

Comparison of Stringency of the Environmental Requirements and Compliance with them in Upstream Sector of Oil and Gas in Iranian and American Law

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ABSTRACT

The purpose of this study is to compare stringency of and compliance with environmental requirements in upstream sector of oil and gas in law of Iran and the USA. This study is conducted using the inter-spinned mix method (qualitative – quantitative). In the qualitative part, library studies are used. In the quantitative part, the studied society is a group of six professionals in the field of oil and gas, who filled out a questionnaire consisted of 34 questions prepared by the Worley Parsons in a similar research approved by jurisdictions of ten countries. The questions are prepared by a team of experts with international experience. The components of stringency and compliance with law during the phases of approval, operation, and closure of a hydrocarbon project are studied using the Delphi method. At the level of stringency, the environmental assessment in the US is carried out with 10 times more human resources and 26 times more costs than in Iran. In the US, with 13 scores, it is more stringent than Iran with 5 scores. In the project closure phase, Iran does not put in place any obligations for rehabilitation and restoration. At the level of compliance, the Construction Environmental Management Plan (CEMP) is mandatory in both countries. In Iran, the list of violations and their consequences will not be published. The US regulatory mechanisms of restoration are an appropriate model. Totally, Iran gains 29 and the United States 42 scores. The recommendations are based on these two scores.

1. Introduction

Oil and natural gas have been the primary sources of energy since the 1950s to respond to the growing demand for energy due to population growth, and this dominance

is expected to continue for decades to come (Edwards, 1997:1292). The global oil industry includes a lot of power and wealth. In many countries, both oil exporters and importers have taken over the economy. The countries with oil resources are carefully protecting this

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wealth. Oil taxation is an important aspect of this industry. The geological, engineering and financial implications of this industry are global (Johnston, 1994: 1). The scope of environmental activities includes economic activities whose main purpose is to reduce or eliminate pressure on the environment or the use of natural resources. The technical nature and criteria of environmental protection activities and management of environmental protection resources are those activities whose main purpose is to prevent, reduce and eliminate pollution and other manifestations of environmental degradation (Schenau, 2018: 5). The oil and gas industry has environmental risks potential such as emissions of gases and particulates during drilling, production and refining, intensifying greenhouse effect, acid rain, groundwater pollution, reducing water quality, damaging of biodiversity and destruction of the ecosystem. The pollution results from the activities of this industry from the exploration stage to refining and dumping of crude oil, affects the seas, air, water, soil and our planetary creatures. Pollution is associated with almost all stages of oil and gas production, from exploration to refining. Emissions of airborne gases and particles generated during drilling, production and refining cause pollution. For example, studies by a number of researchers in the United States show that oil exploration and production in the United States have had adverse environmental effects on soil, surface water, groundwater, and ecosystems in 36 states and production centers in the United States (Kharaka, Hanor, 2003: 499-540). From this perspective, awareness of major environmental issues has necessitated the regulation of oil and gas industry activities. The Forth principle of the

‘Rio’ declaration emphasizes the conceptual integration of development and the environment, in order to achieve sustainable development, environmental protection and it should be consider as an integral part of the development process (Declaration of the International Conference on Environment in Rio, 1992). Therefore, environmental management guidelines for oil and gas exploration and production are based on the collective experience gained through the United Nations³ Development Program and the oil industry.

1.1. Statement of the Problem

The stimulus for the legal system and oil and gas contracts in the US is privacy of the resources and most of the activities in this sector are based on this characteristic. Mineral rights and oil and gas leases in the United States are affected by real estate rights; Due to the fact that land ownership and mineral resource ownership may be separate, oil companies can approach mineral resource owners directly. The private ownership of mineral resources and the large scale of US fields have led to hundreds of oil companies engaging in oil and gas operations. The large number of oil companies ready for operation and the lack of administrative formalities by mineral resource owners have made exploration and drilling operations much faster than in other parts of the world, leading to the dynamism of the oil and gas industry, reducing barriers to entry in this industry and the dynamism of the US economy (Asgharian, 1391: 13). The following table lists some of the laws and regulations and institutions related to the US oil and gas sector:

Table 1. Environmental acts and the related organizations in oil and gas sector in the USA².

