Hazardous Waste Determination and Government Enforcement Actions in the Resource Conservation and Recovery Act and the Law No. 24051: Comparison between the United States and Argentina

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CHAPTER 1
INTRODUCTION

Pollution of soil, water, and air by hazardous wastes has became one of the most important problems all over the world.\(^1\) The quantities of hazardous wastes produced are enormous. Industries have been generating and discarding increases amounts of hazardous wastes for years, including flammables, explosives, nuclear and petroleum fuel byproducts, toxic metals and dozens of synthetic chemical compounds as DDT, PCB's, and dioxins.

Although the protection of the environment received world-wide attention with the Stockholm Conference in 1972, countries have reacted very different to environmental problems. Different laws have been enacted to solve the specific problem of hazardous wastes at different times all over the world.

The Resource Conservation and Recovery Act (hereinafter RCRA) was enacted by the Congress of the United States in 1976.\(^2\) This law specifically addresses the problem of hazardous wastes in Subtitle C. In Argentina, on the other hand, it took much more time to regulate hazardous wastes. Nevertheless, the Argentinean Congress enacted the Law No. 24051 (hereinafter the Law) in 1991 to address the problem of pollution with hazardous wastes.\(^3\)

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\(^1\) Dino Bellorio Clabot, *Tratado de Derecho Ambiental* 535 (1997)
This thesis makes a comparison between RCRA and the Law, specifically in the way in which both Statutes have determined that a material will be considered hazardous waste, and as a consequence be subject to regulation under these Acts; and it also compares which are the tools or actions that each government has to enforce these regulations when somebody has violated or is in violation with the different requirements of the Acts. Although a comparison of both Acts as a whole is not the purpose of this thesis, it is necessary to point out some differences and similarities that are important to understand the specific parts that will be compared.

First, both Acts have developed their regulations in a similar way, that is, complex regulations to control the management of hazardous waste from its generation to its disposal. This is called “cradle to grave” regulation. The goal of both Acts is to regulate all aspects of the management of hazardous waste from the time it is generated to the time it is finally disposed of.

Second, it is necessary to mention the difference between the scope of application of both Acts. The Argentinean law establishes the federal jurisdiction on the following basis: related activities which developed a federal jurisdiction, inter-jurisdictional transport of hazardous wastes, discretionary authority of the federal enforcement agency to consider that such wastes may affect people or the environment all over the country, or for purposes of economic competitiveness of industrial activities. Moreover, although the Law applies only in federal territories or when, as described before, there is federal jurisdiction, it also invites the provinces of the

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4 ROBERT V. PERCIVAL, ALAN S. MILLER, CHRISTOPHER H. SCHOEDER, JAMES P. LEAPE, ENVIRONMENTAL REGULATION 203, 2d Ed. (1996); Law No. 24051, supra note 3, Article 1.
5 Law No. 24051, supra note 3, Article 1.
6 Id.
Republic to adhere to this way of regulating hazardous wastes through provincial laws. On the other hand, RCRA applies to all the territory of the United States. Nevertheless, EPA may approve State programs that have the same or more stringent requirements than RCRA.

Finally, the criminal sanctions regulated in the Law apply to the whole territory of the Republic (federal and provincial territories). This is because the Law has a double character, that is, it is a local law for federal territories and also it is a federal law that applies in all the territory of the Republic with respect of the crimes regulated in it.

Taking in account these similarities and differences, Chapter 2 of this thesis will compare RCRA and the Law in the way they determine whether a material will be considered hazardous waste. Chapter 3 then compares the government enforcement actions allowed by these Acts, for goal. Remarks on differences and similarities will be pointed throughout the explanation of the Argentinean Law.

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7 Law No. 24051, supra note 3, Article 67 (Some provinces have adhered to the Federal Law. For instance, Mendoza, Tierra del Fuego, Chaco, Chubut and Cordoba. On the other hand, other provinces have enacted their own particular law to regulate hazardous wastes (e.g. Province of Buenos Aires)).
8 42 U.S.C. §§ 6941 to 6949a (1994) (State or Regional Solid Waste Plans).
9 "Wentzel Jochen Ernst and others," C. Fed. San Martin (1993-I) J.A. 247 (The criminal sanctions amend the crimes and actions enacted as regulations on the Argentinean Penal (Criminal) Code. As a consequence, even if the Law is not adhered by a provincial jurisdiction, those sanctions are enforceable in any federal or provincial territory).
Chapter 1

Hazardous Waste Determination

In the American Law and the Argentinean Law

Hazardous Waste Determination in the American Law

A- Background

The principal purpose of Congress in enacting the RCRA in 1976 was to “eliminate the last remaining loophole in environmental law, that of unregulated land disposal of discarded materials and hazardous waste.” 10 Congress stated that “although land is too valuable a natural resource to be needlessly polluted by discarded materials, most solid wastes are disposed of on land in open dumps and sanitary landfills.” 11 Consequently, “disposal of solid waste and hazardous waste in or on the land without careful planning and management can present a danger to human health and the environment.” 12 Moreover, Congress has concluded that “open dumping is particularly harmful to health, contaminates drinking water from underground and surface supplies, and pollutes the air and the land;” 13 and it has also found that “the placement of inadequate controls on hazardous waste management will result in substantial risks to human health and the environment.” 14 The RCRA congressional findings and objectives express a clear intent to regulate the land disposal of solid wastes, as well as

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“treatment, storage, transportation, and disposal of hazardous waste” in order to protect human health and environment.\textsuperscript{15}

Congress also specifically identified resource recovery as a means of reducing solid wastes requiring land disposal:

The Congress finds with the respect to materials, that:
(1) millions of tons of recoverable material which could be used are needlessly buried each year:
(2) methods are available to separate usable materials from solid waste: and
(3) the recovery and conservation of such materials can reduce the dependence of United States on foreigner resources and reduce the deficit in its balance of payments.\textsuperscript{16}

In addition, the Congress found with the respect to energy that solid waste can be converted into energy in order to reduce the dependence of the United States on such sources as petroleum products, natural gas, nuclear and hydroelectric generation.\textsuperscript{17}

“Technology exits to produce usable energy from solid waste.”\textsuperscript{18}

In the 1976 Act, Congress defined solid waste along with several specific statutory exclusions. EPA interpreted the statutory definition by promulgating its first solid waste regulation in 1980 as an interim rule.\textsuperscript{19} On January 4, 1985 EPA refined the regulation.\textsuperscript{20} The original statutory definition and EPA’s subsequent interpretations helped too little in defining the extent of RCRA’s regulatory boundaries.\textsuperscript{21} As a consequence, the definitions have generated several significant cases and have led to different productive results.

\textsuperscript{16} 42 U.S.C. § 6901 (c) (1994).
\textsuperscript{17} 42 U.S.C. § 6901 (d) (1994).
\textsuperscript{18} 42 U.S.C. § 6901 (d) (3) (1994).
B- SOLID WASTE DETERMINATION

The first step in determining whether material is subject to regulation under the RCRA is to decide whether it is a solid waste.\textsuperscript{22} The determination of a waste as a RCRA waste is the most important, and complex, step in ascertaining one's responsibility under RCRA.\textsuperscript{23} If the material it is not a solid waste, it is not regulated by RCRA. On the other hand, if the material is a solid waste, it can be regulated as a hazardous waste or a nonhazardous waste. Thus, if a material does not meet the definition of solid waste, it can not be classified as a hazardous waste or nonhazardous waste.

(1) STATUTORY DEFINITION OF SOLID WASTE

RCRA defines solid waste as:

any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution facility and other discarded material, including solid, liquid, semi-solid or contained gaseous material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subjects to permits under section 1342 of Title 33, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).\textsuperscript{24}

Only one of the many terms used in the statutory definition is further defined in the statute: "sludges means any solid, semi-solid or liquid waste generated from a municipal, commercial, or industrial waste water treatment plant, water supply

\textsuperscript{23} TRAVIS P. WAGNER, THE COMPLETE GUIDE TO THE HAZARDOUS WASTE REGULATIONS 23 (2\textsuperscript{d} ed. 1991).
treatment plant, or air pollution control facility or any other such waste having similar characteristics and effects.”

Although the statutory definition does not define all the terms that are in it, there are some things that are reasonably clear. First, no material falling within one of the four exclusions can be a solid waste. Even though the EPA and a number of authors have indicated that the solid waste status of garbage, refuse, and sludge is so firmly established that these materials cannot obtain the benefit of the statutory exclusions, a contrary conclusion is compelled by the statutory language. Second, it is clear from the syntax that garbage, refuse, sludge are always statutory solid waste (unless excluded), regardless of the process that produced them, regardless of their physical form, and regardless of whether they are discarded. Unlike the 1980 regulatory solid waste definition, the current 1985 regulation no longer provides that nonexcluded garbage, refuse, and sludge are automatically solid wastes. Third, if a material is not garbage, refuse, or a sludge, it can be a solid waste only if it is in a physical form enumerated in the definition, only if it has resulted from one of the process established there, and only if is discarded. Finally, RCRA establishes that a material is considered solid waste if it is in the form of solid, liquid, semisolid, or contained gaseous material.

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28 42 U.S.C. § 6903 (27) (1994) ; See STENSVAAQ, supra note 26, § 4.2-4.13 ( It does seem unlikely that garbage, refuse, or a sludge could qualify as excluded domestic sewage, industrial wastewater discharges, or irrigation returns flows) and § 4.14-4.21 (But at least some garbage, refuse, or sludge from a nuclear generating plant could presumably fall within the statutory exclusion for source, special nuclear, or by-product material under the Atomic Energy Act) (1983-1993).
29 STENSVAAQ, supra note 26, at sec. 2.8 (1983-1993).
gas. the Environmental Protection Agency (hereinafter EPA) means a gas that it is contained in a pressurized cylinder or other non-flow-through containment system. As we can see from the definition, the term solid waste does not refer to a material's physical state *per se*; it is a regulatory term only.

(a) Statutory Exclusions

Some wastes are expressly excluded as solid waste in the statutory definition: "...solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation returns flows or industrial discharges which are point sources subject to permits under section 1342 of Title 33, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended." These exclusions can be classified as:

Domestic Sewage Exclusion: solid or dissolved material in domestic sewage is excluded. EPA also excluded "any mixture of domestic sewage and other wastes that passes through a sewer system to a public-owned treatment works for treatment." In its regulations, EPA defines "domestic sewage" as "untreated sanitary wastes that pass through a sewer system." Therefore, domestic sewage and certain wastes discharged into municipal sewage treatment systems are not classified as solid wastes. On the other hand, sewage sludge produced from the treatment of domestic sewage is not subject to this exclusion, and the disposal of sewage sludge itself is governed by provisions of RCRA and Clean Water Act.

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34 Wagner, supra note 23, at 25.
37 Id.
38 Jeffrey M. Gaba, Donald W. Stever, Law of Solid Waste, Pollution Prevention and Recycling, § 2.03 [5] (b) (i) at 26 (Clark Boardman Callaghan, 1994).
Industrial Wastewater Discharges: the statutory definition of solid waste and EPA regulations exclude point source discharges subject to regulation under the National Pollutant Discharge Elimination System permit program of the Clean Water Act. The EPA regulation expressly excludes "[i]ndustrial wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act, as amended." As EPA noted:

"The obvious purpose of the industrial point source discharge exclusion in Section 1004(27) was to avoid duplicative regulation of point source discharges under RCRA and the Clean Water Act. Without such provision, the discharge of wastewater into navigable waters would be "disposal" of solid waste, and potentially subject to regulation under both the Clean Water Act and Subtitle C."  

Unlike the domestic sewage exemption, discharges from wastewater facilities are exempt from RCRA only at the point of actual discharge of surface water. EPA states that the exemption does not include industrial wastewaters while they are being collected, stored or treated before discharge, nor does it include sludges that are generated by industrial wastewater treatment.

Irrigation Return Flow: the statute excludes "solid or dissolved material in irrigation return flows" from the definition of solid waste. EPA's regulations only exclude "irrigation return flow." The Clean Water Act also excludes irrigation returns

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39 42 U.S.C. § 6903 (27) (1994) (solid waste does not include "industrial discharges which are point sources subject to permits under section 1342 of Title 33").
40 40 C.F.R. § 261.4 (a) (2) (1996).
43 Comment at 40 C.F.R. Sec. 261.4 (a) (2) (1996).
flows from regulation as point source discharges.\textsuperscript{46} and therefore irrigation return flows, containing pesticides, fertilizers and other materials, are regulated if, at all, as nonpoint sources under CWA.\textsuperscript{47}

\textit{Radioactive Materials:} Both the statute and EPA regulations, exclude "source, special nuclear or byproduct material a defined by the Atomic Energy Act of 1954, as amended." \textsuperscript{48} EPA and the Department of Energy have developed regulations and guidance documents that attempt to explain the respective Agency's jurisdiction over radioactive materials.\textsuperscript{49}

Although these are the statutory exemptions, EPA has also regulated other exemptions for the definition of solid waste. In situ mining materials;\textsuperscript{50} black liquor that is reclaimed in a Kraft pulping liquor recovery furnace and the reused in the Kraft paper process;\textsuperscript{51} spent sulfuric acid used to produce virgin sulfuric acid;\textsuperscript{52} and secondary materials returned to the original process, where only tank storage is involved and the entire process through completion of reclamtion is closed system, reclamion does not involve controlled flame combustion, the secondary materials are never accumulated in such tanks for over twelve months without being reclaimed, and the reclaimed material is not used to produce a fuel or used to produce products that are used in a manner

\begin{itemize}
\item \textsuperscript{46} 42 U.S.C. § 1362 (14) (1994) (excludes "agricultural stormwater and return flows from irrigated agriculture" from the definition of point source).
\item \textsuperscript{47} \textit{GABA, STEVER}, supra note 38, § 2.03 [5] (b) (iii) at 27-28 (Regulation of agricultural practices under the nonpoint source program of the Clean Water Act has, itself, been one of the more controversial issues in the environmental field).
\item \textsuperscript{49} Clarification of Interim Status, Qualification Requirements for the Hazardous Componenets of Radioacdve Materials, 53 Fed. Reg. 37,045 (1988); 10 C.F.R. Part 962 (1996) (The Department of Energy has developed its own regulations defining source, special nuclear and byproduct material for purposes of RCRA exclusions at DOE facilities).
\item \textsuperscript{50} 40 C.F.R. § 261.4 (a) (5) (1996).
\item \textsuperscript{51} 40 C.F.R. § 261.4 (a) (6) (1996).
\item \textsuperscript{52} 40 C.F.R. § 261.4 (a) (7) (1996).
\end{itemize}
constituting disposal, are excluded. Unlike statutory exclusions, that only Congress can modify, the regulatory exclusions can be modified by EPA with a regulation.

(2) EPA’S DEFINITION OF SOLID WASTE

Even though RCRA was adopted in 1976, EPA’s first definition of solid waste was promulgated in May 1980. The key concept in this definition was whether the materials “sometimes” were discarded. According to EPA’s interpretation, a material was sometimes discarded, if any person or company within a particular industry ever discarded that material. In response to the settlement negotiations in the first case that challenged the original definition, EPA worked on developing a redefinition for over three years. As a result, on January 4, 1985, the current final regulation was finalized. The statutory definition of solid waste includes certain specific items plus any other “discarded material.” By contrast, the 1985 regulation adopts a complex scheme in which a material is defined as a “solid waste” if it is a discarded material that has been abandoned, recycled, or is classified as inherently waste-like, and which is not excluded by regulation or variance granted by EPA.

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55 Id. at 33,119; 40 C.F.R. § 261.2 (1980) (The regulation adopted in May 1980 defined solid waste to include “any other discarded material” which: “(1) Is discarded or is being accumulated, stored or physically, chemically or biologically treated prior to being discarded; or (2) Has served its original intended use and sometimes is discarded; or (3) Is a manufacturing or mining byproduct and sometimes is discarded.”).
56 40 C.F.R. § 261.2 (b) (1980).
57 RIDGWAY M. HALL, JR.; ROBERT C. DAVIS, JR.; RICHARD E. SCHWARTZ; NANCY S. BRYSON; R. TIMOTHY MCCRUM, RCRA HAZARDOUS WASTES HANDBOOK at Chapter 2, 5-6 (Cowell & Moring, 11th Ed.) (1996).
58 Shell Oil v. EPA, 950 F. 2d 741 (D.C. Cir. 1991).
(a) ABANDONED MATERIAL

Abandoned material is the simplest application of the solid waste definition: a material is abandoned if it is thrown away. EPA stated this, in the preamble to the 1985 regulation, simply establishing that "[b]y saying abandoned, we do not intend any complicated concept, but simply mean thrown away." This provision acts as a catch-all concept because any material that does not otherwise come within the definition (i.e., materials that are neither secondary materials nor designated as inherently waste-like) may still be solid wastes if they are abandoned.

(i) DISPOSED OF

Under EPA's regulation, a material may be abandoned by being "disposed of." The general definitions applicable to the hazardous waste management system define "disposal" as: "[T]he discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on land or water so that solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters." Materials that are placed in the garbage or discarded on land would no doubt to be solid waste that had been abandoned by being disposed of. Moreover, courts, under Comprehensive

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64 Id.
65 GABA, STEVER, supra note 38. § 2.03 [2] (a) at 12 citing 40 C.F.R. § 261.1 (b) (1) (This definition, at least by the express terms of the regulation, only applies to materials that otherwise satisfy the criteria for hazardouness).
Environmental Response, Compensation and Liability Act of 1980 (CERCLA), have held that "the definition of disposal encompasses leaks and spills of solid waste." However, the courts have construed the word "disposal" in different ways. In *Ecodyne Corp. v. Shah*, the Court stated that disposal only occurs when a party introduces a substance into the environment. On the other hand, another court held that "discharging, dumping and injection (conduct), hazardous waste, reposing (a physical state) and movement of the waste after it has been placed in a state of repose (an occurrence) are all encompassed in the broad definition of disposal." Nevertheless, any act that results or could likely result in release of materials in the environment, whether intended or not, is likely to be disposal.

(ii) *Burned or Incinerated*

The definition of solid wastes also applies to the materials that are abandoned by being burned or incinerated. This statement can be read to say that a material is a solid waste if it is abandoned by the method of burning or incineration. If the purpose of burning was recycling, classification of the material as a solid waste would depend upon the application of the rules to recycled materials. This interpretation would be consistent with the statutory definition of solid waste and would harmonize the provisions defining when abandoned and recycled materials are solid waste. On the other hand, the provision regarding abandonment could be read so that any material that

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72 United States v. Waste Indus., 734 F. 2d. 159, 164 (4th Cir. 1984)
73 GABA, STEVER, supra note 38, § 2.03 [2] (a) at 13.
74 40 C.F.R. § 261.2 (b) (2) (1996).
75 WHISLER, et al., supra note 68, at 589 (EPA has never defined burn or incinerate for purposes of the 40 C.F.R. Sec. 261.2 definition of solid waste).
76 Id. at 589, 590.
it is burned or incinerated is deemed to be abandoned, and, therefore, a solid waste.\textsuperscript{77} This interpretation would be difficult to harmonize with the provisions on recycling, as recycling methods classified as burning would be considered to be abandonment.\textsuperscript{78}

(iii) Managed Before or In Lieu of Disposal or Burning

The regulation provides that materials are solid wastes if they are abandoned by being "accumulated, stored or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated."\textsuperscript{79} Most activities in which a waste-like material is stored or treated prior to final disposal will be subject to regulation either under this provision, if the intention is to dispose the material, or under the specific regulations dealing with recyclable material.\textsuperscript{80}

(b) Recycled Material

"The amended definition of solid waste adopts the approach that for secondary materials being recycled, it is necessary to know what the material is and how is it being recycled before determining whether or not it is a Subtitle C waste.\textsuperscript{81} To determine the nature of the material, and the process to which is subjected, requires a knowledge of the regulations defining secondary materials,\textsuperscript{82} and the listed recycling activities involved.\textsuperscript{83} EPA, for the purpose of understanding this section, has made a table or

\textsuperscript{77} Burning of Hazardous Waste in Boilers and Industrial Furnances. 56 Fed. Reg. 7134, 7208 (1991) (For purposes of 40 C.F.R. Part 266, EPA has defined "burn" as "burning for energy recovery or destruction, or processing for materials recovery or as an ingredient").

