MANUAL FOR EXPLORATION OPERATIONS **OFFSHORE URUGUAY**

ANCAP

Manual for Exploration Operations

Offshore Uruguay

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1. INTRODUCTION

Considering the increasing development of exploratory activities offshore Uruguay, as of 2012, a collection of information, records and reports was carried out, as well as good practices to carry out exploratory operations in the territorial sea and exclusive economic zone. A manual was prepared that is expected to serve as a reference for ANCAP and Operators, Contractors, Subcontractors and service companies under multi-client contracts with ANCAP operating offshore Uruguay as well as for other institutions or government agencies related to the activity.

There is a multiplicity of actors related to hydrocarbon exploration activities offshore Uruguay. These can be classified into public and private actors. Among the private ones, there are international oil companies, submarine infrastructure operators, fishing companies and service companies. **ANNEX 1** presents the institutions and organizations related to offshore operational activities, including telephone numbers and addresses in Montevideo.

The preparation of this manual was carried out through the compilation and revision of standards, guides and procedures that constitute good practices in the offshore industry, as well as ANCAP's experience in coordinating these activities with the relevant actors, taking into account national and contractual regulations. **ANNEX 2** presents, as an indication, a compilation of the national legal and regulatory framework related to the exploration activities offshore Uruguay [1-3] as well as the international conventions and agreements of which Uruguay is part of, corresponding to activities related to offshore exploration. It should be noted that this list is not exhaustive, being the responsibility of Contractors, Operators, Subcontractors and service companies under a multi-client contract with ANCAP, to ensure the identification of all legal requirements that apply to their activity.

This manual does not exempt Contractors, Operators, Subcontractors and service companies under a multi-client contract with ANCAP from the obligation to comply with all national and/or international regulations that are applicable to the activity they carry out.

This document will be revised periodically.

This latest version of the Manual has been organized by type of exploratory operation, including:

- Seismic Acquisition Operations
- Drilling Operations
- Other Exploratory Operations

For each of these three categories, the requirements and recommendations are presented regarding:

- Standards and Recommended Practices
- Reports and Communications
- Information Management

Standards and Recommended Practices:

The companies that carry out exploratory operations must follow standards that represent the best practices in the industry.
International standards are those prepared by an international standards development organization. A compilation of these standards has been made in 2012 by the International Association of Oil and Gas Producers (IOGP) in the *Catalog of International Standards used in the Oil & Gas Industry* [4]. The applicable ISO standards in the oil and gas industry can be found in [5]. Specifically the list of standards and guidelines for drilling, well construction and well operations was published by the IOGP and can be found in [6]. The list of API standards for Exploration and Production is presented in [7].

Before the start of operations, the company must notify ANCAP of the standards that will be applied (including exceptions to international standards, such as the application of its own standards with higher requirements than international ones). This information must be included in the Environmental and Safety Management Plan of the respective operation.

Regarding the inspection of ships, the application of the OVID system is recommended. OVID (Offshore Vessel Inspection Database) is a voluntary inspection system where inspections are uploaded to an online database. The inspection questions contain a combination of regulatory compliance and good industry practice.

Ships are inspected only by accredited inspectors and no self-assessments are carried out [8].

Reports and Communication:

The Operator shall periodically inform ANCAP of the tasks and of any other matter of interest regarding Exploration activities, in accordance with the provisions of the Exploration - Exploitation Contract or the Agreement for the Acquisition of Geological and/or Geophysical Data.

Likewise, due to the specific characteristics of certain activities, communication to other organizations is necessary for the proper coordination of operations as well as for compliance with regulations and obligations for permits issued by them.

Before, during and after exploratory operations, the Operator must make a series of reports and notices regarding its activity to a variety of recipients, including both government and private agencies. In this document, the matrix of recipients and communications is presented for each type of operation.

Information management:

Regarding the Exploratory Information Management, the exploration-exploitation contracts signed by ANCAP with oil companies, as well as the multiclient type with services companies, establish, among other aspects, that:

- The ownership of the data and information generated as a result of all the exploratory operations, resides exclusively in ANCAP.
- Eventually and under the agreement of the other party, ANCAP may release part of such exploratory data to third parties.

In the sections of this document corresponding to this topic, the following items are defined:

- Standards for recording and storing information (geophysical data, geological data, samples).

- Criteria for the delivery of the information to ANCAP and other competent authorities.

2. OBJECTIVE

The objective of this document is to provide the guidelines, recommendations and requirements of ANCAP for the design and execution of exploratory operations that are carried out offshore Uruguay, in a safe, environmentally sustainable way, in a climate of good relationship with the relevant actors of the maritime field and in accordance with the best practices of reference applied in the industry at an international level.

3. GLOSSARY

AAO	Operations Environmental Authorization
AAP	Prior Environmental Authorization
AFE	Authorization For Expenditures
ANCAP	National Administration of Fuels, Alcohol and Portland
ANP	National Ports Administration
ARNR	National Regulatory Authority for Radioprotection
AST	Job Safety Analysis, document in which the analysis prior to the execution of a task on potential risks and control measures is recorded; it is carried out by the executing team itself.
BOP	Blow Out Preventer
CL	Composite Log
Contractor	Exploration and exploitation contract holders and service companies under multi-client contracts with ANCAP.
DAC	Daily Activity Chart
DDR	Daily Drilling Report
DGR	Daily Geological Report
DINACIA	National Directorate of Civil Aviation and Aeronautical Infrastructure
DINAMA	National Directorate for the Environment
DINARA	National Directorate for Aquatic Resources
DLW	Daily Wellsite Lithology log
DNA	National Customs Directorate
DP	Drilling Program
ECD	Equivalent Circulating Density
EOWR	End Of Well Report
ESD	Equivalent Static Density
FHSER	Final HSE Report
G&G	Geology and Geophysics
GEOWR	Geological End Of Well Report
GP	Geological Program
HSE	Health, Safety and Environment
High impact incident	An incident that has or may have in the judgment of the

	personnel involved in it and as part of a first evaluation, consequences (actual or potential) of severity levels A and B in the risk assessment matrix of ANCAP, which implies as a minimum: • A death or disabling injury. • Material damages of U$S 1,000,000. • Greater or extensive impact on the environment. • Press coverage at a national level.
LCAP	Loss Circulation Assessment and Planning
MEDEVAC	Medical evacuation
MIEM	Ministry of Industry, Energy and Mining
ML	Mudlogging
MOPO	Matrix of Permitted Operations
MRCC	Marine Rescue Coordination Centre
MRREE	Ministry of Foreign Affairs
OFM	Marine Mammal Observer
Operator	Initially it means the Contractor, and later the company that the Contractor designates to carry out the Petroleum Operations on behalf of the Contractor, and that has the approval of the Management Committee.
PAM	Passive Acoustic Monitoring
Petroleum Operations	They are defined in the Exploration-Exploitation contract as the execution of the Exploration, Exploitation and Supplementary Operations and Ancillary Operations activities. This document deals only with Exploration activities.
PGAS	Environmental and Safety Management Plan
PNN	National Naval Prefecture
Deepwater well	Offshore well in which subsea BOPs are used
PvA	Prognosis vs Actual
PvF	Prognosis vs Final
Rex	Return of experience
SEV	Vertical Electrical Sounding
SLDR	Surface Logging Daily Report
SMA	Material and Armament Service
SOHMA	Oceanography, Hydrography and Meteorology Service of

	the Navy
WHSER	Weekly HSE Report
WLF	Wellsite Lithology Final

4. SEISMIC ACQUISITION OPERATIONS

Below are presented the ANCAP guidelines, recommendations and requirements for the design and execution of the seismic acquisition operations to be carried out Offshore Uruguay.

4.1. STANDARDS AND RECOMMENDED PRACTICES

For the development of geophysical operations and specifically regarding safety, it is recommended to follow the latest edition of the IAGC Marine Geophysical Safety Manual of the International Association of Geophysical Contractors - IAGC [9]. The purpose of this manual is to highlight areas of care and provide guidance on best practices for risk management in the workplace. Likewise, it is suggested to use as a guide the latest edition of IOGP Report 432 (International Association of Oil and Gas Producers), “Managing HSE in a geophysical contract” [10]. Its objective is to compile the best practices and standardize the management of health, safety and environment.

These and/or any other document taken as a guide for the development of geophysical operations must be declared by the company in the Safety Management Plan.

4.2. REPORTS AND COMMUNICATIONS

Before, during and after seismic acquisition operations, the contractor will send a series of reports and notices regarding its activity to a variety of recipients, including both government and private agencies.
The matrix of recipients and communications is presented in **Table 1**.

Report	Frequency	ANCAP	National Army	DINARA	MIEM	SUBMARINE INFRASTRUCTURE OPERATORS	DINAMA
Documents related to the request of Environmental Authorization	Before start	■					■
Safety Management Plan	Before start	■					
Navigation Lines Program	Before start	■					
Metocean Data List	Before start	■					
G&G Data List	Before start	■					
Notice to Mariners	48hs or when changing plans	■	■	■	■		
Seismic Source Modeling Report	Before start	■				■	
Operation Report	Daily	■					
Incident report (in case it occurs)	When it occurs	■	[1]				[2]
Onboard Acquisition and Processing Report	At the end	■					
OFM/PAM Report	Daily, weekly and at the end	■		■	■		
HSE performance report	Weekly and at the end	■					
Submarine cable crossing notice	6hs before crossing	■	■			■	
Documents and reports after the Environmental Authorization	Defined by DINAMA	■					■

Table 1 – Matrix of Comunnications for seismic acquisition operations

The types of reports and their recommended minimum contents are detailed below, with their format templates as well as the basic list of contacts for each communication, which will be updated at the corresponding Coordination Meeting.

[1] When applicable depending on the incident
[2] When applicable depending on the incident

4.2.1. DOCUMENTS RELATED TO THE APPLICATION FOR ENVIRONMENTAL AUTHORIZATION

Seismic acquisition operations were incorporated into the process defined by Law 16466 and Decree 349/2005, through Decree 72/2016, for the request of the corresponding AAP and AAO.
As part of this process, in cases where the project is classified as B or C, the contractor must prepare an Environmental Impact Assessment, and the corresponding Environmental Management Plan.
The Operator is responsible for managing environmental authorizations, periodically informing ANCAP of the progress in its processing.
To adequately meet the schedules, it is recommended to make the Project Communication, 24 months before the scheduled start of operations.

The documents related to the request for Environmental Authorization include communication of the project, environmental impact assessment, responses to requests for Complementary Information and the Environmental Management Plan, among others.

Likewise, the submission of documents and reports is required after obtaining the Environmental Authorization. These documents will require the presentation of environmental performance reports with a frequency defined by DINAMA. Additionally, it will be necessary to submit a project closure report, which is also part of these documents.

Regarding the guidelines for the evaluation of impacts as well as for the application of good environmental practices, it is suggested to consult the “Environmental Impact Assessment Guide for Marine Seismic” [11]. The guidelines set forth in this guide are specific for marine seismic and study activities through methods that use acoustic and electromagnetic sources in the exclusive economic zone. These guidelines apply both for the communication of the project and for the request for Prior Environmental Authorizations, in all the stages established by Decree 349/005.

For the preparation of the environmental management plan, it is suggested to consult the bibliographic review "Oceanographic Program of Characterization of the Uruguayan Continental Margin - ZEZ" [12].

Additionally, ANCAP requires a safety management plan for the seismic operation, including risk analysis and a matrix of permitted operations.

4.2.2. SAFETY MANAGEMENT PLAN

The Safety Management Plan aims to present the prevention and mitigation measures to be applied to avoid harm to people derived from the project. In the case of seismic acquisition operations, the contents recommended in the ¡Error! No se encuentra el origen de la referencia. must be considered. ANCAP, after endorsing this plan, may participate in the activities it considers appropriate, in the way opportunely agreed (inspections, audits, training, drills, incident investigation, etc.).

In the event that the Operator considers it convenient, it is admitted to include safety issues in an Environmental and Safety Management Plan (PGAS), in which case, in addition to following the recommendations indicated in the **ANNEX 3**, it must meet the minimum content requirements established in the Exploration-Exploitation contract, and contemplate the observations and guidelines from DINAMA that arise from the Environmental Authorization process.

Before the start of operations, this PGAS must be brought to the attention of the National Naval Prefecture (PNN), which has jurisdiction in the prevention of contamination of the marine environment from ships, aircraft, and naval artifacts.

4.2.3. PROGRAM OF NAVIGATION LINES

Prior to the start of operations (at least one month in advance), the contractor must submit the program of the navigation lines (preplot) of the survey, including the acquisition sequence for each section. These will be delivered to ANCAP in *.SHP format as well as on a map in *.PDF format (UTM22 projection). Likewise, the exclusion polygon (navigation area and exclusion zone for the navigation of other ships) must be included in both formats, separated into stages (“swath”) if applicable.

4.2.4. METOCEAN DATA LIST

Prior to the start of operations, a list of the metocean data that will be acquired during the survey must be presented, following the model of **ANNEX 4**.

4.2.5. G&G DATA LIST

Refers to all the raw, processed and interpreted data, navigation data, seismic data and other that are expected to be generated in the survey (see detail in **ANNEX 5**).

4.2.6. COORDINATION MEETING

In the week prior to the start of operations, a coordination meeting will be held in which representatives of the operating company, maritime agency and different national institutions related to the activity will participate, in order to adjust the contents of the reports and communications that will be sent from the seismic vessel, as well as the final list of recipients.

The meeting is held at the ANCAP headquarters and the list of participants will include representatives from:

- National Naval Prefecture (PNN)
- Oceanography, Hydrography and Meteorology Service of the Navy (SOHMA)
- National Directorate for Aquatic Resources (DINARA)
- Operating Company of the Area (in the case of awarded areas)
- Geophysical Contractor Company
- Maritime agency
- Submarine infrastructure operators (if applicable according to the area of operation)
- ANCAP

The Operator will make the corresponding coordination/invitations to carry out this meeting.

The agenda is as follows,

- Presentation of the project (ships, equipment, schedule, logistics, summary of the PGAS including contingency plan, MEDEVAC and procedure regarding communications in the event of a high impact incident).
- Presentation and definition of type and frequency of communications from the ship.

- List of Metocean data to be delivered at the end of the survey (see ¡Error! No se encuentra el origen de la referencia.)
- Coordinaton with SOHMA for the delivery of Metocean data (if it has not already been coordinated)
- Coordination with DINARA for the delivery of Metocean and Environmental data (if it has not yet been coordinated).
- Coordination of a possible visit to the ship

The language for this meeting, as well as for the information presented, will be Spanish.

4.2.7. NOTICE TO MARINERS

The Notice to Mariners aims to provide updated information on the acquisition program and is the basis for the official notification made by SOHMA. The first Notice to Mariners should be sent to the corresponding contacts within the week prior to the start of operations; the list includes representatives of ANCAP, DINARA, MIEM, PNN and SOHMA. After the start of operations, it will be sent every 48 hours and every time there is a change in the plans.

The Notice to Mariners will be sent as an attachment by email, in *.PDF format and with a filesize smaller than 500 kB. The language of these notifications must necessarily be Spanish.

The final content will be adjusted at the Coordination Meeting. ¡Error! No se encuentra el origen de la referencia. presents the minimum content as well as a model Notice to Mariners.

4.2.8. OPERATION REPORTS

The Operation Report presents the details of the acquisition operation. **ANNEX 7** presents the minimum content recommended for reports, as well as a model.

This report will be sent daily to ANCAP and other recipients of the Operator company according to the corresponding list.

4.2.9. OFM/PAM REPORTS

For the seismic acquisition operations offshore Uruguay, the presence of Marine Mammal Observers (OFM) is requiered on board, complemented with Passive Acoustic Monitoring (PAM) operators as an alternative when visibility conditions are restricted. The description of the OFM's activities, requirements and protocols to be followed, as well as the registration forms and presentation of observed data are defined by DINAMA in the "Guía de Evaluación de Impacto Ambiental de Prospección Sísmica Submarina" [11].

Daily reports from OFM and PAM operators will be sent from the seismic vessel, and also this information will be included in a final report. These reports must also present information on sightings of bird species and will be sent to the corresponding list of recipients, which includes representatives from ANCAP, DINARA and MIEM. The reports must include photographic records of the sightings and must be written in Spanish.

¡Error! No se encuentra el origen de la referencia. presents the minimum content of the daily and final reports.

4.2.10. HSE PERFORMANCE REPORT

This report must contain information on the management of the environmental and safety aspects identified for the operation, as well as the environmental monitoring that is carried out during such activities.

The minimum content of the weekly HSE reports is presented in ¡Error! No se encuentra el origen de la referencia..

The Prior and Operations Environmental Authorizations (AAP and AAO) establish the content and frequency of presentation of the environmental performance reports that must be submitted to DINAMA.

4.2.11. REPORTS AND NOTIFICATIONS FOR SUBMARINE INFRASTRUCTURE OPERATORS

In Offshore Uruguay there is underwater infrastructure that must be considered in the design and operation of exploratory surveys. **ANNEX 11** presents general information about the existing submarine infrastructure, its operators and the requirements regarding periodic reports and warnings during the operation.

4.2.12. FINAL ONBOARD ACQUISITION AND PROCESSING REPORT

Once the survey is over, the contractor will deliver to ANCAP a Final Onboard Acquisition and Processing Report, which will include at least the following items:

- General information
- Operations
- Quality Control of the acquisition
- List of data to be delivered to the survey client
- Production statistics
- Safety, Health, Environment and Quality
- Summary and Conclusion (including points to highlight/improve and lessons learned)

- Support documents on DVD

4.2.13. CONTACTS

¡Error! No se encuentra el origen de la referencia. presents the basic list of contacts for each communication, a list that will be updated at the corresponding Coordination Meeting.

4.2.14. COMMUNICATION IN CASE OF HIGH IMPACT INCIDENTS

Any incident occurred during operations must be reported to ANCAP. Depending on the type, other competent organizations must also be informed. Specifically regarding High Impact Incidents, the actions indicated in ¡Error! No se encuentra el origen de la referencia. must be followed.

4.3. MANAGEMENT OF EXPLORATORY INFORMATION

This section presents the minimum requirements regarding the data, formats and storage media, related to geophysics, HSE and metocean data, which must be submitted to ANCAP once the survey has ended. The final list of data will be previously agreed with the company.

Regardless of the data packages to be delivered as explained in the following points, all the raw data acquired must be sent to ANCAP before the ship leaves Uruguayan territory.

For these purposes, delivery must be made to the following address, prior coordination with the Exploration and Production Management of ANCAP:

Paysandú s/n esq. Av. Libertador, Montevideo, Uruguay, CP 11100
ANCAP Oficinas Centrales, 6to piso, Gerencia de Exploración y Producción

The use of Incoterm DDP is recommended, so that all shipping costs (including import customs charges) are covered by the Operator.

