

A LEGAL ANALYSIS OF THE CIVIL LIABILITY OF PT PETER METAL TECHNOLOGY INDONESIA REGARDING THE RELEASE OF THE RADIOACTIVE SUBSTANCE CESIUM-137: PERSPECTIVES FROM ENVIRONMENTAL LAW AND THE INDONESIAN CIVIL CODE

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Received : 08 June 2026

Revised : 10 June 2026

Accepted : 24 June 2026

Published : 11 July 2026

Abstract

The case of the spread of radioactive Cesium-137 (Cs-137) that polluted the Modern Cikande Industrial Area, Banten, which originated from metal scrap of PT Peter Metal Technology Indonesia (PMT) has posed a serious threat to the environment and the surrounding community. This study aims to analyze the form of civil liability of PT PMT for the spread of radioactive substances viewed from the perspective of Environmental Law and the Civil Code (KUHPerdata). This study uses a normative legal research type (normative juridical) through a statutory approach, a case approach, and a conceptual approach. Data collection was carried out by means of a literature study and analyzed using qualitative methods. The results of the study indicate that the spread of Cs-137 is subject to the principle of strict liability as regulated in Article 88 of Law Number 32 of 2009 concerning Environmental Protection and Management (UUPPLH), where companies that manage high-risk hazardous and toxic materials (B3) are held absolutely responsible without the need to prove any element of fault. PT PMT's civil liability is based on Article 1365 of the Civil Code concerning Unlawful Acts (PMH) and Article 87 of the Environmental Management Law (UUPPLH), which implements the polluter pays principle. Therefore, PT PMT is obligated not only to pay compensation to injured parties but also to bear all costs of decontamination and environmental restoration. However, the effectiveness of this civil sanction depends heavily on scientific proof of causality and the results of investigations by authorized technical agencies, such as BAPETEN and BRIN.

Keywords: *Civil Liability, Cesium-137, Strict Liability, Environmental Law, Unlawful Acts*

INTRODUCTION

The case of the spread of the radioactive substance *Cesium-137* (Cs-137) occurred in area Cikande Modern Industrial Estate, Serang Regency, Banten Province. Initially, the FDA or BPOM of America rejected frozen shrimp products from PT Bahari Makmur Sejati (BMS) because of the detection of radioactive *Cesium-137* (Cs-137) in August 2025. From this, further investigations were carried out by the Indonesian government, which finally traced the source of the radiation to the Cikande Modern Industrial Estate, where a number of contamination points were found in scrap metal purchased by PT Peter Metal Technology Indonesia (PMT) and spread through containers. For delivery shrimp. Further inspections by the Nuclear Energy Regulatory Agency (BAPETEN) and the National Research and Innovation Agency (BRIN) showed that radiation levels at several locations exceeded safe limits. Consequently, the government through Ministry Environment Life and Forestry (KLHK) has designated the area as a special incident of radiation contamination and immediately carried out decontamination measures.

PT Peter Metal Technology is body business shaped Company Limited, registered under company number 1455661 and located in the Modern Cikande industrial area, Serang Regency, Banten. This company operates in the metal processing industry, specifically the smelting of scrap metal into stainless steel products for export. The company began operations in September 2024 with a business license issued in October 2024. The position of director is held by Lin Jing Zhang, a foreign national (*China*), who is responsible for the company's operational management. Based on the book Understanding Corporate Law written by Hidayat, there is something called the principle of social and

