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North American
Environmental
Law and Policy

Commission for
Environmental Cooperation
of North America

Metales y Derivados Final Factual Record



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Environmental
Law and Policy

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N·A·E·L·P North American Environmental Law and Policy



Commission for
Environmental Cooperation
of North America

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ISBN: 2-89451-547-2

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Legal Deposit - Bibliothèque nationale du Québec, 2002
Legal Deposit - Bibliothèque nationale du Canada, 2002

Disponible en français – ISBN: 2-89451-549-9
Disponible en español – ISBN: 2-89451-548-0

This publication was prepared by the Secretariat of the Commission for Environmental Cooperation of North America (CEC). The views contained herein do not necessarily reflect the views of the governments of Canada, Mexico, or the United States of America.

PROFILE

In North America, we share a rich environmental heritage that includes air, oceans and rivers, mountains and forests. Together, these elements form the basis of a complex network of ecosystems that sustains our livelihoods and well-being. If these ecosystems are to continue to be a source of life and prosperity, they must be protected. Doing so is a responsibility shared by Canada, Mexico, and the United States.

The Commission for Environmental Cooperation of North America (CEC) is an international organization created by Canada, Mexico, and the United States under the North American Agreement on Environmental Cooperation (NAAEC) to address regional environmental concerns, help prevent potential trade and environmental conflicts, and promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA).

The CEC accomplishes its work through the combined efforts of its three principal components: the Council, the Secretariat and the Joint Public Advisory Committee (JPAC). The Council is the governing body of the CEC and is composed of the highest-level environmental authorities from each of the three countries. The Secretariat implements the annual work program and provides administrative, technical and operational support to the Council. The Joint Public Advisory Committee is composed of 15 citizens, five from each of the three countries, and advises the Council on any matter within the scope of the Agreement.

MISSION

The CEC facilitates cooperation and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade and social links among Canada, Mexico and the United States.

NORTH AMERICAN ENVIRONMENTAL LAW AND POLICY SERIES

Produced by the CEC, the North American Environmental Law and Policy series presents some of the most salient recent trends and developments in environmental law and policy in Canada, Mexico and the United States, including official documents related to the novel citizen submission procedure empowering individuals from the NAFTA countries to allege that a Party to the agreement is failing to effectively enforce its environmental laws.

**Metales y Derivados
Final Factual Record
(SEM-98-007)**

**Prepared in Accordance with Article 15
of the North American Agreement
on Environmental Cooperation**



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1. Executive Summary

Articles 14 and 15 of the North American Agreement on Environmental Cooperation (NAAEC) establish the process regarding citizen submissions and development of factual records relating to the effective enforcement of environmental law. The Secretariat of the North American Commission for Environmental Cooperation (CEC) administers this process.

On 16 May 2000, the Council voted unanimously to instruct the Secretariat to develop a factual record on the alleged failure to effectively enforce Articles 170 and 134 of Mexico's General Law on Ecological Balance and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección al Ambiente*—LGEEPA) in the case of the site known as Metales y Derivados, the subject of submission SEM-98-007. The submission was filed 23 October 1998 by the Environmental Health Coalition and Comité Ciudadano Pro Restauración del Cañón del Padre y Servicios Comunitarios, A.C.

The implementation of safety measures is called for under Article 170 in cases of "contamination with dangerous repercussions on ecosystems, their components or public health." The situation contemplated by Article 134 regarding prevention and control of soil contamination is the existence of "soil that is contaminated by the presence of hazardous materials or waste."

In the development of this factual record, the Secretariat considered publicly available information, information provided by the Parties to the NAAEC and other interested parties, and technical information developed by the Secretariat through independent experts. In this factual record, the Secretariat presents the facts relevant to whether or not Mexico is failing to enforce LGEEPA Articles 170 and 134 effectively, without aiming to reach any conclusions of law on this question.

With this focus, the information presented by the Secretariat in this factual record reveals that the site abandoned by Metales y Derivados is a case of soil contamination by hazardous waste in regard to which measures taken to date have not impeded access to the site, prevented pollutants that may have dangerous repercussions on public health and the environment from being dispersed within and outside the site, nor restored the site to a condition suitable for use in conformity with the current zoning (i.e., light industry) of the Mesa de Otay Industrial Park, Tijuana, Baja California, in which it is located.

The pollutants detected at the Metales y Derivados site, according to information provided by Mexico and developed by the Secretariat through independent experts, are antimony, arsenic and, in higher concentrations, cadmium and lead. Publicly available studies conducted by experts on the toxic effects of these substances have shown that exposure to these heavy metals can severely harm human health. No information has been gathered on the chemical form in which these substances are found at the site, and therefore their level of toxicity vis-à-vis known degree of hazard has not been determined.

Notwithstanding, a study concluded in the spring of 2000 on blood lead levels in children living in proximity to the Metales y Derivados site yielded arguably favorable short-term results. The average BLL found (6.02 +/- 2.37 µg/dl) is lower than the 10 µg/dl threshold considered to be elevated. However, eight subjects (4.8 percent) of those sampled had a BLL greater than or equal to 10 µg/dl. These results do not account for potential risk of future exposure.

The Secretariat did not find records of other possible public health or environmental effects due to the contamination of the site. As far as it was possible to investigate, information on the risk to public health and the environment posed by the Metales y Derivados site has not been developed in a detailed, comprehensive and reliable manner. However, the experts who have studied other aspects of the Metales y Derivados case concur that it is necessary to remediate the site. In their opinion, given the volume of contaminated material and the lead concentrations present at the site, it is urgent to forestall the dispersal of the pollutants and limit access to the site so as to prevent adverse health effects in people living or working in its proximity.

2. Introduction

Under NAAEC Articles 14 and 15, the Secretariat may consider a submission from any nongovernmental organization or person asserting that a Party to the NAAEC is failing to effectively enforce its environmental law, if the Secretariat finds that the submission meets the criteria of Article 14(1). Where the Secretariat determines that these criteria are met, it shall then determine whether the submission warrants requesting a response from the Party named in the submission, by considering the criteria enumerated in Article 14(2). Where, in light of the Party's response, the Secretariat finds that the submission warrants the development of a factual record, it shall so inform the Council and provide its reasons. The Council may then, by a vote of two-thirds of its members, instruct the Secretariat to prepare a factual record in accordance with Article 15.

On 23 October 1998, the Environmental Health Coalition and Comité Ciudadano Pro Restauración del Cañón del Padre y Servicios Comunitarios, A.C. (the "Submitters") filed a submission with the Secretariat under NAAEC Article 14 asserting that Mexico is failing to effectively enforce its environmental law in the case of an abandoned lead smelter in Tijuana, Baja California, known as Metales y Derivados.

On 5 March 1999, the Secretariat determined that the submission met the criteria of NAAEC Article 14(1), and considering the criteria of Article 14(2), requested a response from the Party. Mexico submitted its response on 1 June 1999.¹

1. The day after the response was filed, the Party indicated to the Secretariat that the Secretariat must keep the response confidential, pursuant to section 17.3 of the Guidelines, with reference to NAAEC Article 39(1) and Article 16 of the Federal Code of Criminal Procedure (*Código Federal de Procedimientos Penales*). The Secretariat attempted to clarify with the Party and through Council several matters relating to this designation but, absent a resolution of these matters, the Secretariat kept the response confidential until Mexico unilaterally withdrew this designation on 28 June 2001. As of that date, the response became available to any interested party.

Having analyzed the submission in light of the response of the Party, the Secretariat notified Council on 6 March 2000 that some of the allegations in the submission warranted the development of a factual record: specifically, those relating to the enforcement of LGEEPA Articles 170 and 134.

On 16 May 2000, Council resolved unanimously to instruct the Secretariat to develop a factual record in this case. In its instructions to the Secretariat, Council specified that it must consider whether Mexico “is failing to effectively enforce its environmental law.”

To that effect, the Secretariat compiled information on the effective enforcement of LGEEPA Articles 170 and 134 with respect to Metales y Derivados: in particular, information on the Party’s initiatives and actions to prevent contamination at the site, to characterize the site and to prevent dangerous repercussions on public health; information on the current conditions at the site and its vicinity; and information on the public health effects and risks of that contamination. Pursuant to section 12.1 of the Guidelines, this factual record includes a summary of the submission, the Party’s response and other relevant factual information, followed by the facts presented by the Secretariat with respect to the matters raised in the submission.

3. The Environmental Law in Question: LGEEPA Articles 170 and 134

The submission asserts that with respect to the site contaminated with hazardous waste known as Metales y Derivados, Mexico is failing to effectively enforce LGEEPA Articles 170 (concerning safety measures) and 134 (concerning prevention of soil contamination).

LGEEPA Article 170 provides as follows:

Article 170. – Where there exists an imminent risk of ecological imbalance or damage to or severe degradation of natural resources, or cases of contamination with dangerous repercussions on ecosystems, their components or public health, the Ministry may, with due justification, order any of the following safety measures:

- I. *Temporary partial or total shutdown of pollution sources, as well as facilities managing or storing specimens, products or subproducts of wild flora or fauna species, forest resources, or those that carry out activities giving rise to any of the situations to which the first paragraph of this Article refers;*
- II. *Seizure of hazardous materials and wastes, specimens, products or subproducts of wild flora or fauna species or their genetic material, forest resources, as well as property, vehicles, tools and instruments directly related to the conduct giving rise to the imposition of the safety measure, or*
- III. *Neutralization or similar actions to prevent hazardous materials or wastes from causing the effects mentioned in the first paragraph of this Article.*

Likewise, the Ministry may arrange with the competent authorities for the imposition of safety measures set out in other legal provisions.

This provision is contained in LGEEPA Title Six, “Control and Safety Measures and Sanctions,” Chapter III, “Safety Measures.”

Article 134, contained in LGEEPA Title IV, "Environmental Protection," Chapter IV, "Prevention and Control of Soil Contamination," provides as follows:

Article 134. – For the prevention and control of soil contamination, the following criteria shall be considered:

- I. It is the responsibility of the state and society to prevent soil contamination;*
- II. Wastes must be controlled given that they constitute the principal source of soil contamination;*
- III. It is necessary to prevent and reduce the generation of solid, municipal and industrial wastes, to incorporate techniques and procedures for their reuse and recycling, and to regulate their efficient management and final disposal;*
- IV. The use of pesticides, fertilizers and toxic substances must be compatible with the stability of ecosystems and must take account of their effects on human health, so as to prevent any damage they may cause, and*
- V. The necessary actions shall be taken to restore or reestablish the quality of soil that is contaminated by the presence of hazardous materials or waste, in such a manner that it can be used in any type of activity contemplated in the applicable urban development or environmental land-use program.*

4. Summary of the Submission

On 23 October 1998, the Environmental Health Coalition and Comité Pro Restauración del Cañón del Padre, A.C. filed a submission under Article 14 of the NAAEC in which they assert that Mexico is failing to enforce its environmental law effectively in the case of the abandoned lead smelter known as Metales y Derivados, located in Tijuana, Baja California, Mexico. They assert that the San Diego-based company New Frontier Trading Corporation did not return the hazardous waste generated by its Mexican subsidiary, Metales y Derivados, S.A. de C.V., to the United States as required by Mexican law and the La Paz Agreement. Instead, those responsible for the company abandoned the maquiladora following its shutdown in 1994 and returned to the United States after an arrest warrant was issued in 1995 against the owner of the company, José Kahn Block, and his wife, Ana Luisa de la Torre Hernández de Kahn.

The Submitters indicate that the site where the smelter operated is contaminated with approximately 6,000 metric tons of lead slag; waste piles and byproducts; sulfuric acid; and heavy metals such as antimony, arsenic, cadmium and copper from the battery recycling operations. The Submitters assert that this contaminated site poses a major health risk to the neighboring communities and the environment, particularly the residents of Colonia Chilpancingo, located at the bottom of a small ravine approximately 135 meters from the contaminated site, who regularly use a path adjacent to it. According to the Submitters, the risk is exacerbated by the fact that the waste is exposed to wind and rain, because the tarps that covered part of the waste have deteriorated, and by the fact that the site is not marked with warnings nor secured in such a manner as to prevent entrance to the site and dispersal of the pollutants.

The Submitters assert that Mexico is failing to enforce LGEEPA Article 170 effectively by failing to take the measures necessary to contain or neutralize the hazardous waste abandoned by Metales y Derivados so as to avert an imminent risk of harm to the environment

and public health. They assert that the measures taken—the shutdown of the facility—the repair of a perimeter wall and the installation of the plastic tarps on the slag, are insufficient to protect the population and avert ecological imbalance, and that this situation represents a failure to enforce the LGEEPA effectively. They also argue that Mexico is failing to enforce LGEEPA Article 134 effectively by failing to take suitable action to control or prevent soil contamination at the site and its surroundings, including remediation of the site.

In addition, the submission asserts that Mexico is failing to enforce effectively Article 415 of its Federal Criminal Code (*Código Penal Federal*—CPF), Article 3 of the International Extradition Law (*Ley de Extradición Internacional*), and Articles 1 and 2 of the Extradition Treaty Between the United States of America and the United Mexican States by failing to pursue the criminal proceeding initiated against the owner of Metales y Derivados by means of his extradition from the United States. These assertions are not addressed in this factual record because the Secretariat determined that there was no basis to consider them further in the Articles 14 and 15 process.²

2. In its 6 March 1999 Notification to Council that the submission warranted the development of a factual record, the Secretariat concluded that these allegations could not be reviewed under NAAEC Articles 14 and 15, although at that time it did not explain the reasons for this determination, since it was impossible to do so without revealing information in the response that Mexico had designated as confidential. However, Mexico withdrew the confidentiality designation on 28 June 2001, recognizing that the designation had no legal foundation. (Unilateral decision of Mexico, announced by Victor Lichtinger, Minister of the Environment and Natural Resources, at the Annual Session of the Council of the Commission held in Guadalajara, Jalisco, Mexico, 28–29 June 2001.) In brief, the reasons the Secretariat held that it could not continue to review the allegation concerning extradition are as follows: (i) since the international treaties cited in the submission do not in themselves constitute environmental law, they can only be reviewed if their enforcement is linked to that of an applicable provision that does qualify as environmental law; (ii) CPF Article 450, on which the Submitters base the alleged failure to effectively enforce the extradition provisions, does qualify as environmental law, but it is not applicable to the criminal case involving Metales y Derivados. The action of 5 May 1993 that initiated the criminal proceeding in question was based on LGEEPA Articles 183, 184 and 185. Moreover, even assuming that this citation error could be remedied, LGEEPA Articles 183, 184 and 185 were not in force when the submission was filed, since they were repealed by the Decree published in the Official Gazette (*Diario Oficial de la Federación*—DOF) on 13 December 1996. According to the response, the Party is legally prevented from requesting extradition in that criminal proceeding because the provisions under which it was initiated are no longer in force. In view of the foregoing, the Secretariat determined that it could not further consider the allegation that Mexico is failing to effectively enforce its environmental law by failing to extradite José Kahn and others responsible for Metales y Derivados, based on the provisions cited in the submission. Therefore, it did not recommend the preparation of a factual record on this aspect of the case.

5. Summary of Mexico's Response

On 1 June 1999, the Government of Mexico filed a response to the submission in accordance with NAAEC Article 14(3). The Party states that it shares the Submitters' concerns as to the grave situation existing at the Metales y Derivados site, and that the Mexican authorities have engaged in a series of ongoing actions to find a solution to this environmental problem, even though it has not been possible so far to remedy the problem. The response describes the actions taken by the Government of Mexico in regard to the activities of the company and the abandoned site, including the initiation of a criminal prosecution against the owners of the company for environmental crimes, various inspection visits, the ordering of technical measures, several temporary shutdown orders and a permanent shutdown.

The Party asserts that the LGEEPA provisions cited in the submission, that is, the ones in force following the reform of December 1996, are not applicable to the facts cited by the Submitters.

In regard to the alleged failure to effectively enforce Article 170, which prescribes the safety measures applicable in cases of contamination with dangerous repercussions, the Party responds that the Federal Attorney for Environmental Protection (*Procuraduría Federal de Protección al Ambiente*—Profepa) closed the facility on various occasions prior to the total permanent shutdown in March 1994. It also states that the necessary safety measures were taken when the Commander of the Plaza de Tijuana Garrison was apprised of the situation.

In regard to the assertion that Mexico has failed to enforce LGEEPA Article 134, the Party states that, under the LGEEPA text in force prior to 1996, the Government of Mexico has complied with exercising measures to control the wastes through inspections, the shutdown of the facility and technical measures. It indicates that at no time did the environmental authority claim that the construction of the wall and the placing of the tarp on the waste were actions aimed at restoring and re-establishing the soil; rather, the purpose of these actions was to

prevent unauthorized access to the site and to protect the waste from the elements. The response indicates that the environmental authority has considered transferring the waste to an authorized management facility and performing soil remediation studies, but does not possess the resources necessary to do so. Mexico asserts that the environmental situation existing at the site is not due to a failure to effectively enforce the environmental law, but “to causes that surpass its scope of authority.”³

In regard to the Submitters’ assertion that Mexico is failing to enforce its environmental law effectively by failing to extradite the Metales y Derivados officials under the International Extradition Law and the Extradition Treaty Between the United States of America and the United Mexican States, the Party responds that environmental law enforcement is not the primary purpose of those instruments, and therefore the allegations regarding failures to effectively enforce them cannot be reviewed under NAAEC Article 14, according to the definition of environmental law in the Agreement.

The Party further asserts that the allegation of failure to effectively enforce CPF Article 415 in relation to the criminal prosecution against the owners of Metales y Derivados is invalid, since the proceeding was not instituted on the basis of that provision but rather LGEEPA Articles 183, 184 and 185, which are no longer in force. The response also explains that since the provisions under which the arrest warrant against José Kahn was issued are no longer in force, the extradition process could not be initiated based on that arrest warrant. The response asserts that in view of all the foregoing considerations, it cannot be asserted that Mexico is failing to effectively enforce its environmental law in regard to the extradition of the owners of Metales y Derivados for alleged environmental crimes.

3. Mexico’s response, p. 20.

6. Summary of Other Relevant Factual Information

6.1 The Process to Gather the Information

Based on the Secretariat's recommendation of 6 March 2000, the CEC Council instructed the Secretariat on 16 May 2000 to develop a factual record in regard to submission SEM-98-007 (Appendix 1 of this factual record contains the corresponding Council Resolution). In June 2000, the Secretariat initiated the factual record development process.

The focus of the information compiled for the factual record was the effective enforcement of LGEEPA Articles 170 and 134 with respect to Metales y Derivados. The Secretariat sought to collect information on the Party's initiatives and actions to prevent contamination at the site, to characterize the site and to prevent dangerous repercussions on public health; on the current condition of the site and its vicinity; and on the public health effects and risks due to contamination at the site. In addition, the Secretariat sought to obtain information on any obstacles the Party may have encountered to effectively enforcing its environmental law in the case of Metales y Derivados.

Given that the Secretariat cannot review the criminal aspect of the Metales y Derivados case,⁴ this factual record does not examine government actions relating to the effective enforcement of environmental criminal law that may be applicable to the case, although some actions on criminal matters are mentioned as relevant facts. Thus, the Secretariat did not gather information in addition to that included in the submission and the response on the status of the criminal proceeding instituted in 1993. No information was requested from the Attorney General of the Republic (*Procuraduría General de la República*—PGR) on actions to enforce the arrest warrant for alleged environmental crimes committed prior to the responsible individuals leaving Mexico, nor to acts subsequent to their departure but prior to the repeal of the corresponding

4. See footnote 2.

LGEEPA provisions, to solicit the extradition of the alleged offenders. Likewise, no information was requested from the PGR or Profepa concerning efforts to resume criminal action against those responsible for alleged environmental crimes committed in relation to Metales y Derivados.

The Secretariat made available to the Parties, the Submitters and any other interested party an overall plan to develop the factual record (Appendix 2 of this factual record) and a description of the scope of the information to be compiled (Appendix 3 of this factual record). In accordance with NAAEC Articles 15(4) and 21(1)(a), the Secretariat requested the Government of Mexico and 26 of the Party's authorities to provide any relevant information in their possession for the preparation of the factual record. (Appendices 4 and 5 of this factual record contain a list of the authorities contacted and a description of the information requested). General information was received from six Mexican authorities in response to the requests, while the remainder either did not respond, responded that they did not possess any information or noted that the matter falls outside their jurisdiction. While some general information was provided, none of the responses addressed the specific questions posed by the Secretariat to the Party. In addition, the Secretariat invited the other two Parties and the Joint Public Advisory Committee (JPAC) to provide relevant information. The government of the United States of America, acting through the US Environmental Protection Agency (US EPA), provided information in November 2000. The Secretariat identified 23 nongovernmental organizations or persons potentially possessing relevant information and invited them to provide it. General information was received from five persons in response to the request (Appendices 6 and 7 of this factual record contain a list of the recipients of this request and a description of the information requested).

