

Shell Prospecting and Development (Peru)  
B.V.

Environmental Impact Assessment  
of the Pagoreni/San Martin East  
Exploratory Wells: *Environmental  
Management Plan*

August 1997

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B.V.

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August 1997

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For and on behalf of	
Environmental Resources Management	
Approved by:	<u>K MURPHY</u>
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Position:	<u>TECHNICAL DIRECTOR</u>
Date:	<u>15/8/97</u>

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## 1.1 INTRODUCTION

### 1.1.1 General

The Environmental Impact Assessment (EIA) for the 1998 Pagoreni/San Martin East exploratory drilling campaign, presented under separate cover, has identified a number of impacts that are likely to arise during installation, drilling, well testing and demobilisation activities planned as part of the exploration drilling campaign. The campaign will involve exploration drilling of up to four wellsites from up to three locations (Pagoreni-A, - D1, - D2 and San Martin East-A). The EIA has examined both negative and positive, biophysical and socio-economic effects of each stage of the proposed exploratory drilling campaign, from installation of the wellsites, drilling and testing through to abandonment, demobilisation and restoration.

Where adverse impacts have been identified, the EIA has examined the extent to which these impacts would be mitigated through the adoption of Shell Prospecting and Development Peru's (SPDP) internal good practice guidelines. In certain cases, further actions will be needed to minimise disruption to local communities and damage to the natural environment. This *Environmental Management Plan (EMP)* describes both generic good practice measures and site specific measures, the implementation of which is aimed at mitigating potential impacts associated with the 1998 Pagoreni/San Martin East exploratory drilling campaign.

### 1.1.2 Purpose of the Environmental Management Plan

The EMP provides a delivery mechanism to address potential adverse impacts, to enhance project benefits and to introduce standards of good practice to be adopted for all project works. The Plan is a stand-alone document covering each stage of the exploratory drilling campaign, from site preparation, drilling and testing through to abandonment, demobilisation and restoration.

For each of these stages of the campaign, the EMP lists all the requirements to ensure effective mitigation of every potential biophysical and socio-cultural impact identified in the EIA. For each impact, or operation which could otherwise give rise to impact, the following information is presented:

- a *comprehensive* listing of the mitigation measures (actions) that SPDP will implement;
- the person(s) responsible for ensuring *full* implementation of that action;
- the parameters that will be monitored to ensure *effective* implementation of the action;
- the timing for implementation of the action to ensure that the objectives of mitigation are fully met.

**SPDP is committed to the adoption of these measures and will carry out ongoing inspection to ensure their implementation and effectiveness.**

### 1.1.3

#### *Background*

The EMP reflects Peruvian Government requirements, SPDP's own corporate operational guidelines and international guidance provided by the oil and gas industry for onshore gas development projects. Cognisance has been taken of the following standards and guidelines (amongst others) in the preparation of the EMP.

### 1.1.4

#### *Peruvian Standards*

The Peruvian government, through the *National Institute of Natural Resources (INRENA)*, has established guidelines for the preparation of Environmental Management Plans <sup>(1)</sup>. The main requirements as stated in the INRENA guidelines are as follows.

- The EMP must provide a clear programme of actions for the maintenance of high environmental performance throughout project construction and operations.
- The EMP must include both mitigation and monitoring measures for the ongoing control of environmental effects.
- The EMP should serve as an effective tool to enhance the environmental sustainability of the project.

The INRENA guidelines indicate that the EMP should contain the following components.

- A *Mitigation Plan* containing measures for the control of environmental effects, including preventative and corrective measures. It must identify appropriate timing and responsibilities for implementation. The plan should also take into account the technical, economic and institutional feasibility of implementation. **This is covered in this EMP under *Environmental Mitigation and Monitoring Plan* (Appendices C1 and C2).**
- A *Monitoring Plan* including monitoring measures to establish and verify changes to the ambient environment (ie project effects on the environmental baseline) and indicative measures to assess effects where specific concerns are raised. **This is covered in the EMP under *Environmental Mitigation and Monitoring Plan* (Appendices C1 and C2).**
- A *Programme of Actions for the Control of Community Effects and Community Relations* describing communication channels and recommendations for ongoing consultation. **This is covered in this EMP under *Environmental Mitigation and Monitoring Plan* (Appendix C3).**
- An *outline Emergency and Response Plan* for accidents and emergencies. **This is covered in this EMP under *Outline Emergency Response Plan* (Appendix D).**
- An *outline Decommissioning Plan* describing actions to be taken during demobilisation, such as restoration of the biotic environment, replacement

(1) INRENA 1995. Guía para la Formulación de Términos de Referenci par Los Estudios de Impacto Ambiental en el Sector Agrario.



of topsoil and removal of surface/subsurface structures. **This is covered in this EMP under Abandonment Plan (Appendix E).**

For this Pagoreni/San Martin East exploratory drilling campaign EMP, mitigation and monitoring are summarised as a single integrated component to reinforce the relationship between environmental impacts and impact control. Socio-economic effects, including communication channels with local communities, are summarised in the same way.

#### **1.1.5 Shell Group Standards and Guidelines**

- *Shell's Environmental Assessment Guidelines (EP 94-1980)* which outline the principles of the Shell Exploration and Production approach to EIA. It is targeted at environmental advisors and line staff involved in the EIA process.
- *Shell's Health, Safety and Environment and Security Guidelines (EP 94-1400)* which are part of Shell Exploration and Production's policy and outline the responsibility of contractors on issues relating to health, safety and security.
- *Shell's HSE Manual: Volume 2 - Drilling (EP 95-0210)* which provides guidance on drilling techniques and compliance measures.
- *Shell's Social Impact Assessment Guidelines (EP 95-0371)* which provides guidance on scoping social impacts, issues to be considered in devising mitigation and the requirement for monitoring.

#### **1.1.6 International Standards and Guidelines**

- *The World Bank Operational Manual: Operational Directive 4.01 (1991)* which outlines the World Bank's policies and procedures for the environmental impact assessment (EIA) of development projects.
- *The World Bank Operational Manual: Operational Directive 4.20 (1991)* which describes the World Bank's policies and procedures for projects that affect indigenous peoples.
- *The E&P Forum: Oil Industry Operating Guidelines for Tropical Rainforests, No. 2.49/170* which gives specific guidance on the development of petroleum projects in tropical forest areas but also provides useful general guidance on the tropical forest environment.
- *The E&P Forum: Decommissioning, Remediation, and Reclamation Guidelines for On-shore E&P Sites, 1996* which provide information on the steps necessary to plan and implement decommissioning, remediation and reclamation programmes following completion of exploration and production (E&P) activities.

### **1.2 THE ROLE OF SPDP AND SPDP CONTRACTORS**

#### **1.2.1 Role of SPDP**

As project proponents, SPDP will have ultimate responsibility for implementing the provisions of the EMP. This role will include the ongoing

management of environmental impacts, monitoring of contractor performance as well as development of mechanisms for dealing with environmental problems. SPDP will enhance the environmental performance of the project through the following activities which are presented in more detail in this EMP.

- Continued strict observance of local customs and traditions: All SPDP employees as well as staff of SPDP's contractors and sub-contractors are, and will continue to be, issued with a copy of SPDP's *Community Relations Guidelines for Shell and Contractor Workers* (see Appendix A) which details basic 'Do and Don'ts' for SPDP staff and contractors' workers active in the project area. The guidelines have been developed on the basis of observed customs and traditions and will help to prevent or minimise conflicts between the project and local communities. In addition, a *Pre-Trip Preparation and Response Plan in Case of Contact with Isolated Nahua, Kugapakori or Machiguenga Indigenous People* (see Appendix B) has been developed and distributed to SPDP's supervisors as well as SPDP contractors' supervisors to prepare SPDP and contractor supervisors in case members of the Nahua or Kugapakori groups appear at any of the drilling sites or their surroundings. Measures stipulated in both documents have been (and will continue to be) used as part of an ongoing training programme for contractors.
- Continued coordination with local/community/regional authorities through established communication channels and fair representation in decision-making. The EMP includes a *Programme of Actions for the Control of Community Effects and Community Relations* (see Appendix C3) which incorporates and builds on SPDP's current programme of community liaison as well as the socio-cultural mitigation measures identified in the EIA.
- Ensuring, to the degree that is practicable so to do, the continued full participation of local people in the Camisea gas field development, including the provision of training for certain skilled tasks <sup>(1)</sup>, and preferential recruitment of local people for non-skilled and semi-skilled labour.
- Extending continued recognition to local communities with respect to land titles (for access and use).
- Continuation of SPDP's compulsory health screening and inoculation programme, as well as subsequent routine health examinations, for all personnel entering the project area. All workers and visitors to the area must possess an *SPDP Health Pass* which confirms that all necessary vaccinations have been taken.
- Implementation of a programme of environmental monitoring and reporting such as that currently being undertaken for the 1997/98 appraisal drilling campaign.

<sup>(1)</sup> Training for skilled tasks is part of SPDP's long term commitment to development of the Camisea gas fields. The capacity for SPDP to deliver this during the short duration Pagoreni/San Martin East exploratory drilling campaign will be limited.

- All SPDP staff and SPDP's Contractor's staff will undergo environmental awareness training focusing on the key environmental and socio-cultural issues concerning this project.
- Development of guidelines and operating procedures for worker safety and environmental protection, including emissions reduction, water resource protection and waste management (for example, the *Wellsite Waste Management Plan* contained in *Appendix F*).
- In accordance with Peruvian legislation, SPDP is committed to quarterly environmental and safety audit inspections conducted by an independent Government-approved certified auditor.
- Implementation of a programme for follow-up and analysis following every environmental incident or accident.

SPDP will also ensure that the activities of its contractors are conducted in accordance with 'good practice' measures, implementation of which will be required through contractual documentation. In order to facilitate this, and to demonstrate commitment to the EMP, SPDP/Contractor management will conduct regular internal site inspections, the results of which will be documented.

SPDP is prepared to receive, and will respond to, complaints and other issues of concern from local communities within the project area and from any other stakeholders.

### 1.2.2

#### *The Role of SPDP's Contractors*

SPDP management will be responsible for the performance of all its contractors and ensuring that all SPDP's commitments in the EIA are translated into contractors' requirements and that these requirements are implemented to the full intent and extent of SPDP's original commitment.

SPDP's contractors will be responsible for implementation of, or adherence, to all the mitigation measures outlined in the EIA. All contractors will be required to comply with the provisions of the EMP and with any environmental and other codes of conduct required by SPDP. SPDP will require all contractors to introduce regular environmental inspection and reporting to enable SPDP to monitor their performance. It will be the contractor's individual responsibility to ensure that no unnecessary disturbance is caused to local communities, the forest or animals within the project area.

SPDP's contractors and sub-contractors will be required to adopt the provisions of the EMP as if it were their own. Any failure to do so may forfeit contract renewals and, in extreme cases or cases of continued breaches, may lead to the termination of contracts.

### 1.3

#### *STRUCTURE OF THE EMP*

The EMP comprises a series of components covering direct mitigation and environmental monitoring; an outline emergency response plan and a wellsite restoration plan. The principal components of the EMP are summarised in *Table 1.1*.

**Table 1.1** *Principal Components of the Environmental Management Plan*

<b>Title</b>	<b>Description</b>	<b>Location</b>
<i>Community Relations Guidelines</i>	Guidelines which set out a code for conducting relations between the native communities and SPDP workers and contracted staff.	<i>Appendix A</i>
<i>Pre-Trip Preparation and Response Plan in Case of Contact with Isolated Nahua, Kugapakori or Machiguenga Indigenous People</i>	Guidelines to prepare SPDP and Contractor Supervisors in case of contact with Nahua, Kugapakori or Machiguenga indigenous people and controls of how to behave when visiting or being visited by nearby Machiguenga communities.	<i>Appendix B</i>
<i>Environmental Mitigation and Monitoring Plan:</i> <ul style="list-style-type: none"> <li>• <i>Mitigation of Wellsite Construction and Drilling Impacts</i></li> <li>• <i>Mitigation of Wellsite Abandonment and Demobilisation Impacts</i></li> <li>• <i>Programme of Action for the Control of Community Effects and Community Relations</i></li> </ul>	Tables describing mitigation and monitoring actions for all aspects of the exploratory drilling campaign; including responsibilities, timing and mechanism for implementation.	<i>Appendix C</i> <ul style="list-style-type: none"> <li>• <i>Appendix C1</i></li> <li>• <i>Appendix C2</i></li> <li>• <i>Appendix C3</i></li> </ul>
<i>Outline Emergency Response Plan</i>	Outline of emergency response plan	<i>Appendix D</i>
<i>Abandonment Plan</i>	Table describing key actions with responsibilities and timing for restoration of wellsites.	<i>Appendix E1</i>
<i>List of Tree and Nature Grass Species Suitable for Reforestation</i>		<i>Appendix E2</i>
<i>Wellsite Waste Management Plan</i>		<i>Appendix F</i>
<i>IFC/World Bank Limits for Discharge to Surface Waters</i>	Discharge limits that will apply to effluent discharges	<i>Appendix G</i>

## Appendix A

# SPDP's Community Relations Guidelines for Shell and Contractor Workers





# **COMMUNITY RELATIONS GUIDELINES**

## **FOR SHELL AND CONTRACTOR WORKERS**

Document No.: SPDP-PD-96-003

Date: November 1996

**Shell Prospecting and Development (Peru) B.V.**





**Alonso Zarzar**  
**Independent Consultant**  
**Lima, November 1996**

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## COMMUNITY RELATIONS GUIDELINES

This booklet is provided by Shell Prospecting and Development (Perú) B.V. for workers and staff active in Camisea project. The objective is to provide for an agreed code of relations between the Native Communities in the area of Shell operations along the Urubamba river and tributaries and Shell and its contractors.

This booklet has been divided into four sections:

- INFORMATION ON THE NATIVE COMMUNITIES
  - THE RELATIONS SHELL WILL LIKE TO DEVELOP WITH THE NATIVE COMMUNITIES
  - THE WAY SHELL WORKERS SHOULD BEHAVE IN THE FIELD
  - THE BENEFITS SHELL CAN PROVIDE TO THE NATIVE COMMUNITIES
- 
- INFORMATION ON THE NATIVE COMMUNITIES
    1. Shell workers will be trained and informed to understand that the region in which we are operating is an area of tropical forests and rivers that is the house, the garden and the storehouse of the following native people: Machiguenga, Piro, Amahuaca, Yaminahua, Kugapakori and Nahua.
    2. Our workers should recognise and accept that the Native Communities are our hosts and we are their guests.
    3. The Urubamba region has been inhabited by these native people since time immemorial, that is, long before the arrival of the white people in Perú and even before the Incas reigned in the country.
    4. Native people live in communities and own their lands. These communities are legally recognized. The Peruvian State has recognized their property rights and is a signatory to the, United Nations International Labour Organization Covenant 169 which addresses rights of indigenous people.
    5. Their land rights and ownership are acknowledged by Shell.

