

PROTECTING PEOPLE, ASSETS, AND THE ENVIRONMENT IN THE GULF OF PARIÁ, VENEZUELA: SECURITY PLANNING FOR EXPLORATION AND PRODUCTION IN A SENSITIVE ENVIRONMENT

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ABSTRACT

The International Maritime Organization (IMO) and the United States Maritime Transportation Security Act (MTSA) have placed new security planning and preparedness requirements on oil and gas exploration and production (E&P) facilities. Qualifying E&P facilities within territorial waters of countries signatory to the International Convention for the Safety of Life at Sea (SOLAS), were to have completed Security Vulnerability Assessments (SVAs) as early as July 2004. In some countries, this deadline has been extended. There are currently no comprehensive SVA guidelines that companies can use to evaluate their onshore and/or offshore facilities. Furthermore, existing guidelines focus on security threats stemming from potential acts of terrorism and do not adequately address many equally important security concerns faced by E&P facilities worldwide.

ConocoPhillips Venezuela (COPVen) and its partners, Corporación Venezolana de Petróleo (CVP), Eni Venezuela B.V., OPIC Karimum Corporation, and Inelectra C.A., have significant hydrocarbon investments in Venezuela—and understand the importance of security planning during every phase of operations.

This paper describes how COPVen adapted existing methodology to complete an innovative SVA of current as well as planned facilities and activities in the Gulf of Paria, northeastern Venezuela. Consistent with the companies' sustainable development approach in the region, the SVA anticipates potential security threats, prioritizes issues, and proposes mitigation measures that enhance security. This paper also describes how COPVen incorporated social and environmental considerations and used an innovative methodology to complete the work. The process used by COPVen and its partners represents a basis to identify, plan, review and

continuously improve system-wide and facility-specific security measures to protect people, assets and the environment in the Gulf of Paria.

DISCUSSION

Background

ConocoPhillips Venezuela (COPVen) and its partners, Corporación Venezolana de Petróleo (CVP), Eni Venezuela B.V., OPIC Karimum Corporation, and Inelectra C.A., have significant hydrocarbon investments in Venezuela and are currently developing an operational venture including offshore facilities in the Gulf of Paria—an environmentally and socioeconomically sensitive region of northeastern Venezuela.

Planned development will result in an increase in personnel, activity and infrastructure, which, in turn, will require an increase in security planning, routine surveillance and emergency preparedness relating to these operations. Furthermore, recent international and Venezuelan regulatory changes have increased the focus on assessment and planning of security measures relating to ships and port facilities. As the Operator, COPVen decided to complete a security vulnerability assessment (SVA) to anticipate and plan for potential security issues that might affect its personnel, operations and assets in the Gulf of Paria. Completing an SVA was also consistent with the premise, goals and approach of the Company's sustainable development strategy, called the Locality Management Strategy (COPVen 2003), for activities in the Gulf of Paria.

COPVen initiated the SVA process in 2003—and addressed logistics bases as well the offshore E & P operations within the GOPE & GOPW blocks (Figure 1).

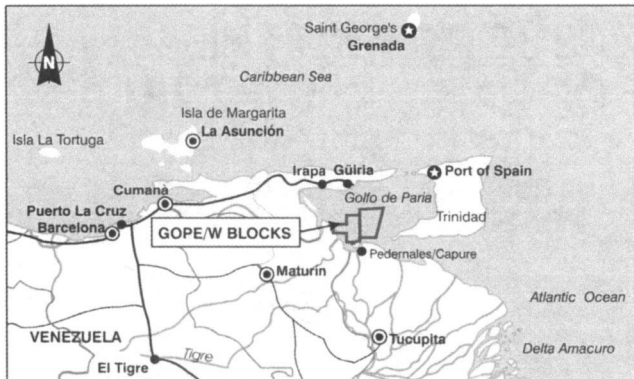


FIGURE 1. LOCATION OF PROPOSED HYDROCARBON DEVELOPMENT ACTIVITIES

Regulatory Context and Applicable Guidance.

Signatories of the International Convention for the Safety of Life at Sea (SOLAS) have required that maritime vessels and port facilities begin the process of adopting new security requirements by July 2004. Relevant international guidelines include the International Maritime Organization (IMO) International Ship & Port Facility Security (ISPS) Code. At the time the SVA was initiated, the regulatory oversight entity for Venezuela, Instituto Nacional de Espacios Acuáticos (INEA), had recently been appointed and had begun engagement with the regulated facilities. INEA also extended the deadline for meeting ISPS Code requirements to December 2004.

There are no comprehensive guidelines (Venezuelan or international) for the completion of SVAs for offshore facilities. Furthermore, existing guidelines focus on security threats stemming from potential acts of terrorism and do not adequately address many equally important security concerns faced by E&P facilities worldwide.

Selection and Adaptation of Methodology.

To address the wide range of COPVen facility types and in light of the absence of comprehensive SVA guidelines, the assessment team adapted existing U.S. Coast Guard (USCG) methodology (see Navigation and Vessel Inspection Circular (NVIC) 11-02, Recommended Security Guidelines for Facilities). These changes are outlined as follows:

- **Consequence Matrix:** The NVIC 11-02 guidance consequence definition matrix was replaced by the consequence matrix presented by the American Petroleum Institute (API) (see Recommended Practice #70 (RP-70)). This was done because the NVIC 11-02 consequence matrix is designed to address facilities that store or handle hazardous materials. The API consequence scoring definition does not rely on the presence of hazardous materials, but rather on quantifying the effect based on potential for loss of lives, economic and environmental impact—a methodology that is more appropriate for offshore hydrocarbon production activities and facilities as well as security threats to COPVen operations in the Gulf of Paria.
- **Enhanced Notional Threat Scenario List:** Another important change was to adapt the Notional List presented in NVIC 11-02 to better reflect the threat situation for the

Gulf of Paria and nearby communities. The list was tailored by removing those items found in the NVIC’s guidance that did not apply. This list was also augmented with the threats specific to the region. The final list includes over 30 specific threats divided among the 11 different NVIC 11-02 threat categories.

