

Minerals Planning Guidance 3: Coal mining and colliery spoil disposal

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Introduction

1. This guidance provides a policy framework for mineral planning authorities (MPAs) and the coal industry in England to ensure that the extraction of coal and disposal of colliery spoil only takes place at the best balance of community, social, environmental and economic interests, consistent with the principles of sustainable development.

2. The Government's White Paper on the Conclusions of the Review of Energy Sources from Power Generation (Cm 4071, October 1998) sets out proposals to achieve the Government's central energy policy objective of ensuring secure, diverse and sustainable supplies of energy at competitive prices. This objective takes in the Government's concern for the environment, health and safety and a fair deal for all consumers, as well as its commitment to all aspects of sustainable development. While UK coal is available, and the generators continue to choose it, UK coal contributes to our energy diversity and supply. In addition, the Trade and Industry Committee (Fifth Report of the Trade and Industry Committee on Energy Policy, June 1998) pointed out that, opencasting provides employment, can assist the ceramics industry through enabling access to associated clays, and has a role in clearing dereliction. The White Paper notes that opencast is generally more flexible than deep-mined coal, as regards long-term production, and is usually lower cost; and that it can reduce the overall costs of operations of companies with both opencast and deep-mine interests, but recognises that there are important environmental and planning issues involved. Overall, decisions on coal sourcing are a matter for individual generators and no specific role is identified for opencast coal in particular.

3. It has also been suggested that, because most English deep mined coal is high in chlorine, generators will not purchase it unless they can be assured of supplies of low chlorine coal such as opencast with which to blend it. The findings of research carried out for the Department on the need for opencast for blending on this account are not conclusive [Chemical Variation and End Uses of Coal at the Present and in the Future, CRE Group Ltd for DETR, February 1999, ISBN 0 9535196 0 0]. While generators regard a coal feed with an average chlorine content above a certain level as presenting an unacceptable risk to their boilers it has been impossible to obtain hard evidence of risks and costs, and whether these could be overcome by price rather than blending, due to issues of commercial confidentiality. A few deep mines produce coal with a chlorine content which would appear to meet the needs of generators with little or no need for blending. More importantly, large quantities of low chlorine coals are readily available on the international market. In the absence of conclusive data the Government therefore does not regard a need for coal blending as a significant issue for the land use planning system, nor does it see a role for the system in influencing the operation of the market in coal.

4. It is not therefore for the planning system to seek to set limits on or targets for any particular source or level of energy supply; nor to predetermine the appropriate levels of coal to be produced by underground or opencast mining. It is for individual operators to determine the level of output they wish to aim for in the light of market conditions, and for MPAs to determine the acceptability of individual projects in accordance with the principles of the land use planning system having regard to the following policies and all other material considerations. A contract with any of the public electricity generators does not confer any special status in terms of planning legislation and policy.

National Land Use Policy Considerations

5. The Government's consultation paper on a revised UK strategy for sustainable development ("Opportunities for change", February 1998) set out four key objectives which underlie sustainable development:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources; and,

maintenance of high and stable levels of economic growth and employment.

Whilst the use of minerals benefits the economy, there can be conflicts between the extraction of resources and environmental aims. The Government recognises that mineral working generally can have a significant environmental impact and often takes place in areas of attractive countryside. Although large quantities of mineral resources exist and it is unlikely there will be a problem of physical exhaustion of resources in absolute terms, it is becoming increasingly difficult to find sites that can be worked without damaging the environment to an extent that local communities and society in general find unacceptable.

6. The objectives of sustainable development for minerals planning are therefore:

- i. to conserve minerals as far as possible, whilst ensuring an adequate supply to meet the needs of society for minerals;
- ii. to minimise production of waste and to encourage efficient use of materials, including appropriate use of high quality materials, and recycling of wastes;
- iii. to encourage sensitive working practices during minerals extraction and to preserve or enhance the overall quality of the environment once extraction has ceased;
- iv. to protect areas of designated landscape or nature conservation from development, other than in exceptional circumstances where it has been demonstrated that development is in the public interest; and,
- v. to minimise impacts from the transport of minerals.

7. Opencast coal working differs from many other types of mineral working due to the amount of overburden that has to be removed, and stored, to access the coal; the use of large engineering plant and machinery; and the need, often, to transport the coal won over significant distances. On the other hand, the large amounts of material that have to be removed means that, through careful restoration, original landforms can be recreated, or more attractive ones produced over time. In some cases, opencasting can clear derelict and despoiled land, or remove land instability from old mineral workings, and thereby restore the land ultimately to a better condition than it was before. However, the Government takes the view that, although some sites are capable of being well restored, opencast mining can be extremely damaging to the environment and amenity of a locality whilst it is taking place, and the restored landscape can take many years to mature. The proposals for restoration, and the extent to which the proposal provides local or community benefits must be weighed against the severity of the harm likely to be caused during the duration of the development and the time it would take for the landscape to regenerate following restoration.

8. In applying the principles of sustainable development to coal extraction, whether opencast or deep-mine, and to colliery spoil disposal, the Government believes there should normally be a presumption against development unless the proposal would meet the following tests:

- i. Is the proposal environmentally acceptable, or can it be made so by planning conditions or obligations?
- ii. If not, does it provide local or community benefits which clearly outweigh the likely impacts to justify the grant of planning permission?
- iii. In National Parks and Areas of Outstanding Beauty (AONBs), proposals must also meet the additional tests set out in paragraphs 28 and 29 below.
- iv. Proposals within or likely to affect Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) must meet the additional tests set out in paragraphs 30 and 31.
- v. Proposals within the Green Belt must meet the additional test in paragraph 36 below.

MPAs should ensure that this general approach is incorporated into their development plan policies as soon as possible. The Government recognises that the costs and benefits of an opencast proposal can best be assessed by the communities and local authorities who know the area best and are most directly affected. Accordingly the Government takes the view that, subject always to local plan procedures, normal rights of appeal and the provisions of this guidance, MPAs' assessments of the environmental acceptability or otherwise of individual proposals should normally prevail.

Development Plans

9. The planning system, and the preparation of the development plan in particular, have a key part to play in meeting the Government's objectives of ensuring that development and growth are sustainable.

10. Policies for the development and other use of land, including the extraction of minerals, are set out in statutory development plans drawn up under the Town and Country Planning Act 1990 (the "1990 Act") as amended by the Planning and Compensation Act 1991 (the "1991 Act"). MPAs are required to draw up a minerals local plan covering the whole of their area. In metropolitan areas Unitary Development Plans (UDPs) should contain minerals policies. Close cooperation between MPAs and local planning authorities will help to minimise potential conflicts. In the event of a conflict between a minerals local plan and a local plan, the more recently adopted (approved) provisions prevail.

Formulation of policies and plans

11. Within the overall framework set out in paragraph 8 above, policies and proposals in the development plan should be consistent with national policies and strategic and regional planning guidance. PPG1 - "General Policy and Principles MPG1 provide advice on planning for both the MPAs minerals industry. PPG12 provides preparation of development plans. Annex E to sets out bodies that should be consulted in addition relevant department local authority matters concerning pollution control. this is contained PPG23 Control (England).

12. Policies and proposals should take into account the principal impacts of coal working and spoil disposal, both separately and together, such as visual intrusion, water pollution, air pollution, noise, dust and traffic and the level of activity that a particular locality and its community can reasonably be expected to tolerate over a particular period, as well as the potential benefits such as job opportunities and the scope for landscape and amenity improvements through working and subsequent restoration. Equally, other development plan policies should ensure that provision for other development does not unnecessarily sterilise coal resources, nor allow development to encroach on existing mineral operations and thus increase the level of environmental impact to an unacceptable level.

13. The Coal Authority has an important role to play in making available to MPAs information in its possession on the location and extent of coal deposits and the areas subject to operating and exploration licences. The Coal Authority and MPAs should liaise closely at an early stage of the development and mineral planning process. The Coal Authority should also be approached by MPAs in the consideration of individual planning applications. Annex D gives further advice on the role of the Coal Authority. Coal operators should engage in full and open dialogue with MPAs and provide them with information on the extent of their known reserves and forward plans. MPAs should provide operators with information on the planning and environmental constraints within the authority area. In this way operators and MPAs can discuss and cooperate in the production of forward programmes of potential sites for coal extraction which take full account of planning and environmental restrictions, subject always to planning permission being obtained for individual proposals in accordance with the criteria in paragraph 8. Such programmes can provide continuity for the industry, certainty for the local community, and avoid the problems of piecemeal applications and cumulative impact. It will be a matter for the MPA's judgement as to whether or not the environmental disturbance to a locality is minimised by a major site which may last a number of years, and can justify the commensurate investment in such matters as rail transport and tree planting to provide mature screening, or by a succession of planned smaller sites which avoid

the problems of scale. For existing deep and drift mines consented under the Town and Country Planning (General Permitted Development) Order 1995 ("the GPDO") operators should also supply information on their forward mining plans in accordance with the DTI Code of Practice. Guidance on the permitted development rights for underground coal mining under the GPDO is given in Annex B to MPG2 ("Applications, Permissions and Conditions", July 1998).

Scope for environmental improvements

14. Policies should give priority to proposals which will bring about environmental improvements for example, by the restoration of previously derelict areas or by the stabilisation of unstable ground, or where landscape enhancement or a contribution to biodiversity can be achieved. Where there is overall environmental benefit to be gained the Government expects the industry and MPAs to give priority to proposals involving derelict sites, particularly those which would enable former colliery sites to be released quickly for beneficial new uses. This should reduce pressure on sites which are more environmentally sensitive and assist in enabling dereliction to be cleared more quickly than would otherwise be possible.

Safeguarding of existing businesses and opportunities for future investment

15. Policies should be explicit that where there is material evidence that coal extraction and related development would have an adverse effect on efforts to attract or retain investment in an area, this is a material consideration which should be taken into account in deciding planning applications.

Other minerals

16. Policies should make provision for proposals where extraction of coal from a site would facilitate the efficient and economic working of other mineral deposits on that site in an environmentally acceptable way. Opencast seams can be found in conjunction with other minerals such as fireclay or brick clay, and may also be covered by peat or sand and gravel deposits. In such cases, it is important that the opportunity to work these other minerals commercially is fully explored with mineral operators. Where opencast coal mining is justified on its own merits, co-ordinated working of other minerals on the site can, reduce the need to extract these minerals elsewhere, and prevent the unnecessary sterilisation of valuable mineral resources. In particular, opencast sites provide one of the few viable sources of fireclay and every opportunity to produce it from a proposed site should be examined provided that the site can be properly restored and the overall proposal meets the tests in paragraph 8.

Comprehensive working

17. Where a forward programme of potential sites has been agreed in line with paragraph 13, policies should provide for proposals which would facilitate the comprehensive working of the coal deposits in a locality, subject to planning and environmental constraints and the acceptability of individual proposals in accordance with paragraph 8.

Cumulative impact

18. Some areas have been subjected to successive opencast developments over a number of years. Policies should make clear that, where appropriate, the cumulative impact of a proposed opencast development on the community and the environment will be taken into account.

Extensions to sites

19. Developers should provide the MPA with as much information as they have available on the extent of the resources in a proposed site, and the way in which they propose to work them, before or at the time a planning application is made to avoid subsequent unplanned applications for site extensions in area or depth. However there may be exceptional circumstances, eg unexpected geological faulting, where such an application becomes necessary. Lateral extensions to existing workings require a new grant of planning permission. An application to increase the depth of

existing consented workings will also require a new planning permission unless the deeper seam to be worked was excluded from the original permission only by a planning condition in which case it will simply involve an application to vary the conditions attached to the existing planning consent. However, both lateral extensions and increases in depth can extend the severity and duration of the impact on the environment and local amenity. Policies should therefore make clear that any proposal to extend an opencast site, in area or depth, will have to meet the criteria in paragraph 8. Where the proposal is likely to have significant effects on the environment an Environmental Impact Assessment should be required.