Abbreviation	Title
CAA	Clean Air Act
NAAQS	National Ambient Air Quality Standards
CWA	Clean Water Act
ESA	Endangered Species Act
TSCA	Toxic Substances Control Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
RCRA	Resource Conservation and Recovery Act
SDWA	Safe Drinking Water Act

²[https://content.next.westlaw.com/Document/I466099561c9011e38578f7ccc38dcbec/View/FullText.html?transitionType=SearchItem&contextData=\(sc.Search\).](https://content.next.westlaw.com/Document/I466099561c9011e38578f7ccc38dcbec/View/FullText.html?transitionType=SearchItem&contextData=(sc.Search).) (1399/01/14)



Abbreviation	Title
NEPA	National Environmental Policy Act
EPCRA	Emergency Planning and Community Right-to-Know Act
RHA	Rivers and Harbors Act
OSHA	The Occupational Health and Safety Administration
	Special wastes (cement kiln dust waste, crude oil and natural gas waste).
	Used oil
	The EPA's standards for methane emissions from landfills and the oil and gas sector.
	regulatory requirements for hydraulic fracturing
OPA	Oil Pollution Act
	Environmental impact assessments (EIAs)
EPA	Environmental Protection Agency
DOJ	US Department of Justice
API	American Petroleum Institute

In Iran, more than a decade has passed since the environmental impact assessment process. This assessment does not provide singly the sustainable development goals of the country, because the general and sometimes transient rules and the interference of taste in implementation, challenges the effectiveness of these rules. The results of the analysis of different aspects of environmental impact assessment in Iran show that the most important challenges and limitations are in the field of laws and regulations, some laws do not have enough deterrence. There are some shortcomings in the administrators in terms of capabilities and approaches, evaluation methodology, process of preparing and evaluating project review reports, monitoring, control and supervision, in the expert field. And the weakness of public participation is also evident, a review of the environmental impact assessment laws of the developed countries and their comparison with Iran suggests that, Iran's environmental impact assessment rules are general and inefficient (Dabiri and Kiani 2007: 96). The requirements of strategic environmental assessment are evident at two levels, at the legislative level and the decision-making and enforcement level. The Policies, enforcement and compliance with legal requirements will not work unless legislation is enacted in accordance with advanced countries. Adoption of comprehensive and deterrent laws and integration of macro environmental considerations into the policies, programs and plans of the country prior to their implementation

will lead to sustainable development. (Khoshneshzadeh, Manori and Dabiri, 2012: 116). The Iranian legislator's view is broad, concise, and has different perceptions capability. This general view is obvious on preventing environmental pollution; whereas, the laws of the United States of America are very broad, detailed and has been edited in all aspects of the subject. And this issue has inevitably expanded in the field of performance. In the context of upstream contracts of oil and gas in US, environmental laws are included any subject- matter law, law, decree, regulation, lawsuit, , Set of rules, judicial order, interim order, declaration of commission or order issued by the central government, Provincial authorities, including effective or prior effective laws, governing the control of any pollutant or protection of air, water, soil or environment and the disposal of hazardous waste (US Environmental Protection Agency Official Web Site, 2017). This study aims to identify and evaluate the successful experiences of the US in this field and propose its application in order to improve the environmental requirements in Iranian oil and gas industry and to increase level of compliance with them. Therefore, in this paper, the environmental requirements, from the point of view of the components and general concepts of strictness, and compliance with laws and regulations, are compared in three stages included, the life cycle of a major hydrocarbon project including approvals or permits, project operations and terminations between the two countries.

1.2. Research Objectives

Evaluation of environmental legal requirements has been carried out with the aim of identifying environmental legal problems of the Iranian oil and gas industry and identifying common themes and their advantages compared to US laws and regulations, and proposing amendments to existing laws and regulations and improving environmental indicators, and concepts such as stability, adequacy, impact, different implementation costs, and the ability to meet specific environmental requirements are addressed. It is assumed that Iranian law, unlike the US law, need to be reviewed in enactment of environmental regulatory requirements in terms of stringency and compliance with laws and regulations, particularly the requirements for approval, operation and termination of hydrocarbon projects.

