

# TECHNICAL EXCELLENCE OR POLITICAL ACCEPTABILITY: THE WASTE DISPOSAL DILEMMA

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## ABSTRACT

Three technically sound and scientifically supported radioactive waste disposal programs have been abandoned in the United Kingdom largely as a result of "non-technical" factors.

When analyzed these factors are seen to be directly or indirectly related to political and pressure group activities.

United Kingdom Nirex Limited has been directly involved in two of these aborted programs and has now adopted a program that takes account of political as well as technical factors. Progress, while not spectacular, is being made and the disposal of radioactive waste is no longer a high profile national issue in the United Kingdom.

## INTRODUCTION

This paper examines the argument that where long term political support is required for a project the social and, therefore, political considerations outweigh the purely technical. It is suggested that efforts should be directed at doing as well as possible what is politically acceptable rather than in the pursuit of excellence for its own sake, finding at a late and expensive stage, that excellence does not guarantee support.

During the last twenty years personal and collective selfishness has become not only acceptable but respectable. Social scientists have called it the NIMBY syndrome (not in my back yard). It is now perfectly permissible for a small group of people with a vested interest, generally in the status quo, to deny a much larger but less personally interested group of people, facilities that would be to their general benefit; roads, houses, power stations, reservoirs, etc. This is not seen as reprehensible, indeed considerable sympathy and status is granted to such pressure groups by the media and by politicians.

They are "defending their community and values" and such defense may range from opposite to local schemes such as a new housing development to the line of the new railway needed for such national interest projects as the Channel Tunnel.

The development of disposal facilities for radioactive waste is clearly in the national interest but with one or two notable exceptions, the "Times" called them "middle-class hooligans, very little criticism has been levelled at community groups trying to prevent such a development. Indeed they are characterized as brave Davids confronting the

Goliath of the nuclear industry and the political establishment.

Despite the myth that local pressure groups are at a serious disadvantage when confronting a potential developer history shows they have been remarkably successful at getting their own way\*. These successes have been achieved not by arguing technical points at seminars and inquiries but by putting pressure on politicians who see their positions threatened. It takes a brave politician to stand up to his or her electors to tell them that they must do their bit for England because their back yard seems ideally suited for a particular development. Such brave politicians usually become ex-politicians fairly quickly.

The nuclear industry is slowly and painfully coming to terms with this social phenomenon. It is also slowly coming to terms with the loss of faith in experts which appears to have coincided with increased vested interest militancy from pressure and community groups.

Despite advice to the contrary from a whole range of sources including major bodies such as the OECD (1), the nuclear industry as a whole still appears to believe that opposition is founded on ignorance and that if enough information can be given to enough people support for the industry must flourish. This is no longer true if it ever was.

No one would dispute the need to provide accurate and understandable basic information but no one will be reassured about the tiny possibility of another Chernobyl by reading an explanation of negative and positive void and power coefficients and in any case, there is often no marked difference in knowledge between the pro- and anti-camps (2).

Information has a role but it is a supportive role, it is not the ram that will batter down the walls of ignorance and allow matters to proceed logically. Ultimately, no project of

\* Route changes in motorway plans, route changes in Channel Tunnel rail length, objections to nuclear power stations sitings, i.e., Luxulyan.

a controversial nature will proceed without long-term political support, and to ensure that controversy and the passion must be avoided. Politicians must be kept off the hook. The developer must identify and make the most of what support he has rather than try to create support where it does not exist and where opposition can be expected.

To obtain and maintain political support requires some insight into the processes which lead to public and political perceptions, coupled with some input into the opinion forming process.

It is widely accepted (3) that once people are equipped with necessities such as food and warmth they concentrate first on material comforts and later, on quality of life. Generally, we are unwilling to descent to this sequence. In advanced societies many people have lost sight of wealth-producing activities, and concentrate on removing perceived detrimental side effects of these activities from their immediate environment. This seems unavoidable, and the resultant NIMBY syndrome, must simply be accepted, despite being a rather unattractive facet of human nature, as the natural urge to maintain quality of life.

The problem faced by the nuclear industry, and the back end of the fuel cycle in particular, is that public perceptions are significantly different from the technical reality (see for example (4)). The result is a strengthened NIMBY response, followed by confrontation rather than constructive dialogue between interested parties.