Repeat applications

20. Section 70A of the 1990 Act (as inserted by section 17 of the 1991 Act) provides that an MPA may decline to determine a planning application if it is made within two years of the Secretary of State refusing a similar application, either on call-in or appeal, and there has been no material change in circumstances since that decision. In addition, there should be a general presumption against approving applications for development of a site, or extensions to an existing site, where a similar application has been refused previously unless there has been a material change in circumstances since that decision.

Commencement and completion of development

21. Policies should make clear that, if planning permission is granted, conditions will be imposed specifying the date by which development must be begun (or the planning permission will lapse) and dates for the completion of coal extraction, restoration and aftercare. The time by which development is begun for the purposes of mineral working is defined in the Town and Country Planning (Minerals) Regulations 1995 - see Annex A to MPG2 (July 1998).

Sterilisation

22. In principle, it is desirable to secure coal extraction prior to new permanent development above coal reserves. Policies should therefore take into account the benefit of avoiding sterilisation of coal reserves by other forms of development, within a reasonable timescale and in an environmentally acceptable way, provided the proposal can meet the tests in paragraph 8 above. Where underground mining is involved, it may be preferable to postpone major surface development until the risk of subsidence has passed or ensure that precautionary measures are taken in the design and construction to minimise potential damage. Guidance on the considerations to be taken into account where development is proposed on unstable land is given in PPG14 "Development on Unstable Land", and the forthcoming MPG5 "Stability in Surface Mineral Workings and Tips" (consultation draft issued in June 1998).

Deep Mines and Drift Mines

23. In general, proposals for drift mines raise similar issues to those for deep mines. The impact is largely determined by the size, location and duration of the operations. Policies should deal with the principal impacts arising from ancillary surface development at underground mines, for example: visual intrusion, noise, dust, traffic, the location and design of buildings and storage areas, coal washing and lagoons, and site restoration; and with the potential effects of subsidence, including the potential hazard of old mine workings, the treatment and pumping of underground water, monitoring and preventive measures for potential gas emissions; and the method of disposal of colliery spoil.

Colliery Spoil

24. Over the years, a great deal of research has been carried out into realistic alternatives to local tipping, including local and long distance disposal schemes and additional research into mining techniques to reduce the amount of spoil arising. Nevertheless, continuity of production at existing

deep and drift mines in part depends upon the availability of land for spoil disposal. Plans should therefore set out policies which make provision for this.

25. Policies should include consideration of viable alternatives to local tipping where that is precluded by environmental constraints or where there is a reasonable expectation that environmental gains will outweigh any increased costs, and should encourage use of the evaluative framework ("Procedural Manual Evaluative Framework: Assessment of Alternative Colliery Spoil Disposal Options" HMSO 1990).

26. The coal industry should make every effort to keep spoil production to a minimum and to seek ways of reducing the environmental impact of its disposal, including flexibility in local arrangements for disposal; continued efforts to improve restoration techniques; and, by seeking opportunities for the recycling of spoil for use as secondary aggregates (see Annex A). It should supply current and projected spoil production figures to the MPA at an early stage so that a forward strategy on spoil disposal can be compiled for the whole area, and should cooperate in the discussion and preparation of forward programmes.

Nationally Designated and other Sensitive Areas

27. Development plans should also contain policies, where relevant, for the protection of National Parks, AONBs, SSSIs, NNRs, ancient monuments, archaeological and other cultural interests, agricultural land and Green Belt. Advice on the national policies that apply is set out below.

National Parks and AONBs

28. PPG7 - "The Countryside - Environmental Quality and Economic and Social Development" (February 1997) sets out in detail Government planning policies for all forms of development in National Parks and AONBs. The Government considers that major developments should not take place in these areas, and the New Forest and the Norfolk and Suffolk Broads, save in exceptional circumstances. Because of the serious impact that minerals developments may have on the natural beauty of these areas the Government considers that all minerals applications must be subject to the most rigorous examination, and all minerals development should be demonstrated to be in the public interest before being allowed to proceed.

29. Consideration of minerals applications in such areas should normally include an assessment of:

- i. the need for the development, in terms of national considerations of mineral supply;
- ii. the impact of permitting the development, or refusing it, on the local economy;
- iii. whether alternative supplies can be made available at reasonable cost; and the scope for meeting the need in some other way; iv. any detrimental effect of the proposals on the environment and landscape and the extent to which that should be moderated; and
- iv. in the case of extensions to existing mines, the extent to which the proposal would achieve an enhancement to the local landscape.

SSSIs and NNRs

30. Mineral proposals within or likely to affect SSSIs should be the subject of the most rigorous examination. When considering such proposals planning authorities are required to consult EN on such proposals and should take account of the advice in PPG9 - "Nature Conservation". Some SSSIs are of particular importance and have additional designations conferred upon them. NNRs established by EN under the Wildlife and Countryside Act 1981, are areas of national, and sometimes international, importance, where primary use is for nature conservation. Some SSSIs are of international importance and have been designated Special Protection Areas (SPAs) under the European Community Directive on the Conservation of Wild Birds (Directive 79/409/EEC). Others have been identified as potential SPAs. In addition some SSSIs are likely to be considered of international importance as Special Areas of Conservation (SACs) under the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive 92/43/EEC). Specific legally binding procedures apply to the consideration and approval of development proposals likely to affect these European sites. PPG9 explains these and also advises that the Secretary of State will normally call in planning applications which are likely significantly to affect sites of international importance and recognised national importance.

31. The UK is also a signatory to the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Cmmd 6465). Contracting parties are required, inter alia, to designate sites which satisfy certain criteria. The total area of listed wetlands should be maintained wherever possible, if necessary by compensatory measures to offset any loss. There is also a general obligation for the contracting parties to include wetlands conservation considerations within their national land-use planning system.

Other environmentally important areas

32. Planning authorities may designate other environmentally significant areas in their development plans, such as special landscape areas, or areas of great landscape or nature conservation value. These areas may be important locally and mineral extraction proposals which fall within them will need to be given careful consideration, although the degree of protection given to such areas should not be as high as that to be given to the nationally designated areas referred to above.

The Historic Environment

33. Mineral exploration and working may damage or destroy irreplaceable sites, structures and remains of historic or archaeological interest that are of importance to the national heritage. The industry should, wherever practical, ensure the physical preservation of important archaeological and historic remains or features. When determining applications for extraction, MPAs should have regard to the desirability of preserving historic buildings and landscapes, conservation areas, ancient monuments and their settings. PPG16 - "Archaeology and Planning", and the revised CBI Minerals Environment Charter, underline the importance of identifying, as early as possible, the likely presence and importance of any archaeological sites liable to be affected by the proposed development. This should involve early consultation with the County Archaeological Officer or equivalent (listed in PPG16). Where remains are scheduled under the provisions of the Ancient Monuments and Archaeological Areas Act 1979, the consent of the Secretary of State for Culture, Media and Sport is needed before works may proceed. Where buildings are listed, listed building consent will be required for their total or substantial demolition and may be required for their alteration. Where buildings are situated in a conservation area, Conservation Area Consent will be required in most cases where demolition is proposed.

34. PPG15 - "Planning and the Historic Environment", as amended by Appendix E of DOE Circular 14/97 gives advice on the protection of the historic environment, World Heritage Sites and listed buildings and conservation areas. The protection of the historic environment, whether individual listed buildings, conservation areas or the wider historic landscape will need to be taken fully into account both in the formulation of authorities' planning policies and in development control. No additional planning restrictions follow from the inclusion of a site in the World Heritage list. However, inclusion does highlight the outstanding national and international importance of the site as a material consideration to be taken into account by planning authorities in determining planning applications and by the Secretary of State in determining cases on appeal or following call-in.

Agricultural land

35. The Government's policy, as set out in PPG7, is that within the principles of sustainable development, the best and most versatile agricultural land (defined as land in Grades 1, 2 and 3a) is a national resource for the future, and considerable weight should be attached to the protection of such land because of its special importance. However, unlike most other forms of development, land from which minerals have been extracted offers the potential for restoration of land to its former use, or to an acceptable new use. Therefore, when considering the allocation of land for minerals development, and deciding any application for planning permission affecting agricultural land, the agricultural implications must be considered together with the environmental and economic aspects. Such considerations include whether the land should be restored to an agricultural afteruse and the standard of reclamation likely to be achieved. Restoration and aftercare conditions are intended to achieve land fit for the intended use. Where restoration to agriculture is proposed, the objective will normally be to restore the land to its previous agricultural quality, or better if reasonably practicable, in accordance with Schedule 5 to the Town and Country Planning Act 1990. Amenity or forestry afteruse may be an appropriate alternative to agricultural use, but

where the best and most versatile agricultural land is involved the restoration and aftercare steps should enable the retention of its longer term potential as a high quality agricultural resource.

Green Belt

36. Proposals for coal extraction and spoil disposal may also arise within Green Belts. The Government's policy is set out in PPG2 - "Green Belts". Applications to extract coal or deposit spoil in the Green Belt should be tested against the highest environmental standards. If permission is granted, stringent conditions should be attached to ensure the site is well operated and restored to the highest standards.

Mineral Local Plans and Part 2 of UDPs

37. Structure Plans and Part 1 of UDPs should set out strategic policies. Mineral Local Plans and Part 2 of UDPs should carry forward those policies and set out clear criteria against which individual proposals will be assessed. These criteria should include consideration of: -

- the effects on local amenity; landscape; features of archaeological, architectural, historic or natural interest; and, agriculture;
- the effect on hydrology or hydrogeology;
- the environmental impacts of transportation of minerals and waste;
- the cumulative impact on communities in the locality of proposals;
- the effect on efforts to attract or retain investment in the area;
- any environmental improvements or other material planning benefits to the community likely to result from the proposals;
- the employment and other economic effects of the proposals;
- the avoidance of sterilisation of mineral resources;
- the efficient and economic working of other mineral deposits in an environmentally acceptable way;
- the avoidance of unplanned piecemeal working of deposits; and,
- where development is acceptable in principle, the range of conditions likely to be needed to mitigate or control any potential adverse effects.

MPAs may also wish to have regard to the Countryside Commissions' advice on landscape and countryside issues set out in their publication "Opencast coal mining: advice on landscape and countryside issues" (CCP434, 1993) and to English Heritage/Countryside Commission/English Nature's published guidance "Conservation Issues in Strategic Plans" and "Conservation Issues in Local Plans".

38. Minerals Local Plans and Part 2 of UDPs should also indicate any areas where coal extraction and the disposal of colliery spoil may be acceptable in principle subject to development control criteria being met in any particular case, as well as those areas where working or disposal is unlikely to be acceptable or where coal resources are to be safeguarded for future working. The extent to which it will be possible to identify particular areas where extraction or spoil disposal may be acceptable in principle, and the level of detail that can be shown in relation to possible sites, will depend upon local circumstances and the level of knowledge about the resource. MPAs may therefore wish to indicate:

- broad areas of search; or,
- the extent of the shallow coalfield and the constraints within that area; or,
- a combination of the two.

Whichever approach is adopted should be based on material land use planning considerations.

Handling Specific Development Proposals

39. Proposals for coal extraction and spoil disposal can give rise to considerable concern because of the potential environmental impact operations can have on a locality. Operators and MPAs should therefore have regard to the code of practice prepared jointly by the then County Planning Officers' Society and COALPRO ("Planning for Quality - A Code of Practice", September 1996).

40. Before applications are submitted to the MPA for determination, and as early as possible, operators should explain fully the nature of their proposals, indicating the ways in which they intend to deal with the environmental factors that will arise. Concerns are most effectively addressed through full sustained public information and dialogue. It is desirable for developers to discuss their proposals with the relevant local authorities and any other organisations whose interests may be affected by the development. Technical issues such as drainage, access arrangements, working methods, pollution control, restoration, after-use and stability should also have been discussed with the appropriate bodies.

41. In the case of proposals for the disposal of colliery spoil, the Department's Procedural Manual Evaluative Framework (see paragraph 25 above) is designed for use during the stage leading to the submission of a planning application to the MPA and enables the systematic investigation of a range of alternative schemes in order to compare the advantages and disadvantages of each option against various financial and environmental factors. There is a statutory duty to consult with and obtain approval from the Environment Agency with regard to the siting and condition of any spoil disposal to land.