2. Theoretical Foundations and Review Literature

Compliance with environmental regulations is required in all activities likely to cause damage to the environment and it is more important in some operations, such as extraction of crude oil, because of its nature and its greater impact on the environment. (Foroughi Nia, Valipour, Sheikh, 1396: 166.) The spread of pollution caused by petroleum has led countries to look for appropriate solutions to counteract its damaging effects. The reason is that the regulators of oil contracts do not consider themselves to be bound by two fundamental issues; The first is the need to enforce environmental rules in oil contracts on the basis of the international trade principles and international laws, and the second is the failure to apply these rules correctly in the legal relations between the parties.

Therefore, it is very important to find some suitable solutions to gain a common and beneficial understanding between the parties of the contract to facilitate the implementation of environmental regulations. With the proof of the need to include environmental rules in oil contracts, which is the most important document in regulating the legal relationships of the parties, it can be used as a framework to insert environmental obligations of the parties to institutionalize the use of energy resources with environmental protection, as stated in the Rio Declaration.

HD Parker and JD Peet, are international law professors in the Netherlands in their joint book, *International Law with Emphasis on the Marpol Convention and its Additional Protocols* conducted a comprehensive review of the inadequacy of oil pollution

control and international legislation, from their point view, the two main factors in preventing of oil pollution and the effectiveness of preventive precautions are the inconsistency of international regulations with scientific findings and the inconsistency of existing conventions with real needs. They wanted structural changes in the content of international conventions related to oil pollution and development of the relevant international laws in the long run. (Parker, Pete, 1987: 57). Massoud Amani in his book entitled *International Oil Contract Law* arguing that, as the nature of oil contracts is a commitment to the outcome, an oil contract is terminated only when all the commitments of the parties in the oil projects have been fulfilled. (Amani and Ismaili, 2014: 127). Mohammad Reza Saber, in his essay "Mutual Trade in the Upstream of Oil and Gas Sector", applying environmental regulations during oil operations considers to be a government duty on national resources. (Saber, 2007: 196). Ghassem Zamani believes that though international environmental laws have been able to bring about a fundamental change in the principles of international responsibility, it still lacks effective enforcement mechanisms. (Zamani, 2002: 29). Farhad Iranpour also considers environmental regulations in oil contracts not in terms of exercising the absolute sovereignty of the host government but in implementing some kind of stakeholder participation in decision making (Iranpour, 2014: 163). In an article entitled "Legal Principles Governing Upstream Contracts of the Iranian Oil and Gas Industry" it has been stated that these principles have imperative aspect that makes it impossible to avoid them as the red lines which are governing the conclusion of foreign contracts in the upstream sector of the country's oil and gas industry. One of the principles discussed in this article that is related to the present study is to guarantee a safe harvest of oil and gas reserves during the contract period (Ebrahimi, Montazer, Masoudi 2014: 12).

A study entitled "International Comparison of Leading Petroleum and Gas Producing Areas for Environmental Requirements" was carried out by British company named Worley Parsons in London and also its subsidiaries in Kallari Alberta, and Canada, in cooperation with the Oil and Gas Producers Association and by using the information collected from questionnaires from ten regions around the world. This study has examined and compared environmental policies, laws and regulations in the upstream oil and gas industry, and it has not been just a review of the performance and impact of the role of governments. Legal studies in ten regions, representing the seven major



continental regions worldwide, showed that environmental policies and regulatory laws and regulations in Alberta Canada, Queensland Australia and the Gulf Coast of the United States were the leading comparisons. Questionnaires and information from this study were used to collect information and to compare the environmental requirements in Iran (Worley Parsons Corporation Annual Report, 2014: 3). Disregard for environmentally sustainable capacities, inappropriate exploitation of natural resources, human tendency to exploit the environment, and disregard for the logic of economics in environmental and natural resource utilization policies have created conditions that all societies have somehow faced environmental problems (Sajjadi, Yarmaradi, Kanuni, Heidari, 1396: 98). As the environmental problems of human activities have spread, it has become clear that economic activities cannot continue without environmental restrictions. On the one hand, the principle of shared but different responsibility is one of the international principles of the environment, that it comes from the concept of the common heritage of humanity and it emphasizes the shared responsibility of states to protect the environment and at the same time their differing commitments taking into account the different specific circumstances of the countries in creating environmental problems and their technical and economic capabilities to address environmental problems. This principle has been applied in many international documents and WTO agreements. Though it has not yet become an international customary rule, its key role in the development and enforcement of international environmental law through the fairness of treaty commitments and the promotion of sustainable development in developing countries is significant (Abdollahi, 1398). Today, the countries that do most of the environmental degradation have no sense of commitment to correct the process of degradation and reduction of pollution, and so the kind of legislative should start from the center of global management, the United Nations. Government sovereignty is one of the oldest principles in the domestic and international arena that it has been accepted by most legal systems. The territory of a state includes not only land but also territorial waters within the boundaries of a state; it includes rivers, bays, and lakes in surface and, groundwater in depth. It also includes certain sections of the coastal sea, including open bays and their islands that are located in less than 24 miles away, and are under the exclusive jurisdiction of the coastal government, this territorial jurisdiction is also permitted, up to 12 miles of shoreline, with emphasis on safeguarding the safe passage of foreign ships. Therefore, since the subject of