¡Error! No se encuentra el origen de la referencia. presents a model checklist, for indicative purposes, so that ANCAP and the Operator can verify their obligations and progress regarding the delivery of information from both HSE and G&G.

4.3.1. GEOPHYSICAL DATA

ANNEX 5 summarizes the requirements regarding format and storage media for the delivery of geophysical information acquired and processed on board. A proposal for structuring folders for such information is also presented.

4.3.2. DATA OF SIGHTINGS AND DETECTION OF MARINE MAMMALS AND OTHER SEA WILDLIFE

In order to standardize OFM and PAM records generated on board of seismic vessels, field and processed data, in consultation with experts, ANCAP has defined the

documents that must be provided to ANCAP by the operators of each offshore seismic program. They are presented in ¡Error! No se encuentra el origen de la referencia..

4.3.3. METOCEAN DATA

According to the list of Metocean data presented before the start of operations. These data must be delivered on a separate disk (or other storage medium), independent of the rest of the exploratory and environmental data (see ¡Error! No se encuentra el origen de la referencia.).

5. DRILLING OPERATIONS

ANCAP guidelines, recommendations and requirements for the design and execution of exploratory drilling operations to be carried out offshore Uruguay are presented as follows.

5.1. RECOMMENDED STANDARDS AND PRACTICES

The construction and operation of a deepwater well requires adequate design and operational procedures. The complexity of deepwater operations involves an in-depth understanding of the deepwater environment (e.g. Metocean, marine and subsoil) as well as specific procedures and equipment. This combined understanding is used as the basis for the design of deepwater wells.

The Operator must carry out its activities in accordance *with "API Recommended Practice 96"* [13].
This document provides well design and operational considerations to assist the experienced well engineer (drilling and completion) to safely design and construct any deepwater well drilled with subsea BOPs. This document also contemplates riserless drilling considerations prior to the installation of subsea BOPs.

On the other hand, in addition to the international standards used, for well logging activities, the provisions of Standard UY 121 "Perfilaje de pozos petroleros" from ARNR must be complied with. It establishes the corresponding radiological safety requirements [14].

5.1.1. WELL NAMING

The wells will be identified with a systematic naming that includes a code and an extended name, adopting the following structure: (separated by underscore "_"):

- Code of the basin, according to the following:

Basin	Code
Punta del Este	PE
Pelotas	P

Table 2 – Offshore Basin Code

- Abbreviation of the well type, according to the following:

Type	Abbreviation
Study	E
Exploratory	X
Delineation	D
Production	P
Injection	I

Table 3 – Abbreviation of the type of well

- Name of the well
- Correlative number of well of that type drilled in the prospect
- Lowercase identifying letter of re-drilling from the surface, in cases where the original drilling was abandoned for technical reasons, the objective of the first well is maintained and it is drilled again. In the original well it is not used, in the second well it corresponds to the letter “b”, in the third one to the “c” and so on.
- Correlative number, indicator of sidetrack or deepening (starts at “2” to identify the first sidetrack)

Different examples regarding well codes are presented below:

P_X_RAYA_1_2
Sidetrack of the Raya exploratory well drilled in Pelotas Basin

PE_X_LOBO_3_b
First re-drilling of the third Lobo exploratory well in Punta del Este Basin.

PE_D_GAVIOTÍN_4_c_3
Sidetrack of the second re-drilling of the fourth Gaviotín delimitation well in Punta del Este Basin.

The original code of wells already drilled will never be modified, even in the case of wells that were producers and then used as injectors.

The name of the wells drilled offshore Uruguay will be defined by the Operator. For the purposes of the correct identification of reports, it is suggested to use the code described above or the extended name following the criteria presented below:

- Name of the well
- Type of well (according to **Table 3**)
- Correlative number of well of that type drilled in the prospect
- Lowercase identifying letter of re-drilling from surface, for cases in which the original drilling was abandoned for technical reasons and re-drilled. In the original well it is not used, in the second well it corresponds to the letter “b”, in the third one to the “c” and so on.
- Correlative number, indicator of sidetrack or deepening (the latter separated by an underscore "_").

Different examples regarding extended names are presented below:

RAYA X1
First Raya exploratory well

LOBO X2_3
Sidetrack carried out in the second Lobo exploratory well

GAVIOTÍN P4b_2
Sidetrack of the first re-drilling of the fourth Gaviotín production well

5.2. REPORTS AND COMMUNICATIONS

Before, during, and after drilling operations, the Operator shall make a series of reports and notices regarding its activity to a variety of recipients, including both government

and private agencies. The matrix of recipients and communications is shown in **Table 4**. ANCAP may request additional information and adjustments when it is deemed convenient, especially in relation to working procedures.

The start of drilling (spud) is defined as the first removal of rocks, debris and other sedimentary materials with the bit.

The reports to be delivered by the Operator to ANCAP after the activities are completed, must be delivered within 3 months from the date of abandonment of the last drilling of the campaign.

ANNEX 15 presents a checklist regarding the communications to be exchanged in this type of operations.

Report/Document	Frequency	ANCAP	DINAMA	NATIONAL ARMY
Documents related to the request of Environmental Authorization	Before start			
Contingency Plan for Oil spills	Before start			
Safety Management Plan	Before start			
Drilling Program (DP)	Before start			
Geological Program (GP)	Before start			
Daily Drilling Reports (DDR)	Daily			
Mudlogging	Daily			
Incident Report (in case of occurrence)	When it occurs		[3]	[4]
HSE Performance Reports (WHSER)	Weekly			
Documents and reports after the Environmental Authorization	Defined by DINAMA			

[3] When applicable depending on the incident
[4] When applicable depending on the incident

End of Well Report (EOWR)	After finishing			
Final Geological Report (GEOWR)	After finishing			
Final HSE Report (FHSER)	After finishing			

Table 4 – Communications Matrix for drilling operations

The types of reports and their minimum content are detailed below, with their format templates for each communication, which will be updated at the corresponding Coordination Meeting.

5.2.1. DOCUMENTS RELATED TO THE APPLICATION FOR ENVIRONMENTAL AUTHORIZATION

For drilling operations, according to Law 16466 and Decree 349/005 and amendments, the contractor must have the required environmental authorizations (AAP and AAO). The Operator is responsible for managing the environmental authorizations, periodically informing ANCAP of the progress in its processing. To adequately meet the schedules, it is recommended to make the Project Communication, 24 months before the scheduled start of operations.

The documents related to the request for Environmental Authorization include communication of the project, environmental impact assessment, responses to requests for complementary information and the Operations Environmental Management Plan, among others.

Likewise, the submission of documents and reports is required after obtaining the Environmental Authorization. These documents will require the presentation of environmental performance reports with a frequency defined by DINAMA. Additionally, it will be necessary to present a project closure report, which is also part of these documents.

5.2.2. CONTINGENCY PLAN FOR OIL SPILLS

This plan will be prepared by the Operator and delivered to the environmental authorities (DINAMA and the National Navy). The Contingency Plan constitutes one of the documents that must be submitted for the request of environmental authorizations.

5.2.3. SAFETY MANAGEMENT PLAN

The Safety Management Plan aims to present the prevention and mitigation measures to be applied to avoid harm to people derived from the project. In the case of drilling operations, the contents recommended in ¡Error! No se encuentra el origen de la referencia. must be considered. ANCAP, after endorsing this plan, may participate in

the activities it considers appropriate, in the way opportunely agreed (inspections, audits, training, drills, incident investigation, etc.).

In the event that the Operator considers it convenient, it is admitted to include safety issues in an Environmental and Safety Management Plan (PGAS), in which case, in addition to following the recommendations indicated in ¡Error! No se encuentra el origen de la referencia., it must meet the minimum content requirements established in the Exploration-Exploitation contract and contemplate the observations and guidelines from DINAMA that arise from the Environmental Authorization process.

Before the start of operations, this PGAS must be brought to the attention of the National Naval Prefecture (PNN), which has jurisdiction in the prevention of contamination of the marine environment from ships, aircraft, and naval artifacts.

5.2.4. DRILLING PROGRAM

The Operator must submit, at least two months before the start of operations, a drilling program (DP).

This document presents the characteristics of the equipment to be used, the procedures to be followed and the technical justifications that support the different aspects of drilling design and engineering.

English language is accepted for this document. The minimum contents are presented in **ANNEX 16**.

5.2.5. GEOLOGICAL PROGRAM

The Operator must submit, at least two months before the start of operations, a geological program (GP).

English language is accepted for this document. The minimum contents are presented in ¡Error! No se encuentra el origen de la referencia..

5.2.6. DAILY DRILLING REPORT

The Daily Drilling Report (DDR) presents the details of the drilling operation. Its content will be agreed at the beginning of operations. An indicative list of minimum content is presented in ¡Error! No se encuentra el origen de la referencia..

5.2.7. MUDLOGGING

The Operator will make available to ANCAP, the daily report of Geological Control (Mudlogging) generated by the corresponding subcontractor for this service, including the daily log of Mudlogging and progress of the Composite Log. The minimum contents of this report are presented in **ANNEX 20**.

5.2.8. OTHER GEOLOGICAL REPORTS

In the event that the Operator generates independent geological reports and records such as Daily Geological Reports (DGR) and/or Daily Lithological Logs (WLL), these must be delivered to ANCAP. The minimum recommended contents of such documents are presented in **ANNEX 21** and **ANNEX 22**.

5.2.9. HSE PERFORMANCE REPORT

This report must contain detailed information on the management of the environmental and safety aspects identified for the operation, as well as the environmental monitoring that is carried out during such activities.

The minimum content of the weekly HSE reports is presented in ¡Error! No se encuentra el origen de la referencia..

The Prior and Operations Environmental Authorizations (AAP and AAO) establish the content and frequency of presentation of the environmental performance reports that must be submitted to DINAMA.

5.2.10. END OF WELL REPORT

Regardless of the reports required in the environmental authorizations, once the campaign has concluded, the Operator will deliver to ANCAP the End of Well Report (EOWR), the recommended minimum content of which is indicated in **ANNEX 24**.

5.2.11. GEOLOGICAL END OF WELL REPORT

At the end of the operations, a Geological End of Well Report (GEOWR) will be delivered, the content of which will be agreed in advance of the start of operations. The minimum recommended content is presented in **ANNEX 26**.

5.2.12. FINAL HSE REPORT

After completing the activity, the Operator will deliver the final HSE report including the statistics of the data presented in the weekly reports (according to ¡Error! No se encuentra el origen de la referencia.), as well as the lessons learned, conclusions and recommendations.

5.2.13. COORDINATION MEETING

In the week prior to the start of operations, a coordination meeting will be held in which representatives of the operating company, maritime agency and the different national institutions related to the activity will participate, in order to adjust the contents of the reports and communications that will be sent from the drilling vessel, as well as the final list of recipients.

The meeting is held at ANCAP headquarters and the list of participants will include representatives from:

- National Naval Prefecture (PNN)
- Oceanography, Hydrography and Meteorology Service of the Navy (SOHMA)
- National Directorate for Aquatic Resources (DINARA)
- National Directorate for the Environment (DINAMA)
- Operating Company of the Area

- Drilling Contractor Company
- Maritime agency
- ANCAP

The Operator will make the corresponding coordinations/invitations to carry out this meeting.

The agenda is as follows,

- Presentation of the project (ships, equipment, schedule, logistics, summary of the HSE management plan including contingency plan, MEDEVAC and procedure regarding communications in the event of a high impact incident).
- List of the Metocean data to be delivered at the end of the campaign (according to ¡Error! No se encuentra el origen de la referencia.).
- Coordination with SOHMA and DINARA for the delivery of the Metocean data (if it has not yet been coordinated).

The language for this meeting as well as for the information presented will be Spanish.

5.2.14. CONTACTS

¡Error! No se encuentra el origen de la referencia. presents the basic contact list for each communication, a list that will be updated at the corresponding Coordination Meeting.

5.2.15. COMMUNICATION IN CASE OF HIGH IMPACT INCIDENTS

Any incident occurred during operations must be reported to ANCAP. Likewise, depending on the type, other competent organizations must also be informed. Specifically regarding High Impact Incidents, the actions indicated in ¡Error! No se encuentra el origen de la referencia. must be followed.

5.3. MANAGEMENT OF EXPLORATORY INFORMATION

This section presents the minimum requirements regarding the formats and storage media of the data generated during drilling operations, which must be submitted to ANCAP once the campaign has ended.

Regardless of the data packages to be delivered as explained in the following points, all the raw data acquired must be sent to ANCAP before the ship leaves Uruguayan territory.

For these purposes, delivery must be made to the following address, prior coordination with the Exploration and Production Management of ANCAP:

Paysandú s/n esq. Av. Libertador, Montevideo, Uruguay, CP 11100
ANCAP Oficinas Centrales, 6to piso, Gerencia de Exploración y Producción

The use of Incoterm DDP is recommended, so that all shipping costs (including import customs charges) are covered by the Operator.

5.3.1. SAMPLES

The Operator must deliver to ANCAP (after coordination with the Exploration and Production Management) the geological samples (including fluid samples) obtained from the drilled wells (previously agreed, for example: cuttings, cores, etc.), properly preserved, in boxes which maximum length will be 110 cm, to the following address:

Bernabé Caravia y Doroteo Enciso, Capurro, Montevideo, Uruguay, 11700
Litoteca de Exploración y Producción – ANCAP

Each box must have identified the well name, depth and direction, indicating the depth in meters. The well location must also be indicated in X, Y coordinates in UTM22 projection (WGS84) and in geographic coordinates (Latitude and Longitude, WGS84).

In the case of cuttings, two sets of samples will be received (one unwashed and the other washed). The sampling interval for the different drilling phases will be agreed before the start of activities and will be defined in the Geological Program.

The export of cores for carrying out specific analyses will be accepted only under duly justified conditions and only as a "half-round" (longitudinal cut, leaving at least 50% of the sample in Uruguay). The cores which analysis is authorized abroad, except in cases of destructive analysis, must return to Uruguay within a maximum term of six months.

Well samples must be photographically recorded. These photos must be delivered to ANCAP in *.JPG format with a minimum of 12 Megapixels.

5.3.2. MULTIMEDIA

Any photograph or video taken during operations, for example during key stages of the activity (prespud, inspections, abandonment, restitution, etc.), must be submitted as part of the data package. In the case of videos, it is suggested to use a compressed format in order to reduce the size of the files without reducing the quality.

5.3.3. LOGS

The suggested minimum list of logs to be carried out in the area of interest is detailed below (the final list will be agreed before the start of operations and will be defined in the Geological Program):

- Lithologic
- Caliper
- Spectral Gamma Ray (SGR)
- Sonic
- Density
- Neutron
- Resistivity (shallow, medium and deep)
- Litho-Density
- Nuclear magnetic resonance
- Mud
- All profiles generated and formation evaluation carried out

The well logs acquired or generated during these operations will be delivered to ANCAP in *.LAS and *.PDF format (on a scale to be agreed), stored on a hard disk drive.

Likewise, all reports generated during these operations will be delivered by the same media in *.PDF format as presented in **Table 5** including operational and formation evaluation reports, for example.

Type	Format
Photography	JPG
Videos	AVI, MP4 or other compressed format
Logs	LAS and PDF
Drilling Reports (DDR, PvA, DAC, EOWR)	PDF
Geological Reports (DGR, WLD, GEOWR, CL, Mudlogging)	PDF
Drilling Data (FIT/LOT, BOP tests, Cement tests)	PDF, XLS
Other data and Geological Control Reports (Final ML Report, Master Log, Drilling Log, Gas Log, Daily Activity Time Logs, Cutting Description, Drilling Depth data, Daily Mudlogging Reports)	PDF and XLS when appropriate
HSE reports (WHSER, FHSER, any other HSE report generated by the Operator and subcontractors, presentations made in HSE meetings)	PDF
OVID Reports	PDF
Meteorological Data	PDF and XLS
Any other report or data generated during the campaign	PDF
Copy of any information delivered to DINAMA regarding environmental authorizations	PDF

Table 5 - Format requirements regarding the information acquired in drilling operations. In all cases, the storage medium will be USB Hard Drive.

5.3.4. SAMPLING OF FORMATION FLUIDS

Before the start of the campaign, the delivery conditions of the fluid samples that will eventually be obtained will be agreed, and included in the Geological Program.

5.3.5. METOCEAN DATA

According to the list of Metocean data presented before the start of operations. These data must be delivered on a separate disk (or other storage medium) independent of the rest of the exploratory and environmental data (see ¡Error! No se encuentra el origen de la referencia.).

6. OTHER EXPLORATORY OPERATIONS

Other Exploratory Operations are those that are not for acquiring seismic data or drilling, in this sense the following would be included,

- Seabed sampling
- Heat flow measurements
- Acquisition of multi-beam bathymetric data (MB)
- Acquisition of electromagnetic data (magnetotelluric –MT- or controlled source –CSEM-)
- Surveys to support exploration (oceanographic and environmental)

6.1. STANDARDS AND RECOMMENDED PRACTICES

In the case of geophysical operations, for the development of these and specifically with regard to safety, it is recommended to follow the latest edition of the IAGC Marine Geophysical Safety Manual of the International Association of Geophysical Contractors - IAGC [9]. The objective of this manual is to highlight areas of care and provide guidance on best practices for risk management in the workplace. Likewise, it is suggested to use as a guide the latest edition of IOGP Report 432 (International Association of Oil and Gas Producers), “Managing HSE in a geophysical contract” [10]. Its objective is to compile the best practices and standardize the management of health, safety and the environment.

These and/or any other document taken as a guide for the development of geophysical operations must be declared by the company in the Safety Management Plan.

6.2. REPORTS AND COMMUNICATIONS

Before, during and after exploration operations, the Operator shall make a series of reports and notifications regarding its activity to a variety of recipients, including both government and private agencies.
The matrix of recipients and communications is shown in **Table 6**.

Informe/Reporte	Frecuencia	ANCAP	National Army	DINARA	MIEM	SUBMARINE INFRASTRUCTURE OPERATORS	DINAMA
Reports related to the request of Environmental Authorization	Before the start						
Safety Management Plan	Before the start						
Program Location Data	Before the start						
Metocean Data List	Before the start						
G&G Data List	Before the start						
Mitigation measures for interaction with submarine infrastructure risks [5]	Before the start						
Notice to Mariners	To be defined according to the operation						
Operation Report	Daily and final						
Incident Report (in case of occurrence)	When it occurs		6				7
Onboard Acquisition and Processing Report	Final						
OFM/PAM[8] Report	Daily, weekly and final						
HSE performance report	Weekly and final						
Submarine cable crossing *	To be defined according to the operation						
Documents and reports after the Environmental Authorization	Defined by DINAMA						

Table 6 - Communications Matrix for other exploratory operations

[5] For the operations where applicable
[6] When applicable depending on the incident
[7] When applicable depending on the incident
[8] For the operations in which it corresponds

The documents that must be delivered to ANCAP before the start of operations will be worked together with the Operator in an iterative manner until reaching a version that can be delivered to the corresponding authorities (if applicable, for example DINAMA or PNN).