6. Native people make their living out of the resources provided by this natural environment, on which they rely. They have learned how to live in this region without depleting these resources. The protection of these resources to sustain their future is a responsibility of each worker.
7. Throughout centuries the Native Communities have accumulated an overall knowledge of the natural resources. They know how to use the forest, they know useful plants and are familiar with animal life and traits. They benefit from this knowledge which is as diverse as Amazonian nature itself. This too is part of their sustainable way of dealing with nature.
8. At the same time, our activities may have impacts (some irreversible) both, on the environment and on the peoples way of living. Western diseases affect them more strongly than us because they are not accustomed or resistant to them. Diseases that seem insignificant to us such as flu could turn, for some, into a serious infection.
9. For these reasons the Native Communities deserve not only our respect as persons and cultures, but also our assistance and understanding.
10. How can we, as workers, contribute to a better way of living together with these peoples?
11. Surely, by following the guidelines provided in this booklet.

- **THE RELATIONS SHELL WILL LIKE TO DEVELOP WITH THE NATIVE COMMUNITIES**

- **Background information:**

1. Workers should be aware that our relationships with the Native Communities are going to be developed over time, most likely through several years, perhaps even a period that may include more than one generation. For this reason, these relationships will be a focus of Shell concern and will be addressed throughout various phases. Unless clearly defined otherwise we should always try to keep contact with them to the minimum.
2. At the beginning it will be a process of learning together with the goal of creating an environment that will benefit both, native peoples and Shell operations for the long term.

3. No matter how long we are going to stay, we should always behave in a respectful and friendly manner towards the native people in order to avoid or reduce possible conflicts.

- We are now beginning the first phase of our Camisea Gas Project:

1. Currently, our Company's goal and commitment with the Peruvian State is to carry out appraisal drilling that will last till May 1998.
2. This short commitment means that we will not be constructing projects that require the involvement of a great number of local people.
3. Shell through its Contractors, will hire a limited number of native people to work in the Appraisal Drilling Phase.
4. Depending on the results from this Appraisal Campaign, Shell in agreement with the Peruvian State, will decide whether to continue the activities and go into the second phase of the Project.

- To be respectful and friendly with native peoples means:

1. Even for short term activities Shell and its contractors will behave as if they intended to stay: always aware that the impressions of the present will set the trend for the future.
2. Most of the following actions will be undertaken by Shell Field Supervisors and Community Liaison Officers (CLOs); the latter are individuals designated by Shell to interact with the native peoples. Nonetheless, workers should be aware of Shell policies and views towards the Native Communities.
3. To develop agreements with the Native Communities for any planned actions and land use.
4. To notify the Native Communities in advance about the work we will carry out in the area, including the agreed use of their communal lands.
5. To request permission from their authorities for access to their lands or visits to their villages, particularly if the work we are going to perform will have impacts in their way of living as well as in the surrounding environment.

6. To keep the Native Communities informed of work which is underway and results.
7. To talk with native visitors when they appear at the drilling sites and camps.
8. To answer their questions in a polite manner.
9. To explain to native visitors the activities being developed at the well sites.
10. To provide awareness of the importance of the Camisea Gas Project for the progress of the country as a whole, as well as for the Urubamba region in particular.
11. To explain how Shell is working with individual communities and their representatives to gain benefits for the native people as mentioned below.
12. To provide assistance to individuals in case of a health emergency.

- **THE WAY SHELL WORKERS SHOULD BEHAVE IN THE FIELD**

The following instructions are mandatory for Shell and contractor workers. Failure to adhere to them will result in disciplinary action. They are based on commitments made to communities and in the environmental studies and the public consultation process.

These instructions may change from time to time resulting from information received from Native Communities and their leaders. If changes are made they will be issued as amendments to this document.

- **On Native Communities**

1. Visiting the nearby Native Communities is strictly restricted to those designated by Shell. These restrictions will be in place also during resting and holiday periods for non-native workers.
2. Workers are forbidden to establish any kind of relations with native women. This is a major cause for complaints among the native people which creates conflict and distress.
3. Local authorities, including chiefs and presidents from the Native Communities are civil

authorities recognized by the Peruvian State and should be respected as such.

4. Workers are forbidden to hire local peoples for any kind of personal jobs and tasks.
5. Workers are forbidden to buy crops, animals and handiworks from the local peoples.
6. Workers are forbidden to approach the peoples cultivated gardens.

- **On damages and compensations**

1. Damages inflicted on cultivated gardens, homes, canoes or other possessions of Communities or individuals by accident shall be reported to the CLO. The CLO and Shell supervisors are responsible to respond to the damage and to provide compensation and/or repair.
2. Complaints from the native peoples on workers misbehavior or other issues will be maintained and conveyed by the CLOs to the Shell Supervisor to receive immediate consideration.

- **On archaeology**

1. The region has a long and continuous history of habitation. It is possible there could be archaeological remains that are undiscovered. These would be expected mostly along river banks and forest spots with high amounts of black or dark brown sandy clay which indicates the possibility of previous habitat. These could include:

-Pottery: ceramic vessels

-Burials: graves and sacred offerings

-Carved stones and rocks

-Stone walls

-Houses bedrocks

-Fossils: petrified animals, bones, timber and plants

2. If archaeological remains of any kind are identified, workers should immediately stop the work and without removing the findings, inform to their Supervisor.
3. The Contractor Supervisor should inform the Shell Supervisor and CLO at Nuevo Mundo Supply Base of the findings, providing a description of the items found, without further actions. The Supervisor will in turn communicate with the Community Liaison Adviser (CLA) at SPDP in Lima. An archaeological contingency plan will be provided by the CLA.

- **On sanitary controls**

1. In most cases temporary or permanent lavatories will be provided. Workers should stay away from rivers and streams when defecating in the field to avoid faecal pollution of the water. Lavatories must be used where available. If not, faeces should be buried to diminish the risks of transmission of disease.
2. Workers should always wash their hands with soap after defecating and before having their meals.
3. When sleeping in open premises workers should use the mosquito nets provided by the Company.
4. If feeling sick, workers should immediately consult the doctor in the camp.

- **On natural resources and the environment**

1. Leaving designated locations is forbidden without Supervisor and CLO permission.
2. Hunting and capturing animals and gathering wild fruits and plants in the forest surrounding the drilling sites or Nuevo Mundo Supply Base is forbidden.
3. Fishing or capturing animals in the rivers and streams surrounding the drilling sites or Nuevo Mundo Supply Base is forbidden.
4. Workers are forbidden to buy or sell wild animals, forest plants and timber, to contribute to their trading or to accept them as presents.
5. Workers should dispose of domestic garbage such as cans, glass, plastics, paper, etc, in the containers provided for this purpose. Never in the forest and rivers. All wastes should be 'packed out' from temporary or remote operations.

- **On river transport (boats and Hovercraft)**

1. Boat speeds should be strictly controlled to avoid causing unnecessary damage on aquatic animals and fisheries, destruction of river banks and clashes with fragile native canoes.
2. Hovercraft crew should be aware of and adjust for the wave effect on nearby canoes and canoes moored on beaches.



3. Vessels will moor at agreed locations only, except in an emergency.
4. Handling of fuels will be done according to strict procedures to avoid leaks and spills in rivers.
5. Travel by night on rivers is forbidden unless specifically agreed by the Shell Supervisor.
6. Vessel captains will report their position on a daily basis and will immediately report any spill or emergency.
7. When travelling long distances by boat, that could take several days, fishing and buying chickens or fish from local peoples sufficient for feeding the crew only is permitted. Capturing or purchasing reptiles like lizards, caimans and turtles and their eggs is forbidden. Fishing for commercial purposes is forbidden.

#### • THE BENEFITS SHELL CAN PROVIDE TO THE NATIVE COMMUNITIES

##### - Principles that guide our actions

1. An old and popular expression says: "do not give the people fish, teach them how to fish instead and they will not depend on you, but upon themselves".
2. This saying summarizes both the native people's and Shell's views on how and what to provide as benefits.
3. The native people believe, and Shell acknowledges, that education, technical training and public health should be considered as priority benefits. Benefits which are produced in the long run, but are solid and enduring (what is called Social Capital).
4. It is recognised that there are local needs which may require urgent action. Shell envisages that any aid or assistance be considered as part of a programme that will provide benefits. This programme is being developed with the cooperation and input of the Native Communities, the responsible government agencies and non-governmental organizations.
5. Shell's support for the development of native peoples initiatives are meant to have a sustainable regional effect on peoples ability to progress. Shell will directly

compensate for land use and for specific impacts sustained.

6. Shell considers that native peoples active involvement in the decision-making process regarding their developmental needs and ways to achieve social improvement is crucial for attaining long term and sustainable benefits.
- Our strategy
    1. To attain these overall goals, Shell wants to work through cooperation with institutions, state and non-governmental organizations that have expertise in the region and/or responsibility for delivery.
    2. Shell will work hand in hand with the newly created "Comisión Indígena para la Defensa de la Vida y los Recursos Naturales del Valle Urubamba", and with indigenous federations, to come to agreements with both, the Native Communities and their regional federations.
    3. Shell will place emphasis in facilitating the development of workshops for local and regional organizations to promote their institutional strengthening and the development of their negotiating capabilities.
    4. Shell will conduct a permanent process of consultation with the Native Communities and their federations to join efforts in the identification of their social needs and initiatives to increase their capability to progress.
  - Long term benefits for the duration of the Camisea Gas Project
    1. Shell will contribute to improve native peoples capabilities and skills, for successfully coping with social change.
    2. Long term benefits will focus on peoples capabilities, to provide them with technical knowledge that will improve their management skills and promote more advantageous relationships with the Camisea Gas Project.
    3. Development also means to improve peoples technical skills beyond the Camisea Gas Project, to enable them to derive an income and hence sustain themselves outside of the project and in the longer term future.

- CLOSING

With the application of these guidelines Shell and Contract Workers will strive for a harmonious relationship with our hosts. The well being of the Native Communities is a significant goal in the achievement of a successful project. We will apply these guidelines diligently but with care that we too will learn with time. Suggestions from our workers are highly important to our long term improvement.



## **Appendix B**

### **Pre-trip Preparation and Response Plan in case of contact with isolated Nahua, Kugapakori or Machiguenga indigenous people**





**PRE-TRIP PREPARATION AND  
RESPONSE PLAN IN CASE OF CONTACT  
WITH ISOLATED NAHUA, KUGAPAKORI  
OR MACHIGUENGA INDIGENOUS  
PEOPLE**

**FOR SHELL AND CONTRACTOR FIELD  
SUPERVISOR**

Document No.: SPDP-PD-96-004

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Shell Prospecting and Development (Peru) B.V.





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**Lima, November 1996**

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## PRE TRIP PREPARATION AND GUIDELINES FOR A RESPONSE PLAN IN CASE OF CONTACT WITH ISOLATED NAHUA, KUGAPAKORI OR MACHIGUENGA INDIGENOUS PEOPLE

These guidelines are provided by Shell Prospecting and Development (Perú) B.V. to prepare Shell and Contractor Supervisors in case members of the Nahua group living in isolation in the headwaters of the Mishagua and Manu rivers, or members of the Kugapakori group, living in isolation in the headwaters of the Camisea, Cashiriari and Timpia rivers appear at any of the drilling sites or their surroundings. The chance of such contact is deemed to be very low by anthropological and social consultants. The guidelines also include pre trip preparation and controls on how to behave when visiting or being visited by nearby Machiguenga communities. These guidelines have been divided into three sections:

- BACKGROUND INFORMATION
  - PRE TRIP PREPARATION
  - RESPONSE PLAN REGARDING VARIOUS POSSIBLE SCENARIOS OF CONTACT
- 
- BACKGROUND INFORMATION
    1. Supervisors should be aware that, due to their geographic isolation, most of the Nahua and Kugapakori people behave apprehensively when confronting the outside world and may be aggressive toward strangers, whether whites or other indians. For the same reason most of them know almost nothing of the external world.
    2. It is of great importance for Shell Supervisors to know about the isolated Nahua and Kugapakori people. Due to their geographic isolation they have no antibodies against common western diseases like flu, whooping cough and small pox/chicken pox. This means that a common flu could easily turn into pneumonia and become fatal.
    3. It is important for Supervisors to know that in Amazonian indigenous ethics, sharing and caring amongst kinfolk are central and highly valued social practices, while greed and to refuse to exchange are negatively marked and punishable. Outside the circle of kinfolk and co-residents the importance of these traits decrease gradually. When relationships with outsiders take place, being these other indians or white people, sharing and caring could turn into stealing or taking without reciprocating and could come accompanied with aggressive behaviour. Being warrior-like societies, this behaviour is considered proper when performed toward non relatives.

4. Supervisors should be aware that isolated people, like all human beings, are deeply moved by natural instincts such as fear and curiosity toward the unknown, particularly western technology.
5. Supervisors should be aware that most Nahua and Kugapakori have a scattered settlement pattern, and an itinerant, semi-nomadic way of life, which is intensified during the dry season, between July and September. Such a lifestyle might bring them close to the well sites, particularly during this period.
6. The chance of field camps or well sites, being visited by members of these isolated groups is low. Nonetheless it is always better to prepare for any possible event, even if it seems to be a remote one.
7. In contrast to the lifestyle of the uncontacted Nahua and Kugapakori, the Machiguenga, living in nearby, riverine communities, have a nucleated settlement pattern and a sedentary lifestyle. They have already undergone a process of social change, including primary and some secondary schooling in Spanish, through which they acquired some understanding of the external world.
8. It is of great importance to know that the Machiguengas of the Montetoni community, located in the upper Camisea river East of Cashiriari were formerly Kugapakoris (or isolated Machiguengas). Very recently they decided to establish links with the Machiguenga communities. They do not behave aggressively. Hence, they are not uncontacted, but still very vulnerable to western diseases.
9. Supervisors should be aware that, due to their proximity it is most likely to have Machiguenga visitors in Cashiriari-2 and San Martín-2 from nearby communities, particularly Cashiriari and Segakiato. This is due to the use of both mid and upper areas of Camisea by these people to gather wild fruits, go hunting and collect palm leaves for their house roofs. It is also a transit area used when visiting their semi-isolated relatives in Montetoni. For these visitors, refer to the Community Relations Guidelines.
10. Due to their isolated locations on the upper reaches of streams, Cashiriari-3 and San Martín-3 are the two most exposed locations for uncontacted Kugapakoris and Nahuas, respectively. Although these are located in Kugapakori territory, we know that in the past, Nahua and Kugapakori have been involved in feuds that took place in both territories.
11. The following table on the indigenous situation in the Camisea region and surrounding areas summarizes the above information:

<u>Indigenous groups</u>	<u>Locations</u>	<u>Settlement patterns</u>	<u>Contact situation</u>	<u>Vulnerability</u>
Machiguengas	Cashiriari	Nucleated community*	Semi-permanent	Intermediate
Machiguengas	Segakiato	Nucleated community	Semi-permanent	Intermediate
Machiguengas	Shivankoreni	Nucleated community	Permanent	Low
Machiguengas	Camisea	Nucleated community	Permanent	Low
Machiguengas	Nuevo Mundo	Nucleated community	Permanent	Low
Kugapakoris	Montetoni	Nucleated community	Intermittent	High
Kugapakoris	Camisea headwaters	Scattered villages	Uncontacted	Very high
Kugapakoris	Upper Cashiriari	Scattered villages	Uncontacted	Very high
Kugapakoris	Upper Timpia	Scattered villages	Uncontacted	Very high
Nahua	Mishagua-Serjali	Nucleated village*	Intermittent	High
Nahua	Mishagua headwaters	Scattered villages	Uncontacted	Very high
Nahua	Manu headwaters	Scattered villages	Uncontacted	Very high

- \* Note: A community in Peruvian Amazonia is a legally recognized settlement that shares with other settlements a common political structure which has been fixed by law, while a village is merely a sociological descriptive category.