\textsuperscript{78} Whisler et al., supra note 68, at 590; See also United States v. Marine Shale Processors, Inc., 81 F. 3d 1329 (5th Cir. 1996).

\textsuperscript{79} 40 C.F.R. § 261.2 (b) (3) (1996).

\textsuperscript{80} GABA, STEVER, supra note 38, § 2.03 [2] (c) at 15.

\textsuperscript{81} Hazardous Waste Management System; Definition of Solid Waste, 50 Fed. Reg. at 618 (1985).

\textsuperscript{82} Id. at 624.

\textsuperscript{83} 40 C.F.R. § 261.2 (c) (1)-(4) (1993).
matrix indicating which class of materials undergoing what type of recycling constitute solid waste.\(^{84}\)

(i) **Classification of Secondary Materials**

The regulation identifies five types of secondary materials that are potentially solid waste, depending on how they are recycled.

*Spent Materials:* are those that have been used and, as a result of contamination, can no longer serve the purpose for which they were manufactured without first being treated.\(^{85}\) The example the EPA frequently uses is spent solvents that must have contaminants removed before they can be reused as solvents.\(^{86}\) However, solvents manufactured to clean circuit boards, once used, may still be pure enough to use for metal degreasing, and for that purpose they are not spent materials.\(^{87}\)

*Sludge:* Sludges are solid, semi-solid, or liquid wastes generated from pollution control equipment.\(^{88}\) The regulatory matrix distinguished sludges in two categories: those that are hazardous by being listed and those that have a hazardous characteristic.\(^{89}\)

*Scrap Metal:* includes bits and pieces of metal that may be combined by bolting or soldering and “when worn or superfluous can be recycled.”\(^{90}\) More generally, scrap consists of worn out metal products or metal pieces generated from machine operation that can be recycled.\(^{91}\) Before to the 1985 regulation, scrap metal was treated as either a spent material or a byproduct.\(^{92}\) In 1985, EPA chose to define it in its own category

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\(^{84}\) 40 C.F.R. § 261.2 (1993).

\(^{85}\) 40 C.F.R. § 261.1 (c) (1) (1993).


\(^{87}\) NEEDLEMAN, supra note 21, at 990.

\(^{88}\) 40 C.F.R. § 261.1 (c) (2) (1993); 40 C.F.R. § 260.10 (1996).

\(^{89}\) 40 C.F.R. § 261.2 (c) (1993).


\(^{92}\) NEEDLEMAN, supra note 21, at 991.
because it always, no matter its origins, was recycled in the same way.\textsuperscript{93} However, these definition does not include other types of waste that contains metals, such as sludges and spent solvents.\textsuperscript{94}

\textit{Commercial Chemical Products:} certain commercial chemical products become hazardous waste if they are recycled or reused in a manner different from their normal use.\textsuperscript{95} For instance, pesticides applied to the ground are not solid hazardous waste because that is their intended use.\textsuperscript{96} On the other hand, they are regulated as solid wastes, if they are burned for energy recovery or otherwise used for non-pesticide purposes.\textsuperscript{97}

\textit{Byproducts:} “A byproduct is a material that is not one of the primary products of a production process and is not solely or separately produced by the production process.”\textsuperscript{98} Normally, these are materials that are incidentally produced in industrial, commercial, mining and agricultural operations.\textsuperscript{99} The regulation divides byproducts into those that merely exhibits characteristics of hazardous waste and those that are listed as hazardous waste by EPA.\textsuperscript{100} It also is important to distinguish them from co-products, that are materials incidentally derived from the production process and are ordinarily used as commercial products without further processing, because most of the

\begin{itemize}
  \item GABA, STEVER, \textit{supra} note 38, § 2.03 [3] (a) at 17 (These wastes would be classified as sludges and spent materials for purpose of regulation).
  \item 40 C.F.R. § 261.33 (1993) (“The following materials or items are hazardous wastes if [and] when...they are applied to the land in lieu of their original intended use...”).
  \item 40 C.F.R. § 261.1 (c) (3) (1993) (Examples are process residues such as slags or destilation column bottoms).
  \item GABA, STEVER, \textit{supra} note 38, § 2.03 [3] (a) at 16.
  \item \textit{Id}.\textsuperscript{100}
\end{itemize}
co-products are not considered waste. The term [byproducts] does not include a co-product that it is produced for the general public’s use and is ordinarily used in the form it is produced by the process.”

(ii) Classification of Recycling Activities

EPA defines recycling as the use, reuse, or reclamation of secondary materials. The regulation identify four types of recycling activities that are subject to regulations.

Used in a manner constituting disposal: Secondary materials are used constituting disposal when they are “applied to or placed on the land in a manner that constitutes disposal.” Use of waste oil as a dust suppressant would be the classic case of use constituting disposal. EPA also regulates materials when they are used to make products placed on the land, or are constituents of products placed on the land. Therefore, EPA also defines land application of waste derived products, products containing secondary materials, as use constituting disposal. The rule excludes commercial chemical products, as pesticides, if they are applied to land and that is their ordinary use.

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101 NEEDLEMAN, supra note 21, at 992 (Examples of co-products include lead produced during copper smelting and kerosene or asphalt produced during petroleum refining).
102 40 C.F.R. § 261.1 (c) (3) (1993).
103 40 C.F.R. § 261.1 (c) (7) (1993); See also § 261.1 (c) (4), (c) (5) (1993) (Where EPA defines reclamation: “A material is reclaimed if it is processed to recover a usable product, or if it is regenerated”, and use and reuse: “A material is use or reuse if it is either: (i) Employed as an ingredient...in an industrial process to make a product...; or (ii) Employed in a particular function or application as an effective substitute for a commercial product...”).
104 40 C.F.R. § 261.2 (c) (1), (c) (2), (c) (3), (c) (4) (1993).
105 40 C.F.R. § 261.2 (c) (1) (A) (1993).
106 GABA, STEVER, supra note 38, § 2.03 [3] (b) at 17.
107 40 C.F.R. § 261.2 (c) (1) (i) (B) (1993).
108 GABA, STEVER, supra note 38, § 2.03 [3] (b) at 17-18.
Burning for energy recovery: Includes the burning of secondary materials as a fuel, the use of secondary materials to produce a fuel, or the burning of fuels that contain secondary materials. The burning of waste oil in a boiler for heat would be the classic case of burning for energy recovery.

EPA's substantive regulatory requirements distinguish burning of wastes for energy recovery from the incineration of wastes for disposal. Hazardous waste incinerators are subject to a comprehensive set of requirements as hazardous waste disposal facilities. Although EPA had established regulations prohibiting the burning of hazardous wastes in non industrial boilers (e.g., boilers located in apartment and offices buildings, schools, hospitals), until 1991, it exempted the burning of hazardous wastes in boilers and industrial furnaces from substantive regulations when the purpose of that burning was energy recovery. The burning of wastes for energy recovery by industrial furnaces and boilers is, since 1991, regulated under specific EPA regulations.

Reclamation: It occurs if a material is “processed to recover a usable product or if it is regenerated.” “Processing” means extracting usable products from the secondary material, such as in secondary metal smelting. On the other hand,

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11 GABA, STEVER, supra note 38, § 2.03 [3] (b) at 18.
12 Id.
16 40 C.F.R. § 261.1 (c) (4) (1993).
regeneration involves processing to remove contaminants so the material is usable for its original purpose, as in the treatment of spent solvents. EPA distinguishes between reclamation and the direct use of a secondary material as an ingredient in a product. The Agency has stated that secondary materials directly used as ingredients are not going to be treated as wastes.

Speculative Accumulation: It involves long-term storage or accumulation of secondary materials for later recycling. There is a presumption that materials stored before being recycled are accumulated speculatively and the person who has stored it has the burden to prove that the material: is potentially recyclable, has a feasible means for recycling, and during a one-year calendar period, the amount recycled, or transferred to a different site for recycling, is at least 75 percent of the amount accumulated at the beginning of the calendar year (commencing on January 1). EPA stressed that the length of time secondary materials accumulate prior to recycling is an important indicator of whether the materials are to be considered wastes, because they can cause significant harm to the environment.

(iii) Exclusion with the respect of certain types of Recycling Activities

EPA’s 1985 regulations recognized certain industrial processes generate materials that may be reinjected productively into the manufacturing process. These exclusions illustrate EPA’s policy choice not to regulate certain materials as hazardous

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118 Id. at 633 (1985).
119 GABA, STEVER, supra note 38, § 2.03 [3] (b) at 19.
121 40 F.C.R. § 261.1 (c) (8) (1993).
122 GABA, STEVER, supra note 38, § 2.03 [3] (b) at 18. See also 40 F.C.R. § 261.1 (c) (8) (1993) (In calculating the percentage of turnover, each material must be of the same type (e.g., slags from a single smelting process) and be recycled in the same way (i.e., from which the same material is recovered or that is used in the same way)).
124 Id. at 619 (1985).
waste and exclude these processes because “they are like ordinary productions operations or ordinary usage of commercial products,” not waste management.125

(1) PROCESS-SPECIFIC REGULATORY EXCLUSION

Secondary materials used or reused as an ingredient or feedstock to make other products.126 The material must be used directly without being reclaimed first.127 Using fly ash as an ingredient in cement manufacturing, and using the distillation bottoms produced when carbon tetrachloride is manufactured as an ingredient in the production of tetrachloroethylene, are examples stated in the 1985 rule.128

Secondary materials used directly in place of raw materials within the production process.129 An example of this exclusion would be using by-product hydrochloric acid from chemical manufacturing to pickle steel.130 However, there are certain instances, determined by EPA, when this exclusion does not apply.131

Materials that are returned to the original production process from which they were generated, without first being reclaimed (closed loop recycling).132 The returned material must be a substitute for a raw material feedstock.133 Although there is some incidental processing that is permitted under this exclusion, it is very difficult to

125 Id.
131 FORTUNA, LENNETT, supra note 42, at 75. See also Hazardous Waste Management System; Definition of Solid Waste, 50 Fed. Reg. at 638 (1985) (These instances includes situations where the secondary material is not effective for the claimed use, it is not as effecting as the material it is replacing, more of the secondary material is used than is necessary, or the secondary material is managed inconsistently with its statute as a raw material or commercial product component).
133 Id.
distinguish it from an unpermitted reclamation.\textsuperscript{134} For instance, emission control dust from a primary zinc smelting furnace could be returned to any part of the process associated with zinc production and qualify as a closed-loop process. However, if the dust is sent to byproduct cadmium recovery operations, it would be not considered returned to the same process from which it was generated because the original production process was zinc not cadmium. This process would be considered reclamation and it would be exempted, but not under the closed-loop exclusion.\textsuperscript{135}

(2) FACILITY-SPECIFIC, CASE BY CASE VARIANCE

The regulations also provide the EPA regional administrator, or the authorized State administrator, to evaluate and grant case-by-case facility-specific exclusions.\textsuperscript{136} A facility may be eligible for this variance if one of the three conditions is met:

*Materials Accumulated without sufficient amounts being recycled:* In deciding whether to grant the variance, the administrator should consider how and when the material will be recycled; the likelihood that the recycling will occur; the reason that the material has been accumulated without at least 75 percent being recycled; the amount of material accumulated and expected to be generated; and any other relevant factors.\textsuperscript{137}

*Materials that are reclaimed and then reused within the original primary production process:* Reclamation must be an essential part of the on-going production process.\textsuperscript{138} This variance would allow material to be reclaimed before being reused within the original primary production process and still be termed closed-loop recycling.\textsuperscript{139}

\textsuperscript{134} \textsc{Fortuna, Lennett, supra} note 42, at 76.

\textsuperscript{135} \textit{Id.}

\textsuperscript{136} 40 C.F.R. \textsection 260.31 (1993).

\textsuperscript{137} 40 C.F.R. \textsection 260.31 (a) (1993).

\textsuperscript{138} 40 C.F.R. \textsection 260.31 (b) (1993).

\textsuperscript{139} \textsc{Fortuna, Lennett, supra} note 42, at 77.
Materials that are reclaimed but must be reclaimed further before material recovery is complete.\footnote{40 C.F.R. § 260.31 (c) (1993).} This would allow a recyclable material to become a non-waste after only one step of a two step process, if it is “commodity-like” but not yet a commercial product.\footnote{FORTUNA, LENNETT, supra note 42, at 77.}

(c) **INHERENTLY WASTE-LIKE MATERIAL**

EPA has a provision for designating certain materials as “inherently waste-like.”\footnote{40 C.F.R. § 261.2 (d) (1993).} Specific materials that are not otherwise defined as solid wastes may be designated, based on the regulation, if the material is ordinarily disposed of, burned or incinerated,\footnote{40 C.F.R. § 261.2 (d) (2) (i) (A) (1993).} whether it contains toxic materials not normally found in raw materials for which the recycled materials substitute,\footnote{40 C.F.R. § 261.2 (d) (2) (i) (B) (1993).} and whether the material poses a substantial hazard to human heath and the environment when recycled.\footnote{40 C.F.R. § 261.2 (d) (2) (ii) (1993).} Also, EPA has designated certain dioxin-containing materials as “inherently waste-like.”\footnote{FORTUNA, LENNETT, supra note 42, at 80.} These materials are considered too hazardous to be unregulated regardless of how they are managed.\footnote{NEEDLEMAN, supra note 21, at 1001-1002.}

(3) **LEGAL STATUS OF EPA’S REGULATORY DEFINITION**

The courts have interpreted the regulatory and statutory definition of solid waste in three important cases. These cases demonstrate the complexities which characterize the definition of solid waste and the weakness of the recycling framework.\footnote{Needleman, supra note 21, at 1001-1002.}
The first challenge of the 1985 EPA's regulation was faced in American Mining Congress v. EPA. The petitioners, American Mining Congress and the American Petroleum Institute, challenged EPA's definition of solid waste and claimed that EPA has exceeded its authority regulating secondary materials that were not yet discarded but were still part of the on-going industrial production process. The petroleum industry was concerned about the classification as a solid waste of certain hydrocarbon fractions which escape from a refinery's production vessels and then are returned to the refining process. On the other hand, the mining industry was concerned about the coverage of materials, including dusts released during the processing of a metal, that are reinserted into the mining extraction process for additional extraction.

Judge Starr, writing for the majority, invalidated EPA's regulatory definition of solid waste. Recognizing that the key term was "other discarded material," the court stated that Congress intended RCRA to apply to materials that had "truly" been discarded, that is, "abandoned, thrown away or disposed of."

In reaching this conclusion, the court had relied on the two part Chevron test. It first focused on the term "discarded" and gave to the "ordinary, plain-English" meaning considerable weight. Using the Webster's Dictionary, the court stated that discarded means "disposed of, thrown away, or abandoned." The court went further,

149 824 F. 2d 1177 (D.C. Cir. 1987).
150 Id. at 1178.
151 Id. at 1181.
152 Id.
154 824 F. 2d 1190 (D.C. Cir. 1987).
155 Chevron U.S.A. v. Natural Resources Defense Council. 467 U.S 837, 842-44 (1984) (The court must determine if the meaning of the statute is clear on its face, and if the meaning is not clear, the court must determine if the agency's interpretation of the statute is reasonable).
156 824 F. 2d 1184 (D.C. Cir. 1987).
157 Id. at 1184.
and also examined the term within RCRA and its legislative history to determine if
Congress expressed an intention to define “discarded” in other than its ordinary and
plain meaning.\textsuperscript{158} The court found that other sections of RCRA,\textsuperscript{159} and circumstances
surrounding the definition of solid waste,\textsuperscript{160} “supported this narrow reading of the term
discarded.”\textsuperscript{161} Moreover, the court, looking to the legislative history, concluded that
“Congress clearly and unambiguously” meant to limit the term “discarded” to materials
truly disposed and that EPA had exceeded its mandate and authority to regulate in-
process secondary materials.\textsuperscript{162} Consequently, the court found that RCRA did not
authorize EPA to regulate secondary materials such as those at issue in the case.\textsuperscript{163}

Shortly after this decision, EPA proposed a revised definition of solid waste.\textsuperscript{164}
As stated in the introduction of the proposed amendment, EPA would read American
Mining Congress narrowly: “The court’s decision does not affect the Agency’s
authority to regulate as hazardous wastes those secondary materials recycled in ways
where the recycling itself is characterized by discarding by the court.”\textsuperscript{165} That is,
manufacturing processes (or other types of recycling) involving an element of discard
which do not involve secondary materials passing through a continuous, on-going
manufacturing process remain within the Agency’s jurisdiction.\textsuperscript{166}

EPA proposed to amend part of the reclamation regulations, leaving without
modification the regulations dealing with the uses constituting disposal.\textsuperscript{167} burning for

\begin{footnotesize}
\begin{enumerate}
\item Id. at 1185-86.
\item Id. at 1187-89.
\item Id. at 1189-90.
\item Id.
\item Id. at 1193.
\item Id.
\item Id. at 1193.
\item Identification and Listing of Hazardous Waste; Amendment of the Definition of
\item Id. at 520.
\item Id.
\item Id. at 521-22.
\end{enumerate}
\end{footnotesize}
energy recovery (exempting in-house petroleum recycling that uses secondary materials to produce fuels),\(^{168}\) speculative accumulation,\(^{169}\) and inherently waste-like materials.\(^{170}\) The proposal included a list of factors to determine whether secondary materials that did not pass through an ongoing production process were solid waste.\(^{171}\)

(b) **AMERICAN PETROLEUM INSTITUTE v. EPA (API)**

The second case, *American Petroleum Institute v. EPA (API)*,\(^{172}\) involved a challenge by the Natural Resources Defense Council, Chemical Waste Management, Inc., and the Hazardous Waste Treatment Council to EPA's determination that it lacked authority to promulgate treatment standards for K061, a zinc-bearing listed hazardous waste.\(^{173}\) In that rule (Agency's "first-third" land disposal restriction rule), EPA took the position that while K061-listed hazardous waste (emission control dust/sludge from the primary production of steel in electric furnaces) is a solid and hazardous waste when it is generated, it ceases to be a solid and hazardous waste when it is processed in a metal reclamation facility because at that point it is no longer discarded material.\(^{174}\) In reaching this decision, EPA relied heavily on AMC I, which essentially said EPA could

\(^{168}\) *Id.* at 522.

\(^{169}\) *Id.* at 523.

\(^{170}\) *Id.* at 519.

