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The Guanabara Bay Oil Spill Incident – “The Brazilian Exxon Valdez”

An Institutional Perspective

(*) *Mauricio Taam*

ABSTRACT

On January 18, 2000 Brazil has experienced it's most shocking, although not the biggest, oil spill incident, 1.3 million liters of fuel oil had spilled from a pipeline into a swamp adjacent to the waters of Guanabara Bay. Like in the tragic event of “Exxon Valdez”, the accident meant a turnover point for the oil industry in Brazil, causing an inner process of change of management mentality in the industry, and of course a new set of demands from the governmental sector to comply with the society claims. More, on July 16, 2000 occurred a 4,0 million inland oil spill in Paraná that heavily impact the waters of Igauçu River, this new incident tragically reinforce the impact atmosphere in the Brazilian society

Environment Management Systems, ISO 14000 Certifications, Inspection techniques, became priorities, and served as a basis for a new package of institutional demands regarding environmental matters. The result of such pressure raised the environmental questions to a higher level in the administrative structure of oil companies. This lead to the incorporation of environmental management within the “business”, and was not only considered an area of secondary importance.

This paper describes the whole process of change and details these new institutional demands relating to the challenge of having the best environmental techniques and management in the oil industry established in Brazil.

(*) National Petroleum Agency (Brazil) Environmental Specialist – mztaam@yahoo.com

INTRODUCTION

In his book “The Petroleum”, Daniel Yergin pointed out that the oil industry history was a “history of greediness, money and power”, in this order. In fact, from an environmental perspective, the result was an industry sector with none or very little care for the environment up to the 60’s.

There was some improvement in the 70’s and 80’s, and the industry was trying to incorporate the concept of “Sustainable Development” in the 90’s, even without a full understanding of what that really meant. Anyhow, regarding environmental concerns, the oil industry just follows very familiar statements in the course of the economical development, as follows:

- Real big changes in behavior, mentality and legislation only occur, in an effective way, after a major disaster. It is the prevalence of the “a posteriori” logic.
- The outcome as new environmental regulations, new operational procedures, environmental consciousness, preparedness and response capacity, appear or are created promptly, demonstrating that have always been achievable but latent, with no political or internal force to prevail by themselves.

The Guanabara Bay oil spill in Rio de Janeiro has put in check not only the oil industry, but also the Brazilian environmental regulation and the environmental agencies work as well. In fact, the accident repercussion at the media and a strong public opinion pressure rather than a self reflection of the main agents were the main reasons for the entire change of attitude and an environmental level of concern regarding the oil industry segment.

SIZING THE PROBLEM

The oil industry in Brazil could be summarized as an universe of 1.3 Mbbbl/d oil – 36.5 Mm³/d gas production, a 2.0 Mbbbl/d refinery capacity, 15,570 km of oil, oil products and gas pipelines to supply a national consumption demand of 1.8 bbl/d oil – 27.0 Mm³/d. Imports account for 379,000 barrels/d of crude oil, 192,000 barrels/d of oil products.

The Exploration and Production (E&P) activities are heavily concentrated offshore, those correspond for 81% of all Brazilian oil production mainly at the southeast region, besides there are also inland and coastal activities in the north and northeast region. Oil and oil products in pipelines are mainly concentrated at the south and southeast, crossing all this regions having always freshwater and coastal areas in its way. The refining park comprises 14 industrial units; the majority of them are also in south and southeast region and located close to freshwater or coastal areas. Maritime terminals are spread all over Brazilian coast.

THE ENVIRONMENTAL REGULATION SCENARIO PRIOR “GUANABARA BAY OIL SPILL”

The fact is that, at this point in time, there was no clear environmental scenario regarding the oil industry in Brazil. Some uncoordinated environmental regulations, debilitated environmental agencies, an environmentally relapse industry, lack of environmental incident notification and a passive public opinion compounded the ingredients that gave room for big environmental disasters.

