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H. Stanley Dempsey

T. Withers Field

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It is fair to say that historically, the mineral developer has enjoyed a preferred status under this nation's law. However, one can argue that recently a shift has occurred away from the automatic preference of mineral development. Evidence of a shift is the complicated and overlapping regulatory schemes which have been put into effect to control and supervise development. Often times the end result of such overwhelming regulation is to create so much uncertainty and conflict that neither environmental quality nor mineral development are aptly served. In response to this predicament, this article presents a brief portrait of the British Land Use Planning System and how it works in regard to hard mineral development. It is hoped that the British System, which is characterized as being flexible, efficient and a one step process, will provide useful ideas for land use planners and mineral developers in the United States.

MINERAL DEVELOPMENT IN THE UNITED KINGDOM: A STREAMLINED PLANNING PROCESS

*H. Stanley Dempsey**

*T. Withers Field***

Mineral products are important in any society, but are essential in the advanced industrialized nations of the world. Fossil fuels and uranium are required for heat, light and power; fertilizers for agriculture; bricks, mortar, plaster and glass for housing; concrete and steel for major structures; raw materials for the chemical industry; metals of all kinds for machinery; and vast quantities of aggregates for roads, just to name a few. Various minerals (with coal probably

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*Vice President, AMAX Inc., B.A. University of Colorado, 1960, J.D., University of Colorado, 1964, Cert. Harvard Business School, 1969.

**Law Clerk, AMAX Environmental Services Inc., B.A., University of Colorado, 1976, Third Year Law Student, University of Colorado, 1978.

being the only major exception) are rarely found in concentrations economically mineable. Therefore, where they do occur, the winning of those minerals for the benefit of man has traditionally been awarded one of the highest priorities for land use by the legal systems of most nations.

In recent years, however, competition for use of land has become more intense and an increase in the political power of agriculturists and environmental quality interests has caused a diminishment in the mineral developer's preferred status under the law. In the United States, this shift away from a policy of automatic preference for mineral development has been expressed in the creation of a complicated and overlapping regulatory scheme which requires mineral developers to secure permits and approvals from several levels of government, and from a number of separate agencies and bodies at each of those levels. Diversity of mining methods, climate, terrain, and other biotic and abiotic factors makes simplistic, uniform standards unrealistic and unworkable. The resulting system produces unnecessary duplication of effort, delay, uncertainty and economic hardships.

Thoughtful mineral developers are concerned that present trends in the United States are leading to even greater uncertainty and conflict, and that neither environmental quality nor development interests are well served by a regulatory system which results in indecision and protracted political conflict. One approach to developing a better regulatory scheme is to look at the legal systems of other nations.

The United Kingdom offers an opportunity to study the workings of a regulatory scheme of a nation with which we share a common legal heritage. Unlike the system found in the United States, mineral development in Great Britain is controlled by a flexible, efficient, one-step land use planning system. The British system affords an opportunity for industry, government and the public to make decisions concerning land use based upon a unified, detailed presentation of facts. The process brings together all interested parties at the outset through a public inquiry procedure, encourages early decisions on the issues, and balances the

economic needs of the country with environmental and local concerns. Though the process is by no means without problems or critics—the planning system originally was designed to control the problems associated with increased industrialization and urbanization in a land-poor country—a study of town and country planning in Great Britain may provide useful ideas for land use planners and mineral developers in the United States.

In October of 1977, a study team sponsored by AMAX Inc., a United States based mineral development firm, went to the United Kingdom to study the British land use planning system, particularly with regard to mineral development. The group met with mining company officials, local planning officials, and attorneys and consultants employed by both, as well as with conservationists and representatives of the British Department of the Environment.¹ This article will describe the British Planning system in relation to mineral development and note the experience of mining companies and local governments in achieving their respective goals within that system.

TOWN AND COUNTRY PLANNING IN GREAT BRITAIN

The British scheme of land use planning immediately strikes one as very well thought out and extremely comprehensive. Powell, *Real Property*, § 873.1[7] (1977).

All land use development in England and Wales is governed by a single statutory scheme, the Town and Country Planning Act of 1971.² The Act is a one-step procedure controlling any land use project, whether it be erection of a tin shed at the end of a garden or a multi-million dollar min-

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1. The mining companies visited in connection with this study included English China Clays, Ltd.; Rio Tinto-Zinc Corporation, Ltd. (copper and gold); Carrock Fell Mining Co. (tungsten); Cleveland Potash, Ltd.; Laporte Industries, Ltd. (fluorspar); and the National Coal Board, all in England and Wales, and Tara Mines Limited (lead and zinc) in Navan, Ireland. In addition, the AMAX group met with the Dartmoor National Park and Devon County Planning Authorities, the Cumbria and Lake District Planning Authorities, the solicitor for the Merioneth County Council affected by the proposed Rio Tinto projects in Snowdonia National Park, and the director of the geology and physiography section of the Nature Conservancy, a statutory group concerned with scientific investigation and fact finding. A meeting was also held with the executive director of the Council for the Protection of Rural England, one of the nation's chief amenity groups with a membership of approximately 35,000 people.
 2. Town and Country Planning Act 1971, 19 & 20 Eliz. II, c. 78.

ing operation. Though subject to central government supervision, town and country planning in Great Britain is a function of local government, remarkable in its generality, and is designed to maximize fact-finding activities and public participation.

The Development of the Main Legislation

Town and country planning has been statutorily regulated in Great Britain for over sixty years. For the first thirty years regulation was basically negative in character. The Town and Country Planning Act of 1932³ for the first time permitted planning authorities to plan for builtup areas and areas not likely to be used. However, the system was permissive and basically regulatory in nature, similar to zoning powers.