42. In all cases the MPA will need information about likely environmental effects as part of the material accompanying an application for planning permission. Operators should seek the MPA's views on the preparation of Environmental Statements (ES) appropriate to the scale of the proposal and the sensitivity of its location.

Environmental Impact Assessment

43. Environmental Impact Assessment (EIA) is an important technique for ensuring that the likely effects of new development are fully understood and taken into account before development is allowed to go ahead. Where proposals for mineral development are likely to have significant effects on the environment, applications will need to be subject to EIA under the Town and Country Planning (Environmental Impact Assessment)(England and Wales) Regulations 1999 and an Environmental Statement (ES) prepared. DETR Circular 2/99 explains the provisions of the regulations and gives advice on their implementation. Further advice is given in the DOE guide "Environmental Assessment: A Guide to the Procedures" (HMSO, 1989) which will be updated in due course to reflect the new regulations. From 14 March 1999 EIA will be mandatory for all proposals for opencast mining where the surface of the site exceeds 25 hectares. Below this threshold, new sites, and modifications to existing sites, will still require EIA if they are likely to have significant environmental effects.

44. However, the Secretary of State takes the view that, by their nature, all proposals for new coal extraction, and alterations to existing coal developments, are likely to require EIA. In any event, mineral applications in National Parks and AONBs should be subject to the most rigorous examination and EIA should always be required. Similar considerations apply to proposals which would affect SSSIs or other areas which have been designated nationally or internationally as requiring special consideration.

Environmental Duty

45. In addition to any requirement for EIA, section 53 of the Coal Industry Act 1994 imposes an environmental duty on the coal industry. In formulating coal mining proposals requiring planning permission, operators are required to have regard to the desirability of the preservation of natural beauty, the conservation of flora and fauna and geological or physiographical features of special interest and the protection of sites, buildings, structures and objects of architectural, historic or archaeological interest; and, must formulate proposals for the adoption of measures to mitigate any adverse effect of the development on such matters. In considering coal mining proposals, MPAs must have regard to the extent to which the operator has complied with the duty.

46. The Secretary of State attaches great importance to the effective discharge of this duty. Proposals not prepared in accordance with this duty are most unlikely to meet the requirements of policies based on this Guidance Note. Apart from the careful selection of the site, this duty can be best be discharged by ensuring that the proposal meets the criterion in paragraph 8(i) above and by proposing to the MPA appropriate conditions and by high standards of operation and restoration. The Planning Officers' Society is proposing to develop a "Coal Mining Award Scheme" to encourage such standards and reward excellence and good site management in England and Wales. The Secretary of State welcomes this proposal, as far as it affects England, and encourages all interested parties to work towards bringing it into operation at the earliest practicable date.

Post - application consultations

47. Following receipt of a planning application for coal extraction or spoil disposal, the MPA should undertake the consultations specified in the Town and Country Planning (General Development Procedure) Order 1995 ("the GDPO"). In addition, they should also consult MAFF where there is likely to be an agricultural afteruse. The Forestry Commission should be consulted where areas of forest are likely to be affected by the development or where forestry planting forms part of a reclamation scheme. The Countryside Commission should be invited to comment on any application which has a major impact on the landscape, Regional Parks, Country Parks, National Trails and Community Forests. MPAs should consider the likely effect on a National Nature Reserve, SSSI, or other area of ecological, geological or geomorphological importance, of any planning application at or in the vicinity of such a site, so as to decide whether or not to consult English Nature (EN). MPAs should bear in mind the possibility that certain developments may affect a site some distance away. Sites and Monuments Records (SMRs) should be consulted where proposals affect features of archaeological interest or the built heritage. SMRs will involve English Heritage as appropriate. English Heritage needs to be consulted directly on proposals which would affect Scheduled Monuments and grade I and II listed buildings.

Consideration of Applications

48. Section 54A of the 1990 Act makes it clear that planning applications for specific projects are to be determined in accordance with the development plan unless material considerations indicate otherwise. The approach that should be taken to the consideration of individual applications is set out in paragraphs 39 to 46 of PPG1. It should also be noted that ancillary operations such as crushing, grading and screening, will require authorisation under Part 1 of the Environmental Protection Act 1990. Advice on the approach to be adopted in relation to the interaction between planning and pollution control in the consideration of planning applications for coal extraction or colliery spoil disposal is given in Annex B.

49. MPAs will need to consider in detail the full range of social, community, economic and environmental issues that are relevant to the planning decision. For its part, the industry should demonstrate that it has addressed all potential adverse effects either by amending the proposals, or providing appropriate compensatory or mitigation measures when preparing planning applications.

The industry should demonstrate that its proposals take all practicable steps to satisfy the environmental concerns on site operation and restoration. The objective must be to ensure that any adverse effects on local communities, environmental damage or loss of amenity caused by mineral working are kept to an acceptable level, and do not outweigh the benefits to the local community of proceeding with the development. Where material planning objections to a proposal outweigh any benefits to the local community then, as stated in paragraph 8(ii) above, planning permission should not normally be granted.

Need and Alternative Sites or Sources of Supply

50. Where the major argument advanced in support of an application to extract coal is that the need for the development outweighs the planning disadvantages inherent in it, the MPA should have regard to the possibility of meeting that need from alternative sites or sources of supply. Generally, the greater the planning objections to a particular site, and the greater the reliance on need to overcome those objections, the more material will be the possibility of supplying the market from less damaging alternative sites or sources of supply. In considering the approach to this issue, applicants and MPAs may wish to note the judgements of Simon Brown J in *Trusthouse Forte Hotels Ltd v Secretary of State for the Environment and Northavon District Council* [1986] JPL 834 and the Court of Appeal in *SSE v P G Edwards* (17 March 1994).

51. Applicants should include a description of the main alternatives considered in their Environmental Statement.

Consideration of impacts and conditions

52. Annex C to this guidance note gives advice on the main specific impacts to be considered when determining whether or not planning permission should be granted for coal mining and on ways of dealing with them if it is. The industry and MPAs should also have regard to recent Departmental research reports on the effects of surface mineral workings: "The Environmental Effects of Dust from Surface Mineral Workings" [Arup Environmental, 1995, HMSO ISBN 0 11 753186]; "The Environmental Effects of Production Blasting from Surface Mineral Workings" [Vibroek Limited, in association with University of Leeds, Department of Mining and Mineral Engineering and Swift Research Partners, 1998, The Stationery Office, ISBN 0 11 753412 9]; and, "Environmental Impact of Traffic Associated with Mineral Workings" [Entec UK Ltd, 1998, The Stationery Office, ISBN 0 11 753476 5]. Paragraphs 40-60 of, and Annex C to, MPG2 ("Applications, Permissions and Conditions", July 1998) gives advice on minerals planning conditions, and the Planning Officers' Society have published a "Good Practice Guide for Mineral Planning Conditions" (November 1995).

53. In recent years concern has been expressed about the effects of opencast coal mining on health. The Committee on the Medical Effects of Air Pollutants looked at limited evidence published in 1992. It concluded that the results were consistent with an association between the opening of an opencast mine and an increase in local asthma consultations but felt that local awareness of the opening of the mine and concern about possible effects on health were plausible explanations of the association and that further work would be needed to sustain a causal hypothesis. The Department of Health jointly with the Department of the Environment, Transport and the Regions is therefore currently funding a project designed to look at the effects of opencast mining on health. This research is now due to be completed in the first half of 1999 and it has not therefore been possible to have regard to its findings. In the meantime, the industry and MPAs should adopt the precautionary principle and ensure that proposals and developments do not result in unacceptable levels of airborne dust. Where planning permission is granted stringent conditions should be attached to control and monitor dust emissions. Further advice will be issued once the results of the research are known.

54. The Department intends to prepare a revised version of MPG11 ("The Control of Noise at Surface Mineral Workings", April 1993) giving guidance on all the main environmental impacts associated with surface mineral working as soon as practicable. Meanwhile, and in any event, where planning permission for coal extraction or the disposal of colliery spoil is granted, the Secretary of State expects MPAs to impose planning conditions requiring the highest standards of operation, restoration and aftercare to ensure that any impacts on the environment or local amenity are minimised, and to ensure that compliance with those conditions is monitored and enforced. In that connection the industry can play its part by initiating annual independent environmental audits of operating sites and making the results freely available to the MPA, members of the public and other interested persons, either independently or as part of an individual company's accreditation under an environmental performance or monitoring system such as EMAS or ISO 14001. For the future the Government is considering empowering MPAs to charge fees to cover the costs of monitoring and enforcing minerals and waste permissions. The Department intends to consult on this proposal in due course.

Planning obligations

55. DOE Circular 1/97 ("Planning Obligations") gives advice on the proper use of planning obligations made under section 106 of the 1990 Act (as substituted by section 12 of the Planning and Compensation Act 1991). Where the environmental impacts of coal extraction or colliery spoil cannot be sufficiently mitigated, or controlled, by means of planning conditions alone, it may be appropriate for MPAs to seek planning obligations to ameliorate the harm or to secure relevant and legitimate local benefits which outweigh that harm, in line with paragraph 8 above. Community benefits, for instance, in the form of new community facilities or community trust funds may be proposed by the developer or suggested by the planning authority. However, any such benefits offered or sought should not be treated as material considerations unless they meet the tests set out in DOE Circular 1/97 - ie:

- i. they are necessary to make a proposal acceptable in land use planning terms;
- ii. they are relevant to planning;
- iii. they are directly related to the proposed development;
- iv. they are fairly and reasonably related in scale and kind to the proposed development;
- v. they are reasonable in all other respects.

Restoration and Aftercare

56. It is established Government policy that restoration and aftercare of appropriate quality will be required to make mineral workings fit for beneficial after-use and environmentally acceptable. This may include restoration to agriculture, forestry, management for nature conservation, provision of public open space, recreation or other development. Applications for extraction of coal or disposal of colliery spoil should include information which demonstrates that the site can be restored satisfactorily. The omission of such information is likely to delay determination of the application. If proposals for restoration are inadequate, unsatisfactory or impracticable, planning permission should not be granted. Wherever practicable, MPAs and mineral operators should agree schemes of working and reclamation of sites which provide for progressive restoration, unless to do so would be likely to affect adversely the standard of restoration achieved. Detailed advice on restoration and aftercare is given in MPG7 ("The Reclamation of Mineral Workings", November 1996), which includes a general review of the technical requirements which need to be considered when planning applications are drawn up.

57. Proposals for restoration and aftercare of coal extraction and spoil disposal sites should form an important part of the information submitted with a planning application and in earlier informal discussions. This information should be sufficiently detailed for a realistic view to be taken of the after-use intended, including phasing of progressive restoration and the final landform and landscape intended. This should normally be agreed with the MPA in advance of planning permission being granted, after discussions with the district council, site operator, land owners, farming, local community and other relevant local interest groups (eg nature conservation). The Countryside Commission's advisory booklet on opencast coal mining (see paragraph 28 above) provides useful advice on landscape and countryside issues. Advice on the restoration of colliery spoil tips and lagoons is given in the Department's research report "Restoration and revegetation of colliery spoil tips lagoons [Richards Moorhead Laing Ltd 1996 HMSO ISBN 0 11 753315 7].

58. Aftercare proposals should also take account of the need to manage on-site and off-site drainage, and any creation of water features, including any advice from the Environment Agency who should be consulted, particularly when preparing any restoration and aftercare scheme where it is intended to impound or create an impoundment of water or create or divert a river or stream.

59. At the time planning permission is granted, both the principles and, as far as possible, the details of restoration should be agreed - although in some cases it may be sensible for some details to be agreed at a later stage. The intended after-use must also be decided when planning permission is granted, but in the case of longer term sites the detailed aftercare programme may more appropriately be settled in a scheme agreed subsequently. Further advice is given in MPG7.

60. In the cases where agriculture is the intended after-use, it is essential that site working, restoration and after-use should be considered thoroughly at the outset, and in full consultation with MAFF, environmental and other interests as appropriate. In cases where forestry is the intended after-use, consultations on its appropriateness and on aftercare requirements should be with the Forestry Commission.