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environmental responsibility (*corporate social responsibility*) where the Company carries out business activities related to the use of natural resources. Power natural own obligation For carry out not quite enough Social and environmental responsibility (TJSL) or *corporate social responsibility* (CSR).¹ This obligation is a manifestation of the company's commitment to maintaining a balanced relationship with the environment and surrounding community, so that the company's existence can provide benefits and added value to the surrounding social environment. Based on *the Corporate Governance* book created by the Corporate Governance Implementation Section company Which Good (*good corporate governance*) is part important in maintaining the company's sustainability, because the company does not only oriented towards economic profit, but also has responsibility in controlling risks business as well as guard compliance to provision law And environment life. Based on the book *Good Corporate Governance* . In implementing good corporate governance, the company is not only responsible to shareholders, but also to other stakeholders, including the community and the environment ³. Therefore, effective supervision from company organs, such as the board of directors and board of commissioners of PT.PMT is important to ensure that business activities are carried out in accordance with the principles of social responsibility, legal compliance, and environmental protection. Based on the *Environmental Law* book written by Musahib et al., environmental protection is carried out to prevent pollution and damage. environment through instrument law Which nature preventive and Repressive ⁴. Environmental law serves as an instrument to prevent and prosecute any actions that have the potential to cause environmental pollution. Therefore, PT PMT that causes environmental impacts can be held legally accountable for the losses incurred.

The relationship between civil law and environmental law lies in their function in regulating legal liability for losses that arise. due to environmental pollution. Article 1365 of the Civil Code (KUHPdata) provides a general basis that every unlawful act that causes harm requires the perpetrator to provide compensation. However, in dispute environment life, mechanism the perfected through Law Number 32 of 2009 concerning Environmental Protection and Management as a special provision (*lex specialis*), which not only regulates the obligation to pay compensation, but also requires environmental restoration and introduces the principle of *strict liability* for activities that use hazardous materials. And poisonous or cause threat Serious to environment (Republic of Indonesia, 2009). According to Koesnadi Hardjasoemantri (2005), the development of environmental law shows that environmental protection is not sufficient to rely solely on the concept of conventional civil liability, but requires legal instruments that can guarantee effective prevention and restoration of damage. Opinion the in line with Destiny Rahmadi (2020) Which state that the liability regime in environmental law is a development of civil law principles to provide more optimal protection for the community and the environment. Therefore, in the case of the alleged distribution of radioactive substance Cesium-137 by PT Peter Metal Technology Indonesia, Article 1365 of the Civil Code remains the general basis for assessing the existence of an unlawful act, while Chapter 87 And Chapter 88 UUPPLH functioning as base special in determining the form of accountability in the form of compensation, environmental restoration, and the application of strict liability. Thus, these two legal regimes are not contradictory, but rather complementary in achieving legal certainty and environmental protection.

¹ Hidayat, F., 2020. *Know Law Company* . Purwokerto: CV. Pen Persada.

² Therefore, PT. PMT must carry out internal supervision and risk management within a company so as not to cause detrimental impacts on the community or the surrounding environment.

² Part, IK, 2022. *Corporate Governance* . Denpasar: University Mahasaraswati Press.

³ Badawi and Hartati, W., 2024. *Tata Manage Company Which Good (Good Corporate Governance)* . Yogyakarta: Deepublish Digital.

⁴ Musahib, AR, Giant, US, Ubaidillah, MB, Astuti, HD, Tampubolon, M. and Jufri, M., 2022. *Environmental Law* . Padang: PT. Global Eksekutif Teknologi.

Sanctions for environmental pollution based on Law Number 32 of 2009 concerning Environmental Protection And Management Environment Life Which furthermore called UUPPLH covering sanctions administration, civil, And criminal.⁵ Chapter 1365 The Civil Code, emphasizes that every unlawful act that causes loss to another person requires the perpetrator to compensate for the loss⁶, and Article 87 And 88 UUPPLH set not quite enough answer civil for every person responsible for a business that pollutes or damages the environment, and in the UUPPLH it is also stated that every polluter is obliged to bear the costs of environmental restoration and compensation for the impacts caused⁷. By base Based on the above law, PT PMT is suspected of violating these provisions due to negligence in managing hazardous waste containing radioactive *Cesium-137*, thus causing potential harm to the community and the surrounding environment. PT PMT can be held civilly liable for its actions because it has committed an act against law Which harm public And violate obligation laws to preserve the environment In the context of civil law, PT Peter Metal Technology Indonesia (PMT) should not cause harm to other parties as stipulated in Article 1365 of the Civil Code, and should carry out its industrial activities based on the principles of prudence, environmental responsibility, and compliance with applicable positive law. Every business actor is obliged to ensure that their industrial activities do not cause harm. pollution or destruction environment Chapter 67 UUPPLH,⁸ as well as must do management waste dangerous And poisonous in accordance provision Chapter 59 UUPPLH