- **Social and Environmental Considerations:** Hydrocarbon findings in the Gulf of Paria present a unique opportunity for COPVen and its partners. However, this opportunity also comes with an equally unique set of challenges that must be considered in development of the operational systems, including the physical security systems and security management processes. Important factors include:
 - The Gulf of Paria and Orinoco River Delta is a frontier area;
 - The region is a dynamic, ecologically sensitive estuarine system of international significance;
 - The region is socio-economically complex.

The above-noted environmental and socio-economic sensitivities present a context where security assessment actions traditionally mandated—mainly due to terrorist activities—must also consider a wider range of other security vulnerabilities, such as criminal as well as activist threats. These threats were integrated into the baseline threat matrix prior to completing field audits.

- **Scenario Applicability:** Another departure from the NVIC 11-02 methodology was to include in the SVA a matrix listing all threats by all locations. NVIC 11-02 documents only those facilities and scenarios that are likely to occur; however, there is significant value in keeping a record of those that are not considered a significant vulnerability at any one point in time. It is possible for a threat at a particular facility to change over time. Keeping a record of all scenarios evaluated will ensure that this type of change can be subsequently detected and evaluated.

In summary and as shown on Figure 2, the COPVen’s SVA methodology consisted of the following:

- 1) Developing a list of possible threat scenarios based on the specific environmental, socioeconomic, geographical, and political context of each facility, location and / or activity;
- 2) Visiting existing facilities and proposed locations during which the Team revised the list of scenarios and selected those that were most applicable, relevant, and reasonable for each facility;

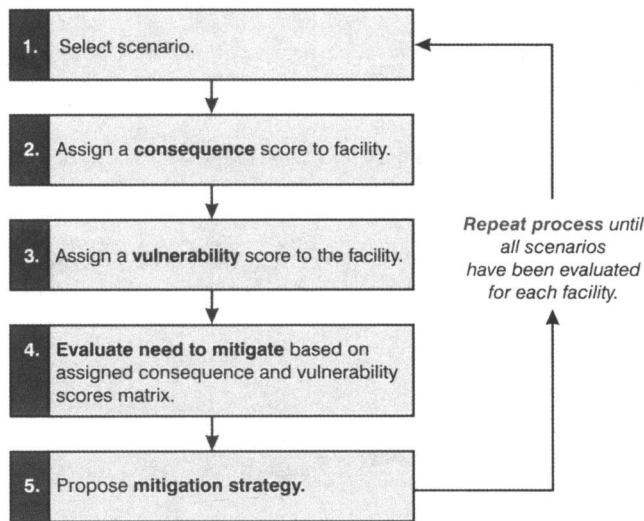


FIGURE 2. SUMMARY OF THE COPVEN SVA PROCESS

- 3) Completing a systematic prioritization of threats to current and future facilities, transport routes, and community relations activities based on field-verified scenarios; and
- 4) For the highest priority scenarios, proposing security mitigation measures that could be implemented prior to facility development or occupation to decrease the level of threat that was anticipated.

Unique Opportunity to Affect Change.

The COPVen Gulf of Paria SVA process was unique in that it was completed on future facilities and activities or facilities still under development. These included offshore elements (the exploration activities, the construction activities, and the production activities) of which some were still over a year away from being operational; whereas most assessment processes are applied to existing facilities and management systems. This innovative approach allowed the assessment team to identify systemic issues and then propose mitigation through the application of best practices, many of which were then incorporated into the design resulting in an overall improvement of security relative to future operations. In doing so, COPVen eliminated one of the major areas of failure in security assessment, namely, the identification of issues after construction at a time when it may not be feasible or cost effective to remedy.

Furthermore, completing the SVA prior to operational status allowed COPVen to better define security systems: Security management systems relating to these facilities had not been established, and security management staffing had not been completed. COPVen adapted existing security management systems that the Company employed in other operations areas while also improving them with the latest best practices. Improvements and lessons learned in the Gulf of Paria will likely flow back to operations in other locations.

Process Forward.

Based on the results of the SVA, COPVen is developing a comprehensive Facility Security Plan (FSP). The system will be validated with operational personnel through drills and exercises. At the same time—and in keeping with COPVen's strategy of continuous improvement—appropriate revision will be made to the SVA in order to incorporate lessons learned, and security-specific updates once facilities are operational.

CONCLUSION

COPVen has completed the first stages of security systems improvement meeting the requirements of Venezuelan and International regulations and best practices. To date COPVen has defined and documented the need for security considerations in keeping with a risk-based quantitative methodology; developed measures to reduce security threats that were determined to be high; and established a basis upon which to focus both routine and emergency contingency security plans and procedures.

COPVen has realized significant improvements with cost savings by initiating this process during the planning and design phases; and, by integrating relevant geopolitical, socio-economic and environmental context considerations into the process of security assessment and planning. Finally COPVen and its partners have also set an important standard in integrating security considerations as part of their overall sustainable development approach in the Gulf of Paria.

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