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minerals ireland EXPLORATION & MINING DIVISION

GUIDELINES FOR GOOD ENVIRONMENTAL PRACTICE IN MINERAL EXPLORATION

The following 'Guidelines for Good Environmental Practice' are intended to amplify and supplement the specific requirements contained in Prospecting Licences and other provisions as issued by the Exploration and Mining Division (EMD), Department of Communications, Energy and Natural Resources.

General Principles

* Environmentally responsible management should be an integral component of all exploration programmes.

* Those involved in exploration activities should make themselves fully aware of any ecological or cultural areas of interest within the boundaries of their prospecting licence.

* There should be compliance with all relevant Government laws and regulations for the protection of the environment. Where such laws and regulations do not adequately protect the environment, best contemporary practice in environmental management standards shall be maintained in conjunction with effective exploration, regardless of the location of operations.

* The environmental consequences of each exploration activity should be considered and planned for. Any needed changes to technique and practice should be made in order to conform with these Guidelines.

* Every effort should be made to avoid pollution of the environment during exploration, arising either through inappropriate waste disposal or waste management.

* Holders of Prospecting Licences should take responsibility for ensuring that all contractors and employees are fully informed of these Guidelines and legislative requirements and should ensure that adequate insurance cover is in place prior to entry.

* There should be full consideration and close liaison with relevant landowners and regulatory authorities.

* Any damage to vegetation, land surface or landowner property that may occur as a result of exploration activities should be minimised and corrected without undue delay.

Commencement and Supervision of Work

Where practicable, agreement must be obtained from landowners before entering onto lands for geological mapping, geochemical or geophysical surveying, trenching or drilling. There must be due regard for agricultural activities of landowners, and exploration programmes should be appropriately scheduled so as to cause minimum or no disturbance to such activities. Where disturbance of land or farming activity is expected e.g. during trenching or drilling, compensation must be agreed with the farmer or landowner beforehand. Where disturbance exceeds that which was agreed with the landowner and agreement on the damage cannot be achieved, Teagasc, or another agreed party, should act as arbitrator.

With respect to drilling or trenching, there should be a field supervisor whose name, company address and telephone number are given to the landowner. The field supervisor should be acquainted with relevant local regulations (control of crop or stock disease, quarantine regulations, etc.). The exploration company will accept responsibility for the actions of their contractors and of their subcontractors and of all persons employed by them in connection with the works, except for actions carried out expressly at the request of the owner or occupier of the land.

Field equipment, other than drill rigs and heavy excavation machinery needed to be left in place overnight, should not be left unattended in fields or by roadsides. On the completion of work, care should be taken to ensure that no equipment or materials are left behind which may cause injury to persons or animals, or cause pollution.

With regard to any drilling or excavation works, the field supervisor must, before work is initiated, discuss and identify with the landowner suitable entry points, watering points for stock, power and telephone cables, pipelines, etc. Particular attention should be paid to sensitive areas (crop harvesting, etc.), livestock management (calving, foaling, etc.), disease spread and spread of

noxious weeds. Target areas should also be checked for sensitive ecological sites or any archaeological features and measures taken to prevent any damage.

The field supervisor must also inform the landowner as to the remedial measures that would be immediately undertaken in the event of water or land pollution, and inform the relevant landowners and appropriate regulatory bodies immediately in the event of any pollution incident. It should be noted that planning permission may be required for certain activities such as construction of access roads.

Drilling

Both groundwater and surface environmental concerns must be considered, and the location planned so as to minimise or avoid interference with water or pollution sources. Where possible, drillholes should be located downhill from water sources and karst features, and uphill from any pollution sites. There must be full compliance with requirements under the Local Government (Water Pollution) Acts, 1977 to 1990. A photographic record should be kept for all sites, showing the situation before, during, on completion and after a suitable rehabilitation time has elapsed. For certain environmentally sensitive areas (e.g. wetlands), it may be necessary to use modified vehicles for minimum access damage.

Vehicle access routes to the site should be agreed in advance with the landowner.

Where there is a possibility of artesian conditions, precautionary steps should be taken to handle the water flow. If artesian conditions are encountered, the flow must be shut off within the lithological unit in which such conditions arise. If the drillhole is collared in unconsolidated overburden likely to contain an aquifer, the casing should be kept at least 300mm above ground level and the return water prevented from entering the casing area. If groundwater pollution is a potential problem or if there is any groundwater flow from drilling operations, the drillholes should be fully sealed. Where future re-entry of a drillhole is envisaged, secure and lockable caps must be fitted.