### Recognition

1. It is important to remember that those indigenous groups living in isolation (Nahua and Kugapakori) can behave aggressively when confronted with outsiders, either other indians or white people. This behaviour is related to the fear they have of getting western diseases (like flu, whooping cough and small pox/chicken pox) for which they have developed no antibodies. In addition they are protective of their scarce natural resources, particularly forest animals that provide them with basic food sources.

2. How to recognize a Nahua?

Nahua men wear very little (a string that protects the penis) and women use a small brown cotton skirt. Men have their hair painted red with *achiote*. Both, males and females wear black seeds necklaces across their chests and nose pendants. They speak a Panoan language like the Amahuaca and Yaminahua from Sepahua. Yaminahuas understand and can communicate with the Nahuas.

### PHOTO

3. How to recognize a Kugapakori?

Kugapakori men also wear very little (a cotton waistband) and women use a small brown cotton

skirt, a costume that distinguish them from their distant kin the Machiguenga who wear *cushmas*, a brown or white long poncho or cycling gown with designs of a geometrical pattern. Both, males and females wear black seeds necklaces around their necks and nose pendants. They speak an Arawakan language like the Machiguenga, the Piro and the Asháninka. Machiguengas understand and can communicate with Kugapakoris.

## PHOTO

### • PRE TRIP PREPARATION

1. It is always advisable to have some knowledge of the region as well as of the people and their cultures before going to remote areas such as Camisea and its surroundings. In this connection, Supervisors should read the Machiguenga History Booklet by ERM on behalf of Shell.
2. Shell has established a requirement for a comprehensive set of vaccination and medical prophylaxis. These are mandatory and are provided in all Contract documents by the SPDP HSE Department or by the Logistics Supervisor.
3. A worker should not travel to a high risk location if he has flu or other easily transmissible illnesses. Some peoples amongst the local population, especially in remote communities, have insufficient antibodies against common flu and other common diseases which provokes further and more complicated infectious diseases. Notify the camp Medical Officer if there is any doubt.
4. Any travel to field locations outside Nuevo Mundo Supply Base requires an HSE Plan addressing overall journey management and preparations for long or short term stay. Assistance with planning can be provided by the HSE Department or Logistics Supervisor.

### Expected visitors behaviour

1. Bear in mind that indigenous people hold strong values about their freedom and autonomy as self sufficient individuals. They should be treated with care and equality.
2. Always remember that you are a guest in the land of the Machiguenga, who are well aware of their territorial rights. These rights have been recognized by the State.

3. Visiting any Machiguenga communities is restricted to those designated by Shell. Failing to adhere to the restrictions will result in disciplinary action. If you have an agreed need for visiting a community in regard to your work, comply to the following:

- First meetings and introduction should include the Community Liaison Officer (CLO).
- Be always accompanied by a bilingual (Machiguenga/Spanish) Machiguenga translator.
- Always ask for the communal authorities (President/Chief or community secretary), or for the school teacher in their absence.
- Indigenous attitudes towards being photographed or filmed are diverse; some of them believe their souls could be taken by the camera and could be deeply frightened, others do not hold this belief any more. You should always ask for their consent before taking pictures.
- Kissing when greeting is not customary.
- If you need help for carrying your personal luggage always provide a reasonable tip (around five soles).
- Reduce the time of your visit to the minimum.
- If you are requested to exchange western goods for handicrafts, machetes, knives, flashlights and batteries, fish-hooks and nylon cord, matches, kerosene, soap and soccer balls are always welcomed.
- Never exchange clothing or personal belongings that have been in touch with your body.

#### Required specialists at camps

1. During the drilling, topographical or other remote operations there should be access to at least one bilingual Machiguenga (Machiguenga/Spanish) worker and, in the case of San Martín-3 also one bilingual Yaminahua (Yaminahua/Spanish) worker, to also act, eventually, as translator. The Yaminahua translator is needed at San Martín-3 which is located close to the Serjali river, an area traditionally inhabited by the Nahua people. The translators will perform as our "native representatives". The translator should be trained and instructed in his role by the CLO and/or Community Liaison Adviser (CLA) and the Field Supervisor.
2. Good candidates for the position of "native representatives" are young men with at least primary school who can speak their language and Spanish and who held social esteem amongst their kin. The Machiguenga workers should be chosen from the riverine communities, while the Yaminahua worker should come from Sepahua. If they cannot be hired for the span of the project, they should at least stay in each camp during the dry seasons.
3. There will be one Medical Officer (MO) in the field located at Nuevo Mundo Supply Base with adequate infrastructure, medical equipment and a stock of medicines. The Medical Officer will have medicines to confront an epidemic of flu amongst the uncontacted such as Contrimoxazol, Penicilina Clemisol,

Penicilina Benzatínica, Paracetamol, Aspirine; others (cotton, alcohol, syringes). Shell will have, as part of its Emergency Response Plan procedures for disease outbreak.

#### Required implements at camps

1. A clear message (see attachment) should be well understood by the "native representative" on the reasons for Shell presence and intentions not to harm the peoples or the environment.
2. There should be a small stock of presents in each camp: machetes, knives and axes only.
3. There should be a flare gun for use as indicated below.
4. There should be a fire alarm or some alarm device for use as indicated below.
5. There should be a megaphone in every camp for use as indicated below.

#### On the workers

1. Workers should be medically checked constantly.
2. Immediate evacuation from a field location, will be undertaken for a worker with a contagious disease.
3. Workers, both natives and outsiders should not be allowed to enter into the forest surrounding the camps for hunting or gathering natural resources, nor to fish in the river and streams. (See Community Relations Guidelines).
4. Supervisors will employ these guidelines to instruct their workers on care and response to possible visits by Kugapakori and Nahua people.

#### • RESPONSE PLAN REGARDING VARIOUS POSSIBLE SCENARIOS OF CONTACT

##### Scenario 1: Possible presence of unknown people

Evidence of the presence of people like ashes or foot prints can be detected in the vicinity of camp by



the native representative. This could be a signal that a team of unidentified hunters are searching for meat or are gathering wild fruits or turtle eggs.

### Responses

1. These findings should be immediately informed to the Shell and Contractor supervisor.
2. If the findings are fresh and very close to the camp, there is a good chance that the natives may want to approach the camp. In this case only the camp supervisor should organize a small search party, lead only by the native representative, around the vicinity of the camp to indicate friendliness and avoid a possible assault.
3. Regardless of the outcome, the search should stay close to the location and be over after one day to avoid unnecessary contact.
4. If the people are found in the forest or at the river banks, a dialogue conducted by the native representative should be established to identify their cultural identity. If they are members from the Machiguenga communities, refer to the Community Relations Guidelines.
5. Dialogues should be developed at a distance using a megaphone, to reduce the risks of transmitting contagious diseases.
6. If they are uncontacted people, the following should proceed:
  - They should be informed that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest.
  - The operations of Shell should be explained in terms of time, noise, presence with the clear message that a small area of land will be used but that Shell visitors will not be permanent residents in the Nomadic lands.
  - Information about their villages locations and number of inhabitants should be requested.
  - If the people request metal tools, these should be bestowed (axes, machetes, knives) as a sign of goodwill.
  - They should be asked to return immediately to where they came.
7. For security reasons, regardless of whether the people are found or not:
  - The camp lights should be kept on at night.
  - All workers should be informed of those findings.
  - Surveillance should be emphasised.

8. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

#### Scenario 2: Violent night approach

When isolated people venture in the forest, or when they attempt an assault, they usually go in small teams of around six men. Coming to the camp by night, searching for metal tools like axes, machetes and knives is a remote possibility. Because they are frightened in the presence of strangers, they may try to attack the watchmen. It seems that they prefer to act by night. This occurred during Shell seismic prospecting in the 80s in the headwaters of the Mishagua river, when the Nahua assaulted one of the flycamps by night. That attack attempted to scare Shell workers out of the flycamp, enabling them to take the metal tools. There was no direct contact between Shell workers and the Nahua during the incident (Shell staff, personal communication).

#### Responses

1. If they attack (their only weaponry are bow and arrows), one of the watchmen should made use of the flare gun, pointing to the sky as to deter further attacks. **Never point the flare gun at any person in any situation.**
2. Violent confrontations should be avoided.
3. Watchmen should immediately inform the Shell and Contractor supervisor.
4. The supervisor should alert the Supply Base at Nuevo Mundo.
5. If attacks continue, the personnel should seek protection in a closed building.
6. When attacks stop, the supervisor, with the native representative, should try to establish a dialogue, to try to identify the Nahua or Kugapakori, showing friendliness and offering, but not actually giving, presents (axes, machetes, knives). Offered small presents should be bestowed just before their departure.
7. They should be informed (as in point 6 in previous section) that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest (see attached message).
8. If the contact proceeds, the supervisor together with the native representative should try to get

information regarding their village locations and the number of inhabitants, and should try to convince the visitors to return to their territory as soon as possible.

9. Dialogues should be developed at a distance using a megaphone, to reduce the risks of transmitting contagious diseases.
10. Shelter or a place for resting could be provided until they go back, together with food like bananas, manioc and meat and water.
11. They should be placed quite apart from workers. Shell and contract workers should not approach.
12. Neither personal belongings like clothes, nor western cuisine should be given to the visitors. These are the items that could introduce disease with potentially lethal consequences.
13. Touching should be avoided.
14. Filming and photographing could frighten them and should not be allowed.
15. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

### Scenario 3: Violent day approach

The same as the one above, but during daytime.

### Responses

The same responses as above should be given, but using the fire alarm or any alarm device instead of the flare gun. The latter will be less effective during daylight.

### Scenario 4: Peaceful short term approach

A small group of visitors may approach the camp out of curiosity because of the noise or by chance when hunting and gathering wild fruits in the nearby forest. Curiosity could be aroused both by noises made in the well sites, or the illumination by the camp lights or flare.

### Responses

1. Whoever detects the presence of peaceful visitors should immediately inform the Shell and Contractor supervisors.
2. The supervisor together with the native representative should start a dialogue at a distance using a megaphone to determine the cultural identity of the visitors.
3. Visitors should be given explanations of the presence of Shell and the activities being developed in camp. They should be informed that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest (see attachment).
4. Visitors should be asked about their village locations and the number of inhabitants.
5. If requested, visitors could be offered small presents (axes, machetes and knives).
6. Visitors should be convinced of going back as soon as possible.
7. Neither personal belongings like clothes, nor western cuisine should be given to the visitors. These are the items that could introduce disease with potentially lethal consequences.
8. Touching should be avoided.
9. Filming and photographing could frighten them and should not be allowed.
10. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

### Scenario 5: Peaceful approach for long term contact

There is also a very remote chance that isolated indigenous people may want to establish contact and permanent links with the outside world.

### Responses

1. If a group of people show up in the camp declaring those intentions, the supervisor together with the native representative should establish a dialogue at a distance, using a megaphone to identify the visitors cultural identity.

2. Visitors should be given explanations of the presence of Shell and the activities being developed in camp. They should be informed that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest (see attachment).
3. Shelter and fresh non prepared food should be provided in a quiet area, quite apart from workers' rooms, Shell and contract workers should not approach.
4. The doctor in camp should try to diagnose the people's state of health without exerting pressure. Support and explanation should be provided by the native representative who should try to persuade them.
5. Supervisors should immediately inform CLO and the Supervisor in the Nuevo Mundo Supply Base without further actions.
6. A medical and support contingency plan will be available under Medical Officer (MO) and CLA direction.
7. Neither personal belongings like clothes, nor western cuisine should be given to the visitors. These are the items that could introduce disease with potentially lethal consequences.
8. Touching should be avoided.
9. Filming and photographing could frighten them and should not be allowed.
10. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

Scenario 6: Visiting by ex-Kugapakori from Montetoni

1. This should be considered as a separate case. The people from the community of Montetoni were formerly Kugapakoris. At the moment those living in Montetoni are undergoing a process of transition: they are at peace with the external world, but are still very vulnerable to western diseases. In 1995, ten people died of gastric diseases (ERM EIA Report to Shell, July 1996). This community is being increasingly populated by Kugapakoris from the upper Timpia river, a process that is still in progress.
2. Peaceful visiting by the people from Montetoni is likely, particularly at Cashiriari-3. It is also possible to think that they may ask for medical attention. A request that will not be direct, but can be

recognized through their complaints or through stories about ill kin in their village.

#### Responses

1. The same careful precautions referred for the uncontacted people as to the kind of items to be bestowed or exchanged, as well as to restrictions for physical contact will be in place.
2. Visitors should be given explanations of the presence of Shell and the activities being developed in camp. They should be informed that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest (see attachment).
3. Supervisors with the help of the native representative should try to find out the visitors reasons for coming to the camp, as well as their needs and demands.
4. The doctor in camp should try to diagnose the people's state of health without exerting pressure. Support and explanation should ne provided by the native representative who should try to persuade them.
5. Supervisors should immediately inform CLO and the Supervisor in the Nuevo Mundo Supply Base without further actions.
6. A medical and support contingency plan will be available under MO and CLA direction.
7. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

#### Scenario 7: Visiting by Nahua from Mishagua-Serjali

1. This too has to be considered as a separate case. The Nahua living at the mouth of the Serjali river, North of San Martín-3 (together with some Yaminahua individuals from Sepahua), are no longer isolated people. Those are the Nahua who attacked Shell workers during the 80s to get metal tools. Timber extractors from the town of Sepahua were also involved with them. Since 1986, and until recently they were settled together with the Yaminahua in the outskirts of Sepahua. Like the Kugapakori from Montetoni, they are at peace with the external world, but are still vulnerable to western diseases.
2. Peaceful visiting by the Nahua from Mishagua-Serjali is likely, particularly at San Martín-3. It is also possible to think that they may ask for medical attention. A request that can be recognized by

the native representative in camp, or by any Spanish speaker if they come accompanied by their Yaminahua relatives who speak Spanish.

#### Responses

1. The same careful precautions referred for the uncontacted people as to the kind of items to be bestowed or exchanged, as well as to restrictions for physical contact will be in place.
2. Visitors should be given explanations of the presence of Shell and the activities being developed in camp. They should be informed that Shell is working in fixed sites and that there is no intention to go further into their territory, nor go hunting in the forest (see attachment).
3. Supervisors with the help of the native representative should try to find out the visitors reasons for coming to the camp, as well as their needs and demands.
4. The doctor in camp should try to diagnose the people's state of health without exerting pressure. Support and explanation should be provided by the native representative who should try to persuade them.
5. Supervisors should immediately inform CLO and the Supervisor in the Nuevo Mundo Supply Base without further actions.
6. A medical and support contingency plan will be available under MO and CLA direction.
7. Reporting on any contact situation is mandatory. See reporting requirements at the end of guidelines.