61. In areas designated for their nature conservation or landscape importance, the advice of EN or the Countryside Commission may be appropriate. EN are also willing to offer technical advice on opportunities to restore land to nature conservation value or create new wildlife habitats.

62. The coal industry has, in the past, sought specialist advice from the Forestry Commission (who are a prescribed consultee in the case of proposals for a forestry after-use) and bodies such as the

Woodland Trust and in an attempt to seek more creative proposals for restoration and aftercare of coal extraction sites and spoil disposal schemes. Such consultation is to be encouraged to promote best practice. In appropriate areas, the project teams for the National Forest in the Midlands and the twelve Community Forests, will be able to provide local advice.

63. MPAs have wide powers to impose and enforce restoration and aftercare of sites through conditions. Planning permission runs with the land for the benefit of any person who has a sufficient legal interest in it. Where an operator, whether or not they are the landowner, breaches the terms of the planning permission by failing to comply with restoration or aftercare conditions, whether for reasons of financial failure or otherwise, the MPA may take enforcement action to remedy that breach. If the operator fails to take action to remedy the situation, the MPA may themselves enter the land and carry out the necessary works and recover their costs from the landowner.

64. However, there has been increasing concern about the risks of opencast coal sites being left unrestored or restoration being severely delayed in the event of financial failure by a coal operator. The Government therefore considers that, having regard to the principle of the polluter pays and to the uncertainty that would otherwise arise for local communities, financial guarantees are a legitimate and appropriate means for reassuring the local community of operators' commitment and ability to restore sites properly and timeously. However, where the operator can demonstrate to the satisfaction of the MPA that they are covered by an established and properly funded industry guarantee scheme, which would adequately finance a programme of restoration and aftercare in the case of default by the operator, the Government considers that a bond should not be necessary.

65. Financial guarantees do not mean that the full cost of restoration must be put on deposit at the outset, but it should build up commensurate with the pattern of activity/extraction, recognising that for larger sites there will be a requirement for progressive restoration requiring a stream of funding to be available at various stages. It is recognised that such guarantees may pose an additional burden on coal operators but they represent a more formal recognition of operators' responsibility for which they ought to provide. They should also end the considerable uncertainty that exists for communities about the longer term prospects for the amenity of the area. In all cases, operators should ensure that sufficient finance is available to enable them to meet fully restoration and aftercare conditions. Equally, MPAs should have regard at all times to the need to avoid imposing costs on coal operators that are larger or longer than strictly required to meet best standards. In those cases where security funding or bonds are required, the sums should be released progressively as restoration proceeds. Advice on different forms of financial guarantee is given in Annex D to MPG7 (November 1996).

Liaison Committees

66. Should permission be granted, particularly for major developments, developers should aim to set up a liaison committee or advisory panel consisting of representatives of the developer, the contractor working the site, local authorities and members of the local community and other interested bodies (including EN where appropriate) to ensure that the local community has a full understanding of working practices and that the developer and contractor are fully aware of local community concerns. This should help to ensure that work proceeds smoothly with minimum inconvenience to those most affected, and that legitimate local concerns about the operation of the site can be addressed quickly.

Monitoring

67. The Government attaches particular importance to the continuing production of consistent statistics on coal extraction, in particular the opencast coal statistics collated by the Planning

Officers' Society, and encourages the full cooperation by all parties in the continuing collection of this data.

Speeding the Planning System

68. The Government accepts that proposals for coal extraction or spoil disposal are often complicated and can arouse intense local controversy, and that it is important that all material considerations receive careful attention. Nevertheless, the Government expects MPAs to determine applications expeditiously. The coal industry itself can help to reduce possible delay by entering into pre-application discussions about its development proposals with the planning authority, the local community, relevant local bodies such as the appropriate Wildlife Trust and the appropriate statutory bodies - eg EN - at an early stage before formal submission of the application. Applicants should aim to provide authorities with all the information that is needed to determine the application, including in all normal cases an appropriate Environmental Statement covering all relevant issues. If the authority needs further information, every effort should be made to ensure that requests for its provision are comprehensive at the outset. MPG2 provides further guidance on the drawing up and determining of planning applications.

Compulsory Access to Land and Suspension of Rights of Way

69. The minerals industry in general can obtain compulsory powers of access to minerals under the provisions of the Mines (Working Facilities and Support) Acts 1966 and 1974 ("MWFSAs"), subject to an order in the High Court, and can apply to the planning authority under the 1990 Act for orders extinguishing or temporarily stopping up public rights of way. The coal industry currently has access to specific powers in the Opencast Coal Act 1958 for gaining compulsory access to land for the purposes of prospecting for or working coal, and to orders extinguishing or temporarily stopping up public rights of way. Guidance on these specific powers, which expire at the end of 1999, is given in Annex E. Thereafter, the opencast coal industry will have to rely on the general powers in the MWFSAs. An applicant for any right under the MWFSAs must in the first instance submit his application to the Secretary of State for Industry. The Secretary of State must refer the application to the High Court unless he is satisfied that the applicant has not made out a prima facie case. A pre-condition to the grant of all rights under the MWFSAs is that the applicant must satisfy the Court that the grant of a right is expedient in the national interest and that it is not reasonably practicable to negotiate a private arrangement. Further information on the MWFSAs can be obtained from the Department of Trade and Industry or the Minerals Division of the Royal Institution of Chartered Surveyors.

Annex A: Colliery Spoil Disposal

Introduction

A1. Colliery spoil or minestone is the waste material that is extracted in the process of mining coal. In the past, mining methods produced relatively little waste above ground as coal excavation by hand was highly selective and most waste was separated and left underground. Nowadays, coal is won at the face by machine and in doing so the dirt bands interspersed with the coal seams together with seat earths and parts of the seam roof are also extracted. With intensive mechanised methods it is judged to be more efficient to raise the dirt mixed with the coal to the surface rather than to separate this underground. The coal is separated from this mixture at the surface to produce a marketable product.

A2. The 1981 report of the Commission on Energy and the Environment "Coal and the Environment" drew attention to the problems of colliery spoil disposal, estimating that 62 million tonnes would be produced in 1992. In response, in their White Paper "Coal and the Environment", the Government announced their intention to establish an agreed policy framework for spoil disposal which would accommodate the expressed concerns of all parties. As part of that commitment the Government commissioned Ove Arup and Partners to conduct a major study in the Yorkshire - Nottinghamshire - Derbyshire coalfield. As a result of this work the consultants in co-operation with the local authorities and British Coal prepared an Evaluative Framework. This is to be used to identify the various options available for individual spoil disposal schemes and to assess the economic and environmental effects of each so that considered judgements can be made between the alternatives. It has been designed for use during the stage leading to submission of a planning application by the industry to the MPA. It may also assist decisions about the best source of fill for large scale reclamation sites.

A3. Not all of the spoil generated results in a waste product for disposal on the surface. Around 15% is left underground while a small amount remains in the saleable coal. Power stations currently accept between 13 and 18% ash content (including inherent ash content) in coal supplied for coal fired boilers.

A4. The amount of colliery spoil requiring disposal every year is further reduced by a small amount being sold commercially straight from the coal processing plant (CPP). There are several potential uses for colliery spoil in engineering and construction fields. However, spoil is in competition with many other sources of waste product, as well as primary aggregate and it has generally only been competitive to use it when demand arises close to a colliery or tip.

A5. Research has been carried out to assess the suitability of minestone as a low cost coastal protection medium. The results of this work indicate, however, that unprotected reefs of minestone designed to dissipate the force of erosive waves, thus protecting the coastline, would themselves be excessively eroded.

A6. Projects designed to demonstrate the potential of colliery spoil as a means of reclaiming derelict land and the feasibility of remote disposal, have been carried out at Welbeck near Wakefield and at Glews Hollow near Goole.

A7. Potential sites for spoil disposal have been investigated. These range from underground (backstowing deep mines), through natural or man made voids (old quarries etc) and surface tips, to marine disposal. The different options all have environmental consequences of varying impact. It is important that full account be taken of these before a particular option is selected. In practice it is a

question of striking a balance between the environmental and economic costs and benefits - which the Evaluative Framework assists.

Coal content

A8. Since the 1930s the separation of coal from spoil has improved greatly in efficiency, thereby reducing the amount of combustible material present in modern spoil heaps and therefore reducing the potential for such heaps to spontaneously combust.

Composition of waste

A9. Unburnt colliery spoil consists mainly of shale containing small amounts of bituminous and carbonaceous matter, argillaceous sandstone, fireclay, ironstone and limestone. It may range in size from boulders to cobbles and clay particles and can be divided broadly into two categories, coarse and fines, each of which have different disposal characteristics.

Coarse discard

A10. This is defined as waste material with a particle size between 0.5mm and 150mm. On average it constitutes around 75% of spoil production. In general, it does not normally present a handling problem because it is relatively free draining and is dewatered to an acceptable standard by screening before it leaves the coal processing plant (CPP).

A11. Coarse discard is produced in the coarse washery of the CPP as a result of coal/dirt separation based either on a dense medium or Baum process. The former uses an immersion liquid, such as a suspension of ground magnetite in water within which the coal particles rise due to their lower specific gravity and the heavier dirt particles fall. The Baum jig works by agitating the coal/dirt mixture in water, thus inducing separation. Comparing the two processes, Baum jigs require a more consistent feed and do not give as efficient a cut off point between coal and shale as in the dense medium process; they are, however, cheaper to operate. There is no appreciable difference in the characteristics of coarse discard produced by either process.

Fine discard

A12. This material has a nominal maximum particle size of 0.5mm although a large proportion can be of much smaller size being less than 10 microns. It can constitute up to 25% of spoil production. Because of the particle size distribution the material is not free draining and therefore presents greater handling and disposal problems than coarse discard. It generally consists of fine clay and shale particles.

A13. Fine discard is produced in the fines washery of the CPP at the end of the froth flotation process. This process separates the fine coal and fine dirt by adding oil and a frothing agent to the coal/dirt suspension in a conditioner. The fine coal rises to the surface because the air bubbles attach themselves to the coal particles and cause them to float. This procedure is, however, not used in all CPPs. In some plants, where the fines mixture has a high spoil content, fine coal extraction may not be economic and all fines produced from the washery are treated as discard. In other plants, where the ash content is low, the whole of the fines may be dewatered by a combination of a settling tank, slurry cyclone and filter to produce a filter cake which can be blended back with the larger coal and sold.

A14. Where a froth flotation process is used, the fine discard sinks to the bottom and is referred to as tailings. This discard is very dilute and is further treated with a flocculent which causes the particles to settle in a thickener, leaving clear water overflowing the rim of the thickener tank for reuse within the CPP. At this stage the thickened tailings resemble a sludge with a moisture content of between 60% and 70%.

A15. The tailings sludge can then either be disposed of by liquid discharge to lagoons or be further dewatered.

A16. A steady increase in the proportion of fines within the spoil reflects a trend occurring throughout the world. It can be attributed in the UK to:

- the progressive introduction of power loading at the coal face;
- the use of dust suppression techniques underground (which may degrade the spoil);
- the mechanisation of cutting development dirt, most of which now goes through the CPP against the previous method of bringing it out separately;
- the increasing proportion of shales as mining has moved eastward in the central coalfields;
- the proportion of coal which is mechanically cleaned (these being wet processes).

Disposal

A17. Disposal represents the activities of handling, transport and placement. Disposal locations are predominantly land based, on farm land or in existing voids close to the originating colliery. A small proportion of spoil is subject to marine disposal.

A18. Land based tipping accounts for over 90% of the total annual disposal of spoil nationally. Most of this is tipped on spoil heaps with a small proportion being used in local land reclamation projects, for example filling old mineral working voids or raising the level of low lying low quality agricultural land. The remainder is tipped on conventional spoil tips including lagoons.

A19. Spoil heaps and lagoons which contain refuse from a mine or quarry are tips, and are subject to the Mines and Quarries (Tips) Act 1969 and the Mines and Quarries (Tips) Regulations 1971. Stockpiled materials which are held for sale or comprise material required at a later stage in the operations are not normally considered as constituting quarry refuse and hence are not tips within the meaning of the relevant legislation.