World War II provided the impetus for positive planning. In 1943, a separate Ministry of Town and Country Planning was formed⁴ (the function of this ministry was transferred to the Minister of Housing and Local Government in 1951 and to the Department of the Environment in 1970). The Minister, now the Secretary of State for the Environment, was charged with the duty to bring "consistency and continuity" to land use and development throughout England and Wales.⁵

The Town and Country Planning Act of 1944⁶ empowered local authorities to take the initiative in and develop plans for war blitzed areas, or where the current use of land was ineffective or obsolete. Most importantly, local planning authorities were given power to compulsorily acquire land (in America, the power of eminent domain).

The Town and Country Planning Act of 1947⁷ provided the foundation of modern English planning law. It was prompted by the troubles brought on by the war—depression and unemployment causing large population shifts. The Act emphasized a need for positive planning on a national scale. By placing the power to prepare comprehensive

3. Town and Country Planning Act 1932, 22 & 23 Geo. V, c. 48.

4. Minister of Town and Country Planning Act 1943, c. 5.

5. Minister of Town and Country Planning Act of 1943, 6, 7, Geo. 6, c. 43, § 1.

6. Town and Country Planning Act 1944, 7 & 8 Geo. V, c. 47.

7. Town and Country Planning Act 1947, 10 & 11 Geo. V, c. 51.

development plans with larger county and county borough authorities, the Act reduced the number of planning authorities from a staggering 1,441 to 145—permitting planning development over wider areas, reconciling interests of towns and country, and providing larger and more qualified staffs for local authorities.⁸ New surveys were to be conducted at least once every five years, providing a framework for updating plans for changes in population distribution, economic and social substructure, and transportation and recreation needs.⁹

The Town and Country Planning Act of 1968¹⁰ further improved major elements of the Act, giving guidelines for structure and local planning. Further consolidation occurred in the 1971 Act (herein referred to as the Act), which is now the basic measure governing land use planning in England and Wales.

Current Development Planning Process

The planning process revolves around two basic plans, the “structure plan” and the “local plan.” The structure plan provides the framework for development of local plans. It is prepared by the county planning authorities, and is designed to outline in broad terms a framework for development in a large area. It provides the local authority’s “policy and general proposals” for the “development and other use of land” in the areas under its control.¹¹ It will normally contain policy directives for:

1. Population and employment distribution,
2. Location and density of residential, industrial and commercial areas,
3. Transportation,
4. Basic community services (i.e., public utilities), and
5. Preservation of agricultural land and areas of natural beauty or historic interest.¹²

8. Barendt, *Comprehensive Development Planning in England*, 2 FLA. ST. U. L. REV., 415, 420.

9. Speech by Silkin, *Minister of Town and Country Planning*, 432 PARL. DEB., H.C. (5th ser.) 96263 (1947).

10. Town and Country Planning Act 1968, 16 & 17 Eliz. II, c. 72.

11. Town and Country Planning Act, 1971, c. 78, § 7(3)(a).

12. STAT. INST. 1972, No. 1154 (Reg. 9, 19).

It is not a map, but a written instruction without precise boundaries. It is also subject to the Secretary's approval.¹³

The "local plan" is a detailed and specific allocation of land uses. It should relate the policies of the applicable structure plan to a particular area of land, state the particular methods of control of development in that area, provide a basis for coordination of development, and bring planning issues, in a localized, detailed setting, before the local public.¹⁴ The local plan does not need the Secretary's approval, but it may be "called in" by him for approval if the plan or a proposed development generates a great deal of public controversy, or if the issue is deemed to be of national importance.¹⁵ If an application is called in, a public inquiry is scheduled. According to a number of people we talked with, mineral development applications are called in, not only for the reasons given above, but because most local planning authorities failed to consider mineral development in formulating their structure plans, so such projects are considered by the Secretary of State as a departure from the previously approved structure plan.¹⁶

It should be noted that development is allowed in all areas of the country, whether such areas are designated as National Parks or enjoy other protective status.

The formulation of a local plan is a markedly open and informal process. Generally, the local planning authority puts together a draft, notifies the public,¹⁷ solicits suggestions,¹⁸ and holds a local inquiry if material objections are received.¹⁹ The local inquiry is utilized for airing objections

13. The 1972 Town and Country Planning (Amendment) Act replaced the public inquiry for structure plan approval with a more informative public examination procedure. The most significant change was that no objector to the proposed plan has a right to appear at a public examination, but only those selected by the Secretary (or presiding officer), and the use of lawyers by parties is discouraged. The inquiry thus becomes less of an adversary battle between the local authority and objectors, and greatly shortens the length of time required for approval. The average time for approval before this change was two to three years. PLANNING ADVISORY GROUP, *THE FUTURE OF DEVELOPMENT PLANS*, § 1.29 (1965).

Example: In the greater London Development Plan Inquiry, 28,000 individual objections were considered over a two and a half year period. Moore, *The Planning Game—English Style*, 7 URBAN L. ANN. 57, 69.

14. Town and Country Planning Act, 1971, c. 78, § 11.

15. Town and Country Act § 35 (1971).

16. Town and Country Planning Act, 1971, c. 78, § 35.

17. Town and Country Planning Act, 1971, c. 78, § 12.

18. Town and Country Planning Act, 1971, c. 78, § 13.

19. Town and Country Planning Act, 1971, c. 78, § 13.

prior to the adoption of the local plan and for the consideration of the pros and cons of an application for permission for proposed major developments under an adopted local plan. The local inquiry procedure is loosely structured. Under Section 35 of the Act, a person called an "Inspector" is appointed by the Secretary to run the local inquiry. In addition, two assistants, called "assessors," are chosen by the Secretary to assist the Inspector in technical matters. Highly qualified people are selected to fill these positions.²⁰

At the end of the inquiry, the Inspector prepares a report which summarizes the evidence and includes recommendations to the Secretary concerning approval of the plan or application. An approval of the application by the Secretary may impose binding conditions on the development.²¹ The Inspector's recommendations are usually adopted by the Secretary.

