Government of Pakistan
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Sectoral guidelines for environmental reports — Oil and Gas Exploration and Production

Contents

SECTORAL GUIDELINES FOR ENVIRONMENTAL REPORTS
OIL AND GAS EXPLORATION AND PRODUCTION

1. INTRODUCTION

1.1 Scope of Guidelines

This guideline identifies and explains issues that should be addressed for a proposal involving exploration for, or production of, oil and gas. It is important to focus on key issues for specific proposals. The matters identified in this guideline should provide guidance for the preparation and assessment of most exploration and production proposals. It is intended that Companies involved in Oil and Gas Exploration and Production will self-regulate and undertake monitoring to meet or exceed the provisions of the Package and these sectoral guidelines: the Responsible Authority reserves the right to spot check field operations from time to time.

Part A of this guideline addresses exploration, while **Part B** addresses production.

1.2 Context

This guideline is part of a package of regulations and guidelines which include:

- The Pakistan Environmental Protection Ordinance 1997
- Policy and procedures for filing, review and approval of environmental assessments
- Guidelines for the preparation and review of Environmental Reports
- Guidelines for public participation
- Guidelines for sensitive and critical areas
- Pakistan environmental legislation and the National Environmental Quality Standards (NEQS)
- Sectoral guidelines for environmental reports: ***Oil and gas exploration and production***

This guideline should be read in the context of the overall package.

The requirements of the Guidelines for Operational Safety, Health & Environmental Management (Directorate General of Petroleum Concessions, December 1996) are also to be observed. It is anticipated that the regulatory role of the DGPC will be transferred to the new Petroleum Regulatory Board by 1998.

1.3 Environmental Approval

For exploration activities, including surveying, seismic surveys, exploration drilling and production testing, neither an IEE nor an EIA should be required providing the proponent:

(1) undertakes all activities in accordance with the provisions of this guideline;
(ii) is not within or adjacent to a sensitive and critical area:
(iii) submits a brief statement of the location and scale of the proposed activity (see Appendix 2)
(iii) has demonstrated environmental sensitivity, through proof of good practice on previous exploration activities: and
(iv) obtains an Environmental Approval from the Responsible Authority, and signs the Environmental Agreement.

In the event that a proponent fails to undertake the work in accordance with these guidelines, the Environmental Approval will become null and void, and the Directorate of Petroleum Concessions will take action to ensure no further grant of Petroleum Rights are provided to the company until full restoration of the environmental damage is completed. Close cooperation between the Directorate of Petroleum Concessions and the Responsible Authority will be maintained in the approval and monitoring processes.

Typical conditions for Environmental Approval will include any special monitoring conditions, and the need for the Proponent to guarantee to repair any environmental damage. If the Proponent has not established a good track record in Pakistan, a monetary bond may be required, to be returned at the end of operations when any environmental damage has been repaired.

2. SECTOR OVERVIEW

Success by the Oil and Gas industry in exploring for oil and gas in Pakistan will result in the country being less dependent on imported energy sources, and being more self sufficient in the future. Oil and gas exploration takes many forms. After a concession has been awarded by the DGPC, the Concessionaire has a specified period of time in order to perform a minimum number of activities. These activities may include some or all of the following:

- running seismic surveys;
- drilling stratographic test holes;
- drilling exploration wells;
- drilling appraisal wells and tested them.

Drilling activity is undertaken with a drilling rig with large engines for pumping mud and powering the draw works. A hole is drilled by rotating a bit on the end of the drill pipe and the circulation of drilling mud. Casing is often cemented in lace over much of the well depth.

The potential impacts include the effects of providing access and road building (including the impacts of helicopter noise, increasing heavy vehicular traffic, erosion of cleared slopes, and disruption of drainage patterns), undertaking the seismic tesing, clearing and levelling of the drilling sites and adjacent camps, well testing (including the impacts of flaring, noise, light at night, odour from H2S, black smoke and unburned liquid spillage), groundwater changes, release of liquids and gases into the air and land, disposal of drilling and camp wastes, and the possible abandonment and restoration of the wells and camp sites.

3 IMPACTS AND MITIGATION MEASURES

3.1 Surveying

Geological and lurveying is an early activity in any exploration program, and is undertaken to better understand and evaluate the potential of the concession area, and to provide a topographic reference system for future operations and analysis.