A20. The majority of surface tipping comprises the construction of spoil heaps immediately adjacent to the originating colliery. Spoil tips can be constructed of either coarse discard or a mixture of coarse discard and dewatered treated fines.

A21. Given normal weather conditions, the construction of coarse discard tips is a relatively straightforward operation since the material is free draining due to its large particle size. Handling of dewatered fines in the form of semi-solids or solids is more difficult because the small grain size retains water and reduces the material's shear strength.

A22. There are two methods of constructing tips made from treated fines and coarse discard. The first method involves mixing the two materials at the CPP where it is then transported either by conveyor or dump truck to the tip. The second method involves transporting the materials separately to the tip where the pressed cake is laid and then capped by a layer of coarse discard. The latter method typically has better drainage and handling characteristics although marginally more land is active at any one time.

A23. When lagoons are incorporated in tips the two types of discard, coarse and fines, are handled separately. The coarse discard is used to construct the banks and the tailings are pumped in suspension to the impoundment formed by the banks where the particles are allowed to settle. The supernatant water is drawn off, usually for return to the CPP. When the lagoon is filled and the tailings have dried out sufficiently to support the weight of tracked vehicles, the lagoon can be over tipped with coarse discard as a prelude to restoration.

A24. The land requirement of a lagoon depends on its size. Many lagoons are between 1 and 2 hectares but can be much bigger. Normally, the use of lagoons has to be phased, with usually at least two or three being required at any one time, one being built, one being filled and one drying out, to allow the site to be restored progressively. Lagoons are only a practicable proposition when the topography is gentle and where the slopes do not exceed 1:12. Lagoon areas are usually close to the colliery to reduce pipeline and pumping costs.

A25. Tailings are pumped to lagoons in suspension in water. Hydraulic pipelines are a relatively cheap means of transport compared with road and rail charges for dry spoil and are generally not intrusive environmentally. Wet fines can be disposed of off site, pumping the material into old quarries or sand and gravel pits; lagoons can also be created in opencast voids. This has the advantage of reclaiming land back to agricultural use and taking pressure off limited tipping land closer to the colliery. Wet fines can also be transported off site by road or rail tanker.

A26. In 1981, CENE recommended to the Government that lagoons should be avoided whenever possible and that new mines should be designed to prevent the discharge of untreated tailings. The siting of lagoons should have due regard to the Environment Agency's Groundwater Protection Policy.

A27. In some cases, it is possible to use spoil to backfill voids that have either been left unrestored by previous mineral operators or are currently being created. Such schemes can have positive environmental effects: returning derelict or degraded land to a positive afteruse which might otherwise have been delayed or never carried out due to a shortage of materials for restoration; preventing the sterilisation of other mineral sources and the possible creation of unrestored land, if extraction and backfilling with spoil can be planned and executed together; diverting or delaying pressures for the use of other land for spoil disposal, particularly land of good agricultural quality or of special landscape value, or sometimes a combination of both. However, consideration must be given to whether the voids have a particular ecological, scientific or historical importance and the potential impact on these of backfilling.

A28. Of the different types of mineral voids, hard rock quarries usually have the greatest capacity because they tend to have deep, steep sides. Use of limestone quarries or chalk pits will usually require special protective measures to ensure that there is no pollution of ground water.

A29. Sand and gravel or clay pits are relatively shallow and require a large surface area to provide sufficient capacity for several years output of spoil from average sized collieries. Special precautions may need to be taken against seepage and/or scour if pits are located in river valleys.

A30. The capacity of voids created through opencast mining is usually rather limited. Because of the way the coal is extracted, little if any spoil is produced and the bulking of the overburden and sub-soil may lead to an increase in volume. However, opportunities to create a new land form with extra capacity for spoil disposal are sometimes possible.

A31. There may be opportunities for the co-disposal of refuse and colliery spoil into existing voids. Colliery spoil is a relatively good final cover material for refuse and can also be used to create a landform with suitable hidden voids for waste. The two waste products can also be tipped together into old quarries or opencast sites, although this requires strict operational controls. The tipping of waste, with or without colliery spoil, into a void such as a disused quarry, would require a waste management licence. Licences are granted under the Waste Management Licensing Regulations 1994 (SI 1994 No.1056, as amended) by the Environment Agency.

A32. There is some potential for minestone as secondary aggregate. Just under 2% of the annual production is used in this way. Most of this is used as fill material in road embankments and building sites. However, its variable quality and restricted geographical incidence, making for high transportation costs, means that the potential market for minestone as secondary aggregates is limited.

Environmental Impact and Restoration

A33. The principal environmental effects of operational unreclaimed tips are visual intrusion, noise and dust from vehicle movements, loss of land and potential water pollution. After reclamation, the main impacts are the changed appearance and ecology of the land, and possible modifications in the pattern of land use.

A34. There is, however, an important distinction to be drawn between older tips and new tips. Broadly speaking, the extent of the adverse impacts while a tip is being used, and before reclamation, will be less for more recent tips and greater for older ones because of the improvements in tipping practices introduced by the industry. Older spoil heaps are generally conical or irregular in shape and have high profiles. These tips can only be reclaimed by major regrading sometime after operations have ceased when, with sensitive treatment, they can be integrated into the landscape.

A35. In recent years, the industry has substantially changed its tipping practices, largely as a means of meeting greater safety standards. These practices ensure that there is little possibility of tips becoming unstable. Burning on new tips has also been eliminated. Environmentally the main effect of this increase in safety standards has been that tips are now constructed with lower profiles which means that while they are generally less intrusive, they also take up more land.

Local land reclamation

A36. Local land reclamation is an alternative to local tipping which is generally no more costly and can result in environmental gain.

A37. As indicated in MPG7, certain characteristics of colliery spoil materials can present problems for the establishment and successful longer-term performance of vegetation on reclaimed colliery spoil tips. The key factors are:

- **acidity** - associated with the oxidation of the mineral pyrites [iron sulphide], a common constituent of coal spoil;
- **salinity** - some spoils, especially those in north east England, may have high soluble salt content;
- **infertility** - in the absence of natural soils for restoration, spoils are deficient in plant-available macro nutrients;
- **steep slopes** - the lower gradients of more recent tips, and of some regraded older tips, provide greater opportunities for different after-uses, are easier to cultivate and plant, and are less prone to erosion of soils or other surface materials;
- **surface compaction** - spoil heaps are compacted for stability purposes and to exclude air to minimise the possibility of combustion. However compaction in the immediate surface layers of tips creates problems for establishment and growth of vegetation.
- **extreme surface temperature** - the black colour of many spoils, if used as the final "soil" layer, can lead to high surface temperatures during sunshine.

A38. Reclamation practices for colliery spoil tips have developed over the years. The Forestry Authority has published guidance "Reclaiming Disturbed Land for Forestry" [Bulletin 110, by A Moffat and J McNeill, HMSO 1994], which includes advice on tree planting for both colliery spoil and opencast coal sites. More recently advice on the restoration and revegetation of colliery spoil waste tips and lagoons was published in the Department's research report "Restoration and revegetation of colliery spoil tips and lagoons" [Richards, Moorhead and Laing Ltd, 1996, HMSO ISBN 0 11 753315 7].

Remote land reclamation

A39. Remote land reclamation is much more costly than local land reclamation or disposal and it would have to be on a larger scale to be viable. The number of sites which are available and appropriate for such use is limited, but the possibility of remote land reclamation should not be ruled out entirely.

Backstowing

A40. In practice it is not practicable to introduce backstowing at existing mines which have not been designed with that in mind. Nor is it likely to be economic or safe at major new deep mines. In any case, it is not feasible to stow all of the dirt produced in mining due to the character of some of its constituents, eg fines and filtered tailings cake. The problems associated with handling this material which has a high clay content have yet to be satisfactorily solved. Separate provision would therefore have to be made for its disposal; mixed with other spoil and tipped locally, or transported elsewhere. However, backstowing is carried out at some existing drift mines and should be considered for smaller new drift mines particularly where the surface area is limited and where the working methods are compatible with backstowing. This method of spoil disposal is dependent on suitable voids being created by extracting the coal. Obviously these will not be available in the initial phases of mining and the need for temporary surface storage would have to be addressed.

A41. In addition, a surface tipping facility would be needed for operational purposes since it would be impossible to regulate the supply of material suitable for underground stowage to match the equipment capacity exactly, and provision must be made for maintenance, breakdown etc.

A42. However, even though underground stowing cannot completely replace surface tipping the area of land required would be substantially reduced and therefore less land would be withdrawn from agricultural and other uses. The importance of this will vary from site to site; in some cases tip management control and reclamation can be used to improve the colliery aspect by screening the activity and to upgrade inferior land.

Marine disposal

A43. International commitments restrict the marine disposal of such waste to inert material of natural origin which has not undergone any treatment which would make its chemical constituents readily available to affect the surrounding environment.

A44. Disposal on the beaches and at sea requires a license from MAFF under the Food and Environment Protection Act 1985. Any further beach deposit of minestone is likely only to be in the form of a constructive placement to maintain sea defences. The pipeline discharge of liquid tailings requires consent from the Environment Agency under the Water Resources Act 1991.

Commercial use

A45. The Government policy is to encourage the use of secondary materials in construction. In 1989 it was estimated that only 10% of aggregates used in construction came from secondary and recycled materials. It is important that where they are technically, economically and

environmentally acceptable as substitutes for primary materials, mineral and construction wastes should be used.

A46. The commercial use of spoil makes virtually no impact on spoil disposal from current production although considerably more is exploited from existing heaps. The most significant commercial use of spoil is as bulk fill in civil engineering works. However, major disadvantages of not being as close to major engineering works as alternative material, and of being highly price sensitive to transport costs, constrain attempts to promote its use.

A47. MPG 6 - Guidelines for Aggregates Provision in England and Wales advises on the potential for using colliery spoil as secondary aggregate.

Annex B: Planning and Pollution Control

B1. All coal extraction and colliery spoil disposal is potentially subject to pollution control under the statutory nuisance provisions of Part III of the Environmental Protection Act 1990. Coal processes which are subject to authorisation under Part I of the Environmental Protection Act 1990 are:

- the crushing, grinding or otherwise breaking up of coal or coke or any other coal product;
- the screening, grading or mixing of coal, or coke or any other coal product;
- the loading or unloading of coal, coke or any other coal product.

For this purpose "coal" includes "lignite"; these processes do not require authorisation if carried out at an "exempt location" as defined in SI 1991/472 (as amended); and, no process carried on underground requires authorisation.

B2. Detailed guidance on the standards of air pollution control for these processes is given in PG3/5(95) "Secretary of State's Guidance - Coal, coke and coal product processes" issued in December 1995.

B3. Planning conditions should not seek to control through planning measures matters that are the proper concern of the pollution control authority, except where planning interests can be clearly distinguished. However, the winning and working of minerals is an operation which continues over a number of years and the "development" is not complete until the site has been worked out and restored. The MPA will therefore be concerned with the totality of the impact of the development on amenity and other land uses, whether or not part of the development is subject to pollution control.

B4. Where processes prescribed for control under Part I of the Environmental Protection Act 1990 form part of the application for planning permission for coal extraction or colliery spoil disposal, material planning considerations may include the potential loss of amenity caused by pollution, and the MPA will need to take them into account in determining whether planning permission should be granted. MPAs should, where appropriate, impose planning conditions on any permission minimising such impacts. Such conditions must relate to land use planning considerations and may include conditions regulating such matters as noise, dust, hours of working etc where these are necessary to protect local amenity or other land uses. However, planning conditions should not duplicate pollution controls on prescribed processes. It is essential therefore that MPAs should consult the relevant pollution control authority at an early stage about the extent to which matters should be addressed through planning or pollution control mechanisms, and to provide the pollution control authority with an opportunity to comment on pollution control in respect of the development as a whole.

Annex C: Specific Impacts

Introduction

C1. In order to ensure that sites are designed and operated to environmentally acceptable standards, the following paragraphs give advice on the approach to be adopted in considering the main impacts that may arise from proposals for the extraction of coal or colliery spoil disposal and ways in which those impacts can be controlled or minimised. Each case must be considered on its merits, and MPAs and the industry will therefore need to consider the applicability and practicability of the advice in the circumstances of the particular proposal.