A decision by the Secretary upon an application called in under Section 35 is final.²² The decision rests on a balancing of the effects of the proposed development on the amenities in the area of impact against the project's importance to the local and national economy.²³ Limited judicial review is available in the High Court.²⁴ However, review is limited to whether the Secretary's order was "within the power of this Act,"²⁵ or in contravention of relevant requirements of orders or regulations adopted under the Act.²⁶

THE PUBLIC INQUIRY: ONE-STEP PLANNING

The public inquiry, which is always held in the area of proposed development, is an informal adversarial hearing at which all points of view concerning the application may be

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20. The Inspector is usually from the Department of the Environment, a landscape architect, surveyor, or other professional. Assessors are usually technical people of the highest professional standing. For example: In the Winscale inquiry, one of the assessors had set the British standards for background radiation and chaired the International Commission on Radiological Hazards. The second assessor, a chemical engineer, was vice president of the Institute of Chemical Engineers.
21. Town and Country Planning Act, 1971, c. 78, § 30.
22. Town and Country Planning Act, 1971, c. 78, §§ 6, 35.
23. ROBERTSON RESEARCH INTERNATIONAL, LTD., A REVIEW OF MINERAL PLANNING CONSENT PROCEDURES IN BRITAIN (1977) Report No. 361—a letter announcing disposition of an appeal from a local authority to the Secretary explicitly describing the balancing process.
24. Town and Country Planning Act, 1971, c. 78, § 245.
25. Town and Country Planning Act, 1971, c. 78, § 245.
26. Town and Country Planning Act, 1971, c. 78, § 245(1), (2).

expressed. As mentioned earlier, an Inspector and two technical assessors, appointed by the Secretary of State for the Environment, preside over the inquiry. In a typical mineral development application inquiry, the Inspector is a surveyor or architect. One assessor is a mining engineer and the other a geologist. A public inquiry may take from a few days to several weeks.

The Inspector's discretion over the form and substance of the inquiry is very broad. He is directed to conduct the hearing in accordance "with well-established principles of openness and fairness" and decide upon the types of evidence to be submitted and whether or not cross examination of the witnesses will be allowed or whether he will question witnesses.²⁷ He also determines the scope of the inquiry, the issues to be addressed, and the evidence to be presented by both sides. An Inspector can ask, and often does, the disagreeing parties to decide the issues before the inquiry, reaching agreement on less contentious items early, thus limiting the agenda to those matters of serious disagreement only.

The rules of procedure for the public inquiry, although largely at the discretion of the Inspector and fairly informal, are pretty standard. Generally, the Inspector begins by reading the formal notice of the inquiry and introducing himself and the assessors to the audience (elaborating upon their roles in the inquiry). He next announces the procedure to be followed. Usually, the applicant (i.e., the company applying for the planning permission) starts off the inquiry with his attorney delivering a general statement of his case. The general statement may take from an hour to half a day, though it has continued for a whole day in the case of some of the more complex mineral development applications. The applicant's attorney then proceeds to give his evidence through his witnesses, followed by cross examination and rebuttal.

After the applicant has presented his case, the county council, if honestly opposed to the development, begins the case for the opposition. Then opposing groups, normally in

27. STAT. INSTR. 1969, No. 1092.

order of size, state their arguments, and at the end, private parties or individuals are allowed to speak. Additional supporting testimony would be allowed at the discretion of the Inspector. Visits to the development site may also be arranged.

At the conclusion of the public inquiry, the Inspector makes his recommendations to the Secretary of State for the Environment, who makes the final decision in the matter, although he practically never overrules the recommendations of the Inspector. Usually, the decision handed down by the Secretary is made by a non-political, high-level official in that department. A final decision may take three months to two years for a mining application.

Advantages of the Public Inquiry

The Department of the Environment "calls in" only those planning applications deemed to be of regional or national significance, or only about 200 of the 600 applications and plans a year. Yet, far from considering "calling in" a nuisance, representatives we spoke with from all sides indicated their basic approval of the process. Industry generally favors the public inquiry because they feel they receive a more objective hearing. Environmentalists are happy because they have an opportunity to get all the facts, and conditions for environmental protection are properly addressed. The public inquiry also relieves local authorities of much of the political pressure, since the Secretary of State makes the ultimate decision.

British mining representatives explained that the public inquiry afforded them the opportunity to make a stronger case for mineral development, presenting their own expert testimony before persons capable of understanding it and making informed decisions. They argued that everyone is better served by a one-stop permit process which takes into account technical, scientific, social and economic, as well as environmental factors. Central government officials and local authorities both spoke of the "balance" they must achieve in planning decisions between the legitimate needs of the mineral industry and the national economy, and the

environmental consequences and welfare of the local inhabitants. They believe that balance is more easily reached when all the facts are presented at a public inquiry.

Environmentalists and amenity groups favor the public inquiry because they are assured that all their questions will be answered and that their objections will receive consideration in the conditions imposed upon the company with regard to mining method, restoration, and pollution control measures. They, too, recognize the importance of the economic factor in presenting a case for mineral development, but from a different perspective. Said the executive director of one of England's largest amenity groups at a meeting with the AMAX party:

You can't argue about where minerals should happen like other things for which people receive planning permission: factories, houses, and the like. You've got to have mineral development where the stuff can be got out of the earth. There's no two ways about that, so when you come to a public inquiry to argue about a mineral application, you are arguing about the strength of the economic case for getting the stuff out.²⁸

In addition to the environmental, economic, social and technical arguments advanced at the public inquiry, one also can hear the concerns of the "little guy." The farmer or shopkeeper whose livelihood will be impacted by proposed development has as much right to be heard as everyone else.