METHOD

This research uses a normative legal research type (*normative juridical*) that focuses on the study of norms and legal principles related to civil liability in environmental pollution cases, by analyzing provisions such as Article 1365 of the Civil Code (reversed) and Articles 87 and 88 of Law Number 32 of 2009 without conducting field research. The approaches used include a statute approach, a case approach to the case of the spread of Cesium-137 by PT Peter Metal Technology Indonesia, and a conceptual approach through a study of legal doctrine and theory. The data sources used are: used in the form of data secondary, Which consists of from material law primary legal materials (Civil Code, UUPPLH), secondary legal materials (books, journals, and research results), and tertiary legal materials (dictionaries and encyclopedias). Data collection was conducted through library research, while data analysis techniques used qualitative methods with content analysis techniques to systematically examine and interpret legal materials to answer the problem formulation.

DISCUSSION

How is the principle of strict liability applied in resolving civil disputes due to radioactive pollution based on civil law and environmental law?

The principle of *strict liability* or absolute responsibility is a form of civil liability that does not require proof of the existence of an element of fault from the party. perpetrator business For charge obligation replace loss. This concept was developed in response to business activities that pose a high level of risk to human safety and environmental sustainability, so that legal protection is more focused on recovering losses suffered by victims rather than proving the perpetrator's negligence. According to Rahmadi (2020), the application of strict liability is intended to overcome the difficulty of proving in environmental pollution cases, because the relationship because consequence on case environment are generally complex and involve impacts that do not always appear immediately.⁹ Therefore, this accountability mechanism provides a guarantee of more effective legal protection for the injured community. Draft the has get runaway juridical in Chapter 88 Law Number 32 of 2009 concerning Environmental Protection and Management (UUPPLH), which determines that every guarantor answer businesses that use, produce or manage hazardous and toxic materials (B3), or carry out activities that pose a serious threat to the environment, responsible answer in a way absolute on loss Which caused without requires proof of fault (Republic of Indonesia, 2009).

⁵ Republic Indonesia, 2009. Constitution Number 32 Year 2009 about Protection And Environmental Management.

⁶ Republic Indonesia, and Book Constitution Law Civil (Civil Code).

⁷ Republic Indonesia, 2009. Constitution Number 32 Year 2009 about Protection And Environmental Management.

⁸ Republics Indonesia, 2009. Constitution Number 32 Year 2009 about Protection And Environmental Management.

¹⁰ This regulation is in line with Article 87 of the UUPPLH, which requires polluters to provide compensation and carry out environmental restoration as a legal consequence of the damage that occurs (Republic of Indonesia, 2009). ¹¹ Thus, these two provisions form a unified civil liability regime in environmental law, where Article 88 forms the basis for determining absolute liability, while Article 87 regulates the form of legal reparation that must be fulfilled by polluters. In the context of the alleged distribution of radioactive Cesium-137 by PT Peter Metal Technology Indonesia, the application of principle *strict Liability* becomes relevant because activities related to radioactive materials fall into the category of activities that have the potential to pose serious threats to the environment and public health. *strict liability* principle in Indonesian environmental law is based on the nature of business activities that carry high risks to humans and the environment. Unlike fault liability, the *strict liability mechanism* does not require the injured party to pay, prove the existence of an element of negligence on the part of the business actor, but rather it is sufficient to show that the loss was the result of the activity that gave rise to the risk. This regulation is reflected in Article 88 of the Law Number 32 Year 2009 on Environmental Protection and Management which states that those responsible for businesses that use, produce, or manage hazardous and toxic materials (B3), manage B3 waste, or carry out activities that pose a serious threat to the environment are absolutely responsible for any losses incurred (Republic of Indonesia, 2009). ¹² According to Koesnadi Hardjosoemantri, the concept of responsibility in environmental law has developed to ensure more effective protection for the community and the environment from the impacts of activities that have the potential to cause major harm, so that the law not only functions to resolve disputes, but also encourages pollution prevention (Hardjosoemantri, 2005). ¹³