Surveying may be undertaken by tradition land based methods using theodolites, geodometres and the like, or by global positioning technology involving satellites. Whichever method is used, access to the land for identifying reference points is needed, and care should be taken to avoid damaging indigenous flora, or disturbing wildlife. In particular, where access for vehicles is required, or line of site needed for traditional survey methods, every effort should be taken to avoid any destruction of local vegetation, by looking for alternative reference points which do not require such clearing.

Waste materials associated with the survey should be carefully collected and buried or re-used.

3.2 Seismic operations

Seismic surveys are an essential feature of oil and gas exploration, and can have extremely low impacts on the environment if carefully planned. An individual seismic survey consists of placing a small explosive charge below the surface of the ground (or using a Vibroseis, a heavy vibrating mass mounted on a truck bed), and placing pressure sensitive instruments in lines radiating from the energy source. The location of the energy source and the measuring points are carefully surveyed, so that the information concerning the time elapsed between the originating shock wave and its arrival at the various measuring points (either directly, or as a result of reflections from underlying stratas) can be systematically analysed, providing data on the structure of the underlying geological formation. Data from this activity is analysed before choosing drilling locations.

Impacts arising from seismic survey are associated with the access to the sites, any clearing for surveying the seismic lines, the possibility of disturbing sensitive fauna, and the production of waste and litter associated with the work.

Care should be taken in deciding the precise position of seismic lines to avoid any unnecessary disturbance or clearing of vegetation, and in particular to avoid heavily treed areas. If isolated stands of vegetation are on the direct line of site along a seismic line, access should be arranged so that it avoids the vegetation. Similarly, survey techniques should be used which avoid the necessity for direct line of site clearing.

If there are any known habitats of rare or endangered species, consideration should be given to undertaking seismic testing at a season which avoids sensitive mating or nesting periods. The measures for the avoidance of waste and litter given in Section 4.15 below should also be observed during seismic operations.

3.3 Land use

The preliminary survey should identify any land uses which may be detrimentally affected if disturbed. While the reader is referred to the "*Guidelines for sensitive and critical areas*" for procedures to follow if a protected area is involved, other sensible precautions should also be taken to avoid impacting more routine land uses such as settlements and cropping. The location of sites for construction camps, equipment storage and wells should be sensitive to the existing land use, and the views of the local community should be taken. Often the owner of substantial holdings in the area may not live locally, and in such circumstances consultation with the land owner will be essential. A suitable buffer distance between camp, storage and drilling sites, and any settlement (e.g. desirably 500 metres, or more depending on the particular circumstances and prevailing winds) should be provided. Where such separation is not possible, consideration should be given to temporary or permanent resettlement of the community that would be impacted.

Where private land is impacted, appropriate compensation measures should be agreed with the land owners. Often the method of securing land tenure for an exploration well sites is through a one year lease, which may be reviewed if the exploration well is to become a production well.

3.4 Well site location and preparation

Site selection for the drill rig is extremely important. The exploration company will want to develop a relatively flat site inside a relatively narrowly defined target area. However, environmental factors must also be taken into consideration at this stage in relation to such matters as proximity of human settlement, local flora and fauna, water sources and ground water tables, and their possible contamination. Construction activities at a rig site usually involve the movement of large amounts of earth to ensure

- the necessary flat site for the rig site, storage and the camp site;
- adequate depth for the waste pits.

Well site preparation is also the phase of activity when most impact is likely to the environment. The site is levelled, usually fenced and the location is prepared for the various elements which are required to support drilling activity i.e.:

the drill platform
waste pits
camp site
water storage for exploration and potable water for camp use
storage area for rig site equipment
storage areas for chemicals, mud, fuel etc.
sewerage disposal and solid waste disposal sites
power generation
flare pit

Employment at this stage will be at its maximum with the use of unskilled labour from local villages. There will also be the need to temporarily house the construction workers of the contractors preparing the site usually on an area adjoining the site. Without proper planning for the camps (both construction and rig site operation) and the rig site layout, there can be serious threat to the environment and to health and safety.

3.5 Camp for exploration operations

For the camp which is constructed to house workers involved in the exploration activity an appropriate separation distances should be provided between incompatible uses (sleeping, recreational, eating and ablution areas and storage of dangerous materials). Septic tanks or other approved sewage disposal methods should be employed and waste materials from the kitchens and all activities should be collected and disposed of, either by re-use or by burial in a designated location in purpose built pits. Such pits shall be located and constructed so as to avoid leaching to ground water if they are adjacent to any domestic water supply, and shall be covered with at least one metre of soil (finished to match the existing ground level) when full or such time as the camp is abandoned.