These perceptions can develop slowly, or suddenly as a result of a dramatic accident. For example, personal experience suggests that the appreciation of the potential hazard of greenhouse emissions is developing slowly, whereas concern over effluent discharges developed very rapidly in the UK as a result of large numbers of seals dying in the North Sea (5). Nuclear power falls between these camps. In the US, for example, opposition was constant until Three Mile Island which increased concern about the nuclear industry. This concern then leveled off before growing steadily (6), until Chernobyl provided further impetus to its growth. In the UK, this concern seems to have been catalyzed by recent media coverage of the privatization of all of the electricity supply industry (7).

However perceptions are formed, they are difficult to shake, e.g., despite all evidence to the contrary, a small minority still believe the Earth is flat. A more pertinent example is the number of people who believe that nuclear power stations have been proved to cause leukemia, in contrast to the "expert" analysis.

Environmental and anti-nuclear pressure groups know well the public facility for opposing something on limited evidence and exploit it ruthlessly. Some members of such groups, clearly believing that the end justifies any means, are adept at providing misinformation to color public percep-

tions. We are all familiar with popular myths such as "plutonium is the most toxic substance known to man" and "man-made radiation is more dangerous than natural." Such statements have captured the imagination of many people and thereafter information can have little effect on their perceptions. Thus, the anti-nuclear groups could be considered opinion formers.

The traditional approach to this problem has been to identify the full spectrum of opinion formers and provide them with accurate information. In this way, it should be possible to modify broader public opinion. The problems with this approach is identifying the opinion formers, and more difficult, the validity of the idea of opinion formers. Would a statement by an opposition group really catch hold if there was no general feeling that something was amiss?

Some political scientists postulate an opinion circle (8), with opinion leaders reacting to public perception, modifying them to their own interest or advantage, and feeding them back to the public. The clearest example of this is the greening of the political systems of the developed countries.

Based on public perception of the state of the world, politicians have recently been trying to be most environmental friendly. In so doing, they have picked up various subjects, e.g., Mrs. Thatcher's pronouncements on the ozone layer (9), bringing them to the attention of a wider public whose opinions are then to some extent modified.

It is interesting to note the reactions of politicians from poorer countries (10), whose attitude toward environmental protection is sometimes colored by the fact that their public are not always at the stage where the intangibles of quality of life are important.

Another example of the opinion cycle in operation has been the development of radioactive waste disposal policy in the UK. Until the Royal Commission on Environmental Pollution report in 1976 (11), little concern was expressed about the disposal of radioactive wastes.

Stung by criticism in the report, the government set up a research program to consider the disposal of high-level wastes in suitable geological formations. This was against the advice of the British nuclear industry who saw no reason to rush into the disposal of HLW, which would in any case need to be stored for several decades to allow the decay heating to fade.

Following subsequent public outcry, the government cancelled the investigations citing the need for storage as the reason to avoid the rush.

This taught the opposition groups a valuable lesson: Protest could succeed. In this particular example, their case was helped by the industry's belief that immediate disposal of HLW was unnecessary. More importantly, it underlined

the view that here was something unacceptable and dangerous that you didn't want in your neighborhood.

In 1982, the nuclear industry formed NIREX (12) to develop the disposal of intermediate and low-level waste. Initially, NIREX carried out a paper study considering potentially suitable waste disposal sites in the UK.

In October 1983 (13), this study culminated with the government announcing that Nirex wished to investigate two sites, a disused anhydrite mine at Billingham in Cleveland, for long-lived ILW, and a clay site at Elstow in Bedfordshire for LLW and short-lived ILW.

Public outcry was the inevitable result. It was particularly marked in Billingham, where the local population saw the proposal as an attempt by the prosperous south to dump its rubbish in the north.

The public relations campaign concentrated its very limited resources on the Elstow site, where opposition was significantly less. In the event, this strategy proved successful at Elstow. Six months later opposition was diminishing and local media interest was waning. This was in complete contrast to Billingham, where opposition remained undiminished. It also became apparent at this time that because of the deadlock, the government was considering a change of policy on waste disposal options. A delay of several months gave the opposition groups at Elstow the encouragement to regroup and to cooperate with the Billingham protest across social and cultural boundaries. As a result, Bedfordshire politicians started to take a much more visible anti-Nirex stance.

The change of policy, when it came, gave priority to searching for sites for a near-surface facility and continued research into long-lived ILW disposal (14). Elstow was still considered a potential site, but Nirex was asked to identify two others for comparison. The Billingham proposal was withdrawn.