Preparing for the Public Inquiry

Where does a company start in attempting to prepare for the intense scrutiny of its proposed operations produced by a public inquiry? A number of general observations based on experience were passed on to us by British mining company executives and their consultants and attorneys.

First and foremost, they recommended that attorneys and technical staff members work together from the very beginning of planning, with both becoming as well informed as possible in the legal and technical aspects of the develop-

28. Conversation on October 18, 1977 with Christopher Myles Hall, Executive Director of the Committee for the Preservation of Rural England.

ment in order to present the best possible case. It was also suggested that company attorneys and technical staff people work closely with the local planning official, educating him to the needs of the project while exploring issues acceptable to the local people. Seeking areas of possible agreement from the very beginning can help limit the scope of the public inquiry later on.

Effective public and community relations programs must be developed, with as much early, open planning as possible providing the key to community knowledge and acceptance of the project. Assessment of community opinions and needs enables the company to anticipate and alleviate areas of controversy while planning to meet arguments and opposition to the development at the public inquiry. Thorough environmental baseline data gathering and environmental impact assessment programs should precede applications for planning consent. Such scientific activity must be of the highest caliber and provide answers to questions and objections which may arise later. Here again is an area where the technical and legal staffs must work together.

Mine designers should employ such specialists as noise consultants and landscape architects during planning and development to advise of possible problem areas and how they might be corrected, *i.e.*, berms and tree plantings to screen construction or better on-site traffic patterns to reduce noise and dust.

Mining company officials and planning authorities alike feel that steady communication and education through honest, open planning to be vital to public acceptance of the project and eventual success at the public inquiry. The traditional mining industry concern with confidentiality is generally viewed as an obstacle to obtaining the goal of consent to proceed.

Finally, although one can hardly plan for mineral occurrence, the point was made repeatedly that a company is much more certain of obtaining permission to mine if they are reopening and reworking an old site or if the area has a history of mining than they are if they are going into virgin territory. Strong economic and environmental protection

cases will have to be made for new sites. There are several reasons for planning authorities looking favorably at old mine sites, among them, a ready workforce and the possible imposition of conditions to clean up derelict mines.

THE BRITISH EXPERIENCE

A brief description of the experience of two of the companies the AMAX party visited will, we hope, exemplify our discussion of the land use planning process and how it applies to mineral development.

Cleveland Potash: Outline and Detailed Planning for a New Mine

Cleveland Potash, Ltd., actually went through two planning procedures to obtain permission for underground mining of potash near Boulby on England's North Sea coast. The company first obtained outline, or general, planning permission after a public inquiry. It received detailed planning consent later, when public and government concerns over tailings disposal had been allayed.

Prior to the development of the Cleveland Potash mine, there had been no potash mining in Great Britain, and the country's total consumption of approximately 750,000 tons annually were imported. Domestic production of this mineral, therefore, would contribute significantly to the United Kingdom's balance of payments position. In the early 1960s, exploration confirmed the existence of potash at depths of about 3500 feet near the town of Staithes. This deposit, which was to become the Cleveland Potash orebody, lies wholly within the boundaries of the North Yorkshire National Park.

Cleveland Potash officials knew that they faced a major effort in obtaining planning permission to mine: the location of the orebody within a national park; the fact that potash mining was new to Britain; the concerns of the local people, whose economy had heretofore been based on farming, fishing, and tourism; and the filing of the application during the National Environmental Year, when environmental consciousness was at its peak. Accordingly, company officials

began a comprehensive development scheme designed to meet all environmental considerations while meeting the company's goal of extracting profitably from great depth an ore of relatively low value that requires costly treatment before being marketed. The firm began to plan for a high-tonnage, modern, and efficient mine and milling plant, with capital costs expected to reach \$80,000,000. The initial production plans were for one million tons per year, with a full capacity production level 50 percent higher.

Company officials recognized that a new venture of this magnitude in an environmentally conscious age would face many problems before it was acceptable to the planning authorities, both local and national, as well as to the various societies and organizations with interests in the area, and to the parent companies, Charter Consolidated, Ltd., and Imperial Industries, Ltd.

From the beginning, there was close collaboration in planning between management, technical staff, architects, and landscape architects, with constant exchange of ideas during the whole design process so that the best possible compromise between technology and aesthetic values could be reached. Additionally, the company's attorneys were involved at the outset to advise on issues which might surface at the public inquiry.

The first task was that of finding a suitable site for the two shafts and surface works. The site had to be small and compact, and laid out to be as visually pleasing as possible. This involved detailed consideration of the location of the site, site layout, landscaping, building shapes, and materials. In addition, the company had to consider subsidence, tailings disposal, dust collection and fume treatment, noise, and offsite transport. Of the three best sites, two were rejected quickly because mine structures would be silhouetted against the sea from most viewpoints. The site chosen is at the foot of Boulby Hill, the biggest hill in the area, so that the mine facilities are always seen against a background of hills and there is little disruption of basic landforms. Surrounded on the south and east by good stands of trees, the site chosen also offered greater opportunities for effective landscape design.