The wastewater system shall be designed to have enough capacity to accommodate any rainwater run-off from the camp area that is collected, and the septic tanks will be covered to prevent overflow or access to insects and animals.

3.6 Road location, construction and maintenance

Careful siting of roads is essential if damage to natural systems is to be minimised, particularly in areas of poor soil structure and concentrated rain events, which are quite typical of areas where oil and gas exploration is carried out. Environmental damage can result from erosion and scouring along the road embankment, and from the changed drainage patterns which can result when a constructed road intersects the natural run-off of storm water.

Longer terms impacts, both positive and negative, can result from road construction and upgrading. Local access to markets can be improved, and new road alignments should be discussed with local communities to ensure that likely benefits are realised. On the other hand, new roads can open up fragile areas of forest and fauna habitat to timber harvesters (legal or illegal) and to hunters. Where such impacts are likely, consultation with the relevant Forest and Wildlife Departments should be undertaken to determine measures to minimise such threats. Other relevant Departments should also be notified, so that they can take any necessary measures, and make their requirements known to the proponent.

Movement of vehicles along unsealed roads will result in dust emission, noise and physical danger from vehicular accidents. A minimum distance of 100 metres, wherever possible, should be provided between roads and sensitive receptors (such as houses, hospitals, schools and markets).

The general measures to mitigate environmental damage from road construction include:

- aligning the road to follow natural contours wherever possible (which will usually also minimise earthwork costs);
- avoiding construction on steep slopes and unstable soils, wherever possible;
- ensuring that natural drainage is not blocked by road works, by providing culverts where necessary to allow the free flow of storm water;
- monitoring the road works and drainage during heavy rainfall events, to determine any problems that need rectification;
- if for any reason it is not possible to maintain the 100 metre separation distance from any sensitive receptor, the unsealed road surface near the sensitive receptor should be sprinkled with water sufficiently often to minimise any loss of amenity.

The Sectoral Guideline—Major Roads should also be consulted.

3.7 Drilling activities

Drilling activities which may result in adverse environmental impacts include the potential effects on groundwater; the requirement for water supply for drilling; noise and air pollution resulting from power generation, and the handling and use of drilling mud, including the storage and handling of hazardous chemicals used as additives to the drilling mud. These activities are detailed in the sections below.

3.8 Ground water and water supply

A typical exploration well may require in the order of 100–150 m^3/day of fresh water for the duration of drilling. This period will vary depending on the depth and difficulty of drilling, but can vary from some weeks to six months or a year in extreme cases. In addition the construction camp will require water for washing, cooking and cleaning. A survey of available water sources will determine if sufficient water is available locally, or whether other arrangements are necessary.

Care should be taken that in providing water to the operation, the existing supply of water for the needs of the local community, for both domestic and crop use, is not affected. Re-use of water from the waste pits will also assist in reducing the requirements for fresh water. Similarly any impact on springs and other natural sources of water used by fauna in the area should not be compromised. Wherever possible, water should be transported by pipeline, to avoid road tanker impacts. Where new water sources are developed, such sources should be shared with the local community, and handed over to them at the completion of the program.

The possible pollution of ground water sources from waste pit contamination is an important consideration. Existing water table levels and soil conditions at the site and within its proximity must be carefully examined. If there are shallow aquifers used for drinking wells or the water discharged is used down stream then stringent mitigation measures must be taken such as lining of the pit, creation of excess capacity in the pits, reducing to a minimum the use of hazardous materials and oil based muds in drilling operations.

The requirements of the Guidelines for Operational Safety, Health & Environmental Management (Directorate General Petroleum Concessions, 1996) Section 11.3.2 (Plugging Procedures—(d) Freshwater Zone), should be noted in relation to potential damage to groundwater values arising from drilling activities.

3.9 Drilling fluid and drilling wastes

Water based drilling mud is formulated from local or imported clay, chemical additives such as caustic soda, soda ash, potassium hydroxide, potassium chloride and sodium chloride, and water. Oil based mud is a mixture of diesel, clay, weighting agents (such as barite), and chemical additives. While barite is not itself hazardous, some barite found locally in Pakistan contains high levels of lead and mercury. Oil based mud is usually only used to drill through sections where water based mud cannot be used.