This change was interpreted by the Billingham anti-dumping group as a total victory for their campaign. It demonstrated again, in the eyes of protestors, that demonstrations changed policies and that without political support projects would fail.

In February 1986 (15), Nirex announced three more potential sites for a near-surface repository; at Killingholme in Humberside, Fulbeck in Lincolnshire and Bradwell in Essex. Local information programs based on the Bedford program were started. In May 1986, it was announced that only LLW would be disposed in the near-surface site; all ILW would be disposed deep underground (15). This announcement followed the recommendations of a parliamentary committee who felt that removing the ILW would result in a gain in public acceptability. It did not. It merely gave

the opponents another victory and cast doubt on Nirex's technical competence.

The Nirex information team was kept very busy responding to demands from protest groups to attend public meetings packed with their supporters. In fact, the initial pressure was so great that the local liaison officers were unable to take the initiative by arranging more representative meetings.

This time, because the protestors had both the initiative and the attention of the national media through an alliance group, Britain Opposed to Nuclear Dumping, the outcry did not rapidly die away. It did, however, reduce to a level where it was possible to get drilling contractors onto the site, and fairly soon thereafter national interest began to wane. As the interest of first the national and then the local media reduced, people started to leave the protest to a few enthusiasts and the local councils. Collaboration between the Nirex contractors and engineers from the local authorities and Anglian Water Authority ensured that anyone who needed information on the investigations could obtain it. Regular and constructive meetings were held with local authorities and their consultants. The most difficult part of the campaign was effectively over, and opinion polls showed that public opposition was declining (Table I).

TABLE I

Percentage of Interviewees Who Considered Themselves "Against" or "Very Against" Proposals to Develop a Shallow Repository in their Locality

Date of Survey	Site Location			
	Bradwell	Killingholme	Fulbeck	Elstow
March 1986	80	91	86	84
June 1986	76	88	79	79
November 1986	76	80	74	77
April 1987	56	68	53	61

However, before it was possible to talk of a success, it became clear that largely as a result of the deletion of ILW on non-technical grounds, shallow disposal of low-level waste was simply too expensive. The board of Nirex informed the Secretary of State for the Environment of this conclusion and two days later, on May 1, 1987, he announced an end to the site investigations which had cost about \$30m. Nirex was asked to identify a potential site for a deep underground repository for both low and intermedi-



ate-level waste (16). Many commentators have speculated on the links, if any, with the general election which had just been called.

Whatever the problems, it is clear that an open information policy which treats people as having genuine concerns and fears rather than as subjects of an educational program is very important. In particular, there is a clear need to involve people in the decision-making process (17).

In the breathing space afforded by the final policy change, Nirex decided to undertake a very substantial public awareness campaign, with a clear route for feedback of public concerns, so that they might be understood and addressed.

Nirex has always followed a policy of openness and wide distribution of information but the cornerstone of this new program was a discussion document, "The Way Forward" that outlined the history, technology and controversies of radioactive waste management but also sought public comment and involvement.

While criticized by some environmental groups and politicians, the document was very well received by the vast majority of the 60,000 people and organizations who studied it.

The document was launched in November 1987 to members of Parliament, members of the European Parliament and members of the House of Lords.

Subsequently, copies were sent to every county and district council in England and Wales and every regional, island and district council in Scotland. Several hundred copies of the document were sent to institutions and organizations with an interest in the subject. Seminars were arranged for local authorities throughout the UK, in order to provide an opportunity to question Nirex more closely before preparing their formal responses. Ad hoc meetings were attended with specific authorities requesting them and seminars were also arranged with Trade Unions, environmental groups, protest organizations, industrialists and learned institutions. Copies of the document were sent to libraries and national press advertising was undertaken to stimulate public awareness of, and participation in, this important initiative.

The specific items of interest included:

1. Which engineering options command most support?
2. What factors should be taken into account in site selection?

Nirex is studying safety, transport, population density, environmental issues, constructability and costs. What is the

relative importance of these issues and have any been omitted?

3. Should high amenity areas, such as National Parks, be eliminated from the search?
4. Should an adequate site which enjoys local support be preferred to an apparently superior site which does not?
5. How can Nirex be a good neighbor and bring benefits to the local community?

The last issue is particularly important. The local community must be represented at every stage of the development so that benefits to local people can be maximized and disadvantages minimized. Nirex will set up a local liaison committee consisting of Nirex members, local authority and community representatives to discuss the fine details of such a process once a suitable site, or sites, has been identified.

