

Dear Sir,

Please find enclosed herewith our response to your invitation to comment on the National Policy Statement for New Nuclear Above 1GW Post 2025 Siting Criteria and Process.

We have included material which will demonstrate our involvement in a local community that will be most affected by the proposals for nuclear expansion, the concerns that we already had for the social amenity; health; environment; transport, and toxic discharges associated with proximity to Sellafield.

Perhaps you will note that, our concerns extend not only to the Braystones Beach locality but to the whole of Cumbria and beyond. The potential siting of the "Moorside" project could not be more risky if those selecting it had tried to find the worst location in the country.

We have not mentioned the plight of various flora and fauna, such as natterjack toads or adders, as there are other groups who are better able to comment on such things. We do, however, question whether the mitigation suggested as a panacea for such species actually works. It is our assumption that the habitat in which they are currently found is the one which they have found preferable to one five miles away. If the remote location was more suitable for their needs then that's where they would be naturally.

We do mention the "revolving door" that ACOBA is supposed to police, but, as so often illustrated by august journals, it seems not to be very effective.

The strange circumstances around contracts recently involving Cavendish-Fluor seem to us to merit a police investigation, especially since it is suggested in most media sources that it will cost the taxpayer £100 million. Yet no-one seems to have been disciplined, let alone prosecuted.

Local concerns over the presence of radioactive particles are justified by the beach surveys carried out by Sellafield's sub-contractor, Nuvia. We watch the Groundhog vehicle's crew dig up particles from the very sand where our grandchildren were yesterday digging sandcastles, but are assured by highly-qualified scientists that there is nothing to worry about. Yet even with our limited qualifications we can see flaws in their research and gain confirmation from Sellafield's own published data.

Our observations have led us to conclude that the defined objectives of Sellafield's Public Relations team a few decades ago are now bearing fruit. We are concerned that there are so few of those involved in decision-making bodies that are not beholden to the nuclear industry in some respect; that there is no longer any independent opinion. That 33% of the county councillors are obliged to register conflicts of interests when Sellafield matters are debated is particularly worrying, as is the increasing dependence on Sellafield's beneficence

for support which elsewhere is supplied by national or local government. It is difficult to understand why these monies are filtered through the nuclear industry at all.

The supposed public support for new nuclear projects does not exist. One of the many reasons stems from the many enquiries and court cases which irrefutably prove that there is scant respect for residents from the industry or politicians. To support this we chose just one obvious case to show where almost all of the public protection systems have failed. In what we regard as the failure of Cumbria Constabulary to act on the findings of the Redfern Enquiry into Tissue Sampling and Organ Retention. Even now we have difficulty imagining how, short of collusion between government bodies, the unions, pathologists, mortuary attendants and senior scientists, not forgetting the coroners, such sampling could be achieved.

Published on 16th November, 2010, the report contained 96 findings, all of which gave rise to deep concern about the attitude of politicians, industrialists, scientists, health authority staff, coroners and their staff towards the residents of west Cumbria.

It is unclear from the report just how many bodies were actually used in the harvesting of samples, but it does seem to be in excess of 3,500 plus 95 fetus, and the exercise was not limited to just West Cumbria. Redfern states, "*Pathologists often removed organs at both coronial and hospital post mortem examinations, without consent and hence in breach of the provisions of the Human Tissue Act 1961.*" (P.562, para. 86)

Having read the entire report we were sufficiently concerned about the number of insinuations and direct statements which indicated identifiable individuals were responsible for breaking the law, we wrote to the Acting Chief Constable of Cumbria. After fobbing us off and ignoring our questions for several weeks, we were eventually told that the matter was not in the public interest to pursue and that, therefore, no investigation had been instigated. To us, it is difficult to imagine anything more in the public interest than what the authorities do to our health and well-being. The Director of Public Prosecutions' website shows what is required for the commencement of a public interest prosecution. It certainly seems to us that the events investigated by Redfern met all those requirements listed. It remains a puzzle to us why nothing was done, but return to what, to our minds, is the logical explanation: collusion between all the parties involved.

It certainly seems that John Dunster's experiment (see P.22) continues, to the detriment of local residents - but with no obvious benefit - even to those conducting it.

The imposition of nuclear reactors on a community has an impact which demands more than just site planning, hopefully some of the matters we raise here will be understood and accepted.