Visual Impact

C2. The degree of visual impact which coal extraction and spoil disposal can have will depend on a number of factors such as the topography of the area and the proximity to main transport routes and residential or other sensitive areas.

C3. Visual disturbance can arise from a number of sources intruding into the landscape which in many cases will be rural in character. The development of the site prior to spoil disposal; the erection of soil and overburden mounds at opencast sites prior to, and during the period of extraction; and the presence of plant and mobile machinery. For deep mines and drift mines, the main visual intrusion is likely to arise from the surface development, coal stocking and on-site tipping areas, including lagoons. The need to minimise visual disturbance should be taken into account when planning the site operation, including the location and design of buildings and storage areas and provision for screening. Mounds are built as a matter of routine at the boundary of opencast sites, but to achieve maximum benefit they need to have regard to the topography of the area and the local landscape.

C4. Similarly, the potential visual impact of spoil disposal sites can be further reduced by limiting the maximum height of any tip or mound to blend with the natural topography. Tip slopes should also be limited to within safety limits as well as taking account of the surrounding landscape.

C5. Tree planting and landscaping may reduce visual impact but this solution offers little advantage in the short term before the planting has matured. Trees need to have been planted well in advance of development taking place if an effective screen is to be established. Existing trees may give some screening and should therefore be retained where possible.

C6. For opencast sites, topsoil and subsoil mounds are normally formed close to the site boundary and while they can be a short-term source of disturbance, they can serve not only as baffles against noise and dust but also as a visual screen to the site. These mounds should be protected from unnecessary trafficking before being grassed down and kept weed free. Careful consideration of the local topography and landscape is required if the maximum screening effect is to be achieved by these mounds. The siting, construction, content, surface treatment and profiles of soil and overburden mounds will often be important planning considerations. The Ministry of Agriculture, Fisheries and Food also has an interest in the construction of mounds since their form and landscape treatment could affect the potential of soils for reinstatement purposes. However, in some cases, views over the working site may be preferable to an intrusive mound, or some other form of barrier - eg fencing - may be preferred.

C7. In all cases, consideration should also be given to minimising the likely impact of restored sites on the surrounding environment. Where appropriate final contours should have regard to the topography of the area and the local landscape, including the provision of hedges, walls and the planting of small copses and woodland where these are characteristic of the area.

C8.MPAs should therefore consider the need to agree or specify conditions relating to:

- the sequence of working,
- progressive restoration procedures,
- pre-planting and planting requirements,
- the siting of plant and its visibility,
- geometrical screening and the nature of landscaping,
- the location and shape of soil and overburden mounds and waste heaps,
- the use of conveyors,
- the treatment of haul roads
- soil handling, stripping, storage and re-instatement of soils and associated remedial treatments.

C9.The industry should:

- have a positive approach to the landscape,
- plan ahead for:
 - planting,
 - direction of working,
 - progressive restoration,
 - siting of process plant,
- pre-plant, if possible before making a planning application,
- seek to agree landscaping requirements with the MPA and only depart from them by agreement,
- ensure that site engineers have, and are seen to have, the will to provide a visually acceptable operation,
- have a good housekeeping policy, keep the site tidy and well maintained, including paintwork.

Noise

C10.If not adequately controlled, noise can be a major cause of disturbance, arising from a number of sources. For opencast sites, soil stripping, the creation of baffle mounds, workings within the site, blasting and the transportation of the coal. The baffle mounds and the working depth of the site will reduce the noise level of the site operations outside the site, although their effectiveness may be reduced in situations where housing is located on adjacent higher ground or where machinery is used at a level higher than the top of the baffle mound. Similar considerations arise in relation to spoil disposal: noise from working within the site and traffic movements associated with spoil transportation can be a major source of disturbance. This may be reduced by screening; trees can be effective natural screens.

C11.Although noise from activities at deep and drift mines can also cause local problems, noise from underground mining operations is not regarded as a widespread cause of complaint or concern. The construction phase of a new mine is usually the noisiest part of the development. Nevertheless consideration should be given to minimising potential noise emissions from ancillary surface development at underground mines and appropriate techniques used and conditions imposed. Established techniques should be used to keep noise levels down to agreed limits and in particular to meet lower levels allowed at night times - eg through the construction of baffle mounds, locating equipment where noise emissions will be minimised, and limiting the timing and duration of particularly noisy activities.

C12. The Government recognises that noise from mineral working and waste disposal, while an inevitable consequence of such development, can have a significant impact on the environment and the quality of life of communities. The Government is concerned to ensure that noise levels are kept to the minimum practicable level consistent with good environmental practice and the efficient and economic working of suitable sites.

C13. MPG11 provides useful guidance to MPAs and the industry on the control of noise and the imposition of conditions. In particular the guidelines recommend the use of a model modified from that in British Standard 5228 for the prediction of the likely level of noise emissions from a proposed mineral development; recommend a method for setting noise limits for mineral sites which can be incorporated into planning conditions; provide advice on how the noise levels can be most effectively monitored and on remedial steps which should be taken, to ensure that local communities are not subjected to noise emissions above acceptable level and discuss a number of noise control practices which can be made the subject of planning conditions and/or incorporated into good practice by the mineral operator.

C14. MPAs should therefore:

-consider the background noise, planning policies and the duration of the noise; discuss any limits and monitoring with the local Environmental Health Officer.
-consider the need to agree or specify planning conditions relating to:

- noise limits at sensitive properties - eg dwellings, schools, hospitals - for various periods of the day
- the provision of monitoring equipment
- limits on hours of operation
- noise control measures, eg a lower noise limit for the first hour of working
- adherence to an industry code of practice where applicable

or in the last resort, usually for particular activities:

- noise emission from plant temporarily working close to houses,
- types of plant and/or numbers of items in use simultaneously.

C15. The industry should:

-discuss noise in advance with the MPA and demonstrate in their application that proposed conditions can be met,
-plan ahead and make sure that:

- noise is a factor in the layout, and the nature and sequence of working
- work at night near sensitive areas is avoided where possible
- screening is part of the design, eg by using bunds and considering if necessary the orientation of the working face the quieter of the methods or plant available is chosen
- especial care is taken with reversing alarms
- haul roads are screened and without severe gradients

-ensure that management has the will to run the site as quietly as possible,
-check the noise characteristics of plant before use and periodically thereafter, where appropriate retro-fit noisy plant, ensure good operation and maintenance,
-make no unnecessary noise and reduce noise emissions, eg:

- minimise height which material drops from lorries or plant
- minimise distance between loading and emptying dragline buckets
- reduce clanging of dragline buckets and chains by careful operation
- use rubber linings in chutes, dumpers, trucks, transfer points
- clad plant and ensure that the cladding is kept free from holes
- start items of plant one by one, possibly behind mounds
- switch-off equipment when not in use, avoid unnecessary revving of engines
- keep noise control hoods closed when machines are in use
- keep lorry tailgates closed where possible

as a last resort, reduce the propagation of noise, by the use of:

- temporary bunds
- portable screens.

Blasting

C16. Blasting is a technique used in both underground and opencast coal extraction. There are three effects associated with blasting, namely, ground vibration, air blast wave and projected rock particles (flyrock). The extent of the disturbance will be dependent on the type and quantity of explosive, the degree of confinement, the distance to the nearest buildings, the geology and topography of the site and, for opencast sites, as with quarries for other materials, the atmospheric conditions (temperature inversions, foggy and hazy conditions lead to increased noise levels). Ground vibration is measured in peak particle velocity (mm/sec) and at a level of about 12mm/sec cosmetic damage to residential properties is possible. However, planning conditions should generally set average levels at a 95% confidence rate well below this. If a planning authority is considering imposing planning conditions to protect the surrounding areas from blasting they should consult HM Inspectorate of Mines and Quarries since it is important to ensure the planning conditions are not at variance with good and safe practice under the Mines and Quarries legislation. British Standard 7385 Part 2, 1993 provides further guidance.

C17. MPAs should therefore consider the need to agree or specify planning conditions relating to the:

- levels of ground vibration and overpressure to meet the 95% confidence level, monitored over an appropriate period,
- prohibition of the use of surface detonating cord and plaster blasting
- control of flyrock, after advice from the Health and Safety Executive.

C18. The industry should:

- carry out face surveys
- design blast, including the size of maximum instantaneous charges (MICs) and detonating sequence, to minimise environmental effects,

- check the setting out of holes and record any deviations,
- revise the design if necessary,
- use correct stemming,
- monitor the blast to provide feed-back for future blast designs
- limit ground vibration by:

- minimising MICs, eg by using decked charges
- taking especial care in unusual situations, eg in corners,

-minimise overpressure by:

- avoiding the use of surface detonating cord where possible
- minimising the area of heave and the total charge

- avoid flyrock by:

- ensuring the design is thorough and follows the Quarries (Explosives) Regulations 1988
- moving fragmented rock horizontally rather than vertically
- using toe rather than collar priming/detonation
- using screen nets when in any doubt.

C19. Further advice is contained in the Department's research report "The Environmental Effects of Production Blasting from Surface Mineral Workings" [Vibroch Ltd, in association with University of Leeds, Department of Mining and Mineral Engineering and Swift Research Partners, 1998, The Stationery Office, ISBN 0 11 753412 9].

Dust

C20. The following advice should be read in the context of the guidance on the interaction with pollution control in Annex B. For opencast developments, dust arises through soil stripping, the handling of overburden, transport of coal and the movement of plant over stripped areas. Similar issues arise in the handling and transport of colliery spoil and coal stocking and handling and processing at deep and drift mines. The severity of the problem will vary according to the time of year, time of day, moisture in the soil, temperature, humidity and wind direction.

C21. Some action can be taken to reduce disturbance from dust, but by the nature of the problem, it is unlikely to be eradicated in its entirety. Measures which can be applied include ensuring that haulage roads are dampened at all times during dry weather; the surfacing of main site haulage roads with tarmac or concrete; and ensuring that vehicles using public roads undergo wheel washing and sheeting before leaving the site. In addition special arrangements can be made for controlling tipping on overburden tips or for dragline casting during periods of high wind. Operational plans for tipping should provide for dust suppression measures and aim to minimise the amount of dry dust exposed to prevailing winds in dry seasons of the year. Retreat systems of tipping which enable tips to be seeded at an early stage, also help dust control. The use of heavy vehicles can create dust problems and spraying should be used where appropriate. Screening the site and early seeding of any soil mounds will further control any dust emissions.

C22. MPAs should therefore:

- liaise with pollution control authority (see Annex B),
- consider the need to agree or specify planning conditions relating to the:

- layout of the site, design of stockpiles
- containment of conveyors and processing plant and dust collection equipment
- use of bowsers, sprays and vapour masts on haul roads, stockpiles, transfer points
- design of material-handling systems, drop heights, wind guards, loading points
- use of binders on haul roads and stockpiles (after consulting the Environment Agency)
- limiting levels of dust measured in a specific way; provision of monitoring facilities.

C23. The industry should:

-minimise the creation of dust by planning and design, eg:

- use conveyors rather than haul roads
- locate haul roads, tips and stockpiles away and down-wind from neighbours
- create 'sensitive zones' within which activities are limited
- layout and construct stockpiles, tips and mounds to minimise dust creation; use gentle slopes and avoid sharp changes of shape
- use crushing and screening plant within its design capacity
- minimise the height of fall of material
- use appropriate chippings for stemming

-control the escape of dust, eg:

- enclose conveyors, chutes, process plant, stockpiles
- provide a dust removal system for the plant
- use sprays, mists, microfoam or foam
- fit outlets with cyclones, wet-scrubbers, filters
- make dust secure prior to disposal
- insist on good maintenance

- minimise dust pick-up by wind, eg:

- compact, grade, surface and maintain haul-roads
- fit dust extractors, filters and collectors on drilling rigs
- use mats when blasting
- restrict dust-making activities to sheltered areas
- use wind-breaks/netting screens/semi-permeable fences
- limit drop of falling material

- fit wind-boards/hoods to conveyors/transfer points
 - reduce speeds and limit movement of vehicles, use upswept exhausts
 - use water bowsers, sprays or vapour masts
 - spray exposed surfaces, eg unsurfaced haul-roads, stockpiles, with binders (after consultation with EA)
 - vegetate exposed surfaces, eg overburden mounds, with quick growing plants
 - limit spillage; facilitate the removal by the use of hard surfaces
 - sweep haul-roads and other dusty surfaces
 - shake off dirt from vehicles, provide vehicle washing facilities
 - provide a surfaced road between washing facilities and site exit
 - use closed or sheeted vehicles carrying dry material
- remove dust from the atmosphere, eg:
- use fine water sprays/mists, with or without additives
 - use trees or shrubs around the site
- stop the activity or operations, if the creation of dust cannot be avoided.