Appendix 8 contains a list of all the information gathered by the Secretariat, including information developed by the Secretariat through independent experts, all of which served as a basis for producing this factual record. As of the date of completion of this factual record, the Secretariat had not received a response from the Ministry of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*—Semarnat) to the specific questions contained in the letters to the Party dated 4 July 2000, 2 February 2001 and 8 May 2001. The only information that Semarnat provided, in addition to that included in Mexico's response of 1999, was a copy of the 1999 site characterization report on Metales y Derivados produced by Profepa, which the Secretariat received from Semarnat on 4 June 2001 in response to its request of 2 February 2001.

6.2 Factual Information on Metales y Derivados

The Secretariat gathered information on the condition of the Metales y Derivados site in order to verify the existence of the factual situation contemplated by LGEEPA Articles 170 and 134, which, according to the submission, have not been effectively enforced in this case. The situation that calls for safety measures under Article 170 is the existence of a case of “contamination with dangerous repercussions on ecosystems, their components or public health.” The condition contemplated by Article 134 regarding prevention and control of soil contamination is the existence of “soil that is contaminated by the presence of hazardous materials or waste.” Both provisions establish measures applicable to the same factual situation: contamination by hazardous substances.

The Secretariat obtained information produced by Profepa, and also developed information through independent experts on the existence of contamination by hazardous materials or waste at the Metales y Derivados site.

The information developed by the Secretariat through independent experts is limited to the characterization of the volume, concentration and extent of the contamination by hazardous materials and waste at the Metales y Derivados site and in its proximity. It was not considered necessary, for the purposes of this factual record, to conduct a comprehensive health risk assessment in light of the information gathered on the known toxicity and health effects of the substances present at the site (particularly lead); in light of the public health conclusions reached by the study on blood lead levels in children living near the contaminated site (favorable in the short term, but indicative of high potential risk); and in light of the absence of measures to secure the site, to prevent dispersal of the pollutants and access to the site by any person.

Concerning the remediation of the site, the Secretariat only gathered information on Mexico’s consideration of various options for this purpose. Little information was provided regarding whether the measures contemplated would eliminate “dangerous repercussions to public health and the environment” and “soil contamination.” Since no action to remediate the site has yet been taken, the Secretariat did not develop additional information on the remediation options and their potential effectiveness.

Regarding the dangerous repercussions of the contamination at Metales y Derivados on ecosystems, their components or public health, the Secretariat gathered publicly available information on the potential

effects of the substances present at the Metales y Derivados site and obtained information developed in the Spring of 2000 by University of California-Irvine experts on blood lead levels in children living near the Metales y Derivados site.

All this information is summarized in the following sections.

6.2.1 *Information on the Company Metales y Derivados, S.A. de C.V. and its Operations*

The company Metales y Derivados de México, S.A. de C.V., was incorporated on 21 March 1972 under the maquiladora regime for the purchase, sale, import and export of all types of nonferrous metals, alloys and their derivatives, as well as the manufacture of products made from these materials. The US parent company is a wholesale metals company, New Frontier Trading Corporation, based in San Diego, California.

Metales y Derivados commenced its operations at Avenida Internacional No. 130-1 in the area known as Centro Industrial Los Pinos, in Tijuana, Baja California. In July 1986, the company moved to Ciudad Industrial Nueva Tijuana, a site also known as the Mesa de Otay Industrial Park, where it operated until it was shut down in 1994. This site is located approximately 135 metres (150 yards) from the edge of the Mesa de Otay, at the following address: Calle 2 Oriente No. 119, Ciudad Industrial Nueva Tijuana, Tijuana, Baja California, Mexico. The area is zoned for light industrial use.⁵

The Metales y Derivados site is registered in the Public Registry of Property and Business of Tijuana in the name of Multibanco Mercantil de México, S.N.C.⁶ On 28 November 1990, Promotora del Desarrollo Urbano de Tijuana, S.A. de C.V. and Metales y Derivados, S.A. de C.V. placed the land and buildings in irrevocable trust with Multibanco Mercantil in favor of Metales y Derivados as beneficiary for usufruct, and Reynaldo Kahn Nathan and José Kahn as beneficiaries of the proceeds of the sale of the immovable.⁷ The immovable was not encumbered in any way as of 3 August 2000.

5. Information provided by the Director of the Urban Planning Department of the Municipality of Tijuana, Baja California, based on the applicable urban development plan.
6. *Registro Público de la Propiedad y del Comercio*, no. 98003, volume 567, civil section, 30 July 1991, corresponding to Lot 24 with an area of 5,640 square meters, and Lot 25 with an area of 5,666.54 square meters, both located at block 27 of Desarrollo Urbano Segunda Etapa, Ciudad Industrial Nueva Tijuana.
7. By notarial deed no. 36017, volume 687, of 28 November 1990, Sixth Notary Public of Tijuana, a conveyance agreement was signed between Promotora del Desarrollo

Concerning the activities of the company as recorded by the environmental authorities in various inspection reports, Metales y Derivados had two processes: production of refined lead and production of phosphorized copper granulates. As raw materials, it used lead-containing soils, telephone cable sheathing, lead oxide, discarded automotive and industrial batteries (that were cut open manually with an axe) and other types of lead scrap. In February 1993, it was reported that the company used sludge and dust from "baghouses" ("bag-type dust collectors" or "bag collectors") as raw material for the rotary furnaces.⁸ The company was considered a high-risk establishment because it reported handling 1,850 kg of red phosphorus.⁹

By June 1989, the company had two lead smelting furnaces, two crucibles for lead refining and two copper smelting furnaces. The lead smelting furnaces were equipped with bag collectors measuring 13,000 cu. in. of filter volume and 5,000 sq. in. of filter surface area. The lead refining crucibles lacked an emission control system. The furnaces were fired by fuel oil and diesel.¹⁰

In March 1991, the inspection reports indicate that the company had two bag collectors to control emissions from the three rotary furnaces, with respective smelting capacities of 12,000, 2,200 and 2,200 pounds/day, and two crucibles with respective smelting capacities of 60,000 and 25,000 pounds/day. The operating temperature of the furnaces was approximately 1,000°C and that of the crucibles, 450°C.¹¹ The environmental authority detected three wastewater discharges: one from the sanitary facilities to the drainage of the industrial park, and two from spraying or pooling of water on the facility grounds, during the neutralization process for acids recovered in the battery cutting process and the washing of the unloading area and the raw material storage area, which is exposed to the elements.¹² By November of 1991, the company had installed a water treatment system (using neutralization, flocculation, sedimentation and filtration).¹³

Urbano de Tijuana, S.A. de C.V. as Grantor (in respect of the land); Mr. Reynaldo Kahn Nathan representing Metales y Derivados de México, S.A. de C.V. as Grantor (in respect of the buildings) and a Beneficiary (for usufruct); and Multibanco Mercantil de México, S.N.C.-Division Fiduciaria as Trustee, for which purpose they convey title of the land and buildings (with total value 5,083,447 Mexican pesos) to Multibanco Mercantil.

8. Mexico's response, Appendix 12, p. 6.
9. List of High-Risk Activities, DOF, 28 March 1990.
10. Mexico's response, Appendices 3 and 4.
11. Mexico's response, Appendix 6, p. 5.
12. Mexico's response, Appendix 6, p. 3.
13. Mexico's response, Appendix 10, p. 4.

According to the environmental authority's inspection reports, in 1993, the company had three rotary furnaces for lead smelting, only one of them in operation, with an exhaust hood for combustion gases. The rotary furnaces were fed manually with shovels.¹⁴

The company did not have sound management practices for the hazardous waste it generated, primarily: lead slag; copper slag; empty containers formerly containing arsenic; phosphorus and phosphoric acid; battery casings; heavy metal sludges; and waste oils from service elevators.¹⁵ The hazardous waste was initially stored in piles exposed to the elements on the rear grounds of the plant, according to records of an inspection of 28 June 1989.¹⁶ Later, according to the inspection of February 1993, it was stored in an enclosed area; in an open, roofed area; on concrete floors on racks; and on bare ground on the property.¹⁷

According to US EPA: "[I]n 1992, the District Attorney's Office of Los Angeles County filed a 26-count felony complaint against José Kahn and New Frontier Trading Corporation, his business in the United States, on charges of unlawful transport of hazardous waste through L.A. County. The basis of the charges appears to have been that Kahn claimed the wastes being transported were exempt from hazardous waste regulations, as they were destined for recycling, in Mexico in this case. Under US and California law, hazardous waste that is to be recycled is exempt from many of the requirements for management of hazardous waste. However, the D.A.'s office argued that Metales was not a legitimate recycling operation, so the recycling exemption did not apply. In 1993, Kahn pleaded guilty to two of the 26 counts, agreeing to pay a \$50,000 fine. He purportedly also agreed to clean up the Metales site, but this was not a formal part of the settlement."¹⁸

In 1994, Profepa issued a permanent shutdown order against Metales y Derivados, whereby the owner abandoned the facility. A labor arbitration decision of 16 November 1994 awarded the saleable movable property of Metales y Derivados to the employees of the company. In January 1995, explosive material (red phosphorus) left at the site was removed.

14. Mexico's response, Appendix 13, pp. 4-5.

15. See for example, Appendix 7 (p. 2) and Appendix 12 (pp. 5-8) of Mexico's response.

16. Mexico's response, Appendix 3, p. 6.

17. Mexico's response, Appendix 12, pp. 5-6.

18. Information provided in November 2000 by the US EPA.

The current status of the facility abandoned by Metales y Derivados may be described as follows:

The [Metales y Derivados] lot is bordered by industrial and service establishments. It is bounded on the north by Calle 2 Oriente; on the west, by a lane adjacent to a mechanical shop owned by the Municipality of Tijuana; on the east, by an industrial bay, and on the south by several vacant lots. These last extend for approximately 112 meters to the south, ending in a slope with an elevation change of approximately 45 meters down to the residential area of Ejido Chilpancingo [...].

The lot is rectangular, measuring approximately 157.5 m width by 91.5 m depth. It is divided into the production plant on the west side (60 m x 91.5 m) and a vacant lot (97.5 m x 91.5 m) on the east side which contains refuse and waste piles [...]. The plant is walled on two sides and has cyclone fencing on the front and east sides. The vacant lot shares the fence on its west side with the plant and is fenced on the front along Calle 2 Oriente. The south side is not fenced, while the east side abuts the wall belonging to the adjacent lot. There are various metal structures in the production plant sitting on the concrete floor, as well as bare ground in several areas. There is the abandoned smelting furnace and related equipment as well as a sheltered area where the slag bundles are stored. On the south side, there is a waste container built of stone and cement which contains piles of soil that were covered with plastic. On the southwest boundary there is a concrete-lined ditch where waste battery acid solution was apparently dumped.¹⁹

The site is not secured so as to prevent the entry of unauthorized persons. The hazardous waste remaining at the site is not protected so as to prevent human exposure, through dispersal or direct contact. A warning sign posted by Profepa is found at the rear (south) of the lot. The sign reads "Peligro, Residuos Peligrosos" (Danger, Hazardous Waste) in yellow lettering and measures approximately 1 m by 60 cm. There are signs on the concrete walls to the west and the south of the site warning of the site's toxicity; according to the Environmental Health Coalition, these signs were painted by that organization and a group of women residents of Colonia Chilpancingo.

19. Site Characterization Study of Metales y Derivados de Mexico, S.A. de C.V., Tijuana, Baja California, Mexico. Prepared by Levine Fricke de México, S.A. de C.V. for the Commission for Environmental Cooperation, 9 March 2001.

6.2.2 Abandoned Hazardous Waste and Soil Contamination at the Metales y Derivados Site

The Secretariat is aware of only two studies purporting to characterize the contamination situation of the Metales y Derivados site and its vicinity: one produced by Profepa in 1999 and the other developed by the Secretariat in 2001. In this section, the condition of the Metales y Derivados site is described based on the results of these two studies.

Profepa commissioned HP Consultores, S.A. de C.V. to conduct a site characterization study of Metales y Derivados. The final report “Caracterización del Sitio Contaminado con Residuos Peligrosos Metales y Derivados en Baja California” (the “Profepa report”) is dated December 1999. The Secretariat only became aware of the existence of this study on 31 January 2001, when the experts commissioned by the Secretariat to characterize the site began their work. On 2 February 2001, the Secretariat requested a copy of this report from the Party. On 4 June 2001, the Secretariat received from Semarnat a copy of the Profepa report, excluding the section on toxicological risk analysis and several sections and paragraphs which the Party deleted from the copy. The Party stated to the Secretariat that “considering that the consulting firm specializes in the characterization and cleanup of contaminated sites and the identification of pollutants, and does not have expertise in other matters, certain comments by that firm were deleted because they were not considered relevant to the Secretariat’s request for information on the location of the areas sampled by the company, in order to avoid duplication of actions and to compare results.”²⁰

As part of the process of developing this factual record, the Secretariat commissioned Levine Fricke de México, S.A. de C.V. to produce a site characterization study of Metales y Derivados (the “Secretariat’s study”).²¹ The field research was conducted between 6-10 February 2001. During this period, the Profepa State Office in Tijuana provided Levine Fricke with a copy of the sampling results contained in the Profepa report. The experts commissioned by the Secretariat took these results into account in selecting the sampling points and metals to be analyzed. However, since the Secretariat received a more complete version of the Profepa report only on 4 June 2001, it was impossible to

20. Letter of 22 May 2001 from the Coordinating Unit of International Affairs of Semarnat to the Secretariat of the Commission for Environmental Cooperation, received 4 June 2001.

21. Levine Fricke de México, S.A. de C.V., Site Characterization Study of Metales y Derivados de Mexico, S.A. de C.V., Tijuana, Baja California, Mexico.

include a comparison of conclusions in the Secretariat's study, which was completed on 9 March 2001.

6.2.2.1 *Metales y Derivados Site Assessment Produced for Profepa in 1999*

The Profepa report addresses various aspects of the Metales y Derivados site. In addition to the site characterization based on the soil sampling performed, the report includes a remediation proposal, an interpretation of certain laws and international agreements relating to the case, a description of the process followed by the CEC concerning submission SEM-98-007, a description of the socioeconomic and geographic context, an analysis of remediation methodology and technologies in Mexico and in comparison with other countries, a description of a toxicological risk methodology, and an assessment of the toxicological risk represented by the site.²² Appendix 9 of this factual record contains the table of contents of the Profepa report provided to the Secretariat. Only the aspects concerning site characterization and the evaluation of remediation options are summarized below.

Profepa's characterization of soil contamination considered lead concentrations only. The surface samples (approximately 5 cm depth) reached a concentration of 220,500 mg/kg at one point inside the site and a maximum of 192.5 mg/kg at points sampled off the site. The Profepa report concludes in its relevant part:

In general, the surface lead concentrations are high due to lead's propensity to become airborne and the proximity of the sampling points to the greatest source of contamination. Because of the high atomic mass of lead, its concentration declines logarithmically when it is dispersed by wind, such that at a distance of 2.5 km the concentration falls by approximately 90 percent [bibliographic reference omitted]; this confirms that the premises of the former company are a major health risk and that the wastes found there must be given suitable treatment [Translation].²³

22. As explained earlier, the assessment of the toxicological risk posed by the site was not provided to the Secretariat.

23. Profepa report, p. 80.

The main results of the Profepa report concerning the characterization of the site's contamination are summarized in the table below.²⁴

Location	Concentration (mg/kg)	Contaminated Material (m ³)	Contaminated Material (tonne)
Large pile	178,400	2,109	2,847.15
Small pile	169,950	594	801.90
Under concrete floor	41,550	800	1,080
Contaminated soil under large pile	1,564.50	702	947.70
Contaminated soil in battery area	27,050	2,162	2,918.70
Total		6,367	8,595.45

Total area of premises: 10,360 m²

The report explains that the figure of 6,000 tonnes of contaminated material estimated by the Submitters is "incorrect," probably because the waste buried under the concrete floor was not taken into account.²⁵ As seen in the table above, the Profepa report estimates a total of 8,595.45 tonnes (6,367 m³) of contaminated material, while the Secretariat's study estimates 7,265 m³.

The Profepa report further states that:

Since the principal means of lead poisoning is through the action of wind, an important aspect to consider is the urgency of treating the hazardous waste left exposed to the elements, such as the small and large piles, and the contaminated soil in the battery area, amounting to 6,567.75 tonnes, since the contaminated material under the concrete floor is at present confined and does not represent an imminent risk for the moment. However, it will require subsequent treatment [Translation].²⁶

24. Reproduced from Profepa report, p. 138.

25. Profepa report, p. 83.

26. Profepa report, pp. 138-139.

The Profepa report also indicates that

The following urgent measures must be implemented immediately while the corresponding remediation technology is implemented:

1. Keep the contaminated materials in the piles covered and, as applicable, repair the tarps on the piles that have been damaged, using geomembranes or polyethylene, since the results obtained from the control samples taken outside the Metales y Derivados, S.A. de C.V. site demonstrate that the lead in the inadequately covered piles can easily be dispersed by the wind, causing an increased risk of lead poisoning to persons living and working near the site.
2. Secure the site so as to bar access to any person.
3. Keep the site under surveillance to prevent it from being occupied, as it is currently totally abandoned.
4. Initiate restoration measures immediately.
5. If possible, secure the zone with some type of physical barrier to prevent dispersal of contaminated dust.
6. Request the cooperation of the United States for the repatriation of the wastes generated through the use of materials imported from the US, or as applicable, that they be treated to eliminate the health hazard they represent.²⁷

The Profepa report assesses various remediation options for the Metales y Derivados site, based primarily on the “technical/economic aspect.” With the exception of certain general considerations, the assessment of remediation options does not include a detailed analysis of the environmental and public health risks potentially entailed by those and other options. Appendix 10 of this factual record contains a table summarizing the options assessed in the Profepa report.

The technology proposed in the Profepa report for the remediation of the site is chemical precipitation and stabilization. It is proposed to perform the treatment directly at the site, at an approximate cost of P\$6,201,015.49 (with the possibility of recovering or saving P\$10,086,808.10).²⁸ The proposal indicates that the material resulting from the treatment (insoluble material in the form of small pellets) can be used as landfill at the site itself or other facilities, or for road building in the vicinity.

27. Profepa report, p. 138.

28. Profepa report, p. 103.

The considerations about the impact that the restoration activities may have in neighboring areas are discussed in the context of a comparison of the various options, as follows:

In the specific case of landfill and treatment, a shared disadvantage is the risk of dust dispersal toward the residential area of Colonia Chilpancingo during restoration activities at the site. However, the northwest prevailing winds at Tijuana would tend to affect the industrial zone of Otay and not Colonia Chilpancingo, which is located to the south of the contaminated site.

It is important to mention that during the *in situ* treatment, in order to diminish the risk of dust dispersal, it is planned to keep the contaminated material constantly damp, as well as to install physical barriers to catch any fugitive dust generated. This is consistent with the restoration technology contemplated, since the latter requires water. The reverse is true of landfilling, since in order to prevent dust dispersal, the contaminated material would have to be dampened. This would increase the weight of the material, and thus the cost of the landfill operation.

Having determined that treatment is the most feasible technology for the site from a technical-economic point of view, it was found that the most appropriate of all the existing and applicable treatment options was **Chemical Precipitation and Stabilization**, since it offers the following advantages:

- It is suitable for heavy metal soils.
- It provides for chemical stabilization of the metals through the formation of hydroxides, sulfides, carbonates or other insoluble compounds, inducing the formation of precipitates and minimizing their solubility, leachability and dispersion.
- The final product of the treatment can be used in road building, making it possible to recover part of the investment.
- Precipitation and stabilization makes it possible to fully treat not only the lead present in the soil but also pollutants such as cadmium, chromium and mercury.
- It does not generate wastewater or air emissions.
- Since this technology does not generate waste, but rather transforms pollutants into “pellets,” it is possible to incorporate them into the land in a specialized manner [sic]²⁹ [Translation].

29. Profepa report, p. 141.

The Profepa report states that “due to Mexico’s obligations to enforce its environmental law, the OECD regulations and the Basel Convention, as well as the commitments ensuing from the Free Trade Agreement, it is necessary to restore the Metales y Derivados S.A. de C.V. site without delay” [Translation].³⁰

6.2.2.2 *Metales y Derivados Site Assessment Developed by the Secretariat through Independent Experts in 2001*

In March 2001, Levine Fricke de México, S.A. de C.V. concluded a site characterization study of Metales y Derivados. It was developed for the Secretariat to gather information on the alleged presence of hazardous wastes and soil contamination at the site, regarding which the Submitters assert that LGEEPA Articles 170 and 134 have not been enforced effectively.

As mentioned earlier, the Secretariat was unaware of the existence of any site characterization study, including the one produced by Profepa in 1999, until 31 January 2001, when the experts commissioned by the Secretariat commenced their work. The conclusions of the Profepa report could not be taken into account in developing the Secretariat’s study, because the Secretariat did not receive a copy of the Profepa report from Semarnat until 4 June 2001, two months after the Secretariat’s study was concluded. However, the experts commissioned by the Secretariat did have access to some information about the sampling performed by Profepa, which enabled them to design the Secretariat’s study so as to generate information complementary and supplemental to that already gathered by Profepa. Thus, the Secretariat’s study does not attempt to question Profepa’s findings, but only to provide additional information.

