Mexican officials have recognized the potential risks from the 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. On November 21, 1991, we testified before your Subcommittee on the results of our review.¹ Following our testimony, you requested this report on the issues we addressed at the hearing, including updated information as appropriate.

¹Hazardous Waste: U.S. and Mexican Management of Hazardous Waste From Maquiladoras Hampered by Lack of Information (GAO/T-RCED-92-22, Nov. 21, 1991).

Results in Brief

Although hazardous waste laws and regulations in the two nations are generally similar, some differences exist. However, Mexico is still developing additional regulations, which in some instances will be 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.

Currently, neither the United States nor Mexico 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 Environmental Plan for the Mexico-U.S. Border Area. This plan has the goal of jointly solving pollution problems along the border.

Background

The maquiladora program was initiated in 1965 by the Mexican government specifically to attract labor-intensive industries to Mexico. As noted 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 waste generated to the country from which they obtained their source materials. The United States is the major source of materials used by maquiladoras and thus should be the major recipient of the waste generated. Such waste can remain in Mexico, however, if it can be recycled and reused in accordance with Mexican law. This recycling requires Mexican approval and the payment of import taxes.

As of September 1990, the government of Mexico estimated that there were about 2,000 maquiladoras, employing about 420,000 people. 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 it is 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 the requirement on exporting hazardous wastes from maquiladoras.

Mexico's Secretariat 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 and on its management, as well as 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, its 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. manifests for and the 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.² RCRA is enforced by the Environmental Protection Agency (EPA) and authorized states. Under

²In addition, EPA regulations (40 C.F.R. 264.12) require facilities that expect to receive foreign waste to notify EPA before receiving the first shipment.

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. 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 of 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.

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 4 years ago, Mexico 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) a requirement that hazardous waste be reported and accompanied by a manifest when transported; (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, including fines and imprisonment.

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

Maquiladoras are subject to the same General Law and regulations as other hazardous waste generators in Mexico. For example, maquiladoras are required to obtain permits and provide manifests for their hazardous waste. However, as discussed earlier, Mexican regulations require that the 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 air, water, and hazardous waste. Because the number of generators is not known, a direct comparison of the two countries' resources, facility by facility, is not possible. However, Mexico has increased its budget, hired more inspectors, and expanded its inspection program since passage of the 1988 General Law.

EPA's hazardous waste budget for fiscal year 1991 was \$311 million, while SEDUE's environmental protection budget was \$39 million. However, Mexico has taken steps to increase this budget; SEDUE's budget for 1991 was more than three times its 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 February 1992.

SEDUE carries out its multiple 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 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 such action.

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 and turn 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.

Since passage of the General Law, SEDUE has also 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. According to SEDUE officials, 120 of these 1,144 inspections, were at maquiladoras, resulting in 56 instances in which SEDUE temporarily closed down part of the 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.

Disposition of Hazardous Waste From Maquiladoras Is Unknown

Although Mexico is working to create a stronger program to manage hazardous wastes, it does not know the number of maquiladoras that generate 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 the waste it receives from Mexico is identified and tracked. Until this information is available, EPA and SEDUE will not be able to effectively track hazardous waste from its 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—both those located along the border and those in the country's interior—may generate hazardous waste. Of this number, only 307 maquiladoras had provided SEDUE with copies of the required hazardous waste manifests. Furthermore, although SEDUE had received manifests from these 307 maquiladoras, it was unable to provide us with data, in time for this report, on the amount of hazardous waste these maquiladoras generated or the amount shipped to the United States.

In an effort to better identify maquiladoras that are generating hazardous waste and to track the disposal of that waste, SEDUE is taking a number of actions. SEDUE officials said 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 were generating hazardous waste but only 446 were registered.³ To improve compliance with requirements for manifests, SEDUE and EPA have coordinated four annual Maquiladora Environmental Educational Conferences to educate maquiladoras' operators 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 requirement that

³SEDUE officials told us that nationwide an additional 1,004 hazardous waste generators have registered with SEDUE. However, the officials did not know how many of these were maquiladoras.

manifests be provided for hazardous waste. While SEDUE is working on a data base that will use data from manifests to determine if hazardous waste is being exported as required, the data base is not expected to be operational until about 1995.

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 copies of manifests and provide them to EPA.

EPA has informally collected some data in an effort to determine the amount of hazardous waste being imported from Mexico. EPA's National Enforcement Investigations Center,⁴ 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 import data on hazardous waste. However, these data also have limitations. An EPA Region VI enforcement official said that the information supplied by the

⁴The National Enforcement Investigations Center is responsible for overall coordination of the enforcement program for hazardous waste exports, including information management activities such as the development and maintenance of a hazardous waste export data base, the tracking of manifests, and related data processing.

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 require a manifest only when the final destination of the waste is a facility within the state. For example, Texas does not require copies of manifests. According to Texas' maquiladora liaison, the state requires only summary data on waste shipments, which would not provide sufficient detail to track individual waste shipments. In contrast, while Arizona does require copies of manifests, it does not receive all of them. Arizona environmental officials said that if an importer and receiving facility was located in Utah, Arizona officials would not receive a copy of the manifest even though the waste was imported over its border with Mexico.