#### Reporting

1. In all contact situations, Shell and Contractor supervisors will immediately inform the Shell Supervisor and the CLO in the Nuevo Mundo Supply Base, and the Drilling Operations Manager in Lima and submit a detailed written report (based on the SPDP Incident/Accident Report Form), through the CLO, to the Drilling Operation Manager and CLA (HSE Department) in the SPDP office.
2. Doctors in camps should also produce a written report when diagnosing isolated people's state of health for handing to the Shell supervisor who, in turn, should submit it to the Drilling Operations Manager and the CLA in the SPDP office.

- ATTACHMENT

The following is a prepared message to be used by our native representatives to start a dialogue with isolated people that make contact with any of the camps. It will be translated into Machiguenga and Yaminahua.

“We, the ones who are in this camp, are friendly people, not enemies nor cannibals. We are not thinking in living in this land. We know this land belongs to you.”

“We have come here to perform some activities only, that will not damage you nor the animals of the forest. This is why you hear these noises. We will perform our activities with care for the forest and rivers.”

“We shall move around in small areas without going further into your lands. We will not go hunting in the forest.”

“Why have you come to this place? Why have you left your village? Are you in need of help? Are you interested in knowing our activities? Do you want to visit the camp?”

“We will like to know where do you come from. How many people live with you? We have things that you may like to see, or that you may need.”



## Appendix C

# Environmental Mitigation and Monitoring Plan



**C1.1 ENVIRONMENTAL MITIGATION**

The Exploration Drilling campaign has been designed to avoid or minimise impacts on the environment wherever practicable. Where residual impacts remain, which may have moderate or significant effects on the environment, mitigation measures have been recommended in the Environmental Impact Assessment (EIA) report which will either reduce the impact to an acceptable level or adequately compensate affected parties. These measures are discussed in the EIA Report. *The purpose of the EMP is to provide a vehicle for their implementation.*

Mitigation measures are presented in the following series of tables (Tables C1-C3) for the control of effects associated with the following:

- construction and drilling activities;
- wellsite abandonment and demobilisation activities;
- activities impacting local communities.

The tables incorporate measures for environmental mitigation and monitoring, outline the recommended timing of actions and the institutional responsibilities for implementation.

**C1.2 ENVIRONMENTAL MONITORING**

Environmental monitoring will help to evaluate the effectiveness of environmental mitigation and to identify environmental problems at an early stage. Monitoring will also help SPDP to identify and implement environmental improvements which will contribute to the overall environmental performance of the project. Monitoring parameters are included within each table.



**Appendix C1**

**Mitigation of Wellsite  
Construction and Drilling  
Impacts**



Table C1

Mitigation of Wellsite Construction and Drilling Impacts

Potential Impact	Action	Responsibility	Parameters for Monitoring	Timing
1. Landtake	<p>1.1 Ensure that all necessary protocols are followed and legal requirements implemented:</p> <ul style="list-style-type: none"> <li>ensure that appropriate legal requirements have been met with regard to land occupancy, land ownership or usage rights, notice and compensation etc;</li> <li>establish and clearly document land take agreements with local communities;</li> <li>request prior permission to visit a site;</li> <li>request representative of nearest local community to attend first visit to site;</li> <li>request permission to set up temporary camps;</li> <li>ensure that all surveyors/ workers observe provisions of <i>Community Relations Guidelines (Appendix A)</i>;</li> </ul> <p>1.2 Mark out site boundaries. Ensure that landtake during wellsite construction is restricted to 4ha.</p> <p>1.3 Strict implementation of 'remote wellsite' policy<sup>(1)</sup>.</p> <p>1.4 Following construction of wellsite, restore temporary used areas to meet legal requirements (wellsite footprint not to exceed 2ha).</p>	<p>Technical Manager. Drilling Operations Manager. Construction Supervisor. Civil Engineering Supervisor. Community Liaison Officer.</p> <p>Civil Engineering Supervisor. Construction Supervisor.</p> <p>Civil Engineering Supervisor. Construction Supervisor.</p> <p>Technical Manager. Drilling Operations Manager.</p>	<p>Check list of action items</p> <p>Clearly defined boundaries in place. No unauthorised off-site clearance</p> <p>Clear set of instructions in place.</p> <p>Limit of wellsite footprint meets legal requirements</p>	<p>Pre-deployment of topographic survey team or site clearance crew.</p> <p>After selection of precise site location and orientation. Prior to onset of site clearance.</p> <p>Duration of campaign</p> <p>Following construction of wellsite footprint, prior to rig mobilisation.</p>

Note: <sup>(1)</sup> Item 1.3. The wellsites will be installed and operated as 'remote wellsites' ie the only access to the sites will be by helicopter. The forest beyond the wellsite boundary will be strictly enforced out of bounds to all workers (other than for routine off-site inspection).

2. Soil erosion and risk of land slippage	2.1 Choose precise site location and orientation such that:	Civil Engineering Supervisor	Design sign-off	Prior to onset of site clearance.
	<ul style="list-style-type: none"> <li>• minimise need for cut and fill;</li> <li>• minimise risk of land slippage and slumping;</li> <li>• effective run-on and run-off controls can be put in place.</li> </ul>	Construction Supervisor.		
	2.2 Minimise area extent of site clearance, by staying within defined boundaries.	Civil Engineering Supervisor. Construction Supervisor.	Site boundaries not extended or breached.	Prior to onset of site clearance.
	2.3 Protect topsoil stockpile where possible at edge of site.	Construction Supervisor.	Effective cover in place.	Duration of campaign up until demobilisation.
	2.4 Install and maintain effective run-on and run-off controls, including siltation ponds, traps and diffusion methods so as to minimise erosion.	Civil Engineering Supervisor. WellSite Manager.	Condition of siltation ponds. Rill or gully development in immediate off-site surroundings.	Site construction. Duration of campaign and beyond.
	2.5 Avoid uprooting trees or removing undergrowth where possible, so as to retain land stability.	Civil Engineering Supervisor. Construction Supervisor.	N/A	Site clearance.
	2.6 Stabilise entire site footprint by laying down suitable covering (steel or other matting).	Civil Engineering Supervisor. WellSite Manager.	Adequate covering in place.	Duration of campaign up until demobilisation.
	2.7 Stabilise and protect slopes using suitable techniques ie netting (grass, bamboo or mesh) or physical (civil construction) techniques (ie slopes design, terracing, bamboo walls, diversion drains, culverts, cut-off walls, and siltation traps).	Civil Engineering Supervisor. Construction Supervisor.	Slope movement. Gully erosion. Level of siltation.	Duration of campaign and beyond
	2.8 Schedule works so as to minimise extent of earth works in rainy season.	Technical Manager. Drilling Operations Manager.	Schedule of works signed off by Technical Manager.	Prior to onset of site clearance.



3. Habitat disturbance	3.1 Mark out site boundaries for:	Civil Engineering Supervisor. Wellsite Manager.	Clear boundary markers in place.	Prior to commencement of site clearance.
	<ul style="list-style-type: none"> <li>• wellsite footprint;</li> <li>• helicopter approach path;</li> <li>• flexible pipe for conveying surface water from stream.</li> </ul>			
	3.2 Deploy a forester to provide guidance on felling techniques and generally assist in clearance activities.	Civil Engineering Supervisor. Construction Supervisor.	Contract of employment on record.	Prior to commencement of site clearance.
	3.3 Contract representative of local communities to check each site for plants of value.	Civil Engineering Supervisor. CLO.	Contract of employment on record.	Prior to commencement of site clearance.
	3.4 Avoid uprooting trees and other plants where possible (such as helicopter flight paths) so as to facilitate subsequent regrowth.	Civil Engineering Supervisor. Construction Supervisor.	N/A	Duration of campaign.
	3.5 For cleared areas, retain top soil in stockpile where possible on perimeter of site for subsequent respraying onsite during restoration	Civil Engineering Supervisor. Construction Supervisor.	Topsoil stockpile in place on site edge.	Duration of campaign until Demobilisation or prior opportunity for revegetation of verges.
	3.6 Retain cut timber and vegetation on edge of site to serve as seed bank for future site re-vegetation during restoration.	Civil Engineering Supervisor. Construction Supervisor.	Cut vegetation in place on edge of site.	Duration of campaign until Demobilisation or prior opportunity for revegetation of verges.
	3.7 Strict implementation of 'remote wellsite' policy.	Civil Engineering Supervisor. Wellsite Manager.	Policy in place.	Duration of campaign.
	3.8 Flexible Pipe conveying water from stream to wellsite to be lain above ground with minimum clearance of undergrowth or trees.	Civil Engineering Supervisor	Installed as per specification.	Site construction and operation.
	3.9 All bulldozer and chainsaw operators involved in site preparation shall be trained to observe the defined site boundaries.	Construction Supervisor.	Maintenance of integrity of boundary markers.	Duration of site preparation.

3. Habitat disturbance (continued)	3.10 All forestry products (flowers, trees) are protected by law and their removal outside defined site areas is strictly prohibited for all but indigenous peoples.	Civil Engineering Supervisor Wellsite Manager.	N/A	Duration of campaign.
	3.11 Hunting, fishing and wildlife trapping is forbidden. Removal or disturbance to nesting or breeding birds and animals, their eggs or young is strictly prohibited.	Civil Engineering Supervisor Wellsite Manager.	N/A	Duration campaign.
4. Drainage and Effluent Discharge Impacts	4.1 Ensure drainage system and specific design measures are working effectively.	Civil Engineering Supervisor. Construction Supervisor. Wellsite Manager.	Evidence of impeded drainage, culvert blockage or collapse.	Duration of campaign.
	4.2 Ensure that no off-site siltation or flooding occurs from inadequate run-off measures.	Wellsite Manager.	Evidence of siltation, flooding, vegetation die-back.	Duration of campaign.
5. Fuels, Lubricants and Chemicals Management	4.3 Ensure that no off-site die-back of vegetation arising from discharges.	Wellsite Manager.	Evidence of die-back at discharge points.	Duration of campaign.
	5.1 Maintain strict inventory of all fuel, lubricants and chemicals brought to the wellsite.	Wellsite Manager.	Up-to-date inventory in place.	Duration of campaign.
	5.2 All fuels, lubricants and chemicals placed in controlled storage.	Wellsite Manager	Integrity of storage area: bund (at least 110% of capacity of largest container); impervious liner; surfacing. All drums and containers located within footprint of storage area.	Duration of campaign.

5. Fuels, Lubricants and Chemicals Management (cont'd)	5.3 All used and unused lubricants and chemicals no longer required, to be transported back to Nuevo Mundo logistics centre.	Wellsite Manager.	Low inventory (or absence) of used/unused lubricants and chemicals no longer required on-site.	Duration of campaign.
	5.4 Stream-side water pumpset located within secure area.	Wellsite Manager.	Secure bund in place. All fuel plus pump motor located within bund.	Daily during duration of campaign.
	5.5 Refuelling operations to be undertaken over area with impervious flooring and surface drainage with oil interceptor.	Wellsite Manager. Aviation Supervisor	Facilities installed.	Duration of campaign.
	5.6 Delivery of fuel to wellsite and stream-side water pump to be supervised.	Wellsite Manager. Aviation Supervisor	Detailed procedure in place.	Duration of campaign.
	5.7 Site Emergency Response Plan in place with adequate provisions addressing potential wellsite and stream-based oil leaks and spills.	Wellsite Manager.	Provisions within Wellsite Emergency Response Plan (see Appendix D). Record of successful drills. Record of all spills.	Prior to delivery of first fuel shipment. Duration of campaign.
	5.8 Adequate oil spill containment and clean-up equipment and materials on-hand and available to contain foreseeable oil spill.	Construction Supervisor Drilling Supervisor	Facilities and inventories readily available and in good working order.	Prior to delivery of first fuel shipment. Duration of campaign.

6. Waste and Effluent Management (see also 4. Drainage and Effluent Discharge Impacts)	6.1 During current Appraisal Drilling campaign re-injection of waste waters, muds and cuttings will be tested at Cashiriari-3. If successful, and assuming suitable geological formations at the exploratory wellsites, all waste waters, muds and cuttings will be re-injected. However, if conditions at the exploratory wellsites are not suitable, then see action set out in 6.2 and 6.3.	Technical Manager. Wellsite Manager.	Successful re-injection at Cashiriari-3. Groundwater quality upgradient of community villages.	Duration of appraisal drilling campaign of Cashiriari-3. Monitoring regime to be finalised prior to commencement of re-injection.
	6.2 Implement Wellsite Waste Management Plan (see Appendix F) which identifies and characterises every waste arising associated with wellsite drilling and testing and which identifies the procedures for collection, handling and disposal of each waste arising. All wastes leaving the wellsite(s) will be transported to the Nuevo Mundo Logistics Centre where the Nuevo Mundo Logistics Centre Waste Management Plan will be implemented (covered under a separate Waste Management Plan which will be available for review by September).	Wellsite Manager.	Comprehensive Waste Management Plan in place and available for inspection on-site.	Prior to site clearance.
	6.3 In the event that reinjection of wastewaters is not feasible, treated effluent dispersed in forest to location where it will not pond.	Wellsite Manager.	Absence of: <ul style="list-style-type: none"> <li>stagnation;</li> <li>vegetation die-back.</li> </ul>	Fortnightly for duration of campaign.
7. Access and Security	7.1 Site to be operated as 'remote wellsite'. Access to forest other than for off-site inspections strictly forbidden.	Wellsite Manager.	N/A	Duration of campaign.
	7.2 Designate local liaison contacts onsite throughout duration of San Martin East site occupation to facilitate any contact with nomads.	Wellsite Manager.	N/A	Duration of campaign.

8. Soil Contamination	8.1 Impervious liners in place for fuel, lubricants and chemicals storage area, cuttings pit and stream-side pumpset station.	Civil Engineering Supervisor Wellsite Manager.	Evidence of protective measures in place. No visual sign of oil spills.	Daily throughout duration of campaign.
	8.2 Effective bunds capable of containing 110% of the volume of the largest bladder within and enclosing all potentially contaminating materials. To be used for: <ul style="list-style-type: none"> <li>fuel lubricants and chemicals storage area;</li> <li>stream-side pumpset station.</li> </ul>	Civil Engineering Supervisor Construction Supervisor. Wellsite Manager.	Evidence of protective measures in place. Absence of visual evidence of contamination.	Daily throughout duration of campaign.
	8.3 Roof covering the full footprint of the cutting pit.	Civil Engineering Supervisor. Wellsite Manager.	Evidence of protective measures in place. Absence of visual evidence of contamination.	Daily throughout duration of campaign.
	8.4 Non-contaminated and potentially contaminated run-off will be kept separate. Non-contaminated run-off will be routed to off-site areas via silt traps. Potentially contaminated surface run-off will be treated in the waste water treatment facility.	Civil Engineering Supervisor. Wellsite Manager.	Evidence of separate routes and effectively working silt traps. Waste water treatment facility in good working order.	Duration of campaign.
	8.5 Oil drip pans shall be used wherever there is significant potential for leakage including, but not limited to; <ul style="list-style-type: none"> <li>drill rig engine;</li> <li>electric generator engine;</li> <li>compressors, pumps or other motors;</li> <li>maintenance areas;</li> <li>fuel transfer areas.</li> </ul>	Wellsite Manager.	Drip pans in place. Absence of visible signs of soil contamination.	Duration of campaign.
	8.6 All spills/leaks contained, reported and cleaned up immediately: <ul style="list-style-type: none"> <li>oil absorbent spill containment material deployed to contain large spills;</li> <li>contaminated soil dug up, placed in drums and subsequently removed from site.</li> </ul>	All onsite personnel. Wellsite Manager.	Written spill procedure in place. Oil spill containment materials on-site (and always ready for deployment).	Duration of campaign.