The object of the Secretariat’s study was to assess the conditions of the ground and subsurface with a view to detecting possible areas contaminated with chemicals and to determine their concentrations in the soil as well as the apparent vertical and horizontal extent of the affected area. This involved making soil borings at 16 points, 11 on the premises and five off the site. The borings reached a maximum depth of approximately 3 meters. A total of 30 soil samples were collected: two per boring, one at a depth of less than 1 meter and the others between 2 and 3 m or until the sampler could go no further. No surface samples were taken, in light of those previously taken for the Profepa report. The samples were analyzed to determine their concentrations of heavy metals,

30. Profepa report, p. 16.

specifically antimony, arsenic, cadmium, lead and selenium.³¹ In addition, four compound samples were taken from the waste stored at the site for hazard analysis in accordance with Mexican Official Standards NOM-052-ECOL-1993 and NOM-053-ECOL-1993.³²

The metal concentrations at the site were compared with the Interim Criteria for the Remediation of Soils Contaminated with Toxic Inorganic or Other Compounds issued by Profepa as generic references for the preliminary assessment of contaminated sites for various land uses. According to Profepa's guidelines, these criteria are for reference only, and the authority resolves each remediation proposal on a case-by-case basis.

In summary, the findings of the Secretariat's study are as follows:

Site geohydrology: No groundwater was detected down to the lower limit of 3.20 m. This is consistent with anecdotal evidence regarding groundwater depths off the site down to a depth of 12 meters, which also did not reveal any saturated zones. Based on the surface topography, the predominant groundwater flow direction is NW to SE, although the nearby ravines suggest that the rainwater movement is by seasonal surface runoff.

Hazardous wastes: Three of the four composite waste samples were found to be hazardous, according to the criteria for hazardousness set out in standard NOM-052-ECOL/93. In all cases, hazardousness was due to toxicity, which was in turn a function of lead content. The samples with concentrations above the maximum contaminant limit (MCL) for lead of 5.0 mg/l were taken from the waste piles in the vacant lot with 40.433 mg/l, the pile in the waste container with 57.902 mg/l and the waste drums on the floor with 15.66 mg/l. The sample collected from the waste bundles in the storage area had a lead concentration of 1.368 mg/l. Some of the samples were found to contain detectable levels of arsenic, barium, cadmium, mercury, nickel, silver and selenium, below the MCLs.

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31. The samples were analyzed at Laboratorios ABC Química, Investigación y Análisis, S.A. de C.V., in Mexico City, an analytical laboratory certified by the Mexican Certification Agency (*Entidad Mexicana de Acreditación*), which uses US EPA-approved methods.
 32. NOM-052-ECOL-1993, Establishing the characteristics of hazardous wastes, the list thereof and the threshold above which a waste is considered hazardous due to its toxicity in the environment, and NOM-053-ECOL-1993, Establishing the sampling procedure for determining the components identifying a waste as hazardous due to its toxicity in the environment.

Heavy metals

Antimony: Antimony was detected only in one sample taken from the battery waste burial area under the former unloading area, in a concentration of 24.255 mg/kg. Profepa has not established interim remediation criteria for antimony.

Arsenic: Arsenic was detected above the detection limit in 13 soil samples, at levels between 1.887 mg/kg, in a sample taken at the south boundary of the site next to the waste piles, and 118.732 mg/kg in a sample taken in the area of the former unloading area. Only this last sample exceeded the interim criterion of 40 mg/kg established by Profepa for arsenic.

Cadmium: Cadmium was detected in three soil samples in a range of concentrations from 3.246 to 12.546 mg/kg. None of the samples exceeded the interim remediation criterion of 100 mg/kg established by Profepa for cadmium.

Lead: Lead was found in detectable concentrations in 12 of the 30 soil samples, one of them taken off the site to the south of the waste containment area. Lead levels varied from 10.315 mg/kg, in a sample taken at the southeast corner of the site, to 77,590.3 mg/kg in a sample taken from the former unloading area, under the concrete floor. This last sample and two others also taken on the premises exceeded the interim criterion of 1,500 mg/kg established by Profepa for lead in industrial soils.

Selenium: None of the samples were found to contain detectable levels of selenium.

Extent of the Contamination

The results of the investigation conducted by Levine Fricke indicate that there is an area contaminated by lead, arsenic and possibly cadmium and antimony in the western part of the former Metales y Derivados facility. The affected area may extend up to the northern part of the plant. The horizontal extent of both affected areas is estimated to cover approximately 1,411 square meters, although this is not known with certainty since much of the area is covered by the concrete floor.

In regard to the vertical extension of the affected areas, the results at two borings within the plant indicate that the concentrations of lead and arsenic increase with depth to a maximum depth of 2.9 m. Due to the

rocky soil at the site, it was not possible to achieve greater depths so as to delimit the vertical extension of the contamination. At the maximum depths achieved, the estimated volume of contaminated soil is 4,094 m³. No estimate is provided of the volume of potentially contaminated soil below the hazardous waste piles. That soil must be sampled to determine its degree of contamination.³³

The lead levels detected in the battery waste area also increase to 1,196.32 mg/kg at a depth of 2.5 m and suggest the existence of localized contamination due to some buried material. However, it was not possible to estimate the dimensions of this area to determine its surface or volume. The lead levels detected on the south boundary of the site suggest that metals are being transported by surface runoff or wind dispersion to areas off the premises. Although the lead concentrations detected do not exceed the standard or risk criteria, its presence in the soil at a depth of 2.5 meters at one point off the site (approximately 6 m to the southwest of the site and 20 m to the west of where the wall ends) suggests some mechanism of infiltration.

The results of the CRETIB analysis (corrosive, reactive, explosive, toxic, inflammable or infectious) of the waste stored at the site suggest that the hazardous waste volume is approximately 703 m³ in the waste container and 6,562 m³ in the pile located in the vacant lot, for a total of 7,265 m³ of hazardous waste. This does not include the waste volume in the drums, which could not be estimated due to their advanced state of deterioration.³⁴

6.2.2.3 *Summary of Site Assessment Results*

The sampling results and estimates produced in the two known Metales y Derivados site characterization studies are generally consistent, although there are some minor discrepancies. The Profepa report of 1999 refers to lead concentration only. The Secretariat's study estimates the volume of hazardous waste at 7,265 m³ without including the material buried under the concrete floor and in the metal drums, while the Profepa report indicates the total volume of contaminated material to be 6,367 m³. There was also a considerable difference between the highest lead concentrations detected in the Secretariat's samples—77,590.3

33. The Profepa report estimates a total of 702 m³ of contaminated material under the large pile, 2,162 m³ under the battery area and 800 m³ of contaminated material under the concrete floor (p. 138).

34. According to the Profepa report (p. 22), there are approximately 110 200-liter metal drums containing lead slag on the premises. Whether the waste volume in the drums was estimated is not specified in the Profepa report.

mg/kg—and those found by Profepa, particularly in the large waste pile, where one Profepa sample had a lead concentration of 178,400 mg/kg, and in the small waste pile, where the concentration reached 169,950 mg/kg.

The following table summarizes the principal data derived from the two studies:

	Profepa report	Secretariat study	Interim Profepa criteria for industrially zoned land
Volume of contaminated material (m³)	6,367	7,265	NA
Maximum detected antimony concentration (mg/kg)	NA	24.20	NA
Maximum detected arsenic concentration (mg/kg)	NA	118.70	40
Maximum detected cadmium concentration (mg/kg)	NA	12.50	100
Maximum detected lead concentration in subsoil (mg/kg)	178,400	77,590.30	1,500
Maximum lead concentration at surface (mg/kg)	220,500	NA	1,500

A summary of the site assessment results is also provided in the maps included in Figures 1 and 2 that follow the appendices. Figure 3 includes photographs of the site.

6.3 Factual Information on Dangerous Repercussions to Public Health and the Environment from the Metales y Derivados Site

The submission asserts that Mexico is failing to effectively enforce LGEEPA Article 170 because it has not taken the necessary measures to contain or neutralize the hazardous waste abandoned by Metales y

Derivados and to prevent imminent harm to public health.³⁵ The Submitters assert that the health problems observed in Colonia Chilpancingo can be attributed to Metales y Derivados, and that due to their toxicity, the pollutants present on the site pose a serious health risk to the residents of Colonia Chilpancingo.³⁶

Mexico's response, submitted in June 1999, makes no reference to the public health effects, although it states that the Party "shares the Submitters' concerns fully, since the environmental situation at the site where the company Metales y Derivados, S.A. de C.V. was located is in fact grave" [Translation].³⁷

Article 170 refers specifically to cases of contamination with hazardous materials or waste having "dangerous repercussions on ecosystems, their components or public health." This section summarizes the information gathered by the Secretariat on the "dangerous repercussions" caused or potentially caused by the hazardous materials or wastes present at the site. Only the substances detected in reportable quantities in the Profepa report and the Secretariat's study—antimony, arsenic, cadmium and lead—are considered.

The Secretariat invited the most relevant municipal, state and federal authorities, the principal academic institutions in the region, and any other interested parties to submit information on the health or environmental effects caused by the contamination at the Metales y Derivados site.

It appears that the only study in which the public health effects of the contamination at the Metales y Derivados site have been documented is a study of blood lead levels in children in Colonia Chilpancingo, conducted in 2000 by the University of California-Irvine

35. Submission, pp. 10-11.

36. Submission, p. 4. The human health and environmental effects of the Metales y Derivados site are described in the submission as follows: "Petitioner Comité, acting as the community liaison, repeatedly reported to and requested action from authorities about residents' constant complaints of dizziness, nausea and other symptoms associated with lead and toxic exposure. Moreover, Petitioner Comité identified several cases of infants with some form of serious health condition ranging from asthma and chronic skin irritations, to birth defects such as babies born without the uvula (the soft tissue hanging down the middle of the soft palate above the back of the tongue which produces the vibration needed for speech), and babies born with hydrocephaly (a fatal congenital malformation where the brain cavity is continuously filled with fluid). [...] Petitioners now contend that these health problems could have been caused or are being exacerbated by the Metales hazardous waste site."

37. Mexico's response, p. 1.

(UC-Irvine Study), which was provided to the Secretariat by the US EPA. The Secretariat received from the Mexican environmental authorities only two documents containing references to health or environmental effects connected with Metales y Derivados: a diagnosis of the environmental situation of Cañón del Padre,³⁸ produced in July 1992, and the Profepa report of December 1999. The Submitters provided a verbal account of the health problems observed in Colonia Chilpancingo residents.

The following two sections describe, respectively, the general information compiled on the observed and potential effects of substances present at the Metales y Derivados site, and the UC-Irvine Study.

6.3.1 General Information on the Harm to Human Health and Environmental Effects Related to Contamination at the Metales y Derivados Site

The Submitters indicate that the residents of Colonia Chilpancingo are living in a perpetual state of concern about the effects of daily exposure to the hazardous waste on their health, and in particular on the health of their children. They are also concerned about the risks of acute exposure in children and other persons who may enter the site and come into direct contact with the hazardous waste accumulated there. They indicate that the most serious health problems, such as the birth of a child with hydroencephaly, occurred while the plant was still operating. They assert that, despite the shutdown of Metales y Derivados, cases of skin disease, gastrointestinal problems and other symptoms such as chronic fatigue continue to arise with frequency among the residents. The Submitters are unaware of the existence of any records of these cases. According to the Environmental Health Coalition, the residents are reticent to acknowledge and report the health problems, especially those affecting children. Among other possible reasons, they attribute this reluctance to the lack of information about diseases relating to toxic substances, as well as to a sense of guilt on the part of mothers regarding their children's exposure to those toxic substances, regardless of the reason for the exposure.³⁹

38. The Colonia Chilpancingo is located in the Cañón del Padre, a large ravine adjacent to the Mesa de Otay, in Tijuana, B.C. Since the early nineties, health and environmental effects from the growing maquiladora activities and human settlements without services in this area, were the object of increasing complaints to the authorities, and of public and media concern.

39. Interview with representatives of the Submitter organizations, Mr. Maurilio Sánchez and Mr. César Luna, and with Ms. Olga Rendón, a resident of Colonia Chilpancingo, 13 June 2000, all of whom attended the annual meeting of the Council of the Commission held on that date in Dallas, Texas, USA.

The Secretariat received two documents produced by Mexico in which mention is made of the effects of the contamination at Metales y Derivados on public health and the environment.

The first is an analysis of the situation at the Cañón del Padre, produced in July 1992 by the Regional Office of the Ministry of Social Development for Zona Costa, Municipality of Tijuana, Baja California (*Secretaría de Desarrollo Social—Sedesol*), as part of the Environmental Audit Program and in response to the complaints of residents due to the environmental effects of the fast industrial growth in the area. At that time, the problems identified were contamination of the Cañón del Padre by wastewater discharges, the use of the area as a clandestine dump site and the uncontrolled exploitation of rock material.⁴⁰ In that analysis, Metales y Derivados is identified as a company possibly falling in the high-risk category⁴¹ and potentially polluting. The analysis also refers to the removal by Metales y Derivados, in October 1987, of piles of lead oxide and lead slag dumped in Alamar Creek. The document indicates that Metales y Derivados was to be audited as part of the environmental auditing program. The analysis does not indicate the results of that audit, or when it was to have taken place. The Secretariat is unaware of any audit performed on Metales y Derivados after July 1992. The only record is of an inspection of Metales y Derivados on 22–23 February 1993, in which Profepa identified various potential violations regarding hazardous waste management. There is no reference in that inspection record to health and environmental effects.⁴²

The second document provided to the Secretariat by the Mexican environmental authorities containing references to health and environmental effects in connection with Metales y Derivados is the site study produced by Profepa, dated December 1999. This report includes the consideration of the toxicological risk arising from the contamination of the site. However, as mentioned, Semarnat did not provide this part of the report to the Secretariat because it did not consider the consulting firm to have expertise in that type of analysis, but rather in characterization and remediation of contaminated sites. The references to risk that were not masked in the copy of the Profepa report provided to the Secretariat indicate that there is a major health risk⁴³ and that “the area of

40. Analysis of the Cañón del Padre Situation. Sedesol, Baja California State Office, Zona Costa Regional Office, Municipality of Tijuana, Baja California, Environmental Auditing Program, Technical Report 9207/03 E.E. C. del Padre Area: Special Studies, Tijuana, Baja California, July 1992.

41. According to the List of High-Risk Activities, DOF, 28 March 1990.

42. Mexico's response, Appendices 11–13.

43. Profepa report, p. 80.

influence of the contaminated site could probably extend to a distance of 2.5 km in the direction of the prevailing wind (northwest); with increasing distance, the concentration of the pollutant in the soil would decrease" [Translation].⁴⁴

Regarding environmental impact, the Secretariat was unable to find any specific information on the effects caused by the contamination, nor did it find any detailed and reliable assessment of the health and environmental risk posed by the site. The only attempt to determine the environmental effects that was identified are the samples taken to determine lead bioaccumulation in plants growing on the Metales y Derivados site and in Ejido Chilpancingo, as part of the characterization study commissioned by Profepa in 1999. A concentration of up to 1,159.50 mg/kg of lead was found in one of the three vegetation samples taken on the site. In the sample taken from vegetables growing on Ejido Chilpancingo, a concentration of 1.91 mg/kg of lead was found, and in the sample taken in agricultural soil from Ejido Chilpancingo, a lead concentration of 37.50 mg/kg was detected. The Profepa report indicates that "in the analysis of plant species growing near the site, primarily radish roots, it should not be considered a risk factor for consumption of the vegetables, since the accumulated lead concentration in the human body considered hazardous is 33 mg/kg. To attain this level, one would have to eat 57 radishes with the reported concentration, since the human body assimilates approximately 30 percent of the total lead concentration" [Translation].⁴⁵

To corroborate and expand on the information provided in the submission on the potential dangerous repercussions of the substances allegedly present on the site,⁴⁶ the Secretariat gathered publicly available information, based on expert studies, on the characteristics of these substances and their potential health and environmental effects.⁴⁷

The principal pollutants that, according to the investigations by Profepa and the Secretariat,⁴⁸ are present on the site are antimony,

44. Profepa report, p. 86.

45. Profepa report, p. 87. This information is provided here with the cautionary note that it was taken from the remaining (undeleted) paragraphs of the Profepa report's chapter on toxicological risk that were provided to the Secretariat, and Semarnat does not consider the experts who produced the report to be experts on toxicological risk.

46. Submission, pp. 4-6.

47. Human and Environmental Health Impacts of Selected Substances. Prepared by the Hampshire Research Institute for the Commission for Environmental Cooperation, 2 March 2001.

48. See subsections 6.2.2.1 and 6.2.2.2, *supra*.

arsenic, cadmium and lead. As elements, they will persist indefinitely in the environment. They may undergo transformations (combinations with other chemicals to form different compounds from those originally released) that increase or decrease the likelihood that they will cause harm. They may also be transported over long distances by wind or in flowing water. Appendix 11 of this factual record summarizes the available information on the potential health and environmental effects of these substances.

However, it is important to clarify that no specific studies were performed on the contaminants present at the Metales y Derivados site to determine the chemical form in which they are found and their toxicity levels. The information obtained from other studies performed by experts on these types of substances was compiled only as a reference. It is important to note that in many cases, the data from studies of human exposure (epidemiological studies) are not adequate to provide a full description of the health effects of a chemical. Toxicologists rely upon studies in experimental animals to predict likely health effects in humans.

No record was found of any risk analysis concerning the Metales y Derivados site, and the Secretariat did not consider it necessary to develop one for the purposes of this factual record due to the broad consensus among those providing information for the factual record that the site presents a significant risk.⁴⁹

6.3.2 Health Effects Documented in the UC-Irvine Study

As indicated above, the only specific analysis on public health and environmental effects obtained for the development of this factual record is the study performed by researchers at the University of California-Irvine. Further to the submission filed with the CEC on the contamination at Metales y Derivados, the US EPA, the US Centers for Disease Control and Prevention, the XVI Ayuntamiento de la Ciudad de Tijuana and the Instituto de Servicios de Salud Pública del Estado de Baja California commissioned this study from the Department of Environmental Analysis and Design of the School of Social Ecology and the Center for Occupational and Environmental Health of the College of Medicine of UC-Irvine (the “UC-Irvine Study”). The UC-Irvine Study is linked to

49. See subsection 6.2, *supra*.

another larger study conducted by the same researchers on blood lead levels in Tijuana children.⁵⁰ The UC-Irvine Study sought to:

[...] determine if the children in the vicinity of the Metales y Derivados smelting site are being directly and significantly exposed to lead from this source, controlling for other primary exposure variables found in the larger study, namely age, provider and ceramic use (Ericson and Baker, 2000). Thus, the objective of this study was to use available data from the larger study and to supplement the original data with additional sample collection within the catchment area.

The UC-Irvine Study did not aim to definitively resolve the question of health and environmental impacts from the Metales y Derivados site because its scope was limited. Nevertheless, it presents a favorable short-term public health conclusion for the current residents: the average lead levels found in the blood samples from children living in proximity to Metales y Derivados are slightly lower than the average blood lead levels (BLL) in children sampled in Tijuana in general. The average BLL in subjects sampled for the whole city was 6.17 +/- 3.40 µg/dl, while the average BLL for the catchment area of the Metales y Derivados plant was 6.02 +/- 2.37 µg/dl. The report considers BLL greater than or equal to 10µg/dl to be elevated. Eight subjects sampled in proximity to Metales y Derivados (4.8 percent) exhibited an elevated BLL (greater than or equal to 10 µg/dl), while for the entire city, the prevalence of elevated BLL was 10.8 percent (or 11.4 percent in the rest of the Tijuana group).

The conclusions of the UC-Irvine Study are as follows:

The epidemiological data of the original randomly selected, geographic survey of Tijuana yielded 156 subjects within a 3,200-meter radius catchment of the Metales y Derivados site. Statistical analysis of dichotomous groups formed by these 156 subjects in the catchment plus 10 newly recruited subjects and subjects in the rest of Tijuana indicates that the children in the catchment were **less** likely to have elevated blood lead levels, controlling for age, family use of ceramic pots for cooking, and medical care provider. In fact, chi-square and logistic regression analysis indicate that the proportion of children with elevated BLL is significantly lower in the catchment area. This is an important positive public health finding for this segment of the present residents.

50. Ericson, J.E., and D.B. Baker. Childhood Lead Assessments in Tijuana, Baja California, Mexico: A Binational Study in the California-Baja California Region. Report to the US Environmental Protection Agency, US Centers for Disease Control and Prevention, XVI Ayuntamiento de la Ciudad de Tijuana and Instituto de Servicios de Salud Pública del Estado de Baja California (ISE-SALUD). Spring 1999.

Notwithstanding exposure assessment analysis, soil lead analysis conducted on 71 samples from various strata (household, undisturbed and fixed point sources) indicates that the Metales y Derivados site has released lead into the environment. The soil Pb from this contamination we consider as mobile and capable of being reentrained by the wind over time, has deposited in unoccupied and industrialized areas to the east of the site [sic]. There may be a slight blood lead anomaly, controlling for ceramic use, which is to the northeast of the Metales y Derivados site. We speculate that this anomaly could have been caused by aerosol deposit during the plant operation. Additional analyses, such as lead isotopic and intensive sampling and analysis of Cd/Pb ratios could determine this condition.

Finally, given that the long-term residence of soil Pb is 400–3,000 years, it is suggested that site and the anomaly to the east should be “cleaned up” to reduce potential transport, contamination and exposure of the Tijuana population.