In all, some 60,000 copies of "The Way Forward" were distributed during the course of the discussion program, which drew to a close at the end of May 1988. The 2,500 responses received were forwarded to the University of East Anglia for detailed analysis.

In particular, some positive responses were received from the Sellafield, Cumbria area and the Caithness area of the Highland Region of Scotland.

Almost two-thirds of all county and regional/island councils in the UK took the trouble to respond. One-third of all district councils and more than a hundred parish/community councils gave us the benefit of their views. Some 40 members of Parliament, members of the European Parliament and peers also added their opinions to this debate, through formal presentation of their views.

The opportunity for comment on Nirex's plans contained in the discussion document was widely welcomed, particularly by local authorities and local authority associations. The Convention of Scottish Local Authorities welcomed the recognition that radioactive waste management "must have public support and that there must be openness in the debate about the disposal of nuclear waste material." In the same vein, environmental groups including Friends of the Earth also welcomed the principle of consultation, expressing a hope for much wide involvement in the future.

Analysis of the response showed few surprises. We were pleased to note strong support for our program and proposals from bodies such as the Radioactive Waste Management Advisory Committee, the Association of District Councils, the Association of County Councils, the Trades

Union Congress and the Lords Sub-Committee looking into waste management in Europe.

It is also clear however that while many District Councils supported our program in principle, none outside Cope-land and Caithness Districts \*was prepared to consider local proposals other than with outright objection.

Several counties however left the question open and indicated that they would consider a planning application on its merit.

Generally therefore, support in principle is coupled with rejection in detail by bodies with a patch of territory to defend.

Looking at the response overall, there was a disappointing tendency for people and organizations to take a very parochial or ritual view of the discussion process. This was particularly true of individuals and petitioners who frequently made it clear that they had not the slightest interest in taking part in discussions on a matter of national requirements and interests, but only to ensure no solution was proposed in their cliched "back yard."

The Environmental Risk Assessment Unit of the University of East Anglia was contracted to provide a full independent analysis of the responses received. The analysis was published as a report "Report to The Way Forward" in November 1988 (18). Its main findings were as follows:

- There was a clear welcome for the consultation exercise among local authorities and the majority of responding organizations. There were also several reservations concerning the nature of the consultation and the extent to which the company would take the results of this consultation into account.
- There was no overall unanimity of view. While there was a level of support for the company's approach among a number of local authorities, there was also some support for the alternative of on-site storage of wastes.
- Those local authorities with existing nuclear installations did not on the whole, however, support storage, nor did the various scientific and advisory bodies.
- There appeared to be little support for disposal at an island or offshore. There was a general concern that any possibility of radioactive contamination of the sea should be avoided.

- Safety was judged to be the paramount factor by all those who responded, though clearly views differed as to how best to achieve this. The safe transport of wastes was the next major area of concern.
- Views differed as to whether areas of high amenity value should be excluded from consideration at the outset, though the majority view was that they should. The relevant statutory bodies were clear that the presumption should be against development in such areas.
- The monitoring and recoverability of wastes was generally deemed to be important. It was a principal concern for those who proposed above-ground storage of wastes. It was perceived as a key aspect of safety assurance by many of the replies.
- Possible damage to the local economy associated with the public perception of radioactive waste disposal was also a key concern, especially in those areas dependent upon tourism, agriculture and fishing.
- There was opposition from local authorities and environmental groups to the use of the Special Development Order procedure for obtaining planning permission directly from Parliament for either investigative drilling or subsequent development. There were strong call for an early commitment to the holding of a local public inquiry.
- Further consultation was welcomed and a commitment on the company's part to continue open discussion and provision of information was encouraged.

The information from their extended opinion research exercise supported deductions which had been made by front-line information officers during the previous campaigns. In particular those factors that provoked opposition were identified; a "bolt from the blue announcement" and a "remote" announcement in London. It also became clear that a more or less equal volume of protest could be expected from anywhere in the country identified as a potential waste disposal site.

The discussion program had however allowed two local authorities to come forward with a willingness to discuss the problem. These authorities, not unexpectedly, were those

\* Caithness District Council subsequently withdrew their invitation to investigate sites in their area.

with the closest links with Britain's two largest nuclear sites, Sellafield, Cumbria and Dounreay, Caithness in Scotland.

In these areas there was also a modestly encouraging response from members of the public and from local business who saw advantage in a \$5 billion investment.