9. Water quality and other aquatic impacts.	9.1 No discharge to be made to water courses.	Civil Engineer Supervisor. Construction Supervisor. Wellsite Manager.	No discharge hoses in vicinity of water courses.	Duration of campaign with particular emphasis during site layout design and site construction.
	9.2 Minimise suspended solids loads to water courses by installing appropriate run-off surface drainage systems (eg silt traps, diffusion methods, bamboo barriers, culverts, silt drains etc) and by minimising the extent of vegetation clearance and avoiding cutting of tree roots.	Civil Engineer Supervisor. Construction Supervisor.	Surface drainage systems in good working order. Absence of visible erosion and gullies. Absence of visible suspended solids loads in streams. Results from water monitoring programme.	Duration of campaign.
	9.3 Stream-side pumpset and associated fuel storage located within secure bund: <ul style="list-style-type: none"> <li>all fuel handling within bund area;</li> <li>pumpset engine located offground on platform;</li> </ul>	Civil Engineering Supervisor Wellsite Manager.	Inspection of operations per design specifications.	Daily during duration of campaign.
	9.4 Minimisation of fish entrainment effects at fresh water abstraction point. Mesh footvalve on pump intake.	Drilling Supervisor	Mitigation Measures in place.	Duration of campaign.

10. Noise and Vibration (Applies to construction as well as operational)	10.1	List of all machinery on-site identifying age of plant.	Civil Engineering Supervisor. Construction Supervisor. Wellsite Manager.	List of age of all plant deployed under contract.	Prior to commencement of work by contractors at each wellsite.
	10.2	Equipment maintained in good working order.	Construction Supervisor. Wellsite Manager.	Written record of maintenance for all plant.	Prior to commencement of work by contractors at each wellsite.
	10.3	Implement good working practices to minimise noise.	Construction Supervisor. Wellsite Manager.	No machinery running when not required.	Duration of campaign.
	10.4	Acoustic mufflers in large engines (where practicable).	Construction Supervisor Wellsite Manager.	Mufflers in place.	Duration of campaign.
11. Air Emissions	11.1	All equipment operated within specified design parameters (construction and operational phases).	Construction Supervisor. Wellsite Manager.	N/A	Duration of campaign.
	11.2	Helipads shall be constructed of hardstanding to prevent dust emissions at the wellsite.	Civil Engineering Supervisor.	Hardstanding in place.	Site Construction.
	11.3	Any dry, dusty materials (chemicals, muds etc) shall be stored in sealed containers.	Wellsite Manager.	Absence of stockpiles or open containers of dusty material.	Duration of campaign.
	11.4	Well testing (flaring) to be undertaken so as to minimise impacts of emissions: • duration of testing minimised by careful planning; • high combustion efficiency, smokeless flare/burner to be used.	Wellsite Manager.	High combustion efficiency, smokeless flare.	Well testing.





## **Appendix C2**

# **Mitigation of Wellsite Abandonment and Demobilisation Impacts**



Table C2

*Mitigation of Wellsite Abandonment and Demobilisation Impacts*

Potential Impact	Action	Responsibility	Parameters for Monitoring	Timing
1. Removal from wellsite of all equipment and materials	<ul style="list-style-type: none"> <li>1.1 Dry wells to be plugged in accordance with American Petroleum Institute (API) industry standards.</li> </ul>	Drilling Supervisor	Industry practice	Completion of well testing.
	1.2 Wellheads and all other equipment and infrastructure removed from wellsite (eg water supply pumpset and associated facilities, effluent and water supply piping, empty drums, wastes, used and unused chemicals, fuels and lubricants etc).	Civil Engineering Supervisor.	Site fully cleared	Completion of well testing.
	2.1 Solidify cuttings by adding lime to cuttings pit. Treat (neutralisation, flocculation, aeration) water prior to discharge to safe disposal point.	Wellsite Manager	Discharge effluent to meet specification of <i>Appendix G</i> .	Completion of well testing.
2. Restoration of cuttings pits in accordance with E&P Forum Guidelines	2.2 Neutralise spent muds in cuttings pit. Mix with cement to form inert material. Fill in and cover cuttings pit with soil.	Wellsite Manager	Mud pit contents effectively encapsulated and inert material properly buried in dedicated pit.	Completion of well testing.
3. Restoration of wellsite	<ul style="list-style-type: none"> <li>3.1 Following completion of 1.2, revegetation of entire site to be promoted (see Abandonment Plan - <i>Appendix E</i>).</li> </ul>	Civil Engineering Supervisor.	Effective reinstatement of site.	On completion of demobilisation; ongoing until commencement of either well development or comprehensive wellsite decommissioning.
	3.2 Ensure integrity of site contours maintained until onset of full revegetation (see Abandonment - <i>Appendix E</i> ).	Civil Engineering Supervisor.	Effective reinstatement of site.	As per 3.1



Appendix C3

**Programme of Action for  
the Control of Community  
Effects and Community  
Relations**



Potential Impact	Action	Responsibility	Parameters for Monitoring	Timing
1. Landtake of productive lands	1.1 Ensure that appropriate legal procedures have been observed with regard to land occupancy, land ownership or usage rights, notice etc.	Technical Manager. HSE Manager.	Fully documented account of all negotiations and agreements reached on record.	During detailed project (and logistics) planning prior to deployment of topographic survey team or site clearance.
	1.2 A programme of compensation for the loss of productive land and restriction of access to all remaining productive land will be developed; any such plan shall be agreed with the local communities including the form of compensation (ie financial, alternative land, infrastructure or services support).	HSE Manager. Community Liaison Advisor.	Fully documented account of all negotiations and agreements reached on record.	During detailed project (and logistics) planning prior to deployment of topographic survey team or site clearance.
	1.3 Maintain strict adherence to designated areas for land clearance during establishment of well sites and logistics areas.	Wellsite Manager.	Monitor clearance to ensure landtake within agreed parameters.	Duration of campaign.

Table C3

## Programme of Actions for the Control of Community Effects and Community Relations

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2. Direct loss of economic resources	2.1 Define understanding with communities over area, volume and species of trees to be removed.	Community Liaison Officers.	Copies of minutes of meeting and agreements on file.	Prior to commencement of vegetation clearance at each site.
	2.2 Employ local assistance to identify species with economic or conservation value and extract plants/trees where practicable (eg edible palms, lianas etc).	Community Liaison Officers.	Contract of employment on record.	Prior to commencement of vegetation clearance at each site.
	2.3 As far as practicable, make available suitable felled timber to native communities.	Wellsite Manager. Community Liaison Officers.	N/A	Duration of site clearance activities.
	2.4 Use cleared vegetation to assist in regrowth at each site as part of Abandonment plan ( <i>Appendix E</i> ).	Civil Engineering Supervisor. Wellsite Manager.	N/A	Completion of well testing
	2.5 SPDP to implement awareness training programme amongst its workers to increase general awareness of the conservatory value of forest fauna.	HSE Manager.	Training programme in place. Training records for all workers (SPDP staff and contractors).	Prior to site preparation.



3. Community Disturbance	3.1 Adhere to Community Relations Guidelines (see Appendix A) and Pre-Trip Preparation and Response Plan in case of Contact with Isolated Nahua, Kugapakori or Machiguenga Indigenous People (see Appendix B) set up between SPDP and local communities. Set up forum for regular formal approaches from the community (including complaints).	HSE Manager. Community Liaison Officers.	Minutes of meetings and written records of all communications on file.	Duration of campaign.
	3.2 Establish procedure within SPDP to follow up, and respond to all community complaints. Maintain a log of all complaints.	Technical Manager. HSE Manager.	Procedure in place. Record of implementation.	Duration of campaign.
	3.3 Ensure that river traffic is restricted to designated times. Vessels should not travel along river at night (except for emergencies).	SPDP Site Manager.	Monitor each river journey (ie record and report any incidents, times of travel, accidents and complaints from local communities)	Duration of campaign.
	3.4 Vessels should not stop at any communities along the route (especially from Sepahua to Camisea).	SPDP Site Manager.	As per 3.3.	Duration of campaign.
	3.5 Prior to any journey, vessel captain should conduct a 'toolbox' meeting to discuss safety, environmental and social issues.	Logistics Supervisor. Vessel Captain.	As per 3.3.	Duration of campaign.
	3.6 Maintain a log of all river traffic movements.	SPDP Site Manager.	As per 3.3.	Duration of campaign.
	3.7 Maintain logs of all incidents and complaints related to river traffic movements.	SPDP Site Manager. Safety and Environment Officer.	As per 3.3	Duration of campaign.
	3.8 Place 'No waste discharge signs' around landing areas which should be adhered to all times.	SPDP Site Manager.	Signs in place. Absence of visual evidence of discharge taking place.	Duration of campaign.

3.9 Control of discharges from vessels:		SPDP Site Manager.	Number and nature of complaints from public.	Duration of campaign.
<ul style="list-style-type: none"> <li>sewage only to be discharged away from communities;</li> <li>bilge only to be flushed away from communities;</li> <li>other bio-degradable wastes to be stored on-board and off-loaded at destination berths for controlled disposal;</li> <li>no waste materials shall be thrown overboard.</li> </ul>				
3.10	Flight paths set to avoid communities must be strictly adhered to.	Aviation Supervisor.	Documented designated flight paths.	Duration of campaign.
3.11	Identify any religious days or significant holidays when more restrictive controls on transport movements will be enforced.	Community Liaison Officers.	Documentation of specific holidays.	Duration of campaign.
3.12	Maintain a log of all incidents and complaints related to air traffic movements.	Aviation Supervisor. Safety Environment Officer.	Number and nature of complaints.	Duration of campaign.
3.13	Forewarn communities before flaring is expected to take place.	Wellsite Manager. Drilling Operations Manager. Community Liaison Officers.	Evidence of complaints.	During well testing.

4. Protection of drinking water supplies.	4.1 Prevent the discarding of any wastes into surface water bodies at all sites.	Civil Engineering Supervisor. Wellsite Manager.	Lack of evidence of rubbish, oil contamination, or sediment transport into surface water.	Duration of campaign
	4.2 Provide adequate measures to prevent spillage of oil or discard of sewage into streams at wellsites.	Civil Engineering Supervisor. Wellsite Manager.	See <i>Appendix F</i> .	Duration of campaign
	4.3 A packaged biotreatment system for sewage and liquid domestic waste arisings (grey waters, canteen wastes etc) shall be installed at the wellsite(s).	Technical Manager. Drilling Operations Manager.	Sewage treatment facility in good working order.	Duration of campaign.
	4.4 Fuel storage areas shall be adequately designed to prevent contamination of natural water courses.	Wellsite Manager.	See <i>Table C1</i> , item 5.2	See <i>Table C1</i> , item 5.2
	4.5 All spills and leaks cleaned up and reported immediately.	Civil Engineering Supervisor. Wellsite Manager.	Log of spills and leaks on-site.	Duration of campaign.
	4.6 Effective Emergency Response plan in place to deal with any incident threatening quality of surface or ground waters.	Technical Manager. Drilling Operations Manager. Wellsite Manager.	Effective plan formulated and available for inspection. Record of drills and implementation.	Prior to site demobilisation.
	4.7 Response equipment available (and in good order) to implement site emergency response plan.	Wellsite Manager.	Inventory on record matches inventory on display.	Duration of campaign.

5.Impacts on Human Health	5.1 All workers shall undergo medical screening for communicable disease prior to commencing work.	Site Medical Officer.	Programme in place with records on file.	Duration of campaign.
	5.2 Implement vaccination programme and malaria prophylaxis to entire workforce.	Site Medical Officer.	SPDP Health Pass.	Duration of campaign.
	5.3 The creation of bodies of standing and stagnant water shall be avoided to prevent the creation of additional breeding grounds for disease vectors (eg mosquitoes).	Wellsite Manager. Site Medical Officer.	Programme in place with records on file.	Duration of campaign.
	5.4 Any worker developing or showing signs of any illness shall be required to report to the site supervisor and doctor immediately.	Wellsite Manager. Site Medical Officer.	Programme in place with records on file.	Duration of campaign.
	5.5 All workers shall be trained to be aware of SPDP policy and actions with regard to medical emergencies.	HSE Manager.	Programme in place with records on file.	Duration of campaign.
	5.6 Workers will be required to use toilet and sanitation facilities provided at the wellsites and at the logistics camps.	Wellsite Manager.	Programme in place with records on file.	Duration of campaign.
	5.7 There will be on-site medical provision through a doctor, who will also work closely with the local community to facilitate the early detection of any problems.	Technical Manager. Drilling Operations Manager.	Programme in place with records on file.	Duration of campaign.
	5.8 SPDP shall provide access for the local community to emergency medical care facilities (including MEDEVAC), and/or whenever requested by any Government health body.	Site Medical Officer. Wellsite Manager.	Programme in place with records on file.	Duration of campaign.

6. Employment and Income Generation	6.1 Enforce SPDP's current policy of employing native community workers.	HSE Manager. Wellsite Manager.	Written policy in place.	Prior to contracting any local labour.
	6.2 In consultation with local community leaders define opportunities for involvement of locals in skilled and semi-skilled work (for example: guiding, tree felling, translation, point controls, monitoring, catering etc).	HSE Manager. Community Liaison Officers.	No. of local employees.	Prior to contracting any local labour.
	6.3 Identify and deploy training opportunities wherever possible.	HSE Manager Community Liaison Officers.	<ul style="list-style-type: none"> <li>• Training development plan in place.</li> <li>• Implementation of plan in progress (latter unlikely during exploratory drilling campaign).</li> </ul>	Prior to completion of campaign. Prior to onset of future FFDP.
	6.4 SPDP will negotiate and ensure that wages are commensurate with those of the workers from outside the region.	Technical Manager Wellsite Manager. Construction Supervisor. Community Liaison Officers.	Wage agreements of all workers.	Duration of campaign.
7. Unwanted interactions between Shell workers and the local communities	7.1 SPDP shall enforce strict penalties for any employee found guilty of misconduct (eg brawling, drunkenness etc).	Wellsite Manager	Procedures in place. Procedures strictly enforced.	Prior to mobilisation of contracts.
	7.2 SPDP shall enforce that guidelines are adhered to.		Guidelines in place	Duration of campaign.
8. Cultural Change	8.1 All workers should be fully aware of the day-to-day customs and 'etiquette' for all people working close or visiting Machiguenga communities and should follow recommendations given in <i>Community Relation Guidelines</i> (see <i>Appendix A</i> ).	Wellsite Manager.	Check adherence to guidelines.	Duration of campaign.
9. Inward	9.1 It is not possible to completely control the influx of	HSE Manager.	Maintain records of	Duration of campaign.