It is important to note that these exposure assessment data from Colonia Chilpancingo are not conclusive with current claims and local residents.⁵¹

However, the experts who conducted the UC-Irvine Study have warned that the information available on the high lead concentrations on the site is not consistent with the blood lead levels detected, which would typically be higher.⁵² The limited scope of the study prevented the researchers from resolving this apparent contradiction, but the report offers the possible explanation that the wind carries the pollutants off the site to the east, depositing them beyond the immediate vicinity. Nevertheless, given that lead is mobile and will reside in the soil for 400 to 3,000 years, the UC-Irvine Study recommends that the pollutants present on the site be “cleaned up” to reduce potential transport, contamination and exposure of the Tijuana population.⁵³ The experts also commented that although 11.4 percent of the subjects exhibited BLL above the 10µg/dl level considered elevated, the average BLL of 6 µg/dl found in Tijuana is double the average BLL for US children and caution

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51. Ericson, J.E. and D.B. Baker. Childhood lead and environmental assessment in proximity to Metales y Derivados, an abandoned metal recycling site in Tijuana, Baja California, Mexico. Report prepared for the United States Environmental Protection Agency, the XVI Ayuntamiento de la Ciudad de Tijuana and the Instituto de Servicios de Salud Pública del Estado de Baja California (ISE SALUD) by the Department of Environmental Analysis and Design of the School of Social Ecology and the Center for Occupational and Environmental Health, College of Medicine, University of California-Irvine, Spring 2000.
 52. Interview of J.E. Ericson and D.B. Baker by Secretariat of the Commission for Environmental Cooperation, 28 September 2000.
 53. UC-Irvine Study, p. 9.

that, although a correlation was found in that study between lead and the use of ceramic cookware, lead in urban soil is a significant source of exposure.⁵⁴

The UC-Irvine Study refers only to blood lead levels, and does not encompass other substances found in reportable concentrations at the Metales y Derivados site, namely antimony, arsenic and cadmium. The Secretariat is not aware of the existence of any study relating to the exposure of Colonia Chilpancingo residents to any of these other substances.

6.4 Factual Information on Environmental Law Enforcement in Relation to Metales y Derivados

6.4.1 Acts of the Environmental Authority in Relation to Metales y Derivados

When it instructed the Secretariat to develop this factual record, the CEC Council resolved “to direct the Secretariat, in developing the factual record, to consider whether the Party concerned ‘is failing to effectively enforce its environmental law’ since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record.”⁵⁵ Thus, this section includes all actions to enforce the environmental law in relation to Metales y Derivados of which the Secretariat has knowledge. Actions by the authorities concerning criminal law in relation to Metales y Derivados are mentioned only as references, but are not addressed in depth because they are not the subject of this factual record.⁵⁶

At the date of completion of this factual record, the Secretariat had not received a response to the requests addressed to the Party for information on Mexico’s environmental enforcement actions in relation to Metales y Derivados that may have occurred after the Party provided its response to the submission on 1 June 1999.⁵⁷ The first known action by

54. “Studying Lead in Tijuana Tots,” *Environmental Health Perspectives*, 108(7), July 2000.

55. Council Resolution 00-03. Instruction to the Secretariat of the Commission for Environmental Cooperation (CEC) with Regard to the Assertion that Mexico is Failing to Effectively Enforce Articles 134 and 170 of the General Law on Ecological Balance and Environmental Protection.

56. See the last paragraph of section 5 and the third paragraph of section 6, *supra*.

57. Appendices 4–5 contain the requests for information and the list of specific questions sent to the Mexican authorities.

the environmental authority in relation to Metales y Derivados is the inspection visit to Alamar Creek on 18 September and 21 October 1987, while the last is the repair of the south wall of the site, completed in April 2000.

The response of the Party indicates that all inspection visits conducted by the environmental authority found potential hazardous waste management violations by Metales y Derivados, S.A. de C.V. Appendix 12 of this factual record lists all the environmental enforcement actions in relation to Metales y Derivados of which the Secretariat has knowledge, with a summary of the violations found by Profepa in each case.

6.4.2 Obstacles for the Effective Enforcement of Environmental Law in Relation to Metales y Derivados

The factual information gathered by the Secretariat for this factual record reveals that the site abandoned by Metales y Derivados is a case of soil contamination by hazardous waste and that measures taken to date have not impeded access to the site, prevented pollutants that may have dangerous repercussions on public health and the environment from being dispersed within and outside the site, nor restored the site to a condition suitable for use in conformity with the current zoning (i.e., light industry) of the Mesa de Otay Industrial Park, Tijuana, Baja California, in which it is located.

In regard to maquiladoras, and particularly in this case, it has been noted that the scarcity of resources and the opportunity for the offenders to use the border as a shield against legal action are obstacles to the effective enforcement of environmental law.⁵⁸ However, no specific information was obtained on how these obstacles prevented the effective enforcement of LGEEPA Articles 170 and 134 in the specific case of Metales y Derivados.

6.4.2.1 Lack of Resources

The Secretariat was unable to obtain specific information about the resources assigned to the effective enforcement of environmental law in relation to Metales y Derivados. Although the Mexican environmental authorities as well as the US EPA assert that law enforcement efforts

58. Mexico's response; interview of 29 September 2000 with the Profepa State Office in Tijuana, Baja California; and information provided in November 2000 by the US EPA.

in the case of Metales y Derivados were constrained by a lack of resources,⁵⁹ the Secretariat was not provided with information about the resources available, nor regarding specific efforts to allocate the resources necessary for the effective enforcement of LGEEPA Articles 170 and 134 (prevention of soil contamination, and remediation to prevent dangerous repercussions on health and the environment, respectively) in the case of Metales y Derivados.

The relevant authorities in Tijuana assert that Profepa does not have a fund similar to the United States' Superfund that would enable them to clean up the site. Therefore, actions were geared toward compelling the generator (Metales y Derivados, S.A. de C.V.) to fulfill its obligations to return, manage and provide sound final disposal of the hazardous waste. According to Profepa's state office in Tijuana, the administrative procedure reached an impasse when the alleged perpetrators fled Mexico to evade the arrest warrant issued against them on 25 September 1995. The staff of that office indicated that Profepa continued to assist in the criminal proceeding up to 1999, when the statute of limitations for the criminal charges was declared to have expired.⁶⁰

The US EPA also considers the main obstacle in addressing the site contamination problems to be the lack of resources to fund the cleanup. The agency indicates that Profepa is developing a program to fund remediation of a limited number of sites.⁶¹ No further details on this projected fund were made available to the Secretariat. No specific information was received from the US EPA or Profepa on the manner in which the new fund would be applied to the Metales y Derivados case, nor on the date when it is expected to be operational.

The information provided by Mexico concerning the lack of resources refers largely to the workload of the Profepa State Office in Tijuana. That office indicated that as of late 1993, it had a total of 14 staff persons, including 6 inspectors and 2 lawyers, who worked on proceedings relating to the maquiladora industry (740 companies in September 2000) as well as natural resources. According to that office, a total of 1,200 proceedings have been instituted since 1993, and 800 of them remain open. They assert that 4 or 5 proceedings may relate to the same company.⁶² For its part, the US EPA indicates that between August 1996

59. See, for example, Mexico's response and the information provided in November 2000 by the US EPA.

60. Information provided in interview of 29 September 2000 with the Profepa State Office in Tijuana, Baja California.

61. Information provided in November 2000 by the US EPA, p. 6.

62. Information provided in interview of 29 September 2000 with the Profepa State Office in Tijuana, Baja California.

and March 2000, a total of 210 new maquiladoras were built in Tijuana, or an average of one per week, while in that same period the number of inspectors and other personnel of the Profepa State Office in Tijuana remained essentially the same.⁶³

As of the date of completion of this factual record, the Secretariat had not received a response to the requests addressed to the Party for information in addition to that contained in the response of the Party on the resources specifically assigned to the effective enforcement of LGEEPA Articles 170 and 134 in the case of Metales y Derivados.⁶⁴ Nor was any publicly available information identified on this topic, beyond several general reiterations of the problem of hazardous waste and contaminated sites. In particular, the Profepa Working Group on Remediation of Contaminated Sites (GDT) explains the status of abandoned contaminated sites in the following terms:

In 1995, Profepa embarked on a nationwide program to identify [abandoned] sites. This program generated a list of the sites identified, with general information on the type and quantity of wastes present, the environmental and social issues, and the legal status. Special attention was paid to sites containing PCBs, solvents, pesticides, sulfur, heavy metals and hydrocarbons.

Preliminary environmental damage assessments were performed in San Luis Potosí, Guanajuato, Zacatecas and Nuevo León. In addition, in order to identify the sites in greater detail and analyze their effects on the environment, studies were conducted for the identification and preliminary assessment of clandestine hazardous waste dump sites in Baja California, Chihuahua, Sonora, Coahuila, Tamaulipas, Veracruz, México, Hidalgo, Jalisco and Querétaro.

Each site was classified according to: (i) environmental damage sustained; (ii) environmental and public health risk; (iii) type and quantity of waste present; and (iv) specific characteristics of each zone.

However, this type of study is only the beginning of the solution to the grave problem represented by this type of site, which is present throughout the country. In addition to verifying and validating the existing information, it is necessary to gain certainty about the types of pollutants present, their volumes and their physical, chemical and toxicological characteristics. This is because at these sites, it is possible to find a wide variety of wastes ranging from construction debris and municipal waste to PCBs and heavy metals, which represent a grave public health and environmental risk.

63. Information provided in November 2000 by the US EPA, p. 5.

64. Appendices 4–5 contain the requests for information and the list of specific questions sent to the Mexican authorities.

In parallel with the characterization of the sites, it is necessary to take action to clean up and restore the priority sites identified so far, for which the persons responsible have not been identified.

These sites, due to their specific characteristics and the types of waste dumped there, pose an imminent risk of harm to the environment and the population. In most cases, the waste was dumped indiscriminately, in bulk and without any protection, creating situations where the toxic substances could filter into the groundwater, become airborne or enter surface watercourses. In addition, the lack of warning signs and site security to impede access allows the population to come easily into contact with the wastes and be severely affected by the toxicity of many of those wastes.

The grave health and environmental problems caused by this waste, which has been dumped illegally and unsoundly—added to the fact that the persons responsible for these crimes have not been identified—have created a need for the federal government to intervene urgently to resolve this problem, which will require a great amount of financial resources [Translation].⁶⁵

6.4.2.2 *The Border as a Challenge for Enforcement*

According to the US EPA, the Metales y Derivados case exemplifies a critical public policy issue in the border region: the use of the border as a shield against enforcement. According to the information provided by the US EPA, Profepa informs the US EPA with “alarming regularity” of abandoned maquiladoras on the Mexican side of the border.⁶⁶ The parent companies may abandon their Mexican operations, including their hazardous waste, because of enforcement against them by the Mexican authorities or, more commonly, because the maquiladora is not doing well financially. Baja California, the state with the largest number of maquiladoras, also has the largest number of abandoned maquiladoras. In rare cases, the US EPA is able to arrange for the US parent company to clean up the waste on a voluntary basis. However, in most cases, the companies responsible take advantage of the fact that the border prevents the Mexican authorities from taking action to enforce Mexican law in the United States, while the US authorities are not empowered to take action to enforce Mexican law.⁶⁷

65. Profepa Working Group on Contaminated Land Restoration (GDT), Memoir 1998-2000. *Restauración de Suelos Contaminados*, p. 65.

66. This notification occurs within the context of the regional subgroups of the Hazardous and Solid Waste Workgroup and the Cooperative Enforcement Workgroup. Information provided in November 2000 by the US EPA, p. 5.

67. Information provided in November 2000 by the US EPA, pp. 5-6.

The Submitters also highlight this aspect of the problem. The submission states: "For example, one problem confounding the case of Metales is the fact that the company's responsible parties fled Mexico and returned to the United States to shelter themselves from any civil or criminal complaint from the Government of Mexico. To the best of Petitioners' knowledge, this has been one reason why Mexico has been unable to prosecute or sanction these individuals."⁶⁸

The US EPA asserts that for some years it has worked together with Profepa to overcome this obstacle.⁶⁹ Among the issues discussed is the use of the courts to enforce remedies against violations of environmental law.⁷⁰

On 18 May 2000, the competent authorities of Mexico and the United States signed the EPA/Semarnap Joint Policy Statement on the Remediation and Redevelopment of Contaminated Properties in the US/Mexico Border Area. The statement expresses the urgency of taking action to restore contaminated sites abandoned in the border area, and the intention to explore short- and long-term options through the development of pilot remediation projects for contaminated sites. The general commitment of these bodies to promote the remediation of contaminated sites in the border area is expressed in the following terms:

With respect to remediation and redevelopment of contaminated sites in the US/Mexico border area, EPA and Semarnap jointly declare their intention to:

- *Call for urgent action* to promote the remediation and redevelopment of contaminated sites and related off-site contamination in the US/Mexico border area, in order to prevent further risks to local health and maximize economic development opportunities;
- *Encourage* private sector involvement in remediating and redeveloping contaminated sites in a manner that ensures public participation in decisions about cleanup and future uses, in accordance with domestic laws and regulations;

68. Submission, p. 13.

69. Mexico and the United States have established some institutional mechanisms to identify the options for resolving the problem of abandoned contaminated sites and to overcome these obstacles; these include the regional subgroups of the Hazardous and Solid Waste Workgroup and the Cooperative Enforcement Workgroup. Information provided in November 2000 by the US EPA.

70. "Using Courts and Enforcing Remedies: Overcoming the Border as a Barrier to Environmental Enforcement." Environmental Law Institute, Background Paper, US-Mexico Workshop on Transboundary Environmental Enforcement, Draft, April 2000. This analysis was published in its final form as Workshop Report, United States-Mexico Transboundary Environmental Enforcement (Session 3: Liability and Use of Courts Across the Border), September 2000.

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- *Work together* to promote such action as expeditiously as possible on both sides of the border, including:
 - Working with binational border institutions, state and local governments, private sector entities, nongovernmental organizations and local citizens to explore mechanisms and identify and develop projects for brownfields remediation, ensure community involvement, secure financing, minimize legal and financial risks, facilitate administrative processes, and ensure sustainable future uses of contaminated properties in the border area;
 - Exploring development of pilot brownfield remediation projects on both sides of the border to work through the various aspects noted above;
 - Exploring needed short-term policy modifications and developing policy recommendations for the long-term.

The Secretariat has no information about any concrete application of, or other follow-up to the Joint Policy Statement, nor on the possibility that the Metales y Derivados site be remediated as a pilot project in the context of this bilateral cooperation effort.

7. Facts Presented by the Secretariat with Respect to the Matters Raised in the Submission

Based on the submission, the response of the Party and other factual information gathered by the Secretariat, the facts relating to the effective enforcement of LGEEPA Articles 170 and 134 with respect to Metales y Derivados are presented below.

There are differences in the meaning the Submitters give LGEEPA Articles 170 and 134, and the interpretation that Mexico gives to these provisions. In its recommendation to the CEC Council for the development of this factual record, the Secretariat indicated that the arguments in the response did not allow dismissing the Submitters' assertions.⁷¹ The Party did not provide information in addition to that contained in its response on its interpretation of LGEEPA Articles 170 and 134.

As far as the Secretariat could determine, no binding interpretation of LGEEPA Articles 134 and 170 has been issued to date by the competent tribunals.⁷²

7.1 Meaning and Scope of LGEEPA Article 170

Article 170 is part of the section of the LGEEPA that refers to control and safety measures, and to sanctions applicable by the environmental authorities.⁷³ Safety measures are "provisions dictated by the environmental authority to protect public health and safety."⁷⁴ With respect to the environment, the factual circumstances calling for the

71. (SEM-98-007) Notification to Council that Development of a Factual Record is Warranted (6 March 2000).

72. Under Mexican law, the task of interpreting the law for legally binding purposes falls exclusively with the country's judiciary; that is, the judges, magistrates and ministers making up the federal and local judiciaries, and with the administrative tribunals that hear labor, tax and administrative matters.

73. LGEEPA Title Six, "Control and Safety Measures and Sanctions," Chapter III, "Safety Measures." The full text of Article 170 is cited on page 11 of this factual record.

74. Article 81 of the Federal Administrative Procedure Law (*Ley Federal de Procedimiento Administrativo*—LFPA).

application of safety measures under Article 170 are an imminent risk of ecological imbalance or severe damage to or degradation of natural resources, and cases of contamination with dangerous repercussions on ecosystems, their components or public health. Semarnat⁷⁵ is responsible for ordering safety measures should any of these conditions obtain. The safety measures that the Ministry may order are shutdown of a facility, seizure of assets, and actions to avert harm to public health or the environment. Safety measures may be implemented by the responsible party, in which case a deadline must be set for their performance,⁷⁶ or they may be implemented by the environmental authority acting alone, even without the consent of the interested party.⁷⁷

The Environmental Health Coalition and Comité Pro Restauración del Cañón del Padre, A.C. assert that Mexico is failing to effectively enforce LGEEPA Article 170 by failing to prevent the Metales y Derivados site, contaminated with hazardous waste, from having dangerous repercussions on public health.

In its response, Mexico indicates that ordering safety measures is a discretionary power of the Ministry, since the word used in Article 170 is “may” (*podrá*) and not “shall” (*deberá*).⁷⁸

No specific judicial interpretation of LGEEPA Article 170 exists, nor is there an interpretation by the Mexican courts of the meaning of the word “may” in the context of environmental law. Mexican tribunals have, however, interpreted the word “may” and the scope of discretionary powers in the area of taxation. These courts have established that the word “may” is not to be interpreted in a purely grammatical sense, but that rather, its interpretation depends on the nature of the powers invested in the authority.⁷⁹ They have indicated that discretionary

75. The reforms to the Organic Law of the Federal Public Administration (*Ley Orgánica de la Administración Pública Federal—LOAPF*), published in the DOF on 30 November 2000, transferred the functions of promotion and regulation of fisheries activity from the Ministry of the Environment, Natural Resources and Fisheries to the Ministry of Agriculture, Livestock Production, Rural Development, Fisheries and Food. Consequently, the name of the former department changed to the Ministry of the Environment and Natural Resources.

76. LFPA Article 82.

77. As with the shutdown of Metales y Derivados and the repairs done by Profepa at the site.

78. Mexico’s response, pp. 9-10.

79. “[...] as to the word “may” appearing in the first part of Article 58 of the Federal Tax Code (*Código Fiscal de la Federación*), this word must not be interpreted to mean that the legislators gave the administrative authority the discretionary power to grant or withhold from the taxpayer the opportunity to rectify his situation where there exists a possibility of presumptively determining taxable earnings, since the scope of the norm is not based on the purely grammatical meaning posited for the word

powers shall not be confused with the use of judgment.⁸⁰ Along the same lines, another case law criterion indicates that the powers of the authority must be interpreted with reference to the express purpose that the norm seeks to achieve.⁸¹

7.2 Mexico's Actions in Enforcement of LGEEPA Article 170

As discussed above, LGEEPA Article 170 establishes the safety measures applicable to responding to cases of contamination with dangerous repercussions on public health and the environment. In the case of Metales y Derivados, the following safety measures falling expressly or logically under LGEEPA Article 170 have been ordered:

- In March and April 1991, Profepa ordered the total temporary shutdown of Metales y Derivados.
- On 6 May 1993, Profepa again ordered the total temporary shutdown of the facility.
- On 28 March 1994, Profepa ordered the total permanent shutdown of the facility,⁸² stating that there existed “an imminent risk of ecological imbalance or dangerous repercussions on ecosystems, their components or public health.”⁸³

“may” but rather the result obtained from the review relating to the nature of the powers invested in the tax authority.” [T.A.]; 8^o; T.C.C.; VIII; November 1991, p. 212.

80. “Discretionary powers must not be confused with the use of judgment which the law extends to the authorities under certain conditions. Where the law sets out penalties for given violations, and provides a lower and an upper limit, the authority applying the penalties shall have to use its own judgment, and must provide adequate reasoning that takes account of the pertinent facts, the legal guidelines and the rules of logic. Nevertheless, in the presence of the violation, the authority is legally bound to impose the penalty. In contrast, discretionary powers are at issue where the legal norm establishes a factual situation under which the authority may or may not apply the legal consequence provided in the norm itself. That is, it is not sufficient that the situation be fulfilled in order for the consequence to become legally unavoidable, but rather the application of the consequence is at the discretion of the authority” [J]; 7^o; T.C.C.; III; 1995; p. 486.

81. “Articles 724, 725 and 727 of the Customs Code (*Código Aduanero*) do not invest the authorities with all-embracing powers; rather, these must be exercised in a prudent manner using sound reasoning, since the sense of the word “may” employed in Article 725 is limitative, not permissive, and it must be understood that the granting of such powers has the purpose of realizing the express aim that the norm seeks to achieve, fulfilling all the legally prescribed requirements for that purpose.” [J]; 7^o; III; 1995; p. 653.