In line with that, Siti Sundari Rangkuti explain that the development of modern environmental law requires an accountability mechanism that provides protection optimal to victim pollution by imposing risks on business actors who carry out hazardous activities (Rangkuti, 2005). ¹⁴ With thus, implementation strict liability on case suspicion The distribution of the radioactive substance Cesium-137 by PT Peter Metal Technology Indonesia can be based on the fulfillment of the elements of high-risk activities, the occurrence of environmental pollution, and the existence of a causal relationship between the company's activities and the losses incurred, without requiring proof of the element of error. Cesium-137 (Cs-137) is a radioactive substance classified as high-risk because it can cause environmental pollution and harm health if not managed according to safety standards. This characteristic makes Cs-137 an object that is subject to the principle of *strict liability*. as regulated in Article 88 of Law Number 32 of 2009 (Republic of Indonesia, 2009). ¹⁵ According to the *International Atomic Energy Agency* (2018), the distribution of Cs-137 has the potential to cause contamination environment in term long thus requiring strict control. ¹⁶ In line with this, Hardjosoemantri (2005) stated that environmental law aims to provide protection to the community. from activity Which risky high. ¹⁷ By Because That, suspicion The distribution of Cs-137 by PT Peter Metal Technology Indonesia is legally relevant to be subject to the strict liability regime.

⁹ Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

¹⁰ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

¹¹ Ibid.

¹² Ibid.

¹³ Hardjosoemantri, K. (2005). Law order environment (Edition 8th). Elephant Mada University Press.

¹⁴ Rangkuti, S. S. (2005). Law environment And wisdom environment national (Edition the 3rd). Airlangga University Press.

¹⁵ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

¹⁶ International Atomic Energy Agency. (2018). Categorization of radioactive sources (IAEA Safety Standards Series No. GSG-7). International Atomic Energy Agency.

¹⁷ Hardjosoemantri, K. (2005). Law order environment (Edition 8th). Elephant Mada University Press.

¹⁸ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

¹⁹ Hardjosoemantri, K. (2005). Law order environment (Edition 8th). Elephant Mada University Press.

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The application of the strict liability principle to the alleged pollution due to the spread of the radioactive substance Cesium-137 by PT Peter Metal Technology Indonesia needs to be analyzed based on the characteristics of the business activities and the impacts they have on the environment. Chapter 88 Constitution Number 32 Year 2009 about Environmental Protection and Management provides the basis that those responsible for businesses whose activities use or manage hazardous and toxic materials (B3), or pose a serious threat to the environment, can be held accountable without proving any element of fault (Republic of Indonesia, 2009).¹⁸ Thus, the focus of proof shifts to the existence of a causal relationship between the company's activities and the losses incurred. caused. According to Koesnadi Hardjasoemantri (2005), accountability in environmental law is directed at ensuring effective protection through mechanisms that are able to anticipate risks from activities that potential cause pollution.¹⁹ View the in line with research by Ridho Kurniawan and Siti Nurul Intan Sari (2014) which explains that the implementation of strict liability aim make things easier process proof in case environment, in particular when proof element error difficult done²⁰. By Therefore, if the investigation results prove that the Cesium-137 contamination originated from the activities of PT Peter Metal Technology Indonesia and caused pollution or harm to the community, then legally the company has the potential to be held accountable based on Article 88 of the UUPPLH.

The application of this principle also reflects the preventive and repressive function of environmental law, namely not only guaranteeing recovery loss victim, but at a time push corporation implement risk management and environmental protection more responsibly. Although the principle of strict liability is designed to provide protection While the legal framework for environmental pollution victims is more effective, its practical application still faces several obstacles. One major obstacle is proving a causal link *between* business activities and the resulting losses. Although Article 88 of Law Number 32 of 2009 does not require proof of fault, the party filing the lawsuit must still demonstrate that the pollution is related to the business actor's activities (Republic of Indonesia, 2009).²¹ According to Koesnadi Hardjasoemantri, environmental cases generally have complex evidentiary characteristics because they involve scientific and technical aspects, as well as causal relationships that are not always easy to prove (Hardjasoemantri, 2005).²² Furthermore, Rahmadi (2020) explains that the effectiveness of strict liability is also influenced by the availability of evidence. scientific, inter-agency coordination, and the ability of law enforcement officers to interpret provisions law environment.²³ In case suspicion distribution substance radioactive Cesium-137 by PT Peter Metal Technology Indonesia, proof of the origin of the contamination requires the results of an investigation from the authorized agency, such as BAPETEN and BRIN, so that the law enforcement process is very depends on data technical Which can be accounted for. Therefore, the success of implementing *strict liability* is not only determined by the existence of legal norms, but also by the support of scientific evidence, coordination between institutions, and capacity. enforcer law in integrating legal aspects with technical findings.