\(^{171}\) ROBERT V. PERCIVAL, ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 237 (1992) (citing 53 Fed. Reg. 35,415 (1988) (The factors are: (1) Whether the material is typically discarded on an industry-wide basis, (2) whether the material is replacing a raw material when it is reclaimed, (3) the relation of the recovery practice to the principal activity of the facility, (4) whether the material is handled or stored prior to reclamation in a manner that minimizes loss and prevents releases to the environment, and (5) other factors, such as the length of time the material is accumulated)).

\(^{172}\) 906 F.2d 729 (D.C. Cir. 1990).

\(^{173}\) *Id.* at 732, 734.

\(^{174}\) *Id.* at 740, See also 42 U.S.C. § 6924 (g) (1994) (Congress divided all hazardous wastes into five basic categories for the land ban provision: solvents and dioxins, the California listed wastes, and three listed groups of hazardous wastes referred as the "first", the "second" and the "third" thirds. The "first" third contains provisions concerning a special treatment standard for land disposal for only one-third of the listed hazardous wastes under EPA's RCRA program).
not treat secondary materials as solid wastes if they “are recycled and reused in an ongoing manufacturing or industrial process.” 175

The D.C. Circuit disagreed with EPA’s position, noting that in AMC I it held that secondary material would not be considered solid waste if it is reused in an ongoing manufacturing or industrial process within the generating industry. The court said that was not the situation with respect to K061-listed hazardous waste because it had left the process, had been discarded, and was being reclaimed to meet the waste treatment requirements in EPA’s land disposal restriction rules. 176 The court remanded the case to EPA for additional rulemaking consistent with its opinion. 177 Moreover, the court also reaffirmed the immateriality of whether the reclamation process produced something of value. 178 The main thing, instead, is on whether a material has been discarded. 179

Both AMC I and API addressed the issue of whether a specific secondary material was discarded, and thus within RCRA’s regulatory boundary, or still part of the ongoing production process, and therefore not subject to Subtitle C. 180 In API, the court’s opinion relied on the principle that K061 slag was discarded before being subject to further reclamation, and not on the critical issue, that is, the gap between the dust’s production and its reclamation. 181 Although API could be viewed as involving two separate processes, the steel manufacturing process and the zinc reclamation process, the court did not explain its reasoning by making this critical distinction, nor

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175 Id. at 741 (citing AMC I, supra note 148, 824 F.2d at 1186).
176 Id.
177 Id. at 729, 742.
178 Id. at 741 n. 16.
179 Id.
180 Needleman, supra note 21, at 1008.
181 Id., at 1008, See also 906 F.2d at 741 (D.C. Cir. 1990).
explained where the ongoing process starts and ends. All these contributed to “[s]owed the seeds for future litigation on this issue.”

(c) American Mining Congress v. EPA (AMC II)

In American Mining Congress v. EPA (AMC II), petitioners challenged EPA’s decision to relist as hazardous waste six wastes generated during the primary metals smelting process. Specifically, petitioners argued that the relisting was beyond EPA’s statutory authority because three of the six materials, which in the future may be reclaimed, were not discarded and hence not subject to classification of solid wastes.

The materials at issue were sludges from surface impoundments used to treat waste waters from primary smelting operations. Petitioners claimed that the sludge, that precipitates from the waste waters stored in surface impoundments, may be reclaimed at sometime in the future and therefore is not discarded. On the other hand, EPA argued that the sludges were discarded, and because of this, subject to regulation.

The petitioners relied on AMC I’s proposition that the Agency could not regulate secondary materials that were part of the ongoing production process as solid waste. The court held that nothing in AMC I precluded EPA from treating as discarded wastes such as those here that are managed in land disposal units that are part of wastewater treatment systems, which have therefore become part of the waste disposal problem, and which are not part of an ongoing process. The decision in AMC I only applied to

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182 Needleman, supra note 21, at 1009.
183 Id., at 1009.
184 907 F2d. 1179 (D.C. Cir. 1990).
185 Id. at 1181-82.
186 Id. at 1184.
187 Needleman, supra note 21, at 1009-1010.
188 907 F2d. 1179, 1186 (D.C. Cir. 1990).
189 Id. at 1185-86.
190 Id. at 1186.
191 Id.
materials destined for “immediate reuse” in another part of the ongoing production process.\textsuperscript{192} To say the contrary is to read the holding in \textit{AMC I} too broadly.\textsuperscript{193} The court concluded that the petitioner’s approach had been recently rejected in \textit{API}.\textsuperscript{194} Therefore, the court held that EPA’s interpretation of the term “discarded” was consistent with RCRA’s statutory purposes, and consequently, EPA could regulate these secondary materials.\textsuperscript{195}

Both \textit{API} and \textit{AMC (II)} dealt with materials that were derived from sludges form waste treatment facilities and were intended ultimately for recycling.\textsuperscript{196} The key factors of this two cases were their focus on whether the materials immediately reused within the generating industry and whether they had become part of the waste disposal problem.\textsuperscript{197}

Determining that a material is a solid waste demands a complex analysis of de statutory and regulatory definitions. Although any garbage, refuse, sludge or any other discarded materials are likely to be considered solid wastes, it is necessary to analyze the statutory exclusions (e.g., household wastes or radioactive materials) and the exclusions regulated by EPA (e.g. in situ mining materials) before making this determination.\textsuperscript{198}

It is also important to consider what EPA understands for “discarded material”, that is, any material that has been abandoned (disposed of, burned or incinerated, or managed before or in lieu of disposal or burning), recycled (considering the nature of the material, the process to which is subjected, the process-specific exclusions and the

\textsuperscript{192} Id.
\textsuperscript{193} Id.
\textsuperscript{194} Id.
\textsuperscript{195} Id. at 1187.
\textsuperscript{196} GABA, STEVER, supra note 38, § 2.03 (6) (c) at 41.
\textsuperscript{197} Id.
facility-specific case by case variances), or it is an inherently waste-like material.\textsuperscript{199} Furthermore, this analysis would not be completed if the decisions of the courts, regarding this topic, are not considered in it.\textsuperscript{200} Consequently, the complex regulations of solid wastes demand a very carefully examination of the statute, regulations and the decisions of the courts in order to determine whether the material is a "solid" waste.

\textbf{C- Hazardous Waste Determination}

Once it has been determined that a material meets the definition of solid waste, that it is not subject to an exemption, and that it is a waste within the meaning of the statute and the regulations, it is possible to focus on whether the waste is hazardous and within the scope of Subtitle C of RCRA. This is addressed by examining first the statutory and regulatory definitions, characteristics that are helpful in identification and second regulatory listings which are determinative. Also it is necessary to consider the several exceptions and exemptions that render materials which might otherwise be hazardous waste beyond the reach of RCRA.

\textbf{(1) Statutory Definition}

The term hazardous waste is defined in the RCRA law itself as a:

[s]olid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.\textsuperscript{201}

\textsuperscript{199} 40 C.F.R. § 261.2 (a) (1996).
\textsuperscript{200} American Mining Congress v. EPA (824 F. 2d 1177 (D.C. Cir. 1987), American Petroleum Institute v. EPA (906 F. 2d 729 (D.C. Cir. 1990) and American Mining Congress v. EPA (907 F. 2d 1179 (D.C. Cir. 1990).
The standard that arises from the definition is structured to be both preventive and anticipatory. The exposure to the waste need not clearly cause harm to be hazardous; it can either cause or significantly contribute to an illness, or can also pose a substantial present or potential hazard when it is improperly managed.

The standard in the statutory definition provides the Agency with broad authority to determine and regulate hazardous wastes. Consequently, EPA can regulate hazardous waste management activities in order to prevent reasonable mismanagement scenarios before any incidents have occurred. For this reason, the regulatory definition established by EPA is the key to determine whether a solid waste is a hazardous waste.

(2) Regulatory Definition

EPA has developed regulations for determining whether a solid waste has to be considered a hazardous waste. First, a solid is a hazardous waste if it exhibits a hazardous characteristic. Second a solid waste is a hazardous waste if it has been specifically listed as hazardous waste by EPA. The third way a material may become a hazardous waste is under the mixture rule. Finally, a material may be a hazardous waste under the derived-from rule.

The court in United States v. Recticel Foam Corp. gave an outline for a sequential evaluation process from EPA documents. The process is in the form of question leading through a decision tree:

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202 FORTUNA, LENNETT, supra note 42, at 26.
203 Id.
204 Id.
205 Id.
206 40 C.F.R. § 261.3 (a) (i) (1989).
207 40 C.F.R. § 261.3 (a) (ii) (1989).
208 40 C.F.R. § 261.3 (a) (2) (iii) (1989).
209 40 C.F.R. § 261.3 (c) (2) (i) (1989).
- Is the solid waste excluded in 40 C.F.R. § 261.4 (b)?
- If yes, the evaluation ends (40 C.F.R. § 261.3 (a) (1)).
- If no: Does the solid waste meet the criteria of 40 C.F.R. § 261.3 (a) (2) (i) as a characteristic solid waste?
  - If yes, the waste is hazardous and the evaluation ends.
  - If no, is the waste listed in Subpart D of 40 C.F.R. and not excluded under Sections 261.20 and 216.22 ? (40 C.F.R. § 261.3 (a) (2) (ii)).
    - If no, is the solid waste a mixture listed in Subpart D because it has the characteristics of hazardous waste identified in Subpart C ? (40 C.F.R. § 261.3 (a) (2) (iii)).
      - If not, it is a mixture of solid wastes and hazardous wastes listed in Subpart D (40 C.F.R. § 261.3 (a) (2) (iv) ?
        - If not, the waste is not hazardous.
        - If the waste is listed pursuant to 40 C.F.R. § 261.3 (c), it remains hazardous so long as it meets the criteria.

The process to determine that a solid waste is a hazardous waste is very complex, and needs a very carefully analysis in each case. For this, it is necessary to understand the different terms established by EPA in the regulation.

(a) LISTED HAZARDOUS WASTE

In determining if a solid waste is hazardous a generator must first look if the waste is listed by EPA. EPA has listed hazardous wastes based on the criteria set forth in 40 C.F.R. § 261.11. Therefore, a waste can be listed if it exhibits one of the four characteristics.\(^\text{211}\) It may also be listed if the solid waste has been found to be fatal in humans in low doses or, in the absence of human data, has been shown to be dangerous

\(^\text{211}\) 40 C.F.R. § 261.11 (a) (1) (1996) (The characteristics are: ignitability, corrosivity, reactivity and toxicity).
in animal studies. Finally if the solid waste contains any of the specific toxic chemicals found in appendix VIII of part 261, it can be listed, unless the Agency determines that it will not present a substantial present or potential risk to human health or the environment if it is mismanaged.

The application of these criteria always involves a judgment by the EPA. For instance, the toxicity listing involves determinations about various factors, including the concentration and bioaccumulation potential of the toxic constituents, their fate and possible chemical alteration in the environment, and likelihood and consequences of possible mismanagement. Based upon the criteria EPA established three hazardous waste lists:

*Hazardous Wastes from Non-Specific Sources:* These wastes are commonly called the “F wastes” because the waste codes begin with an F. The wastes generally consist in spent solvents (F001 to F005 apply to a series of spent solvents), and electroplating wastes (F006 to F009 apply to a series of treatment sludges and plating bath residues from electroplating operations).

*Hazardous Waste from Specific Sources:* This category consists of the “K” wastes. These wastes are generally residues from manufacturing and waste water treatment processes. An example is K049, which is “slop oil emulsion solids from the petroleum refining industry.”

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212 40 C.F.R. § 261.11 (a) (2) (1996).
213 40 C.F.R. § 261.11 (a) (3) (1996) (This list of toxic constituents is found in Appendix VIII of part 261, which has the candidates for listing; it will not be a listed waste unless and until it is listed in any of the three categories).
214 GABA, STEVER, supra note 38, § 2.04 (1) (b) at 43.
219 40 C.F.R. § 261.32 (Table) (1996).
**Unused Discarded Commercial Chemicals Products:** These are called “P and U” wastes. This list consists of two parts: acutely hazardous wastes (the “P list”), and non acutely hazardous wastes (the “U list”). For a waste to be categorized as a U or P waste, it must be a commercial chemical product in an unused form and it must be intended to be discarded or spilled, in which case the spill cleanup residue attains the appropriate U or P code listing.

(i) **DELISTING PROCESS**

Once a waste has been listed and classified as a hazardous waste it generally remains listed and hazardous regardless of what it is done to it. There is only one way to terminate the status as a hazardous waste for a listed hazardous waste, and that is the delisting process regulated by EPA. A waste generator may petition EPA to delist their waste. The delisting process is normally undertaken on a case-by-case basis; generators submit delisting petitions requesting that the specific waste at their facility be removed from classification as hazardous. They must demonstrate that the wastes are not hazardous based on the original listing criteria and that the wastes do not contain any other appendix VIII constituents or exhibit any of the hazardous waste characteristics. Basically, the generator must consider the factors for which the waste was listed and demonstrate that the waste is non-hazardous for the constituents listed in

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221 BERGESON, supra note 218, at 24.
222 WAGNER, supra note 23, at 32 (If the intention is to use it or to recycle it, the material can be stored without RCRA restraints. Nevertheless, when a U or P code product is mixed with used oil or other material and applied to the land as a dust suppressant or for road treatment, or they are applied to the land in lieu of their original intended use, or they are contained in products that are applied to the land in lieu of their use, or they are used as a fuel, are not included in the definition of recycling activities).
224 BERGESON, supra note 218, at 24.
227 BERGESON, supra note 218, at 24.
Appendix VII. To do this, the generator must comply with all the requirements set by EPA for the delisting petition. On the other hand, EPA must determine whether the waste is hazardous for reasons other than those for it was originally listed. In addition, the Agency must provide opportunity for notice and public hearing before granting or denying a petition on the bases on these additional factors and/or constituents.

The process of delisting is a time-consuming procedure (in some cases it took more than decade) and it requires hundred of thousands of dollars without guarantee that the delisting petition will be approved.

(b) CHARACTERISTIC HAZARDOUS WASTE

Solid wastes that are not listed may still be considered hazardous wastes if they exhibit one or more of the hazardous waste characteristics. The way to determine whether a waste is legally hazardous is by conducting EPA-specific laboratory test. The responsibility for determining whether a waste exhibits a characteristic rests with the generator. These tests are designed to show whether a waste has one of the four characteristics that would tend to make it dangerous: Ignitability, corrosivity, chemical reactivity or toxicity.

*Ignitability*: This characteristic identifies solid wastes that are capable of causing a fire or exacerbating a fire once it has started during routine handling of material. For liquids, ignitability is defined as an aqueous solution containing less than 24 % alcohol by volume, with a flash point of less than 60 degrees Centigrade (140 degrees

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228 FORTUNA, LENNETT, *supra* note 42, at 51.
Fahrenheit).\textsuperscript{236} For ignitable non-liquids, it is defined as those which under normal conditions can cause fire through friction, absorption of moisture, or spontaneous chemical changes, and can burn so vigorously when ignited that it creates a hazard.\textsuperscript{237} For ignitable compressed gas, it is defined by the Department of Transportation (DOT) in 49 C.F.R. § 173.300.\textsuperscript{238} And finally, for oxidizer, it is defined by DOT in 49 C.F.R. § 173.151.\textsuperscript{239}

**Corrosivity:** The corrosivity characteristic is based on the pH of the material or its ability to corrode steel under specific test conditions.\textsuperscript{240} It is considered that the material meets this criteria when it is aqueous and has a pH of 2 or less or 12.5 or more; or it is a liquid and corrodes steel at a rate of 6.35 mm or more per year at a test temperature of 55 degrees Centigrade (130 degrees Fahrenheit).\textsuperscript{241} As with ignitability, the regulations specify the test methods to be used and allow demonstrations for equivalent methods.\textsuperscript{242}

**Reactivity:** A waste is a reactive waste if it has the capability to explode or undergo violent chemical change during stages of its management.\textsuperscript{243} This characteristic is used to identify wastes that, because of their extreme instability and tendency to react

\textsuperscript{236} 40 C.F.R. § 261.21 (a) (1) (1994) (Liquids may be tested for ignitability by a Pensky-Martens Closed Cup Testing using ASTM Standard method D-3278-78, or an equivalent test method approved by EPA under procedures set forth in 40 C.F.R. § 260.20 and § 260.21 (rulemaking petition)).

\textsuperscript{237} 40 C.F.R. § 261.21 (a) (2) (1994).

\textsuperscript{238} 40 C.F.R. § 261.21 (a) (3) (1994) and 49 C.F.R. § 173.300 (1996) (The DOT definition of a compressed gas is “any material or mixture having in the container an absolute pressure exceeding 40 psi at 70 degrees Fahrenheit or, regardless the pressure at 70 degrees Fahrenheit, having an absolute pressure exceeding 104 psi at 130 degrees Fahrenheit; or any liquid flammable mixture having a vapor pressure exceeding 40 psi at 100 degrees Fahrenheit.”).

\textsuperscript{239} 40 C.F.R. § 261.21 (a) (4) (1994) and 49 C.F.R. § 173.151 (1996) (An oxidizer is a substance that yields oxygen readily when involved in a fire).

\textsuperscript{240} 40 C.F.R. § 261.22 (a) (1994).

\textsuperscript{241} 40 C.F.R. § 261.22 (1994).

\textsuperscript{242} Id.

\textsuperscript{243} 40 C.F.R. § 261.23 (1994).
violently or explode, pose a threat to human health and the environment at all stages of the waste handling process. Since no uniform test for all states of reactivity currently exists, the Agency has developed a list of reactions and waste conditions that are deemed to exhibit reactivity. If a representative sample of the waste has any of the following properties, it exhibits reactivity: normally unstable and readily undergoes violent change without detonation; reacts violent with water; forms potentially explosive mixtures with water; generates toxic gases or vapors in a sufficient quantity to pose a danger when mixed with water; is a cyanide - or sulfide-bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or environment; is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement; is a forbidden explosive, or is a Class A explosive, or a Class B explosive as defined in DOT regulations.

Toxicity: This characteristic measures the potential of a waste to leach toxic constituents into ground water when land disposed, assuming specific mismanagement of co-disposal in a municipal landfill situated over an aquifer. EPA in 1990 adopted the new “Toxicity Characteristic” (TC) rule, which revises the earlier “extraction procedure” or EP toxicity characteristic. The new TC rule provides that a waste is hazardous if an extract of the waste contains certain designated metals or toxic organic constituents above a defined threshold level. To determine this, EPA established a

244 Wagner, supra note 23, at 35.
245 Fortuna, Lennett, supra note 42, at 40.
246 40 C.F.R. § 261.23 (1994).
250 40 C.F.R. § 261.24 (a) (1994) (The extraction procedure of the TC is also known as the toxicity characteristic leaching procedure test (TCLP).
testing procedure that simulates a leaching action that can occur in a municipal landfill when industrial wastes were co-disposed of with non-industrial wastes.\(^{251}\)

These characteristic wastes are considered hazardous only until they no longer exhibit the hazardous characteristic.\(^{252}\) Unlike listed wastes, characteristic wastes are not subject to the mixture and derived-from rule, therefore, if they are mixed with a substance other than a listed waste they need to be managed as hazardous only as long as they continue to exhibit hazardous characteristic.\(^{253}\) When EPA issued the hazardous waste regulations in 1980, the Agency explained the basic approach that “[w]aste mixture are treated just like any other solid waste, i.e. they will be considered hazardous only if they exhibit the characteristic.”\(^{254}\) Explaining the consequence of this approach, “EPA recognizes that this may allow some wastes to escape regulation by being mixed with other wastes or other materials.” \(^{255}\) The Agency concluded that this consequence was necessary to preserve the consistency of the regulatory scheme.\(^{256}\)

(c) **The Mixture Rule**

The “mixture rule” states that the entire volume of mixed waste that includes any listed hazardous waste is regulated as a hazardous waste, regardless of the concentration of the listed waste in the mixture.\(^{257}\) This rule is structured to prevent “dilution from being the solution to pollution.”\(^{258}\) Although this principle holds for most listed wastes mixtures, the listed waste that is listed solely because it exhibits a hazardous waste characteristic, it may be removed from the hazardous waste regulation


\(^{252}\) PERCIVAL, et al., supra note 4, at 237.