82. Final shutdown orders are contemplated not as a safety measure but as a sanction in LGEEPA Article 171, paragraph I.

83. Mexico's response, p. 16 and Appendix 17.

- In December 1994, the Profepa State Office in Baja California repaired the wall on the south side and placed tarps on the lead slag piles.
- On 4 and 11 January 1995, Profepa carried out a procedure with the Ministry of National Defense (*Secretaría de la Defensa Nacional*) through its Plaza de Tijuana Garrison whereby 4,250 kg of explosive material (red phosphorous) were removed from the site.
- In April 2000, the environmental authority again repaired the wall at the site, installed new tarps and posted a warning sign. According to the US EPA, the owner of the company, José Kahn, paid for the wall repairs. The US EPA also asserted that the Environmental Health Coalition alerted the authorities to the fact that the personnel hired by José Kahn were working without protective equipment and were unaware of the risks posed by the site. The Tijuana office of Profepa responded by taking charge of completing the repairs with adequate protection.⁸⁴

Mexico did not provide the Secretariat with information on the extent to which the safety measures taken at the site are effectively preventing pollutants from causing dangerous repercussions on health or the environment. However, the Profepa report indicates that measures in addition to those already taken are needed, such as immediate securing of the site to avoid access to the premises and dispersal of contaminants, and remediating the soil contamination.

7.3 Meaning and Scope of LGEEPA Article 134

The Environmental Health Coalition and Comité Pro Restauración del Cañón del Padre, A.C. assert that Mexico is failing to enforce LGEEPA Article 134 effectively by failing to prevent and control soil contamination through remediation of the site abandoned by Metales y Derivados. Article 134 sets out certain criteria for preventing or controlling soil contamination, and provides that the necessary measures must be taken to restore soils contaminated by hazardous waste so that they may be used in accordance with applicable zoning.⁸⁵

The Submitters argue that “[a]lthough Mexico did permanently shut down the facility’s operations, build a containment wall and

84. Information provided in November 2000 by the US EPA.

85. The full text of Article 134 is cited on page 12 of this factual record.

attempt to cover the lead slag mounds with a plastic cover, these measures do not constitute effective or adequate actions to restore and reestablish the quality of soil contaminated by hazardous materials or waste.”⁸⁶

The Submitters’ assertion refers to LGEEPA Article 134, paragraph V. This paragraph was added to the LGEEPA as a result of the 1996 reform. In its recommendation to Council to develop this factual record,⁸⁷ the Secretariat noted that paragraph V of Article 134 does not refer to activities that generate soil contamination but to the fact that soil contamination exists at a given site.

The factual situation contemplated in that paragraph is the existence of soil contaminated by hazardous materials or waste. The provision establishes the legal duty to restore contaminated soil,⁸⁸ and provides that as a result of the restoration, the site must be usable in any activity contemplated by an applicable urban development plan or environmental land-use plan. This provision does not expressly identify the party bound by these obligations.

According to LGEEPA Article 152, the person responsible for the generation of hazardous waste causing soil contamination has the obligation to restore the contaminated site.⁸⁹ In this case, the person responsible is José Kahn Block, who was the owner of Metales y Derivados, S.A. de C.V. and is still the beneficiary of the trust that owns the property.⁹⁰ Purportedly, José Kahn left Mexico after an arrest warrant was issued against him in September 1995 and currently lives in San Diego, California, United States of America. According to the response, this has impeded remediation of the site. In another forum, Profepa officials have also indicated that Profepa is not responsible for restoring the site

86. Submission, pp. 11-12.

87. (SEM-98-007) Notification to Council that Development of a Factual Record is Warranted (6 March 2000).

88. In LGEEPA Article 3, paragraph XXXIII, *restoration* (referred to also as “remediation” in this factual record) is defined to include activities of *recovery* and *reestablishment*. This precept indicates that for the purposes of the LGEEPA, *restoration* is understood to be the “set of activities aimed at *recovering* and *reestablishing* conditions favorable to the evolution and continuity of natural processes.”

89. LGEEPA Article 152 bis provides as follows: Where the generation, management or final disposal of hazardous materials or waste causes soil contamination, the persons responsible for such operations shall take the actions necessary to recover and reestablish the soil to a condition in which it may be used for any activity contained in the urban development plan or environmental land-use plan applicable to the property or zone in question.

90. See the third paragraph of the subsection 6.2.1.

because there is no existing funding mechanism similar to the US Superfund.⁹¹

Under the Organizational Law of the Federal Public Administration (*Ley Orgánica de la Administración Pública Federal—LOAPF*), the Ministry (now Semarnat) has powers to promote and implement programs for environmental restoration.⁹² The divisions of the Ministry holding powers relating to remediation of contaminated soil at the time the submission was filed were the Soil Restoration and Conservation department (*Dirección General de Restauración y Conservación de Suelos*), the National Institute of Ecology (*Instituto Nacional de Ecología—INE*) and the Environmental Emergencies department (*Dirección General de Emergencias Ambientales*) of Profepa. Currently, the areas with relevant powers are principally the Ministry's Integrated Pollution Control department (*Dirección General de Manejo Integral de Contaminantes*), the National Environmental Research and Training Center department (*Dirección General del Centro Nacional de Investigación y Capacitación Ambiental*) of INE and the Inspection of Pollution Sources department (*Dirección General de Inspección de Fuentes de Contaminación*) of Profepa.⁹³

91. Statement by the Deputy Attorney for Environmental Auditing of Profepa at the Roundtable on Environmental Justice on the US/Mexico Border, convened by the US National Environmental Justice Advisory Council (NEJAC), National City, California, August 1999.
92. The LOAPF in force at the time the submission was filed provided that:
Article 31 bis.- The Ministry of the Environment, Natural Resources and Fisheries is responsible for the following matters:
[...] XIII.- Promoting and implementing reforestation and environmental restoration programs with the participation of the federal, state and municipal authorities, in coordination with the Ministry of Agriculture, Livestock Production and Rural Development as applicable. (Translation)
(These powers are currently set out in LOAPF Article 32 bis, paragraph XIII due to the reforms published 30 November 2000 in the DOF).
93. The Internal Regulation of the Semarnat (RIS) in force when the submission was filed provided as follows (all translations):
Article 21.- The Soil Restoration and Conservation department shall have the following powers:
I.- To address, direct and supervise the Ministry's affairs in the area of soil use, sustainable exploitation, restoration and conservation;...
Article 57.- The National Institute of Ecology shall have the following powers:
[...] XV.- To promote and implement environmental restoration programs with the cooperation of the federal, state and municipal authorities;...
Article 68.- The Environmental Emergencies department [of Profepa] shall have the following powers:
[...] VIII.- Acting alone or by third parties, to coordinate and implement restoration actions for contaminated sites that endanger the population or the environment, in the manner established by the applicable legal provisions;...
Following the publication of a new RIS in the DOF on 5 June 2000, these powers are set out in Article 21, paragraph I; Article 54, paragraph XVII; and Article 68, paragraph VIII.

The Profepa Working Group on Remediation of Contaminated Sites has issued a series of documents on this subject explaining the Mexican environmental authority's approach to remediation of contaminated sites and providing some guidelines to that effect.⁹⁴

The Interim Criteria for the Restoration of Soils Contaminated with Toxic Inorganic and Other Compounds established by the GDT are of particular relevance in connection with LGEEPA Article 134.⁹⁵ The criteria for the toxic substances detected at the Metales y Derivados site, are as follows:

The new RIS published in the DOF on 4 June 2001 eliminated the Soil Restoration and Conservation department and the Environmental Emergencies department of Profepa, which in previous regulations had powers relating to restoration. Likewise, the broad power of INE to "promote and implement environmental restoration programs" was eliminated and replaced by the power to "promote and engage in legal research on the preservation and restoration of ecological balance and environmental protection, with academic and research institutions and in coordination with the Legal Counsel Division (*Coordinación General Jurídica de la Secretaría*) of the Ministry." (Article 63, paragraph XXXVIII). In the current RIS, the contaminated site restoration powers are set forth in the following terms (all translations):

Article 26.- The Integrated Pollutant Management department shall have the following powers:

[...] XXV. To develop programs for the identification, assessment and restoration of sites contaminated with hazardous materials and waste as well as to assess, make judgments concerning and resolve upon the use of technologies and substances for the recovery of soils contaminated with hazardous materials and waste; and [...]

Article 68.- The National Environmental Research and Training Center department [of INE] shall have the following powers:

[...] XII. To conduct research on the minimization of toxic and hazardous waste and the restoration of contaminated soils; [...]

Article 71.- The Office of the Federal Attorney for Environmental Protection is under the responsibility of an Attorney and shall have the following powers:

[...] XIV. To participate with the competent authorities in the development of draft Mexican official standards, studies, programs and projects for the protection, defense and restoration of the environment and natural resources;

Article 79.- The Inspection of Pollution Sources department [of Profepa] shall have the following powers:

[...] III. To monitor compliance with the legal provisions and environmental programs in the area of soil restoration [...]

94. GDT Memoir, 1998-2000.

95. Second Group of Interim Criteria for the Remediation of Soils Contaminated with Toxic Inorganic (Heavy Metals) or Other Compounds. GDT, Approved at the XXII meeting of the GDT, 5 November 1999 and updated at the XXV meeting of the GDT, 9 February 2000.

Substance	Industrial use (mg/kg or ppm)	Residential use (mg/kg or ppm)	Agricultural use (mg/kg or ppm)
Arsenic	40	20	20
Cadmium	100	20	20
Lead	1,500	200	100
Antimony	Not established (The US EPA's Maximum Contamination Level-MCL is 820.)	Not established (The US EPA's MCL is 310.)	Not established

Mexican environmental law does not make explicit the mechanisms whereby the environmental authority may recover from the responsible party the costs incurred in restoring an abandoned site contaminated with hazardous waste. In principle, as Mexico notes in its response, civil actions constitute the general mechanisms for obtaining compensation for harm arising from illegal acts.

7.4 Mexico's Actions in Enforcement of LGEEPA Article 134

As discussed, LGEEPA Article 134 establishes the criteria for prevention and control of soil contamination, including actions necessary to restore or reestablish the condition of soils contaminated with hazardous waste. In the case of Metales y Derivados, the following actions have been taken to enforce LGEEPA Article 134:

- As a result of the inspection visit of 5 March 1991, on 12 April of that year, Profepa ordered the company, as an urgent measure, to restore the areas contaminated with solid and liquid waste, under LGEEPA Article 134.⁹⁶
- On 27 April 1993, the environmental authority determined that among other violations, the company Metales y Derivados, S.A. de C.V. "was dumping its waste on land adjacent to the plant's facilities, on racks and on the ground without protection from the elements, and the waste was dispersed from this area by the action of the wind," and that "such waste was producing leachates."⁹⁷ For this reason, the

96. Mexico's response, p. 12 and Appendices 6-7.

97. Mexico's response, p. 13.

authority ordered the company to take various technical actions, including “restoration of the areas of ground contaminated with acids, lead salts and other hazardous wastes.”⁹⁸ There is no record of Metales y Derivados, S.A. de C.V. having complied with this order.

Mexico, in its response of 1999, clarifies that the repair actions taken by the environmental authority up to that time cannot be considered as measures aimed at restoring the site since “at no time did the environmental authority claim to consider these actions [the repair of the wall on the south side and the installation of the geomembrane] as having the purpose of restoring and reestablishing the quality of the soil.” The Party states in its response that “it is aware of the environmentally hazardous situation prevailing at the site” and that it has considered conducting “the necessary soil analyses to determine to what extent it is affected, in order to employ the suitable techniques for its remediation.”⁹⁹

Mexico also indicated in its response of 31 May 1999 that it did not possess the financial resources necessary to carry out restoration activities at the site, and that it therefore must “continue to pursue legal proceedings; specifically, a civil action.”¹⁰⁰ The Secretariat is unaware of the environmental authority’s having instituted a civil action against the persons responsible for Metales y Derivados to demand site restoration or payment of compensation. Neither did the Party provide information on any other options that may have been considered to finance the remediation of the site.

The Profepa report contains a consideration of various options to restore the site (recovery, treatment and landfilling) and their possible combinations.¹⁰¹ The option recommended by HP Consultores, S.A. de C.V. to Profepa, because of its technical and economic feasibility, is treatment of the contaminated material. The proposed treatment technology is chemical precipitation and stabilization (oxidation). The proposal indicates that the activities could be carried out on the premises of the plant. The result of the treatment proposed by HP Consultores would be an insoluble material in the form of small pellets that could then be used as a fill material (at the site itself or in abandoned mines or quarries) or in leveling or paving work off the site (for road construction in proximity to the site or use in sports facilities).¹⁰² HP Consultores, S.A. de C.V.

98. Mexico’s response, p. 15.

99. Mexico’s response, pp. 19-20.

100. Mexico’s response, p. 20.

101. Profepa report, pp. 89-120.

102. Profepa report, pp. 121-136.

considers this to be the most “cost-efficient” technology for the clean-up of Metales y Derivados, estimating an approximate total cost of P\$6,201,015.49 and a cost recovery or savings of approximately P\$10,086,808.10.

7.5 Current Factual Situation of the Metales y Derivados Site

The Metales y Derivados site, located on the Mesa de Otay in the city of Tijuana, Baja California, Mexico, has been abandoned since it was shut down by Profepa in March 1994. The person responsible for the company, José Kahn, fled Mexico after a warrant was issued for his arrest in September 1995 for alleged environmental crimes.

The Metales y Derivados site contains abandoned hazardous and non-hazardous waste that is exposed to the elements, partially covered, and possibly buried in the ground. The soil at the Metales y Derivados site is contaminated by this hazardous waste. The principal toxic substances detected at the site are lead and arsenic, and in lesser concentrations, cadmium and antimony. The maximum estimated volume of contaminated material is 7,265 m³.¹⁰³

The lead levels in surface soil samples (taken at a depth of 5 cm) reached a maximum of 220,500.00 mg/kg; at a depth of approximately 1 m, a maximum of 77,590.300 mg/kg; and at approximately 3 m, a maximum of 5,458.335 mg/kg. The maximum recorded arsenic, cadmium and antimony levels were 118.732, 12.546 and 24.255 mg/kg, respectively.¹⁰⁴

The Metales y Derivados site is not secured to prevent any person from entering the site and avert direct human contact with the pollutants. The pollutants are not contained in a manner to prevent their dispersal. It is easy for anyone, including children, to enter the site and come into direct contact with the hazardous waste—both the lead slag piles, and the waste kept in sacks and drums.

There are some warning signs that have been painted on the walls by the Environmental Health Coalition and women living in Colonia Chilpancingo, primarily on the wall adjacent to the path connecting Calle 2 Oriente with the ravine leading to Colonia Chilpancingo; in addition, there is a sign, apparently posted in April 2000 by Profepa. Nevertheless, residents have reported that one person regularly sleeps in the

103. See subsections 6.2.2.1 and 6.2.2.2, *supra*.

104. See subsections 6.2.2.1 and 6.2.2.2, *supra*.

abandoned smelting furnace and that others enter the site to remove materials. There is no information that this is no longer the case.

No action has been taken to restore or reestablish the soil contaminated by hazardous waste abandoned by Metales y Derivados to a condition suitable for use in any activity contemplated in the Tijuana urban development plan, in which this area is zoned for light industrial use.

The information obtained by the Secretariat concerning specific effects of the contamination in the site on the health of the neighboring population was limited. No additional information was obtained on the reported health problems in Colonia Chilpancingo that might be related to Metales y Derivados. The only document identified that discusses the possible effects on human health of contamination at the Metales y Derivados site is a study of blood lead levels in children living in Colonia Chilpancingo and other areas in proximity to the site. On average, the levels found in that study do not exceed the blood lead levels the researchers consider elevated.¹⁰⁵

No detailed and reliable information was found or developed on the risk of ecological imbalance or damage to natural resources that may be posed by the contamination at the Metales y Derivados site, nor on the potential dangerous repercussions of that contamination on ecosystems or their components.¹⁰⁶ The information produced in other contexts by toxicological experts on lead, arsenic, cadmium and antimony indicates the potential of these substances to cause grave harm to human health.¹⁰⁷ Lead has been the object of the most study, in particular due to the harm it can cause to children's health and development. No information was found or developed for this factual record on the specific chemical form in which these substances are found at the Metales y Derivados site, and therefore their level of toxicity vis-à-vis standard ranges of hazardousness is not known.

Without aiming to reach conclusions of law on whether Mexico is failing to enforce LGEEPA Articles 170 and 134 effectively, the information presented by the Secretariat in this factual record reveals that, as a matter of fact, the site abandoned by Metales y Derivados is a case of soil contamination by hazardous waste in relation to which measures taken

105. See subsection 6.3.2, *supra*.

106. The Profepa report discusses the toxicological risk, but Semarnat did not provide that section of the report to the Secretariat because it considered the experts who produced it to be experts on soil restoration only, not on toxicological risk. See second paragraph of subsection 6.2.2, *supra*.

107. See Appendix 11 of this factual record.

to date have not prevented the dispersal of pollutants or prevented access to the site, which relates to the issue of whether Mexico is effectively enforcing LGEEPA Article 170. It also reveals that, as a matter of fact, no actions have been taken to restore the soil to a condition in which it can be used in the industrial activities corresponding to the zoning of the area, i.e., the Mesa de Otay Industrial Park in the city of Tijuana, Baja California, in order to enforce effectively LGEEPA Article 134.

This final factual record, completed on 28 November 2001, summarizes all the information gathered by the Secretariat of the CEC in its consideration of whether Mexico is failing to effectively enforce its environmental law with respect to the Metales y Derivados site, in accordance with the instructions of the Council of the CEC, dated 16 May 2000, under NAAEC Articles 14 and 15.

APPENDIX 1

**Council Resolution 00-03, Instruction to the
Secretariat of the Commission for
Environmental Cooperation (CEC) with Regard
to the Assertion that Mexico is Failing to
Effectively Enforce Articles 134 and 170 of
The General Law on Ecological Balance and
Environmental Protection (SEM-98-007)**



Montreal, 16 May 2000

COUNCIL RESOLUTION 00-03

Instruction to the Secretariat of the Commission for Environmental Cooperation (CEC) with Regard to the Assertion that Mexico is Failing to Effectively Enforce Articles 134 and 170 of The General Law on Ecological Balance and Environmental Protection

THE COUNCIL:

SUPPORTIVE of the process provided for in Articles 14 and 15 of the North American Agreement Environmental Cooperation (NAAEC), regarding the submissions on enforcement matters and the preparation of factual records;

CONSIDERING the submission filed on the above-mentioned matter by the Environmental Health Coalition, et al. and the response provided by the government of the United Mexican States;

HAVING REVIEWED the notification by the Secretariat of 6 March 2000 to this Council that the development of a factual record is warranted in relation to the Submission (SEM-98-007);

HAVING BEEN INFORMED that waste remains at the location of the smelter operation; and

NOTING that the Secretariat will give the Parties advance notice of its overall plan for gathering relevant facts;

HEREBY UNANIMOUSLY DECIDES:

TO INSTRUCT the Secretariat to prepare a factual record on the Submission (SEM-98-007); and

TO DIRECT the Secretariat, in developing the factual record, to consider whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record.

APPROVED BY THE COUNCIL

APPENDIX 2

**Overall Plan to Develop a Factual Record with
Regard to Submission SEM-98-007**



Secretariat of the Commission for Environmental Cooperation

Overall Plan to Develop a Factual Record

Submission no.:	SEM-98-007
Submitter(s):	Environmental Health Coalition Comité Ciudadano Pro Restauración del Cañón del Padre y Servicios Comunita- rios, A.C.
Party:	United Mexican States
Date of this plan:	30 May 2000

Background

On 23 October 1998, the Environmental Health Coalition and the Comité Ciudadano Pro Restauración del Cañón del Padre y Servicios Comunitarios, A.C., presented to the Secretariat of the Commission for Environmental Cooperation a submission in accordance with Article 14 of the North American Agreement on Environmental Cooperation (NAAEC). The submission asserts that there has been a failure by Mexico to effectively enforce its environmental law in the case of an abandoned lead smelter in Tijuana, Baja California, Mexico (Metales y Derivados).

On 16 May 2000, the Council decided unanimously to instruct the Secretariat to develop a factual record, in accordance with Article 15 of the NAAEC and the *Guidelines*, with regard to the allegations of a failure by Mexico to effectively enforce Articles 170 and 134 of the General Law on Ecological Balance and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección al Ambiente*—LGEEPA) at the Metales y Derivados site. The Council directed the Secretariat, in developing the factual record, to consider whether the Party concerned “is failing to effectively enforce its environmental law” since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record.

Under Article 15(4) of the NAAEC, in developing a factual record “...the Secretariat shall consider any information furnished by a Party and may consider any relevant technical, scientific or other information: (a) that is publicly available; (b) submitted by interested non-governmental organizations or persons; (c) submitted by the Joint Public Advisory Committee; or (d) developed by the Secretariat or by independent experts.”

The following is the Secretariat’s overall plan for gathering relevant facts to develop the factual record. All dates are best estimates.

Overall Scope of the Fact Finding:

Metales y Derivados operated until March 1994. The enforcement measures in regard to the site, that the Secretariat is aware of based on the submission and the Party’s response, were taken mainly between 1993 and 1995. The submission asserts that approximately 6,000 metric tons of hazardous wastes and soil contamination at the abandoned site continue to represent a public health risk, particularly in Colonia Chilpancingo, located approximately 150 yards downhill from the site. Articles 170 and 134 of LGEEPA empower environmental authorities to take safety measures to respond to cases of imminent risk to the environment or contamination with dangerous repercussions to the environment or public health, and provide that certain criteria must be considered for the prevention and control of soil contamination, including restoration.