Measures to minimise any adverse environmental impacts from the formulation and containment of drilling mud include:

- the use of water based mud wherever possible;
- minimising the amount of hazardous additives used in drilling mud;
- weighting materials with low levels of heavy metals should be used wherever available;
- after completion of drilling operations at any site, oil based mud will be stored in steel tanks and removed from the site (either for future use, or safe disposal in a secure landfill);
- all mud waste pits will be lined;
- the pits will have excess capacity to prevent accidental overflow, with at least 600 mm of ullage.

Drilling mud and drilling cuttings should be sampled and analysed to determine if they contain concentrations of chemical contaminants or heavy metals which may constitute a hazard to the environment. If the test results indicate that safe environmental limits are exceeded, the contents of the waste pits can be disposed of by:

- in situ dilution with fresh soil;
- encapsulation;
- solidification.

Other wastes associated with the operation should be carefully managed as follows:

- **Packing materials** such as containers, boxes and wrappers will be removed from the site area before the site is closed. Containers of hazardous materials will be segregated and incinerated or disposed of in a controlled manner, either at the site or elsewhere.
- **Unused chemicals** will be returned to the suppliers for which a prior agreement will be obtained.
- **Spent oils and lubricants** will be stored, removed from the site, and recycled where possible.
- **Refuse** will be recycled, incinerated or buried onsite, at least I metre below the natural ground surface level.

3.10 Power supply

Power is usually supplied through on site diesel engine generators. On-site storage tanks should be located on prepared hard standing, and bunded so that any diesel accidentally spilled, through the rupturing of the tanks or during transfer of the diesel, does not escape to pollute the environment. Diesel spilt, other oil wastes and waste lubricants from all sources shall be collected and disposed in an environmentally friendly manner (e.g. used as low grade fuel, burned, or transported back to a recycling facility).

3.11 Air emissions

NO_x, SO_x, and other emissions from mobile diesel generators are not of a magnitude to be of major concern except for the effect they may have on workers at the site. For this reason the generator should be sited down wind (in relation to prevailing winds) from the accommodation area. Sufficient stack height should be provided to ensure that maximum ground level concentrations meet World Bank guidelines (150 $\mu g/m^3$ for NO_x). A stack height of about 7 metres would normally satisfy this criteria for a typical 1-MW generator.

Flaring of oil and gas resulting from well testing is allowed under the licence conditions, provided the GDP declines the delivery of associated gas (see Article 29.3 of the Model PCA).

Continuous monitoring for the presence of Hydrogen Sulphide at the surface should be undertaken, and a contingency plan to protect the safety and comfort of all persons in the area should be prepared.

3.12 Wastewater discharge

All wastewater from the drilling operation will be contained within the pits and will be disposed as per the waste disposal plan. To minimise the use of fresh water, the water in the waste pit will be decanted and reused, if possible, for preparation of drilling mud. The discharge of any liquids from the pits must meet the requirements of the NEQS.

3.13 Flora and fauna

Oil and gas exploration activities can affect wildlife directly and indirectly. Potential direct impacts include destruction of habitat through change in land form and removal of vegetation; exposure to hazardous substances mixed in soil and water; disturbance to breeding habits from noise and vibration; and hunting or inadvertent killing by rig staff.

Similarly removal of vegetation may result in increased wind and run-off soil erosion, and may adversely affect soil stability.
While these impacts are relatively small scale and localised, they should be minimised by appropriate mitigation measures, which include:

- issuing and enforcing strict instructions to all personnel working on the site to refrain from killing, capturing or disturbing any species of bird, reptile or mammal encountered during project activities, except in self defence;
- minimising the removal of vegetation;
- keeping the length of access roads to the bare minimum consistent with good road construction;
- minimising contamination of soil and groundwater by appropriate mitigation measures (see elsewhere)

3.14 Socio-economic impacts

The population that is likely to feel direct social impacts from oil and gas exploration activities are;

- owners of land leased for seismic and exploration well activity;
- shepherds using the region for livestock grazing;
- residents living in proximity of the drilling rig and access roads.

In the unlikely situation that any local persons are displaced by the activity, appropriate compensation, and assistance in relocation should be provided. Opportunities for the employment of local people, and the purchase of food and other consumables from local markets should be maximised, to assist the local economy. The provision of new or improved access roads for the exploration activity may also assist local movements and access.