\(^{253}\) Id.

\(^{254}\) Id.

\(^{255}\) Id.

\(^{256}\) Id.

\(^{257}\) 40 C.F.R. § 261.3 (a) (2) (iii), (iv) (1994).

\(^{258}\) FORTUNA, LENNETT, supra note 42, at 45.
if the mixture no longer exhibits the hazardous waste characteristic. On the other hand, a listed waste that it is listed not because of its hazardous waste characteristic, is mixed with a solid waste always remains hazardous until it is delisted. Nevertheless, if the generator can demonstrate that the mixture consists of wastewater (discharge subject to regulation under either section 402 or section 307 (b) of the Clean Water Act), and the hazardous waste mixed is a carcinogenic spent solvent, non-carcinogenic spent solvent, discarded commercial chemical products, or wastewaters resulting from laboratory operations, in the proportions required by the regulation, the mixture will be exempt.

(d) The "Derived From" Rule

Any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge (pollution control residue), spill residue, ash, leachate (not including precipitation run-off), or emission control dust, will remain a hazardous waste unless it is delisted, or, in the case of characteristic waste, the waste no longer exhibits the characteristic. Thus, in the case of treatment residues generated from the treatment of a listed waste, all of the residues remain hazardous unless

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259 40 C.F.R. § 261.3 (a) (2) (iii) (1994).
260 FORTUNA, LENNETT, supra note 42, at 45.
261 40 C.F.R. § 261.3 (a) (2) (iv) (A)-(E) (1994).
262 40 C.F.R. § 261.3 (c) (i) and (c) (ii) (1994) (The following solid wastes are not hazardous even though they are generated from the treatment, storage, or disposal of a hazardous waste, unless they exhibit one or more of the characteristics of hazardous waste: (A) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC Codes 331 and 332); (B) Waste from burning any of the materials exempted from regulation by § 261.6(a)(3) (iv) through (vi); (C) (1) Non-wastewater residues, such as slag, resulting from high temperature metals recovery (HTMR) processing of K061, K062 or F006 waste, in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace/electric furnace combinations or industrial furnaces (as defined in paragraphs (6), (7), and (13) of the definition for "Industrial furnace" in 40 CFR § 260.10), that are disposed in subtitle D units, provided that these residues meet the generic exclusion levels identified in the tables in this paragraph for all constituents, and exhibit no characteristics of hazardous waste).
specifically delisted. On the other hand, any waste derived from the treatment, storage, or disposal of a characteristic waste is hazardous only if it continues to exhibit a hazardous waste characteristic.

There are also others special categories of hazardous waste. These categories are found in different sections throughout the regulations and they include wastes contained in non-wastes (Contained-In rule), medical wastes, and low-level radioactive mixed wastes.

(3) EXCLUSION FROM CLASSIFICATION AS A HAZARDOUS WASTE

Although certain solid wastes may otherwise be classified as hazardous, EPA has excluded certain wastes from hazardous waste classification. These excluded wastes include:

- All household wastes and resource recovery facilities that burn only household waste (Hotel, motel, septic sewage, and camp-ground waste are all considered household waste).

- Manure and crops returned to the soil as fertilizers.

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263 FORTUNA, LENNETT, supra note 42, at 48.
264 BERGESON, supra note 218, at 27.
265 Office of Solid Waste and Emergency Response, Directive 9481.00-6 (For example, if a surface impoundment leaks a listed hazardous waste into the groundwater or soil, the groundwater or soil contaminated with hazardous waste must be handled as if the groundwater or soil themselves were hazardous because the hazardous waste leachate is subject to regulation under Subtitle C of RCRA).
266 40 C.F.R. § 259.10 (a) (1994) (Medical waste means solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals).
267 Office of Solid Waste and Emergency Response, Directive 9440.00-1 (If a low-level radioactive waste contains a listed or characteristic hazardous waste, the material is classified as a mixed low-level waste and must be managed and disposed in compliance with EPA regulations).
270 40 C.F.R. § 261.4 (b) (2) (1996).
- Mining overburden returned to the mine from mining operations.\textsuperscript{271}

- Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.\textsuperscript{272}

- Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy.\textsuperscript{273}

- Wastes containing primarily trivalent chromium instead of hexa-valent chromium and specified wastes from the tannery industry.\textsuperscript{274}

- Specified solid wastes from the extraction and beneficiation of ores and minerals.\textsuperscript{275}

- Cement kiln dust.\textsuperscript{276}

- Discarded wood that fails only the toxicity characteristic test for arsenic as a result of being treated with arsenical compounds.\textsuperscript{277}

- Petroleum contaminated media and debris that fails only the toxicity characteristic and are subject to the corrective action requirement under 40 C.F.R. Sec. 280, underground storage tanks.\textsuperscript{278}

- Certain operations involving produced groundwater from free phase hydrocarbon recovery at petroleum refineries, marketing terminals and bulk plants and free hydrocarbon recovery operations at petroleum pipeline and transportation sector spill sites.\textsuperscript{279}

\textsuperscript{271} 40 C.F.R. § 261.4 (b) (3) (1996).

\textsuperscript{272} 40 C.F.R. § 261.4 (b) (4) (1996) (The “utility waste exemption”).

\textsuperscript{273} 40 C.F.R. § 261.4 (b) (5) (1996).

\textsuperscript{274} 40 C.F.R. § 261.4 (b) (6) (1996).

\textsuperscript{275} 40 C.F.R. § 261.4 (b) (7) (1996).

\textsuperscript{276} 40 C.F.R. § 261.4 (b) (8) (1996).

\textsuperscript{277} 40 C.F.R. § 261.4 (b) (9) (1996).

\textsuperscript{278} 40 C.F.R. § 261.4 (b) (10) (1996).

\textsuperscript{279} 40 C.F.R. § 261.4 (b) (11) (1996).
Certain chlorofluorocarbons (CFC) wastes from refrigeration units if the wastes are subsequently reclaimed for further use.\textsuperscript{280}

- Used oil filters that have been "hot-drained" of used oil.\textsuperscript{281}

(4) **Legal Status of EPA's Mixed and Derived-from Rules**

The mixture and derived-from rule were promulgated in May 1980.\textsuperscript{282} More than fifty petitions were filed challenging elements of the rule in *Shell Oil v. EPA*.\textsuperscript{283} Among other issues, Petitioners argued that EPA had violated the notice and comment requirement of the Administrative Procedure Act by failing to provide notice when it promulgated the mixture and derived-from rules and also that the rules had exceeded the EPA's statutory authority.\textsuperscript{284} The court concluded that the public had not been provided adequate notice of either the mixture or derived-from rules and that they were not a "logical outgrow" of the original proposal.\textsuperscript{285} Therefore, the court concluded that the rules must be set aside and remanded to the Agency.\textsuperscript{286} With respect of petitioners' claim that EPA’s rules had exceeded its authority under RCRA, the court did not make any ruling on the legality of this rules.\textsuperscript{287}

Following the court's suggestion that the rules be immediately reinstated under the "good cause" exemption of the Administrative Procedure Act, EPA repromulgated the rules on a interim final basis.\textsuperscript{288} The reinstated rules originally contained a "sunset"

\textsuperscript{280} 40 C.F.R. § 261.4 (b) (12) (1996).
\textsuperscript{281} 40 C.F.R. § 261.4 (b) (13) (1996).
\textsuperscript{283} 950 F.2d 741 (D.C. Cir. 1991).
\textsuperscript{284} Id. at 744-745.
\textsuperscript{285} Id. at 752 (EPA had not originally proposed the rules, nevertheless it included them in the final hazardous waste definition only based on its view that they were a necessary consequence of its revised final definition of hazardous waste).
\textsuperscript{286} Id. at 752.
\textsuperscript{287} Id. at 752.
provision which later on was withdrawn by EPA, making the mixture and derived-from rules effective until the Agency replaces them.\textsuperscript{289}

(5) The Land Ban

The RCRA Amendments of 1984 (HSWA) prohibit land disposal of all listed and characteristic hazardous wastes, unless it has been treated or meet specific standards or it qualifies under a narrow set of variances or exemptions, in order to encourage advanced treatment and recycling of waste.\textsuperscript{290} RCRA defines land disposal as “[a]ny placement of such hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave.”\textsuperscript{291} Congress divided all hazardous wastes into five basic categories: solvents and dioxins, the California listed wastes, and three listed groups of hazardous wastes referred as the “first”, the “second” and the “third” thirds.\textsuperscript{292}

For each land-banned waste, EPA has specified the best demonstrated available technology (BDAT) to be used as a requirement for handling and treatment of hazardous waste.\textsuperscript{293} Alternatively, for some wastes, EPA has not specified a BDAT and has instead banned the land disposal altogether.\textsuperscript{294} The BDAT standard either specifies a treatment technology or a concentration for each hazardous waste constituent that a treatment technology must attain before the waste can be disposed of in a land facility.\textsuperscript{295} Congress intention was to diminish the toxicity of the waste or reduce the migration of hazardous constituents from the waste so that threats to human health and


\textsuperscript{290} SOMENDU B. MAJUMDAR, REGULATORY REQUIREMENTS FOR HAZARDOUS MATERIALS, at 152 (1993).


\textsuperscript{292} 42 U.S.C. § 6924 (d), (e), (f), (g) (1994).


\textsuperscript{294} 40 C.F.R. § 268.42 (Table 1) (1996).

\textsuperscript{295} 42 U.S.C. § 6924 (m) (1994).
the environment are minimized. 296 Nevertheless, EPA is authorized by Congress to grant variances and exemptions. EPA can grant a variance for two years when there is no national capacity to treat with the best demonstrated available technology a new listed or identified hazardous waste. 297 Moreover, it can grant a variance on a case-by-case basis when a treatment or alternative disposal facility is being constructed under a binding contract. 298 On the other hand, EPA can grant an exemption for a disposal unit when the owner or operator of a facility demonstrates that there will be no migration of hazardous constituents from the disposal unit or injection zone as long as the waste remains hazardous. 299 Also it can grant an exemption when a generator can demonstrate that the alternative treatment method that is using is as effective as the one that was chosen by EPA as the BDAT. 300

HAZARDOUS WASTE DETERMINATION IN THE ARGENTINEAN LAW

A- STATUTORY AND REGULATORY DEFINITIONS

(1) GENERAL DEFINITION

The determination of a hazardous waste is regulated in the Law No. 24051 (hereinafter the Law). 301 Article 2 of the Law defines hazardous waste as any waste that

299 42 U.S.C. § 6924 (d) (1) (1994) (EPA has granted these exemption only to injection wells).
300 40 C.F.R. § 268.42 (b) (1994).
301 Law No. 24051, supra note 3, [LII-A] A.D.L.A. 52 (After any law is enacted by Congress, the Executive branch of the government has to promulgate a Regulatory Decree for the implementation of it. The Decree, in order to be constitutional, does not have to contradict the principles and rules enacted in the law by the Congress. Although the Decree can be modified by the Executive Power, the law can only be modified by other law enacted by Congress. The Executive Power has determined the way in which Law No. 24051 has to be implemented in the Decree 831/93).
can cause harm, directly or indirectly, to living beings or can pollute the ground, the water, the atmosphere or the environment. Consequently, hazardous wastes are material things or real objects which remain from any production process and that can pollute the environment or pose a dangerous hazard for any living being. Moreover, these wastes may cause harm, and do not need to cause harm in a particular case, to be considered hazardous wastes.

In addition, the regulation established in the Decree of the Law (hereinafter the Decree), defines hazardous waste for Article 2 as any material that is discarded or abandoned and may cause harm for living beings or can pollute the environment in general. Hazardous wastes are considered anything that remains from the destruction, transformation or decomposition of a material and then it is discarded or abandoned because it is useless.

Although both Acts (RCRA and the Law) regulate the materials that are discarded or abandoned, the Argentinean Law refers to them only when those materials are being discarded or abandoned and may cause harm to any living being or pollute the environment. These materials are to be considered hazardous waste. A court in a criminal case for the violation of this Act has determined that if the waste is not listed in the Annexes of the Law or if it is not defined by Article 2 it can not be considered hazardous waste. By contrast, RCRA states that the material that is discarded or abandoned is going to be a solid waste but not yet a hazardous waste. In the American

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302 Id. at Article 2, 1st paragraph.
304 Law No. 24051. supra note 3, Article 2, 1st paragraph.
305 Decree No. 831/93, Annex I (a) Glossary, April 23, 1993, B.O.
306 BUSTAMANTE ALSINA, supra note 303, at 122.
307 Decree 831/93, supra note 305, Annex I (a) Glossary (27).
308 Wentzel Jochen Ernst and others,” C. Fed. San Martin (1993-I) J.A. 247 (This criminal action was based in the article 55 of the law that punishes any person who has poisoned, adulterated, or polluted, in a dangerous way for human health, the soil, the water, the air or the environment).
Act the material that is a solid waste has to meet the requirements of the statutory and regulatory definition of hazardous waste to be regulated under Subtitle C of RCRA. Furthermore, under RCRA the material that is a solid waste, if it does not meet the requirements to be a hazardous, is going to be regulated under Subtitle D of the Act, that is, as a non-hazardous waste.

The statutory definition and the regulation in the Argentinean Act, gives to the authority\textsuperscript{309} in charge of the regulations broad power to incorporate any waste that has been discarded or abandoned and pollute the environment or may cause harm to the living beings as a hazardous waste.\textsuperscript{310} On the other hand, RCRA states that only the solid wastes that because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed are to be considered hazardous waste.\textsuperscript{311} In this respect, although both Acts refer in general to the same situations (human health and environment), the American Act is more specific in determining when those hazardous wastes may cause harm to human health or pose

\textsuperscript{309} Law No. 24051, supra note 3, Article 59 (The authority in charge of the regulations will be the higher branch of the Executive determined by it), Article 59 of the Decree No. 831/93 (Established the Secretary of Natural Resources and Human Environment as the authority for the Law No. 24051 and the Decree 831/93); Decree No. 1381, December 6, 1996, B.O. (With this Decree the name of this Secretary was changed from Secretary of Natural Resources and Human Environment to Secretary of Natural Resources and Sustainable Development).

\textsuperscript{310} Law No. 24051, supra note 3, Article 60 § (a) (Authorizes the Secretary of Natural Resources and Human Environment to determine the policies with respect of hazardous wastes), § (h) (Authorizes the Secretary of Natural Resources and Human Environment to make any rules concerning hazardous wastes).

hazard to either human health or the environment when they are improperly managed.\textsuperscript{312} For instance, RCRA refers to those situations in which the hazardous waste can affect human health, that is, significantly contribute to an increase in mortality, or serious irreversible, or incapacitating reversible, illness. On the other hand, the Argentinean law does not refer to the way in which human health can be affected by hazardous wastes. Moreover, RCRA regulates solid wastes that can pose potential harm to the environment as hazardous wastes. By contrast, the Argentinean law regulates wastes, as hazardous, only when they factually pollute the environment, and not when they can pose a potential hazard to it.

(2) Listed and Characteristics Hazardous Wastes

Article 2, 2\textsuperscript{nd} paragraph, establishes that the wastes listed in Annex I and wastes that have any of the characteristics listed in Annex II of the Law are to be considered hazardous wastes.\textsuperscript{313} The Decree establishes that for Annex I and Annex II of the Law, Annex IV of the Decree is going to determine how to identify a hazardous waste.\textsuperscript{314} The generator is the one who has to determine whether the waste which is producing could be considered as a hazardous waste under article 2 of the Law No. 24051.\textsuperscript{315}

The Argentinean Decree states that a waste may classified as a hazardous waste, first, if it has been specifically listed as hazardous waste, and second if it exhibits a hazardous characteristic established by the Law.\textsuperscript{316} This structure to determine if it is a hazardous waste is the same with RCRA. Nevertheless, the Argentinean Law has less and different listed wastes and also more characteristics that a waste can have to be considered as a hazardous waste.

\textsuperscript{312} Fortuna, Lennett, \textit{supra} note 42, at 26.
\textsuperscript{313} Law No. 24051, \textit{supra} note 3, at Article 2, 2\textsuperscript{nd} paragraph.
\textsuperscript{314} Decree 831/93, supra note 305, Article 2.
\textsuperscript{315} Decree 831/93, supra note 305, Article 14.
\textsuperscript{316} Decree 831/93, supra note 305, Annex IV (I) (a) (b).
(a) **Listed Hazardous Wastes**

Annex IV of the Decree states that the determination of whether a waste is hazardous is based on the list of Annex I of the Law which has the categories regulated under the Act.\(^{317}\) Annex I of the Law contains a list of chemical elements or compounds and also a list of industries and processes which are likely to produce wastes that have hazardous compounds.\(^{318}\)

(i) **Chemical Elements and Compounds Listed in the Annex I of the Law**

These chemical elements and compounds have been assigned with a special code. This list goes from code Y19 to Y45 and it regulates any waste which has as a constituent any of the elements or compounds in the list.

The following elements and any compound of them have been listed: beryllium; arsenic; selenium; cadmium; and lead. Multicarbide hard metals; hexavalent chrome; copper’s compounds; zinc’s compounds; antimony; tellurium; mercury; and thallium are also listed. Moreover, organic and inorganic cyanide; acid solutions or solid acids; base solutions or solid bases; asbestos’ dusts and fibers; phosphorus organic compounds; phenol; halogenated organic solvents and others solvents; ether; and others halogenated organic compounds not mentioned before in sections Y39, Y41, Y42, Y43, Y44, are regulated in Annex I of the Law.\(^{319}\) A civil court determined that a factory which was producing opal glass using arsenic in the industrial process was polluting the environment and posing substantial danger for human health and life.\(^{320}\)

\(^{317}\) Id.

\(^{318}\) Law No. 24051, supra note 3, at Annex I.

\(^{319}\) Law No. 24051, supra note 3, at Annex I (Wastes that have as a constituent any of the materials in sections Y19 to Y44 of this Annex).

\(^{320}\) “Duarte, Duarte y otros v. Fabrica Argentina de Vidrios y Revestimientos de Opalinas Hurlingham, S.A.,” 1a Inst., Jun. 25 1992, (visited March 14, 1998) <http://www.customw.com/ecoweb/notas/juridicas/961014_7.htm> (This case was decided based on the general rules of liability of the Argentinean Civil Code. This rules have been adopted to regulate liability in the Law No. 24051).
These elements are to be considered highly or not highly dangerous. The regulation has established tables with the concentration of each of these wastes to determine if they are highly dangerous or not.

(ii) INDUSTRIES AND PROCESSES

There are certain industries and processes which are likely to produce wastes with hazardous constituents, and because of that they are regulated by this Act. This list goes from code Y1 to Y18, and states different wastes that are the result of a particular process or operation in several special industries.