Since both fuel and hydraulic oils are used by drilling and pumping equipment, fail-safe storage and anti-vandal spillage precautions must be taken. Bulk tanks should be kept locked and in secure locations well away from areas where spillage could affect people or stock. Fuelling procedures should be specified for contractors and separate containers kept in the vicinity of unattended rigs or pumps should be made secure. Pumps should be located far enough back from water sources so that any pollution can be contained. In case of spillage, contingency provisions should be on hand (e.g. straw bales), and remedial action immediately undertaken. The exploration company is totally responsible for all materials, liquids or other substances brought onto the land and any consequential damage resulting from these materials.

As regards drilling water, the following procedures must be adopted:
(a) Check pumping location relative to downstream abstractions for potable or animal drinking water. If significant abstraction impact is likely, users should be notified, where possible, and their agreement sought, especially in periods of low flow; (b) Where the water quality is suspect it should be analysed, and contaminated water must not be used. Should bacterial contamination be suspected during drilling, the drillhole should be disinfected (chlorinated) before abandonment; (c) Return water should be treated by settling to minimise the possibility of solids being made available to grazing animals; (d) Return water, even after settling, should not be discharged directly into a watercourse. Discharges should be allowed to percolate to the watercourse, allowing further filtering of the return water.

Care should be taken to minimize damage to vegetation, and on cessation of drilling and clearance of the site, rehabilitation should be commenced at the earliest appropriate time.

Noise problems can arise when drilling in proximity to residential areas. Where drilling and pumping must take place in such locations, care should be taken to reduce noise emissions, at source, to acceptable levels and activity should not be permitted during unsocial hours.

In addition, drilling and pumping sites should be securely fenced to exclude grazing animals; drill rods should be stacked in the safest possible manner, inside the site; all oils and greases should be securely stored and at no time should grease be accessible to livestock; the highest possible standard of housekeeping should be insisted upon on the drilling site, storage and assembly areas and meticulous clearance carried out when work is completed; on completion of the work the site and the access routes should be restored to their condition prior to commencement, or as close thereto as possible; in any event, the restoration must be to the satisfaction of the landowner, and if compensation or rehabilitation is required it should be finalised without delay.

Excavations

Similar concerns with regard to surface aspects of groundwater and drilling apply to excavations, and the same approach should be used. If possible the work should be done in dry weather, and surface runoff water diverted around the trench or trial hole. A photographic record should be kept for all sites, showing the situation before, during, on completion and after a suitable rehabilitation time has elapsed. Care in planning the

actual trench work is also needed from a safety aspect, information regarding which is obtainable from the Health and Safety Authority, Hogan Place, Dublin 2.

Excavation should not take place adjacent to streams or rivers which are potential spawning grounds for fish species. If possible, excavations should also be avoided in fields with old 'french drains'; if encountered they should be correctly replaced.

A temporary fence must be erected around any excavation, equipment and spoil heaps. The fence should be at an appropriate distance beyond the opening, and no chemicals/petroleum-based products should be kept in this area. Unless otherwise agreed with the landowner the fence should be adequate for the purpose of excluding any livestock kept on adjoining land. All temporary fencing should be erected in position before excavation commences and subsequently maintained until reinstatement of land is completed.

If pumping is necessary to prevent excavations from becoming waterlogged, the discharge must be directed into suitable drains or onto stable slopes, and not directly into receiving waters.

All topsoil should be kept separate and stacked to one side of the working area and kept free from the passage of vehicles and plant. In sensitive areas of vegetation, sods should be taken and carefully preserved for reinstatement. Subsoil and hard-core materials should be kept separate from topsoil. Contaminated soil should be clearly identified and remediated.

Reinstatement of land must be carried out without delay, according to best contemporary environmental practice. After backfilling, the topsoil should be carefully replaced, and additional topsoil provided if reasonably required for proper reinstatement. Care should be taken to restore ground to a condition at least equivalent to that existing before the commencement of the works. This should involve the topsoil being left in a loose and friable condition; appropriate levelling off of the ground so as to present a neat appearance (the level of the trench area should be the same as that of the undisturbed surrounding ground one year after restoration is completed); the removal of all stones in excess of 50mm (2") in diameter from the surface; and the reseeding of the area in consultation with the landowners. The rate of seeding and time and method of sowing including application of fertiliser, should be in accordance with good agricultural practice.