The reports to be delivered by the Operator to ANCAP after the activities are completed must be delivered within 3 months from the end of the survey.

The types of reports and their minimum content are detailed below, with their format templates for each communication, which will be updated at the corresponding Coordination Meeting.

6.2.1. DOCUMENTS RELATED TO THE APPLICATION FOR ENVIRONMENTAL AUTHORIZATION

For electromagnetic data acquisition operations, according to Law 16466 and Decrees 349/005 and 72/2016, it is required to obtain a Prior and an Operations Environmental Authorization. The Operator is responsible for managing environmental authorizations, periodically informing ANCAP of the progress in its processing.
To adequately meet the schedules, it is recommended to make the Project Communication, 24 months before the scheduled start of operations.

The documents related to the request for Environmental Authorization include communication of the project, environmental impact assessment, responses to requests for Complementary Information and the Environmental Management Plan, among others.

Likewise, the submission of documents and reports is required after obtaining the Environmental Authorization. These documents will require the presentation of environmental performance reports with a frequency defined by DINAMA. Additionally, it will be necessary to submit a project closure report, which is also part of these documents.

Regarding the guidelines for the evaluation of impacts as well as for the application of good environmental practices, it is suggested to consult the “Environmental Impact Assessment Guide for Marine Seismic” [11]. The guidelines set forth in this guide are specific for marine seismic activities and seabed study activities through methods that use acoustic and electromagnetic sources in the exclusive economic zone. These guidelines apply both for the communication of the project and for the request for Prior Environmental Authorizations, in all the stages established by Decree 349/005.

For the preparation of the environmental management plan, it is suggested to consult the bibliographic review “Oceanographic Program of Characterization of the Uruguayan Continental Margin - EEZ” [12].

Additionally, ANCAP requires a Safety Management Plan for the operation, including risk analysis and a matrix of permitted operations.

6.2.2. SAFETY MANAGEMENT PLAN - ACQUISITION OF ELECTROMAGNETIC DATA

The Safety Management Plan aims to present the prevention and mitigation measures to be applied to avoid harm to people derived from the project. In the case of electromagnetic data acquisition operations, the contents recommended in ¡Error! No se encuentra el origen de la referencia. must be considered. ANCAP, after endorsing this plan, may participate in the activities it considers appropriate, in the way opportunely agreed (inspections, audits, training, drills, incident investigation, etc.).
In the event that the Operator considers it convenient, it is accepted to include safety issues in an Environmental and Safety Management Plan (PGAS), in which case, in addition to following the recommendations indicated in ¡Error! No se encuentra el origen de la referencia., it must meet the requirements of minimum content established in the Exploration-Exploitation contract and contemplate the observations and guidelines from DINAMA that arise from the Environmental Authorization process.

6.2.3. ENVIRONMENTAL AND SAFETY MANAGEMENT PLAN - REST OF THE ACTIVITIES COVERED IN POINT 6

Before the exploratory operations start, the contractor will prepare an Environmental and Safety Management Plan, based on an Environmental Impact Study of the project

as well as a Risk Analysis, which must be revised and approved by ANCAP / Environment, Safety and Quality Management.

The Environmental and Safety Management Plan for other exploratory operations must meet the minimum content requirements established in the Exploration-Exploitation contract or the corresponding Acquisition contract. It is also suggested to take as a basis (with adaptations according to the nature of the particular operation) what is presented in ¡Error! No se encuentra el origen de la referencia..

6.2.4. PROGRAM LOCATION DATA

Before the start of operations (at least one month in advance), the contractor must submit the location data of the exploratory program. They will be delivered to ANCAP in *.SHP format as well as on a map in *.PDF format (UTM22 projection). The exclusion polygon (navigation area and exclusion zone for the navigation of other ships) must also be included in both formats, separated into stages (“swath”) if applicable.

6.2.5. LIST OF METOCEAN DATA

Before starting operations, a list of the metocean data that will be acquired during the survey must be submitted, following the model presented in ¡Error! No se encuentra el origen de la referencia..

6.2.6. G&G DATA LIST

Refers to all the raw, processed and interpreted data, navigation data and other that is expected to be generated in the survey.

6.2.7. REPORTS AND NOTIFICATIONS FOR SUBMARINE INFRASTRUCTURE OPERATORS

Offshore Uruguay there is submarine infrastructure that must be considered in the design and operation of the corresponding exploratory surveys (for example, for the acquisition of CSEM data or seabed sampling). **ANNEX 11** presents an overview of the

existing subsea infrastructure, its operators, and the requirements regarding periodic reports and warnings during operation.

6.2.8. COORDINATION MEETING

In the week prior to the start of operations, a coordination meeting will be held in which representatives of the operating company, maritime agency and the different national institutions related to the activity will participate, in order to adjust the contents of the reports and communications that will be sent from the vessel, as well as the final list of recipients.

The meeting is held at the ANCAP headquarters and the list of participants will include representatives from:

- National Naval Prefecture (PNN)
- Oceanography, Hydrography and Meteorology Service of the Navy (SOHMA)
- National Directorate of Aquatic Resources (DINARA)
- Operating Company of the Area (in the case of awarded areas)
- Geophysical Contractor Company
- Maritime agency
- Submarine infrastructure operators (if applicable according to the area of operation)
- ANCAP

The Operator will make the corresponding coordinations/invitations to carry out this meeting.

The agenda is as follows,

- Presentation of the project (ships, equipment, schedule, logistics, summary of the HSE Management Plan including contingency plan, MEDEVAC and procedure regarding communications in the event of a high impact incident).
- Presentation and definition of type and frequency of communications from the ship.

- List of the Metocean data to be delivered at the end of the survey (see ¡Error! No se encuentra el origen de la referencia.)
- Coordination with SOHMA for the delivery of the Metocean data (if it has not yet been coordinated)
- Coordination with DINARA for delivery of the Metocan and Environmental data (if it has not yet been coordinated).
- Coordination of possible visit to the ship.

The language for this meeting, as well as for the information presented, will be Spanish.

6.2.9. NOTICE TO MARINERS

The Notice to Mariners is intended to provide updated information on the acquisition program and is the basis for the official notifcation made by SOHMA. The first Notice to Mariners must be sent to the corresponding contacts within the week prior to the start of operations; the list includes representatives of ANCAP, DINARA, MIEM, PNN and SOHMA. After the start of operations, it will be sent with a frequency to be determined according to the type of operation.

The Notice to Mariners will be sent as an attachment by email, in *.PDF format and with a filesize smaller than 500 kB. The language of these notifications must necessarily be Spanish.

The final content will be adjusted at the Coordination Meeting.

6.2.10. OPERATION REPORTS

The Daily Operation Report presents the details of the operations including (but not limited to) the following contents:

- Basic details of the project (date, area, contractor, contact details)
- Status of the operation (activities, comments and plan for the next 24 hours))
- Summary of the operation (Time from, time to, duration, description)
- Figure or diagram outlining the progress of operations
- Safety, Health and Environment (status, Inspections/drills)
- Personnel (company, number of people, total number)
- Weather status (time, weather, comments, daily maximum/minimum temperature, visibility, wind speed, gust speed; currents' speed and direction; waves' height, direction and period; heave, pitch, roll, offset and heading of the ship)
- Observations

6.2.11. HSE PERFORMANCE REPORT

This report must contain information on the management of the environmental and safety aspects identified for the operation, as well as the environmental monitoring that is carried out during such activities.

The minimum content of the weekly HSE reports is presented in ¡Error! No se encuentra el origen de la referencia..

6.2.12. FINAL ONBOARD ACQUISITION AND PROCESSING REPORT

Once the survey is over, the contractor will deliver to ANCAP a Final Onboard Acquisition and Processing Report, which will include at least the following items,

- General information
- Operations
- Quality Control of the acquisition

- List of data to be delivered to the survey client
- Production statistics
- Safety, Health, Environment and Quality
- Summary and Conclusion (including points to highlight/improve and lessons learned)
- Supporting documents on DVD

6.2.13. CONTACTS

¡Error! No se encuentra el origen de la referencia. presents the basic contact list for each communication, a list that will be updated at the corresponding Coordination Meeting.

6.2.14. COMMUNICATION IN CASE OF HIGH IMPACT INCIDENTS

Any incident occurred during operations must be reported to ANCAP. Depending on the type, other competent organizations must also be informed. Specifically regarding High Impact Incidents, the actions indicated in ¡Error! No se encuentra el origen de la referencia. must be followed.

6.3. EXPLORATORY INFORMATION MANAGEMENT

This section presents the minimum requirements regarding the data, formats and storage media, which must be delivered to ANCAP once the survey is over. The final list of data will be previously agreed with the company.

Regardless of the data packages to be delivered as explained in the following points, all the raw data acquired must be sent to ANCAP before the ship leaves Uruguayan territory.

For these purposes, delivery must be made to the following address, prior coordination with ANCAP's Exploration and Production Management:

Paysandú s/n esq. Av. Libertador, Montevideo, Uruguay, CP 11100
ANCAP Oficinas Centrales, 6to piso, Gerencia de Exploración y Producción

The use of Incoterm DDP is recommended, so that all shipping costs (including import customs charges) are covered by the Operator.

6.3.1. SEABED SAMPLING

In the case of seabed sampling, the contractor must deliver to ANCAP a certain number of samples (after coordination with the Exploration and Production Management) in boxes or tubes which maximum length will be 100 cm, to the following address:

Bernabé Caravia y Doroteo Enciso, Capurro, Montevideo, Uruguay, 11700
Litoteca de Exploración y Producción – ANCAP

The samples must be in temperature conditions between 4 °C and 5 °C at the time of delivery.

Each box or tube must have identified the core name, depth and direction, indicating the depth in meters. The core location must also be indicated in coordinates WGS 84 - UTM22 or degrees, minutes and seconds.

In the case of having onboard geochemical and/or geotechnical analysis results for different depths, these should be provided as an ASCII file (*XLS, *.DAT, etc.) with dates and coordinates in Lat/Long WGS84.

Likewise, all reports generated during these operations must be delivered in *.PDF format.

6.3.2. HEAT FLOW MEASUREMENTS; MULTIBEAM BATYMETRIC DATA (MB) ACQUISITION; MAGNETOTELURIC DATA ACQUISITION (MT); ELECTROMAGNETIC DATA ACQUISITION (CSEM)

The contractor must deliver to ANCAP, prior coordination with the Exploration and Production Management, all the data obtained from these surveys, both raw and processed on board.

Additionally, all reports generated during these operations must be delivered in *.PDF format.

6.3.3. SIGHTING AND DETECTION DATA OF MARINE MAMMALS AND OTHER SEA WILDLIFE

In the event that the presence of OFMs on board is required, see ¡Error! No se encuentra el origen de la referencia., which includes the necessary information and documents.

6.3.4. METOCEAN DATA

According to the list of Metocean data presented before the start of operations. These data must be delivered on a separate disk (or other storage medium) independent of the rest of the exploratory and environmental data (see ¡Error! No se encuentra el origen de la referencia.).

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8. ANNEXES

ANNEX 1 MAPPING OF ACTORS

ANCAP

The National Administration of Fuels, Alcohol and Portland, ANCAP, is a state-owned, public company, leader in the Uruguayan market for fuels and lubricants, Portland cement and in the biofuels' development, with a regional vocation, with a focus on the customer/user and value generation, environmentally and socially responsible and that contributes to the productive and social development of the country. The general organization chart of the company is presented in **Fig. 1**.

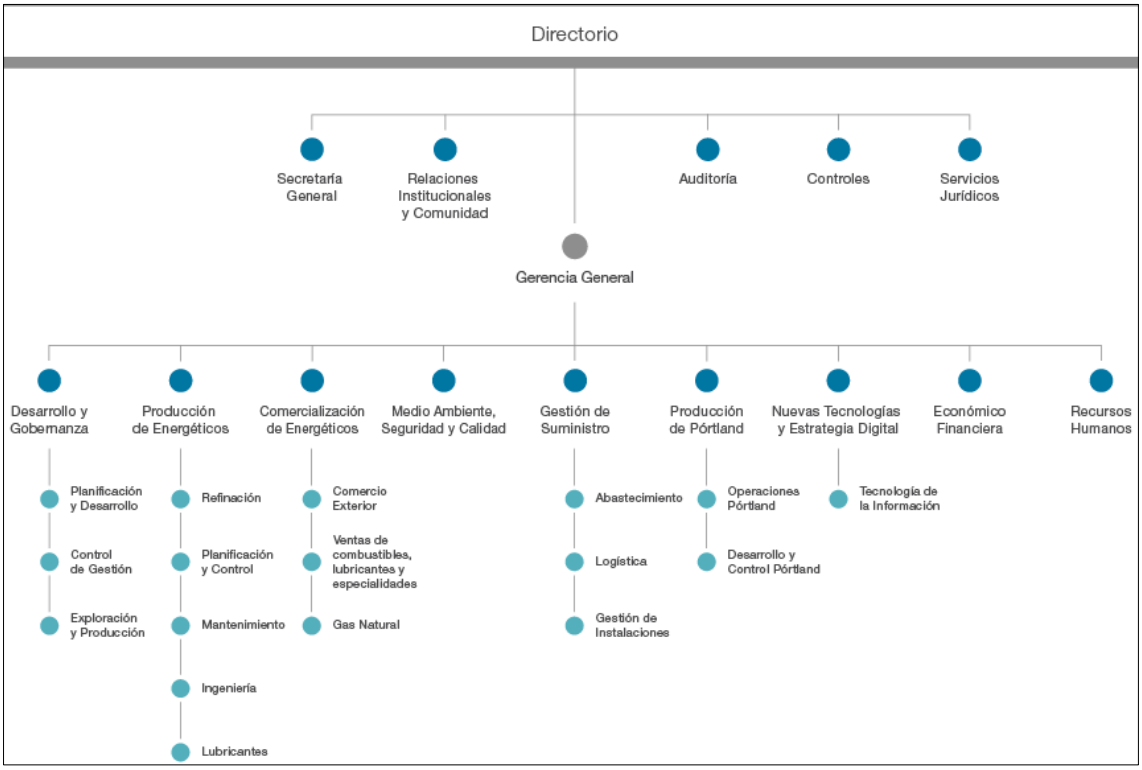


Fig. 1 – ANCAP Organization chart

ANCAP is the competent body to execute all the activities, businesses and operations of the hydrocarbon industry in *República Oriental del Uruguay*. In accordance with Law No. 14.181 and regulatory decrees, ANCAP may carry out all phases of prospection, exploration and exploitation of hydrocarbons by itself, or through third parties.

Examples of the execution of the exploration and production phases that ANCAP has applied offshore Uruguay through third parties are the multiclient contracts and the bidding rounds.

A multiclient (non-exclusive) agreement is a contract type in which the service company, after signing a contract with ANCAP, acquires geophysical and/or geological data at its own cost and risk, and has the right to market/license such data (which is ANCAP's property) to third parties for a certain period, and sharing the profits with ANCAP.
A Round is a call to interested companies for the award of hydrocarbon exploration and exploitation contracts.
For more information see https://exploracionyproduccion.ancap.com.uy.

During exploratory operations, a significant amount of information is generated (data, reports or samples) which, according to the contracts, must be delivered to ANCAP. The reception of this information, after coordination with ANCAP, will be carried out in different locations, depending on the case:

Address 1:
ANCAP Oficinas Centrales, 6to piso, Gerencia de Exploración y Producción
Paysandú s/n esq. Av. Libertador, Montevideo, Uruguay, CP 11100
Telephone: +598 - 2 1931 ext. 2106

Address 2:
ANCAP Litoteca de Exploración y Producción
Bernabé Caravia y Doroteo Enciso, Capurro, Montevideo, Uruguay, 11700
Telephone: +598 - 2 1931 int 7892

ANP

The National Ports Administration (ANP) is a decentralized body, which is linked to the Executive Branch through the Ministry of Transport and Public Works. It is responsible for the administration, conservation and development of public ports: Montevideo, Nueva Palmira, Colonia, Juan Lacaze, Fray Bentos, Paysandú, Salto.

The National Administration of the Port of Montevideo (ANPM) was created on July 21, 1916 by Law No. 5495 (article 11) as the highest Uruguayan port authority.
In the early 1930's decade, the ANPM expanded its functions, when it incorporated all of the country's ports under its institutional orbit.
In 1948 the National Administration of the Port of Montevideo was renamed the National Port Administration.

Law No. 5495 of 1916 was modified by the Ports Law No. 16.246, of 1992, which defined the National Ports Administration (ANP) as a decentralized service that integrates the commercial and industrial domain of the State, in coordination with the Ministry of Transport and Public Works, awarding ANP control of its execution, promoting the decentralization of the ports and ensuring the coordination of activities that take place in them, guaranteeing that services are provided on a competitive basis. For more information see http://www.anp.com.uy.

Address: Rambla 25 de Agosto de 1825 N° 160
Telephone: +598 - 1901

ARNR

The National Regulatory Authority for Radioprotection (ARNR) was created in January 2006 by Law 17930. Its tasks include regulating, supervising, controlling and authorizing activities that involve the use of ionizing radiation throughout the national territory (in the medical, industrial and research area), thus guaranteeing radiation safety and physical protection (for more information see http://www.arnr.gub.uy/).

Address: Yaguarón 1407, office 706, Professionals Tower
Telephone: +598 – 2908 6783

DINACIA

By Decree 507/002 of December 31, 2002, the National Directorate of Civil Aviation and Aeronautical Infrastructure (DINACIA) is created, which is the civil aviation authority of Uruguay. This body is dependent on the Commander-in-Chief of the Air Force, and is tasked with participating in all matters related to private commercial and sports air activity, as well as in all matters related to the construction, administration and operation of aeronautical infrastructure, flight protection services and related ground services, in accordance with national and international provisions (article 21 of Decree-Law 14.747 of December 28, 1977, regulated by Decrees 21/999 of January 26, 1999 and 507/002 of December 31, 2002). It has under its orbit the 12 airports of the country. For more information see http://www.dinacia.gub.uy/.

Address: Avda. Wilson Ferreira Aldunate (ex Camino Carrasco) 5519, Canelones
Telephone: +598 – 2604 04 08

DINAMA

The National Directorate for the Environment, DINAMA, has the mission of achieving adequate protection of the environment by promoting sustainable development through the generation and application of instruments aimed at improving the quality of life of the population and the conservation and environmentally responsible use of ecosystems, coordinating the environmental management of public entities and coordinating with different social actors. It belongs to the Ministry of Housing, Territorial Planning and Environment (for more information see http://www.mvotma.gub.uy).