The upstream segment with a specific regulation for the environmental license process that could be summarized as follow:

- *Drilling Previous License (license given before initiating drilling activities)*
 - Authorization for drilling activities for oil and gas research.
 - An Environmental Control Report is required for approval.

- *Production Previous License (license given before activities)*
 - Authorization for production activities with viability research purpose.
 - An Environmental Viability Study for these activities is required for approval.

- Installation License
 - Authorization for the installation and build-up of systems for oil production and transportation.
 - An Environmental Impact Assessment is required for approval.
- Operation License
 - Authorization for the commercial operation for oil and gas production.
 - An Environmental Control Project is required for approval.

The downstream segment comprising the stocking, transporting, refining and processing of oil and gas, constituted no exception from the other industries or activities that are normally eligible to acquire environmental licenses focusing environmental viability of the enterprise (Previous License), build-up authorization (Installation License) and commercial operation (Operation License).

All this worked somewhat , but not for the projects that preceded the law validity start point date, in the case 1986. Some advocated that previous projects should not have to get any environmental license and this, of course, was not the understanding of the environmental agencies. However, this gave room for an endless process of postponing the acquisition of environmental licenses for these projects. Which means that exactly the old projects with most probable technological obsolescence and material fatigue become the ones out of reach by the environmental license process. Environmental accident probabilities highly increased in this scenario.

Also at this time, there was no environmental regulation for underground storage tanks, only engineering standards, gas stations were not supposed to get any environmental license. No compulsory replacement policy and no inspection routine, resulted in a vast number of old facilities still running without any restriction, representing a potential environmental risk universe.

THE ENVIRONMENTAL REGULATION SCENARIO AFTER “GUANABARA BAY OIL SPILL”

The American Parallel

The reason for this section is the fact that in many important ways the Brazilian experience of change does not differ from what happen in the U.S. regarding environmental regulation changes occurred after the “Exxon Valdez”, just that the oil industry in Brazil and the public authorities waited 10 years for its’ own accident.

In the past, the American government intervention was characterized as of “watchdogs”, acting under the perspective of the natural resources preservation, centered in methods and techniques for avoidable loss or the unnecessary waste. Later it became the figure of “governmental permissions” to start and shut down, oil and gas exploration and production activities, now on an environmental focus.

In the waves of the “Exxon Valdez” repercussion (March1989) the “Oil Pollution Act – OPA” was promulgated as an amendment to the “Clean Water Act”, had an incredible fast trajectory and approved by the United States Congress in 1990.

The very core of all changes, is the “ Facility Response Plan” that became mandatory for the oil and gas industry and needing the approval of the public authority as a “must” in order to operate.

The existing projects have a 6(six)-month period to comply with the new requirements.

This represents the introduction of:

- Notification mechanisms
- Emergency Plans
- Risk Analysis
- Alarms and Monitoring
- Inspection Routines
- Security Systems

Another important point was the support and incentives for auditing practices, including a self-disclosure policy.

THE NEW INSTITUTIONAL DEMANDS

In the Guanabara Bay accident aftermath, a distrustful atmosphere was established that put in check the environmental performance and management of all oil industry activities. As a result of such pressure, a set of new legislation and regulations were created in search of new and efficient environmental control mechanisms for prevention, monitoring and response to incidents that could result in environmental damage or social risk.

In the same way of what happened after the “Exxon Valdez”, the Brazilian Congress approved a Federal law (Law n° 9.966, from April, 28,2000) establishing requirements for prevention, control, and the inspection of oil and hazard substances pollution in national waters and, in our case, creating an institutional architecture based on the maritime authority – the Navy, the environmental authority –the Ministry of the Environment and the oil regulating agency – ANP, with duties and responsibilities that are very well defined.

This law, among other objectives, internalizes the MARPOL 73/78 – International Convention for Pollution Prevention from Maritime Transportation and the OPRC /90 - International Convention for Preparedness, Response and Cooperation for Oil Pollution Situations. But, in fact, this law is much broader than this international conventions, and include oil terminals, pipelines and coastal/marine facilities.