To prepare the factual record, the Secretariat will gather information on the Party’s efforts to enforce Articles 170 and 134 effectively with respect to the site, information on the situation of the site, and information on the effects and risks to public health and the environment from the contaminated site. Information in connection with resource constraints or other obstacles that the Party may have been facing for the effective enforcement of its environmental law, with respect to the Metales y Derivados site, would also be relevant.

Overall Plan:

- The Secretariat will gather relevant technical, scientific or other information that is publicly available, including from existing databases, public files, information centers, libraries, research centers and academic institutions. **[June through September]**
- The Secretariat will provide public notice and notice to the JPAC, that it has initiated its fact finding to prepare the factual record. The Secre-

tariat will explain the scope of the fact finding, providing sufficient information to enable interested nongovernmental organizations or persons or the JPAC to provide relevant information to the Secretariat (section 15.2 of the Guidelines). The Secretariat will invite the Submitters, the neighbors of the site (residents and businesses), and local health services providers to submit any such information. **[mid-June]**

- The Secretariat will request information from the Mexican Party, and shall consider any information furnished by any of the Parties (Articles 15(4) and 21(1)(a) of the NAAEC).
 1. The Secretariat will request from the relevant Mexican federal, regional, state and local environmental authorities any information relevant to the effective enforcement of Articles 170 and 134 of LGEEPA regarding the Metales y Derivados site, to the contamination of that site, and to the dangerous repercussions to public health and the environment from that contamination.
 2. The Secretariat will request from the relevant Mexican federal, regional, state and local health authorities, any information relevant to the dangerous repercussions to public health from the contamination in the Metales y Derivados site.

[early July, with follow-up at the end of September]

- The Secretariat will develop, through independent experts, relevant information and data on the situation of contamination at the Metales y Derivados site and its surroundings, and on the dangerous repercussions on public health, particularly in Colonia Chilpancingo. **[June through September]**
- The Secretariat will collect any relevant technical, scientific or other information for the preparation of the factual record, from interested non-governmental organizations or persons, the JPAC or independent experts. **[June to September]**
- In accordance with Article 15(4), the Secretariat will prepare the draft factual record based on the information gathered. **[programmed to begin 1 October 2000]**
- The Secretariat shall submit a draft factual record to Council, and any Party may provide comments on the accuracy of the draft within 45 days thereafter, in accordance with Article 15(5). **[January 2001]**

- As provided by Article 15(6), the Secretariat shall incorporate, as appropriate, any such comments in the final factual record and submit it to Council.
- The Council may, by a two-thirds vote, make the final factual record publicly available, normally within 60 days following its submission, according to Article 15(7).

Additional information

The submission, the Secretariat determinations, the Council Resolution, and a summary of these are available in the Registry on Citizen Submissions in the CEC home page or upon request to the Secretariat to either of the following addresses:

Secretariat of the CEC
Submissions on Enforcement
Matters Unit (SEM Unit)
393, rue St-Jacques West
bureau 200
Montreal QC H2Y 1N9
Canada

CEC/Liaison Office in Mexico
Attn: Submissions on Enforcement
Matters Unit (SEM Unit)
Progreso núm. 3
Viveros de Coyoacán
México, D.F. 04110
Mexico

APPENDIX 3

**Process for Gathering Information for the
Preparation of the Factual Record on
Submission SEM-98-007 (Scope)**



Secretariat of the Commission for Environmental Cooperation

Process for Gathering Information for the Preparation of the Factual Record on Submission SEM 98-007 June 2000

I. Institutional Framework

The Commission for Environmental Cooperation (CEC) is an international organization created under the North American Agreement on Environmental Cooperation (the NAAEC) by Canada, Mexico and the United States. The CEC operates through three organs: a Council, made up of the highest-level environmental official in each country; a Joint Public Advisory Committee (JPAC), comprised of five citizens from each country; and a Secretariat with its seat in Montreal.

Article 14 of the Agreement allows citizens residing in North America to inform the Secretariat, in a submission, that any member country (hereinafter, a Party) is failing to effectively enforce its environmental law. This initiates a process of review of the submission, in which the Council may instruct the Secretariat to prepare a factual record in connection with a submission. A factual record seeks to provide its readers with the necessary information to assess the effectiveness with which a Party has enforced its environmental law, with respect to the matter raised in the submission.

II. Background

Within the above referenced institutional framework, on 23 October 1998, the Environmental Health Coalition and the Comité Ciudadano Pro Restauración del Cañón del Padre y Servicios Comunitarios, A.C., filed a submission pursuant to Article 14 of the NAAEC. The submission claims that Mexico is failing to effectively enforce its environmental law in the case of an abandoned lead smelter in Tijuana, Baja California, commonly known as Metales y Derivados.

On 6 March 2000, the Secretariat notified the Council that some of the allegations of this submission warrant preparation of a factual record. Namely, those concerned with enforcement of articles 170 and 134 of the *Ley General del Equilibrio Ecológico y la Protección al Ambiente* (LGEEPA).

On 16 May 2000, the Council unanimously instructed the Secretariat to develop a factual record on this matter. In its instructions, the Council directed the Secretariat "to consider whether the Party concerned is 'failing to effectively enforce its environmental law' since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record."

III. Sources of information for the preparation of a factual record

Under Articles 15(4) and 21(1)(a) of the NAAEC, in developing a factual record, the Secretariat shall consider any information furnished by a Party. The Secretariat may also request further information. Additionally, the Secretariat may consider: any relevant technical, scientific or other information that is publicly available; that is submitted by the JPAC or by interested nongovernmental organizations or persons; or information that is developed by the Secretariat and independent experts.

IV. Scope of the information being gathered for the preparation of the factual record on submission SEM 98-007

The Metales y Derivados, S.A. de C.V. lead smelter operated until March 1994. The enforcement measures in regard to this plant were taken mainly between 1993 and 1995. However, according to the submission, approximately 6,000 metric tons of hazardous wastes remain abandoned in the site, and the consequent contamination continues to represent a risk to public health, particularly to the population of Colonia Chilpancingo, located approximately 150 yards downhill from the site where the wastes are located.

Articles 170 and 134 of LGEEPA empower environmental authorities to take safety measures to respond to cases representing an imminent risk to the environment, or contamination with dangerous repercussions to ecosystems or to public health, and establish criteria to prevent and control soil contamination, including restoration.

The Secretariat is gathering information on the effective enforcement of Articles 170 and 134 of the LGEEPA with respect to Metales y Derivados. In particular, information is being gathered regarding the efforts and actions taken by the Party to prevent the contamination of the site and to impede consequences to public health; on the current situation at the site and its surroundings; and on the effects or risks to public

health from such contamination. Also, information is being gathered on potential obstacles the Party may have been facing for the effective enforcement of its environmental law with respect to Metales y Derivados.

V. Additional information

The submission, the determinations by the Secretariat, the Council Resolution, a summary of these and the overall plan to develop the factual record are available in the Registry and Public Files section of Citizen Submissions on Enforcement Matters on the CEC website: <<http://www.cec.org>>. These documents may also be requested from the Secretariat.

Relevant information for the development of the factual record may be sent to the Secretariat until 30 September 2000, to either of the following addresses:

Secretariat of the CEC	CEC/Liaison Office in Mexico
Submissions on Enforcement	Attn: Submissions on Enforcement
Matters Unit (SEM Unit)	Matters Unit (SEM Unit)
393, rue St-Jacques West	Progreso núm. 3
bureau 200	Viveros de Coyoacán
Montreal QC H2Y 1N9	México, D.F. 04110
Canada	Mexico
Tel. (514) 350-4300	Tel. (52-5) 659-5021

For any questions, please send an e-mail to the attention of Carla Sbert, at: <info@ccemtl.org>.

APPENDIX 4

Information Requests to Mexican Authorities and List of Recipient Authorities



Letter to the Party Requesting Information to Develop the Factual Record on SEM-98-007

4 July 2000

**Re: Development of Factual Record regarding Submission
SEM-98-007**

This is in reference to the development of the factual record by the Secretariat of the Commission for Environmental Cooperation in regard to submission SEM-98-007, on the instructions of the CEC Council, which commenced on 1 June 2000.

In accordance with Article 15 of the Agreement, the Secretariat shall, in developing a factual record, consider any information furnished by a Party, and in accordance with Article 21, the Secretariat hereby requests that Mexico provide the relevant information in its possession.

As you know, Mexico submitted to the Secretariat a response to the submission on 1 June 1999, containing information relevant to the development of this factual record. However, by means of memos UCAI/3227/99 and UCAI/3638/99, the entire response was designated confidential. Notwithstanding the considerations set out in our letter of 13 September 1999, we wish to point out that the confidentiality of the response appears to be related exclusively to the matters of a criminal nature addressed in the submission. In view of the observations noted in the Secretariat's determination that the submission warrants the development of a factual record, and in Council Resolution 00-001 instructing the Secretariat to develop said record, the penal aspect of the submission will not be the subject of the factual record. Consequently, and since the response contains information relevant to the effective enforcement of Articles 170 and 134 of the LGEEPA—the matter to which the factual record will refer—we hereby request that you remove the designation of confidentiality from Mexico's response to the submission for all non-criminal matters. This would greatly facilitate the Secretariat's task in compiling the information necessary to produce the factual record. We would appreciate your response to this request at your earliest convenience.

Additionally, we request that the Party provide the Secretariat with any other information in its possession that is relevant to the development of the factual record. Attached please find a more detailed description of the information being gathered. We would appreciate receiving the information in your possession before 30 August 2000.

Thank you in advance for your attention to this matter.

Sincerely,

Legal Officer
Submissions on Enforcement Matters Unit

Encl.
c.c.: Environment Canada
US EPA
CEC Executive Director

Form Letter to Relevant Mexican Authorities

19 July 2000

Re: Factual Record Regarding Submission SEM-98-007

This is in reference to the development of the factual record by the Secretariat of the Commission for Environmental Cooperation in regard to submission SEM-98-007, on the instructions of the Council of the CEC, which commenced on 1 June 2000. The CEC was created in 1994 by the North American Agreement on Environmental Cooperation (NAAEC), to which Mexico, Canada and the United States are Parties.

In accordance with Article 15 of the NAAEC, the Secretariat shall, in developing a factual record, consider any information furnished by a Party, and in accordance with Article 21, the Secretariat hereby requests that Mexico provide any relevant information that it possesses in regard to this matter.

We believe that the institution you direct may possess information relevant to the development of the above-mentioned factual record. Attached please find background information on the matter and a more detailed description of the information being gathered for the development of the factual record. We would appreciate your acknowledging receipt of this request at your earliest convenience, indicating whether or not you possess the information in question, and if so, that you send the information in your possession to any of our offices on or before 30 August 2000. The addresses are:

Secretariat of the CEC
Submissions on Enforcement
Matters Unit
393, rue St-Jacques West
bureau 200
Montreal QC H2Y 1N9
Canada

CEC/Liaison Office in Mexico
Attn: Submissions on Enforcement
Matters Unit
Progreso núm. 3
Viveros de Coyoacán
México, D.F. 04110
México

Thank you in advance for your attention to this matter.

Sincerely,

Legal Officer
Submissions on Enforcement Matters Unit

Encl.
c.c.: CEC Executive Director

Mexican Authorities Recipient of a Request for Information for the Development of the Factual Record on SEM-98-007

FEDERAL

International Information Office
Office of the President of the Republic

Environmental Health Office
Ministry of Health

Regional Supervisor in Tijuana
**Ministry of Control and Administrative
Development**

Commander of 2nd Military Region
(Mexicali)
Brigadier General (Tijuana)
Ministry of National Defense

Federal Office of the **Ministry of the
Environment, Natural Resources and
Fisheries (Semarnap)** in Baja California

State Office of the
**Federal Attorney for Environmental
Protection (Profepa)** in Baja California

Federal and Regional Director (Tijuana)
Ministry of Foreign Relations

State Coordinator in Baja California
**National Institute of Statistics,
Geography and Informatics**

Regional Office in Baja California
Mexican Institute of Social Security

Office for Multilateral Environmental
and Labour Affairs
**Ministry of Trade and Industrial
Development**

**Ministry of Environment, Natural
Resources and Fisheries**
Minister

**Conciliation and Arbitration
Commission**
in Tijuana

Office for Environment and Natural
Resources

Ministry of Foreign Relations

Office for Hazardous Materials and
High-Risk Activities
National Institute of Ecology

State Planning Office in Baja California
Semarnap

Office for Administration of Seized
Property
Ministry of Finance and Public Credit

Office for Control and Recording of
Seized Assets
**Office of the Attorney General of the
Republic**

STATE (Baja California)

Urban and Regional Planning
Department
**Ministry of Human Settlement and
Public Works**

State Environment Office

State Health Institution and State
Ministry of Health

MUNICIPAL

Municipality of Tijuana

Urban Administration Department

Municipal Urban Planning Unit

**Municipal Medical Services
Department**

**Municipal Development Planning
Committee**

**Municipal Emergency Preparedness
Department**

**Municipal Office of Tijuana in
Mesa de Otay**

APPENDIX 5

Information Requested from Mexican Authorities





Secretariat of the Commission for Environmental Cooperation

Process for Gathering Information for the Preparation of the Factual Record on Submission SEM-98-007

Please provide any information you possess in response to the following questions:

1. Describe the enforcement initiatives and other measures of which you have knowledge in regard to the Metales y Derivados site for the effective enforcement of Articles 170 and 134 of the LGEEPA.
2. To what extent and in what manner did these initiatives or measures contribute to preventing and controlling the contamination at the Metales y Derivados site and preventing this contamination from having a dangerous repercussion on public health in its immediate vicinity, and particularly on Colonia Chilpancingo, pursuant to LGEEPA Articles 170 and 134?
3. Describe the human, financial and technical resources allocated to or used in addressing this matter.
4. Describe any obstacles to the effective enforcement of LGEEPA 170 and 134 in regard to the Metales y Derivados site.
5. Describe coordinated action taken with other federal offices and entities or other levels of government for the effective enforcement of LGEEPA Articles 170 and 134 in regard to the Metales y Derivados site, and identify or explain the institutional framework for those activities.
6. Describe the dangerous repercussions on public health in the immediate vicinity, and particularly on Colonia Chilpancingo, due to contamination at the Metales y Derivados site.
7. Describe any initiatives or steps taken to prevent dangerous repercussions on public health due to contamination at the Metales y Derivados site, pursuant to LGEEPA Article 170.
8. Describe the procedures or criteria for actions to enforce LGEEPA Articles 170 and 134, and indicate how these were applied with regard to the Metales y Derivados site.

9. For each year since 1994, indicate the human, financial and technical resources devoted to the enforcement of LGEEPA Articles 170 and 134, and state those which were directly used with regard to the Metales y Derivados site.
10. Indicate any existing institutional cooperation frameworks used in verifying compliance with LGEEPA Articles 170 and 134.
11. Describe the measures necessary to prevent or control contamination at the Metales y Derivados site. If possible, refer specifically to soil and groundwater contamination, and to the various pollutants allegedly present on the site: lead, sulfuric acid, cadmium, arsenic.
12. Describe the measures necessary to prevent dangerous repercussions on public health due to contamination at the Metales y Derivados site. If possible, refer specifically to various routes of exposure (ingestion, inhalation, absorption) and the different pollutants allegedly present on the site (lead, sulfuric acid, cadmium, arsenic).
13. Provide any additional technical, scientific or other information that may be relevant.

The information relevant to the development of the factual record may be sent to the Secretariat at either of the following addresses:

Secretariat of the CEC	CEC/Liaison Office in Mexico
Submissions on Enforcement	Attn: Submissions on Enforcement
Matters Unit	Matters Unit
393, rue St-Jacques West	Progreso núm. 3
bureau 200	Viveros de Coyoacán
Montreal QC H2Y 1N9	México, D.F. 04110
Canada	Mexico
Telephone: (514) 350-4300	Telephone: (52-5) 659-5021

APPENDIX 6

**Information Requests to NGOs,
JPAC and other Parties to the NAAEC**



Form Letter to NGOs

30 June 2000

Re: Preparation of the factual record for submission SEM-98-007

On 16 May 2000 of the current year, the Council of the Commission for Environmental Cooperation instructed the Secretariat to prepare a factual record regarding submission SEM-98-007, filed by the Environmental Health Coalition and the Comité Ciudadano Pro Restauración del Cañón del Padre, A.C., concerning the contaminated site abandoned in Tijuana, B.C., Mexico, commonly known as Metales y Derivados.

On 1 June 2000, the Secretariat initiated the process to prepare this factual record, which includes gathering any relevant technical, scientific or other information that is publicly available, submitted by interested nongovernmental organizations or persons, submitted by the Joint Public Advisory Committee, or developed by the Secretariat or by independent experts. To this effect, you are hereby invited to submit any relevant information you may have, relating to the effective enforcement of Mexican environmental law (articles 170 and 134 of the LGEEPA) with respect to the contamination of the Metales y Derivados site, and the repercussions on public health.

In the documents attached, please find further information on the process being followed to develop this factual record, and on the types of information being gathered. The purpose of the enclosed questionnaire seeks to facilitate identifying relevant information, without in any way intending to require a response to the questions posed, or to limit the information that may be furnished. For further information, the submission and other related documents are available in the section of Submissions on Enforcement Matters in the web page of the CEC <www.cec.org> or requested to the Secretariat.

Please do not hesitate to contact us if you have any questions about the process. If you wish to submit any information, we would appreciate that such information be sent to the Secretariat before 30 September 2000, to either of the following addresses:

CEC Secretariat
Submissions on Enforcement
Matters (SEM) Unit
393, rue St-Jacques West
bureau 200
Montreal QC H2Y 1N9
Canada

CCA / Oficina de enlace en México
Atención: Unidad sobre Peticiones
Ciudadanas (UPC)
Progreso núm. 3
Viveros de Coyoacán
México, D.F. 04110
Mexico

Thank you in advance for your consideration of this matter.

Sincerely,

Legal Officer
Submissions on Enforcement Matters Unit

Enclosure
c.c.: CEC Executive Director
JPAC Liaison Officer

Letter to the Joint Public Advisory Committee

3 July 2000

Joint Public Advisory Committee
Chair

Re: Preparation of the factual record for submission SEM-98-007

As you know, on 16 May 2000 the Council of the Commission for Environmental Cooperation instructed the Secretariat to prepare a factual record regarding submission SEM-98-007, filed by the Environmental Health Coalition and the Comité Ciudadano Pro Restauración del Cañón del Padre, A.C., concerning the contaminated site abandoned in Tijuana, B.C., Mexico, commonly known as Metales y Derivados. On 1 June 2000, the Secretariat initiated the process to prepare this factual record, which includes gathering any relevant technical, scientific or other information that is publicly available, submitted by interested nongovernmental organizations or persons, submitted by the Joint Public Advisory Committee, or developed by the Secretariat or by independent experts. The JPAC is hereby invited to submit any relevant information it may have relating to the effective enforcement of Mexican environmental law (articles 170 and 134 of the LGEEPA) with respect to the contamination of the Metales y Derivados site and the repercussions to public health.

In the documents attached, please find further information on the process being followed to develop this factual record, and on the types of information being gathered. These documents seek to facilitate identifying relevant information, without in any way intending to require a response to the questions posed, or to limit the information that may be furnished.

Please do not hesitate to contact us if you have any questions about the process to develop this factual record. In the event that the JPAC wishes to submit any information for the preparation of this factual record, we would appreciate that such information be sent to the Secretariat before 30 August 2000, to either of the following addresses:

CEC Secretariat
Submissions on Enforcement
Matters (SEM) Unit
393, rue St-Jacques West
bureau 200
Montreal QC H2Y 1N9
Canada

CCA / Oficina de enlace en México
Atención: Unidad sobre Peticiones
Ciudadanas (UPC)
Progreso núm. 3
Viveros de Coyoacán
México, D.F. 04110
Mexico

Thank you in advance for your consideration of this matter.

Sincerely,

Legal Officer
Submissions on Enforcement Matters Unit

Enclosure
c.c.: CEC Executive Director
JPAC Liaison Officer

**Letter to the Other Parties of the NAAEC
(Canada & US)**

4 July 2000

Re: Preparation of the factual record for submission SEM-98-007

As you are aware, per the instructions of the Council of the Commission for Environmental Cooperation, starting 1 June 2000, the Secretariat began the preparation of the factual record regarding submission SEM-98-007.

Under Article 15 of the NAAEC, in preparing the factual record, the Secretariat shall consider any information furnished by a Party. Attached please find a more detailed description of the types of information the Secretariat is gathering. In the event that [Canada] [the United States] wishes to furnish information for the preparation of this factual record, we would appreciate that you forward such information to us before 30 August 2000.