reciprocal contracts may be due to the existence of oil and gas resources onshore or at sea, it will entail the exercise of state sovereignty (Ebrahimi, Montazeri, Masoudi, 2014: 17). The relevant environmental laws in Iran are: the 50th Article of the Constitution and the Law of the Environment, approved on 28/3/53 and the amendment on 24/8/1371, the Law on the Prevention of Air Pollution, approved on 2/3/1374. The 7th principle of the Petroleum Law, approved on 7/7/1366, obliges the Ministry of Petroleum to do "in the course of petroleum operations while proper planning, monitoring and taking full care to conserve natural resources and wealth and facilities and to prevent environmental pollution (water and air) in coordination with the relevant organizations. Also the environmental regulations in the free trade-industrial zones are similar to those in the Iranian mainland, and a unit of the Environmental Department, which is located in the organization of each free trade area, that performs the duties of control the proper enforcement of environmental laws and regulations in these areas. Accordingly, general regulations of the country have policies to protect the environment and if the environmental pollution has the following conditions, it is considered to be a crime:

- The Severe violation of obligation,
- (B) The breached commitment has fundamental importance for the protection of the environment (Darabini, Foroughinia, Naghavi Marmati, 2013: 128).

The characteristic of the US environmental laws is that in addition to compulsory civil penalties, the role of citizens and non-governmental organizations in enforcing environmental laws is addressed. There is a freedom of information circulation in the United States, and by law and specific environmental information is made available to citizens under the Sapfund Law. Greater ability is given to individuals and organs to expose complaint and lawsuits to enforce environmental regulations this encourages executives to pursue upstream enforcement actions (US Environmental Protection Agency official Web site, 2017). In a paper entitled "Comparative Study of Air Pollution Crimes in Iranian Law and the US Federal Law with Emphasis on Fresh Air Law of the United States", a comparative study has been done and this article has examined crimes related to air pollution in Iranian law (under Islamic Penal Code and other laws), and United States federal law specifically deals with environmental issues related to air pollution) and US federal law (under United States Code). Examining the provisions of the United States Federal Code and comparing it with domestic law,

concluded that, on one hand, these regulations are more complex and extensive because of entrance into extensive and specialized codes and style sheets and so criminalization of violations of such rules by the federal legislature these regulations have resulted in the introduction of widespread and specialized statutes and regulations, and offenses under the federal Clean Air Act; and on the other hand, the penalties provided by the law ,opposite to federal clean air law ,were not sufficiently severe, for the Air Pollution Prevention, and consequently will not reflect the necessary deterrence and, secondly, because of the general criminalization under Article 688 of the Islamic Penal Code, for the sake of failure, it was inconsistent with the principle of legality of punishments and because of the wide scope and scope of the inclusion, it will ignore the legislature's ruling on the subject matter. Thirdly, under the laws of the United States of America, with regard to state enforcement plans, which are implemented in each state individually and in coordination with the Federal Environmental Protection Agency (and thus criminalize misconduct against such programs), due to different and varied control strategies to reduce emission and adaptation to specific regional characteristics and its dynamics, it brings better and more effective prevention of air pollution. (Khatam Goya, Sabouri Pour, 2015: 96,) in the article "Investigating the Performance Indicators of Environmental NGOs in Achieving Environmental Sustainability" by Zahra Allahyan et al., the concept of efficiency has been put forward by the UNDP and the World Bank in the form of eight indicators of participation, legitimacy and rule of law, transparency, accountability, people-centeredness and satisfaction, equality of rights and justice, efficiency and effectiveness, and accountability (Allahyan, Lahijanian, grammarian, 2010: 5).