Address: Galicia 1133, Ground Floor
Teléfono: +598 - 2917 0710

DINARA

The National Directorate for Aquatic Resources, under the orbit of the Ministry of Livestock, Agriculture and Fisheries of Uruguay, is responsible for defining and executing the national fishing policy and for regulating and controlling fishing activity in Uruguay. As such, it is the only competent health authority in the fishing industry at the national level (for more information, see http://www.dinara.gub.uy).

Address: Constituyente 1497 CP 11200 Montevideo
Telephone: +598 - 2400 4689

GENERAL DIRECTORATE OF THE AREA FOR BORDER, BOUNDARY AND MARITIME AFFAIRS OF THE MRREE.

Through the Interministerial Commission for Scientific Research, the Navy that works within this Directorate and which is constituted by representatives of the Ministry of Foreign Affairs, DINARA, DINAMA and SOHMA, requests authorization to work in waters of Uruguayan national jurisdiction for cases of marine scientific research. This Commission was created and is regulated by Decrees 371/994 and 254/999.

Address: Colonia 1206
Telephone: +598 - 2902 1010

DNA

The tasks and functions of the National Customs Directorate (DNA) are set out in the URUGUAYAN CUSTOMS CODE and include the following:

a) To verify and control the different customs operations of embarkation, disembarkation and dispatch of goods, to issue mandatory classification criteria for the application of the tariff nomenclature, collecting the corresponding taxes, and to collect, without prejudice to other competencies, the respective data for the achievement of foreign trade statistics;
b) To enforce the conventional obligations resulting from the international treaties signed by the country in customs matters;
c) To exercise, with the means of surveillance, prevention and repression at its charge, the control of the entry, exit, transit and storage of merchandise in its territory, in order to prevent and repress the commission of customs illicit acts.
e) To enable places to carry out customs operations;
g) To authorize, once all the requirements of current regulations have been met, the customs clearance of the goods; and

h) To authorize and regulate the allocation of travel allowances to customs officials who must move to carry out their duties outside their places of work, which will be borne entirely by the requesting users.
f) To obtain from any public body or private person the necessary information and carry out the pertinent investigations to determine the values of national or foreign goods;

For more information see www.aduanas.gub.uy.

Address: Rambla 25 de agosto 199, Montevideo, Uruguay
Telephone: +598 - 2915 0007

MRCC

On June 20, 1967, Executive Branch Decree No. 380/967 creates the “Maritime Rescue Coordination Center (MRCC URUGUAY)”. Under this agreement, Uruguay has an area of assigned responsibility of approximately 516,000 square nautical miles (1,770,000 km^2).
The National Navy is the State body responsible for Search and Rescue at Sea and has designated the Fleet Commander as Chief and Coordinator of SAR services ("Search and Rescue"). This coordination covers all the components of the "National SAR System", which transcends the Army's own resources, involving various actors with search and rescue potential at sea, such as the Uruguayan Air Force through its Coordinating Center of Aeronautical Rescue (CCR Carrasco) and the air resources made available to SAR missions, or civil volunteer organizations, such as the Honorary Association of Maritime and Fluvial Rescue (ADES), the only one with such characteristics in our country.
The coordination activities corresponding to the Sea Maritime Rescue Coordination Center (MRCC Uruguay) are carried out from the “Operations Center” of the Fleet Command, 24 hours a day, 365 days a year. This Center is equipped with material resources and trained personnel for search and rescue tasks. From there, SAR missions are planned and executed with the aim of preserving the lives of those who carry out activities at sea.
For more information, see http://www.armada.mil.uy/Pagina/institucion/comflo/mrcc-uy.html.

Address of the Department "Maritime Rescue Coordination Center": Sea Forces Command, Naval Area of the Port of Montevideo.
Telephones: Administrative: +598 - 2916 7886

EMERGENCIES: 1701

MIEM

The Ministry of Industry, Energy and Mining is responsible for designing and implementing the Government's policies regarding the industrial, energy, mining, telecommunications, micro, small and medium-sized companies, aimed at transforming and strengthening the national productive apparatus, its energy matrix and communications system, for sustainable development with social justice, within the framework of regional integration and insertion in a globalized world.

Its vision is to lead the diversification of the productive structure and the growth of the country's infrastructure; to strengthen itself institutionally at the level of its human resources, technical capacities, adequate locational availability for an agile and efficient coordinated management in contact with the sectors linked to its activity and with the population in general, in an informed and transparent manner; and to be recognized as the area of planning, foresight, preparation and implementation of policies for the country's industrial, mining, energy and communication sectors, competent in matters of industrial property, radiation safety and promotion of micro, small and medium-sized companies.

For more information see http://www.miem.gub.uy/

Address: Sarandí 620
Telephone: +598 – 2840 1234

PNN

The National Naval Prefecture, PNN, has the mission of maintaining public order, exercising control of navigation safety as a Police Authority in the areas: Maritime, Fluvial and Lacustrine in the jurisdiction of the Navy and intervening in the flagging of ships and complying with registry functions, in order to contribute to its mission. For more information see http://www.armada.mil.uy.
On the other hand, through the PNN Merchant Marine Registrar, the *Flag Waiver* is managed, which is a permit that must be requested by all foreign-flagged vessels.

Address: Rambla 25 de agosto S/N esq. Maciel
Telephone: +598 – 2 915 55 00

SMA

The Material and Armament Service (SMA) has as part of its mission to take charge of the control and registration of imports, exports, commercialization, manufacturing, and possession of firearms, chemicals, or others that are determined, as well as ammunition, explosives, and pyrotechnic devices, according to the Laws, Decrees and Regulations in force, regardless of their holder, throughout the territory. For more information see http://ejercito.mil.uy/cal/sma/.

Address: Avenida de las Instrucciones 1925, Montevideo - Uruguay - CP 12400
Central Office Telephone: +598 - 2355 3434.
Management Telephone: +598- 2359 2078 / +598 - 2359 1110

SOHMA

The current Oceanography, Hydrography and Meteorology Service of the Navy, was created on May 15, 1916, by Decree dated 22/I/1916 in which confers "... The Directorate of the Navy the hydrographic surveys, the beaconing of the Uruguay and Río de la Plata rivers and the Oceanic Coast ...". In such decree, their tasks are specified and the "Hydrographic Service Division" is constituted. Subsequently, on 27/XII/1935, the regulations for the "Hydrographic Service", currently in force, were approved by decree.

Other subsequent regulations expanded the scope of the different activities carried out by this Service, including:

- Resolution of the Executive Branch of 27/XI/1935, which establishes the obligation to communicate to the Hydrographic Service of the Navy any novelty or act carried out in jurisdictional waters that affects navigation.
- The Regulation on Aids to Navigation, which establishes that SOHMA will set the policies applicable to Aids to Navigation (Decree No. 490/988 of the Executive Branch of 02/VIII/1988).
- Law 16320 Art.92 of 01/XI/1992, which establishes that the coordination and centralization of all plans, studies, information and research that are executed in relation to Oceanography, Hydrography and Marine Meteorology shall be carried out through the General Command of the Navy.

For more information see http://www.sohma.armada.mil.uy.

Address: Capurro 980 esq. Agraciada
Telephone: +598 – 2309 3775

ANNEX 2 LEGAL AND REGULATORY FRAMEWORK

LAWS

- Wealth of the Sea. Law 13833 and Decree 149/997
- International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL). Law 13924
- Water Code. Decree-Law 14859 and Law 15903
- Convention for the protection of fauna and natural scenic beauties of the countries of America. Law 13776
- Treaty of the Río de la Plata and its Maritime Front. Decree-Law 14145
- Hydrocarbons Law. Law 14181 and Decree 366/974
- International Convention for the Safety of Life at Sea (SOLAS). Law 14879
- Accession to the International Convention for the Prevention of Pollution from Ships (MARPOL). Laws 14885 and 15955.
- Mining Code. Law 15242, modified by Law 18013 and Decrees 110/982 and 545/989
- Convention for the Protection of the World Cultural and Natural Heritage, Paris 1972. Law 15964
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979). Law 16062
- Creation and role of the Ministry of Housing, Territorial Planning and Environment. Laws 16112 and 16170.
- Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal, 1987). Law 16157
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. Laws 16221 and 16867
- Fines for maritime, fluvial and port infractions, including oil spills. Law 16226
- Cooperation Agreement between Uruguay and Argentina to prevent and fight incidents of contamination of the aquatic environment caused by hydrocarbons and harmful substances. Law 16272
- United Nations Convention on the Law of the Sea (UNCLOS). Law 16287
- Delivery of information and results of oceanographic, hydrographic and marine meteorological surveys and investigations to the National Navy. Law 16320
- Convention on Biological Diversity. Law 16408
- Environmental Impact Assessment. Law 16466 and Decree 349/005
- United Nations Framework Convention on Climate Change. Laws 16517 and 17279
- International Agreement on Cooperation, Preparation and Fight against Hydrocarbon Pollution (OPRC 90). Law 16521

- Prevention and Surveillance of potential Pollution in jurisdictional waters. Law 16688 and Law 19012.
- Maritime Provisions Nos. 157 and 158, which regulate law 19012
- Complement to the International Convention on Civil Liability for Damage Caused by Oil Pollution of 1969 (CLC 92). Law 16820
- Norms referring to the Territorial Sea, Exclusive Economic Zone and Continental Platform of the Republic. Law 17033
- Competence of the National Navy of Jurisdictional Waters. Law 17121
- General regulation prohibiting the introduction of hazardous waste into areas under National jurisdiction. Law 17220
- National System of Natural Protected Areas. Law 17234
- General Law of Environmental Protection. Law 17283
- Protocol on Cooperation, Preparation and Fight against Pollution Events by Harmful and Potentially Hazardous Substances, 2000. Law 17590
- MERCOSUR Framework Agreement on Environment. Law 17712
- Inter-American Convention for the Protection and Conservation of Sea Turtles 2004. Law 18129
- Standard on calls for bids for national or binational works or for national and international agreements, within the jurisdictional and territorial waters of the Republic. Law 19078
- Protocol 1996 to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters 1972. Law 19101

DECREES

- Regulation to Prevent Pollution of the Sea by Hydrocarbons and other Substances, due to operations with ships. Decree 436/980
- Regulation of operations and transportation of dangerous goods. Decree 158/985
- Regulation for the Use of Aquatic and Coastal Spaces and Port Areas. Decree 100/991
- Preservation of the environment, against the affectation that may derive from the use and handling of toxic or dangerous substances. Decree 320/994
- National Emergency System. Decrees 103/995 and 371/995
- Management of used or discarded lead-acid batteries. Decree 373/003
- Regulation on the organization and functions of the National Naval Prefecture. Decree 348/008
- Regulation on sanitary waste. Decree 586/009
- Decree 182/2013, on integrated waste management.

- Rules for imports carried out under the Explosives and Weapons Regulation. Decree 550/969
- Integration of a Commission within the MRREE in order to examine and give authorization to carry out marine scientific studies and research. Decrees 371/944 and 254/999.
- Modification of Decree 349/005. Decree 72/016.

MARITIME PROVISIONS

- Areas for the discharge of hazardous waste. Maritime Provision 08
- Logbook templates. Maritime Provision 19
- Procedures for the detection of contamination sources. Maritime Provision 39
- Regulation on the prevention of work accidents at ships. Maritime Provision 51
- International Safety Management Code (ISM Code). Maritime Provisions 55 and 105
- Control of lighterage operations and/or complement of load. Maritime Provision 136.
- Guidelines for basic procedures in case of emergency. Maritime Provision 66
- Waste disposal. Maritime Provision 80
- Control and surveillance service for dangerous goods. Maritime Provision 85
- Prevention of pollution of the marine environment. Maritime Provisions 86 and 111
- Directives for the control and management of ballast waters from ships. Maritime Provision 109
- Prohibition of Fishing and Anchoring in Submarine Cable Zones. Maritime Provision 155.
- International Ship and Port Facility Security Code (ISPS Code). Maritime Provision 129
- Complementary standards for the Prevention of Pollution of the Marine Environment. Maritime Provision 157
- Standards for the authorization and Registration of Companies providing services for the prevention and control of spills of oil and/or hazardous and noxious substances (HNS). Maritime Provision 158

OTHER REGULATION

- Prohibition of oil spills, bilge pumping and ballasting. MVOTMA Resolution 15/2003

- Criteria for the sanitary management of solid waste in ports, airports, international cargo and passenger terminals and border points in MERCOSUR. MERCOSUR Resolution 02/30
- Criteria for the sanitary management of liquid waste and sewage in ports, airports, terminals and border points in MERCOSUR. MERCOSUR Resolution 34/01
- Norm UY 121 of the National Regulatory Authority for Radioprotection "Oil well logging"

INTERNATIONAL LEGAL AND REGULATORY FRAMEWORK

- International Convention for the Safety of Life at Sea (SOLAS)
- United Nations Convention on the Law of the Sea, ratified by Law 16287.
- Convention on the Continental Shelf (Geneva, 1958)
- Convention on the Territorial Sea and Contiguous Zone (Geneva, 1958)
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)
- Convention on the International Regulation for Preventing Collisions at Sea
- International Union for Conservation of Nature
- Convention on Biological Diversity
- ARPEL Environmental Code of Conduct, Declaration of San José – 1997 – Cartagena de Indias.
- ISM Code (International Safety Management Code)
- ISPS Code (International Ship and Port Facility Security Code)

ANNEX 3 SAFETY MANAGEMENT PLAN

The minimum recommended contents for the Safety Management Plan are detailed below:

a. Project description
   i. General Aspects, technologies, equipment, operations
   ii. Areas of operation and acquisition program
   iii. Technical specifications
   iv. Equipment
   v. Logistics
   vi. Detailed procedure of the tasks to be carried out

b. Risk Analysis
   vii. Hazard identification
   viii. Risks evaluation

c. Risk management
   ix. Minimum certification requirements for participants
   x. Matrix of Permitted Operations*
   xi. Safety Plan with risk control measures
   xii. Contingency plans
   xiii. MERP (Medical Emergency Response Plan)
   xiv. MEDEVAC
   xv. List of high impact incidents
   xvi. Applied standards

* The risk management shall include a Matrix of Permitted Operations (MOPO), for which preparation, the following conditions and operations must be considered, with the corresponding adaptations according to the type of exploratory operation:

(example for seismic acquisition operations)

- Conditions:
  - Normal Conditions
  - Hours of darkness

- Sea state > 3m
- Sea condition > 3m with stern waves
- Sea condition> 3m with working decks less than 6.5 meters above sea level
- Sea state > 5m
- Wind speed > 20-30 knots
- Wind speed > 30-40 knots
- Wind speed > 40 knots
- Risk of lightning
- Potential for local squalls or sudden changes in weather
- Visibility < 500m
- Visibility < 3Km
- Trainee operator allowed to participate while under supervision
- Supply vessel present
- Supply vessel absent
- Engine failure
- Entering water depths < 30m
- Fishing vessels/fishing equipment
- Security risk
- Presence of ice
- Chase boat present
- Chase boat absent
- Transit
- Emergency
- Pitch, roll or heave exceeding helicopter specifications
- Fast rescue boat in the water
- Fast rescue boat inoperative
- Passing obstructions < 500m
- Operating among other ships
- Engines or back-up vessel propulsion systems in maintenance
- Emergency drills
- Refueling at sea, including bunkering
- Turning radius < 5km (< 2km for 2D)
- Tangled streamers

- Operations

- In transit or in normal seismic operation (equipment deployed)
- Close approaches to fixed installations
- Confined space entry
- Use of deck crane
- Recovery or deployment of in-sea equipment – Source
- Recovery or deployment of in-sea equipment – Deflectors
- Recovery or deployment of in-sea equipment – Streamers and anciliaries
- Non-routine recovery of equipment (recovery of lost streamer, lost source or lost deflectors; recovery of tangled streamer or tangled source) with the vessel at speeds greater than 2.5 knots.
- Non-routine recovery of equipment (recovery of lost streamer, lost source or lost deflectors; recovery of tangled streamer or tangled source) with the vessel at speeds less than 2.5 knots.
- Electrical maintenance
- Helicopter operations
- Hot work in areas outside the designated welding shop
- Re-fueling at sea
- Re-fueling in port
- Repair or maintenance of critical safety equipment
- Vessel to vessel personnel transfers (gangway)
- Work at heights
- Diving operations
- Engine maintenance
- Emergency towing
- Small boat operations
- Untangling of streamers
- Supply vessel approach
- Supply vessel departure
- Emergency drills
- Turning
- Man Overboard Operations

ANNEX 4 LIST OF METOCEAN AND ENVIRONMENTAL DATA

In all the operations carried out offshore Uruguay, meteorological and oceanographic data (hereinafter "metocean"), will be acquired. There are also associated environmental data that will depend on the type of operation.

By metocean data, the following are understood:

- Bathymetry. Raw and processed data, obtained on board seismic vessels with the use of acoustic tools (echo sounder). Eventually, it also includes bathymetry information from the interpretation of seismic data.
- Water temperature and salinity. Obtained on board exploration vessels (or escort vessels) with electrical measurement tools.
- Barometric pressure. From periodic measurements of the Barometer installed on the deck of the exploration vessel, automatic or manual records.
- Wind speed. From periodic measurements of the wind strength and direction monitor, installed on the deck of the exploration vessel, automatic or manual records.
- Sea State. From visual observation and daily record by officers of the exploration vessel.
- Currents. From daily measurements of the ADCP (*Acoustic Doppler Current Profiler*) if this equipment is installed on the exploration vessel, automatic or manual records.

The specific content of the metocean data packages must be informed before the start of operations and presented at the Coordination Meeting in the following format:

Data	Measurement	Frequency	Equipment	Format	Medium	Delivery Date	Comment
Bathymetry							
Salinity (water column)							
Temperature (water column)							
Atmospheric Pressure							
Wind							
Sea State							
Currents							
Others (specify)							

The contractor must deliver to SOHMA (according to Law 16.320 and in compliance with the provisions of its Article 92) and to the Exploration and Production Management of ANCAP, through a File Server or hard disk drive, the package of acquired metocean data. These data must be provided as an ASCII file (*.XLS, *.DAT, etc.) with dates and coordinates in Lat/Long WGS84. The type of data, format, medium, frequency and recipients will be agreed between the contractor and SOHMA at the corresponding coordination meeting.

By environmental data, the following are understood:

- Marine Fauna Observation and Passive Acoustic Monitoring, which include daily reports, partial and final reports, digital field records, photographic records, sound records and screenshots of the PAM system, stored in various formats. These data are derived from the work of OFMs and the work of PAM operators. This type of environmental data is obtained during seismic acquisition operations.
- Environmental Reports, such as environmental impact studies, environmental management plans, environmental performance reports and other related documents.