What is the form of civil liability for PT Peter Metal Technology Indonesia (PMT) for the distribution of the radioactive substance Cesium-137?

Corporate civil liability is obligation body law to recover loss Which arise consequence actions or activity his business Which harming other parties. As a legal entity, a limited liability company has separate rights and obligations from its shareholders and managers, so that any losses incurred in carrying out business activities are in principle the responsibility of the corporation in accordance with statutory provisions. The recognition of a limited liability company as a legal entity is affirmed in Law Number 40 of 2007, which give position law alone to company in enter into legal relations with other parties (Republic of Indonesia, 2007).

²⁰ Kurniawan, R., & Sari, S. N. I. (2014). Accountability criminal corporation based on principle strict liability (Study of environmental criminal law reform). Jurnal Juridical, 1(2), 153–168.

²¹ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

²² Hardjasoemantri, K. (2005). Law order environment (Edition 8th). Elephant Mada University Press.

²³ Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

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²⁴ According to M. Yahya Harahap, responsibility answer civil company arise when action Which done in its business activities it causes losses to other parties, thus giving rise to an obligation to provide compensation in accordance with legal provisions. Which valid (Harahap, 2016). ²⁵ In the context of environmental pollution, this form of responsibility is emphasized through Article 87 of Law Number 32 of 2009 which requires every person responsible for a business that carries out pollution or destruction environment to pay compensation and undertake environmental restoration measures (Republic of Indonesia, 2009) ²⁶.

Therefore, if it is proven that the spread of radioactive Cesium-137 originated from the activities of PT Peter Metal Technology Indonesia, then the company as a legal subject can be held civilly liable for losses experienced by the community and environmental damage. Thus, corporate civil liability not only functions as a mechanism for restoring the rights of victims, but also as a legal instrument to encourage every business actor to carry out their business activities responsibly and in accordance with the principles of environmental protection. Unlawful Acts (PMH) as regulated in Article 1365 of the Civil Code are the general basis for civil liability that requires every individual or legal entity to compensate for losses if their actions violate the law and cause losses to another party. According to R. Subekti, something An act can be qualified as PMH if it fulfills five elements, namely the existence of an act, unlawful nature, error, loss, and a causal relationship between the act. with loss Which arise (Subekti, 2014). ²⁷ Development doctrine This was strengthened through the decision in the *Lindenbaum v. Cohen* case, which expanded the meaning of unlawful acts beyond just violations. Constitution, but also includes violations of the rights of others, obligation law, decency, and the principle of propriety in social life. In the case of the alleged distribution of radioactive substances Cesium-137 by PT Peter Metal Technology Indonesia, element actions This can be seen from the *scrap metal processing activity*, which is suspected to be the source of contamination. If the results of the investigation by the authorized agency prove that this activity resulted in environmental pollution and harm to the community, then the elements of loss and causal relationship can be considered fulfilled. In addition, failure company apply management environment in accordance provision regulation legislation has the potential to show existence characteristic oppose law.