The main points addressed by the law are:

- **Risk Management and Emergency Plan;**

At this point, the law requires that all facilities implement an “Oil Pollution Risk Assessment” including a comprehensive manual of internal procedures dedicated to the prevention of oil pollution incidents. The law also requires an “Emergency Plan” to be implemented during oil spill incidents, and that such plan has to have the formal approval of the environmental agency,

in general the Federal Agency approves the Plan of offshore facilities, and the State Agency approves inland and coastal activities, in some special cases this rule could not prevail.

In case of areas that concentrate several activities of the oil industry, the emergency plans of the facilities will be consolidated by the environmental agency in what one “Area Emergency Plan” , that can be understood as a “Contingency Plan” where a policy of joint efforts including the public sector, a key factor.

In order to support the environmental agencies and the oil industry in the full understanding of the emergency plan requirement, a task force was created to work together to implement the law, establish guidelines for the “Minimum Requirements for an Individual Emergency Plan” that apply to the oil industry. The document has been just approved (December, 2001) and it is based on the very concept of accidental scenarios: from the highly probable one to the worst case, representing an evolution from strict “own resources” requirements (highly probable scenario – small discharges) to the possibility of summing up these resources to a third party enforcement (medium discharges and worst case scenario).

Other important point is that the approval of the emergency plan will be tied as part of the environmental licensing process for new facilities and the environmental license renewing for the old ones. As a primary goal, within 2 years, all oil and gas industry must cope with the “minimum requirements”.

- **National Contingency Plan**

The Law 9.966 also states that the Ministry of the Environment shall elaborate a “National Contingency Plan” in articulation with other governmental authorities.

This plan is its’ final stage of approval and its basic philosophy is to have all federal authorities as facilitators to the response as needed.. Although a close follow up of any relevant oil incident is predicted, the takeover of the response activities will only take place in the event of needed

international involvement or unknown responsibility in large scale oil pollution incidents, and also in out-of-control cases or response actions conducted negligently.

From the beginning, an incident evaluation of relevance is conducted to decide whether the National Plan had to be triggered even for follow up purposes, using criteria such as oil spill magnitude, environmental area sensitivity, international involvement, and/or lack of paternity. Once the local response plan is in action, a regional coordination assumes the response follow up to provide information and have the response team demands of “facilitation actions” reach the Federal Coordinator. The expected result is to have federal authorities expedite questions related to their areas of responsibility and have access to any related federal data bank, even approve the entrance of foreign materials, human resources and area interdiction. In case the Federal Coordinator decides to take over of the response an “in-site” commander will be designated and all costs will be accounted for further reimbursement, a final report will be issued for documentary purposes and to back any legal action development.

- **Maritime Transportation Requirements and Procedures for Discharges**

The federal law 9.966 basically reinforces all MARPOL 73/78 convention requirements for maritime transportation specially regarding documentation and the exception allowance for discharge, but such exception allowance is only granted, if assumed discharge does not occur in ecological sensitive areas. The procedure for a discharge must be approved by the environmental agency.

In any case, the party responsible for the discharge is liable to repair any damage to the environment and/or to indemnify public or private interests affected by the discharge. The ships under the International Convention for Responsibilities on Damages from Oil Pollution – CLC/69 must have financial guarantee or certification to be allowed into Brazilian national waters; if the ship is not under the CLC/69 than it will be arrested until it can provide a financial guarantee to cover the costs of damages and the specified indemnities..

- **Environmental Auditing**

A point of special relevance is related to the need of independent environmental auditing for the oil industry. In fact, there was a previous state law in Rio de Janeiro that prescribed this obligation, but now this is extended to all other states in Brazil.

Some principles to be applied in this requirement are still very much in contention. Let's begin with the concept of "independent environmental audits"; some advocate that an audit is only independent if it is performed by a third party that is not involved with the company; others think that to be independent is an absolute concept that can also include people from the company that have no hierarchical relation with the facility to be audited.