Site layout at Cleveland Potash is clearly the result of close cooperation between technical staff members and architectural consultants. Positioning of the shafts, the railway tracks, and the sidings were decided through mutual agreement. Buildings are located at right angles to one another for simpler traffic patterns and simple land shapes. Due to the physical properties of the materials moving to and from the treatment plant and to the rail loading areas, the conveyors could not be steeper than 15° , a fact which prescribed the minimum distance between some of the buildings and transfer towers. Use and location of gravity lines had to be planned for the treatment process and tailings disposal. Drainage problems were studied and solved. And finally, future expansion of the site could not be precluded and had to be considered along with the location of immediately necessary facilities. In order to minimize visual disturbances, the architects decided that all buildings should have pitched roofs with a 15° angle of pitch to harmonize not only with the angle of the conveyors, but also with the slope of the surrounding hills.

Landscape architects worked to screen the areas from most viewpoints. The surplus materials from the site and the shaft sinking were used to construct a large screen mound to hide the railroad sidings and the bases of the mine building. The mound was topsoiled and grassed to make it appear to be a natural form. Trees have been planted to screen the mine from various views without interrupting the view of the sea coast, and ultimate restoration of the site will provide a gain in woodlands.

To avoid subsidence, a room and pillar method of mining was selected, with a low, safe extraction rate of 25 percent ensuring negligible subsidence. Dust collection problems were solved by the shrouding of all material transfer points. Fumes are cycloned, scrubbed, and cooled before discharge from a 296-foot stack.

Since the mine is located in a farming, fishing, and vacation area of quite peaceful surroundings, the company employed noise consultants to advise them in planning. Accordingly, all noisy surface plants and machinery have been

housed in buildings, the main mine fans have been installed underground, and emergency fans on the surface have been housed in a concrete structure. Periodic noise surveys are still being carried out by the company.

Offsite transport by rail was an early decision to avoid congestion of the narrow roads in the area. The company reinstated a line from the minesite to Teesside, 4½ miles away, building one major bridge and seven small ones, following the route of the original line to avoid further disruption of the land.

It was tailings disposal, however, that became the crucial issue in the Cleveland Potash inquiry, because the company planned to dispose of its tailings, consisting of mostly halite or rock salt, in the North Sea. Fishermen were worried about the effect on marine life, and the resort owners and those connected with the tourist industry were concerned about possible pollution of the beaches. The halite, sylvite, and anhydrite which make up 94 percent of the Cleveland Potash tailings are all soluble in sea water, and all minerals to be discharged were derived from the sea originally. Treatment plant reagents, which would occur in negligible quantities in the tailings, were all biodegradable.

The marine laboratory of one of Cleveland Potash's parent companies studied the area of the proposed tailings disposal for three years, recording tidal movement, types and density of sea flora and fauna, and changes in both from year to year. Marine life has to be protected by preservation of its feeding grounds: the company's surveys showed that these were mainly in the rocky sea-bed areas and that the stable sandy area off Boulby has very little significance as a fish feeding ground. These investigations elicited the conclusion that no environmental problems would arise from tailings disposal in the sea, and the decision was made to dilute the tailings with slurry and discharge the weak slurry one mile offshore. To discharge the tailings one mile offshore, the company sank a shaft from a seaside hill to below the shore elevation, with tailings moving through a pipeline installed in a tunnel to the point of discharge. This method was not only economical but provided easy inspection and maintenance of the pipeline.

A public inquiry lasting two weeks was held in August of 1968, and Cleveland Potash offered fifteen experts to present its technical and environmental case. The technical assessors at the inquiry were the former chief of mines in the U.K. and a "top geologist," according to company officials. This inquiry predated the 1971 Town and Country Planning Act, and the application and the findings of the inquiry panel went to the Minister of Housing and Local Government.

Outline planning consent was granted in November of 1968, and, in view of the major issues involved and the size and novelty of the project, the company felt the matter had been expeditiously handled. However, Cleveland Potash was told it would have to apply for detailed planning consent for its tailings disposal. Although company officials were disappointed with that decision, they went ahead with development of the minesite and sought detailed planning consent through further delineation of their plans for tailings disposal.

Meanwhile, the company continued to study the area of proposed tailings disposal. They learned that marine life in the area was subject to considerable change over short periods of time, changes they felt they would have been held responsible for if they had received total planning permission in 1968. In fact, so convincing were the company's research efforts and its evidence of good faith in environmental protection during the concurrent construction phase, that the application for detailed planning consent met no opposition from local government, amenity groups, or the public, and final planning permission was granted, this time by the Secretary of State for the Environment, approximately a year and a half after the initial consent. It was conditional consent, however, for only five years of operation, and while Cleveland Potash management was again disappointed in that condition, they realize that potash mining is a new venture in England and that they will have to continue to prove themselves.

And they are doing so. They are required to collect data daily on the salt, insoluble clay and anhydrite concentrations in the sea water, reporting monthly to the government. Four

times a year, they take seabed samples, reporting the composition of them. Still, they have found that everything they do is small in comparison to the natural variations in marine conditions, and they are tracking those variations by computer.

Cleveland Potash is now less than a year away from an application to continue operation. During the past four years, they have continued to make friends with the local populace, keeping the public and local planning authorities informed with regard to their marine research and future plans.

Tara: A Model of Environmental Protection Endeavors

Tara Mines, Ltd., located at Navan, Ireland, is Europe's newest and largest lead-zinc mine, a model of environmental protection endeavors, and an excellent example of the effectiveness of good community and public relations in mine development. The AMAX party had not planned to go to Tara originally, but in talks with mining company officials and their consultants in England and Wales, Tara was cited so often as an example of successful mine planning, that a trip to Navan was added to the itinerary.

Land use planning in Ireland is governed by the Planning Act of 1963, amended in 1976. It is, for our purposes, so similar to England's Town and Country Planning Act that the differences will not be addressed in this article.