On completion of the works the company must remove all temporary buildings, fences, roadways, all surplus soil, stones or gravel and any debris such as trees, brushwood, etc. and any other matter that does not naturally belong to the site. The site should be left clean and tidy, to the satisfaction of the landowner, and if required by the landowner, the company should plant shallow-rooted trees, shrubs, or hedging to replace any which have been removed.
If compensation is required, it should be finalized without delay. Follow up visits should be made after 6 months to assess the quality of restoration, and any required remedial work undertaken to the satisfaction of the landowner.

If it is intended to keep open excavations after completion of prospecting and exploration work, it may be necessary to get planning permission, either on a temporary or a permanent basis, as appropriate. Advice must be sought from the Local Authority.

Water Services

All necessary precautions must be taken to protect all watercourses and water supplies against pollution attributable to any exploration activity. Where excavations are adjacent to watercourses, care should be taken to ensure that no debris or soil enters the watercourse either inadvertently or by flooding during periods of high water discharge. All proper steps should be taken to reduce to a minimum any interference with water supplies.

Before trenching or drilling operations commence, the company or its agents should acquaint themselves with the position, type and size of all underground services in the selected location. In the event of a water pipe or supply being severed, the company or its agents should effect an immediate repair or provide alternative supplies. In the event of a well or other private water supply being permanently affected or destroyed by any exploration activity, the company should construct an alternative supply (e.g. a well) as soon as possible; in the meantime, alternative supplies must be provided.

Pumping and other Groundwater Tests

Where such testing is required, relevant landowners in the area should be notified, and there must be a continuous emergency telephone service and suitable emergency facilities in place to ensure that a wholesome, potable water supply is continuously available to any affected parties. The relevant Local Authority should be made aware of such proposed tests and the arrangements, and any needed approvals obtained from them. The arrangements for such tests should include appropriate controls to avoid adverse impacts arising from disruption of existing water supplies and disposal of pumped waters, and suitable records of water quality and monitoring procedures must be kept. Such information should be made available to the relevant Local Authority on completion of the work. Where required, a licence under the Local Government (Water Pollution) Acts, 1977 to 1990 must be obtained.

Geophysical Surveys

Cables must not be left unattended in areas where livestock are present. If necessary, arrangements should be made with the landowner to remove livestock at a mutually convenient time for the duration of the work.

Record of Work

Suitable records of all excavation work or work relating to groundwater testing must be kept by the company, including a complaints register (and action taken) for inspection by officials of the Department of Communications, Energy and Natural Resources and the relevant Local Authority as required. After completion of the work, a summary report, including relevant data, must be furnished to the Department and the relevant Local Authority.

Restricted Areas

Under European Union Directives recently implemented by Ireland, certain areas are designated as Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). Within these areas certain exploration activities may now be restricted, and require specific permission. All holders of Prospecting Licences are required to ascertain whether there are any SACs or SPAs in their ground and to comply with any restrictions advised by EMD. Approval to carry out restricted activities must be sought in writing, with full details of work to be undertaken and one month's notice, from the Exploration and Mining Division of the Department of Communications, Energy and Natural Resources.

Companies must bear in mind that it is necessary to ascertain also the location of National Nature Reserves, National Monuments, Rural Environmental Protection Schemes and gas pipelines within the licence area and to ensure that there is no interference with such sites or features. With regard to:

(a) National Nature Reserves: no access is permitted without the prior approval of the Minister for Arts, Heritage, Gaeltacht and the Islands, and no trenching or drilling is to be undertaken without the prior approval of the Minister for Communications, Energy and Natural Resources;

(b) Sites indicated on the Sites and Monuments Record Constraint maps (available for inspection at County Libraries or Local Planning Authority): such sites are not to have any exploration work undertaken in or adjacent to them without the prior approval of the Minister for Arts, Heritage, Gaeltacht and the Islands. Such approval should be sought through the Exploration and Mining Division of the Department of Communications, Energy and Natural Resources;

(c) Rural Environmental Protection Schemes (REPS): no work should be conducted in an area subject to REPS without the prior approval of the landowner(s)/user(s). Maps and details of REPS areas are available from the Farm Development Services (Teagasc) in each Department of Agriculture, Fisheries and Food county office;

(d) Gas pipeline routes: no trenching or drilling is permitted within 30m of the pipeline without the prior approval of Bord Gáis Éireann.

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