Among others, the wastes listed in this part of the Annex are: human and animal medical wastes from hospitals or clinics; pharmaceutical wastes from the production and preparation of pharmaceutical products and wastes from medicines and pharmaceutical products for human or animal health care; wastes from the production, preparation or utilization of phytosanitary’s products, of chemicals products for wood preservation, of organic solvents, of dyes, colorings, pigments paints or lacquers, of latex resins, lamination treatments or adhesive materials, and of chemical products and photographic materials; wastes with cyanide from heat-treatment and tempering operations; mixtures and emulsions of oil and water or hydrocarbon and water; substances and wastes containing PCB, PCT, PBB; tarred wastes from refining or distillation; explosive wastes not regulated in other law; wastes from the treatment of metal and plastic surfaces and wastes from disposal operations of industrial wastes.

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321 Regulation No. 224/94, Jun. 1, 1994, B.O. (The Secretary of Natural Resources and Human Environment has passed this regulation in other to distinguish different generators that produce highly or not highly dangerous wastes).
322 Regulation No. 224/94, Annex A; See also BUSTAMANTE ALSINA, supra note 303, at 128.
323 Law No. 24051, supra note 3, at Annex I.
324 Law No. 24051, supra note 3, at Annex I (Wastes from industries and processes).
325 Law No. 24051, supra note 3, at Annex I (Wastes from industries and processes with codes Y1 to Y18).
All these wastes, no matter their concentration, are considered highly dangerous, only with the exception of those that are product of the disposal operations of industrial wastes. These wastes, that are product of the disposal operations of industrial wastes, are to be considered highly dangerous or not depending on the concentration of the hazardous constituent.

This list of hazardous waste was determined by the Executive branch of the government and it can only be modified by the Secretary of Natural Resources and Human Environment with a special regulation. Unlike the American legislation, there is no delisting process in the Argentinean Law.

(b) CHARACTERISTIC HAZARDOUS WASTES

The Annex II of the Law regulates what are called characteristic hazardous wastes. Wastes that are not listed may still be considered hazardous wastes if they exhibit one or more of the hazardous waste characteristics. The way to determine whether a waste is a characteristic hazardous is by conducting specific laboratory test and the responsibility for determining whether a waste exhibits a characteristic rests with the generator. There are different characteristics:

Ignitability: This characteristic identifies any waste that is capable of causing a fire when, under normal conditions, it is stored, transported, handled or disposed of.

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326 Regulation No. 224/94 (A); See also BUSTAMANTE ALSINA, supra note 303, at 128.
327 Id.
328 Decree 831/93, supra note 305, Article 2 (The article 64 of the Law No. 24051 gives the Secretary the authority to regulate; and the article 2 of the Decree establishes that the Secretary has to consider the incorporation or delisted of the any of the wastes in the Annex I and II at least once a year).
329 Law No. 24051, supra note 3, at Annex II (The characteristic enunciated in this Annex were taken from the United Nations classification).
330 Law No. 24051, supra note 3, article 2, 2nd paragraph.
331 Decree 831/93, supra note 305, Annex IV (This Annex determines all the characteristics and also the tests for deciding whether a waste has any of the characteristics that would tend to make it hazardous).
332 Decree 831/93, supra note 305, Annex IV (II) (A).
Also, when it can exacerbate a fire once it has started during routine handling of the material. Also, substances or wastes that in contact with water can spontaneously ignite or emit ignitable gases are to be considered hazardous wastes. And finally, oxidizers that are those wastes or substances which eliminating oxygen can cause fire or contribute for the combustion of other materials. For each of these characteristic hazardous wastes the regulation has a specific laboratory test.

**Corrosivity:** Materials with corrosivity characteristics are those that because of chemical reactions can cause serious damage to living (organic) tissues, or in case of leaking can destroy or harm goods or the vehicles in which they are transported. The corrosivity characteristic is based on the pH of the material or its ability to corrode steel under specific test conditions. As with ignitability, the regulations specify the test methods to be used. This characteristic is also regulated in RCRA. Both regulations have the same parameters to determine whether a material has this characteristic.

333 *Id.*
334 Decree 831/93, *supra* note 305, Annex IV (II) (A) (1), (2), (4); *See* Law No. 24051, *supra* note 3, at Annex II (H3) (Definition for liquids that are ignitable) and (H4.1) (Definition for solids that are ignitable).
335 Decree 831/93, *supra* note 305, Annex IV (II) (A) (3); *See* Law No. 24051, *supra* note 3, at Annex II (H4.3).
336 Decree 831/93, *supra* note 305, Annex IV (II) (A) (5); *See* Law No. 24051, *supra* note 3, at Annex II (H5.1).
338 Law No. 24051, *supra* note 3, at Annex II (H8).
339 Decree 831/93, *supra* note 305, Annex IV (II) (B) (Conditions that an aqueous and liquid material have to meet to be considered a material which has corrosive characteristics. It is considered that the material meets this criteria when (1) it is aqueous and has a pH of 2 or less or 12.5 or more; (2) or it is a liquid and corrodes steel (SAE 1020) at a rate of 6.35 mm or more per year at a test temperature of 55 degrees Centigrade).
340 *Id.*
341 40 C.F.R. § 261.22 (a) (1994).
Reactivity: A waste is a reactive waste if it has the capability to explode or undergo violent chemical change and because of their extreme instability and tendency to react violently or explode, pose a threat to human health and the environment.\textsuperscript{342} The Executive branch in the Decree has developed a list of reactions and waste conditions that are deemed to exhibit reactivity.\textsuperscript{343} These conditions are similar to the ones in the RCRA regulations.\textsuperscript{344} If a representative sample of the waste has any of the following properties, it exhibits reactivity: normally unstable and readily undergoes violent change without detonation,\textsuperscript{345} reacts violent with water,\textsuperscript{346} forms potentially explosive mixtures with water;\textsuperscript{347} generates toxic gases or vapors in a sufficient quantity to pose a danger to health or the environment when mixed with water,\textsuperscript{348} is a cyanide- or sulfide-bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or environment;\textsuperscript{349} is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;\textsuperscript{350} is an explosive, that is, any substance or mixtures that can produce exothermic reactions with gases.\textsuperscript{351}

Leaching Wastes: These are wastes that can leach causing concentrations of dangerous constituents if they are disposed of in non-appropriate conditions.\textsuperscript{352} The

\textsuperscript{342} Decree 831/93, supra note 305, Annex IV (II) (D) (This section includes also the hazardous wastes with H8 code in the Annex II of the Law No. 24051 (Corrosive Substances or wastes)).
\textsuperscript{343} Id. at Annex IV (II) (D), 2\textsuperscript{nd} paragraph.
\textsuperscript{344} 40 C.F.R. Sec. 261.23 (1994).
\textsuperscript{345} Decree 831/93, supra note 305, Annex IV (II) (C) (1).
\textsuperscript{346} Decree 831/93, supra note 305, Annex IV (II) (C) (2).
\textsuperscript{347} Decree 831/93, supra note 305, Annex IV (II) (C) (3).
\textsuperscript{348} Decree 831/93, supra note 305, Annex IV (II) (C) (4).
\textsuperscript{349} Decree 831/93, supra note 305, Annex IV (II) (C) (5).
\textsuperscript{350} Decree 831/93, supra note 305, Annex IV (II) (C) (6).
\textsuperscript{351} Decree 831/93, supra note 305, Annex IV (II) (C) (8).
\textsuperscript{352} Decree 831/93, supra note 305, Annex IV (II) (D).
Annexes V and VI of the Decree have established the chemical and physical parameters for sludges, so they can be disposed of in household wastes landfills but in different cells.\textsuperscript{353} This characteristic regulates the same situations described in the toxicity characteristic in RCRA, although both regulations have named it different.

These four characteristics are regulated in both countries. These are the only four characteristics that RCRA regulates.\textsuperscript{354} Unlike RCRA regulations, the Argentinean law has other characteristics that are going to make a waste become hazardous.\textsuperscript{355} The following are those other characteristics:

\textit{Toxicity:} A waste has these characteristic when can cause, because a chemical or physicochemical action, harm to the health, after getting in contact with the skin or the mucus, or in any way has got into the organism.\textsuperscript{356} The Decree for this these characteristic has a special laboratory study and also distinguishes between toxicity which can affect humans and the one that can affect the environment.\textsuperscript{357}

Wastes that can cause an infectious illness are to be considered hazardous waste.\textsuperscript{358} A waste is going to be considered an infectious waste if it has microbes which can cause an infectious illness in a host, that is, a person or animal.\textsuperscript{359} This section refers to those infectious wastes and substances defined in the Annex II of the Law No. 24051

\textsuperscript{353} Decree 831/93, \textit{supra} note 305, Annex V and VI.
\textsuperscript{355} Decree 831/93, \textit{supra} note 305, Annex IV (II).
\textsuperscript{356} Decree 831/93, \textit{supra} note 305, Annex IV (II) (E) (These section refers to the codes H6.1 (Substances or wastes which can cause the death of a person or can harm seriously his health if they are ingested, inhaled or they get in contact with the skin), H11(Toxic substances which can cause harm with chronic or delay effects), H12 (Substances which could cause harm to the environment because of bioaccumulation or its toxic effects in the biotic systems)).
\textsuperscript{357} \textit{Id.} (Toxicity is analyzed by testing the medium lethal dose of a substance (LD 50), and also by considering if it can cause or contribute to cause any seriously illness and illnesses which can cause disabilities).
\textsuperscript{358} Decree 831/93, \textit{supra} note 305, Annex IV (II) (F).
\textsuperscript{359} \textit{Id.}
with the code H6.2. Also, refers to those human and animal wastes from hospitals and clinics and medicines and pharmaceutical products for human and animal health care by giving a list of what is going to be considered infectious wastes and therefore hazardous wastes. EPA has regulated medical wastes in 40 C.F.R. § 259.10 (a). Medical waste is defined by EPA as "solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals." Although both regulations deal with the same kind of hazardous medical wastes, the Decree regulates them as characteristic hazardous wastes and RCRA has considered them as a special category of hazardous wastes.

Wastes that can cause the death of the fetus or can cause the death of the embryo or cause any problem that can affect the corporal or intellectual development of the fetus are considered hazardous wastes. Moreover, wastes that can cause mutations in genetic materials, as somatic cells, or that can cause cancer are also going to be considered hazardous wastes. Although, there is no existing laboratory test in the Decree for this characteristic waste, the Decree has established that the Secretary of Natural Resources and Human Environment has to list those substances and products which can cause any of the risks mentioned before.

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360 Id.
361 Id. (This are listed with codes Y1, Y2, and Y3. The Table 2 of the Annex IV has determined the infectious wastes. For instance, wastes from isolated patients, human blood, pathologic wastes, and death animals under biological investigations, among others).
362 40 C.F.R. § 259.10 (a) (1994).
363 Wagner, supra note 23, at 37 (This author have grouped different categories of hazardous wastes that are found in different sections throughout the regulations as a special category (e.g. low level radioactive mixed wastes, and medical wastes)).
364 Decree 831/93, supra note 305, Annex IV (II) (G).
365 Decree 831/93, supra note 305, Annex IV (II) (H).
366 Decree 831/93, supra note 305, Annex IV (II) (I).
367 Decree 831/93, supra note 305, Annex IV (II) in fine.
(3) RECYCLED ACTIVITIES ALLOWED BY THE LAW

In the Annex III of the Law No. 24051, section B, Congress has enumerated those “operations that can lead to the recovery of a resource, the recycling, regeneration, direct reutilization, and other uses.”\(^368\) This section regulates any operation made with materials that are considered hazardous wastes.\(^369\) This operations or activities are: use as a fuel, unless they are used for direct incineration, or other means to generate energy; recovery or regeneration of solvents; recycling or recovery of organic substances that are not use as solvents, or metals, or metallic compounds, or other inorganic materials; regeneration of acids or bases; recovery of components used to reduce pollution, or components from catalysts; regeneration or reuse of used oils; soil treatment which can benefit agriculture or ecologically improve it; any use of residual materials from the operations mentioned before; or any accumulation of materials which will be subjected to the any of the operations mentioned before.\(^370\)

This Annex contemplates only the use, recycling, regeneration, recovery and direct reuse of the materials that are considered hazardous wastes. Most of them, if not all, are produced by industrial activities.\(^371\) Many companies dispose of their wastes, which otherwise can be recycled, in a manner that is not legal (e.g. in an open dump), and therefore not good for the environment or human health. This is consequence of the lack of control of the Argentinean government, produced by the lack of technological and administrative resources, in order to enforce the Law.\(^372\) Nevertheless, treatment or disposal facilities must treat hazardous wastes in a way which can eliminate the

\(^{368}\) Law No. 24051, supra note 3, at Annex III (B).

\(^{369}\) Id.

\(^{370}\) Id.


\(^{372}\) Id.
hazardous constituents of it, recovering energy and materials, or in a way which can obtain a less hazardous waste able to be disposed of.\textsuperscript{373}

(4) \textbf{Exclusion from Classification as a Hazardous Waste}

The last paragraph of the Article 2 of the Law states that household wastes, radioactive wastes and those wastes that are the result of normal operations from ships or vessels are going to be excluded from the regulation of this law.\textsuperscript{374}

Radioactive wastes are also regulated in the Decree.\textsuperscript{375} The Decree gives the definition of radiation stating it as the emission of alpha, beta, gamma or X-rays, or high energy electrons, protons or other atomic particles.\textsuperscript{376} Nevertheless, the Decree states that these characteristic wastes are beyond the regulation of this law, and the authority in charge of regulate them is going to be the National Commission of Atomic Energy.\textsuperscript{377}

Household wastes are those wastes generated in residential houses, hotels and motels which are going to be gathered by special companies that are in charge to flatten them so they can be disposed of in landfills.\textsuperscript{378} These wastes are also regulated in RCRA as wastes which are excluded from the classification of hazardous wastes.\textsuperscript{379}

Finally, those wastes that are the result of normal operations from ships or vessels are going to be regulated by different national laws or international agreements.\textsuperscript{380} For instance, Law No. 24292, enacted after signing the international

\textsuperscript{373} Law No. 24051, \textit{supra} note 3, Article 33.
\textsuperscript{374} Law No. 24051, \textit{supra} note 3, Article 2, last paragraph.
\textsuperscript{375} Decree 831/93, \textit{supra} note 305, Annex IV (II) (J).
\textsuperscript{376} Decree 831/93, \textit{supra} note 305, Annex IV (II) (J), 2\textsuperscript{nd} paragraph.
\textsuperscript{377} Decree 831/93, \textit{supra} note 305, Annex IV (II) (J), 3\textsuperscript{rd} paragraph; See also GUSTAVO GONZALEZ ACOSTA, \textit{La Ley Nacional de Actividad Nuclear: Algunas Consecuencias}, [1997-Nov. 13] L.L. 1 (The Commission will regulate and control all nuclear activities).
\textsuperscript{378} BUSTAMANTE ALSINA, \textit{supra} note 303, at 116.
\textsuperscript{379} 40 C.F.R. § 261.4 (b) (1) (1994) (All wastes from hotels, motels, septic sewages, and camp-ground wastes are considered household wastes).
\textsuperscript{380} Law No. 24051, \textit{supra} note 3, Article 2, last paragraph.
agreement made by International Maritime Organization in London in 1990, regulates the coastal and sea pollution with hydrocarbons.\(^{381}\)

(5) **Disposal Operations**

The article 33 of the Decree has established all the technological requirements for disposal operations that the generator who disposes of his own hazardous wastes and the owner or operator of a disposal facility must comply.\(^{382}\) The regulation contains a table of different hazardous wastes and different processes that are forbidden as a way of dispose of hazardous wastes.\(^{383}\) This table only considers characteristic hazardous wastes regarding the operations or processes that are mentioned in the Annex III, section A, of the Law.\(^{384}\) The Annex III, section A, has established those processes or operations that can not lead to resource recovery, recycling, regeneration and direct reutilization of wastes.\(^{385}\) Although the Annex III, section A, of the Law refers to all the processes that are usually use in the practice, the table in the article 33 of the Decree only regulates some, and not all, of those processes. It only refers to those disposal operations that are forbidden without the treatment of the characteristic hazardous waste.\(^{386}\)

The land disposal and land treatment, for example in landfills or in biodegradable processes, is forbidden for all characteristic hazardous wastes without being treated before being disposed of, except with the respect of corrosive wastes and

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\(^{381}\) Law No. 24292, Jan. 12, 1994, B.O. (Also Argentina has signed agreements to prevent the pollution of the sea (discharges of wastes and other materials) (1973), for the carriage of hazardous goods, and many others international agreements with Chile, Uruguay and Paraguay concerning common rivers and waters).

\(^{382}\) Decree 831/93, *supra* note 305, Article 33 (Table); See also BUSTAMANTE ALSINA, *supra* note 303, at 133.

\(^{383}\) *Id.*

\(^{384}\) *Id.*

\(^{385}\) Decree 831/93, *supra* note 305, Annex III, section A.

\(^{386}\) Decree 831/93, *supra* note 305, Article 33 (Table); See also BUSTAMANTE ALSINA, *supra* note 303, at 133.
substances.\textsuperscript{387} On the other hand, surface impoundment and the discharge in any water, or in the sea or oceans, is forbidden for all characteristic wastes without treatment.\textsuperscript{388} Special fills, for instance watertight compartments, are forbidden when explosive wastes or substances, solids that are inflammable, substances or wastes that are capable of spontaneous ignition, infectious wastes, and those wastes that are capable to emit toxic gases when they get in contact with water or air, were not treated before being disposed of.\textsuperscript{389} Moreover, explosive substances or wastes, can not be incinerated in the land or in the sea without first being treated.\textsuperscript{390} In addition, the article 33 of the Decree contains the minimal requirements for certain disposal operations as injection wells, special fills, and incineration of hazardous wastes that can not be recycled, reused, or disposed of with other technology.\textsuperscript{391}

Unlike the American Act, the Argentinean legislation only bans the disposal of characteristic hazardous wastes that were not treated before being disposed of. Nevertheless, the Annex I (b) of the Decree has established the different recipient bodies and the maximum amount of substances that can be disposed of in them.\textsuperscript{392} By contrast, in United States this is addressed by other Acts, for instance, the Clean Water Act and the Clean Air Act.\textsuperscript{393}

The Decree has distinguished three main recipient bodies, that is, air, ground, and water.\textsuperscript{394} The land or ground is divided in residential, industrial, agricultural, and the

\textsuperscript{387} Id.
\textsuperscript{388} Id.
\textsuperscript{389} Decree 831/93, supra note 305, Article 33 (Table) (The codes for these wastes are H3, H4.1, H4.2, H6.2, and H10).
\textsuperscript{390} Id.
\textsuperscript{391} Decree 831/93, supra note 305, Article 33.
\textsuperscript{392} Decree 831/93, supra note 305, Annex I (b).
\textsuperscript{393} 33 U.S.C.A. §§ 1251 to 1387 (1994) ( Federal Water Pollution Control Act) and 42 U.S.C.A. §§ 7401 to 7671q (1994) (Clean Air Act).
\textsuperscript{394} Decree 831/93, supra note 305, Annex I (b) (1), (2), (3).
land or ground that it is treated from pollution. The water has been divided in four main sections: superficial fresh water, underground fresh water, brackish water and salty water. Each of these sections or subdivisions, the ground, the water and also the air, that is considered without any subdivision, have a list of the hazardous constituent and also the maximum amount of it which can be discharged in order to prevent the pollution of the environment. These have been established considering the different uses and characteristics of the recipient body.