Table C3 Programme of Actions for the Control of Community Effects and Community Relations

migration 'boomtown effects'.	<p>migrants into newly accessed areas. However certain measures can be taken to discourage and control the flow of migrants:</p> <ul style="list-style-type: none"> <li>• prioritise labour in favour of local communities;</li> <li>• ensure that the workforce is suitably selected and qualified;</li> <li>• do not hire outsiders arriving at SPDP's 'door';</li> <li>• provide clear information on likely job availability (or lack of it).</li> </ul>	<p>Civil Engineering Supervisor. Wellsite Manager.</p>	<p>employment and statistics of percentage local recruitment:</p> <ul style="list-style-type: none"> <li>• demonstrable prioritisation;</li> <li>• procedure agreed with community leaders for selection;</li> <li>• procedures for hiring;</li> <li>• communication records.</li> </ul>
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10. Damage or Disturbance to cultural sites.	10.1 As a first step, contractors must inform the SPDP representative of the discovery of any archaeological, cultural or religious site or find. Appropriate guidance must then be sought before any further progress is made (eg National Cultural Institute - INC or relevant universities or organizations).	Civil Engineering Supervisor. Wellsite Manager.	N/A	Duration of construction and operation at all wellsites.
	10.2 All care must be taken to ensure that ancient monuments (anything of historical, archaeological or artistic interest) are not damaged.	Civil Engineering Supervisor. Wellsite Manager.	N/A	Duration of construction and operation at all wellsites.
	10.3 Under no circumstances shall the Contractor remove any artefacts from a working area until the civil engineering supervisor or wellsite manager has been informed and appropriate instructions have been issued.	Civil Engineering Supervisor. Wellsite Manager.	N/A	Duration of construction and operation at all wellsites.
	10.4 All finds shall be registered with the relevant authorities.	HSE Manager.	N/A	Duration of construction and operation at all wellsites.





## Appendix D

# Outline Emergency Response Plan



## D1.1

## INTRODUCTION

Effective emergency response is a fundamental aspect of SPDP's operations. It is based on the underlying principal of incident prevention backed up by a carefully considered response capability aimed at rendering any incident harmless; incident containment is the last resort.

The control and prevention of incidents (whether safety or environmental related) on-site will facilitate a constructive relationship between SPDP, its contractors and communities within the project area.

## D1.2

## OBJECTIVES OF EMERGENCY RESPONSE PLANNING

The objective of emergency response planning for the SPDP's drilling operations in general will be to develop, implement and maintain a management system, including plans and procedures, which when activated in any emergency situation will minimise the harmful effects on:

- human life and health;
- the environment;
- SPDP or third party assets.

and assist in the return to normal and safe operations.

This objective will remain the same, regardless of the nature of the emergency situation and therefore the following outline plan is not specific to the exploration drilling campaign.



# *Helmerich & Payne (Perú) Drilling Co.*

## **EMERGENCY RESPONSE**

### **GENERALITIES**

Before spudding the well it is necessary to designate two (2) escape routes from the rig floor and wellhead area.

These routes shall be in opposite directions to facilitate up wind escape.

The location shall have at least two wind-socks (rig floor and camp) to indicate wind direction.

All companies shall insure their employees have basic fire fighting training and knowledge about H2S.

### **SAFETY ALARMS**

<b>Emergency</b>	<b>Sound</b>	<b>Alarm System</b>
Well Control	Continuous Blast	Driller's Console Horn
Fire/Rig Site	Two Long Blasts	Driller's Console Horn
H2S	Intermittent Sound	Independent Alarm
Clear Signal	Two Short Blasts	Driller's Console Horn
Fire/Camp Site	Siren	Independent Alarm

**Note:** The camp siren will be activated for any emergency in camp and when it is determined that any situation at the rig site requires the notification of all off duty personnel.

At the sounding of this alarm off duty personnel shall dress in clothing appropriate for work and proceed to the up wind mustering area.

# ***Helmerich & Payne (Peru) Drilling Co.***

## **EMERGENCY RESPONSE**

### **WELL CONTROL**

**Driller will respond as per well control training and well control station-bill direct.**

**Driller will sound a continuous blast from the driller's console horn.**

**Personnel will respond as follows:**

<b>Site Manager</b>	<b>Rig Floor</b>
<b>Wellsite Supervisor</b>	<b>Rig Floor</b>
<b>Toolpusher</b>	<b>Rig Floor</b>
<b>Tourpusher</b>	<b>Choke Manifold</b>
<b>Driller</b>	<b>Rig Floor</b>
<b>Derrickman</b>	<b>Mud Pumps</b>
<b>Floorhands #1</b>	<b>Choke Manifold</b>
<b>#2</b>	<b>Shakers</b>
<b>#3</b>	<b>BOP Stack</b>
<b>Patio Hands &amp; Supervisor</b>	<b>Mud Hoppers</b>
<b>Electrician</b>	<b>Standby SCR House</b>
<b>Mechanic</b>	<b>Accumulator Unit</b>
<b>Mud Engineer</b>	<b>Mud Pits</b>
<b>Mud Loggers</b>	<b>Logging Cabin</b>
<b>All Other Personnel</b>	<b>Mustering Area for Head Count</b>
<b>Radio Operator</b>	<b>Alert Medic</b>

**Medic will perform head count of personnel.**

**Radio Operator will ensure all personnel in the camp houses are advised if the emergency should escalate.**

# ***Helmerich & Payne (Peru) Drilling Co.***

## **EMERGENCY RESPONSE**

### **FIRE**

#### **1. Fire in the Rig Area**

The First Responder will notify another person on site to spread the word of fire and its location then act using fire extinguisher to control the fire.

Driller will sound two (2) long blasts from the driller's console horn and secure the well.

Toolpusher/Tourpusher will proceed to the fire area and will participate in controlling the fire and managing the fire fighting team.

Toolpusher will direct all other personnel on location to be moved to the muster point.

Once the incident is over the Toolpusher will investigate the cause, results and actions to be taken to avoid similar incidents and will report to Country Manager/HSE Manager in Lima.

#### **2. Fire in the Camp Area**

The First Responder will notify another person on site to spread the word of fire and its location then act using Fire Extinguishers to control the fire.

Tourpusher will manage the fire fighting team and depending on severity of fire, will notify radio room.

Toolpusher will advise the Driller to activate the alarm (two long blasts).

Camp Boss will ensure all personnel in camp houses are notified and moved to the muster point.

Once the incident is over the Toolpusher will investigate the cause, results and actions to be taken to avoid similar incidents and will report to Country Manager/HSE Manager in Lima.

# ***Helmerich & Payne (Peru) Drilling Co.***

## **EMERGENCY RESPONSE**

### **H2S**

**The H2S alarms on the rig floor or the Logging Company will notify of the presence of H2S.**

**Tourpusher and Driller will mask-up to secure the rig then proceed to the muster point.**

**Driller will sound the camp alarm.**

**All other personnel will don escape masks and evacuate to muster point.**

**Radio Operator/H&P Engineer will conduct a head count of personnel at the muster point and will then conduct a search of the well site after the alarm to check for any injured personnel.**

**Radio Operator will be notified to sound the camp alarm.**

**Camp Boss and Medic will ensure that all personnel in the camp houses are advised.**

**All personnel will move upwind from the H2S source using the "Buddy System".**

**H2S is heavier than air , therefore avoid low lying areas.**

**When gas is controlled the driller will sound three (3) short blasts, indicating that all personnel shall resume normal duties.**



## Appendix E

# Restoration Plan



**Table E1 Abandonment Plan for Wellsite Locations**

Facility	Actions	Responsible	Evaluating Criteria
1. Camp Location	<ul style="list-style-type: none"> <li>Housing facilities dismantled and removed off-site. All debris cleared, wood material allowed to decompose to enrich the soil.</li> <li>Equipment including generators, wastewater treatment units, waste compactors, fuel and water tanks dismantled and removed off-site.</li> <li>Berns around tank farm levelled and soil spread to surrounding landscape contour specifications.</li> <li>Access path within camp site will be ripped and graded to surrounding landscape contour specifications.</li> <li>Helipad will be dismantled and concrete platform broken-up and buried at least one metre deep.</li> <li>Refuelling areas inspected for leaks and, if necessary, any fuels/oils soaked up with rags which are then sent to Logistics Centre for incineration.</li> <li>Cleared areas for camp location will be reclaimed after landscape contouring. Stockpiles topsoil will be respread and tilled. Organic material such as wood debris mixed into soil or light fertiliser added to encourage plant re-growth. Reforestation plan implemented including continuous maintenance of reclaimed sites.</li> </ul>	<p>Technical Manager</p> <p>Wellsite Manager</p> <p>Technical Manager</p> <p>Wellsite Manager</p> <p>Technical Manager</p> <p>Civil Engineering Supervisor</p> <p>Technical Manager</p> <p>Civil Engineering Supervisor</p> <p>Technical Manager</p> <p>Wellsite Manager</p> <p>Aviations Supervisor</p> <p>Wellsite Manager</p> <p>Technical Manager</p> <p>Civil Engineering Supervisor</p>	<p>Evidence of facilities on-site.</p> <p>Equipment inventory cross-check</p> <p>Location prepared to required specifications</p> <p>Access path inspected and evidence of appropriate re-vegetation efforts</p> <p>Clean location and all debris removed</p> <p>Terrain restored to specifications, reclaimed areas monitored for performance of the Abandonment Plan</p>
2. Drilling Location	<ul style="list-style-type: none"> <li>Pipeline, compressors, generators and other equipment required during drilling and testing removed off-site and all staging areas cleared from debris.</li> <li>Empty drums, used and unused chemicals, fuel and lubricants will be removed or properly disposed according to <i>SPDP Waste Management Plan</i> specifications.</li> <li>If hydrocarbons are found to meet SPDP satisfaction, the wellhead should be properly plugged (using a `christmas tree`) to protect subsurface water courses and avoid potential contamination. This will enable SPDP to revisit the wellsite at a later time.</li> <li>Freshwater sources at the nearby locations will be restored to initial water flow, ie all dams removed and natural drainage patter restored by removing culverts, silt traps, drains etc and grading the land to surrounding landscape contour specifications.</li> </ul>	<p>Technical Manager</p> <p>Wellsite Manager</p> <p>Technical Manager</p> <p>Wellsite Manager</p> <p>Technical Manager</p> <p>Drilling Operations Manager</p> <p>Technical Manager</p> <p>Civil Engineering Supervisor</p>	<p>Equipment inventory cross-check, site clear of debris.</p> <p>Evidence of waste remains on-site.</p> <p>Well location inspected to ensure compliance to technical specifications.</p> <p>Surface water flow restored, banks cleaned of debris. Culverts, drains, silt-traps, etc removed and graded to surrounding landscape contour specifications.</p>

<p>2. Drilling Location (cont'd)</p>	<ul style="list-style-type: none"> <li>• Cuttings will be dewatered by flocculating content and treating supernatant liquid before discharge. Residual slurry will be neutralised, mixed with lime and buried. Cuttings pit area reclaimed and re-vegetated using native or nursery grown plant and/or tree species to encourage rapid growth (see <i>Table E2</i> for list of suitable plant and tree species during reforestation).</li> <li>• Wellsite will be graded and holes filled to surrounding landscape contour specifications. Stockpiled topsoil will be spread and tilled to encourage plant regrowth.</li> <li>• If no economic quantities of hydrocarbons are found, a full abandonment plan will be implemented including removal of well casing and concrete below surface level to ensure future land use for the Shrivangoreni Native Community.</li> <li>• The location rig will be removed to take out the plastics used for construction.</li> <li>• Concrete platform for communications dish will be broken-up and buried at least one metre below the ground.</li> <li>• Reforestation plan implemented at all cleared areas with native or nursery grown plant and/or tree species to encourage rapid growth. Emphasis will be placed on soil consolidation and ground coverage.</li> <li>• Seedlings growing in adjacent forest stands should, where possible, be transplanted on-site as they are adapted to local conditions.</li> <li>• Native grass, seed and/or bamboo mats should be planted on contoured slopes to encourage rapid plant growth and minimise erosion.</li> <li>• Implementation of a monitoring programme to follow up wellsite recovery and performance of Reforestation Plan. Periodic inspections to ensure execution of the Reforestation Plan.</li> </ul>	<p>Technical Manager Drilling Operations Manager</p> <p>Technical Manager Civil Engineering Supervisor</p> <p>Technical Manager Drilling Operations Manager</p> <p>Civil engineering supervisor Technical Manager Technical Manager Wellsite Manager Technical Manager Civil Engineering Supervisor</p> <p>Civil Engineering Supervisor</p> <p>Civil Engineering Supervisor</p> <p>Technical Manager</p>	<p>Cuttings analysed to ensure treatment efficacy, area inspected to ensure it meets specifications for reclamation work,</p> <p>Evidence of debris and grading of holes.</p> <p>Inspection of well location. Wellsite restored and reclaimed.</p> <p>Evidence of concrete structures. Inspection of location. Presence of vegetative cover at reclaimed locations. Availability of seedlings.</p> <p>Evidence of steep slopes leading to undue risk of erosion. Presence of vegetation and clean area. Monitoring <i>pro forma</i> checklist.</p>
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Table E2

*List of Tree and Native Grass Species Suitable for Reforestation*

Common Name	Scientific Name
<i>Tree Species</i>	
achiete de altura	<i>Bixa SP.</i>
amasisa	<i>Erythrina SP.</i>
atadijo	<i>Trema micrantha</i>
bolaina	<i>Guazuma SP</i>
cana brava	<i>Gynerium ongitatum</i>
cetice	<i>Cecropia SP.</i>
guava del monte	<i>Inga SP.</i>
lupuna	<i>Chorisia SP.</i>
pacae de playa	<i>Inga SP.</i>
pajaro bobo	<i>Tessaria integrifolia</i>
pashaco	<i>Shizolobium SP.</i>
sapote	<i>Matisia cordata</i>
shimbillo	<i>Inga SP.</i>
topa	<i>Ochroma SP.</i>
uvlila del monte	<i>Pourouma SP.</i>
vergonzoza	<i>Mimosa sensitiva</i>
not known	<i>Protium SP.</i>
<i>Grass Species</i>	
Pata de gallo	<i>Eleusine indica</i>
not known	<i>Brachiaria SP.</i>
torurco	Not known



Appendix F

**Drilling Operations  
Department Rigsite Waste  
Management Plan**





**SHELL PROSPECTING AND DEVELOPMENT (PERÚ) B.V.**

**DRILLING OPERATIONS DEPARTMENT  
RIGSITE WASTE MANAGEMENT PLAN**

Document No.: SPDP-97-001

prepared by

 14/01/97  
Craig Schenk - Drilling Superintendent

reviewed by

 15/1/97  
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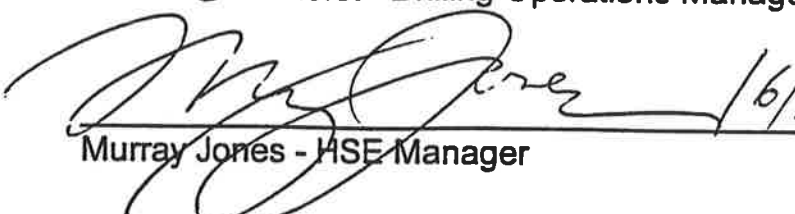
reviewed by

 15/1/97  
Miguel Ruiz Larrea - Env. Community Advisor

approved by

  
Gert van der Horst - Drilling Operations Manager

approved by

 16/1/97  
Murray Jones - HSE Manager



# **Camisea Drilling Campaign Rigsite Waste Management Plan**

## **1.0 Introduction**

The RWMP (Rigsite Waste Management Plan) covers disposal of all wastes on the rigsite itself, with further reference to offsite disposal of those wastes which can not be catered for on the rigsite. Strategies outlined in the RWMP are intended for use in the Camisea Block 88B appraisal/development wells. Applicability to use in exploration drilling outside this area is dependent on individual Environmental Impact Assessments performed in other blocks. This RWMP is based on the equipment currently present on Helmerich and Payne Rig 22, along with associated equipment provided by Schlumberger Integrated Project Management.