The Tara orebody was discovered in 1970, near the town of Navan, seat of County Meath, and located about 30 miles from Dublin. Navan's economy was dependent principally upon the manufacture of furniture and carpets and upon agriculture: the area is cattle fattening and dairy farm country and a center of European Thoroughbred horse raising. Tara began development drilling in 1971, and it was late in that year that opposition to the project began to surface, primarily because of its close proximity to the town—less than a mile—and because the Irish people have little experience with mining.

Therefore, Tara began an extensive public education campaign, addressed not only to Navan, but to the whole country. They published a clearly written four-color booklet, "A Question of Environment: The Navan Development," filled with excellent photographs, diagrams, and charts, describing the project and explaining the baseline studies to be made, the plans for environmental protection measures based on those early studies, and the monitoring which would continue during the mining operation. In addition to the booklet, which appeared in early 1973, Tara opened an information center in Navan with specially trained staff members to answer questions, provide technical information, and to explain details of the mine plans as they unfolded. Company executives made themselves available to answer questions, and a number of programs were presented to local interest groups. Open planning was viewed early by Tara executives as necessary to community acceptance of the mine.

Tara applied for planning permission in February of 1973, and the Meath County Council, the local planning authority, granted that permission, subject to certain conditions, in July of that year. Five groups appealed the decision of the county council, and the company appealed certain conditions, so a public hearing was held in November of 1973. Tara was prepared for the inquiry. The company had conducted extensive baseline studies as well as a simultaneous investigation of the environmental implications of various production methods and designs of facilities. The baseline studies were useful in establishing a background of environmental conditions prior to development, against which to measure the effect of the mining development during its operating phases.

The Boyne and Blackwater rivers meet in the town of Navan. Both are important to recreational trout fishing in the area. The Blackwater is a valuable source for commercial eel catches, and salmon and mussels are considered valuable commercial crops in the Boyne. Twenty stations were established to monitor river conditions over a ten-mile stretch of the Boyne, the Blackwater, and several smaller rivers. Mineral content of the water, river flow, fish popula-

tions, and plant life data were recorded. It was decided that the Boyne would receive the mine discharge because greater dilution could be achieved—through a diffuser—and because the Boyne water was harder than the Blackwater.

Although Tara had originally planned open pit mining for Navan, concerns about dust, noise, and vibration led them to change the plan to underground mining at a fairly early stage. However, the local residents still feared atmospheric pollution. The company's baseline atmospheric quality studies were planned to determine the levels of lead and zinc dust in the atmosphere prior to mining. Samples of soil and herbage were taken for heavy metals, and veterinarians were hired to determine the mineral content in the metabolism of the cattle within one and one-half miles of the minesite. These tests encouraged the company to establish four forty-acre farms at strategic locations around the mine to continue to monitor cattle blood and tissue under controlled conditions. The farms provided a barrier between mine production activity and Navan residents. Farm products are sold providing a useful economic return on the land.

Flora and fauna studies were conducted in the area to determine the existence of any rare species (none were found) and to establish a basis for noting changes in bird and animal populations.

Vibration and noise surveys were carefully made, for the company quickly determined that these were the most sensitive issues in the community. Residences near the mine which were also located on busy highways were measured for the extent of vibration caused by heavy traffic, with the location and condition of each building also recorded. The existence of noise-sensitive facilities such as schools, hospitals, and senior citizens' homes were defined relative to the mine area. And the locations of all local quarries and other industrial operations likely to have blasting or other noisy activity which might be attributed to Tara were established. The company constantly informed the public regarding its data and its plans to limit vibration as much as possible.

Noise was, and continues to be, the biggest problem for Tara. A detailed investigation of noise sources was conducted long before construction started: background noise levels were measured at different points on the perimeter of the minesite; noise "climates" in the surrounding area, ranging from quiet rural residential to sites along busy roadways were identified; and areas and sources of noise generation were pinpointed. As a result, the site layout was modified considerably, with situation of the mill, workshops, haul and access roads carefully chosen with regard to achieving a balance between utility and noise impact. Tara continues to monitor noise levels, using very sophisticated equipment which took the company and its noise consultants three years to develop. They continue to be plagued by noise nuisance suits, however, and recommend to other companies that the time and money spent on establishing and predicting noise levels and methods of reducing them is well worth it later.

The landscape plans at Tara received a great deal of attention in the mining industry, for the company went to great expense in landscaping. Ireland's foremost landscapers were hired to devise the landscape plan, based on goals set by the company in its original planning application: "to create a pleasant appearance for the public and a good internal environment for employees; to integrate into the surrounding countryside pleasing industrial buildings which relate well to one another and to their surroundings; to reduce any noise generated from the site and to design a system which could be readily maintained in good condition."²⁹ Stimulation and protection of wildlife development were also stated goals of the landscape plan at Tara.

Although the mining was to be underground, buildings of significant size were naturally necessary for ore processing, and concern was expressed over the visual impact of the minesite on the surrounding countryside. With this in mind, the company purchased a total of 420 acres, with only 103 to be used for surface processing facilities, including site ponds. This ratio of four to one made careful landscaping possible: of the remaining 317 acres, 91 were devoted to planting; 180 to the four farming areas; and 46 to other open spaces.

29. THE LANDSCAPE PLAN, 11, a pamphlet prepared and distributed by Tara Mines, Ltd.

Screening of the construction site and reduction of noise were early goals and accomplishments of the Tara landscape plan. As early as 1972, the company established a tree bank and nursery, now holding a combined stock of trees and shrubs numbering more than 120,000, many of which were used on earth mounds called for in the landscape plan to screen the minesite and reduce noise levels. Tara now has the largest nursery in the Republic of Ireland. Care was taken to use native species of trees, shrubs, and grasses wherever possible, but species were also imported from Britain, Europe, and North and South America.