The contractor shall deliver to DINARA and ANCAP's Environment, Safety and Quality Management, by means of a File Server or on hard disk drive, the metoceanic data package as well as the acquired environmental data.
The type of data, format, medium, frequency and recipients will be agreed between the contractor and DINARA at the corresponding coordination meeting.

ANNEX 5 FORMAT AND MEDIA REQUIREMENTS REGARDING ACQUIRED AND PROCESSED GEOPHYSICAL INFORMATION.

Type	Format	Media
Navigation – Field Data	P294	USB Hard Drive
Navigation – Processed Data	P190	USB Hard Drive
Metocean Data	Excel, ASCII	USB Hard Drive
Seismic – Field Seismic Data	SEGD	USB Hard Drive and Tapes 3592
Seismic – Data processed onboard (fast-track QC)	SEGY / JPG	USB Hard Drive
Seismic – others (preplot lines, test, QC plots, etc)	JPG, SHP	USB Hard Drive
Mag/Grav - Bathymetry	ASCII	USB Hard Drive

A proposal for structuring folders for this information is presented as follows,

- **Navigation Data**

Including the following information:

- Equipment calibrations and verifications
- Survey maps
- Offset diagrams
- Line records
- EOL reports
- Magnetic declination data
- p190 and p294 files
- Preplots
- Production record
- QC processing reports
- Weekly reports

- **Observer data**

Including the following information:

- Bubble test – offset test
- Daily test – Monthly test
- Gun Logs
- Observer Daily logs
- Observer Line logs

- **Onboard Processing Data**

Inlcuding:

- Brutestack data (SGY and JPG)
- RMS velocities (ASCII and SGY)
- Processing QC, images of:
    - RMS noise analysis (deep and shallow)
    - Auxiliary Channels
    - QC of nearby Traces
    - Timebreaks

- **Gravimetry & Magnetometry**

- Raw and processed data of bathymetry, gravimetry and magnetometry in ASCII format.
- GEOTIFF images of final bathymetry, gravimetry (Bouguer Anomaly and Free Air) and magnetometry (TMI, Residual TMI, Residual TMI RTP) data grids.
- Acquisition and Processing Reports

- **Reports**

Final acquisition report (integrated) of the survey.

- **Metocean**

Including the following information (see ¡Error! No se encuentra el origen de la referencia.):

- TS-Dip: measurements of temperature and salinity of the water column, and velocity calculation.
- Raw and processed bathymetry data.
- Meteorological data: atmospheric pressure, wind.
- Oceanographic data: sea status, currents.
- Other meteorological and oceanographic data.

- **About EBCDIC headings of seismic data (SEGY)**

In the EBCDIC headers of each SEGY delivered, the following information should be mentioned:

- Company that processed the data and client company
- Processing date and processing center
- Description of the area where the data is located, for example Offshore Uruguay, Offshore Uruguay Block 6, etc.
- Acquisition parameters. It should be mentioned: name of the vessel that acquired the data, dates in which the data were acquired, length of the used streamer, SP interval, record length in seconds, volume of the airguns array in cubic inches, number of channels per streamer or distance between groups, separation between streamers (in the case of 3D seismic), depth of the source, depth of the streamer(s).
- Detailed processing sequence, clearly identify if it is a time or depth processing, detail the velocity picking interval, the migration algorithm used.
- Seismic data polarity (for example a peak is an increase in acoustic impedance)

- Coordinate system used: Identification of the projection and the geoid
- In case of 3D seismic:
  - Coordinates of the Master grid vertices in the format: Vertex x: Inline a, Crossline b, X, Y
  - Distance between inlines and distance between crosslines in meters (for example: (IN INC.: 12.5m XLINE INC.: 12.5m)
  - Bytes where the Inline and Crossline identifiers are located
- In case of 2D seismic:
  - Name of the line
  - They must be clearly defined:
    i. SP number Bytes
    ii. CMP Number Bytes
    iii. SP coordinates Bytes
    iv. CMP coordinates Bytes
    v. Coordinate Multiplier Bytes

- **About the interpretation of seismic data:**

  - In the case of 2D seismic, a PDF print of each interpreted seismic line (with horizons and faults) must be delivered, as well as a copy of the same line without interpretation at the same scale and with the same colorbar.

  - In the case of 3D seismic, a print of 1 line every 100 inlines and 1 line every 100 crosslines must be delivered in PDF format, one set interpreted, and another copy without interpretation (at the same scale and with the same colorbar). For example, in a cube of 10,000 inlines x 5,000 crosslines, 100 seismic lines must be delivered (in its two versions, 200 PDF prints in total) for all inlines and 50 seismic lines (in its two versions, 100 PDF prints in total) for all crosslines.

  - For 2D and 3D seismic, horizons and faults must be exported in some format compatible with the IHS Kingdom interpretation software. It should be clarified if the horizon is in time or depth and the units (seconds, milliseconds, meters, kilometers, etc.).

- Horizons can be exported in the following formats:
    i. GeoQuest-CARD IMAGE 7 (a format that accepts multiple horizons and surveys)
    ii. X, Y, Z (one single file per horizon)
- As quality control, for each horizon a grid must be generated and exported in X, Y, Z format.
- Faults can be exported in the following formats:
    i. GeoQuest-CARD IMAGE 7
    ii. Charisma

- **Prospects**

Every time a prospect is presented in a technical activity, a location file (shapefile) must be submitted. This file must include information about the projection used and attributes such as: approximate area of the prospect, type of prospect, date of mapping, specify if the outline represents a P10, P50 or P90 area, etc.

ANNEX 6 NOTICE TO MARINERS

Written in Spanish language; including but not limited to the following content:

- Project's name
- Operator
- Period of the survey
- Seismic Vessel and Contact Information
- Support Vessels and Contact Information
- Escort ship and contact information
- Diagram showing ship, streamers and buoys with distances.
- Tail buoy flash type including color and frequency.
- Distances and number of streamers, as well as the distance that other boats must maintain towards the equipment.
- Photos of the vessels involved in the operation with their Call Sign, VHF and Bridge telephones.
- Table of coordinates for the activity in the next 48 hours, including Date, Line, Direction, Line length (Km), Duration (hs), Estimated start time, Start coordinates (lat/long), End coordinates (lat/long) and Estimated end time. These coordinates must be shown in latitude and longitude WGS84 (geographical coordinates), as it is the official format for the Navy.
- Map of the project area
- Map of the different swaths or phases including the estimated dates of beginning and end, as well as the coordinates of their vertices and direction of the seismic vessel.
- Update date and time
- Person in charge of the report

A simple Notice to Mariners is presented as follows,

Aviso para las próximas 48 horas

Levantamiento de datos geofísicos	
Nombre del Proyecto	Programa de Adquisición de Datos Sísmicos 3D en el Offshore de Uruguay
Operador	PGS
	Levantamiento sismológico 3D usando 12 cables con doble fuente de energía Cables: 7050 m de largo y 100 m de separación. Fuentes: cañones de aire de 4135 in^3.
Actividad total/período de levantamiento	Diciembre 2012 a enero 2014
Información de contacto en el Mar	
Barco sísmico	Ramform Vanguard
Información de contacto	Embarcación Marlink +47 67 51 4976 Iridium + 870 331 178 411
Barco de soporte	Thor Provider, Ocean Explorer
Información de contacto	Iridium +870 764 152 946, +870 764 033 482
Barco escolta	Thor Provider
Información de contacto	+88 16 2144 3070
Reporte de la actividad	
Posición actual, velocidad y dirección	
Actualización: Actividad/plan de levantamiento para los siguientes 3 días	Levantamiento según plano adjunto
Reporte elaborado por	John Gjerde, PC Ramform Vanguard
Fecha y hora de la actualización	08-10-2013 22:30 UTC

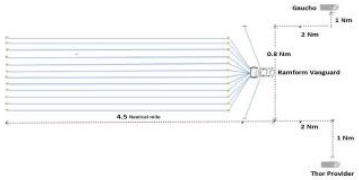
Programa de Adquisición de Datos Sísmicos 3D en el Offshore de Uruguay

ALERTA A NAVEGANTES

Levantamiento sísmico – Ramform Vanguard
Costa Afuera del Uruguay –Diciembre 2012 – Enero 2014

ALERTA A PESCADORES: A PARTIR DE DICIEMBRE 2012 HASTA ENERO 2014

M/V "RAMFORM VANGUARD" REALIZARÁ UN LEVANTAMIENTO DE DATOS GEOFÍSICOS COSTA AFUERA DE PUNTA DEL ESTE Y REMOLCARA BAJO EL AGUA 12 CABLES SISMICOS, CADA UNO DE 7KM DE LARGO ARRASTRADOS 20 METROS POR DEBAJO DE LA SUPERFICIE DEL MAR; ESTOS CABLES PUEDEN SER MUY PELIGROSOS PARA SUS NAVIOS Y SU EQUIPO DE PESCA. EL "RAMFORM VANGUARD" ES UN BUQUE DE BAJA VELOCIDAD Y CON CAPACIDAD DE MANIOBRA MUY REDUCIDA. POR FAVOR MANTENGANSE ALEJADOS DE EL CUANDO MENOS A 8 MILLAS DE POPA, 2 MILLAS A BABOR Y ESTRIBOR Y A 3 MILLAS DE PROA.



2

Programa de Adquisición de Datos Sísmicos 3D en el Offshore de Uruguay

NAVIOS EN LA OPERACION SISMICA

Ramform Vanguard

Señal de llamada: C6TU8
VHF: 16
Puente: +47 67 51 49 67
Puente: +47 67 51 49 60

M/V Thor Provider

Señal de llamada: V3MZ8
VHF: 16
Puente: +870 764 152 94
Puente: +870 764 033 482

M/V Ocean Explorer

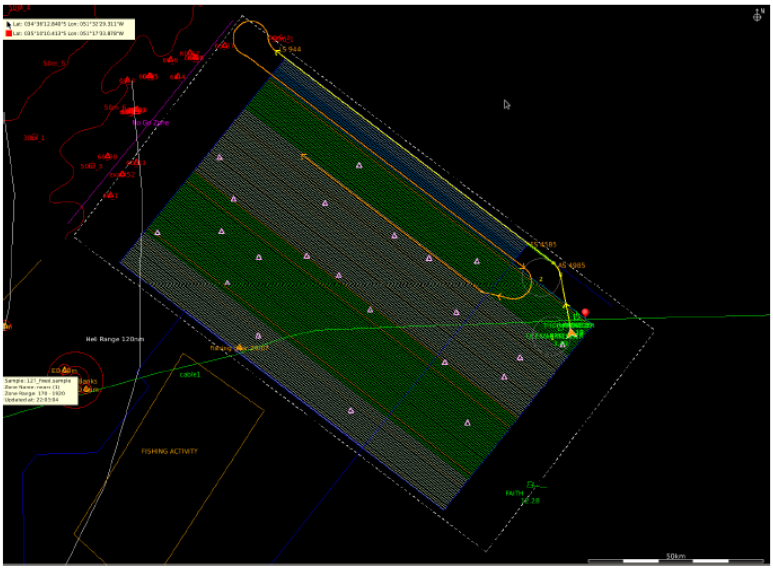
Señal de llamada: C6TU4
VHF: 16
Puente: +47 67 51 52 72

3

Programa de Adquisición de Datos Sísmicos 3D en el Offshore de Uruguay

Curso de navegación para las próximas 48 horas – 11 Aug y 12 Aug – Fase 2

Fecha	Linea	Dir	Duración	La hora de inicio	Iniciar	Terminar	La hora de terminar
11.08.13	1012	307°	11:55 hrs	11th 02:10 UTC	34° 58' 24'' S, 051° 28' 22'' W	34° 28' 09'' S, 052° 15' 26'' W	11th 14:05 UTC
11.08.13	1276	127°	12:00 hrs	11th 18:45 UTC	34° 32' 05'' S, 052° 16' 23'' W	35° 02' 20'' S, 051° 29' 17'' W	12th 06:45 UTC
12.08.13	1756	307°	07:20 hrs	12th 10:50 UTC	35° 02' 29'' S, 051° 41' 57'' W	34° 44' 06'' S, 052° 10' 34'' W	12th 18:10 UTC



4

Programa de Adquisición de Datos Sísmicos 3D en el Offshore de Uruguay

AREA DE OPERACIONES

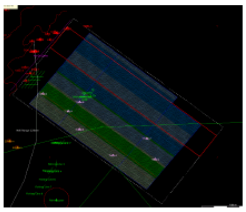
AREA DE OPERACIONES

A lo largo de la duración del proyecto, el Ramform Vanguard junto con sus barcos de soporte transitará el área de operaciones siguiendo un rumbo aproximado de 127° y 307°

AREA DE OPERACIONES – Andana 3

Inicio de la andana 3 de operaciones: Aprox. (29.05.13)
Final de la andana 3 de operaciones: Aprox. (10.08.13)

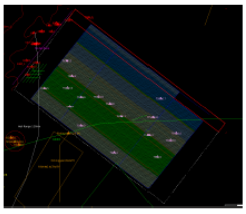
	Latitud	Longitud
Andana 3	34° 35′ 38″ S	052° 33′ 49″ W
	35° 24′ 59″ S	051° 16′ 42″ W
	35° 15′ 39″ S	051° 07′ 52″ W
	34° 26′ 19″ S	052° 24′ 50″ W



AREA DE OPERACIONES – Andana 4

Inicio de la andana 4 de operaciones: Aprox. (10.08.13)
Final de la andana 4 de operaciones: Aprox. (23.08.13)

	Latitud	Longitud
Andana 4	34° 26′ 19″ S	052° 24′ 50″ W
	35° 15′ 39″ S	051° 07′ 52″ W
	35° 11′ 56″ S	051° 04′ 29″ W
	34° 22′ 39″ S	052° 21′ 29″ W



Durante los períodos indicados el Ramform Vanguard intentará permanecer dentro de las andanas indicadas, sin embargo debido a los requisitos operativos y de seguridad aplicables, podría ser necesario maniobrar fuera de la zona indicada por períodos limitados.

5

ANNEX 7 DAILY SEISMIC OPERATION REPORT

Daily reports will be sent regarding the seismic acquisition operations including but not limited to the following contents:

- Basic details of the project
- Events and statistics on Health, Safety and Environment
- Detail of Man Hours
- Acquired sequences and status
- Production totals
- Timing summary
- Survey global progress
- Weather conditions
- Comments
- Figure showing the progress of the program

The following is a model of daily operation report:

Daily Report

Date:
Day _ of survey
Day _ of year

Client:	Contractor:
Client Job No:	Contractor Job No:
Telephone:	Telephone:
Attention:	Attention:
Email:	Email:
Vessel:	Client Rep:
Telephone:	Telephone:
Email:	Email:

Weather

Observed	Wind Direction (from)	Wind Speed (knots)	Swell Direction (from)	Swell Height (m)	Visibility
00:00					
04:00					
08:00					
12:00					
16:00					
20:00					

Basic Project Details

XD X streamers					
General Details					
Record length:		Sample rate:		Shotpoint interval:	
CoS to CNG:					
Cable Details					
No of Cables:		Separation:		No of channels:	
Front Depth:		Tail Depth:		Length:	
Group interval:					
Source Details					
No of Sources:		Separation:		Depth:	
Pressure:		Volume:		String separation:	
String length:		Strings per source:			

Production Listing (Accpt sq km by shotpoint)

Sequence	Line	Heading	FGSP	LGSP	Production Type	Ave Knots	Production	Status
Total								

Production Totals (Accpt sq km by shotpoint)

Accepted sq km	Day	Week	Month	Project
Combined				

Timing Totals for Period

Category	Code	Total	% Percent
Mobilisation	MB		
Total			

Timing Breakdown Summary

Category	Hours	% Percent
Mobilisation		
At Anchor		
Deployment		
Mob Ashore		
Mob Weather		
Transit to Prospect		

Survey Progress

Percentage of Prime Charged

0%

Prime Lines Completed

0%

Preplot Lines	Complete	Incomplete	Pending

Percentages Charged	
Prime	0.000% of X sq km ()
Infill	0.000% of Charged Prime sq km ()
	0.000% of Preplot sq km ()

Average Daily Production	
Average Accepted Daily Prime and Infill Production	0.000 km
Average Charged Daily Prime and Infill Production	0.000 km

Daily

General:

Man Hour:

HSE Event/Stats:

Data Quality:

Positioning:

Source:

Streamers:

Recording:

Currents & Feather:

Fishing:

Shipping:

Support Vessels :

Cetaceans:

Plan for next 24 hours:

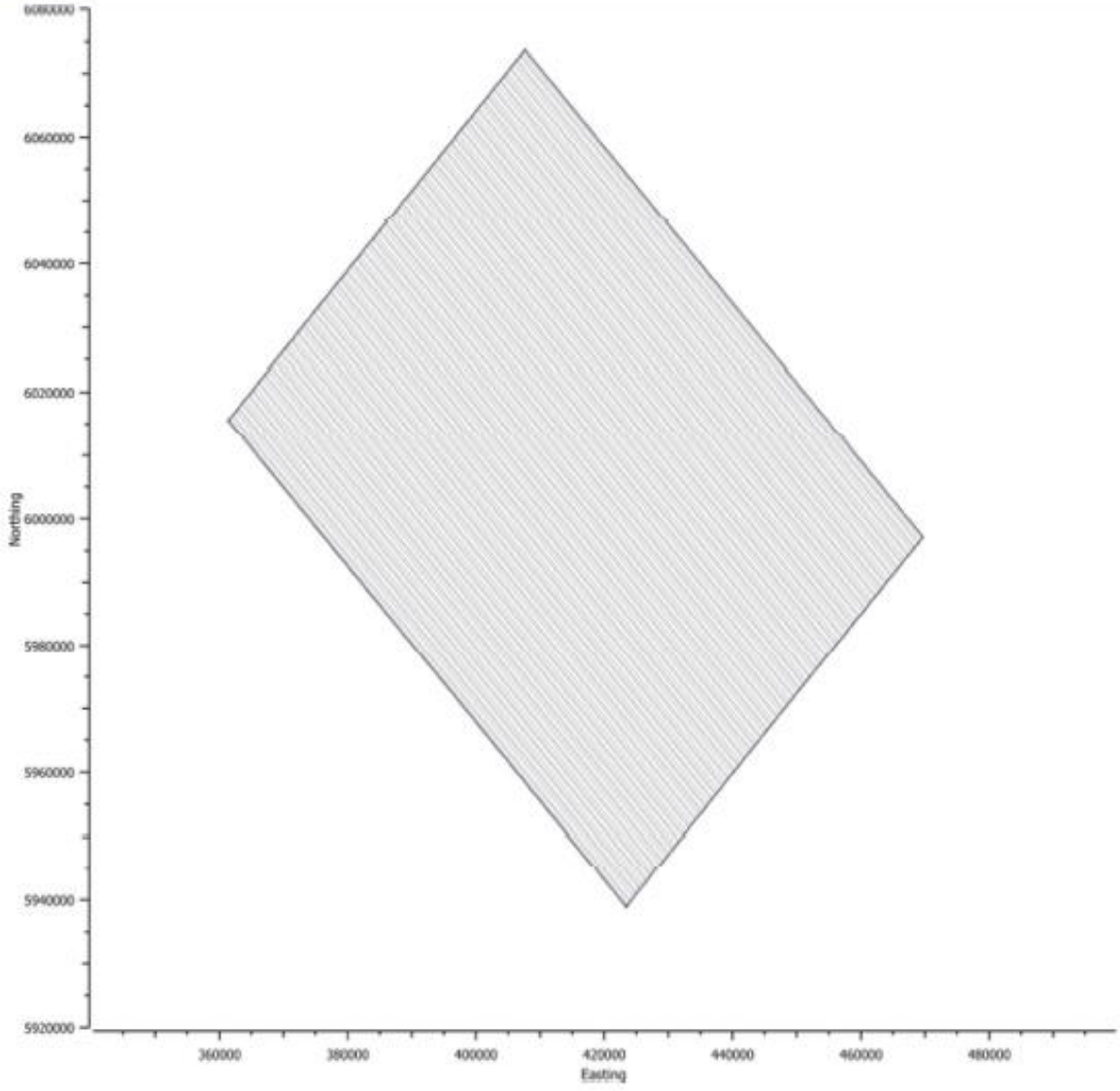
Timing Diary

Category	Code	Start	End	Duration
Deployment	MB_DP			
Mob Weather	MB_WX			
Deployment	MB_DP			
Mob Weather	MB_WX			
Deployment	MB_DP			