## **2.0 Objectives**

The objectives of the Rigsite Waste Management Plan are:

- To provide SPDP, Helmerich and Payne, and Schlumberger IPM with the necessary guidance for the reduction and appropriate management of wastes generated on rigsite.
- To comply with all current Peruvian environmental regulations and with SPDP's waste management specifications as per the Environmental Management Plan and other Shell guidelines.
- To meet world standards on waste management and control.
- To allow integration with the Nuevo Mundo Waste Management Plan, such that wastes which can not be disposed of on rigsite can be properly segregated at source and transported to Nuevo Mundo for further handling and final disposal.

## **3.0 Classification of Waste**

In general, rigsite wastes can be categorized as follows, broken into the main generation sources. Disposal of these various waste types is discussed in the following section.

Paper - any paper waste generated as a result of rigsite activities, inclusive of uncontaminated mud, cement, and chemical sacks, food containers, newspapers, packaging material, etc.

Wood - primarily wooden waste used for palletization of mud and cement or associated chemicals along with packing crates.

Plastic - shrink wrap for mud/cement/chemicals, chemical drums, protective material, inner liners in chemical sacks, kitchen and domestic wastes.

Inert Waste - metal cans, glass jars, various containers, etc. which are not burnable and did not contain toxic or hazardous substances and are not under pressure. A container is defined as EMPTY if less than 1% of the original volume remains when the container is disposed of.

Organic Kitchen Refuse - food scraps from meals and food preparation.

Human wastes ("black water") - wastes gathered from toilet system.

Sewage system sludge - remnants of human wastes from enzyme treatment tank remaining after treatment of sewage.

Shower and Kitchen used water ("gray water") - effluent from showers, baths, and kitchen operations. Grease traps at the kitchen ensure a grease-free effluent.

Kitchen Grease - cooking grease caught in grease traps installed in the gray water stream.

"Hazardous" Liquid Wastes - any liquid wastes, chemicals, or receptacles containing or previously containing hazardous wastes or hazardous raw materials. "Hazardous" by definition is a chemical identified in its MSDS (Material Safety Data Sheet) as being harmful to humans, animals, or the surrounding environment. This also includes such things as volumes of paints, solvents, lubricating oil, antifreeze, etc.

"Hazardous" Solid Wastes - mud, cement, or testing chemicals, containers holding or previously holding volumes of hazardous chemicals, batteries, etc. Wastes are designated as hazardous if their MSDS (Material Safety Data Sheet) indicates they are harmful to humans and/or the environment. Additionally, used medical wastes (bandages, syringes, etc.) are classified as hazardous.

Contaminated Soils - Soils contaminated by any substance defined as hazardous are themselves designated as "Hazardous".

Hydrocarbon Wastes - waste oils such as from oil changes or leakage from equipment or storage tanks. Used oil (from engine oil changes) is designated as "HAZARDOUS".

Produced Hydrocarbons - gas or condensate produced during well testing.

Incinerator Ash - ash resulting from incineration of allowed materials.

Drill Cuttings - drilled formation cuttings, consisting of shales, sands, and carbonate lithologies.

Drilling Fluids - fluids used in the drilling or completion of the wells.

Once a waste item is identified and classified, it must be disposed of in an approved manner. Care must be taken to ensure that the waste is properly categorized to ensure that the appropriate disposal method is selected.

#### **4.0 Definition of Disposal Options**

The following disposal options are available on site:

Incineration - waste treatment technology involving the disposal of waste by controlled burning at high temperatures. Safe, inert residue (ash) can then be safely disposed of in landfill.

Landfill - disposal site for non-hazardous inert solid waste, compacted to the smallest practical volume. All landfilling will take place in Nuevo Mundo.

Offsite Disposal - Hazardous wastes, wastes to be landfilled, and any other wastes which can not be handled at the rigsite will be removed to Nuevo Mundo for further processing.

Compaction - volume reduction by means of hydraulic press.

Produced Hydrocarbon Flaring - a flare designed and manufactured by the Expro Group to be environmentally friendly will be used for well testing purposes. This flare requires a very small clearance radius (app. 5m, as opposed to 50m+ for a conventional flare) due to its low operating temperature, non-visible flare, and minimal noise generation. Produced condensate will be flared via a conventional Spitfire burner system.

Cuttings Solidification - Drilled cuttings will be mixed with native earth, incinerator ash, and an absorbant polymer to create an inert, stable, non-leeching solid which can then be buried.

Sewage Disposal Unit - A biodegradation sewage treatment plant will be situated on rigsite. Effluent liquids and gray water are chlorinated to eliminate coliform bacteria prior to discharge to the environment; these can be further treated in the solids removal/flocculation unit described below. Remnant

sludge, after being certified as being non-hazardous (free from heavy metal residues) will be buried on site.

Solids Removal/Flocculation System - Brandt/EPI's solids control and flocculation systems will be used to efficiently remove solids from the drilling mud system, thus reducing overall mud requirements through minimization of dumping and diluting the system. Additionally, liquid effluent will be flocculated and centrifuged such that it can be recycled into the system. As required, excess volumes will be treated to standards as per Appendix 3 and discharged to the environment. This system will also be used to treat gray or black water, which is piped from the campsite Red Fox unit into the solids control system chemical treatment tanks, prior to discharge.

Containment and Collection - Three systems of berms and ditches are used on rigsite to allow containment of any potential spills of lubricating, hydraulic, or fuel oils. All fuel cells, tanks, bladders, etc. are surrounded by plastic lined berms of a minimum volume of 110% of the actual tank volume contained within the berm. Secondly, all rig equipment and areas with potential for leakage are surrounded with a closed loop, concrete lined ditch system which terminates in a skimming tank which separates oil, water, and solids (silt, mud solids, etc.). Clean water is then discharged from the overflow, with oil skimmed off and collected in barrels for removal to Nuevo Mundo. This is a backup system to the enclosed drip trays and covering roofs used to contain any leakage/spillage and to reduce ingress of rainwater into the system, respectively. Finally, the entire location is surrounded by a plastic lined ditch and berm system equipped with oil and silt traps, designed to prevent ingress of rain water onto location and to trap any oil and silt washed off of location. As with the previous system, clean water is siphoned off and the oil skimmed and collected in barrels for removal to Nuevo Mundo.

Re-injection - Disposal of fluids into shallow formations via the well annulus is not feasible on the first well due to the nature of the sidetrack casing design. However, on future wells the casing and cementing schemes will be designed to allow for annular injection of fluids used during the drilling of the wells, primarily drilling muds and completion brines. In some Opco's, drilled cuttings have also been successfully slurrified and injected into well annuli, though for Camisea this is viewed as a longer-term option. Further study will be required to ensure applicability of this technology, both for fluids and for cuttings.

Landfilling is a disposal option which will be used in Nuevo Mundo, but is not allowed on rigsite.

Appendix 1 lists the various waste types and their corresponding disposal methods.

## **5.0 Labelling of Wastes**

The aim of the rigsite disposal options is to minimize the volume of waste which must be processed offsite. Any wastes which can not be dealt with on site will be removed to Nuevo Mundo for further handling. If applicable, these wastes will be compacted and sealed in plastic bags with the following color coding:

- Blue - Normal Wastes which can be landfilled in Nuevo Mundo
- Red - Hazardous Wastes requiring special treatment elsewhere

Any goods which can not be compacted, e.g. batteries, potentially explosive chemical containers, pressurized containers, used medical wastes, liquid wastes, etc. will be sealed and/or placed in sealed containers and labelled with contents and color coded as per the above. In addition to the above color coding and labelling, any hazardous substance to be transported and disposed of offsite will also be marked "TOXICO".

## **6.0 Compliance Monitoring**

The Shell Site Manager (Drilling Supervisor) is accountable for monitoring and ensuring that the Rigsite Waste Management Plan is adhered to. The rig medic is responsible for monitoring effluents from the sewage treatment to ensure that discharges are to the attached standards (see Appendix 3). The EPI/Brandt solids control engineer is responsible for ensuring that effluent discharge from the drilling fluids control system also complies with the attached standards. The Helmerich and Payne Toolpusher is responsible for ensuring that the onsite containment and collection systems are in good working order and functioning properly. Discharges must cease if fluid properties are outwith the stipulated specifications.

Additionally, Walsh Perú S.A. has been contracted to perform periodic quality monitoring of discharged effluent (treated water) at both the rig and camp, as per their Proposal PRP-1064. Finally, a 3-monthly audit to confirm conformance with DGH document D5046-93EM will be conducted by an independent auditing company on behalf of the Ministry of Energy and Mines.

## **7.0 Monitoring of Waste Volumes**

Again, the Shell Site Manager will be held accountable for overall monitoring and recording of rig and campsite effluents of all types, both liquid and solid. These recorded volumes will be used as baselines for reduction of waste generation in future operations, and will be forwarded to the HSE department monthly.

Particularly, hazardous wastes will be recorded in a logbook on rigsite and labelled with type of waste. When these wastes are sent to the Nuevo Mundo staging area, the recipient of the wastes in Nuevo Mundo will confirm receipt of the wastes by return fax to the Shell Site Manager.

## **8.0 Waste Reduction**

Waste reduction efforts concentrate on reuse, recycling, minimization of packaging material, reduction in size of waste material, and finally reduction of time spent on location via optimization of drilling efforts.

Reuse and recycling are primarily methods which can be used if others involved in the project require used drilling materials. Primarily, this includes reuse of wooden pallets and liquid chemical containers in Nuevo Mundo.

Minimization of waste material centers around reducing packaging materials. Use of large packaging, such as bulk cement, barite, or bentonite (1 or 1.5 MT recyclable bags as opposed to 100 lb sacks).

Size of the waste material will be reduced via onsite compaction. This will reduce the number of helicopter flights required for waste removal, as well as reducing the size of the landfill required in Nuevo Mundo. Additionally, waste volumes will be minimized by ensuring that all contents of containers will be used during the course of the work, as opposed to leaving partially full receptacles to be disposed of at a future date.

As the drilling learning curve is established, time based on each well is expected to be reduced. Through simple reduction in time, overall waste on site is reduced via minimization of materials used.

## **9.0 Special Concerns**

Plastic containers, especially those used for mud and cementing chemicals, are prime targets for use as water containers. As some of these contain substances which can be harmful to humans, care must be taken to ensure that they are not removed from rigsite intact. In general, after emptying chemical containers which did not contain hazardous substances, the container is to be punctured and eventually compacted and sent to Nuevo Mundo for landfilling.

The rigsite does not have facilities for rinsing chemical drums/containers which contained hazardous chemicals. These containers should be fully emptied, labelled with contents, and removed to Nuevo Mundo for further handling and disposal.



Discharge water salinity must be closely monitored with fresh water dilutions as required to ensure discharges are within specification as per Appendix 3.

Used medical wastes, inclusive but not limited to bandage material, syringes, etc., are to be collected in a special collection drum to minimize manual handling. Contents of the drum are to be labelled as hazardous medical waste and shipped directly to Nuevo Mundo without compaction onsite.

## **Reference Materials**

1. EP 96-0690, "Camisea Appraisal Drilling Campaign: Environmental Impact Assessment"
2. EP 96-0695, "Camisea Appraisal Drilling Campaign: Environmental Management Plan"
3. Drilling Operations 1997 HSE Plan (Draft)
4. Controlled Document No. PM-96-001, "Drilling and Well Services HSE Case"
5. Peruvian Decreto Supremo N° 046-93-EM, "Reglamento para la Proteccion Ambiental en las Actividades de Hidrocarburos"
6. The E&P Forum Report No. 2.58/196, Sept. 1993, "Exploration and Production (E&P) Waste Management Guidelines".
7. HSE Manual EP 95-0390, "Waste Management Guidelines"
8. HSE Manual EP 95-0391, "Classifying Waste"
9. Walsh Proposal No. PRP-1064, October 17, 1996, "Environmental Monitoring Program, Camisea Environmental Drilling Campaign, Shell Prospecting and Development (Perú)"
10. Resolucion Directoral No. 030-96-EM/DGAA, "Aprueben los Niveles Máximos Permisibles para efluentes líquidos producto de actividades de explotación y comercialización de hidrocarburos líquidos y sus productos derivados"
11. "Camisea Development Project Health, Safety, and Environmental Program for Cosapi S.A.", Walsh Project Number 2384-101 dated 04/09/96.