Unfortunately, it seems that the need to perform the environment audits in industry came prior to the governmental sector been able to define an auditing policy. For instance, the establishment of a "self-discovery" policy for industry is completely different from one where the objective is punishment, such that in the "self-discovery" atmosphere, the intention is to relieve the penalty and to use the available resources in the financial schedule to implement the correction actions needed. So, a governmental auditing policy must be clearly defined.

GUANABARA BAY INCIDENT REPERCUSSIONS FOR GAS STATIONS AND VEHICLE SERVICE FACILITIES

At first this point can be seen out of proportion, but the fact is that repercussions from the Guanabara Bay oil spill accident made it possible to conclude the process for establishing environmental requirements for gas stations and vehicle service facilities, and creating rules for underground storage tanks. Up to that moment, this was an endless task, with no final agreement. The environmental resolution establishes the minimum requirements for new facilities and requires that old ones set up an environmental agenda, based on a risk analysis.

ANP- RESPONSABILITIES AND ACTIONS ON THE ENVIRONMENTAL AREA

ANP's legal attributions regarding environmental care and protection, is are stated in the Federal Law 9.478 from 1997, the law that created the ANP, and that contains responsibilities in the areas of safety and rational use of the natural resources.

In fact this combination reflects a modern tendency to deal with safety and environment as an integrated binomial concept.

To accomplish its responsibilities on environmental issues, the ANP has developed a set of tasks that reinforce the importance of the pending Environmental Licenses and the necessary partnership with other environmental authorities.

We have in one side the main responsibilities of the environmental agencies and counsels, where we highlight:

- The establishment of environmental standards and general principles.
- The issuance of environmental licenses.
- Environmental control and inspection.

In its area of competence, ANP has joined in the effort of pollution prevention and institutional reinforcement, by:

- Making the Environmental Licenses a requirement to grant concessions and authorizations for oil industry activities.
- Establishing project quality standards and operational inspections.
- Promoting institutional partnership with other environment authorities.
- Establishing responsibilities and operational causes in oil industry incidents.

CONCLUSION

Fundamental changes in environmental and personnel security management and institutional demands cannot be strictly connected to the knowledge of new process or even prevention and response new techniques to accidents. It seems that if deep changes occur, it has to be in the aftermath of a big incident, the only fact of availability of knowledge, tools, etc. is necessary but

by no means enough to dictate the changes in regulations and even in the behavior and beliefs of organizations.

This paper presents the Brazilian case, and shows that it had taken 10 years for some changes in regulation take place, that contemplate the needs identified after the “Exxon Valdez” oil pollution accident. Unfortunately, this change was only possible in the aftermath of the Guanabara Bay oil pollution accident and its reflection on the public opinion, we had to have our own “big oil pollution accident”.

At the oil industry level, several actions resulted from the new set of institutional demands. They can be highlighted in the improvement of material and human resources supporting their response plans, the change in the organizational structure to raise the environmental management to a higher standard, and last but not at all least, the most difficult task, of having success while promoting real change in the culture and belief system of the organization, including contractors, which have environmental responsibility in all activities.

Energy is one of the biggest challenges Brazil faces nowadays, and this immediately reflects on the pressure of the environmental institutional decision process, the National Petroleum Agency – ANP has the firm conviction that the question shall change from “Can we do?” to “Should we do? And How?” and that every effort to have all oil activities in harmony with the concept of sustainable development will only make sense if conducted in an open and transparent atmosphere; an atmosphere that includes all segments of society, including the communities directly affected by these activities. In fact this is the reason for the Agency’s existence.

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AUTHOR BIOGRAPHY:

Mr. Mauricio Taam has worked as an environment specialist for the Brazilian Oil Regulatory agency – ANP since Feb.2000, and have a 15 years experience in the field of environmental management and also on-site environmental projects implementation. Mr.Taam have been the ANP’s representative in the governmental working groups for the definition of regulation, co-author of the resolution on emergency plans requirements for the oil & gas industry and the definition of the National Contingence Plan, has also been in the group that established rules and requirements for gas station license process and is the ANP’s representative in the environmental group of the Energy Policy National Council – CNPE.