Category	Code	Start	End	Duration

HSE Events Diary

Category	Code	Start	End
Departmental Meeting			



Combined Statistics

Timing Phase 1 Main Categories (Hours)

Acquisition	Standby	Downtime	MOB	No-charge Standby	Total

Timing Phase II Main Categories (Hours)

Acquisition	Standby	Downtime	MOB	No-charge Standby	Total

Total Timing: Phase 1 + Phase II Main Categories (Hours)

Acquisition	Standby	Downtime	MOB	No-charge Standby	Total

Production Phase 1 FF square Km

Prime	Infill	Prime-R	Infill-R		Total

Production Phase II FF square Km

Prime	Infill	Prime-R	Infill-R		Total

Total Production: Phase 1 + Phase II FF Square Km

Prime	Infill	Prime-R	Infill-R		Total

ANNEX 8 OFM/PAM REPORTS

Daily OFM/PAM reports will be sent from the ship, in Spanish, including but not limited to the following content:

- Daily summary/Comments (including, OFM / PAM daily results, mitigation actions taken, problems or comments on the OFM/PAM task, situations of application of mitigation measures, compliance with DINAMA guide [11])
- OFM and PAM monitoring effort (including number and duration of monitoring and pre-trigger searches)
- Marine Mammal detections and visual records (including species, number of animals and detections and need for mitigation actions)
- Photographic record
- Mitigation actions
- Monitoring details and mitigations
- Additional notes
- Avian species
- Summary of the weather conditions

Once the survey is over, the contractor will deliver to ANCAP a Final OFM/PAM Report, which will include the following items,

- Project description
- Methodology for OFM and PAM
- Processed data from OFM sightings and PAM records (lists and maps)
- Data on mitigation actions (lists and mapping)
- Conclusions (abundance and distribution of species, compliance with DINAMA guide during the survey, discussion of the level of protection with respect to the detected species)
- Lessons learned and suggestions for future surveys.

ANNEX 9 SIGHTING DATA AND MARINE FAUNA DETECTION

1. Field data in electronic format

- **Spreadsheets**

With observer field data containing: home page, operations, effort, visual and acoustic sightings. Available in Reference [11].

- **Photographs**

File containing all the photos taken of cetaceans, turtles and avian species as well as any other fauna previously agreed, during OFM observations, organized by author and date for future reference.

- **PAM Field Data**

Sound recordings of cetaceans in *.WAV format, organized by author and date for future reference.

- **OFM and PAM field data recorded on paper**

These field records should be scanned and delivered in *.PDF format.

- **Marine mammal records form**

These forms for the record of sightings efforts and visual and acoustic detections can be obtained in the Reference [11].

- **Forms for recording any other fauna**

For example, for avian species.

2. Processed data in digital format

Daily, weekly and final OFM and PAM reports (already delivered on a daily basis, etc., will also be delivered together at the end of the survey).

ANNEX 10 MINIMUM CONTENT OF THE HSE PERFORMANCE REPORT

Generalities

Safety Meetings

Toolbox Meetings

Emergency Response Drills

Safety Training

Reports/Observation Cards

Safety audits and inspections

Hours worked

Number of people on board each ship involved in the operation (distinguishing between the maritime crew and the project crew)

Hours worked (calculated based on a 12-hour work day)

Incident report

Near Miss, NRM

First Aid Case, FAC

Medical Treatment Case (MTC)

Restricted Work Day Case (RWDC)

Lost Time Injury (LTI)

Fatality (FAT)

High Potential event (HPI)

Lost Work Day Cases (LWDC Days)

Others

MEDEVACs

Small boat operations

Bunkering operations

Lifting operations

Permits to Work (PTW) issued

Crew changes

Helicopter operations

The definitions are considered according to the IOGP "*Safety data reporting user's guide*" [15].

ANNEX 11 SUBMARINE INFRASTRUCTURE / SUBMARINE TELECOMMUNICATION CABLES

Offshore Uruguay there are a number of submarine cables, both on the seabed and buried. The "SAC", "UNISUR", "BICENTENARIO", "SAM-1", "ATLANTIS II" and "TANNAT" cables can be found in the cartography. Most of their route is under the sediments, although there are some sectors on the seabed. The "SAM-1" and "ATLANTIS-II" cables are laid on the seabed of the Atlantic Ocean and enter the continental shelf. From 1,000 m depth and towards the coast, they would be under the sediments. The following table presents the operating companies of these cables.

Designation of the submarine cable	Operator
UNISUR	ANTEL
BICENTENARIO	ANTEL
SAM-1	TELEFONICA
ATLANTIS-II	TELEFONICA
SAC	LEVEL3
TANNAT	ANTEL

Table Annex 11-1 – Submarine Cable Operators

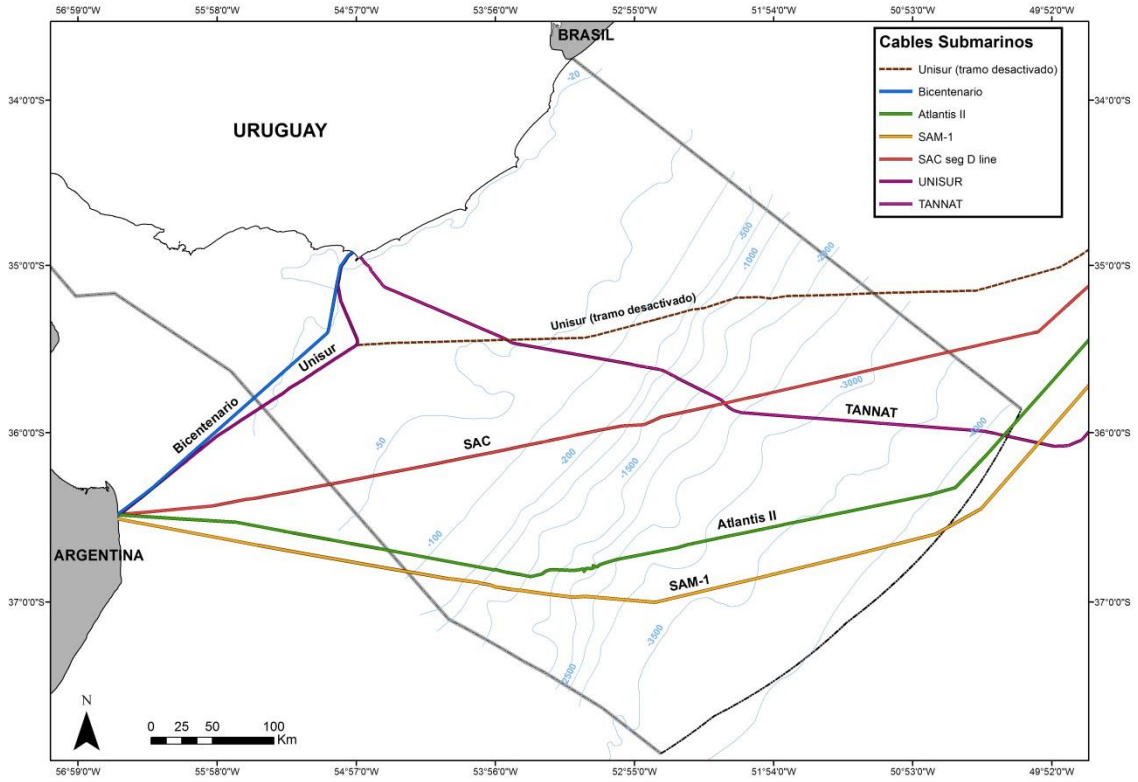


Fig. ANNEX 11-1. Approximate location of submarine telecommunication cables.

The approximate location of the submarine communication cables "SAC", "Atlantis II", "SAM-1", "Bicentenario", "Unisur" and "Tannat" is shown in **Fig. Annex 11-1**. The cable operators will provide the shapefiles with the locations through ANCAP in case it is required for planning a survey.

In the case of seismic acquisition operations, these companies require a modeling of the effect that the seismic source has on their submarine cables in order to know which is the incremental pressure to which they will be subjected to as a consequence of seismic operations. This report must demonstrate that a certain pressure limit value on the seabed will not be exceeded. This limit value is established in ICPC Recommendation No. 8 [16].

Additionally, the seismic vessel is required to send a warning 6 hours before crossing any of these submarine cables. This notice must include the crossing coordinates with

their identification, as well as the estimated time. A model notice is presented below, which must be sent to the recipients designated by the cable operating company as well as to representatives of ANCAP and the Maritime Traffic Directorate of the National Naval Prefecture.

Estado del : BGP Challenger:

Fecha: 2014-11-26 Latitud: 37°17.60'S

Hora: 06:10 hora UTC Longitud: 051°18.05' W

Curso: 304.221°

Velocida: 3.8 Nudos

Aviso de paso sobre el cable submarino que se extiende a través de los bloques offshore #13, 14, 15, 16 & 17. BGP Challenger pasará sobre el cable:

La fuente del cañón de aire va a estar disparando al cruzar el cable. (Por favor tener en cuenta que el tiempo de cruce es aproximado, basado en las actuales corrientes marinas y estado del tiempo). Nuestro trabajo va a seguir el plan que se muestra en la Figura 1. También informamos la hora de cruce estimada en la tabla que aparece debajo.

Por favor notar que el incremento estimado en la presión debido a la fuente sísmica en profundidades desde 2500 a 4000m es de 0.04 - 0.02 bar respectivamente. Por mas información por favor ver la información adjunta sobre la salida de la fuente.

REF.	Estimate pass time(UTC)	Cross Point Coordinates				Survey Line				
		LAT((DDMM.mm)		LONG(DDMM.mm)		Line Name	Seq Hed	SOL(DDMMSS.ss)	EOL(DDMMSS.ss)	Cable name
001	2014-11-20 23:00	36 33.75	S	051 02.55	W	1051	304.0°	364358.95S0504335.96W	360852.53S0514738.68W	SAM-1
002	2014-11-21 04:30	36 25.67	S	051 17.25	W					Atlantis II
003	2014-11-21 20:30	36 28.05	S	051 29.90	W	1065	124.0°	361539.31S0515211.58W	365151.88S0504607.15W	Atlantis II
004	2014-11-23 23:30	36 36.70	S	051 14.12	W					SAM-1
005	2014-11-24 21:30	36 42.50	S	051 36.60	W	1093	304.0°	370105.48S0510223.83W	362636.67S0520506.53W	SAM-1
006	2014-11-25 02:00	36 32.70	S	051 54.42	W					Atlantis II
007	2014-11-25 08:10	36 35.00	S	52 07.80	W	1108	124.0°	363444.66S0520812.49W	370839.00S0510631.26W	Atlantis II
008	2014-11-25 12:50	36 45.64	S	051 48.97	W					SAM-1
009	2014-11-26 18:00	36 49.97	S	052 08.32	W	1131	304.0°	371523.86S0512205.54W	364821.87S0521112.70W	SAM-1
010	2014-11-26 22:00	36 35.10	S	052 30.75	W			364821.87S0521112.70W	363609.84S0523655.29W	Atlantis II
011		36 54.97	S	052 33.65	W	1159	124.0°	365437.40S0523414.30W	372755.95S0513359.38W	
012		36 37.69	S	051 18.01	W	5013	218.0°	375642.09S0523704.10W	353738.75S0502033.70W	
013		36 23.30	S	051 03.97	W					
014		36 27.47	S	051 26.84	W	5035	38.0°	353257.15S0503424.36W	375232.70S0525200.65W	
015		36 44.12	S	051 43.19	W					
016		36 46.97	S	051 54.67	W	5045	218.0°	374636.17S0525441.98W	352704.45S0503712.34W	
017		36 29.40	S	051 37.30	W					
018		35 30.81	S	050 48.00	W	5056	38.0°	352603.63S0504603.62W	374503.33S0530325.07W	
019		36 31.70	S	051 49.50	W					
020		36 49.80	S	052 07.47	W					
021		36 52.85	S	052 22.91	W	5071	218.0°	373739.13S0530825.21W	364559.74S0521604.28W	
022		36 52.10	S	52 19.26	W	1143	124.0°	364911.64S0522425.93W	372201.22S0512455.10W	
Notice		Pronto								
		Completado								

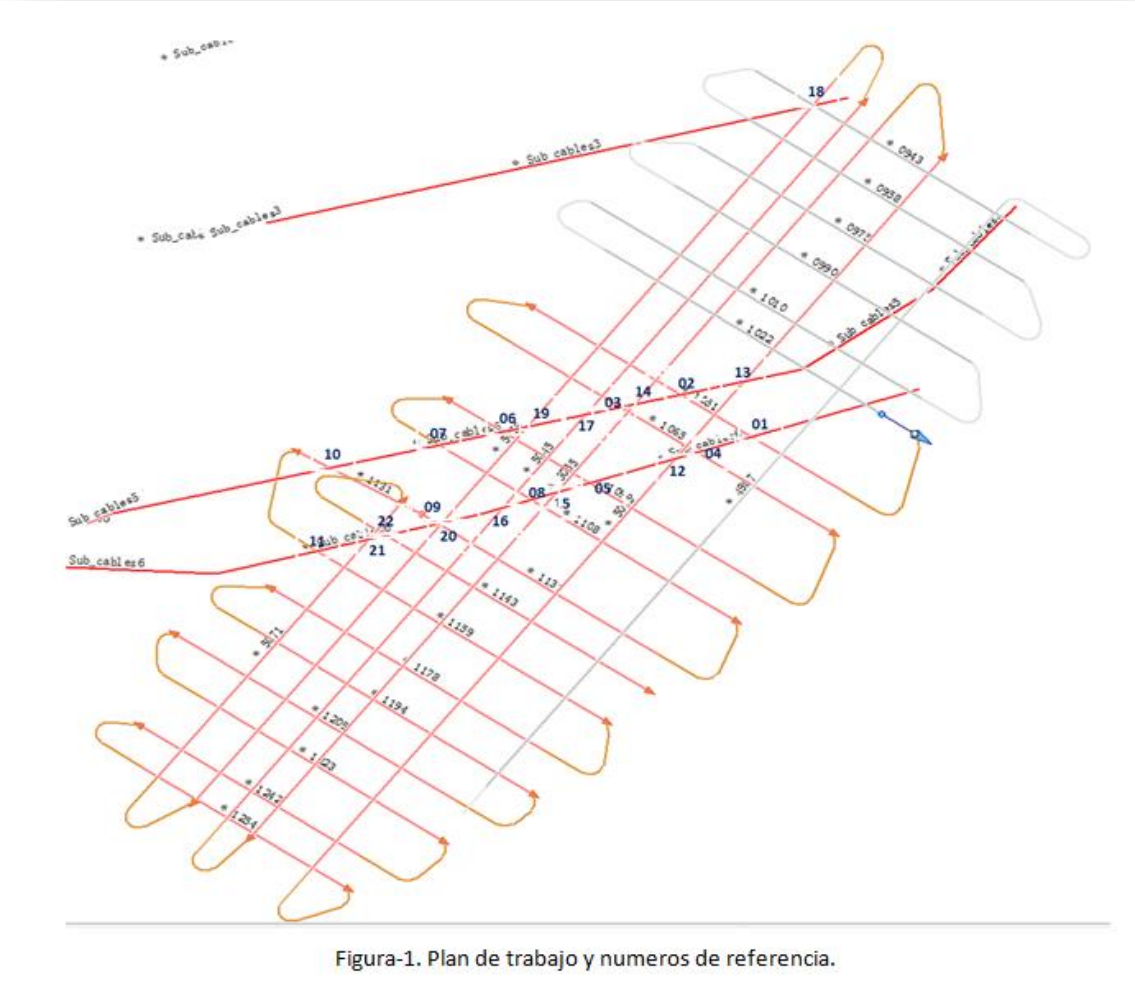


Figura-1. Plan de trabajo y numeros de referencia.

Geographic Information					
Elipsoide:	WGS 84	**Proyección:**	U.T.M. 22S	**False East:**	500000
Eje mayor:	6378137.0 m	**Meridiano Central:**	51W	**False North:**	10,000,000
1/F:	298.2572236	**Mag. Declin.:**	-12.68°	**Escala en el Mer. Central:**	0.9996

For operations that involve contact with the seabed (sediment sampling, placement of receivers, etc.), a report must be prepared, including risk mitigation measures with respect to interaction with submarine telecommunication cables. This report should present the survey design, clearly establishing the exclusion zones according to the location of the submarine cables.

Specifically for CSEM data acquisition operations, in agreement with submarine cable operators, the following criteria have been defined:

- Maintain a 2km separation distance between instrument packages and cables.
- Raise the towed sources over the cables in order to maintain a minimum distance of 500m from them.
- Provide planned routes for towed sources and design, as well as when cables are to be crossed.
    - Provide this information by e-mail with a notice every 48 and 24 hours when the instrument packages are deployed near the cables.
    - Provide this information by e-mail by means of a notice every 48 and 24 hours when the source is to be towed on the cables.
- Provide the locations of the instrument packages that are adjacent to the cables, as well as the confirmation of the distance of each one from the cables.