C24. Further advice is contained in the Department's research report "The Environmental Effects of Dust from Surface Mineral Workings" [Arup Environmental, 1995, HMSO ISBN 0 11 753186].

Water

C25. There is a substantial body of legislation concerned with water pollution problems and additional planning conditions will only be necessary where there is no other adequate control.

C26. The principal outflow of water from both underground mines and opencast sites is caused by the water that has to be pumped from the excavation to keep the working dry. Suspended soils and acidic drainage from solution of pyrites and other minor minerals in the waste rock are the main potential pollutants, and even quite small amounts or concentrations, if they find their way into natural watercourses, can be harmful to fluvial habitats. Similar concerns arise with the run-off of water from colliery spoil tips. Leaching from waste heaps is also a potential source of pollution.

C27. Water pollution is an important consideration in assessing coal extraction and colliery spoil disposal applications, although the effects can be difficult to assess particularly if the existing pattern of drainage is complicated and the actual mining operations involve diverting or altering streams in the area. The consent of the Environment Agency is required prior to discharging water into water courses. It lays down conditions on the quality of water which is acceptable.

C28. Factors such as the collection and treatment of surface water run-off may limit the choice as to how the site is to be worked or spoil deposited and where overburden mounds or spoil tips are to be located.

C29. The effects of coal extraction and spoil disposal on drainage patterns and watercourses should be considered not only in respect of the period when a mine is in operation, but also when extraction has been completed and artificial controls such as pumping have ceased. The disposal of

surplus water is an integral part of mining operations. Such water has a number of sources including water pumped from underground, surface drainage from stocks and buildings, drainage from tips and effluent from coal preparation plant. If these matters have not been thoroughly assessed during the extraction and restoration phases of coal mining, the legacy may prove difficult to deal with. Problems can often be caused by overflows of polluted water from abandoned mines into rivers and other water courses. Mine operators should take appropriate action to avoid pollution when abandoning a mine, as required under the Water Resources Act 1991. The Mines (Notice of Abandonment) Regulations 1998 (SI No 892 1998) require operators to notify the Environment Agency where it is proposed to abandon an underground mine.

C30. For the protection of groundwater, MPAs should:

- have regard to the Groundwater Regulations 1998
- have regard to the EA's policies on groundwater protection
- after consultation with the EA, consider the need to agree or specify planning conditions, to support the protection of aquifers, relating to:
 - delaying operations until monitoring data are available to demonstrate the absence of problems or allowing precautionary measures to be agreed
 - the nature, area and depth of working
 - arrangements for recharge
 - means of minimising problems from storage of oil/chemicals
 - monitoring of quantity and quality of pumped flows from site
- consider the need to seek legally binding agreements regarding:
 - monitoring off-site, eg of groundwater levels and abstractions
 - compensatory measures, eg for abstractions likely to be adversely affected
 - long term drainage and/or water quality problems

C31. The industry should:

- have regard to the Groundwater Regulations 1998
- consult the EA at an early stage
- monitor base-line before design and planning application
- define and assess the hydrogeological regime pertaining to the site and its environs
- monitor during operations:
 - ground water levels
 - neighbouring abstractions
 - quantity and quality of recharge flows
 - neighbouring land, crops, ecology for incipient problems
- plan to minimise potential problems as well as to meet EA or MPA conditions
- consider not dewatering or, if unavoidable, dewatering progressively in cells and reducing the inflow of water by sealing
- leave effective filter layers between aquifers
- use codes of practice for temporary spoil mounds and slope stability

provide for recharge of aquifers

- bund waterlogged archaeological sites and provide water supply
- provide impervious bases and bunding for oil/chemical stores and wet process plant
- avoid seepage of contaminated run-off through floor of quarry
- encase polluting backfill in impermeable material or dilute it with innocuous fill.

C32. For the control of surface water, MPAs should consider the need, after consultation with the EA, to agree or specify planning conditions relating to the:

- siting and landscaping of flow-balancing reservoirs
- siting of settlement lagoons and disposal of silt
- siting of overburden mounds and waste heaps
- provision of hard standing and bunding of storage/process areas
- diversion of watercourses
- provision of monitoring.

C33. The industry should:

- consult the EA and English Nature about ways of avoiding or minimising the effects of changing the watertable, polluting the watercourse or otherwise changing the hydrology of the area if this would otherwise impinge on any neighbouring SSSI and especially if the proposed site feeds a wetland area
- consult the EA about any alterations to existing surface water courses, nearby river corridors and any fixed discharges
- undertake a baseline survey and establish a monitoring system
- provide bunding to keep surface water out of workings
- design a water system, including dewatering flows, in an integrated way covering:

- flow balancing by sumps and pumping
- quality control by settlement in sumps and lagoons, pH balancing
- oil and scum removal
- use of water in processing plant and treatment of effluent including vehicle wash and wheel wash waters
- containment of spillage from storage and processing areas
- use of water in dust control
- use of clean water to counteract groundwater lowering, eg in nearby pools
- regular cleaning and maintenance of water system

- limit erosion by:

- rapidly vegetating exposed areas
- vegetating, physically protecting or roughening the surfaces of overburden, soil or waste mounds
- progressively restoring working areas
- lining water courses

- design sumps and lagoons to cope with all conditions, including agreed or specified storm return period, by ensuring that:

- they are big enough
- scouring is avoided
- the retention time is adequate, if necessary, enhancing settlement by use of agreed (with EA) flocculants or mechanical means

- use progressive working so that previously excavated areas serve as lagoons
- leave margins around water courses, river corridors and other sensitive areas
- minimise obstruction of flood regime by mounds of overburden or waste.

C34. MPAs and the industry should also have regard to the Department's research report "Reducing the Effects of Surface Mineral Workings on the Water Environment - A Guide to Good Practice" [Symonds Travers Morgan for DETR, 1998, ISBN 0 9522345 9 9].

Transportation

C35. The potential increase in heavy traffic resulting from the transportation of coal or spoil is likely to be a major concern in the local community, depending on local circumstances. Clearly it is desirable wherever possible for the movement of coal and colliery spoil to be by means other than public roads. Consideration should be given to other means of transport such as rail, private haul roads, conveyors or canals where available. These should be investigated at an early stage for suitability. However, where economic factors compel the use of road transport, conditions attached to the planning permission might stipulate access points, vehicle washing equipment and operating hours. Consultation with the highway authority and, where appropriate, the Department of the Environment, Transport and the Regions in relation to trunk roads will be essential. The Ministry of Agriculture, Fisheries and Food should be consulted at an early stage to ensure that any private access road has the least damaging effect on the structure of agricultural units.

C36. Planning conditions and obligations cannot control the right of passage over public highways. If there is serious doubt whether local roads can accommodate such increase in heavy traffic as the proposed development is likely to generate, then, unless improvements are made or there is convincing evidence that control of traffic is feasible, planning permission may have to be refused.

C37. The MPA should therefore:

- at an early consultation stage, encourage alternatives to road traffic especially between a mine and a tip or process plant
- consider the need to agree or specify planning conditions relating to the:
 - site entrance, eg which way vehicles can turn
 - provision of signposting
 - sheeting of lorries before leaving the site
 - provision of sheeting bays
 - provision of information and instructions to drivers, eg requiring the posting of a notice at the site exit requesting all drivers either to use or avoid particular routes
 - provision of adequate wheel/vehicle washing facilities

- liaise with the Highway Authority to limit the size, weight, or axle loads of vehicles using particularly difficult roads.

C38. The industry should:

- seek alternatives to road haulage from excavation to tip, processing plant or depot, eg conveyors - seek alternatives to longer distance road haulage, eg rail or waterways
- avoid sensitive areas and the use of large vehicles in narrow winding roads by agreeing routes
- require that their drivers and others use agreed routes, use wheel/vehicle washing facilities and sheet their vehicles where appropriate
- offer a legally binding agreement on matters which cannot be satisfactorily covered by planning conditions, eg related road improvements.

C39. Further advice is contained in the Department's research report "Environmental Impact of Traffic Associated with Mineral Workings" [Entec UK Ltd, 1998, The Stationery Office, ISBN 0 11 753476 5].

Land Use and the Historic Environment

C40. Much of the land likely to be affected by coal extraction or spoil disposal is in agricultural use. The land will be out of agricultural production while it is being worked or tipped on; although the duration of this may be minimised where progressive reclamation is possible. The purpose of the aftercare period, where land is to be restored to agricultural use, is to assist the redevelopment of good soil structure.

C41. Where pockets of woodland or forests exist consideration should be given to retaining these not only for their intrinsic amenity and ecological qualities, but also for their screening value and their potential to act as dust filters.

C42. The effect of opencast coal extraction and subsidence from underground mining on sites, structures and remains that are of importance to the national heritage, and on the wider historic environment should be carefully considered to ensure their preservation wherever practical. Further advice is given in paragraphs 33 to 34 of the main text above and in PPGs 15 and 16.

Nature Conservation

C43. Coal extraction and spoil disposal can affect, directly or indirectly, areas of nature conservation or other ecological value. Particular care should be given to this matter. In addition to advice from English Nature, information on areas of value or interest can be obtained from the Wildlife Trust, the Royal Society for the Protection of Birds and similar bodies. MPAs are also likely to hold some nature conservation data and they should always be contacted at an early stage in the formulation of proposals. Special legal considerations apply to European sites.

C44. In assessing the likely impact of a proposal on nature conservation interests, the MPA should consider the following matters:

- the direct loss of earth heritage features and habitats through land take;
- severance and fragmentation of habitats;
- disruption to hydrological patterns, especially on wetland sites which may be some distance from the application site itself;
- potential pollution due to run-off from extraction or disposal sites;
- other potential pollutant sources such as dust which may affect lower plants in particular;
- permanent or temporary impacts caused by construction activity.

C45. Where mitigation is appropriate, proposals should aim to avoid, minimise or reduce any impacts identified, through, for example, adjusting the application area or its total size to avoid sensitive sites, by careful design of drainage or by the use and adherence to carefully drafted codes of conduct during construction.

C46. Certain habitats such as ancient grasslands and meadows cannot be recreated. However, where the need for the development outweighs the harm to nature conservation interests, the impacts can be lessened by sympathetic restoration, alternative habitat creation, and if possible recreation of the original habitat, as an afteruse.

C47. The end objective for a nature conservation afteruse will depend on the nature and characteristics of the application area. Assessment of the nature of the surrounding area and the former habitats present on the application site (if known) will be useful pointers towards priorities for habitat creation. Important habitats which have been more or less successfully recreated include heathland and moorlands, reedswamp and wet grasslands. UK and local Biodiversity Plans can be used to identify priorities for habitat creation and site restoration.

C48. In some cases natural regeneration can be a very successful method of restoring a site for nature conservation. These will be preferable to intensive planting of such areas and, in the longer term, can result in more successful colonisation by locally prevalent species. However, such methods may require a longer timescale than that provided for in the five year aftercare period. The use of Section 106 planning obligations may be appropriate in some cases.

C49. To ensure that mitigation and restoration are successful in the long term, it will be necessary to develop continuing management programmes for sites and to monitor the success and effectiveness of any management employed. These management proposals should be submitted as part of the application and appropriately modified in the light of subsequent evaluation of their success.