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395 Decree 831/93, supra note 305, Annex I (b) (2).
396 Decree 831/93, supra note 305, Annex I (b) (3).
397 Decree 831/93, supra note 305, Annex II (Tables).
398 Decree 831/93, supra note 305, Annex I (a) (Glossary).
CHAPTER 3
GOVERNMENT ENFORCEMENT ACTIONS
IN RCRA AND THE LAW NO. 24051

ENFORCEMENT AUTHORITY UNDER RCRA

Goverment enforcement actions are carried by two federal agencies and several state agencies. The two federal agencies that enforce RCRA are the Environmental Protection Agency (EPA or the Agency) and the Department of Justice (DOJ). Upon the discovery of a violation or a possible imminent and substantial endangerment, EPA can elect to pursue administrative, civil, or criminal enforcement. EPA can use its administrative enforcement power to request compliance information, samples, and access for inspections, and also to require compliance and assess civil penalties. EPA can refer the case to the DOJ so it can file an action in the district court if any of EPA's administrative orders are violated. Furthermore, EPA can begin an enforcement action by referring the case to the DOJ so that DOJ can file an action in the federal district court for injunctive relief or civil penalties, or both.

400 Id. at 223.
401 Id. at 225.
402 Id. at 225.
403 Id. at 225.
404 Id. at 225.
A- Administrative Enforcement Authority

EPA can choose from several different administrative enforcement routes when it believes a violation of RCRA has occurred.405 It can issue compliance orders, corrective action orders, monitoring, testing and analysis orders, or imminent endangerment orders.406 Moreover, EPA can request information on facilities that handle hazardous waste even if there is no violation of the regulations. This is a very powerful tool for developing future enforcement actions.407

RCRA allows EPA to request information from “any person who generates, transports, stores, treats, disposes, or otherwise handles or has handled hazardous wastes.” 408 This is a primary mean to collect valuable monitoring data from the facility, and it consists of a formal visit to the facility to review records, obtain samples, and to determine the facility’s compliance with the requirements by observing facility operations.409 RCRA imposes certain restrictions on inspections that can be conducted by EPA officers, employees or representatives.410 The inspections can only be conducted “at reasonable times,” and must be completed “with reasonable promptness.” 411 If the owner of the facility subject to inspection refuses to allow access to EPA’s employees, officers or representatives, EPA can request an administrative search warrant for it.412

The showing of probable cause necessary for an administrative search warrant is not

406 WAGNER, supra note 23, at 243.
407 STEINBERG, GOLDMAN, supra note 399, at 226.
409 WAGNER, supra note 23, at 241.
410 42 U.S.C. § 6927 (a) (1994) (This section was amended in 1980 allowing EPA’s representatives (i.e., private contractors) to conduct the inspections).
411 HALL, et al., supra note 57, at Chapter 12, 3; see also 42 U.S.C § 6927 (a) (limits that have been established for inspections), (c) (obligatory annual inspection for federal facilities), (e) (obligatory inspection at least every two years for private facilities) (1994).
412 STEINBERG, GOLDMAN, supra note 399, at 226.
high and has been routinized by agency practice.\footnote{413}{WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW: HAZARDOUS WASTES AND SUBSTANCES, Chapter 7, \S 7.23 (1992).} For instance, EPA can choose to make only a general survey of the facility, or also to take samples from it, or take photographs of dead vegetation or leaking barrels in the facility. The agency is given deference in its scientific choices of what to investigate and the tactical choices of how to do it.\footnote{414}{Id.}

As a first response to minor violations, EPA can issue warning letters and notices of violation.\footnote{415}{WAGNER, supra note 23, at 243.} This is an informal administrative action from EPA or a state that notifies a facility that is not in compliance with a specified provision of the regulation.\footnote{416}{Id. at 243.} If the owner or operator of the facility does not take any action to comply within the period of time established in the communication, EPA will take a more formal action.\footnote{417}{Id. at 243.}

EPA takes more formal actions when major violation of the regulations are detected by it, or when the facility presents substantial threat to human health or the environment. Formal actions are represented in different administrative orders that EPA can issue to force a facility to comply with specific regulations, to initiate a corrective action, to conduct monitoring, testing and analysis, or to address a threat to human health or the environment.\footnote{418}{Id.}

Section 3008 of RCRA regulates, among other things, compliance orders.\footnote{419}{42 U.S.C. \S 6928 (a) (1994) (compliance orders).} This section authorizes the use of a compliance order “whenever on the basis of any information” the Agency “determines that any person has violated or is in violation of
any requirement” of RCRA. A compliance order may require immediate compliance or can include a schedule for compliance. EPA may include a civil penalty that cannot exceed $25,000 for each day of non-compliance. When the agency issues a compliance order, the person who receives the order can request a hearing on any of its factual provisions. If no hearing is requested, the order will become final 30 days after it is issued. Once the orders become final, if the recipient of the order fails to comply with it, EPA is authorized to assess civil penalties of up to $25,000 for each day of noncompliance and to suspend or revoke the facility’s permit. The compliance order is aimed to put back in compliance a violator of the regulations which owns a facility regulated under RCRA without facing the burden of going to court.

Interim status corrective action orders are those that are going to state a specified corrective action or response measure. These orders are going to be issued by EPA when it determines that in a facility that is operating under the interim status “there is or has been a release of hazardous waste.” In addition, the orders can suspend or revoke interim status and impose penalties up to $25,000 for each day of non-compliance.

Monitoring, analysis and testing orders are issued if EPA or a state determines that “the presence of any hazardous waste at a facility or site at which hazardous waste is, or has been, stored, treated, or disposed of, or [t]he release of any such waste from such facility or site may present a substantial hazard to human health or the

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421 Id.
423 Wagner, supra note 23, at 244.
425 42 U.S.C. § 6928 (c) (violation of compliance orders).
426 42 U.S.C. § 6928 (h) (1994); see also § 6925 (e) (Interim Status: the facilities that are required to have a permit under RCRA, and were in existence on November 19, 1980 and have submitted an application for a permit, shall be treated as having been issued an interim status permit until the final decision for the permit is made by EPA).
427 Id.
environment.” This section is triggered by a determination by EPA or a state that the presence of hazardous wastes at a site or its release may present a substantial hazard to human health or the environment. This order will be directed to the “owner or operator” of a facility or to “the most recent previous owner or operator” if the facility is not in operation. The person to whom that order is issued has to submit a proposal to EPA for carrying out the order within 30 days after it was issued. EPA can modify the proposal to ascertain the nature or extent of the hazard. EPA also would do the monitoring, analysis and testing itself if others can not or would not, and then look for reimbursement from past or present owners and operators.

Another means to enforce this law is the imminent and substantial endangerment action. This action is not keyed to any regulatory requirements or published standards, but instead authorizes EPA to issue an administrative order (or a civil action) to abate any waste-related situation that “may present an imminent and substantial endangerment to human health and the environment.” Before the enactment of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in 1980, section 7003 of RCRA was used to seek injunctions compelling the cleanup of contaminated sites. Nowadays, it is mainly used for cleanup of petroleum product spills and other materials that are not defined as “hazardous substances” in CERCLA.

432 42 U.S.C. § 6934 (c) (1994); See also § 6903 (15) (Defines person as “an individual, trust, firm, joint stock company, corporation, partnership, association, State, municipality, commission, political subdivision of a State, or an interstate body and shall include each department, agency and instrumentality of the United States”).
433 Id.
436 STEINBERG, Goldman, supra note 399, at 234.
438 STEINBERG, Goldman, supra note 399, at 234.
B- CIVIL ACTIONS

A civil action is a formal lawsuit, filed in a court against an individual or a facility that either has failed to comply with some regulatory requirement or administrative order or has contributed to a threat to human health or the environment. Civil actions are generally reserved for situations that present repeated or significant violations or serious threat to the environment. Such suits are often filed when administrative remedies (e.g. compliance orders or corrective action orders) have been or are expected to be ineffectual. For instance, when there is a violation of any requirement of RCRA, EPA can use its administrative enforcement power to request compliance with the law or can, by referring the case to the DOJ, initiate a civil action in the federal district court. Moreover, if EPA had issued an administrative order and this was not complied by the facility or individual to whom it was sent, EPA can file a lawsuit seeking penalties for violating the original requirement, penalties for violating the order, and a court order requiring future compliance with the requirement and the administrative order. RCRA provides authority for filing four types of civil actions: compliance action, corrective action, monitoring, analysis and testing action, and imminent hazard action.

First, with respect of compliance actions, EPA can fill a civil action to enforce the law. This civil action will seek to force a person or company to comply with applicable RCRA regulations. The court can also impose a penalty of up to $25,000 per day for non-compliance. Second, corrective civil actions are used in situations in

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439 Wagner, supra note 3, at 245.
440 Id.
441 Steinberg, Goldman, supra note 399, at 229.
442 Wagner, supra note 23, at 245.
443 42 U.S.C. § 6928 (a) (1994) (EPA can choose between an administrative order or a civil suit when there has been a violation of the Act).
444 Id.
445 Wagner, supra note 23, at 246.
which there has been a release of hazardous waste from a facility.\textsuperscript{446} EPA must first have information that there is or there has been a release.\textsuperscript{447} The court can order the facility to correct the problem and take any necessary response measure, and also can suspend or revoke a facility's interim status.\textsuperscript{448} Third, if EPA has issued a monitoring and analysis order, and the facility to which the order was issued fails to comply, EPA can sue to get a court to require compliance with the order.\textsuperscript{449} In these cases, the court can establish a penalty of up to $5,000 for each day of non-compliance with the order.\textsuperscript{450} Finally, when any facility or person has contributed or is contributing to an imminent and substantial hazard either to human health or the environment, EPA can sue the person or the facility and request the court to order that person or facility to take an action to remove the hazard or remedy any problem.\textsuperscript{451} If the person or facility had failed or refused to comply with an imminent and substantial order of the EPA, the court is authorized to establish a fine up to $5,000 for each day of noncompliance with the order.\textsuperscript{452}

Administrative orders are complemented with civil actions in order to give the government different options to enforce RCRA. The gravity of the problem will determine the action that EPA will take. For instance, if it is a minor violation of the Act, EPA would use notices of violation or warning letters. On the other hand, if it is a major violation, EPA would use its administrative orders to enforce the law, unless it believes that the hazardous waste handler is a chronic violator or it is not expected to comply with an order, the handler is in violation of a compliance schedule, order,

\textsuperscript{446} 42 U.S.C. § 6928 (h) (1) (1994).
\textsuperscript{447} Wagner, supra note 23, at 246.
\textsuperscript{448} \textit{Id.}
\textsuperscript{449} 42 U.S.C. § 6934 (e) (1994) (Enforcement of monitoring, analysis and testing orders).
\textsuperscript{450} \textit{Id.}
\textsuperscript{451} 42 U.S.C. § 6973 (a) (1994).
\textsuperscript{452} 42 U.S.C. § 6973 (b) (1994).
agreement or decree, or an intentional violation of the regulations has occurred. In these cases, EPA would use a civil action or a criminal action if it is necessary.

C- CRIMINAL ENFORCEMENT AUTHORITY

RCRA authorizes the imposition of criminal sanctions to those who have violated any of its requirement. A significant and increasing number of criminal prosecutions have been initiated under RCRA since 1982 when the federal government began a comprehensive effort to enforce environmental statutes through criminal prosecutions.

Section 3008 of RCRA authorizes EPA to bring appropriate enforcement actions against violations of RCRA or of the regulations promulgated thereunder. Criminal sanctions can be divided in those that prosecute a person who "knowingly" commit certain violations involving storage, transportation, treatment, and disposal of hazardous wastes, and in those that prosecute a person under the "knowing-endangerment provision" for placing another person in imminent danger of death or serious bodily injury.

(1) KNOWINGLY VIOLATING THE ACT

Although there are different criminal acts that can be prosecuted by EPA under § 3008(d), all of them have the same requirement, that is, a knowing violation of the Act. There is a controversy in determining the degree of mens rea that is required to sustain a criminal conviction. Section 3008(d) of the Act, which provides criminal sanctions for the violation of the Act, in relevant part, states:

453 STEINBERG, GOLDMAN, supra note 399, at 227.
Any person who—
(1) knowingly transports ... any hazardous waste ... to a facility which
does not have a permit ...;
(2) knowingly treats, stores, or disposes of any hazardous waste ... (A)
without a permit ... ; or (B) in knowing violation of any material
condition or requirement of such permit ...;
(3) knowingly ... makes any false material statement or representation in
any application, label, manifest, record, report, permit, or other document
filed ...;
(4) knowingly generates, stores, treats, transports, disposes of, exports, or
otherwise handles any hazardous waste ... and who knowingly destroys,
alters, conceals, or fails to file any record...required to be maintained ...;
(5) knowingly transports without a manifest ... any hazardous waste;
(6) knowingly exports a hazardous waste ... (A) without the consent of
the receiving country or, (B) where there exists an international
agreement between the United States and the government of the
receiving country ... in a manner which is not in conformance with such
agreement; or
(7) knowingly stores, treats, transports ... or otherwise handles any used
oil ... (A) in knowing violation ... of a permit ...; or (B) in knowing
violation of any material condition or requirement ...;
shall, upon conviction, be subject to a fine of not more than $50,000 for
each day of violation, or imprisonment not to exceed two years.459

(a) Interpretation of the Courts

Several courts have interpreted the mens rea requirement in the crimes involving
§ 3008(d) of RCRA. The courts, in different circuits of United States, have given
different results to the interpretation and extension of the term “knowingly” of §
3008(d).460 It is necessary to give a summary of some of the cases that have involved §
3008(d) in order to understand the similarities and differences between the
interpretations of the courts.

460 United States v. Johnson & Towers 741 F.2d 662 (3d Cir. 1984); United States v.
Hayes International Corp. 786 F.2d 1499 (11th Cir. 1986); United States v. Hoflin 880
F.2d 1033 (9th Cir. 1989); United States v. Baytank, Inc. 934 F.2d 599 (5th Cir. 1991);
(i) United States v. Johnson & Towers

A case interpreting the level of knowledge necessary to sustain a conviction under section 3008(d) is United States v. Johnson & Towers, Inc.\(^{461}\) Johnson and Towers was a corporation that provided overhaul and repair service for large motor vehicles.\(^{462}\) Because the nature of the business, degreasers and others hazardous materials were generated.\(^{463}\) These chemical wastes were disposed of through a trench that eventually emptied into a tributary of Delaware River.\(^{464}\)

Because the materials qualified as hazardous waste (methylene chloride and trichloethethylene) and were disposed of directly by the company, Johnson and Towers qualified as a TSD facility under RCRA and it was required to obtain a permit from EPA before disposing of the waste.\(^{465}\) Since no permit had been obtained, the company and two employees were convicted for violating RCRA § 3008(d)(2)(A), which forbids any person from disposing of hazardous waste without the appropriate permit.\(^{466}\)

Although the corporation pled guilty to the charges, the employees pled not guilty and were granted a motion to dismiss.\(^{467}\) On appeal, the government claimed that the lower court erred by applying a fault standard to RCRA § 3008(d)(2)(A). The government argue that the RCRA “knowingly” requirement would apply only to the phrase “treats, stores, or disposes.”\(^{468}\) Also, the government asserted it was not required

\(^{461}\) 741 F. 2d 662 (3d Cir. 1984).
\(^{462}\) Id. at 663.
\(^{463}\) Id. at 664.
\(^{464}\) Id.
\(^{465}\) Id. at 663-664.
\(^{466}\) Id.
\(^{467}\) Id. (This dismissal was reversed in appeal when the Third Circuit held that RCRA covers employees as well as owners and operators of the facility).
\(^{468}\) Id. at 667.
that the defendants either knew the waste was hazardous nor knew the company had not a permit.\textsuperscript{469} The Third Circuit rejected the government's interpretation.\textsuperscript{470} The court noted that since RCRA was a public welfare statute, "there would be a reasonable basis for reading it without any mens rea requirement...." \textsuperscript{471} However, the court declined to adopt this reading and instead found that "knowingly" applied to all the necessary elements of the offense.\textsuperscript{472} Thus, according with this court, the prosecution has to establish that the defendants:

1) Knew that they treated, stored or disposed of "hazardous waste";
2) knew that the material was a hazardous waste;
3) knew the company was required to have a permit; and
4) knew the company did not have the required permit.\textsuperscript{473}

Although the court did not relieve the government of the burden of proving defendant's knowledge of permit status, the Third Circuit court stated that the fact that ones works with hazardous substances is a sufficient basis from which to infer knowledge of the relevant regulations.\textsuperscript{474} Supporting this, the court cited \textit{United States v. International Minerals & Chemical Corp.},\textsuperscript{475} which held "where ... obnoxious waste materials are involved, the probability of regulation is so great that anyone who is aware that he is in possession of them ... must be presumed to be aware of the regulation." \textsuperscript{476} Thus, the government need not to prove the defendant actually knew of the permit

\textsuperscript{469} Id.
\textsuperscript{470} Id. at 669.
\textsuperscript{471} Id. at 668.
\textsuperscript{472} Id.
\textsuperscript{473} Id. at 669.
\textsuperscript{475} 402 U.S. 558, 565 (1971).
\textsuperscript{476} Johnson & Towers, 741 F. 2d at 669.
requirement or that he knew the company lacked a permit; such knowledge could be inferred.  

(ii) **United States v. Hayes International Corp.**

In *United States v. Hayes International Corp.*, the Eleventh Circuit Court of Appeals interpreted the mens rea requirement under RCRA § 3008(d)(1), which forbids any person from knowingly transporting hazardous waste to an unpermitted TSD facility.

Hayes International Corporation (Hayes) operated an airplane refurbishing plant in Alabama. Because of the nature of their operations, paint and solvent waste products were generated. Hayes did not dispose of the waste products at the plant, but instead contracted with Performance Advantage, Inc., to remove the waste products at no cost. Because the material (paint and solvent waste products) qualified as hazardous waste under RCRA, and because the Performance Advanced lacked a permit, both Hayes and Performance Advantage were in violation of RCRA § 3008(d)(1). The Hayes corporation and one of its employees were convicted for knowingly transporting hazardous waste to an unpermitted facility.

The Court of Appeals reversed the district court decision, acquitting the defendants, finding sufficient evidence in the records to support a conviction. It cited

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477 Ianelli, *supra* note 474, at 429.
478 786 F. 2d 1499 (11th Cir. 1986).
479 *Id.* at 1499-1500 (stating that the "degree of knowledge necessary for conviction under 42 U.S.C. § 6928 (d) (1), unlawful transportation of hazardous waste, is the principal issue in this appeal").
480 *Id.* at 1500.
481 *Id.*
482 *Id.* at 1501.
483 *Id.* at 1501 (stating that “[t]he mixture of paint and solvent involved in this case was a characteristic [hazardous] waste based on its ignitability” (citing 40 C.F.R. § 261.21 (1989)).
484 *Id.*
485 *Id.*
United States v. International Minerals & Chemicals Corp.\textsuperscript{486} for the proposition that those dealing with hazardous waste may be presumed to have knowledge of the governing regulations.\textsuperscript{487} The court noted that RCRA is “undeniably a public welfare statute” and has such impact on the health and safety of the public that it is “reasonable to charge those who choose to operate in such areas with knowledge of the regulatory provisions.”\textsuperscript{488} Thus, there was sufficient evidence to convict the defendants in spite of their claim of ignorance of the government regulations.