ANNEX 12 BASIC CONTACT LIST FOR COMMUNICATIONS IN EXPLORATORY OPERATIONS

Document: **Notice to Mariners**

NATIONAL ARMY	PREMO	premo_radio@armada.mil.uy
	CONMO	conmo@armada.mil.uy
		conmo_op@armada.mil.uy
		conmo_des@armada.mil.uy
	DIMAR	dimar_comunicaciones@armada.mil.uy
		dimar_cigen@armada.mil.uy
	PILOTAJE	ofipi@armada.mil.uy
	CONPE	prema@armada.mil.uy
		radares@armada.mil.uy
		conla@armada.mil.uy
	SOHMA	sohma@armada.mil.uy
		sohma_ayu@armada.mil.uy
		sohma_ayu_jefe@armada.mil.uy
	PNN	prena_jefe@armada.mil.uy
		aypre@armada.mil.uy
		dirme@armada.mil.uy
		dirme_secretaria@armada.mil.uy
		dirma_jefe@armada.mil.uy
		dirma@armada.mil.uy
		Jgmc12@hotmail.com
DINARA		direcciongeneral@dinara.gub.uy
MIEM		Alicia.torres@dne.miem.gub.uy
		diana.magano@dne.miem.gub.uy
ANCAP		pgristo@ancap.com.uy
		jtomasini@ancap.com.uy

Document: **Operation Report**

ANCAP	pgristo@ancap.com.uy
	jtomasini@ancap.com.uy

Document: **OFM/PAM Report**

ANCAP	pgristo@ancap.com.uy
	jtomasini@ancap.com.uy
	rmartino@ancap.com.uy
	mfresia@ancap.com.uy
	vbotta@ancap.com.uy
DINARA	adomingo@dinara.gub.uy
	direcciongeneral@dinara.gub.uy
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	diana.magano@dne.miem.gub.uy

Document: **HSE Performance Report**

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Document: **Notification of Submarine Cable Crossing**

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ANNEX 13 CHECKLIST FOR SEISMIC ACQUISITION OPERATIONS

	DATE:	Point	Delivered	Revised	Approved	Comment
	HSE INFORMATION					
BEFORE	Documents related to the application for Environmental Authorization	4.2.1				
BEFORE	Safety Management Plan (or PGAS)	**¡Error! No se encuentra el origen de la referencia.**				
BEFORE	Notice to Mariners – Template Report	**¡Error! No se encuentra el origen de la referencia.**				
DURING	Notice to Mariners (every 48 hours and in changes)	**¡Error! No se encuentra el origen de la referencia.**				
DURING	OFM / PAM report (daily, weekly, monthly)	4.2.9				
DURING	HSE performance report (weekly)	**¡Error! No se encuentra el origen de la referencia.**				
DURING	Notice of submarine cable crossing (6 hours before)	**¡Error! No se encuentra el origen de la referencia.**				
DURING	Post-AAO documents and reports	4.2.1				
AFTER	Onboard Acquisition and Processing Report	**¡Error! No se encuentra el origen de la referencia.**				
AFTER	OFM / PAM Final Report	4.2.9				
AFTER	Data of Sighting and Detection of Marine Fauna	**¡Error! No se encuentra el origen de la referencia.**				

	Final HSE Performance Report	**¡Error! No se encuentra el origen de la referencia.**				
	Project closure report issued by DINAMA	4.2.1				
	G&G INFORMATION					
BEFORE	List of Metocean Data	**¡Error! No se encuentra el origen de la referencia.**				
	G&G Data List	4.2.5				
	Navigation Lines Program	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Source Modeling Report	**¡Error! No se encuentra el origen de la referencia.**				
DURING	Operation Report (daily)	**¡Error! No se encuentra el origen de la referencia.**				
AFTER	Navigation Data (Field)	**¡Error! No se encuentra el origen de la referencia.**				
	Navigation Data (Processed)	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Data (Field)	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Data (Fast-Track)	**¡Error! No se encuentra el origen de la referencia.**				

	Seismic Data (PSTM)	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Data (PSDM)	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Data (Gathers, AVO, others)	**¡Error! No se encuentra el origen de la referencia.**				
	Seismic Data (QC, Test, others)	**¡Error! No se encuentra el origen de la referencia.**				
	Mag & Grav Data (Field)	**¡Error! No se encuentra el origen de la referencia.**				
	Mag & Grav Data (Processed)	**¡Error! No se encuentra el origen de la referencia.**				
	Metocean Data	**¡Error! No se encuentra el origen de la referencia.**				

ANNEX 14 COMMUNICATION IN CASE OF HIGH IMPACT INCIDENT

A high-impact incident is understood as one that has or may have, in the judgment of the personnel involved and as part of an initial evaluation, consequences (actual or potential) of severity levels A and B in ANCAP's risk assessment matrix, which implies at least:

- A death or disabling injury.
- Property damage of US$ 1.000.000.
- Major or extensive impact on the environment.
- National press coverage.

Before the start of operations, the Operator must provide the name and contact details of the person in charge of communications in the event of a high impact incident. ANCAP will also provide the names and contact details to which the communication must be sent in these cases.

Additionally, in the corresponding Coordination Meeting, the contact list in the event of a high impact incident will be defined, and in this regard it is suggested to consider the following,

- ANCAP: President, General Manager and Exploration and Production Manager
- PNN: National Naval Prefect and HSE Manager
- DINAMA: Director
- Operator: Director/Manager and HSE Manager
- Subcontractor: Director/Manager and HSE Manager

In the event of a high impact incident, the Operator must immediately notify the Maritime Authority and ANCAP within 4 hours of the occurrence. The information provided must contain at least the following:

- Type of incident occurred, place and time
- Person(s) affected (number and names in case they are known at the time)
- Health status of the affected person(s) (if applicable)
- Affected resources and assets and their levels of affectation (if applicable)
- Mitigation tasks performed (if applicable)

Without prejudice to whether or not they represent a High Impact Incident, the following incidents must also be reported:

- Fire on the ship or other project location
- Explosion on the ship or other project location
- Collision at sea or vessel grounding

- Helicopter accident on or near the ship or at another project location
- Man overboard from the ship
- Total loss or serious damage to the equipment
- Traffic/transport accident related to the activity
- Criminal act on the ship or other project location
- Action of activists and/or act or threat of terrorism against the operation
- Situation with possible or current attention given by the media
- Complaint by an interest group (e.g. fishermen, NGOs, etc.) made directly to the contractor or through a third party (e.g. Uruguayan authorities or the media)
- Events of loss of containment in general (hydrocarbons, mud, cement, as well as any other).
- Partial, severe or total loss of circulation.
- Others identified by the Operator

The Operator will provide ANCAP with daily reports on progress regarding any incident that has occurred. In these reports, ANCAP will be informed of the strategy and the actions taken.

Within three months after the incident closes, a detailed report on the investigation of causes and actions taken will be delivered to ANCAP. ANCAP may, when it deems appropriate, participate in the investigation, as well as request a report on its progress.

ANNEX 15 CHECKLIST FOR DRILLING OPERATIONS

		Point	Revised	Approved	Delivered	Comments
	HSE INFORMATION					
BEFORE	Documents related to the application for Environmental Authorization	**¡Error! No se encuentra el origen de la referencia.**				
BEFORE	Contingency Plan for Hydrocarbon spills	**¡Error! No se encuentra el origen de la referencia.**				
BEFORE	Safety Management Plan	**¡Error! No se encuentra el origen de la referencia.**				
DURING	Weekly HSE performance report	5.2.9				
DURING	Post-AAO documents and reports	**¡Error! No se encuentra el origen de la referencia.**				
AFTER	Final HSE Performance Report	5.2.12				
AFTER	Project closure report issued by DINAMA	**¡Error! No se encuentra el origen de la referencia.**				
	ENGINEERING AND GEOLOGY INFORMATION					
BEFORE	Drilling Program	5.2.4				

	Geological Program	5.2.5				
DURING	Daily Drilling Reports	0				
	Daily Geological Control Reports	5.2.7				
AFTER	Final Drilling Report	5.2.10				
	Final Geological Report	5.2.11				

ANNEX 16 DRILLING PROGRAM

The minimum recommended contents for the Drilling Program are detailed below:

1. WELL ACTIVITY SUMMARY

1.1. Well summary

1.2. Well trajectory

1.3. Re-spud and relief well locations

1.4. Formation acquisition program

1.5. Casing program

1.5.1. Base case sections

1.5.2. Contingent sections

1.6 Wellhead specifications

1.7. Bits summary

1.8. Mud and cement program summary

1.8.1. Mud program summary

1.8.2. Cement program summary

1.9. BOP pressure test program

1.9.1. BOP configuration

1.10. BOP test tools to be used for BOP pressure tests

1.11. Casing integrity pressure tests program

1.12. Well design summary

1.12.1. Kick margin table

1.12.2. Casing design summary

1.13. Drilling rig generalities

1.13.1. Rig tubular list

1.13.2. Mud pump liner set up program

2. DRILLING SEQUENCE ABSTRACT

3. PLANNED PROGRESSION CHART

4. RIG LOCATION/FINAL PREPARATION

4.1. Rig and spud location

4.2. Well datum and Coordinates

5. DRILLING XX" SECTION - RUNNING AND CEMENT XX" CASING

- Section objective
- XX" drilling - section hazards and risks
- Preparation for XX" drilling section

- Drilling XX" drilling section
- XX" drilling BHA
- XX" drilling mud program
- XX" casing running and cementing section hazards
- Cementing program
- FIT procedure (if corresponds)

6. BOP TEST

7. PLUG AND ABANDON TENTATIVE PLAN

APPENDICES:

- Service companies list and contact details
- Operator team list and contact details
- Casing Specifications
- Primary Drill bits spec sheets
- Tubular specificities (DP/HWDP/DC performance sheets)
- Location target coordinates
- Technological risk assessment (BLOWOUT CASE)
- Centralizers spec sheets
- BOP certification
- Loss Circulation Assessment and Planning (LCAP) documents, including losses control method decision tree (see ¡Error! No se encuentra el origen de la referencia.)

ANNEX 17 GEOLOGICAL PROGRAM

The minimum recommended contents for the Geological Program are detailed below,

1. INTRODUCTION

1.1. Geological overview

1.2. Well preparation historic

2. WELL GENERAL DATA

3. WELL OBJECTIVES

3.1. Primary objectives

3.2. Secondary objectives

4. REFERENCE OFFSET WELLS

4.1. Offset wells in Uruguay

4.2. Offset wells in the Basin

4.3. Additional offset wells

5. RATIONALE FOR WELL LOCATION AND TARGET DEFINITION

5.1. Target definition / Rationale for well location

5.2. Shallow Hazards

5.3. Targets coordinates

5.4. Targets tolerance

6. DEVIATION / TRAJECTORY

7. LITHOLOGY, STRATIGRAPHY, PETROLEUM SYSTEM & DEPTH UNCERTAINTIES

Petroleum system that is going to be tested (Source rock, reservoir, seal)

8. EXPECTED RESERVOIR FLUIDS

8.1. Above objectives

8.2. Well primary objective

9. PRESSURE AND TEMPERATURE PREDICTION

9.1. Pore Pressure – Most likely case

9.2. Pore Pressure – Commitment case

9.3. Fracture Gradient

9.4. Temperatures

10. DRILLING AND GEOLOGICAL HAZARDS ASSESSMENT

11. WELL ARCHITECTURE

11.1. Base case architecture

11.2. Contingencies

11.3. Alternative architectures (lighter)

12. PHASE TD CRITERIA

12.1. Conductor drilling section – On depth criteria

12.2. Surface drilling section – On depth criteria

12.3. Intermediate 1 drilling section – On depth criteria

12.4. Intermediate 2 drilling section – On depth criteria or geological criteria

12.5. Intermediate 3 drilling section – On depth criteria or geological criteria

12.6. Final drilling section (WELL TD) – Geological criteria

13. DATA ACQUISITION

Defining format, record and storage media for each type of data set, as well as how the access to the data will be assured. Service providers shall be identified, too.

13.1. Mudlogging

For each drilling section, it has to be defined:

- Kick detection methodology/ equipment
- Drilling and mud parameters monitoring and recording
- Constant temperature and volume degasser
- Total gas and gas chromatography (out only)
- Cutting sampling, description and interpretation. Including the sampling interval/ rate, and washed/ dried cuttings set table.
- Mud gas sampling
- Calcimetry analysis
- Drilling gas, H2S and CO2 monitoring

Shall provide a template of the Mudlogging report (daily).

13.2. Logging While Drilling (LWD)

13.3. Wireline Logging

Tools, intervals, and runs for each drilling section, describing different scenarios if applicable (i.e.: dry case, water bearing reservoir, etc.). For each tool/ interval/ run it shall be explicit if firm or contingent (and the decision criteria).

13.4. Mud strategy

13.5. Conventional Coring

13.6. Well Testing

14. END OF WELL STATUS

15. RE-SPUD LOCATION & RELIEF WELL

16. WELL DURATION

APPENDICES:

- WIRELINE TOOLSTRINGS
- LOGGING WHILE DRILLING BASE CASE CONFIGURATIONS

ANNEX 18 DAILY DRILLING REPORT

Recommended minimum content:

- Basic project details (Date, well code, Area, Operator)
- Well Information (Area, Supervisor, Engineer)
- Depth and Days (Current depth, average rate of penetration (hereinafter "ROP"), Days of operation, Rotation hours per day, Estimated days, Accumulated rotation hours, Maximum authorized depth)
- Status of the operation (Activities, comments and plan for the next 24 hours)
- Estimated costs (Daily cost, Accumulated cost, Percentage spent)
- Summary of the operation (Time from, time to, duration, measure depth - hereinafter "MD" - from, MD to, Description)
- Well sections (Section name, Hole diameter, internal diameter - hereinafter "ID" - casing, top MD, base MD, section start date, section end date)
- Bit register
- Well Deviation
- Mud (Mud cumulative cost, Description, density, viscosity, hour, MD (m), PV (cp), YP (lbf/100ft2), HCl (ppm), Calcium (ppm), pH, Alkalinity, Pf (mL), Pm (mL)).
- Surveys
- Mud system (Gas, Volumes, Losses)
- Products in the mud (product, unit, daily quantity used, total cost, final quantity)
- Safety, Health and Environment (status, Inspections/drills, BOP pressure tests)
- Personnel (company, number of people, total number)
- Materials (Product, weight/vol x unit, used, final quantity)
- Weather status (time, weather, comments, daily maximum/minimum temperature, visibility, wind speed, wind gust speed)
- Inlet fluid, recovered fluid, fluid still to be recovered (oil, water, other -daily and accumulated-)
- Casing and cementing operations (including details on start, end and any observations on these specific operations)
- Logging operations (including details on start, end and any observations on these specific operations)

- Coring operations (including details about start, end and any observations on these specific operations)
- Formation tests
- Drilling progress compared to planned (PvA)
- Observations

English language is admitted for this report, and it is suggested to present these contents in a report that includes the following structure:

- Daily Summary
- Current Status
- Planned Operation
- Time Log
- Remarks
- BOP Test
- Survey Data
- Expected TD
- Stop Cards
- Safety Incidents
- Casing & Cement
- Casing Summary
- Formations
- Mud Volumes
- Mud Check
- Safety Stocks
- Cost
- Parameters
- Drill String Runs
- Weather Conditions
- Number of People

DDR should include Prognosis vs Actual (PvA) report (¡Error! No se encuentra el origen de la referencia.) as annex or section including:

- Figure showing Prognosed lithology, Age, depth, and prognosed main markers and coring

- Figure showing Actual lithology, shows, actual main markers, mud type and losses/gains
- Figure showing daily progress (Prognosed progress and casing, actual progress and casing)
- Figure showing Logs (Prognosed and actual LWD, Prognosed and actual Wireline)

ANNEX 19 DAILY REPORT PROGNOSIS VS ACTUAL REPORT (PVA)

The daily report "Prognosis vs Actual" is admitted in English language. The following minimum content is suggested:

- Date
- Report number
- Localization (Country, Basin, License)
- Well code
- Rig and Coordinates (Rig Name, RT elevation, X(UTM), Y(UTM), Datum, Long, Lat)
- History (on location date, contract date, spud date, Final TD date, Off location date)
- Daily Progress (From, To, Progress, Drill Time, Max. incl.)
- Midnight Depth
- Costs (Planned costs, Planned Days, Cumulated Costs)
- Figure showing Prognosed lithology, Age, depth, and prognosed main markers and coring
- Figure showing Actual lithology, shows, actual main markers, mud type and losses/gains
- Figure showing daily progress (Prognosed progress and casing, actual progress and casing)
- Figure showing Logs (Prognosed and actual LWD, Prognosed and actual Wireline)
- Operation Summary
- Operation from midnight to 06:00h
- Situation at 6:00h
- Program

ANNEX 20 DAILY REPORT ON GEOLOGICAL CONTROL (MUDLOGGING)

The Daily Geological Control Report is admitted in English. The following minimum contents are suggested:

- Well
- Report Nº
- Date
- RIG
- R.T.
- Measured depth
- Vertical depth
- Drilled interval
- Drilling hours
- R.O.P.
- Last casing
- Phase
- Last survey at:
- Mud
    - Mud type
    - Density
    - FV
    - PV/YP
    - Oil/water Rat.
    - Gel 10s/10/30
    - Cl-
    - Solids (%)
    - Sand (%)
- Drilling parameters
    - WOB avrg
    - TRQ avrg
    - RPM/Total RPM
    - Day Rev
    - Tot. Rev

  - Day Circ. Hour
  - Lower compl. Chrono hours
  - Bit chronometers
  - Daily Rot. Hour
  - Tot Rot hour
  - Day Drilling hr
  - T-Drilling hr
- Formations:
  - Interval
  - Calcimetry
  - Lithological description
  - ROP
  - Gas (%) min/max
- Gas data
  - Depth
  - Type
  - Volume
  - Density
  - % Tot gas
  - C1 ppm
  - C2 ppm
  - C3 ppm
  - C4 ppm
  - iC4 ppm
  - nC4 ppm
  - iC5 ppm
  - nC5 ppm
  - BGG %
  - Comments
- Fluorescence
  - Depth
  - Direct
  - Cut
  - Show
  - Comments
- Losses

  - Interval
  - Phase
  - Q tot (m3)
  - Rate (m3/h)
  - Total daily (m3)
  - Total phase (m3)
  - Cumulative
  - Operation
- Operations Summary
- From 0:00 to 04:00
- Equipment out of order
  - Calibrations
  - Date
  - Working
  - Failure type
- Operators
  - Day
  - Night
  - Date in
  - Date out

Daily activity chart:

- Column 1: Weight On Hook, Torque, Total RPM, Weight on Bit, ROP, Hook Height
- Column 2: Cement Pressure, Kill Pressure, Choke Pressure, Stand Pipe Pressure, Flow Out Paddle, Flow Pumps
- Column 3: Comments
- Column 4: Time
- Column 5: Temperature Out, Temperature In, Mud Density In, Sm Active Pits, Trip Tanks volume
- Gas chromatography results for each C1-Cn in ppg