Subsidence

C50. Modern underground mining methods can result in surface subsidence which may cause damage to surface structures, or effect slope stability. In any consideration of new mining proposals it is necessary to take account of all material considerations, including the benefits of extracting the coal and the impact on local communities and the environment of subsidence damage and repair. Where the impacts of undermining are likely to be high, the coal should not be extracted unless the scale of the damage can be reduced by means of preventive action to surface structures or modifications to underground lay-out or extraction is in the overriding public interest.

C51. Where new underground mining requires planning permission, consideration should therefore be given to the extent and degree of subsidence that is likely to arise and ways in which damage to surface structures or slope stability could be avoided. Where damage to surface damage is unavoidable, measures should be employed to minimise it. There are essentially three ways by which surface damage can be minimised:

- a. by modifying mine design - eg by partial extraction, the retention of pillars of support, variation in the geometry of working panels and "harmonic" mining whereby the effects from different panels are applied to cancel each other out;
- b. by carrying out preventive works to existing structures - eg by works to existing properties to allow relative movement between parts of the structure, or reduce the degree of ground movement being transmitted to and through it, by the insertion of telescopic and flexible joints in service pipes, sewers and trunk pipelines, and by excavation to relieve stress during the period of subsidence. However, preventive works to domestic property - involving cutting slots in the building and the

excavation of trenches for example - whilst worthwhile in certain circumstances can in themselves be disruptive and disfiguring; and,

- c. by taking precautionary measures in new development - eg by designing new buildings to avoid undue stresses or strengthening foundations.

C52. Mineral and local planning authorities and the industry should therefore discuss at an early stage of new mining proposals ways in which mine design and lay-out might limit surface damage and the extent to which precautionary and preventative measures might be taken.

C53. Most underground mining is carried out under permitted development rights granted under the Town and Country Planning (General Permitted Development Order) 1995 at mines started before 1948, without any requirement for planning authority approval of forward mining plans. These rights are confined to designated seam areas defined by reference to seam plans deposited with the MPA before 30 September 1993 (see Annex B to MPG2 (July 1998)). In planning mine layouts and working methods at such mines, operators should have regard to the size, age and function of surface structures and interests, such as hospitals, schools, areas of dense population etc, so that mining is carried out in such a way as not to cause severe damage so far as practicable. In addition, they should supply relevant local planning authorities annually with plans showing past, present and future mining intentions. It is expected that operators will give the same consideration to the need to avoid or minimise subsidence damage as they would in the design of a new mine.

C54. In addition, the Coal Authority will, where necessary, include restrictions on coal mining operations in licences (and could in extreme cases refuse to grant a licence) in order to limit or avoid subsidence damage.

C55. Equally, local planning authorities in coal mining areas should give careful consideration to whether permission for proposals for new surface development should be granted, deferred, or granted subject to appropriate conditions in areas where existing or planned underground mining is likely to lead to a risk of subsidence damage.

Tips and related structures

C56. The majority of surface tipping comprises the construction of spoil heaps immediately adjacent to the particular colliery or drift mine. Spoil tips can be constructed of either coarse discard or a mixture of coarse discard and dewatered treated fines. When lagoons are incorporated in tips the two types of discard are handled separately. The coarse discard is used to construct the banks and the fines "tailings" are pumped in suspension in water to the impoundment formed by the banks where the particles are allowed to settle. The supernatant water is drawn off, usually for return to the Coal Preparation Plant (CPP). When the lagoon is filled and the tailings have dried out sufficiently, the lagoon is overtipped with coarse discard as a prelude to restoration.

C57. Lagooning can be more environmentally intrusive than dry tipping because for the same volume of solids the land take is much greater and it may take several years before the settlement process is completed and the lagoon can be capped with dry waste as a prelude to restoration. The excess pore water pressures which are induced within the lagoon deposit by the placing of a capping (and which temporarily reduces the stability of the deposit) take from a few months to a few years to substantially dissipate. This time depends largely on the thickness of the deposit and its drainage, but further layers of capping cannot be placed indiscriminately without consideration for the magnitude and rate of dissipation of the pore water pressures. Concomitant with this dissipation, settlement of up to about 20% of the lagoon's deposit thickness occurs.

C58. The presence of lagoons can make restoration to non-agricultural end uses (or post-restoration changes of planned use) more difficult due to the engineering properties of the disposed material.

At present the main alternative to lagooning is the dewatering of tailings by means of pressure filtration. This process is, however, significantly more expensive than lagooning. Nevertheless, lagoons should be avoided wherever practicable.

C59. Further detailed information on tip and lagoon design including stability issues is contained within the 1991 DoE report "Handbook on the Design of Tips and Related Structures" (HMSO ISBN 0 11 752539 1), produced by the Geoffrey Walton Practice. Advice on the restoration of colliery spoil tips and lagoons is given in the Department's research report "Restoration and revegetation of colliery spoil tips and lagoons" [Richards, Moorhead and Laing Ltd, 1996, HMSO ISBN 0 11 753315 7].

Annex D: The Coal Authority

D1. The Coal Authority is a Non-Departmental Public Body established under the Coal Industry Act 1994 and sponsored by the Department of Trade and Industry. It undertakes a range of activities formerly carried out by the British Coal Corporation. In particular, as the owner of practically all the unworked coal in Great Britain, the Authority manages the unworked coal reserves on behalf of the nation and encourages economically viable operations to exploit these reserves. Within its sphere of responsibility, it protects the interests of those affected by past and future coal-mining activity.

D2. The Authority manages the nation's coal reserves through licensing coal-mining operations and leasing the rights to extract coal. Whilst decisions on exploration for, and extraction of, coal reserves and the market for those reserves are for the coal operators to take, the Authority has a substantial interest in promoting the sustainable management and exploitation of those reserves. It may also have a view on the extent and quality of coal reserves within particular mining prospects. Accordingly, the Authority wishes actively to work with local authorities and coal operators to ensure that the coal resource is worked, and built development carried out, in such a way as to promote sustainability and environmental protection. This will entail close liaison during the production of development plans and during consideration of individual planning applications.

D3. Outside of these consultations, the Authority will supply details of areas under licence, under application for licence or under exploration licence to planning authorities through its regular newsletter, and will respond directly to any queries about licences or the licensing process.

D4. In March 1999, following a commission from the Coal Authority, the British Geological Survey published a map of the coal resource of the UK, showing coal-bearing strata and identifying coal resources at depths of less than 200 metres (which might be suitable for opencast mining) and less than 1200 metres (which might be suitable for deep mining, coal-bed methane extraction or in-seam coal gasification). The map is designed to assist planning authorities, prospective coal and petroleum licensees and other interested parties.

D5. The Coal Authority's duties and powers are set out in the Coal Industry Act 1994 (available from The Stationery Office, ISBN 0 10 542194 4). The Authority's "Guidance Notes for Applicants for Licences or Rights in relation to Coal or Land Owned by the Authority" and its Licensing Newsletter are available from: either the Authority's website at www.coal.gov.uk or from the Licensing Department, The Coal Authority, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG (Telephone: 01623 638309; Facsimile: 01623 620363).

D6. The Authority's statutory register of licences is available for consultation at the Mines Records Office, Bretby Business Park, Ashby Road, Bretby, Burton-on-Trent, Staffordshire DE15 0QD (Telephone: 01283 553462; Facsimile: 01283 553464).

D7. The coal resource map is available from the British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottinghamshire NG12 5GG (Telephone: 0115 936 3241; Facsimile: 0115 936 3488) or the British Geological Survey, Murchison House, West Mains Road, Edinburgh EH9 3LA (Telephone: 0131 667 1000; Facsimile: 0131 668 2683).

Compulsory Rights of Access to Land and Orders Extinguishing or Temporarily Suspending Public Rights of Way

E1. Under the Opencast Coal Act 1958, British Coal could acquire certain rights for compulsory access to land to prospect for opencast coal ("prospecting directions"), or work opencast coal ("compulsory rights orders"); suspend non-vehicular rights of way over opencast sites ("rights of way orders"); and compulsorily purchase rights to provide drainage works or water supplies to opencast sites ("drainage orders"). The rights conferred by these orders could only be exercised if British Coal had made the appropriate application or order, planning permission for opencasting has been granted, and the order had been separately authorised or confirmed by the Secretary of State.

E2. The Coal Industry Act 1994 modified the provisions of the Opencast Coal Act 1958 and enables operators with a licence from the Coal Authority (or a person whose application for a licence to the Coal Authority is pending) to apply to the Coal Authority for the making of compulsory rights orders, rights of way orders and drainage orders and enables the Coal authority to apply to the Secretary of State for a prospecting direction. Where the Coal Authority makes an order, the order will be of no effect unless and until confirmed by the Secretary of State.

Prospecting Directions

E3. A prospecting direction grants compulsory rights of access to land for the purposes of prospecting for opencast coal, to establish whether the land contains coal suitable for working by opencast methods and if so, what quantity and quality of coal, how it can best be worked, and to establish whether land would be suitable for operations connected with opencasting - eg, siteworks, access and restoration of the land. A prospecting direction does not authorise any interference with the exercise of a public right of way, nor entry into buildings.

E4. There is no provision for a local inquiry into whether or not a prospecting direction should be made, but the Secretary of State will only make such a direction after giving persons affected the opportunity to make representations to him, and if he is satisfied that the rights of access are necessary in the public interest.

E5. Where the Secretary of State makes a prospecting direction, he will usually attach conditions governing the scope and duration of the operations to be carried out and the subsequent restoration of the land. Prospecting does not entail any major disturbance of the land and the 1958 Act provides for compensation to be paid to persons having an interest in the land in respect of any damage or disturbance so caused. The making of a prospecting direction does not convey any presumption that a subsequent application for planning permission for opencast coal mining would be granted.

Compulsory Rights Orders

E6. Compulsory rights orders confer temporary rights of occupation and use of land for opencast coal mining. Orders may not comprise any part of a dwelling or immediate surrounding land and are subject to confirmation by the relevant Secretary of State. Where the Coal Authority make an order, an inquiry or hearing must be held if a valid objection is made by an owner, lessee or occupier of land which is the subject of an order. If the Secretary of State confirms an order, the 1958 Act provides for compensation to be paid to persons having an interest in the land.

E7. In deciding whether or not to confirm a compulsory rights order, the Secretary of State will need to be satisfied in any particular case that there is a wider public interest in allowing the coal to be

worked which is sufficient to override the normal rights of a landowner to withhold consent for development on his land.

Rights of Way Orders

E8. Rights of way orders suspend a non-vehicular rights of way (ie a public footpath or bridleway) over land until opencasting has been completed and the land restored. Where the Coal Authority make an order, the order must include provision for securing the reconstruction of any suspended right of way on the restoration of the land. An inquiry must be held if an objection is made by a county or district council in relation to an order made by the Coal Authority in respect of land in their area.

E9. In considering whether to confirm a rights of way order, the Secretary of State will need to be satisfied that suspension of the public right of way is necessary; and, that a suitable alternative way will be made available for use by the public during the period for which the order remains in force; or, that the provision of such an alternative way is not required - eg because there are already adequate existing alternative rights of way.

Drainage Orders

E10. Drainage orders confer a right to place drainage works or water pipes on land, without purchasing any other interest in that land, for the purpose of draining land or bringing a supply of water to land in respect of which opencast planning permission has been granted. Where the Coal Authority make an order, an inquiry or hearing must be held if a valid objection is made by an owner, lessee or occupier of land which is the subject of an order. If the Secretary of State confirms an order, the 1958 Act provides for compensation to be paid to persons having an interest in the land.

E11. The Secretary of State will only confirm a drainage order if he is satisfied that the rights are necessary and in the public interest.

Public Inquiries

E12. Compulsory rights orders, rights of way orders and drainage orders may not be confirmed until planning permission is granted. If an inquiry has to be held to consider any such orders for the same site, they will be considered concurrently, together with any appeal against refusal of opencast planning permission, where this is applicable.

Expiry of Powers

E13. The power to make prospecting directions, compulsory rights orders, rights of way orders, drainage orders will lapse on 31 December 1999.

Procedures

E14. Further advice on the necessary procedures is contained in The Opencast Coal (Compulsory Rights, Drainage and Rights of Way) (Forms) Regulations 1994 Guidance Note.