Thank you and best regards,

Legal Officer
Submissions on Enforcement Matters Unit

Enclosures
c.c.: Semarnap
[Environment Canada]
[US EPA]
CEC Executive Director

Nongovernmental Organizations Recipient of a Request for Information for the Development of the Factual Record on SEM-98-007

Instituto Tecnológico de Baja California (Universidad Católica)	Instituto de Ingeniería de la UNAM
Centro de Estudios Universitarios Xochicalco	Centro Nacional de Prevención de Desastres (CENAPRED)
Universidad de las Californias	Comisión Internacional de Límites y Aguas (CILA)
Centro Universitario de Tijuana	Instituto Nacional de Salud Pública
CETYS Universidad (Campus Tijuana)	Comité Consultivo Público Conjunto (CCPC) de la CCA
Colegio de Educación Profesional Técnica	Programa Universitario de Medio Ambiente y Biodiversidad, UNAM
Colegio de la Frontera Norte	Instituto de Salud, Ambiente y Trabajo
Instituto Tecnológico de Mexicali	UNAM, Programa Universitario de Investigación en Salud
Instituto Tecnológico de Tijuana	Centro Nacional de Desarrollo Municipal
Universidad Autónoma de Baja California Facultad de Medicina	Universidad Iberoamericana del Noroeste
Universidad Tecnológica de Tijuana	
Instituto Nacional de Enfermedades Respiratorias (INER) Departamento de Investigación en Salud Ambiental (Baja California)	

APPENDIX 7

**Information requested of NGOs,
JPAC and other Parties to the NAAEC**



Secretariat of the Commission for Environmental Cooperation

Process for Gathering Information for the Preparation of the Factual Record on Submission SEM 98-007

June 2000

Examples of Relevant Information

1. Information on the situation of contamination at the Metales y Derivados site.
2. Information on efforts to enforce Mexican environmental law (particularly Articles 170 and 134 of the LGEEPA) and other measures taken with respect to the Metales y Derivados site.
3. Information on the extent or manner in which said efforts or measures have contributed to preventing and controlling the contamination of the Metales y Derivados site, and to impeding such contamination from having dangerous repercussions to public health in the surroundings of the site, and particularly in the Colonia Chilpancingo.
4. Information about the human, technical and financial resources necessary in addressing this matter.
5. Information about obstacles to the effective enforcement of Articles 170 and 134 of the LGEEPA with respect to the Metales y Derivados site.
6. Information on the dangerous repercussions to public health in the surroundings of the site, particularly in the Colonia Chilpancingo, due to the contamination at the Metales y Derivados site.
7. Information about efforts or measures to impede dangerous repercussions to public health from the contamination at the Metales y Derivados site.

8. Any other technical, scientific or other information that could be relevant.

Relevant information for the development of the factual record may be sent to the Secretariat until 30 September 2000, to either of the following addresses:

Secretariat of the CEC
Submissions on Enforcement
Matters Unit (SEM Unit)
393, rue St-Jacques West
bureau 200
Montreal QC H2Y 1N9
Canada
Tel. (514) 350-4300

CEC/ Liaison Office in Mexico
Attn: Submissions on Enforcement
Matters Unit (SEM Unit)
Progreso núm. 3
Viveros de Coyoacán
México, D.F. 04110
Mexico
Tel. (52-5) 659-5021

APPENDIX 8

**Information Gathered for the
Development of the Factual Record
on Submission SEM-98-007
(Metales y Derivados)**



**Information Gathered for the Preparation
of the Factual Record on SEM-98-007
(Metales y Derivados)**

1. Press release issued by José Kahn, owner of the company Metales y Derivados, S.A. de C.V. (October 2000).
2. "Childhood lead and environmental assessment in proximity to Metales y Derivados, an abandoned metal recycling site in Tijuana, Baja California, Mexico." Report produced by researchers at the University of California-Irvine (Spring 2000).
3. US Environmental Protection Agency (US EPA) Response following the Roundtable on Environmental Justice on the U.S. Mexico Border (NEJAC Border Roundtable). Section relating to Metales y Derivados. 1 October 1999.
4. Response of the Government of Mexico to Submission SEM-98-007, received 1 June 1999.
5. 25 speeches by President Ernesto Zedillo on environmental issues. Submitted by the Office of the President of the Republic, 31 July 2000.
6. EPA/Semarnap Joint Policy Statement on the Remediation and Redevelopment of Contaminated Properties in the US/Mexico Border Area. Signed in Washington, D.C., 18 May 2000.
7. Correspondence between the Secretary-General of the Union "Sindicato 'Lealtad' de Trabajadores de Baja California" and Profepa, relating to toxic and hazardous materials at the Metales y Derivados site. Labour proceeding no. 843/94-1.
8. "Diagnosis de la problemática del Cañón del Padre." (Analysis of the Cañón del Padre situation.) Technical report no. 9207/03 EEC Padre, July 1992. Sedesol, Baja California State Office, Zona Costa Regional Office, Municipality of Tijuana, Baja California.
9. "Preliminary Report on the Metales y Derivados Site." Document produced for the Secretariat of the Commission for Environmental Cooperation by Hidro Industrial, S.A. de C.V. (August 2000).

10. Information for the Preparation of the Factual Record on Metales y Derivados. Submission SEM 98-007. Document furnished by the US EPA in November 2000.
11. "Human and Environmental Health Impacts of Selected Substances." Document produced for the Secretariat of the Commission for Environmental Cooperation by the Hampshire Research Institute (2 March 2001).
12. "Site Characterization Study of Metales y Derivados de Mexico, S.A. de C.V., Tijuana, Baja California, Mexico." Study produced for the Secretariat of the CEC by Levine Fricke de México (9 March 2001).
13. "Risk Assessment Data Elements Checklist, Metales y Derivados." Produced for the Secretariat of the CEC by Alliance Consulting International (May 2001).
14. "Caracterización del Sitio Contaminado con Residuos Peligrosos Metales y Derivados en Baja California. Informe Final." (Characterization of Metales y Derivados site contaminated with hazardous waste in Baja California. Final Report.) Document produced for Profepa by HP Consultores (December 1999).
15. Document No. DOO-801/0000118 of the National Institute of Ecology, Materials, Wastes and High-Risk Activities Branch, attaching a memo on the status of the legal proceeding against the company Metales y Derivados de México, S.A. de C.V., before the Fourth District Court of the City of Tijuana, Baja California, issued by the Profepa State Office in Baja California. (24 November 2000).
16. Letter from the Director of the Environmental Health Research Department of the National Respiratory Diseases Institute, containing Mexican Official Emergency Standard NOM-EM-004-SSA1-1999, Environmental Health. Criteria for the determination of blood lead levels. Actions to protect the health of the non-occupationally exposed population—testing methods.
17. United States-Mexico Transboundary Environmental Enforcement. Workshop Report. Environmental Law Institute (September 2000).

-
18. Memo from the Government of the State of Baja California, Local Conciliation and Arbitration Commission, Presidency Section. "Sindicato 'Lealtad' de Trabajadores de Baja California," Registro 4/86 – RT, Tijuana. File no. 843/94-1 concerning 264/94.
 19. Memo no. DGCRAM/05649/00 from the Office of the Attorney General of the Republic, Seized Property Registry and Control Branch.
 20. Memo no. DGAO/A-561-00 from the Administration of Seized Property Service (*Servicio de Administración de Bienes Asegurados-SERA*).
 21. Memo no. US/3303/2000 from the Municipality of Tijuana, Baja California, Urban Administration Department, Urban Control Section.
 22. The US-Mexican border environment: A road map to a sustainable 2020, SCERP Monograph Series, No. 1. Southwest Center for Environmental Research and Policy. Edited by Paul Ganster.
 23. "Studying Lead in Tijuana Tots," *Environmental Health Perspectives*, edited by Erin E. Dooley, Volume 108, number 7, July 2000.
 24. Twenty articles relating to Metales y Derivados.

APPENDIX 9

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**HP CONSULTORES AMBIENTALES,
S.A. DE C.V.**

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APPENDIX 10

Remediation Options Considered in the Profepa Report





The following table summarizes the advantages and disadvantages of the remediation options considered in the Profepa Report. This table has been reproduced (and translated) directly from the Profepa report, p. 140.

REMEDIAATION OPTIONS	ADVANTAGES	DISADVANTAGES	
Recycling	<ul style="list-style-type: none"> • Recovery and reuse of material • Partial recovery of investment 	<ul style="list-style-type: none"> • High investment cost • Requires lead concentrations greater than 40% • Amount recovered is less than 50% of the cost (\$47,652,729,30) • Specialized technology 	\$30,280,689.78
Landfill	<ul style="list-style-type: none"> • Easy to apply • No specialized technology required • Shorter time to remove material • Containers are the only raw material required 	<ul style="list-style-type: none"> • High investment cost • Transportation risk • Possible dispersion of contaminated dust to areas free of contamination during excavations • The pollutant is merely moved from one place to another, which does not definitively solve the problem • Erosion of the contaminated area • The use of clean soil to fill the affected area causes erosion at the point of origin of the clean soil • None of the investment is recovered • The moisture in the material increases its weight and therefore the costs 	<p>\$14,325,750.00 (Mexico)</p> <p>\$1,532,165.78* (US A)</p> <p>*At the rate of 9,35 pesos to the dollar</p>

REMEDICATION OPTIONS	ADVANTAGES	DISADVANTAGES	COSTS
<i>In situ</i> treatment	<ul style="list-style-type: none"> • No sophisticated technology required • Raw materials readily available (cement, lime, gypsum) • Immobilization of pollutant • Use of treated pollutant in road paving • Partial recovery of investment • Can be done in a short time • Avoids erosion at the site, since the treated material can be disposed of on the site • No transportation risk • Low investment cost with respect to other technologies 	<ul style="list-style-type: none"> • Risk of dust dispersal • Increased volume of material • Restoration period greater than for landfill 	\$6,201,015.49

APPENDIX 11

**Synopsis of the Potential Health and
Environmental Effects of Certain Substances
Present at the Metales y Derivados Site**



Synopsis of the Potential Health and Environmental Effects of Certain Substances Present at the Metales y Derivados Site

This appendix is based almost entirely on the document "Human and Environmental Health Impacts of Selected Substances," prepared in March 2001 for the Secretariat in the context of this factual record by John S. Young, Ph.D., of the Hampshire Research Institute.

The document provides concise summaries of the adverse health and environmental effects that may be produced by the chemicals present at the Metales y Derivados site.

In all cases, the study relies upon summary documents published by national, state/provincial or intergovernmental organizations, which generally reflect an extensive effort to review the primary literature on a chemical or chemical class. The documents have been subjected to peer review and public comment. In many cases, they are supported by far more detailed documents addressing the strengths and weaknesses of available data. Where the summary documents seemed too brief in describing toxicity, the underlying documents were referred to for additional descriptive detail. Summaries of the hazards that these chemicals pose to human health are far more plentiful than are descriptions of the potential effects on the environment.

To assess the potential environmental impacts, the assessor must consider not only direct harm to thousands of species that a chemical could affect, but also indirect harm. For example, an increase in the acidity of rain water can have direct effects due to the acidity, but can also lead to an increase in the release of toxic metals from soil, which may also harm plants and animals living in lakes and streams. Environmental effects addressed in this document are primarily limited to toxic effects in aquatic organisms. This reflects the availability of a suitable authoritative set of references, the US Ambient Water Quality Criteria.

This factual record is not intended to show that the pollutants present at the Metales y Derivados site did in fact have the effects described in the following tables. As mentioned, no specific studies were done on the pollutants present at the Metales y Derivados site to deter-

mine the chemical form in which they occur and their specific toxicity; rather, the information from expert studies on these types of chemicals presented here was compiled merely as a reference.

Synopsis of the Potential Health and Environmental Effects of Certain Substances Present at the Metales y Derivados Site

ANTIMONY			
Acute (Short-Term) Health Effects	Chronic Health Effects (Prolonged Exposure)	Environmental Effects	Note(s)
<p>In animal studies, exposure to large amounts of antimony have been fatal.</p> <p>Ingesting large amounts leads to headaches, nausea, abdominal pain, vomiting and loss of sleep.</p> <p>Inhalation of high levels by experimental animals led to lung, heart, liver and kidney damage. It can also irritate the nose, throat and lungs.</p> <p>Skin contact can cause irritation and an itchy rash.</p>	<p>Adverse health effects from antimony are generally better documented for inhalation than for oral exposures.</p> <p>Inhalation of high levels over a prolonged period can lead to airways and lung inflammation, altered electrocardiograms and increased blood pressure, stomach pain, vomiting, diarrhea, and stomach ulcers, as well as ulcers of the nose. In animals, the same patterns of problems have been seen, as well as neurological problems and problems with fertility. More severe effects have been documented in animals than in exposed workers [e.g., deterioration of heart muscle, severe lung inflammation (pneumoconiosis)]. Eye irritation seen in these studies may represent a direct effect of dust, rather than systemic toxicity.</p> <p>Pre- or immediately postnatal oral exposure appears to affect development of certain cardiovascular reflexes that are important for regulating blood pressure.</p> <p>It has not been determined whether antimony poses a risk of cancer in humans. Lung cancer seen in animals may be secondary to irritation. Antimony trioxide has been classified as a possible human carcinogen by IARC (Group 2B). Antimony trisulfide has been reviewed by IARC and designated "unclassifiable as to carcinogenicity in humans" (Group 3).¹</p>	<p>The 1986 <i>Ambient Water Quality Criteria</i> (QWC) indicate chronic toxicity to freshwater aquatic life at 1,600 parts per billion² (micrograms per liter=µg/l). Because of inadequate data, a no adverse effect level is presented instead of a criterion value.³</p> <p>The TRI Addition documentation notes that antimony compounds have been found to be toxic to fish and to freshwater invertebrates⁴ at concentrations less than 10 parts per billion.</p>	<p>Antimony is used in medicines to treat parasitic diseases.</p>

1. Carcinogen / Carcinogenic—An agent that causes cancer / Capable of causing cancer.
 2. American, as opposed to British usage is employed: million -1,000,000; billion -1,000,000,000; trillion -1,000,000,000,000.
 3. There is a notation in the criteria document that algae were affected at 610 µg/l.
 4. Daphnia, the "water flea," which serves as a food source for fish.

Synopsis of the Potential Health and Environmental Effects of Certain Substances Present at the Metales y Derivados Site

ARSENIC			
Acute (Short-Term) Health Effects	Chronic Health Effects (Prolonged Exposure)	Environmental Effects	Note(s)
Ingestion of levels of approximately 60 parts per million (of inorganic arsenic) ⁵ in food or water can be fatal. Widespread toxic effects include damage to the nervous system (confusion, hallucination, impaired memory), stomach, intestine and skin. At fatal and near-fatal doses, central nervous system effects may progress to seizures and coma. Other effects include nausea, vomiting and diarrhea.	Ingestion of arsenic can cause decreased production of red blood cells (anemia) and white blood cells (a type of immune deficiency). It can lead to abnormal heart rhythms, liver and stomach damage, blood vessel damage, and peripheral nerve damage (causing a "pins and needles" feeling, burning or numbness). In animals, several arsenic compounds produce birth defects; some affect the male reproductive system. ⁶ Chronic inhalation can lead to ulcerations of the nose and perforation of the bone (nasal septum) inside the nose. Repeated contact by any route can lead to skin darkening and the formation of corns or warts. Arsenic has been classified by both the USEPA and IARC as a known human carcinogen (IARC Group 1). Inhalation is associated with lung cancer, and ingestion with skin, bladder, kidney, liver and lung tumors. Some arsenic compounds produce genetic damage, which may be related to causing cancer.	The toxicity of arsenic to aquatic species reflects a complex interaction with acidity, organic content and other factors that affect the valence state of the metal. Different aquatic plants and animals have a wide range of sensitivity to arsenic. The 1986 QWC indicate chronic toxicity to freshwater aquatic life at 190 parts per billion (ug/l) for trivalent forms, ⁷ and 48 ug/l for pentavalent forms. The value for pentavalent forms represents a no adverse effect level; data were inadequate to establish a criterion. A Canadian freshwater criterion of 5 parts per billion (ug/l) has been published.	A general observation is that organic arsenic compounds (those containing carbon) are frequently less toxic than are inorganic arsenic compounds.

5. "Organic" – Applied to a chemical, denotes a compound that contains carbon. Organic metal compounds often differ from inorganic compounds of the same metal in their effects on plants and animals.
6. "Compound" – A unique chemical substance, defined by its constituent elements and their structural relationships. Sulfuric acid is one chemical compound; Antimony trichloride and Antimony trifluoride are two separate compounds
7. "Trivalent" (also divalent, pentavalent) – Refers to the electrical charge of the metal in a compound. Depending on the compounds in which they are found, many metals exist in different valence states, which differ in their toxicity.

Synopsis of the Potential Health and Environmental Effects of Certain Substances Present at the Metales y Derivados Site

CADMIUM		
Acute (Short-Term) Health Effects	Chronic Health Effects (Prolonged Exposure)	Environmental Effects
<p>Ingestion of high levels leads to severe stomach irritation, vomiting and diarrhea. At high enough levels, it can be fatal.</p> <p>Inhalation of high levels severely damages the lungs (pulmonary edema, a buildup of fluids, can be seen) and can be fatal. At lower levels, symptoms resembling flu may be seen.</p>	<p>Cadmium is a cumulative toxicant, remaining in the body for years following exposure.⁸ Short-duration, high-level exposures can lead to effects much later.</p> <p>In animals, repeated exposure has been shown to cause high blood pressure, anemia (likely due to decreased iron absorption), liver disease, and nerve damage. The principal target organ is the kidney; cadmium accumulates in the kidneys, ultimately leading to kidney damage. In individuals with poor nutrition, prolonged exposure can lead to painful and debilitating bone disease. It can also lead to a loss of the sense of smell. Repeated inhalation can irritate the respiratory system.</p> <p>Cadmium probably causes birth defects, and may affect both the male and female reproductive systems.</p> <p>Cadmium has been classified as a probable human carcinogen by the US EPA, based primarily upon animal data (lung and testes cancer), and inhalation exposure. In humans, there is some evidence that it causes prostate and kidney cancer. The International Agency for Research on Cancer (IARC) has classified cadmium as carcinogenic in humans (Group 1).</p>	<p>The 1986 QWC indicate chronic toxicity to freshwater aquatic life at 1.1 parts per billion (µg/l) [at a hardness level of 100µmilligrams/liter (mg/l) calcium carbonate equivalent].</p> <p>The TRI Addition documentation notes that Cadmium concentrations of 700 parts per trillion (ng/l) to 5 parts per billion (µg/l) show damage to invertebrates and fish after prolonged exposure.</p> <p>The US EPA has recently (June 2000) published a revised draft <i>Water Quality Criteria</i> document for cadmium. Toxic concentrations (ranging from parts per trillion to several parts per million) are reported for dozens of species. The concentrations that will prove toxic vary with water hardness (the harder the water, the higher the cadmium concentration that can be tolerated). Concentrations of 800 parts per trillion to 10 parts per billion show effects after short exposure. A final freshwater chronic value was determined to be 80 parts per trillion for freshwater.</p> <p>A Canadian freshwater criterion of 0.017 parts per billion (17 parts per trillion) has been published.</p>

8. "Toxicants" – Chemicals that causes a toxic response. Sometimes the terms 'toxics' or 'toxins' are used instead. The latter term formally refers to a toxicant produced by a plant or animal.

Synopsis of the Potential Health and Environmental Effects of Certain Substances Present at the Metales y Derivados Site

LEAD		
Acute (Short-Term) Health Effects	Chronic Health Effects (Prolonged Exposure)	Environmental Effects
<p>Ingestion of lead can cause digestive disturbances ("lead colic"), muscle cramps and moderate to severe nerve damage (symptoms include headache, irritability, memory problems and sleep disturbances). Very high exposures may be fatal. Children are particularly susceptible.</p> <p>Lead dust or fumes can irritate the nose, throat and eyes.</p> <p>NOM-EM-004-SSA1-1999 establishes a criterion for lead concentration in the blood of 10 g/dl for children and pregnant women and 25 g/dl for adults.⁹</p>	<p>Lead is one of the most highly-studied chemicals in the toxicological literature. It has been shown to affect virtually every organ and/or system in the body in both humans and animals. The most sensitive target organs appear to be the nervous system (particularly in children) the formation of blood cells (anemia) and the cardiovascular system (high blood pressure). Hundreds of studies have failed to find a level of exposure to lead that can be considered safe for children. The kidney and the immune system are also adversely affected.</p> <p>At high levels, interference with reproduction has been seen. Lead probably causes birth defects.</p> <p>In animal studies, lead (lead acetate and lead phosphate) has been shown to cause cancer. IARC classified lead as a possible human carcinogen (Group 2B).</p>	<p>As in the case of many other metals, toxicity decreases with increasing hardness of water. The 1986 QWC indicate chronic toxicity to freshwater aquatic life at 3.2 parts per billion (µg/l) [at 100 (mg/l) hardness].</p> <p>A Canadian freshwater criterion of 1-7 parts per billion (µg/l) (criterion varies with hardness) has been published.</p>

9. NOM-EM-004-SSA1-1999, Environmental health criteria for the determination of lead concentrations in the blood. Actions to protect the health of the non-occupationally exposed population. (This standard was no longer in force as of December 1999 and has not been replaced to date).