The key factor that separated these areas from all others was 30 years association with the nuclear industry. The communities consisted largely of people who worked at the plants in question and who did not suffer from the exaggerated fears of people without that experience.

This important finding was incorporated into the site selection program and it became clear that these sites should certainly be investigated before any serious thought was given to another round of politically vulnerable, highly controversial site investigations in "unfriendly" parts of the country.

As a result of our discussions with local authorities in the areas concerned and through a pro-active media briefing campaign, the announcement of Dounreay and Sellafield was almost an anti-climax. Nevertheless, instead of a London announcement, directors of the company went to the two sites and the formal announcements were made locally and in cooperation with the local authorities.

The current investigation program therefore has a much broader base than previous programs which concentrated only on technical excellence and left public relations as a fire-fighting operation. The level of active support for our program in Caithness and Cumbria may not be remarkably high, but there is a satisfactory measure of acceptance. Politically, the program is less vulnerable to changes in governmental policy or to changes in government.

This pragmatic approach was put to the test in November when a public referendum was held in Caithness at the instigation of anti-project campaigners and members of the local council. The result was a foregone conclusion but a closer look at the figures is interesting.

1. Only 58% of people were sufficiently interested in the matter to vote at all. This is a major change from previous campaigns and two previous referenda in other parts of Scotland where the poll was higher than 95%.
2. Although 74% of those voting were against the project, 26% were positively in favor undoubtedly: The only time in Britain and possibly in the world where 3,000 people have voted in favor of radioactive waste disposal in their own back yard.
3. Of the overall electorate (all qualified voters), only 42% voted against the project, 58% being either in favor or abstaining.

This may be a qualified success or a qualified defeat. It certainly disappointed the local antis who were hoping for

a 95% rejection. However you look at the figures, they are remarkably different to any which could be expected anywhere else and give a platform of support from which a long term information program can work.

At Sellafield, the site investigation is a minor issue supported by the district council and trade unions.

## CONCLUSION

There may be better technical sites in the United Kingdom than Dounreay and Sellafield, but the prospects of ever being allowed to develop another site are not good. Provided the safety criteria can be met at one of these "friendly" sites it seems counterproductive in the long term to seek to achieve even better standards elsewhere.

## REFERENCES

1. Technology on Trial, p. 112, OECD, Paris 1979, ISBN 92-64-11936-1.
2. Lee, T. R. and Brown, J. M., Memorandum to the House of Commons Environment Committee, 1st Report (Vol. II), HMSO (London) 1976.
3. Zetterberg, H. L., in Proceedings of the Fifth International Symposium Held by The Uranium Institute, 1980, Westbury House (England), ISBN 0-86103-041-9.
4. Slovic, P., Fischhoff, B. and Lichtenstein, S., Environment, 21, 1979.
5. New Scientist, No. 1629, September 1988.
6. Lee, T. R., Proceeding of 5th European Symposium on Radioactive Waste Management, Cambridge, England, IBC Technical Service Ltd., 1989.
7. Nuclear Electricity Information Group, Opinion Tracking Survey, April 1989.
8. Conrad, J. ed., Society, Technology and Risk Assessment, Academic Press, 1980.
9. See e.g., Speech to the 105th Conservative Party Conference, Brighton, England, 1988.
10. New Scientist, Vol. 121, No. 1655, March 1989, p. 26.
11. Royal Commission on Environmental Pollution, 6th Report, HMSO (London), 1976.
12. Radioactive Waste Management Advisory Committee, 4th Annual Report, HMSO (London), 1983, ISBN 0-11-751676-7.
13. Radioactive Waste Management Advisory Committee, 5th Annual Report, HMSO (London), 1984, ISBN 0-11-751721-6.
14. Radioactive Waste Management Advisory Commit

- tee, 6th Annual Report, HMSO (London), 1985, ISBN 0-11-751795-X.
15. Radioactive Waste Management Advisory Committee, 7th Annual Report, HMSO (London), 1986, ISBN 0-11-751892-1.
16. Radioactive Waste Management Advisory Committee, 8th Annual Report, HMSO (London), 1987, ISBN 0-11-752031-4.
17. Kemp, R. V., The Politics of Siting Radioactive Wastes, Proceedings of the 5th European Summer School on Radioactive Waste, op. cit.
18. Response to The Way Forward, University of East Anglia, 1988, available from UK Nirex Ltd.