Measures to enhance possible beneficial impacts, and mitigate adverse impacts, include:

- adequate consultation with local communities prior to the commencement of activities, to inform them of the project plans, and to benefit from any local knowledge which may be of advantage to the proponent;
- planning new road alignments to also take into account the needs of the local community;
- locating drilling sites at a suitable distance from local communities (500 metres minimum), and avoiding any unwanted intrusion on the privacy of local communities;
- the payment of appropriate compensation to landowners and farmers, taking into account the loss of earnings from any crop yield which is affected;
- making available new water resources to local communities during and after the completion of the drilling operations;
- the provision of employment opportunities to local people;
- undertaking community welfare programs.

To avoid the possibility of unreasonable expectations on the part of land owners and the local community, the approximate cost of each component of the mitigation measures (either in money terms, or in terms of the goods and services to be provided in kind) should be budgeted and communicated to the community at the appropriate time.

3.15 Well testing

If the well is flowed and tested it may be necessary to flare the petroleum products that are produced during the time the well is flowed. A pit must be available away from all the other rig site activities with sufficiently high walls and capacity to safely burn petroleum products and contain any liquid discharge (oil and water).

The local population should be informed prior to any well testing, so that they are not alarmed by the noise or the flare.

3.16 Control of subcontractors

The petroleum industry as a whole relies very heavily on the subcontracting of activities and services. This is particularly true at the exploration stage. Sub-contractors may be relied upon to undertake survey work and prepare the drilling site. In the case of private oil company operations, the rig may be leased from and run by separate sub-contractors. Specialist drilling and logging services and the maintenance and catering for the camp may also be run by subcontractors. In this situation the project proponent must take responsibility for the activities of his contractors and the contractors should be enforced to implement environmental measures through contract conditions imposed by the proponent. This also applies to the work camps of sub-contractors outside the fenced drilling site

3.17 Well abandonment, road and site restoration

The drilling operations shall be concluded by plugging, abandoning or suspending the well (unless it is to be used subsequently as a production well). The well should be abandoned in a manner to ensure down-hole isolation of hydrocarbon zones, protection of fresh water aquifers, and the prevention of migration of formation fluids within the well bore. The procedure adopted shall be in conformance with the Guidelines for Operating Safety, Health and Environmental Management (Directorate General of Petroleum Concessions, December 1996).

The entire site and access roads shall be cleared of structures and other material associated with the oil and gas activity, to return it to a safe condition, and to avoid conflict with the normal land use activity in the area or any future use desired by the local community. All pits should be filled to ground level. Top soil which has been heaped for re-use should be spread, and suitable vegetation planted to minimise the risk of erosion.

3.18 Operational health and safety

The operating safety of oil production rigs is extensively covered in Oil and Gas (Safety in Drilling and Production) Regulations, 1974.

The World Bank recommends a maximum noise level of 85dBA for operating staff. Noise levels in the area of exploration drilling shall be monitored, and areas in excess of 80 dBA shall be clearly marked. All staff members who are working in areas where the noise levels exceeds 80 dBA shall be provided with, and use, hearing protection.

The Material Safety Data Sheets provided by the manufacturers of chemicals will be strictly followed for safe handling of chemicals and hazardous materials, which shall not be brought on site without the provision of the Data Sheets.

The proponent shall develop a contingency plan to guide personnel on location in any of the following events:

- hydrogen sulphide reaching the surface;
- a blow out occurring;
- a major fire occurring;
- any sabotage of the site and equip,emt.

4 MONITORING AND REPORTING

The following parameters shall be monitored routinely by the Proponent, and the results advised to the Responsible Authority:

- ambient air quality (intermittently) when hydrogen sulphide is expected, and continuously if it is found;
- ambient noise levels (intermittently) in proximity to the drilling operations;
- random monitoring of downstream surface waters;
- reocords of the composition and quantity of all drilling muds, chemicals and additives.

A record of monitoring results shall be maintained by the Proponent, and for two years following the abandonment of the site. The Proponent shall provide a short written report to the Responsible Authority at the completion of activities at each site, certifying that the site has been restored in accordance with the Guidelines.

5 References

This guidelines relies heavily on existing sources, which include:

1. Guidelines for Operational Safety, Health & Environmental Management (Directorate General of Petroleum Concessions, December 1996)

2. Appraisal Wells in Kirthar Block, Environmental Impact Assessment, prepared for Lasmo Oil Pakistan by Hagler Bailly, October 1997.