Architectural features of note were incorporated into the mine plan. Care was taken to avoid the busy "criss-cross" effect of approaching and retreating conveyor galleries so often associated with minesites. The floor levels of several buildings were lowered by excavation to reduce the profile elevations of the buildings: in the case of the mill, a profile decrease of thirty feet. Colors were selected with great care, with the building walls all in earth brown, the storage tanks "harvest gold," and the conveyors a medium blue, the architects believing that these colors would harmonize with the lush green countryside of the summer and the yellows and browns of autumn and winter.

Tara received final permission in March of 1974 with quite specific conditions and standards imposed with regard to effluent and noise levels, as well as a requirement that \$400,000 be deposited with the local authority to secure reclamation of the site. Tara met the conditions, and the mine is now in production, an excellent example of how proper planning and development can earn community acceptance: between three and four thousand people attended the last "open day" at the mine, company officials are proud to point out.

PROPOSALS FOR CHANGE

In any comparison of the British system with that found in the United States, one must be conscious of the sociological and political differences between the two na-

tions. Great Britain is very small and overcrowded with a resulting necessity for intensive land use. Great Britain has a very centralized government, unlike our dual federal system. And, Britons hold a greater degree of trust and confidence in their administrators, with a corresponding reluctance by the judiciary to review discretionary administrative powers.

Although American mine planners, burdened as they are by layers of agency and government regulations, may see the English planning process as a Utopian system, controversy over ways in which it might be improved with regard to mineral development continues between planning authorities and the mining industry in the United Kingdom. In the first place, both sides declare there is no national policy on minerals, creating uncertainty for all in planning for mineral development. Local planners and mining company officials alike decry the lack of mineral expertise on local planning boards, with the former saying they are forced to believe what the company tells them, and the latter lamenting the time it takes to educate the local planners about mining. Permission to explore is too often viewed as signaling automatic permission to exploit, although the companies naturally believe they should be allowed to evaluate a discovery in order to make informed decisions about the mineral resource, whether or not mining is economically or environmentally feasible at that time. And, bonding to assure reclamation, desired by local planners, is opposed by the companies as unworkable.

In 1971, a consortium of mining companies invited Lord Solly Zuckerman to chair a Commission on Mining and the Environment with the following charge:

In light of current governmental measures to stimulate the fuller use of national mineral resources in Britain, the general concern for conservation and the environment, and the need to establish the way in which these two objections can be harmonized, to examine the relevant problems of exploration, mining, continuous rehabilitation, and subsequent reconstruction of sites and to make recommendations designed to reconcile economic

and technical considerations with other requirements of national policy, especially those concerning physical planning and the environment in terms of amenity, recreation, and scientific and historical interest.³⁰

Zuckerman assembled a blue-ribbon commission of noted scientists and environmentalists, all of whom "accepted the invitation to serve on the understanding that we would be left to our own devices, and free to report in complete independence."³¹ The Commission sought the assistance of an attorney with regard to planning law and of a landscape architect for his expertise on the landscaping and restoration of mined land. They visited actual and potential mining sites in England, Wales, and Scotland, as well as in Colorado and Missouri in the United States, and met with government officials in both the United States and the United Kingdom. Studies were conducted on behalf of the Commission by a number of universities.

In 1972, the Zuckerman Commission released its report, including the following recommendations:³²

1. Exploratory or "scout" drilling should be allowed, even in the national parks and other areas enjoying statutory protection, without the necessity of having to obtain planning permission as long as the local planning authority was informed of the drilling and it was carried out in accordance with a code of practices that the Commission recommended be established by the appropriate Ministries.

2. Evaluation drilling would still require planning permission, but public inquiries on evaluation drilling should deal solely with the merits of the drilling proposals and should not consider plans for new mining, which should be the subject of a separate inquiry.

3. If a company wishes, it may apply for permission for drilling and mining within the same application, if it can provide sufficient information about the proposed mining operation at that time.

30. REPORT OF THE COMMISSION ON MINING AND THE ENVIRONMENT (1972), Foreword.

31. *Id.*

32. *Id.*

4. Mining interests should provide local inhabitants and environmental groups with as much information about their mining plans as possible.

5. The government should invite mining companies to suggest ways to assure adequate funds for restoration of mined sites. A renewal trust was suggested, with responsibility for holding, spending, and accounting for funds paid into it annually by the companies.

6. Chemical and biological baseline studies should be carried out by the mining concern before any development in order to establish a background of scientific fact against which to measure and control the effects of the mining operation. Areas to be mined should be assessed for their landscape qualities and any archeological and historical features they may possess.

7. Monitoring programs should be carried out jointly by the local authorities and the mining company to ensure that anti-pollution measures are being satisfactorily implemented, including plans to control noise, dust, traffic congestion, toxic substances, and water use.

8. Rehabilitation activities should be carefully monitored and landscaping should begin before any onsite development activities take place. Waste rock disposal areas should be covered with soil and capable of sustaining the required vegetation cover when landscaped.

In addition, the Zuckerman Commission recommended preparation and updating of land use maps of the National Parks and Areas of Outstanding Natural Beauty, as well as formation of a joint forum of mining interests, representatives of government, and voluntary organizations to discuss environmental matters of mutual concern.