3. Research Method

This study was conducted in parallel with two methods to allow comparison of the results of both methods.

3.1. Librarian Method and Comparative Law Documents

In this method, the environmental requirements of the upstream oil and gas industries were studied in the US and Iranian legal systems, So that their commonalities and differences are discovered and could be understood sufficiently.

Due to the background of the subject and the theoretical framework it has been used the reference

books and research articles, scientific research journals, government documents of both countries, journals and information journals, statistics, computer resources such as the Internet and official sites, international conference papers and statements, and Interviews and opinions of experts and some of the experts were also interviewed.

3.2. Descriptive-Survey Research Method With Emphasis on Delphi Method

In the next step, a questionnaire was designed in both Persian and English languages; this questionnaire was designed by order of the Canadian Oil Producers Association CAPP commissioned by Worley Parsons in 2014 and it has been used for international comparative studies on environmental regulation in several oil-and-gas-producing countries. The questions of the questionnaire have been set by an international team of experienced professionals based on the concepts of rigor, transparency and compliance. These questions come in three stages of the life cycle of a large hydrocarbon project, namely, the approval, authorization, operation, and termination of the project. Yes answers have a value of one and no answers have a value of zero, and responses that have a wider range are classified by a simple chain, such as 1 to 3. The scores given to each country are the result of answers to a questionnaire after the revision phase by the professionals.

3.3. Statistical Scope

In this study, opinions of 6 experts in environmental law requirements of Iran University and Environmental Protection Agency has been used to complete the questionnaire. A Similar research conducted by Worley Parsons was used to collect information about the United States, and the views of 6 international experts in the field of upstream oil and gas contracts related to the research were systematically used. The study has selected 10 countries out of 75 countries to study, based on the level of their recent oil and gas activities and how they are managed.

4. Data Analysis

4.1. Results

Generality and the possibility of evading responsibility and as some rules are temporary in the set of regulations relating to the environmental requirements of the oil and gas industry in Iranian law and also On the other hand, the multiplicity of decision makers with the least convergence on this issue has led to the low level of efficiency of environmental requirements in Iran.



Considering the environmental requirements of oil and gas laws in the United States as well as research backgrounds Comparing major oil and gas producing countries with the United States shows that the US is at the forefront of formulating, implementing, and monitoring these requirements.

5. Conclusions, Discussion, and Suggestions

5.1. Results and Discussion

Comparison of stringency of environmental requirements and level of compliance with them in phases of approval, operation, and closure of a large hydrocarbon project in the two countries shows that the United States has achieved 73 scores and Iran 39 scores. So the United States is meaningfully ahead of Iran.

a. Results at the level of stringency

Approval phase: Both countries demand environmental assessment as a prerequisite (Iran 18 and the US 27 scores). Gaining approval for beginning the project in a large scale in Iran takes between 6 and 18 and \$ 75,000 is required to receive approval. While in the US it costs more than \$ 2 million over 18 months.

In Iran, less than ten personnel are employed for environmental assessments of large oil projects. While in the US, up to 50 people in North Dakota and over 100 in Gulf Coast served this process. The less time and cost of performing evaluation in Iran is not a positive factor here, because considering the responses of other options indicates, higher quality, greater depth and importance of these assessments in the US.

Operation phase: The two countries are very similar in environmental requirements, such as extending environmental regulatory authorizations, providing regular regulatory reports and environmental management plans, and explaining regulatory requirements and criteria such as thresholds.

Closure phase: Scheduled termination of project operations in both countries required. In Iran, unlike the US, there are no mandatory requirements for reform at the end of the life. The standards for reconstruction and rehabilitation have been defined in both countries; a government certificate will be issued if any resuscitated activities are carried out in Iran after the project is completed. No guarantees or bonds will be received in Iran to guarantee fulfillment of resuscitation obligations at the end of the life of the facility, but in the US, such guarantees are made for end-of-life commitments. In Iran, there is no specific governmental program to rebuild abandoned facilities and oil wells in cases where

engineering firms have failed, as there are not such programs in the Gulf Coast of the US, but in North Dakota government has programs specifically in reconstruction and rehabilitation.