By Therefore, based on Article 1365 of the Civil Code, PT Peter Metal Technology Indonesia has the potential to be held legally liable for civil liability if all elements of PMH can be proven through valid evidence in court. Civil liability in environmental pollution cases aims to recover losses suffered by victims while restoring environmental functions impacted by business activities. In the system law Indonesia, This obligation is regulated in Article 87 of Law Number 32 of 2009 concerning Environmental Protection and Management (UUPPLH), which stipulates that every person responsible for a business that carries out pollution or destruction Environmental damage is obligated to pay compensation and carry out certain actions in the form of environmental restoration (Republic of Indonesia, 2009). ²⁸ This provision is in line with Article 1365 of the Civil Code, which requires parties who commit unlawful acts to compensate for the losses they cause. According to Takdir Rahmadi, civil liability in environmental law is not only oriented towards compensation for victims, but also places environmental restoration as an integral part. from settlement dispute environment (Rahmadi, 2020). ²⁹ This view is reinforced by Helmi's research which explains that the compensation mechanism in environmental cases must be accompanied by a restoration obligation so that the disturbed ecological function can be restored optimally (Helmi, 2011). ³⁰ Therefore, if it is proven that the spread of the radioactive substance Cesium-137 originated from the activities of PT Peter Metal Technology Indonesia, the company No only potential burdened obligation pay change make a loss to the injured party, but is also obliged to bear the costs of decontamination and environmental restoration in accordance with the provisions of the Environmental Management Law (UUPPLH). Thus, civil liability in environmental cases has both compensatory and restorative functions as a form of protection for the community and environmental sustainability.

²⁴ Republic Indonesia. (2007). Constitution Number 40 Year 2007 about Company Limited. State Gazette of the Republic of Indonesia 2007 Number 106.

²⁵ Goodbye, M. Y. (2016). Law company limited. Ray Graphics.

²⁶ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

²⁷ Subekti. (2014). Main points law civil (Mold 31st). Intermasa.

The polluter pays principle is one of the fundamental principles in law. environment Which put party polluter as party Which responsible. responsibility for all costs resulting from the pollution they cause. This principle not only includes the obligation to provide compensation to parties who suffer losses, but also requires business actors to finance recovery measures so that environmental conditions can return to their original state. In the Indonesian legal system, the implementation of this principle is reflected in Article 87 of Law Number 32 of 2009 concerning Environmental Protection and Management, which stipulates that any business person responsible for polluting or damaging the environment is required to pay compensation and carry out certain actions in the form of environmental restoration (Republic of Indonesia, 2009).³¹ According to Takdir Rahmadi, The application of the polluter pays principle aims to ensure that the economic burden resulting from pollution No diverted to public or country, but charged to parties who cause environmental damage (Rahmadi, 2020).³² This view is in line with the Organization for Economic Co-operation and Development which confirms that principle This is instrument For push internalization environmental costs into business activities so that business actors are encouraged to implement pollution prevention measures from the start (OECD, 1972).³³ In the context of the alleged spread of radioactive substance Cesium-137 by PT Peter Metal Technology Indonesia, If it is proven that there is a relationship between the company's activities and the contamination, then the company is legally obliged not only to compensate for the losses suffered by the community, but also to bear all the costs. cost environmental decontamination and restoration. Thus, the implementation of *the polluter pays principle* serves to achieve environmental justice while strengthening corporate responsibility for the impacts of their business activities.

If it is proven that the spread of the radioactive substance Cesium-137 originated from the activities of PT Peter Metal Technology Indonesia, the company may be subject to civil liability in the form of an obligation to pay compensation to the injured party. as well as carry out recovery environment in accordance provision Chapter 87 Law Number 32 of 2009 concerning Environmental Protection and Management (Republic of Indonesia, 2009).³⁴ This obligation is a legal consequence aimed at restoring the rights of victims and restoring the function of the polluted environment. According to Takdir Rahmadi, resolving environmental disputes through civil mechanisms is not only oriented towards giving compensation, but Also put recovery environment as an integral part of the responsibility of polluters (Rahmadi, 2020).³⁵ This opinion aligns with Achmad Santosa's research, which states that civil law enforcement in the environmental sector must be able to create both a restorative and preventive effect so that business actors are encouraged to increase compliance with environmental protection obligations (Santosa, 2001).³⁶ In In the context of the PT Peter Metal Technology Indonesia case, the application of civil liability not only provides legal certainty for the affected community, but also Also become instrument For strengthen principle caution in management of hazardous materials. With thus, decision civil Which obligatory payment Compensation and environmental restoration are expected to be able to realize justice for victims, maintain environmental sustainability, and improve compliance corporation to environmental legal provisions in Indonesia. The civil liability mechanism regulated in Law Number 32 of 2009 concerning Environmental Protection and Management has basically provided adequate legal instruments to demand compensation. environmental losses and restoration due to pollution.