DESCRIPTION OF WASTE	DISPOSAL OPTION
<p>1. <b>Asbestos</b></p> <p>Asbestos is a mineral fiber that is found in many types of building materials. It is a known carcinogen and can cause lung cancer and mesothelioma. Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p> <p>Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p> <p>Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p>	<p>Asbestos is a mineral fiber that is found in many types of building materials. It is a known carcinogen and can cause lung cancer and mesothelioma. Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p> <p>Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p> <p>Asbestos is found in many types of building materials, including asbestos-containing materials (ACM), asbestos-containing products (ACP), and asbestos-containing waste (ACW).</p>

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## APPENDIX 2

## CEMENTING CHEMICALS

PRODUCT NAME	PRODUCT CODE	PURPOSE	CHEMICAL MAKEUP	PACKAGING	HAZARDOUS (Y/N)
BENTONITE	D020	EXTENDER	BENTONITE / CRYSTALLINE SILICA	100 lb sack	N, (H0/F0/R0)
KOLITE	D042	LOST CIRCULATION CONTROL	GROUND COAL	50 lb sack	N, (H2/F3/R0)
ANTIFOAM AGENT	D047	ANTIFOAM AGENT	PROPANEDIOL POLYMER w/METHYLOXIRANE	5 gal / pail	N, (H1/F1/R0)
TIC DISPERSANT	D065	DISPERSANT	SODIUM POLYNAPHTHALENE SULFONATE	50 lb sack	N, (H2/F1/R0)
SILICATE ADDITIVE	D075	CEMENT EXTENDER / ZONELOCK ADD	SODIUM SILICATE	54 gal drum	N, (H2/F0/R0)
RETARDER	D110	CEMENT RETARDER	GLUCOSIDE DERIVATIVE / WATER	5 gal / pail	N, (H0/F1/R0)
RFC AGENT	D111	AGENT FOR TIXOTROPIC CEMENT SLURRIES	INORG. SALT -SULPHANATE/SULPHURIC ACID	54 gal drum	N, corrosive (H2/F0/R0)
FLAC	D112	FLUIDLOSS CONTROL ADDITIVE	HYDROXY-ETHYL-CELLULOSE / SODIUM NITRATE	50 lb sack	N, water slick (H2/F3/R0)
CHEMICAL WASH	D122A	MUD THINNING / DISPERSING	AROMATIC ALCOHOL GLYCOL ETHER / DODECYLBENZENE SULFONIC ACID / PROPAN-2-OL / DIMETHYL SILOXANES AND SILICONES / DIMETHYL SILOXANES AND SILICONES / DIMETHYL SILOXANES AND SILICONES / GLUCOSIDE POLYMER / ORGANIC PHOSPHORUS DERIVATIVE / BENTONITE / CRYSTALLINE SILICA	5 gal / pail	Y, Toxic to aquatic organism (H2/F1/R0)
ANTIFOAM AGENT	D144	ANTIFOAM AGENT	GLUCOSIDE POLYMER / CRYSTALLINE SILICA	5 gal / pail	N, (H1/F1/R0)
MUDPUSH XL	D149	SPACER	AMIDE POLYMER	25 lb sack	N, water slick (H0/F3/R0)
ANTI SETTLING AGENT	D153	SUSPENDING AGENT	GLUCOSIDE POLYMER / CRYSTALLINE SILICA	25 lb sack	N, (H2/F3/R0)
FLAC	D160	FLUID LOSS CONTROL	AMIDE POLYMER	50 lb sack	N, water slick (H0/F1/R0)
GASBLOK	D800	GAS MIGRATION CONTROL ADDITIVE	AROMATIC POLYMER	54 gal drum	N, (H0/F1/R0)
RETARDER	D800	CEMENT RETARDER	AROMATIC POLYMER DERIVATIVE	55 lb sack	N, (H2/F3/R0)
CLASS G CEMENT	D907	CEMENT	PORTLAND CEMENT	100 lb sack	N, dust (H0/F0/R0)
CLASS H CEMENT	D809	CEMENT	PORTLAND CEMENT	94 lb sack	N, dust (H0/F0/R0)
CALCIUM CHLORIDE	S001	ACCELERATOR	CALCIUM CHLORIDE	110 lb sack	N, (H1/F0/R1)

## APPENDIX 2

## MUD CHEMICALS

PRODUCT NAME	PRODUCT CODE	PURPOSE	CHEMICAL MAKEUP	PACKAGING	HAZARDOUS (Y/N)
BARITE	C100	WEIGHTING AGENT	BARIUM SULFATE	100 lb sack	N, (H0/R0/F0)
BENTONITE	C101	VISCOSIFIER - FLUID LOSS REDUCING AGENT	BENTONITE / CRYSTALLINE SILICA	100 lb sack	N, water slick (H0/F0/R0)
CALCIUM CARBONATE	C376	WEIGHTING AGENT - BRIDGING AGENT	CALCIUM CARBONATE	50 lb sack	N, (H0/F0/R0)
CAUSTIC	C104	pH CONTROL	SODIUM HYDROXIDE	50 lb sack	N, corrosive (H3/F0/R1)
LIME	C107	pH CONTROL - BICARBONATE CONTAMINATION	CLACIUM HYDROXIDE	50 lb sack	N, dust (H1/F0/R0)
SODA ASH	C109	CALCIUM CONTAMINATION DUE TO ANHYDRITE	SODIUM CARBONATE	100 lb sack	N, dust (H1/F0/R0)
SODIUM BICARBONATE	C110	CALCIUM CONTAMINATION DUE TO CEMENT	SODIUM HYDROGEN CARBONATE	100 lb sack	N, dust (H1/F0/R0)
POTASSIUM CHLORIDE	C286	SOURCE POTASSIUM IONS	POTASSIUM CHLORIDE	110 lb sack	N, dust (H1/F0/R0)
ACETIC ACID (10%)	L802	pH CONTROL	ACETIC ACID / WATER	55 gal drum	N, (H2/F1/R0)
DEFOAMER	C552	FOAM CONTROL	POLYOLS / WATER	5 gal pail	N, slick (H0/F1/R0)
FLR REGULAR	C121	FLUID LOSS ADDITIVE	POLYGLUCOSIDE DERIVATIVE (80 - 100%)	50 lb sack	N, water slick (H0/F3/R0)
FLR XL	C122	FLUID LOSS ADDITIVE	POLYGLUCOSIDE DERIVATIVE (60 - 100%)	50 lb sack	N, water slick (H0/F3/R0)
IDFLO	C118	LOW VISCOSITY FLUID LOSS ADDITIVE	GLYCOSIDE (80 - 100%)	50 lb sack	N, (H0/F3/R0)
CMC HV TG	C153	FLUID LOSS REDUCING AGENT	SODIUM CARBOXY METHYL CELLULOSE	50 lb sack	N, water slick (H0/F1/R0)
IDVIS	C254	VISCOSIFIER	GUM, XANTHAN	50 lb sack	N, water slick (H0/F1/R0)
XCD	C314	VISCOSIFIER	GUM, XANTHAN	25 lb sack	N, water slick (H0/F3/R0)
IDBOND P	C175	SHALE STABILIZER	ALIPHATIC AMINE POLYMER / ALIPH. AMIDE	55 lb sack	N, water slick (H0/F1/R0)
IDTHIN 500	C252	DEFLOCCULANT - ANTIGELLANT	ORGANIC POLYMER / WATER	5 gal pail	N, (H0/F1/R0)
CF LIGNOSULFONATE	C147	ORGANIC THINNER DISPERSANT	LIGNOSULFONIC ACID / IRON SALT	50 lb sack	N, (H1/F3/R0)
LIGNITE	C103	DISPERSANT - FLUID LOSS CONTROL	HUMIC ACID, SODIUM SALT	50 lb sack	N, water slick (H0/F1/R0)
IDTEX W	C123	FLUID LOSS REDUCER - SHALE STABILIZER	ORGANIC MINERAL / AROMATIC POLYMER	50 lb sack	Y, dust (H1/F1/R0)
IDLUBE	C230	LUBRICANT	FATTY ACID DERIVATIVE	55 gal drum	N, (H0/F1/R0)
IDFREE NT	C209	STUCK PIPE FREEING AGENT	SALT OF AMINE ACID / WATER	55 gal drum	N, (H1/F0/R0)
IDFILM 820x	C203	CORROSION INHIBITER	METHANOL HETEROCYCLIC DERIVATIVES 30 - 60% ALIPHATIC AMINE DERIVATIVE 7 - 13% AMMONIUM BISULFITE 1 - 5% 5-chloro-2-methyl-2H-isothiazolol-3-one 5.4 % 2-methyl-2H-isothiazolol-3-one 1.8% non-crystalline silica 93 %	65 gal drum	Y, Harmful to aquatic organism / flammable (H2F3/R0)
IDCIDE P	C117	BACTERICIDE		6 lb can	Y, Toxic to aquatic organism (H3F0/R0)
IDZAC L	C280	H2S SCAVENGER	ZINC SALT OF ALIPHATIC ACID	5 gal pail	Y, Toxic to aquatic organism (H1/F1/R0)
HEC	C227	VISCOSIFIER	HYDROXYETHYL CELLULOSE/ SODIUM NITRATE	50 lb sack	N, water slick (H2F3/R0)
KWIK SEAL - FINE	C288	LOST CIRCULATION MATERIAL	PLANT FIBER	40 lb sack	N, (H0/F1/R0)
KWIK SEAL - MEDIUM	C286	LOST CIRCULATION MATERIAL	PLANT FIBER	40 lb sack	N, (H0/F1/R0)
MICA FINE	C111	LOST CIRCULATION MATERIAL	MICA	50 lb sack	N, (H0/F0/R0)
MICA MEDIUM	C111	LOST CIRCULATION MATERIAL	MICA	50 lb sack	N, (H0/F0/R0)
WALNUT SHELLS FINE	C310	LOST CIRCULATION MATERIAL	NUT SHELL	50 lb sack	N, (H0/F1/R0)
WALNUT SHELLS MED	C310	LOST CIRCULATION MATERIAL	NUT SHELL	50 lb sack	N, (H0/F1/R0)
TECH SEAL	C289	LOST CIRCULATION MATERIAL	PLANT FIBER	30 lb sack	N, (H0/F1/R0)

## APPENDIX 2

## RIG AND FLUIDS TREATMENT

PRODUCT NAME	PRODUCT CODE	PURPOSE	CHEMICAL MAKEUP	PACKAGING	HAZARDOUS (Y/N)
MOTOR OIL	RIMULAX X	LUBRICANT	MINERAL OIL PLUS ADDITIVES	55 GAL DRUM	NO *
HYDRAULIC FLUID	SHELL TELLUS	HYDRAULIC POWER SYSTEMS	MINERAL OIL PLUS ADDITIVES	55 GAL DRUM	NO *
TRANSMISSION FLUID	SHELL DONAX TC	LUBRICANT	MINERAL OIL PLUS ADDITIVES	55 GAL DRUM	NO *
GEAR OIL	SHELL SPIRAX HD	LUBRICANT	MINERAL OIL PLUS ADDITIVES	55 GAL DRUM	NO *
GREASE	SH. RETINAX AM	LUBRICANT	MINERAL OIL PLUS ADDITIVES	5 G CAN/CART	NO *
TOOL JOINT/DRILL COLLAR DOPE	KOPR-KOTE	CONNECTION LUBRICANT/SEALER	PETROLEUM GREASE WITH COPPER	5 GAL CAN	YES, FOR DISPOSAL PURPOSES
SOLVENTS	LECTRA-CLEAN	CLEANER	TRICHLOROETHANE, DIOXOLANE, BUTANOL	SPRAY/DRUM	YES
PAINT	NATIONAL BLUE	PAINT	MINERAL SPIRITS, ETHYLBENZENE, XYLENE, ISOBUTYL ALCOHOL, SILICA, TITANIUM DIOXIDE, COPPER PHTHALOCYANINE BLUE	1 GAL CAN	YES
PAINT THINNER	STODDARD SOLVENT	THINNING PAINT	MINERAL SPIRITS (STODDARD SOLVENT)	1 CAL CAN	YES
FIREFIGHTING AGENTS	ABC DRY CHEM	EXTINGUISHING FIRES	MONO AMM. PHOSPHATE/AMMON. SULFATE	5 GAL BUCKET	NO
FIREFIGHTING AGENTS	CHEM GUARD 3%	EXTINGUISHING FIRES	FLUOROCARBON/HYDROCARBON SURFACTANTS AND SOLVENTS	5 GAL BUCKET	NO
INSECT SPRAYS	BAYGONE	KILLING INSECTS	SOLVENT, PROPELLANT, DICLORVOS, TRANSFLUTHREIN	SPRAY/DRUM	NO
SURFLOC	1015/2515	WATER TREATMENT	ANIONIC POLYMER	25 KG SACK	NO
CAL HYPO	UN2880	WATER TREATMENT	CALCIUM HYPOCHLORITE	25 KG SACK	YES
ALUM		WATER TREATMENT	ALUMINUM SULFATE	25 KG SACK	YES
ULTRION 8187		WATER CLARIFICATION	ALUMINUM HYDROXYCHLORIDE	25 KG SACK	NO
DIESEL		FUEL FOR GENERATORS/EQUIPMENT	DIESEL	TANK/BLADDER	YES
POLYMER BINDING MATERIAL	DR-S1	BINDING DRILL CUTTINGS	CROSSLINKED ACRYLAMIDE POTASSIUM ACRYLATE COPOLYMER	25 KG SACK	NO

\* USED OILS AND GREASES OF ALL VARIETIES ARE TO BE COLLECTED, LABELLED, AND REMOVED TO NUEVO MUNDO FOR DISPOSAL

### Appendix 3

#### Limits for Process Wastewater, Domestic Sewage and Contaminated Storm Waste for Discharge to Surface Waters and to Land

<u>Pollutant/Parameter</u>	<u>Limit</u>
pH	6-9
BOD <sub>5</sub>	50 mg/l
Chemical oxygen demand (COD)	250 mg/l
Oil and grease	10 mg/l
Total suspended solids (TSS)	50 mg/l
Chlorides	250 mg/l
Heavy Metals, total	10 mg/l
Metals, specific	
• Arsenic	0.1 mg/l
• Cadmium	0.1 mg/l
• Chromium, total	0.5 mg/l
• Copper	0.5 mg/l
• Lead	0.1 mg/l
• Mercury	0.05 mg/l
• Nickel	0.5 mg/l
• Selenium	0.1 mg/l
• Silver	0.5 mg/l
• Zinc	2.0 mg/l
Ammonia	50 mg/l
Cyanide, total	1.0 mg/l
Flouride	20 mg/l
Phenols	0.5 mg/l
Phosphorous	5.0 mg/l
Barium	3.0 mg/l
Sulfide	1.0 mg/l
Coliforms	Less than 400 MPN/100 ml (MPN=Most Probable Number)
Temperature, at edge of zone where initial mixing takes place	Max 3 deg C. above ambient temp of receiving waters

Allowable levels as per IFC Environmental Guidelines - General, September 15,1995.

Additional information as per Resolucion Directoral 030-96-EM/DGAA





Appendix G

**IFC/World Bank Limits for  
Discharges to Surface Waters**



Table G1

*IFC/World Bank Limits for Discharge to Surface Water<sup>(1)(2)</sup>*

Pollutant	Limit
pH	6-9
BOD <sub>5</sub>	50 mg/l
Chemical oxygen demand (COD)	250 mg/l
Oil and grease (TSS)	10 mg/l
Total suspended solids (TSS)	50 mg/l
Heavy Metals, total	50 mg/l
Metals, specific	
Arsenic	0.1 mg/l
Cadmium	0.1 mg/l
Chromium, total	0.5 mg/l
Copper	0.5 mg/l
Lead	0.1 mg/l
Mercury	0.05 mg/l
Nickel	0.5 mg/l
Selenium	0.1 mg/l
Silver	0.5 mg/l
Zinc	2.0 mg/l
Ammonia	50 mg/l
Cyanide, total	1.0 mg/l
Fluoride	20 mg/l
Phenols	0.5 mg/l
Phosphorus	5 mg/l
Sulfide	1.0 mg/l
Coliforms	Less than 400 MPN/100 ml (MPN - Most Probable Number)
Temperature, at edge of zone where initial mixing takes place	Max 3°C above ambient temperature of receiving waters

(1) From the Environmental Directorate of the IFC - 15 September 1995

(2) The limits noted in this table are considered, by the World Bank and IFC, as the minimum specifications which all projects should fulfil in the discharge of products to surface waters and soil. Depending on the capacity of the receiving waters or the level of take up by soils, it may be necessary to apply more stringent specifications than those listed here. For the discharge of residual treated water to the Rio Urubamba, at Nuevo Mundo, additional specifications will be applied with regard to the levels of coliforms in the receiving waters.