The Eleventh Circuit Court then considered whether § 3008(d)(1) of RCRA, required proof of the actual knowledge of whether a permit had been obtained.\textsuperscript{489} Basing its reasoning on the congressional purpose of the Act, which was to prevent transportation of hazardous waste to unlicensed facilities, the court found that in order to be convicted defendants must have knowledge of the permit status of the processing facility.\textsuperscript{490} The court, however, concluded that transporters of hazardous wastes “presumably are aware of the relevant procedures” and because of that, the juror can infer knowledge based on the highly regulated nature of the activity.\textsuperscript{491} As in the Johnson and Towers case, the Eleventh Circuit Court did not abandon the knowledge requirement, although it substantially relaxed the government’s burden of proof.\textsuperscript{492}

\textsuperscript{486} 402 U.S. 558 (1971).
\textsuperscript{487} United States v. Hayes International Corp., 786 F. 2d 1499, 1502 (11th Cir. 1986).
\textsuperscript{488} \textit{Id.} at 1503.
\textsuperscript{489} \textit{Id.}
\textsuperscript{490} \textit{Id.} at 1504.
\textsuperscript{491} \textit{Id.}
\textsuperscript{492} See United States v. Hayes International Corp., 786 F. 2d 1499, 1504 (11th Cir. 1986) (holding that knowledge is required for a conviction under the permit provision of RCRA § 6928 (d) (1)); United States v. Johnson & Towers, Inc., 741 F. 2d 665, 669 (3d Cir. 1984) (holding that the knowledge is required for all elements of RCRA § 6928 (d) (2)).
Hayes and Johnson were the two first cases in interpreting the provisions of RCRA § 3008(d) regarding the mens rea requirement of the permit. Both courts ruled that knowledge of the facility’s permit status was required for a conviction. This standard of liability was questioned and rejected by the Ninth Circuit Court in United States v. Hoflin.493

Douglas Hoflin was the director of a public works department in Washington.494 As director, Hoflin was responsible for supervising the operation of road maintenance and sewage treatment.495 Hoflin ordered paint for use on road maintenance.496 After the work was finished, fourteen drums of unused paint were stored in a building on the public works grounds until a fire marshal ordered their removal.497 After moving the drums from one place to another for almost a year, Hoflin decided to dispose of the drums by burying them in the ground.498 Although Hoflin was warned by another director at the plant that burying the drums could jeopardize the plant’s National Pollutant Discharge Elimination System certification,499 he still proceeded.500 Almost two years after the drums were buried, the director who had warned Hoflin reported the incident to the state authorities.501 An EPA investigation led to Hoflin’s conviction for violation of RCRA § 3008(d)(2)(A), which forbids persons from knowingly disposing of hazardous waste without a proper permit.502

493 880 F. 2d 1033 (9th Cir. 1989).
494 Id. at 1035.
495 Id.
496 Id.
497 Id.
498 Id.
500 United States v. Hoflin, 880 F. 2d 1033, 1035 (9th Cir. 1989).
501 Id.
502 Id. at 1034.
On appeal, Hoflin asserted that his conviction should be reversed unless the jury found that he knew the Department of Public Works had no permit and that he knew the material which was being disposed of was hazardous waste.\footnote{Id. at 1036.} The court agreed that the prosecution had the burden to establish Hoflin’s knowledge of the hazardous nature of the material, but held that the jury was given sufficient instructions regarding that knowledge element.\footnote{Id. at 1039.} The court did not agree, however, that a conviction required knowledge of the permit status of the facility.\footnote{Id. at 1039 (holding that “knowledge of the absence of a permit is not an element of the offense defined by 42 U.S.C. § 6928 (d) (2) (A)”).} According to the court, the prosecution was only required to establish that the facility actually had no permit; Hoflin’s knowledge of that fact was irrelevant.\footnote{Id. 1039 (stating that the lower court’s jury instructions were sufficient because they required a finding that “the defendant had not obtained a permit from ... [the] EPA ... authorizing the disposal under RCRA, “but did not require a finding of Hoflin’s knowledge of that fact).} Thus, the Ninth Circuit rejected the holdings of the United States v. Johnson & Towers, Inc.\footnote{United States v. Baytank (Houston) Inc., 934 F.2d 599, 603 (5th Cir. 1991).} and United States v. Hayes International Corp.\footnote{741 F. 2d 662, 664-665 (3d Cir. 1984) (holding that the permit provisions of RCRA § 6928 require a mens rea requirement of knowledge for conviction).} by applying a strict liability standard to the permit provision in RCRA § 3008(d)(2)(A).\footnote{786 F. 2d 1499, 1504 (11th Cir. 1986) (holding that the defendant must know that there was no permit but he or she does not have to know that the permit was required by the regulations).}

(iv) United States v. Baytank (Houston) Inc.

Baytank is a bulk liquid chemical transfer and storage facility located in Seabrook, Texas.\footnote{Hoflin, 880 F.2d at 1038.} Baytank’s principal function was to provide interim storage for customers transporting various chemicals.\footnote{United States v. Baytank (Houston) Inc., 934 F.2d 599, 603 (5th Cir. 1991).} Baytank (the corporation), Norderberg
(vice president of Baytank) and Johnsen (safety manager of the facility) were found guilty by the jury in the District Court for the Southern District of Texas of two counts brought under RCRA because they were storing hazardous wastes in drums at the facility without having obtained a permit, and also the same allegation with respect to storage in tanks.512 Although the verdict of the jury was guilty for the three defendants, the district court granted conditional new trial to Nordberg and Johnsen, but let stand the guilty verdict against Baytank.513 Baytank appealed its conviction on the counts before mentioned.514 The defendant challenged the district court's decision because the jury was not instructed to find that the defendant knew that the waste was identified by EPA regulations as hazardous under RCRA.515 The court of appeals stated that the district court was not required to instruct that the jury must find that the defendant knew the waste had been identified by EPA as a hazardous waste.516 Therefore, Baytank's convictions were affirmed by the court of appeals.517 To support its decision, the court of appeals cited Hoflin,518 Dee,519 and Hayes International520 for the proposition that the defendant does not have to know that the waste was identified by EPA under RCRA.521

512 Id. at 605.
513 Id.
514 Id.
515 Id. at 612.
516 Id.
517 Id. 620.
518 United States v. Hoflin, 880 F.2d 1033 (9th Cir. 1989) (indicating an instruction that the defendant knew the substance “had the potential to be harmful to others or to the environment” was sufficient; no requirement to have knowledge of lack of permit, and none to know the waste was listed by EPA as a hazardous waste under RCRA).
519 United States v. Dee, 912 F.2d 741, 745 (4th Cir. 1990) (defendant does not have to know “that regulations existed listing and identifying the chemical wastes as RCRA hazardous wastes”).
520 United States v. Hayes International Corp., 786 F.2d 1499, 1502-5 (11th Cir. 1986) (The defendant must need to know that there was no permit and that the waste was a mixture of paint and solvent, but need not to know “that the paint waste was a hazardous waste within the meaning of the regulations” or that the regulations required a permit).
521 Baytank, 934 F.2d at 612.
Facility production manager was convicted in the District Court for the Eastern District of Tennessee, of conspiracy to violate RCRA, and several other counts as failure to file documentation under RCRA, storage and disposal of chromic acid rinse water and wastewater sludges without a permit, and disposal of paint sludge and solvent wastes without permit.\textsuperscript{522} Defendant’s convictions arose out of the operation of facility engaged in metal stamping, plating, and painting.\textsuperscript{523} As a production manager, Dean had day-to-day supervision of the facility’s production process and employees, and among his duties was to instruct employees on how to handle and dispose of hazardous waste.\textsuperscript{524} The manager order his employees to bury hazardous waste behind the plant, to discharge hazardous waste into an unlined lagoon, and to store hazardous chromic acid, despite his knowledge of its danger.\textsuperscript{525} The argument for his defense, in the part that is relevant, was that the trial court erred in denying his motion of acquittal on Count 4 (§ 3008(d)(2)(A)), because there was no evidence that defendant knew of RCRA’s permit requirement.\textsuperscript{526} The court of appeals held that § 3008(d)(2)(A) “requires knowing treatment of hazardous waste,” and it also requires “proof that the treatment, or storage, or disposal, was done without a permit.”\textsuperscript{527} In addition, the court stated that the “knowingly” cannot be read as extending to the subsections without rendering nugatory the word “knowing” contained in subsections 3008(d)(2)(B) and (C).\textsuperscript{528} Moreover, the

\textsuperscript{522} United States v. Dean, 969 F.2d 187 (6th Cir. 1992).
\textsuperscript{523} Id. at 189.
\textsuperscript{524} Id.
\textsuperscript{525} Id. at 187.
\textsuperscript{526} Id. at 190.
\textsuperscript{527} Id. at 191 (The Court of Appeals analyzed several court decisions and agreed with the one made in Hoflin).
\textsuperscript{528} Id.
court stated that § 3008(d)(2)(A) "does not require that the person charged have known that a permit was required." 

Thus, the courts generally construe the requirement that the violation be "knowing" to mean only that a defendant was aware that he was performing the proscribed acts, and that knowledge of the regulatory requirements is not necessary. The defendant may be criminally liable for his actions even if he was unaware that the wastes were classified for regulatory purposes as hazardous or that his actions were governed by a regulatory requirement. Circumstantial evidence, such as the fact that the waste disposal arranged for by the defendant cost far less than a reasonable person would have expected, is enough to demonstrate the knowledge requirement. In addition, courts have consistently held that knowledge of RCRA’s permit requirement is not an element of any violation, so a defendant can be held criminally liable even though he did not know any permit requirements existed.

(2) KNOWING ENDANGERMENT PROVISION (SECTION 3008 (e))

Section 3008(e) sets out an additional set of criminal offenses that have not been used often in hazardous waste prosecution -“knowing endangerment.” These involve handling or disposal of hazardous waste in a way that “places another person in imminent danger of death or serious bodily injury.” Knowing endangerment is

529 Id.
531 Moya, supra note 405, at 151.
532 United States v. Hayes International Corp., 786 F.2d 1499 (11th Cir. 1986).
533 Id.; See also United State v. Dee, 912 F.2d 741, 745 (4th Cir. 1990); United States v. Baytank, 934 F.2d 599, 613 (6th Cir. 1991); United States v. Wagner, 29 F.3d 264, 265 (7th Cir. 1994).
535 Id. ("Any person who knowingly transports, treats, stores, disposes of, or exports any hazardous waste identified or listed under this subchapter or used oil not identified or listed as a hazardous waste under this subchapter in violation of paragraph (1), (2), (3), (4), (5), (6), or (7) of subsection (d) of this section who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury ...").
defined as any "knowing" violation listed in § 3008(d) in which the offender also "knows" that he is placing another person in imminent danger of death or bodily injury.\textsuperscript{536} The defendant must be "aware of the nature of his conduct." of any circumstances that exist, and he must also be aware that his conduct "is substantially certain to cause danger of death or serious bodily injury" to another person, to be convicted under this provision.\textsuperscript{537} The offense does not require a serious injury, only the "imminent danger" of one, but the "substantially certain" culpability requirement means that the defendant must be convinced that the injury will happen even if by some miracle it does not.\textsuperscript{538} A conviction can result in a fine up to $250,000 ($1,000,000 for an organization) or imprisonment of not more than fifteen years, or both.\textsuperscript{539}

Unlike the provisions criminalizing "knowing" violations of RCRA, the knowledge requirement for a conviction under the "knowing endangerment" provision is explicitly defined within the statute.\textsuperscript{540} Congress drafted the "knowing endangerment" provision to encompass only the most serious statutory violations: those which place another person in imminent danger of death or seriously bodily harm.\textsuperscript{541} Although there have been three successful convictions under this section,\textsuperscript{542} it is necessary to analyze

\textsuperscript{536} Steinberg, Goldman, supra note 399, at 232.
\textsuperscript{537} 42 U.S.C. § 6928 (f) (1994) ("For the purposes of subsection (e) of this section (1) A person's state of mind is knowing with respect to (A) his conduct, if he is aware of the nature of his conduct; (B) an existing circumstance, if he is aware or believes that the circumstance exists; or (C) a result of his conduct, if he is aware or believes that his conduct is substantially certain to cause danger of death or serious bodily injury.").
\textsuperscript{538} Rodgers, supra note 413, Chapter 7, § 7.23 (1992).
\textsuperscript{539} 42 U.S.C. § 6928 (e) (1994) ("[s]hall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment for not more than fifteen years, or both. A defendant that is an organization shall, upon conviction of violating this subsection, be subject to a fine of not more than $1,000,000").
\textsuperscript{540} 42 U.S.C. § 6928 (f) (1994); See also supra note 510 and accompanying text.
\textsuperscript{542} Lanelli, supra note 474, at 433.
the first case in order to understand the way the courts have interpreted the “knowing endangerment” provision.  

(a) *United States v. Protex Industries*

This was the first successful prosecution under the “knowing endangerment” provision. The defendant, Protex Industries, was the operator of a drum recycling facility. Protex was convicted for exposing employees to toxic chemicals without proper safety precautions. Protex argued on appeal that the trial court’s instructions directing the jury that there need only be a “reasonable expectation” of serious bodily injury, rather than “substantial certainty” of such harm, “rendered the statute unconstitutionally vague.” The court held that “the substantially certain standard appears to define the mens rea necessary for commission of the crime, rather than the degree to which defendant’s conduct must be likely to cause death or serious bodily injury.” Therefore, the prosecutor must prove that the defendant placed “others in danger of great harm and it [had] knowledge of that danger.”

Protex argued for a narrow interpretation of the knowledge requirement of the provision based on the legislative history of RCRA. However, the court refused to address the issue of congressional intent because the statutory language itself was adequate to put the defendant on notice that certain conduct was forbidden.

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543 United States v. Protex Industries, Inc., 874 F.2d 740 (10th Cir. 1989); United States v. Tumin, No. 87 Cr. 488 (E.D.N.Y., April 13,1988) (individual defendant guilty of disposing of three 55 gallon drums of ethyl ether in a vacant lot); United States v. Carlos Gomez, 89 Cr. 92 (N.D.N.Y., July 14, 1989) (illegal disposal of ether and other explosive chemicals used in the manufacture of cocaine).


545 Id. at 742 (The three employees testified that they cleaned used pesticide, chemical and paint drums and a hazardous waste storage tank without respirators, protecting clothing or adequate ventilation).

546 Id. at 744.

547 Id.

548 Id.

549 Id. at 743.

550 Id.
also argued that the trial court erred by not instructing the jury that the government had failed to provide results of the tests made on samples taken from Protex’ drum recycling facility.\textsuperscript{551} The court stated that the government’s failure to notify Protex of the test results did not constitute a defense to a RCRA criminal violation.\textsuperscript{552} Additionally, the court held that Protex had an “independent duty” to ensure compliance with RCRA and that ignorance of the law is not a defense.\textsuperscript{553}

Under RCRA § 3008(d) the \textit{Hoflin, Johnson & Towers}, and \textit{Hayes} courts have facilitated prosecutions by not requiring the prosecutor to prove knowledge or by allowing the jury to infer defendant’s knowledge of hazardous waste regulations. Under the “knowing endangerment” provision the court in \textit{Protex} charged the defendants who should have known the dangers of exposure to toxic chemicals with knowledge of relevant regulations.\textsuperscript{554} These cases are characterized by an increased willingness to charge persons working with hazardous materials with actual knowledge of RCRA regulations. Also, these courts have made easier to obtain a conviction under RCRA by reducing the burden of proof necessary to prove knowledge.

\textbf{ENFORCEMENT AUTHORITY UNDER THE LAW NO. 24051}

The Argentinean Law No. 24051 has established administrative sanctions and criminal sanctions in order to enforce the Law.\textsuperscript{555} Unlike RCRA, where the DOJ on behalf of EPA can initiate a civil action against the person who presumably is in violation of the regulations, the Argentinean Law does not contemplate any kind of civil

\begin{itemize}
  \item \textsuperscript{551} \textit{Id}. at 745.
  \item \textsuperscript{552} \textit{Id}. at 745-746.
  \item \textsuperscript{553} \textit{Id}
  \item \textsuperscript{554} United States v. Protex Industries, Inc., 874 F. 2d 740, 745-746 (10\textsuperscript{th} Cir. 1989).
  \item \textsuperscript{555} Law No. 24051, supra note 3, Articles 49 to 54 (Administrative sanctions); Articles 55 to 58 (Criminal sanctions).
\end{itemize}
action to enforce the regulations. Civil actions are a helpful instrument and an important tool to enforce RCRA and the courts in United States have played an significant role enforcing environmental statutes. Therefore, the implementation of civil actions in the Law would allow the Argentinean courts to help the government to enforce the Law.

The Secretary of Natural Resources and Human Environment (hereinafter the Secretary) is the authority in charge of the enforcement of the Law. Although this is the highest authority to enforce the Law, there is another administrative branch of the Executive Power that can enforce the Law called The National Department of Environmental Quality. The authority of the Secretary of Natural Resources and Human Environment includes the power to initiate administrative procedures to impose penalties and also to initiate criminal prosecutions when it is necessary.

A- ADMINISTRATIVE ENFORCEMENT AUTHORITY

The administrative enforcement authority is given by the Law to the Secretary in Article 60 (c) and (d). Section (c) establishes that the Secretary is the authority in charge to supervise the generation, handling, transport, treatment and dispose of hazardous waste. Section (d) also gives broad power to control the enforcement concerning anything related to hazardous wastes.

Any violation of the Law can be penalized by the Secretary. Article 49 of the Law states that the Secretary is vested with the power to penalize any violation of the Law or any other complementary regulation. For this, the Secretary can impose different administrative sanctions depending on the nature of the violation and also

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556 Law No. 24051, *supra* note 3, Article 60 (c) and (d).
557 Decree 1381/96, Article 18, December 6, 1996, B.O. (This Decree gives power to the National Direction of Environmental Quality to enforce the Law No. 24051).
558 Law No. 24051, *supra* note 3, Article 60 (c).
559 Law No. 24051, *supra* note 3, Article 60 (d).
561 Law No. 24051, *supra* note 3, Article 49.
depending on the harm produced by it. The Law states four different kinds of sanctions in order to enforce the Law and also states that the Secretary can apply them cumulatively. These sanctions are: warnings, fines, suspension of the permit or revocation of the permit.

Fines can be from $5,000 (U.S. dollars or pesos) up to $500,000. In the Argentinean Law the fines are only to be determined by the nature of the violation and by the harm produced by that particular violation. On the other hand, RCRA directs EPA to consider the seriousness of the violation and any good efforts to comply in determining the amount of penalty to be assessed. The penalty calculation system established through EPA's RCRA Civil Penalty Policy consists of (1) determining a gravity-based penalty for a particular violation, from a penalty assessment matrix, (2) adding a "multi-day" component, as appropriate, to account for a violation's duration, (3) adjusting the sum of the gravity-based and multi-day components, up or down, for case specific circumstances (good faith or bad faith efforts to comply, degree of willfulness and/or negligence, history of noncompliance, ability to pay, beneficial environmental projects sponsored by the violator, and other unique factors), and (4) adding to this amount the appropriate economic benefit gained through non-compliance. More specifically, the Revised RCRA Civil Penalty Policy establishes the following penalty calculation methodology: Penalty Amount = gravity-based component + multiday component + adjustments + economic benefit from the violation to the violator. This is a very interesting difference because RCRA contemplates not

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562 Law No. 24051, supra note 3, Article 50.
563 Law No. 24051, supra note 3, Article 49.
564 Law No. 24051, supra note 3, Article 49 (a), (b), (c) and (d).
565 Law No. 24051, supra note 3, Article 49 (b).
566 Law No. 24051, supra note 3, Article 49.
569 Id.
only the nature and the harmed of the violation, as it is contemplated in the Law, but many other factors and circumstances (multiday factor, good faith, background of compliance, ability to pay), and also the economic benefit gained through not compliance, which would allow EPA to make a better assessment of the amount of the penalty.