3. Oil and Gas (Safety in Drilling and Production) Regulations, 1974.

4. Model Petroleum Concession Agreement, Government of Pakistan, Ministry of Petroleum & Natural Resources, July 1994

Checklist of environmental parameters for oil and gas exploration and production **Appendix I**

Actions affecting environmental resources and values	Potential damage to the environment	Recommended protection and mitigation measures
1. Surveying	Disturbance of flora and fauna	Select reference survey points and survey lines which minimise vegetation clearance required. Collect and bury waste materials resulting from survey activities.
2. Seismic operations	Disturbance of flora and fauna	As above. Seismic testing should be done at times which will minimise impacts on the breeding cycle of rare or endangered species.
3. Land use	Disturbance to adjacent land uses.	Care in siting well and camps, providing suitable buffer distances, adequate compensation payments.
4. Well site location and preparation	Destruction of local habitats, impacts on drainage and ground water.	Proper planning of well site location and lay-out.
5. Camp for exploration activities	Health and safety for workers	Good lay-out to provide separation from noise and odours, provision of septic tanks and other arrangements for disposal of wastes, good rainwater run-off design.
6. Road location, construction and maintenance.	Damage to natural systems, opening up new areas to exploitation	Careful siting, provision of buffer distances to sensitive receptors, minimising earthworks and changes to natural drainage patterns, dust suppression near sensitive receptors.
7. Drilling activities	see below	see below
8. Ground water and water supply	Impact on existing supply to local users, pollution of ground water.	Pipe water wherever possible; Re-use water to minimise requirements; Share new sources with local community; Line waste pits to prevent contamination of ground water; Observe Guidelines for OH,S & E Management
9 Drilling fluid and drilling wastes	Degradation of land and water environments	Limit use of oil based mud; Minimise addition of hazardous additives to drilling mud; Line oil based mud waste pits; Safe disposal of drilling mud and cuttings; Manage other wastes by recycling, incineration or burial.
10. Power supply	Ground and water contamination from spilt diesel	Storage tanks to be bunded; Spilt diesel (and other lubricants) to be collected and used as low grade fuel, burned, or recycled.
11. Air emissions	Emissions from power generators, presence of hydrogen sulphide	Careful siting of generator down wind from the accommodation area. Monitoring and contingency plan for hydrogen sulphide.

12. Wastewater discharge	Contamination of local environs	Wastewater disposal to conform to waste disposal plan. Re-use of waste water to be done where practicable.
13. Flora and fauna	Destruction of habitat, exposure to hazardous substances	Prohibiting hunting of birds or animals; Minimising removal of vegetation, Minimising contamination of soil and groundwater.
14. Socio-economic impacts	Direct impact of exploration activities	Provide employment opportuities; Site roads to assist local movements; Ensure adequate consultation with local communities; Provide suitable buffer distances from drilling activities; Share new water sources with local communities: Undertake community welfare programs.
15. Well testing	Management of well product during testing, to avoid degradation of natural environment.	Contain well product, and safely flare and burn petroleum products.
16. Control of subcontractors	Environmental damage by subcontractors.	Proponents shall bind subcontractors to implement the environmental conditions through contractual clauses and penalties.
17. Well abandonment and site restoration	Potential contamination of ground water, impact on local amenity	Wells should be abandoned in a manner to ensure down hole isolation of hydrocarbon zones, and protection of fresh water aquifers. Sites to be cleared of structures and materials, pits filled to ground level, and area left in a condition for normal use.
18. Operational health and safety	Adverse impacts on health and safety of workforce	Use of hearing protection when noise levels exceed 80dBA; Correct storage and handling of hazardous materials.

Form of statement by proponent to be made in relation to exploration proposals **Appendix II**

1	Name and address of proponent		Phone: Fax: Telex:	
2	Project description	Number of exploration wells, timetable for activity, overall estimated expenditure		
3	Project Location		Latitude Longitude	
4	Existing land use			
5	Labour force numbers			
6	Contingency plan prepared	Yes/No		

Certification The information given above is true to the best of my knowledge and belief, and the activities will be undertaken in strict conformance with the requirements of the Pakistan environmental assessment Package, and the Oil and Gas Exploration and Production Sectoral Guidelines.

Signed and

dated …… ……

Team Leader Proponent

Name …… Name & Designation

……

(affix official seal)