Composite Log:

- Log in 1:500 scale including:

- Dates
- Mud and drilling data
- Drilling parameters
- Resistivity
- Sonic
- Depth
- Other logs
- Cuttings lithology (%)
- Stratigraphy (Age and Formation)
- Interpreted lithology
- Descriptions
- Calcimetry (%)
- Gas out (ppm) (TG, C1, C2, C3, iC4, nC4, iC5, nC5)
- Shows - qualitative (Oil, Natural fluorescence, Cut fluorescence)
- Remarks
- Geologists

ANNEX 21 DAILY GEOLOGICAL REPORT (DGR)

The daily geological report is allowed in English language. The following minimum content is suggested:

- Well
- Date
- Midnight Depth
- Localization (Country, Basin, License)
- Well type (Class, Environment, Type)
- Report Number
- Last Pressure Test
- Rig and Surface location (Rig name, Rotary table elevation, X(UTM), Y(UTM), Long, Lat, Datum)
- Main Target Coordinates (Main objective, Age, X(UTM), Y(UTM), Depth, Long, Lat, Datum)
- Last casing/liner shoe (Diameter, Depth)
- Costs (Planned cost, cum. Costs)
- Well History (On location date, contract date, spud date, final TD Date, Off location date)
- Contracts (Rig, Positioning, Mud Engineering, Mudlogging, DD/MWD/LWD, Wireline Logging, Testing, Cementing, Coring, Drill Bits, Cutting manag.)
- Start Depth
- Daily Progress
- Geologists
- Operation Summary
- 0:00 to 6:00h operations
- 6:00 status
- Program
- Mud Parameters (Mud Type, MW, ECD, Visc., O/W)
- Fluid Gain/ Loss (From, To, Type, Nature, Volume, Max Rate)
- Survey Summary Table
- Wireline Pressure Test Summary table
- Formation Tops (Actual, Delta, Prognosis)

- Lithology description table (from, to, main lithology, description, shows, ROP, Calci, Formation)
- Gas Peak Summary Table (Depth, Type, TG %, BGG %, C1 ppm, C2 ppm, C3 ppm, iC4 ppm, nC4 ppm, iC5 ppm, nC5 ppm, Oil Shows, Direct Fluo, H2S ppm, Remarks)
- Shows Description (Support, Top Depth, Bottom Depth, Shows, Intensity, Distrib., Colour, Cut Type, Cut Speed, Cut Colour, Description)
- LWD Logs (Bit Nb, Desc., Dates, Log, Interval, Bit Size, Remarks)
- Wireline Logging (Dates, Suite, Interval, Bit size, Comments)
- Mud Analysis (Depth, Purpose, Mud Type, ECD, MW, Visc., PV/YP, Filtrate, O/W ratio, Cl-, HGS Barite, Temp, Comments)
- Comments

ANNEX 22 WELLSITE LITHOLOGY LOG (WLL)

The daily lithological record is allowed in English. The following minimum content is suggested:

- Title (Well code, basin/block)
- General Well Data (Projection, Datum, Spheroid, Well head location coordinates, RTE, Drilling Rig, Top level, Final level, final depth driller, final depth logger, date on location, spud date, final depth date, date off location, duration)
- Location map
- Well results (formation, mMD, mTVDSS, fluid, Target X (m), Target Y (m), Deviation (deg), Departure (m), Azi (deg))
- Hole and Casing Data (mMD)
- Contractors (Rig, Mudlogging, Mud Engineering, LWD, Wireline, Coring, Cement, Testing)
- Well Structure (casing schematics)
- Well Profile View
- Well Plan View
- Events and Remarks (Dates, Depths, Events/Remarks)
- Geological Symbols (Shale, fine sand, conglomerate, etc)
- Qualifiers, Accessories and Fossils (Argillaceous, Silty, Sandy, etc)
- Technical Symbols (Top of liner, hard layer, perforations, etc)
- Log in 1:500 scale including:
    - Dates
    - Mud and drilling data
    - Drilling parameters
    - Resistivity
    - Sonic
    - Depth
    - Cuttings lithology (%)
    - Stratigraphy (Age and Formation)
    - Interpreted lithology
    - Descriptions
    - Calcimetry (%)

  - Gas out (ppm) (TG, C1, C2, C3, iC4, nC4, iC5, nC5)
  - Shows - qualitative (Oil, Natural fluorescence, Cut fluorescence)
  - Remarks
  - Geologists
- Bit summary table (BHA No, Bit No, Bit status, Make, Type, Size, TFA in2, Depth, Progress made, Rotating hours, Average ROP, Grading, Remarks)
- LOT / FIT results (Planned MD, Planned TVDSS, Planned EMW, Realized MD, Realized TVDSS, Realized EMW)
- LWD LOGS (Phase No, LWD Pass, Dates, LOG, Interval MD/RT, Bit Size, Remarks)
- Wireline Logging (Dates, Suite, Interval, Bit Size, Max BHT, Comments)
- Wireline Pressures (No, Depth, Hydro Press, Formation Pres, Mobility, Temp, Sample, Quality, Remarks)
- Conventional Core Results (No, Date, Core Top, Core Bottom, Core Barrel Length, Recovery, Efficiency, Remarks)
- Sidewall Core Results (No, Depth, Rec., Shows, Porosity, Calcimetry, Short Description)
- Gas Trap and Line Characteristics (Type, Location, Transit time, Remarks)
- Gas System Characteristics (Total Gas Equipment, Remarks/Status, Chromatograph Equipment, Cycle Time, Remakes/Status)
- Mud Analysis (Depth, Operation, Mud Type, ECD, MW, Viscosity, PV/YP, Filtrate, O/W, Cl-, Barite, Temperature, Comments)

ANNEX 23 HSE PERFORMANCE REPORT

Generalities

Safety Meetings

Toolbox Meetings

Environmental Contingency Response Drills

Emergency Response Drills

Training and coaching in environmental management

Safety Training

Reports/Observation Cards

Safety audits and inspections

Environmental management audits

Report on environmental indicators (water and energy consumption, number of spills, greenhouse gas emissions, volume of waste generated, etc.)

Hours worked

Number of people involved in the operation (distinguishing between the drilling team and the project team)

Hours worked (calculated based on a 12-hour work day)

Incident report

Near Miss, NRM

First Aid Case, FAC

Medical Treatment Case (MTC)

Restricted Work Day Case (RWDC)

Lost Time Injury (LTI)

Fatality (FAT)

High Potential event (HPI)

Lost Work Day Cases (LWDC Days)

Environmental incidents

Others

MEDEVACs

Lifting operations

Permits to Work (PTW) issued

Job Safety Analysis carried out (JSA)
Helicopter operations

The definitions are considered according to the IOGP "*Safety data reporting user's guide*" [15].

ANNEX 24 END OF WELL REPORT

The End of Well Report is allowed in English. The following minimum content is suggested:

- Well summary
  - Well summary page
  - Well summary data
  - Rig data report
  - Service Companies List and Evaluation
- Well Technical Architecture
  - Final Well Architecture
  - Final Well Abandonment Schematic
  - WellHead Drawing / Elevation
- Activity Report Summary & Highlights
  - End of Phase Debriefing Per Section
    - Phase Comments (from Wellview)
    - Phase Debriefing (From Rig Engineer)
  - Well Activity History
  - Bit Summary
  - BHA Summary
- Performance, Cost and Timings
  - Progress Curve
  - Well Operation Timing
  - AFE
  - Final Technical Costs
  - Phase Duration & NPT Graph
  - Time Log Summary – Bar Graph
  - Time Analysis Summary per Phase
- Well Position & Trajectory
  - Final Well Positioning Sheet
  - Final Surveys
- Trajectory Plot: Actual vs Plan
- BHA Schematic / Details
- Mud & Cement
  - Mud Properties Graph

  - Mud Phase Reports
  - Cementing Reports
- Casing Tallies
  - Casing Strings
  - Casing Tallies
- Lithology & Acquisition
  - Planned PPP charts
  - FIT/LOT & LOGS Summary
  - FIT/LOT Plots
  - Lithology: Plan vs Actual
    - Prognosed vs Final Chart
    - Wellsite Final Lithology Log
  - Electrical Logging Report
- Wait on Weather
  - WOW Breakdown & Charts
- Daily Drilling Reports

The End of Well Report must include as Annexes the Return of Experience (REX)[9] reports for each of the operating units, for example including:

- logistic operations
- maritime operations
- aviation operations
- operations of plants and facilities related to the activity
- port operations
- regarding any other operation

Such reports should indicate the activities carried out, the lessons learned as well as the conclusions and recommendations.

Additionally, each subcontractor involved will be indicated, pointing out the positive and negative aspects/to be improved, in the different stages of the operation (before, during and during demobilization), with emphasis on safety aspects, also indicating the changes before and after the establishment of the specific procedures of the activity. A model REX report is presented in **ANNEX 25.**

[9] In the case of not having the reports of return of experience within the delivery period of the end of well report, this should not delay the delivery of the end of well report. REX reports may be submitted at a later date.

ANNEX 25 REX REPORT MODEL

Operation X

- Activities carried out, lessons learned, conclusions and recommendations
- Subcontractors (sub-operators) involved in this operation
    - Before starting operations
        - Operator A
            - Safety (comments regarding safety management by the sub-operator, standards, training, certifications, etc.)
            - Positive
            - Negative / to improve
    - During operations
        - Operator A
            - Safety
            - Positive
            - Negative / to improve
    - During demobilization
        - Operator A
            - Safety
            - Positive
            - Negative / to improve

ANNEX 26 GEOLOGICAL END OF WELL REPORT

Suggested minimum content:

- Statistics
- Location
- Initial targets
- Review of targets after drilling
- Lithological summary
- Correlations
- Hydrocarbons indications
- Cores
- Sidewall cores samples
- Tests
- Mud Profile
- Wireline studies
- Logs
- BHT extrapolations
- Analysis of samples
- Geological data evaluation
- Drilling problems related to geology
- Summary and conclusions

English language is accepted for this report, suggesting the following structure for the mentioned contents:

- General Information
    - Regional & Geological framework
    - Well Objectives
    - Reference Wells
    - Well main results
    - Well general data
- Drilling
    - Drilling summary
    - Well architecture
    - Abandonment summary

  - Deviation data
- Mudlogging
  - Mudlogging service description
  - Cuttings collection at rig site
  - Cutting processing and packaging
  - Mud gas sampling
  - Hydrocarbon shows
  - Mud gas chromatography data
- Mud Analysis
  - Mud summary
  - Mud losses / gain
  - Mud sampling
  - Mud properties
- MWD / LWD
  - Equipment mobilization
  - List of recorded logs
  - LWD failures
  - LWD Quality Control reports
- Wireline Logging
  - Equipment mobilization
  - List of recorded logs
  - Wireline logging failures
  - Wireline supervision reports
- Formation pressure
  - LWD formation testing
  - Wireline formation testing
  - Fracturing pressures – FIT / LOT
  - Pore pressure: post drill interpretation versus prediction
- Formation fluid sampling
  - Wireline formation fluid sampling summary
  - Fluid sampling results
- Formation Temperature
  - Extrapolated temperatures
  - Calculated geothermal gradient
- Borehole seismic data
- Geological results

  - Litho-stratigraphy summary
  - Prognosis versus actual stratigraphy
  - Conventional cores
  - Sidewall cores
  - Borehole imaginery and dipmeter results
  - Data quality / Petrophysical evaluation
  - Post well analysis
    - Geochemistry
    - Fluid inclusions
- Conclusions and improvement suggestions
  - Well results versus well objectives
  - Positive feed-backs
  - Improvement suggestions
- Annexes
  - LWD quality control reports
  - Wireline log supervision reports
  - Wellsite litholog
  - Composite log (**ANNEX 20** – “Composite log” section)
  - Prognosis vs Final report (see ¡Error! No se encuentra el origen de la referencia.)
  - Any other Mudlogging reports, logs and data:
    - Final Mudlogging report
    - Master Log
    - Drilling Log
    - Gas Log
    - Daily Activity Time Logs
    - Cutting Description
    - Drilling Depth data
    - Daily Mudlogging Reports
  - Others

ANNEX 27 ENVIRONMENTAL AND SAFETY MANAGEMENT PLAN FOR OPERATIONS THAT ARE NOT INCLUDED IN THE PROCESS DEFINED BY LAW 16.466 AND DECREES 349/005 AND 72/016.

- Objectives:
  - Briefly describe the operations to be carried out
  - Describe the environmental setting
  - Present prevention and mitigation measures to apply to avoid environmental impacts or damage to people derived from the project

- Procedure:
  - Revision of existing basic information on the marine environment
  - Identification of unique habitats
  - Identification of special periods (seasons)
  - Adoption of generic protection measures.

Risk management will include a Matrix Of Permitted Operations (hereinafter MOPO), for which the following conditions and operations must be considered:

- Conditions:
  - Normal Conditions
  - Hours of darkness
  - Sea state > 3m
  - Sea condition > 3m with stern waves
  - Sea condition > 3m with working decks less than 6.5 meters above sea level
  - Sea state > 5m
  - Wind speed > 20-30 knots
  - Wind speed > 30-40 knots
  - Wind speed > 40 knots
  - Risk of lightning
  - Potential for local squalls or sudden changes in weather
  - Visibility < 500m
  - Visibility < 3km
  - Trainee operator allowed to participate while under supervision

- Supply vessel present
- Supply vessel absent
- Engine failure
- Entering water depths < 30m
- Fishing vessels/fishing equipment
- Security risk
- Presence of ice
- Chase boat present
- Chase boat absent
- Transit
- Emergency
- Pitch, roll and or heave exceeding helicopter specifications
- Fast rescue boat in the water
- Fast rescue boat inoperative
- Passing obstructions < 500m
- Operating among other ships
- Engines or back-up vessel propulsion systems in maintenance
- Emergency drills
- Refueling at sea, including bunkering
- Turning radius < 5km (< 2km for 2D)
- Tangled streamers

- Operations
  - In transit or in normal seismic operation (equipment deployed)
  - Close approaches to fixed installations
  - Confined space entry
  - Use of deck crane
  - Recovery or deployment of in-sea equipment – Source
  - Recovery or deployment of in-sea equipment – Deflectors
  - Recovery or deployment of in-sea equipment – Streamers and anciliaries
  - Non-routine recovery of equipment (recovery of lost streamer, lost source or lost deflectors; recovery of tangled streamer or tangled source) with the vessel at speeds greater than 2.5 knots.

- Non-routine recovery of equipment (recovery of lost streamer, lost source or lost deflectors; recovery of tangled streamer or tangled source) with the vessel at speeds less than 2.5 knots.
- Electrical maintenance
- Helicopter operations
- Hot work in areas outside the designated welding shop
- Re-fueling at sea
- Re-fueling in port
- Repair or maintenance of critical safety equipment
- Vessel to vessel personnel transfers (gangway)
- Working at heights
- Diving operations
- Engine maintenance
- Emergency towing
- Small boat operations
- Untangling streamers
- Supply vessel approach
- Supply vessel departure
- Emergency drills
- Turning
- Man Overboard Operations

It is suggested that the organization of this information, in a single document, follow the following structure:

a. Executive Summary, Introduction and Legal Framework

b. Project description
   i. General Aspects, technologies, equipment, operations
   ii. Areas of operation and acquisition program
   iii. Technical specifications
   iv. Ships
   v. Logistics
   vi. Identification of Emissions to the Atmosphere, Liquid Effluents and Solid Waste

c. Description of the physical, biological and anthropic environment in the areas of operation

i. Physical environment: Hydrodynamics, Physical Oceanography, Biogeochemistry, Sedimentology.
ii. Biological environment: Plankton, Nekton, Benthos.
iii. Anthropic environment: Fishing Activity, Submarine Cables, Maritime Traffic, Other Exploratory Operations.
iv. Identification of Actors
v. Information integration: Sensitive Areas and Periods.

d. Risk Analysis and Management
   i. Risk identification
   ii. Risk evaluation
   iii. Minimum certification requirements for onboard participants
   iv. Matrix of Permitted Operations
   v. Safety plan
   vi. Contingency plans
   vii. MERP (Medical Emergency Response Plan)
   viii. MEDEVAC
   ix. List of high impact incidents
   x. Applied standards

e. Analysis and Management of Environmental Impacts

   i. Identification of aspects and impacts
   ii. Management of emissions into the atmosphere
   iii. Liquid effluent management
   iv. Noise management
   v. Chemicals, water and energy management

f. Communication plan
   i. Operations notice
   ii. Information for the general population
   iii. Information for the competent bodies

g. Follow-up and monitoring plan
   i. Identification of the parameters to monitor
   ii. Determination of the means of verification of environmental management
   iii. Periodic (and final) reports on environmental and safety performance

It is suggested to complement the above with what is included in **[10]**.

ANNEX 28 LOSS CIRCULATION ASSESSMENT AND PLANNING (LCAP)

Circulation Loss is defined as the reduction or total absence of fluid flow through the annular space when fluid is pumped through the drill string [17]. This reduction in flow can be classified as:

- Minor losses (leaks): from 0 to 1.5 m^3/h
- Partial losses: from 1.5 to 10 m^3/h
- Severe losses: greater than 10 m^3/h
- Total losses: It is not possible to maintain the surface fluid level with the desired mud density

Any loss circulation (partial, severe or total) must be reported as if it were a High Impact Incident (see ¡Error! No se encuentra el origen de la referencia.)

The Operator shall carry out a Loss Circulation Assessment and Planning (LCAP) Program. In this process, the circulation loss problems that are specific to the drilling project to be carried out will be explored and evaluated, and the link with existing systems, services and products will be made.
The process will focus on the products available and will use the relevant information to create plans and solutions specific to the particular project.
Through this methodology, problems due to loss of circulation are prevented and minimized instead of focusing on remediation after the event has occurred [18].

It is suggested to follow a methodology similar to the one presented in [18] for the preparation of the program, including:

- Collection and processing of all data related to the project and the problem:
    - Patterns of loss of circulation as part of a geological, lithological and stratigraphic analysis.
    - Formation and fracture pressure gradients
    - Well logs
    - Drilling reports
    - Analysis of loss of circulation events in neighboring wells
    - Hydraulic analysis, pressure drop and ECD/ESD simulations
    - Assessment of historical costs associated to loss of circulation

- Identification of potentially problematic formations with respect to circulation losses (type and location) through the available methods.
- Development of prevention measures and specific guides for each problematic formation identified.
- Identification of the best conventional treatments for circulation losses, also recommending specialized contingency treatments including detailed operating procedures. Within this point, the protocols to be followed will be indicated, including the decision trees regarding circulation loss control methods and communications to ANCAP and DINAMA.