References/Resources

Human Health Effects

ToxFAQs, United States Agency for Toxic Substances and Disease Registry. These are available on the World Wide Web (<http://www.atsdr.cdc.gov/toxfaqf.html>). The 107 ToxFAQs include documents for antimony, arsenic, cadmium, and lead. These documents, based on the far more extensive *Toxicological Profiles*, include brief summary information on chemical identity, use, and exposure potential, as well as toxic hazard.

Chemical Fact Sheets developed by the United States Environmental Protection Agency (<http://www.epa.gov/chemfact>) address 40 chemicals on the US TRI, but none of the chemicals or chemical classes covered here.

Hazard Information on Toxic Chemicals Added to EPCRA Section 313 Under Chemical Expansion, also published by EPA, summarizes human toxicity and environmental hazard information for 286 chemicals added to TRI reporting in 1994. These tabular data (http://www.epa.gov/tri/hazard_cx.htm) address antimony, cadmium, and copper. *In addition to health effects, the tables address environmental hazards.*

New Jersey Department of Health and Senior Services, *Right to Know Hazardous Substance Fact Sheets* (<http://www.state.nj.us/health/eoh/rtkweb/rtkhsfs.htm>). These include more detail on specific chemical compounds, rather than on classes of compounds. For example, there were sheets addressing eight antimony compounds, 17 arsenic compounds, seven cadmium compounds, seven copper compounds, and 19 lead compounds, as well as two lead-arsenic compounds and one arsenic-copper compound.

IPCS (International Program for Chemical Safety), produces *International Chemical Safety Cards* (<http://www.cdc.gov/niosh/ipcsneng/nengname.html>; <http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/index.htm>). These are primarily useful for emergency response and for occupational exposure control.

Environmental Effects

In general, fewer summaries exist of environmental effects of chemicals than of human health effects.

Quality Criteria for Water, 1986, US EPA, Office of Water Regulations and Standards, EPA/440/5-86-001. These briefly describe toxicity and the factors that influence it. Criteria are established for acute and chronic conditions, separately for fresh- and saltwater.

Revised Water Quality Criteria are being developed by EPA for cadmium, copper, and lead (arsenic is noted in a list as "under development."). At the time of this writing, Cadmium was the only subject of this paper for which a draft revised document was electronically accessible (<http://www.epa.gov/waterscience/criteria>).

Hazard Information on Toxic Chemicals Added to EPCRA Section 313 Under Chemical Expansion, as noted above. Antimony compounds, cadmium compounds and copper were noted as having environmental effects. (Sulfuric acid was only noted as having human health effects.)

Environment Canada has also published water quality criteria for some of these compounds.

APPENDIX 12

Summary of Actions by Mexican Authorities with Respect to Metales y Derivados



Summary of Actions by Mexican Authorities with Respect to Metales y Derivados

Act of Authority	Date	Description of Violations Detected by Profepa	LGEEPA Provision or Regulations	Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados
Inspection visit to Alamar Creek, no document # [Response of the Party (RSP) p. 11 and Appendix 2]	18 September and 21 October 1987	Slag deposits found on the bed of Alamar Creek and near the drinking water wells used by the residents of Ejido Chilpancingo.	Federal Environmental Protection Law ¹ 17, 21 and 34.	The companies "in that sector" were ordered to suspend dumping immediately and clean up the lead waste from the stream bed and transport it to an industrial landfill.
Inspection visit no. 122.4.1/215, decision no. 122.2.0.2/0675.26 37 [RSP p. 11 and App. 3 & 4]	28 June and 19 July 1989	Lack of air emission control systems and acid spill prevention facilities; unsound hazardous waste (HW) management; 5,000 m ³ of bulk waste stored in twenty 2000-litre containers that are inadequately managed and disposed of.	LGEEPA 37, 113, 121 and 136; R-Water ² 6, 7 and 29; R-Air ³ 16-17.	Temporary shutdown of crucibles until air emissions under control. It is not specified in the documents available to the Secretariat when this order was lifted. <i>Urgent corrective measures and technical measures:</i> make battery cutting area adequate; proper storage of industrial waste; air emission control.
Inspection visit, proceeding no. 122.2.0.2/180 [RSP p. 12 and Appendices 6 and 7]	5 March and 12 April 1991	Not registered as HW generator; storage of HW without control or protection, no storage facility; discharge of wastewater on bare ground without treatment or control; no registration of wastewater discharges; fugitive dust emissions; no emissions inventory; air pollutant emissions from three furnaces and two crucibles; no operating license.	LGEEPA 110, 113, 121, 136, 139 and 159; R-HW ⁴ 14-17, 19 and 43; R-Air 17 and 18; R-Water 6, 7 and 29.	<i>Injunction:</i> temporary total shutdown of the following processes: battery cutting, dumping of lead slag on ground, smelting of nonferrous scrap metal that generates lead slag and fugitive dust from dust collector systems. <i>Urgent measures:</i> demonstrate commencement of plan to return waste to country of origin, and restore areas contaminated with solid and liquid waste pursuant to LGEEPA 134, RSP Appendix 7, p. 3]. <i>Technical measures:</i> actions to comply with hazardous waste management, transportation and final disposal obligations: construction of waste storage facility; characterization, registration and manifesting of generation, transportation and final disposal of the waste.

1. *Official Gazette of the Federation* (DOF) for 11 January 1982, repealed by the LGEEPA on 28 January 1988.
2. Regulations for the Prevention and Control of Water Pollution, DOF for 29 March 1973, repealed 12 January 1994.
3. LGEEPA Regulations on the Prevention and Control of Air Pollution, DOF for 25 November 1988.
4. LGEEPA Regulations on Hazardous Waste, DOF for 25 November 1988.

<i>Act of Authority</i>	<i>Date</i>	<i>Description of Violations Detected by Profepa</i>	<i>LGEEPA Provision or Regulations</i>	<i>Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados</i>
Conditional lifting of shutdown order, 122.3.5.6/278/91 [RSP p. 12 and Appendix 8]	30 April 1991	Not applicable (NA).	Not indicated.	Conditions for the lifting of the shutdown order: return of waste to country of origin and restoration of areas contaminated with solid and liquid wastes. The company submitted a P\$100 million bond to guarantee performance of its obligations.
Inspection visit [RSP p. 13 and Appendix 10]	7 November 1991	Noncompliance with the urgent corrective measures ordered by means of proceeding no. 122.2.0.2/180 of 12 April 1991 (implementation of plan to return HW to country of origin, and restoration of areas contaminated with solid and liquid waste).	Not indicated.	No document was issued notifying Metales y Derivados the results of the inspection visit, nor were any measures or sanctions ordered. There is no record that the bond guaranteeing the legal obligations arising from the technical and corrective measures order was ever executed.
Inspection visit, proceeding no. P\$PA-BC-IJ/037/93 [RSP p. 13 and Appendices 11-13]	22-23 February 1993	Runoff of acids containing lead salts; failure to pack, label and provide proper final disposal for HW; leaching; failure to return the HW generated under the maquiladora regime to country of origin; no log of HW generation or movement; failure to provide preliminary treatment for waste being recycled; retaining wall for HW in dilapidated condition; no trained and certified person responsible for HW; failure to report HW spills, discharges or infiltration.	LGEEPA 113, 136, 152 and 153; R-HW 8, 12, 14-18, 21, 30, 31, 35, 42, 55; Decree Governing the Promotion and Operation of the Maquiladora Export Industry. ⁵	See below, decision P\$PA-BC-01.1/380 of 27 April 1993.
Testimony of Metales y Derivados Representative [RSP Appendix 17, pp. 4-5]	24 March 1993	The Metales y Derivados representative expressed agreement with the results of the inspection visit of 22-23 February 1993 and did not present any evidence to disprove the facts stated in inspection report no. P\$PA-BC-IJ/037/93.	See above.	Metales y Derivados was deemed to have confessed to the environmental violations indicated in inspection report P\$PA-BC-IJ/037/93.

5. DOF for 22 December 1989.

<i>Act of Authority</i>	<i>Date</i>	<i>Description of Violations Detected by Profepa</i>	<i>LGEPA Provision or Regulations</i>	<i>Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados</i>
Sampling ⁶ [RSP, Appendix 14, pp. 4-5]	6 and 19 April 1993	18 soil and waste samples were taken, finding violations of the cadmium and lead limits set by standard NTE-CRP-001/88. The lead levels found ranged from 1-32.30 mg./l.	NTE-CRP-001/88, establishing that waste shall be considered hazardous where lead levels exceed 5 mg./l.	Sampling results presented in a report to the District Attorney (<i>Ministerio Público Federal</i>) on 6 August 1993. ⁷
Decision no. PFFA-BC-01.1/380 [RSP pp. 13 and Appendix 14]	27 April 1993	See above, proceedings of 22-23 February 1993. This decision notified Metales y Derivados the results of acts of authority from 22 February onward.	See above, proceedings of 22-23 February 1993.	Total temporary shutdown (executed on 6 May 1993) Fine of \$29,967,000 new pesos (\$29,967,000 new pesos according to the preceding records), equivalent to 2,100 times the applicable daily minimum wage in the Federal District. The company was informed that the fine could be equivalent to 20,000 times the minimum wage in the event of recidivism. Partial payments were made. It is not clear whether the fine was paid in full. [RSP Appendix 17, p. 7] <i>Technical measures:</i> Pack, label and provide proper final disposal for all HW; return HW to country of origin; restore contaminated soil; build HW storage facility; preliminary treatment for battery casings; comply with spill reporting obligations; HW log and reporting; technical training for HW personnel; reinforce HW retaining wall; control air emissions and dust. (Deadlines between 30 and 120 business days were set for compliance with the order.)
Criminal charges [RSP pp. 7-8, and Appendix 1]	5 May 1993	Alleged environmental crimes relating to high-risk activities, hazardous waste and materials, and air emissions causing severe harm to public health.	LGEPA 183, 184 and 185.	An arrest warrant was issued 25 September 1995 against José Kahn Block and Ana Luisa de la Torre Hernández de Kahn. Apparently, this criminal action was declared to have been prescribed in 1999.

6. The lab results of the samples taken at Metales and Derivados are apparently detailed in report no. PFFA-BC-02.3/031 of 19 April 1993, which was not provided to the Secretariat.
7. The Secretariat was not provided with a copy of this report.

<i>Act of Authority</i>	<i>Date</i>	<i>Description of Violations Detected by Profepa</i>	<i>LGEEPA Provision or Regulations</i>	<i>Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados</i>
Technical report [RSP Appendix 22, p. 3]	6 August 1993	NA	The legal grounds are not specified in the documents mentioning the technical report.	Profepa filed a technical report with the District Attorney relating to the samples taken at Metales y Derivados on 6 April 1993, indicating that the waste dumped at the site includes hazardous waste.
Inspection visit, proceeding no. PFP A-BC-11/151/93 [RSP p. 16 and Appendix 16]	3 November 1993	Metales y Derivados failed to comply with 12 of the 14 technical measures ordered on 27 April 1993. The same violations were found on the previous inspection.	See visit of 22-23 February 1993.	The company remained under the temporary total shutdown order issued 6 May 1993. The decision further to this visit was issued 28 March 1994.
Total permanent shutdown, decision PFP A-BC-01.1/272 [RSP p. 16 and Appendix 17]	28 March 1994	Serious recurrent environmental offenses, particularly regarding HW, with imminent risk of ecological imbalance or dangerous repercussions on ecosystems, their components or public health.	LGEEPA 136; R-FW 8, 12, 15, 31 and 55; R-Air 16, 17 and 23; NTE-CCA-009/88.	Total permanent shutdown.
Awarding of assets [RSP Appendix 22, p. 3]	16 November 1994	NA	NA	The Local Conciliation and Arbitration Tribunal (<i>Junta Local de Conciliación y Arbitraje</i>) awarded all saleable assets to the company's employees (including the red phosphorus, a hazardous material).
Wall repair and covering of waste [RSP p. 17 and Appendix 21]	December 1994	NA	Not indicated.	Measure taken by the Profepa State Office in Baja California to protect the waste from rain and wind.

<i>Act of Authority</i>	<i>Date</i>	<i>Description of Violations Detected by Profepa</i>	<i>LGEEPA Provision or Regulations</i>	<i>Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados</i>
Removal of hazardous materials, proceeding no. PFP A-BC-03/001 [RSP App. 22-24]	4 and 11 January 1995	NA	Not indicated.	Following the cancellation of the permit held by Metales y Derivados to purchase and use "amorphous red phosphorus", the Profepa State Office in Baja California, in coordination with the Ministry of National Defense, removed 4,250 kg of such hazardous material from the site.
Seizure of the building [RSP Appendix 25]	18 January 1995	NA	Federal Criminal Code, 40-41 and Federal Code of Criminal Procedure, 181.	The Attorney General of the Republic decreed that the building be seized in view of preliminary investigation no. 2405/DCDEC/94, deeming the removal of hazardous materials and the covering of the HW by Profepa to be completed. No public record of this seizure was found or provided.
Site characterization [Profepa Report, p. 138]	December 1999	Total contaminated material approximately 6,367 m ³ (weighing 8,595.45 ton) at a maximum concentration of 178,400 mg/kg. Site is totally abandoned and contaminated material exposed to dispersion by wind.	Not indicated.	<p>The immediate implementation of the following urgent measures is recommended:</p> <ul style="list-style-type: none"> - Keep the piles of contaminated materials covered to avoid dispersion and reduce the risk of intoxication of persons living and working near the site. - Secure the site so as to bar access to any person. - Keep the site under surveillance to prevent dwelling on the site. - Initiate restoration actions immediately. - Prevent dispersal of contaminated dust, closing off the area, if possible, with some type of physical barrier. - Request the cooperation of the United States for the repatriation of the wastes generated through the use of materials imported from the US, or as applicable, for the treatment of the waste to eliminate the health hazard they represent.

<i>Act of Authority</i>	<i>Date</i>	<i>Description of Violations Detected by Profepa</i>	<i>LGEEPA Provision or Regulations</i>	<i>Sanctions or Actions Imposed on Metales y Derivados, S.A. de C.V. or Deemed Necessary, and Response by Metales y Derivados</i>
Wall repair and covering of waste	April 2000	NA	Not indicated.	<p>According to US EPA, the owner of the facility, José Kahn, had the wall of the facility repaired, but the workers repairing the wall lacked protective gear and were not aware of the risk presented by the site. The Environmental Health Coalition raised these concerns with the authorities, and in response the Profepa office in Tijuana finished the work wearing Tyvek protective suits and filter masks, and replaced the tarps covering the lead piles. Around this time, Profepa also placed a warning sign in the south side of the site.</p>

FIGURE 1

Lead and Arsenic Concentrations at Soil Sampling Locations

(site maps inside back cover)



FIGURE 2

Location of Lead Sources in the Mesa de Otay

(site maps inside back cover)



FIGURE 3

Photographs of Metales y Derivados Site





Photo No. 1: Outside view of waste pile containment wall south of plant



Photo No. 2: Wastes covered with plastic in the waste disposal area



Photo No. 3: Waste sacks in waste storage area



Photo No. 4: Waste drums in yard

ATTACHMENT 1

**Council Resolution 02-01, Instruction to
the Secretariat of the Commission for
Environmental Cooperation to make public the
Factual Record regarding the assertion that
Mexico is Failing to Effectively Enforce
Articles 134 and 170 of The General Law on
Ecological Balance and Environmental
Protection (SEM-98-007)**



7 February 2002

COUNCIL RESOLUTION 02-01

Instruction to the Secretariat of the Commission for Environmental Cooperation to make public the Factual Record regarding the assertion that Mexico is Failing to Effectively Enforce Articles 134 and 170 of The General Law on Ecological Balance and Environmental Protection (SEM-98-007)

THE COUNCIL:

SUPPORTIVE of the process provided for in Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (NAAEC) regarding submissions on enforcement matters and the preparation of factual records;

HAVING RECEIVED the final factual record;

NOTING that pursuant to Article 15(7) of the NAAEC the Council is now called upon to decide whether to make the factual record publicly available; and

AFFIRMING its commitment to a timely and transparent process;

HEREBY DECIDES:

TO MAKE PUBLIC and post on the registry the final factual record with respect to this submission; and

TO ATTACH to this resolution and the final factual record the letters sent by the Parties to the Secretariat pursuant to Article 15(5) of the NAAEC commenting on the draft factual record.

APPROVED BY THE COUNCIL:

Government of the United States of America
by Judith E. Ayres

Government of the United Mexican States
by Olga Ojeda Cárdenas

Government of Canada
by Norine Smith

ATTACHMENT 2

Comments of Canada





Ottawa ON K1A 0H3

8 November 2001

Ms. Janine Ferretti
Executive Director
Secretariat
Commission for Environmental Cooperation
393 St. Jacques Street West, Suite 200
Montreal QC H2Y 1N9

Dear Ms. Ferretti:

Further to article 15(5) of the North American Agreement on Environmental Cooperation (NAAEC), we have reviewed the draft factual record on submission 98-007 ("Metales y Derivados") and provide the following comments on its accuracy.

In section 7.1 of the draft factual record (Meaning and Scope of LGEEPA Article 170), the Secretariat, on page 39, challenges the interpretation of article 170 given by Mexico. The Secretariat further suggests alternate interpretations of the article based on taxation law:

"In its response, Mexico indicates that ordering safety measures is a discretionary power of the Ministry, since the word used in Article 170 is "may" (podrá) and not "shall" (deberá).

No specific judicial interpretation of LGEEPA Article 170 exists, but in the area of taxation various Mexican tribunals have interpreted the word "may" and the scope of discretionary powers. These courts have established that the word "may" is not to be interpreted in a purely grammatical sense, but that rather, its interpretation depends on the nature of the powers invested in the authority. They have indicated that discretionary powers shall not be confused with the use of judgment. Along the same lines, another case law criterion indicates that the powers of the authority must be interpreted with reference to the express purpose that the norm seeks to achieve." (Page: 39)

Canada questions the accuracy of using principles of taxation law in this way to interpret environmental legislation. Furthermore, Canada does not believe that the Secretariat's challenge to Mexico's interpretation of its own internal legislation is a correct practice for the purpose of developing a factual record. It is not appropriate nor consistent with the spirit of the NAAEC for the Secretariat to challenge the interpretation a Party gives of its domestic legislation.

Canada submits to the Secretariat the above comments and notes that, as a matter of procedure, comments of a Party are not to be made public unless and until Council votes to make the final factual record publicly available pursuant to Article 15(7) of the NAAEC. In addition, Canada understands that, as per Article 15(6), "the Secretariat shall incorporate, as appropriate, comments from the parties in the final factual record and submit it to Council."

Canada has examined this case specific study with interest and takes note of the general quality of the factual analysis by the Secretariat of the Commission for Environmental Cooperation.

Yours sincerely,

(Original signed)
Norine Smith
Assistant Deputy Minister
Policy and Communications

c.c.: Ms. Judith E. Ayres
Ms. Olga Ojeda

ATTACHMENT 3

Comments of the United States of America



November 16, 2001

Janine Ferretti
Executive Director of the Secretariat
Commission for Environmental Cooperation
393, Rue St.-Jacques Ouest, Bureau
Montreal (Quebec)
Canada H2Y 1N9

Dear Ms. Ferretti:

On behalf of the United States of America, and pursuant to Article 15 of the North American Agreement on Environmental Cooperation (NAAEC), we are providing the Secretariat with comments on the draft factual record relating to Submission on Enforcement Matters 98-007 (the "Metales y Derivados" submission).

The first comment is merely a clarification of information which was provided by the U.S. Environmental Protection Agency (EPA) Region 9 office to the Secretariat during the development of the Metales y Derivados factual record. The U.S. suggests the following change to the text in Section 6.4.2.1. in the last paragraph on page 32. Replace the sentence which reads, "the agency indicates that PROFEPA is developing a fund equivalent to its own Superfund" with the following new sentence, "the agency indicates that PROFEPA is developing a program to fund remediation of a limited number of sites." This more accurately reflects information originally provided by EPA Region 9 to the Secretariat during the factual record preparation process. At that time, Region 9 indicated that "although a fund for remediation of some sites is under development by PROFEPA, Mexico does not have a program equivalent to EPA's Superfund, which would provide resources for the remediation of such a site in the U.S."

The second comment relates to the penultimate paragraph of the main document. The U.S. believes that although the Secretariat states in the first sentence of the paragraph that it is not "aiming to reach conclusions of law on whether Mexico is failing to enforce LGEEPA Articles 170 and 134 effectively,...." "the Secretariat concludes in that same sentence that" the site abandoned by Metales y Derivados is a case of soil contamination by hazardous waste in relation to which measures taken to date have not prevented the dispersal of pollutants or prevented access to the site, in order to enforce effectively LGEEPA Article 170".

Although the Secretariat prefaces this portion of the statement with “as a matter of fact”, in order to make it clear that the Secretariat is not making a legal conclusion, the U.S. suggests removing “in order to enforce effectively LGEEPA Article 170” and replacing it with “which relates to the issue of whether Mexico is effectively enforcing LGEEPA Article 170”.

If the Secretariat requires further clarification of our comments, please do not hesitate to contact me or Paul Cough, Director of the Office International Environmental Policy.

Sincerely,

(Original signed)
Judith E. Ayres
Assistant Administrator U.S. EPA
U.S. Alternate Representative