Even if all the border states required and received copies of all manifests for wastes shipped from Mexico and subsequently forwarded them to EPA, the copies would not necessarily provide complete information. This is because the copies would contain the same omissions as the copies obtained by Customs when the waste was imported.

Despite the limitations on the amount and quality of information collected on hazardous waste imports, some information is being provided to Mexico. EPA Region VI, which has the most complete information, has shared available information with SEDUE on shipments coming through that region's two border states, Texas and New Mexico. EPA Region IX, which includes the border states of Arizona and California, has begun receiving data from EPA's investigations center but does not have agreements with the two states to provide the region with manifests. Region IX has not compiled the limited information it has and shared the data with Mexico.

Border Plan Calls for Greater Cooperative Efforts but Specifics Are Lacking

The August 1991 draft Integrated Environmental Plan for the Mexico-U.S. Border Area calls for increased cooperation between the United States and Mexico and a greater sharing of information concerning hazardous waste shipments. 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

If the binational data base and tracking system envisioned in the border plan are to work as intended, it is important that, as a next step, EPA and SEDUE determine who will be responsible for the overall implementation of the plan's goal, what resources will be required, and what specific tasks are to be accomplished by what milestones. Closing the information gaps that currently exist could further help the two agencies ensure that the data base and tracking system will effectively account for all transborder hazardous waste shipments.

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 manifests to collect data for the binational data base and tracking system. However, these manifests do not always contain complete information, and EPA has not entered into any formal agreement with Customs to collect all 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 the information with SEDUE, EPA could help Mexico enforce its environmental regulations because the agency would have 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.

Prior Recommendations and Subsequent Agency Actions

In our November 1991 testimony, we made several recommendations to help ensure that the binational data base on the generation and disposal of hazardous waste and the tracking system for transboundary shipments are effectively implemented in a timely manner. We also made recommendations aimed at helping ensure that the United States can fully cooperate with Mexico and provide Mexico with information on hazardous waste shipments coming into the United States. Specifically, we recommended 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 its 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. We also recommended 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 requires 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.

Although EPA's Deputy Assistant Administrator for the Office of Solid Waste and Emergency Response was a witness at the November hearings, he did not respond to our recommendations at that time. However, in January 1992, EPA's Assistant Administrator for U.S.-Mexico Issues told us that EPA is revising the 1991 draft border plan to include information on staff resources and finances needed to accomplish the tasks in the plan. EPA also has begun drafting a Memorandum of Understanding between EPA and Customs. Although details of the proposal are not available, RCRA enforcement officials stated that it does include language that Customs collect import manifests for hazardous waste from Mexico and forward them to EPA.

To compare U.S. and Mexican hazardous waste laws and regulations, resources, and enforcement practices, we interviewed and obtained information from officials in EPA and SEDUE headquarters and regional offices. Information obtained included EPA's hazardous waste budget as well as SEDUE's environmental protection budget. In addition, we obtained information on SEDUE inspections, staffing levels, and inspection results. We also obtained and reviewed U.S. and Mexican environmental laws and regulations and a draft EPA Office of General Counsel comparison of U.S. and Mexican environmental protection programs.

To assess the management of maquiladoras' hazardous waste, we interviewed EPA and U.S. Customs officials at headquarters and regional offices, state environmental officials in EPA Regions VI and IX, an EPA National Enforcement Investigations Center official, environmental experts, and representatives of trade organizations. We also interviewed officials at SEDUE's Pollution Control Office and Mexico's Secretariat of Commerce, as well as headquarters and regional officials from Mexico's Customs Service. In addition, we interviewed plant managers and toured two maquiladoras and a Mexican hazardous waste recycling facility in Tijuana, Mexico, to obtain information on how these three facilities managed their waste.

To determine the amount and type of information available on hazardous waste imported into the United States from Mexico, we obtained and reviewed data from EPA Regions VI and IX, manifests provided to Region VI by the states and U.S. Customs, and advance notices on the import of hazardous waste from Mexico provided to EPA by U.S. facilities. To determine what efforts are under way to improve the management and tracking of hazardous waste from maquiladoras, we obtained and reviewed U.S. Customs policies for hazardous waste imports, drafts of the Integrated Environmental Plan for the Mexico-U.S. Border Area, and design drafts for the binational hazardous waste tracking system.

We conducted our work between March 1991 and January 1992 in accordance with generally accepted government auditing standards. We discussed the information in this report with EPA and U.S. Customs officials, who generally agreed with the facts presented, and incorporated their comments where appropriate. However, as requested, we did not obtain written agency comments on this report.

Copies of this report are being sent to appropriate congressional committees and the Administrator, EPA. We will make copies available to others on request.

If you have any questions about this report, please contact me at (202) 275-6111. Major contributors to this report are listed in appendix I.

Sincerely yours,



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