At the end of the projects, the deficiencies of environmental laws and regulations and their impact on pollution in Iran are evident, because there is no need to reform at the end of the project in Iran and the government has no plans in this regard. At this stage, a significant difference is confirmed in the environmental requirements of the two countries and these differences are obvious. Sufficient financial implications and guarantees for reforming are clearly anticipated in the United States. It can be concluded that there is environmental pollution caused by abandonment of facilities after termination of the projects. The need to reform and rebuild facilities in the United States can enhance the country's environmental indicators, and these facilities have become good opportunities from environmental threats.

b. Acquired results at the level of compliance with environmental requirements

In this level, Iran gains 11 and the US 15 scores totally.

Approval phase: In both countries, it is necessary to submit CEMP. In Iran and the US Gulf Quest, the reference standard is used for environmental assessment.

Operation phase: Unlike the US, there is no announcement or publication of violations lists and its consequences in Iran. In case of violations, there is no legal protection in Iran, while in the US legal protections are available. For instance, the person reporting a violation receives protection from authorities against losing his or her job in the US. There are laboratories in the two countries that measure the threshold of a determined limit. Regulatory mechanisms in Iran are constrained to setting limits to the ceiling of oil and gas production only. But in the United States, in addition to these limits, there are deterrent tools such as legal actions, imprisonment, and fines.

Closure phase: There is no monitoring mechanism in Iran to ensure revitalization of the outdated facilities and the monitoring will not continue after closure of the project. Monitoring continues in North Dakota when the projects ends.

5.2. Suggestions

Proper modeling of environmental assessments by examining the details of the approval stage of

hydrocarbon projects in the United States and requiring environmental assessment and remediation in Iran through the preparation of a rigorous and robust executive compliance code are,

- Developing and communicating mechanisms for public and expert opinion, and other social partners, when drafting environmental upstream oil and gas laws and regulations,
- Assign responsibility to Semen for hydrocarbon projects to play a constructive role in tackling social erosion, environmental degradation, violating people's legal rights and resolving problems and obstacles in the way of implementing oil and gas industry projects to avoid Incorrect and superficial judgments about the parties concerned,
- Forecasting incentives to accompany and participate in the hydrocarbon project, as well as observing social and environmental requirements and methods for preventing the destruction of onshore and marine ecosystems.
- In Iran the proposed plans of the Ministry of Oil has been forecasted that the exports of crude oil and gas will be over doubled. On the other hand, according to the laws of us the crude oil exports have generally been banned. Therefore, by comparing and paying attention to the general policies of employment, the policies of the resisting economy and the general policies of the oil and gas sector, the ban on the export and sale of crude oil in Iran should be enacted and enforced, and only processed goods and finished petroleum products should be allowed to export. This could be a rational start to freeing the country's current budget from dependence on oil. If this law is adopted, the 13th Article of the Resistance Economics Policy, entitled "Tackling the Income from Oil and Gas Exports and Increasing the Exports of Petroleum Products", will be implemented,
- Submitting quarterly and annual environmental monitoring reports and information at community level and the consequences of failing to comply with environmental requirements, across the oil industry, by the Environmental Protection Agency, for the purpose of clarifying and proposing amendments to the laws and regulations. (For example, the rate of combustion of gases or the reported continuous increase in the coefficient of recovery and final withdrawal from oil and gas reservoirs), Implementation of requirements for the reconstruction of oil facilities, especially in the south of the country (in addition to improving the

productivity of the oil industry, it can create one million new jobs, according to some officials),

- In addition to environmental considerations, necessary forecasts should be made about, adverse social impacts at the end of the life of the oil facility on the host community, (For example, consider solutions for stagnation resulting from project completion and maintenance of indicators of quality of life and urban development. And accordingly, the relevant standards for reporting and identifying and evaluating projects after termination shall also include environmental and social impacts,
- Assessment and identification reports of environmental impacts at the end of the project must be capable of adapting to new conditions, regulations and standards. And this capability should cover all stages of the hydrocarbon project life cycle, including approval, operation, and termination.
- The end of any oil project must be clearly stated at the time of obtaining the oil project approval. Completion standards onshore and offshore should be formulated and develop indicative methods for unused facilities and wells. Operations, including corrections and resuscitation, should be reported transparently to officials and the public.

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