The suspension of the permit is also going to be considered depending the nature of the violation and the harm produced by that particular violation.\(^{570}\) Taking in account these factors, a suspension of the permit can last from a minimum of 30 days to a maximum of 1 year.\(^{571}\) The suspension of the permit is also regulated in RCRA but as a complement of compliance orders and interim status corrective action orders.\(^{572}\)

Article 51 states that for fines and suspensions of the permit previous offenses are going to be taken in account in determining the amount of the fine and the days of suspension of the permit.\(^{573}\) Thus, the minimum and the maximum of the fine and suspension is multiplied by the number of previous offenses before assessing the penalties.\(^{574}\) Nevertheless, if the previous offenses are three and within a period of time of three years, the authority can revoke the permit instead of applying a fine or a suspension of the permit.\(^{575}\) Although this Article can be compared with one of the factors that EPA has to take in account to adjust the sum of the gravity-based and multi-day components (background of noncompliance), the consequences are very different.

\(^{570}\) Law No. 24051, supra note 3, Article 50.

\(^{571}\) Law No. 24051, supra note 3, Article 49 (c).

\(^{572}\) 42 U.S.C. § 6928 (a) (3) ("Any order issued pursuant to this subsection [compliance orders] may include a suspension ... of any permit issued by the Administrator ..."); (h) (2) (" Any order issued under this subsection [interim status corrective action orders] may include a suspension ... of the authorization to operate ...") (1994).

\(^{573}\) Law No. 24051, supra note 3, Article 51.

\(^{574}\) Id.

\(^{575}\) Id.
In the Argentinean Law this factor is crucial to upgrade the minimum and maximum of the fines and suspensions. It is also important because it opens the door to impose the revocation of the permit. On the other hand, in EPA’s Civil Penalty Policy, the background of non-compliance is one factor, among others, to adjust the sum of the gravity-based and multi-day components.

The revocation of the permit can be imposed by the Secretary considering the nature of the violation and the harm produced by it and also when the previous offenses are three or more within a period of time of three years.\textsuperscript{576} RCRA states that the revocation of a permit may be included by EPA in the compliance and interim status corrective action orders.\textsuperscript{577}

Although there is no monitoring, testing and analysis order explicitly regulated in the Law as there is in RCRA, the Secretary is empowered to make inspections and collect samples \textit{in situ} in order to control the compliance of the facilities with the Law.\textsuperscript{578} This power to inspect a facility and to collect samples is similar to the monitoring, testing and analysis order regulated in RCRA but it is only mentioned in the Law as a general authority of the Secretary, and it is not regulated specifically as an “order” as it is in RCRA.

\textbf{B- CRIMINAL ENFORCEMENT AUTHORITY}

The crimes describe in the Law are Public Action Crimes, which means that the government, the police or a private party can report the crime to the court and the prosecutor will prosecute it without further actions of the parties mentioned before.\textsuperscript{579}

\textsuperscript{576} Law No. 24051, \textit{supra} note 3, Article 49 (d).
\textsuperscript{577} 42 U.S.C. § 6928 (a) (3) (“Any order issued pursuant to this subsection [compliance orders] may include a revocation … of any permit issued by the Administrator …”); (h) (2) (“ Any order issued under this subsection [interim status corrective action orders] may include a revocation … of the authorization to operate …”) (1994).
\textsuperscript{578} Law No. 24051, \textit{supra} note 294, Article 60 (c) and (d).
Chapter IX of the Law states the crimes that can be prosecuted under it.\textsuperscript{580} Article 55 states that any person who has poisoned, adulterated or polluted, with any of the wastes regulated in this Law, in a dangerous way for human health, the soil, the water, the air, or the environment, can be prosecuted.\textsuperscript{581} It is necessary to analyze the different terms of the definition to understand which actions are penalized under this Article.

The first thing that is necessary to explain is that there is no ignorance of law defense in the Argentinean Law. Moreover, it is presumed that the law is known by everybody, so the prosecutor never has to prove that the criminal knew that his action was considered a crime. The crime regulated in Article 55 is a crime in which the person who has committed the action (poison, adulterate, or pollute) knew that he was doing so, and also knew the real, or necessary, or possible consequences of his conduct (putting in danger human health).\textsuperscript{582} The Federal Court of Appeals of San Martin held that eventual intent is admissible to complete the requirements of the crime regulated in Article 55 of the Law.\textsuperscript{583} Therefore, a person could be convicted if he knew that he was poisoning, adulterating, or polluting, and he also knew that the action would put in danger human health (special or direct intent), or he knew that a necessary consequence of his conduct was to pose danger to human health (indirect intent), or that the endangerment of human health could be a probable or possible consequence of his action (eventual intent), and he still did the action.\textsuperscript{584}

There are three different actions that are considered criminal in Article 55 of the Law. Those actions are: poison, adulterate, and pollute. “Poison” means to put something toxic into the environment, or to put something that is not toxic but in

\textsuperscript{580} Law No. 24051, \textit{supra} note 3, Chapter IX, Articles 55 to 58.
\textsuperscript{581} Law No. 24051, \textit{supra} note 3, Article 55.
\textsuperscript{582} Nestor A. Cafferatta, \textit{La utilidad de la experticia en la comprobacion del cuerpo del delito penal ambiental por residuos peligrosos} [1994-I] J.A. 584.
contact with other elements of the environment could become toxic.\textsuperscript{585} “Adulterate” means to change the qualities of the environment by putting something into it, or taking something from it.\textsuperscript{586} “Pollute” means to introduce anything that can null or lessen the biotic function of the environment.\textsuperscript{587} Also “pollute” is understood as any act that obstructs the natural cycle.\textsuperscript{588} These are the actions are penalized only if the result of those actions pose danger to human health.\textsuperscript{589} On the other hand, if the action does not pose danger to human health, for instance, because the amount of toxics introduced in the environment is not enough to pose danger to human health, the action is not going to be a crime.\textsuperscript{590}

Once the criminal is found guilty of this crime, he or she can face 3 to 10 years of imprisonment.\textsuperscript{591} Moreover, if the criminal action is followed by the death of any person, the criminal can face 10 to 25 years of imprisonment.\textsuperscript{592} The death of a person in this crime is the aggravating factor.

The second and last crime regulated by the Law has the same norms of behavior as the ones stated in Article 55, that is, poison, adulterate, and pollute.\textsuperscript{593} Nevertheless, this Article refers to these actions when they are committed with fault.\textsuperscript{594} The Law explains what is the meaning of “fault” for this crime, namely recklessness, negligence, or unobservance of regulations or ordinances emanated from a public authority for that particular person, or lack of skills in any profession (this takes in account the profession

\textsuperscript{585} Reussi Riva Posse, supra note 579, at 1434.
\textsuperscript{586} Id.
\textsuperscript{587} Cafferatta, supra note 582, at 580.
\textsuperscript{588} Id.
\textsuperscript{589} Id.
\textsuperscript{590} Id.
\textsuperscript{591} Law No. 24051, supra note 3, Article 55 (This article refers to the penalties established for Article 200 of the Penal Code of Argentina).
\textsuperscript{592} Law No. 24051, supra note 3, Article 55, 2\textsuperscript{nd} paragraph.
\textsuperscript{593} Law No. 24051, supra note 3, Article 56.
\textsuperscript{594} Id.
of the individual in order to determine the lack of skills).\footnote{Id.} These actions are penalized as the ones in other crime, only if the result of those actions pose danger to human health. The criminal penalized under this Article of the Law, will have to face 1 month to 2 years of imprisonment.\footnote{Id.} In addition, if the action is followed by the illness or death of a person, the criminal will have to face 6 months to 3 years of imprisonment.

For both crimes, if the person is registered as generator, transporter, or owner of a TSD facility, there is going to be a presumption of knowledge of the regulations against him.\footnote{Id.} It is presumed that once the person is registered, he or she knows the material that he or she is generating, transporting or handling as well as the possible consequences or liabilities in which he or she can incur.\footnote{Id.} This same principle has been held in United States v. International Minerals & Chemical Corp.,\footnote{402 U.S. 558, 565 (1971).} where the court stated that “where ... obnoxious waste materials are involved, the probability of regulation is so great that anyone who is aware that he is in possession of them ... must be presumed to be aware of the regulation.”\footnote{United States v. Johnson & Towers Inc., 741 F 2d. 662 (3d Cir. 1984).} The court in Johnson & Towers cited United States v. International Minerals & Chemicals Corp. for the proposition that those dealing with hazardous waste may be presumed to have knowledge of the governing regulations.\footnote{United States v. Hayes International Corp., 786 F. 2d 1499, 1502 (11th Cir. 1986).}

The conduct that is penalized by the Argentinean Law is very different than the ones penalized by RCRA. For instance, RCRA penalizes a person who knowingly transports hazardous wastes to a facility without a permit, or knowingly treats, stores, or disposes of a hazardous waste without a permit. These actions can be penalized in Argentina but only with administrative enforcement actions (warnings, fines,
suspension or revocation of the permit). Moreover, the actions that are criminal prosecuted by the Argentinean Law are more related with the ones regulated in the “endangerment provision” of RCRA. Although the actions are different (transports, treats, stores, disposes of or exports hazardous wastes in RCRA and poison, adulterate, and pollute with hazardous wastes in the Law), the result required by both Statutes is similar, that is, to place another person in imminent danger of death or serious injury in RCRA, and to pose danger in human health in the Law.

Another difference is that the criminal courts in United States are allowed by RCRA to impose to the violator not only years in prison, but also fines. The fact that a criminal court can impose not only years of prison but also fines would allow the Secretary to recover money from the violator to increase its budget in order to control the compliance with the Act. For this, an amendment of the Law will be necessary in order to allow the courts to impose fines in criminal convictions.

Finally, Article 58 imposes federal jurisdiction for these crimes. The Court of Appeal of San Martin held that the Law reserves the authority to control the compliance of the Law in the different administrative authorities. that is, the Federal government, the State government and the municipalities (articles 1 to 54 and 59 to 63), but the prosecution of the crimes is reserved for the Federal Courts. The Supreme Court of Argentina held that is the Federal Court the one in charge to investigate and punish the crimes regulated by the Law. On the other hand, criminal actions can be filed by a State in a State court only if it is trying to enforce the RCRA State Program, which

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602 42 U.S.C. § 6928 (d) and (e) (1994).
603 Law No. 24051, supra note 3, Article 58.
605 Id.
includes criminal provisions enacted by the State’s Legislature. Only the United States can file a criminal action to enforce RCRA in Federal courts.
The hazardous waste industry is highly regulated in the United States and in Argentina because of the risk of harm that the materials that the companies are handling can cause to human health and the environment. Both Acts were designed to control the management of hazardous waste from its generation up to its disposal to have a full regulation of them. For this, the Congresses and the Agencies (EPA and the Secretary) have developed a complex regulation for determining which wastes will be considered hazardous and have tried to regulate them as much as possible. Consequently, when there is a failure to comply with the requirements of the Acts and the regulations provided by the Agencies of the government in charge of this (EPA and the Secretary), a set of administrative, civil (only in RCRA) and criminal actions are allowed by the Acts in order to enforce it.

In order to determine that a waste will be considered hazardous, on one hand, RCRA has a two-step definition. First, it is necessary to determine that the waste is a solid waste, that is, garbage, refuse or sludge (which are considered solid wastes no matter if they are discarded or not) or any other material that is discarded and is likely to be considered solid waste (considering EPA regulations of discarded materials). Nevertheless, these wastes can be excluded by the statute (e.g. household wastes or radioactive materials), or by EPA (e.g. in situ mining materials), or depending on the process and the material (recycling activities).

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607 Id.; 40 C.F.R. § 261.4 (a) (5) to (8) (Regulatory exclusions).
material is considered a solid waste, the question becomes whether the waste is hazardous and within the scope of Subtitle C of RCRA. For this, it is necessary to analyze the statutory definition of hazardous wastes.\footnote{42 U.S.C. § 6903 (5) (1994) (Hazardous waste statutory definition: “[s]olid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed”).} and also it is necessary to study the regulations that EPA has developed, based on the statutory definition, for determining that the waste is subject to Subtitle C of RCRA. Under these regulations, a solid waste may become a hazardous waste if it exhibits a hazardous characteristic,\footnote{40 C.F.R. § 261.3 (a) (i) (1989).} or if it is specifically listed by EPA,\footnote{40 C.F.R. § 261.3 (a) (ii) (1989).} or if it is regulated under the mixture rule,\footnote{40 C.F.R. § 261.3 (a) (iii) (1989).} or the derived-from rule.\footnote{40 C.F.R. § 261.3 (c) (2) (i) (1989).} In addition, EPA also has developed exclusion for certain wastes from hazardous waste classification (e.g. household wastes, manure and crops returned to the soil as fertilizers, cement kiln dust).\footnote{40 C.F.R. § 261.4 (b) (1) to (13) (1996) (Exclusions from the classification of hazardous waste).}

On the other hand, the Argentinean Law has a one-step definition to determine whether a material will be considered a hazardous waste.\footnote{Law No. 24051, supra note 3, Article 2, 1st paragraph (The Law defines hazardous waste as “any waste that can cause harm, directly or indirectly, to living beings or can pollute the ground, the water, the atmosphere or the environment”).} The Decree also has determined that a waste can be hazardous if it is discarded or abandoned and may cause harm for living beings or can pollute the environment in general.\footnote{Decree No. 831/93, supra note 305, Annex I (a) Glossary (27).} In addition, the Decree establishes that wastes listed in Annex I and wastes that have any of the

\footnote{\textsuperscript{40} 40 C.F.R. § 261.3 (a) (i) (1989).\textsuperscript{60} 40 C.F.R. § 261.3 (a) (ii) (1989).\textsuperscript{61} 40 C.F.R. § 261.3 (a) (iii) (1989).\textsuperscript{62} 40 C.F.R. § 261.3 (c) (2) (i) (1989).\textsuperscript{63} 40 C.F.R. § 261.4 (b) (1) to (13) (1996) (Exclusions from the classification of hazardous waste).}
characteristics listed in Annex II of the Law are to be considered hazardous wastes.\footnote{Law No. 24051, \textit{supra} note 3, Article 2, 2\textsuperscript{nd} paragraph.} Like in RCRA, the Law excludes certain wastes from the classification of hazardous wastes (household wastes, radioactive wastes and those wastes that are the result of normal operations from ships or vessels).\footnote{Law No. 24051, \textit{supra} note 3, Article 2, last paragraph.}

After studying the way in which the two Acts (RCRA and the Law) determine that a material is subject to their regulation, some similarities and differences were pointed out through this thesis. For instance, the goal of the two Acts is to protect human health and the environment from the pollution with hazardous wastes. Moreover, the Acts allow the Agencies to list wastes, and to consider some other wastes, which have special characteristics, as hazardous. In addition, particular exclusions are regulated in both Acts.

Nevertheless, the implementation of the Acts made by EPA and the Secretary differs. For example, the listed wastes are different as well as the characteristic that will be considered for determining that a waste is hazardous (although there are some characteristics that are common for both Acts). RCRA, in order to determine that a solid waste is a hazardous waste, also contemplates the mixture and derived-from rules that are not stated neither in the Law nor in the Decree. Although both Acts consider several exclusions that are the same (household wastes and radioactive materials), there are exclusions that are considered in one Act and not in the other one (cement kiln dust and wastes from ship operations).

Once a violation of the Act has been detected, government enforcement actions play an important role to restate compliance with the Act. On one hand, RCRA has administrative, civil and criminal enforcement actions.\footnote{\textsc{Steinberg, Goldman}, \textit{supra} note 399, at 225.} On the other hand, the Law
contemplates only administrative and criminal actions. Civil actions, which are an important means to enforce RCRA, are not regulated in the Law. The civil actions could be an important tool for the Argentinean government in order to enforce the Law if they are implemented in it.

Although both Acts have administrative actions to enforce them, these actions are very different. Compliance orders, corrective actions orders, monitoring and testing orders, and imminent endangerment orders are the administrative tools for the United States' government in order to enforce the Act. Revocation or suspension of the permit are allowed for certain administrative actions (compliance orders and corrective action orders). EPA also is allowed by the Act to impose civil penalties as a complement of these actions. On the other hand, the Argentinean Law has warnings and fines in order to enforce the Law. These fines are determined only based in the nature of the violation and the harm produced by it. Unlike the Law, EPA has established a better procedure to determine the civil penalties (gravity-based component + multiday component + adjustments + economic benefit). This way of determining the civil penalties, if there is implemented in the Law, could help the Argentinean government to make a more accurate determination of the fines. In addition to the fines, the Secretary can also impose the suspension or revocation of the permit (as in RCRA).

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619 Law No. 24051, supra note 305, Articles 49 to 54 (Administrative sanctions); Articles 55 to 58 (Criminal sanctions).
620 Wagner, supra note 23, at 243.
622 42 U.S.C. § 6928 (a) (3), (c) (1994) (Compliance orders), and (g) (Civil penalties); 42 U.S.C. § 6928 (h) (2) (1994) (Corrective action orders); 42 U.S.C. § 6934 (e) (1994) (Enforcement of the orders).
623 Law No. 24051, supra note 3, Article 49 (a) and (b).
624 Law No. 24051, supra note 3, Article 50.
626 Law No. 24051, supra note 3, Article 49 (c).
With respect to criminal actions in order to enforce the Acts, the conduct that is penalized by the Argentinean Law is very different than the ones penalized by RCRA. For instance, RCRA penalizes a person who knowingly transports hazardous wastes to a facility without a permit, or knowingly treats, stores, or disposes of a hazardous waste without a permit. These actions can be penalized in Argentina but only with administrative enforcement actions (warnings, fines, suspension or revocation of the permit). Moreover, the actions that are criminal prosecuted by the Argentinean Law are more related with the ones regulated in the "endangerment provision" of RCRA. Although the actions are different (transports, treats, stores, disposes of or exports hazardous wastes in RCRA and poison, adulterate, and pollute with hazardous wastes in the Law), the result required by both Acts is similar, that is, to place another person in imminent danger of death or serious injury in RCRA, and to pose danger in human health in the Law.

Another difference is that the criminal courts in United States are allowed by RCRA to impose to the violator not only years in prison, but also fines. On the other hand, the criminal courts in Argentina can only impose to the violator years in prison and not fines. The fact that a criminal court can impose not only years of prison but also fines would allow the Secretary to recover money from the violator to increase its budget in order to control the compliance with the Act.

As it was pointed out throughout the thesis, the Acts have many differences. Some of them can be introduced into the Argentinean Law in order to improve the tools which the government has to enforce the law (for example, civil actions and fines in criminal cases). For this, an amendment of the Law with respect of government

\[628\] Law No. 24051, supra note 3, Article 49.
\[630\] 42 U.S.C. § 6928 (e) (1994); Law No. 24051, supra note 3, Article 56.
\[631\] 42 U.S.C. § 6928 (d) and (e) (1994).
enforcement actions is required. This would allow the Argentinean government to strength the controls and to improve the enforcement actions in order to protect human health and the environment.