²⁸ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

²⁹ Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

³⁰ Helmi. (2011). Law licensing environment life. Ray Graphics.

³¹ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

³² Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

³³ Organization for Economic Co-operation and Development. (1972). Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies (C(72)128). OECD.

³⁴ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

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However, the effectiveness of its implementation still depends on the ability to prove a causal relationship between business activities and the resulting losses and the availability of scientific evidence that can be accounted for in court. Article 87 of the Environmental Management Law regulates the obligation to pay compensation and carry out environmental restoration, while Article 88 facilitates the application of the principle of *strict liability* to activities that pose a serious threat to the environment. life (Republic Indonesia, 2009).³⁷ According to Takdir Rahmadi, the success of environmental law enforcement is not only determined by the completeness of norms, but is also influenced by the consistency of law enforcement, the quality of evidence, and coordination between authorized agencies (Rahmadi, 2020).³⁸ In line with this, Mas Achmad Santosa stated that environmental dispute resolution will be more effective if instrument change make a loss accompanied by environmental restoration and supported by consistent law enforcement so as to provide a deterrent effect on business actors (Santosa, 2001).³⁹ In case PT Peter Metal Technology Indonesia, according to the author, the effectiveness of civil liability will be very... determined by results investigation technical from agency Which authorities, especially in proving the source of Cesium-137 contamination. Therefore, it is necessary strengthening coordination between apparatus enforcer law with institution technical,

CONCLUSION

This study shows that the principle of *strict liability* is an important instrument in Indonesian environmental law to provide legal protection for victims of pollution originating from high-risk business activities. The provisions in Article 88 of Law Number 32 of 2009 concerning Environmental Protection and Management provide the basis that responsibility can be imposed on business actors without the need to prove an element of fault, as long as it is proven that there are activities that have the potential to cause serious threats to the environment and a causal relationship with the losses incurred. happen. In context suspicion distribution substance radioactive Cesium-137 by PT Peter Metal Technology Indonesia, material characteristics radioactive Which own risk high impact on human health and environment make implementation principle strict liability relevant as a basis for legal protection. However, the effectiveness of its implementation remains influenced by the ability to prove the source of pollution through accurate scientific evidence, the results of investigations institution technical Which authorized, as well as coordination Which Good between agencies in the law enforcement process.

Furthermore, the form of civil liability of PT Peter Metal Technology Indonesia can be based on Article 1365 Book Constitution Law Civil, Chapter 87, And Chapter 88 Laws Number 32 Year 2009. If proven that distribution Cesium-137 originating from the company's activities, PT Peter Metal Technology Indonesia, as a legal entity, has an obligation to provide compensation to the party experiencing the loss and to carry out environmental restoration as a legal consequence of the pollution caused. This obligation reflects the application of *the polluter pays principle*, namely the principle that places all costs of pollution and environmental restoration on the party causing the damage. Thus, civil liability is not not only serves as a compensation mechanism for victims, but also as a means of recovery function environment life as well as driver for corporation For apply order good corporate governance, risk management, and compliance with regulations law Therefore, consistent enforcement of civil liability, supported by reliable scientific evidence, and accompanied by effective inter-institutional coordination is expected to achieve legal certainty, justice for the community, and sustainable environmental protection. in handling pollution cases involving radioactive materials. improving the quality of scientific evidence, as well as the application of civil sanctions consistent so that protection of society and the environment can be realized optimally.

³⁵ Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

³⁶ Santosa, M. A. (2001). Good governance And law environment. Indonesian Center for Environmental Law.

³⁷ Republic Indonesia. (2009). Constitution Number 32 Year 2009 about Protection And Environmental Management.

³⁸ Rahmadi, T. (2020). Law environment in Indonesia (Edition the 3rd). Eagle Press.

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