The Zuckerman Report was widely read and discussed among planners and environmental groups in the United Kingdom, but was suspect in some circles due to its having been commissioned by the mining companies. The government felt the Zuckerman Report had to be answered, and accordingly, in August of 1972 the Secretary of State for the

Environment appointed a committee under the chairmanship of Sir Roger Stevens to study planning control over mineral working, or more specifically:

To examine the operation of the statutory provisions (except the provisions of the Opencast Coal Act of 1958) under which planning control is exercisable over mineral exploration, over surface mineral workings and installations, over the deposit on the surface of spoil or waste from mineral workings, and over the after-treatment of surface land worked for minerals; to consider whether the provisions require to be amended or supplemented; and to make recommendations.³³

The Stevens Commission received written evidence from 141 organizations and individuals, hearing oral evidence from another 61 parties. They spent twenty days visiting 102 sites of potential, current, or abandoned mineral workings in England, Scotland, and Wales, and visited mining operations in the Canadian province of Ontario and the state of Pennsylvania in the U.S., meeting with provincial officials in Canada and state and federal agency representatives in this country.³⁴

The Stevens Commission Report was submitted to the Secretary of State for the Environment in March 1975. Among its recommendations:³⁵

1. Development control over mineral workings should be made the responsibility of a special regime within the planning system, but that control should be exercised by the highest local planning authority, i.e., the county.

2. Exploration drilling need not be covered by planning permission.

3. The need for mineral expertise at the local level should be met by regional teams of experts, either employed by the central government or employed and shared by the county planning authorities.

4. A national minerals policy must be formulated and made known to the local authorities.

33. *Planning Control Over Mineral Working: REPORT OF THE COMMITTEE UNDER THE CHAIRMANSHIP OF SIR ROGER STEVENS* (1975), 1.

34. *Id.*

35. *Id.*, a summary of all recommendations can be found in pages 186-191.

5. The Department of the Environment, the Institute of Geological Sciences, and the Alkali and Mines and Quarries Inspectorates should make available their expertise to local planning authorities.

6. There should be full consultation between the county planning authority and the mineral operator before a mineral application is submitted. (In fact, as we have already discovered, most operators believe it is to their advantage to consult with the county planning authority and are already doing so.)

7. Every mineral permission should have a specified working life not to exceed 60 years, with county planning authorities required to review mineral permissions once every five years.

8. The system of outline planning permission should not be extended to mineral working (see Cleveland Potash section of this report).

9. Restoration conditions must be attached to every mineral permission, with constant monitoring and five years of after-care required.

10. The re-working of waste heaps should be considered development and subjected to planning control.

The Stevens and Zuckerman Commissions were actually not far apart in their recommendations, albeit the slightly different scope of the two reports. The Stevens Commission report recommended that a national minerals policy be formulated and articulated as soon as possible. They recommended regional teams as the answer to the lack of mineral expertise on the local planning authority staffs, an idea which has been widely resisted by the local authorities, who see it as a dilution of their powers. Both commissions favored leaving exploratory drilling out of the planning process: "It does little harm to the environment," said representatives of both commissions. And the Stevens Commission, although it considered bonding, made no recommendation in that regard other than that the government study the possible creation of a restoration fund, with the view to making a decision on this matter in ten years.

This past summer the British government published its response to the Stevens Committee Report.³⁶ A few recommendations were accepted, a few rejected, but most were welcomed and then set aside for future development with the main reason given being lack of funds. However, the particularly important recommendation that exploration drilling not be covered by planning permission was accepted.³⁷

The changes proposed in both the Zuckerman and Stevens recommendations would seem to hold no peril for local governments, the mining companies or the environmental organizations. They appear to be an attempt to render even more workable a land use planning system of already great merit.

CONCLUSIONS

From our study of various mining operations in England, Wales, and Ireland, and talks with mining company, governmental and amenity organization officials, the AMAX party reached a number of conclusions which may provide useful ideas for land use planners and mineral developers in the United States.

A one-step planning process is the key to the British system. Through a single public inquiry process, all interested parties are brought together and the facts are made public. In this manner, informed decisions can be made without the years of delay encountered in planning a major mining operation in this country.

A one-step procedure encourages and rewards open planning with extensive public and community relations programs. Public education is seen as a means of limiting uninformed and time-consuming objections to specific, technical requirements of mining, milling and tailing disposal. Continuing communication with the local planning authorities was deemed necessary to success in obtaining permission to mine and good relations during the life of the operation.

36. Report of the Committee on Planning Control Over Mineral Working, D.O.E., Cir. (1978).

37. Note, *Government Response to Steven's Report Disappoints*, 291 MINING JOURNAL 95 (1978).

Thorough environmental baseline data gathering and environmental impact assessment programs preceded requests for planning consent and were necessary to effective planning of methods of mining, milling, and tailing disposal and reclamation, to answering questions and meeting objections regarding environmental impact, and to provide a background against which effects of the operation could be measured when later additional permissions might be needed. This work must be extremely comprehensive and detailed, and the best technical and scientific work is well worth the cost.

In every successful case, attorneys worked with technical staff members from the very beginning, with both becoming as well informed as possible on the legal and scientific aspects of the development so that the best possible presentation could be made for the granting of planning permission. While the legal staff asks questions and prepares its case, the technical staff provides answers and experts to meet all possible objections. Landscape architects and noise specialists were utilized by mine designers as important consultants whose services could help mitigate the impact of the operation on the local environment, obtain community acceptance, and show evidence of corporate concern and good faith.

Unlike the current practice in the United States, where environmental concerns are paramount, Great Britain considers the national economic interest and the local socioeconomic needs in making decisions for mineral development. The need for the mineral, the nation's balance of payments picture, the need for jobs, the mining tradition or lack thereof in the area: all are factors to be considered before granting planning consent for mineral development.

Although England's national parks differ greatly from those in the United States, in that they were designated as such long after cities, farms, and a variety of land use patterns had already been established within their boundaries, they are still treasured areas of extreme beauty, but areas nonetheless in which mining and protection of the environment are not viewed as incompatible achievements.

The British system of land use planning with regard to mineral development could have beneficial application in this country, producing a streamlined planning process based on a clear presentation of the facts concerning, and necessity for, continued development of our vast mineral reserves.