Perhaps some of those involved in the decision-making about siting nuclear reactors will pause and consider how they would feel if the proposal was to put several nuclear reactors at the bottom of their own garden. Yet this is exactly what was proposed should happen to residents of Braystones, Kirksanton and Sellafield.

The decision-makers should not believe everything that the pro-nuclear specialists and advisors seconded from the ultimate beneficiaries advise them.

Cui bono?

Yours sincerely,

**NATIONAL POLICY STATEMENT FOR NEW
NUCLEAR ABOVE 1GW
POST 2025
SITING CRITERIA AND PROCESS**



Photo courtesy of Radiation Free Lakeland.

A Response From Braystones Residents

February, 2018

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Executive Summary

Throughout this response we note the very common perception that the consultation process is merely a “tick-box” exercise and little notice is taken of responses, especially from members of the public, who also have the impression that the whole process is designed to suit the needs of the pro-nuclear lobby with the results preordained and immutable.

We note that the subject of this consultation makes several potentially incorrect presumptions about the future needs for electricity production. There is an inherent presumption that demand for supply will increase, whereas it has actually been falling for several years now.

There is also the presumption that there will be no developments in the field of electricity generation thus requiring the building of large-scale generating sites. There have been many recent developments which disprove this concept and render the designs obsolete.

We look at the changing market needs and the incorrect data on which projected consumption has been based and the way that the parties involved in rolling out the new plans have a relationship which precludes any sense of impartiality.

Rural attitudes are considered, along with our observations on the character of the people who will be most affected by any expansion.

We suggest that being reliant on outside developers and handing control of our infra-structure to financially unsound companies is lacking in sense and may well result in the undermining of the nation’s security.

Mandatory limits should be imposed on the number of specialist amenities (SSIs, MCZs, etc.) that can be destroyed, to restrict the impact of any particular industry on the environment and social well-being.

We propose that corroborated evidence should not be ignored and, once a decision has been made, it should be irrevocable unless there is a material change in circumstances.

We submit that public support should not be assumed merely because the pro-nuclear lobby wish it to be so, especially when the conducted polls overwhelmingly prove that there is scant support for any more nuclear development.

That the legacy of past discharges and potential for future incidents/accidents cannot be overlooked is also considered.

The High Court’s judgement of previous consultation exercises is used to illustrate why we have arrived at our scepticism of the process.

Dishonest practices as part of the aim to expand the nuclear presence are examined and various examples are used to substantiate our view.

The true potential for employment is discussed, along with the effects of withdrawal from the E.U., and we question what will be left for west Cumbria when the plants are eventually decommissioned.

Several large institutions have questioned the wisdom of taking on the nuclear risks. We quote some of the more salient points.

Computer modelling has been suggested as a remedy for the current lack of data on the impact of development, but we suggest that this process is time-consuming and fallible.

We note the failure to conduct due diligence checks on companies like Toshiba and Électricité de France, and suggest that it is not sensible to be awarding huge contracts to companies with large debts or poor financial history; we use the recent Carillion failure to prove the point.

Harking back to the Windscale fires, and the Yorkshire Television broadcast, "Windscale: The Nuclear Laundry", we suggest that properties around Sellafield and other establishments should be checked for radioactive materials, as suggested over 34 years ago, but which have still not taken place. We go on to raise our concerns about another piece of research that found nothing for residents to be concerned about: a report entitled Radiation in Food and the Environment. We illustrate its weaknesses by using local knowledge, not presumptions.

We state that transport links are a further weakness of the remote area, and show how residents of Braystones Beach have endeavoured for years to improve safety at the level crossing they have to use to access their properties. Correspondence from us to Network Rail and the Office of the Rail Regulator is attached.

We ask whether the discharges from nuclear establishments are being deliberately masked by the developers to promote their alleged reduced CO₂ discharges. This, they suggest, means their operations are "greener", whilst ignoring other toxic and otherwise detrimental emissions and discharges.

The construction of a further nuclear plant, of unknown design, safety, robustness, untested in the U.K., being built alongside the most dangerous chemical site in the world - literally across the road from and within the current safety zone for Sellafield, is mooted and the potential for a domino effect raised.

Nuclear waste cost and provision are queried and the increased radioactivity of future waste noted.

We say that having two such sites in close proximity will require dramatic improvements to emergency services (currently struggling to maintain all their commitments) and require considerable efforts to develop an effective and efficient disaster plan.

To demonstrate that we are not alone in our views of the risks pertaining to nuclear development we note the views of a Babcock employee, designed for the benefit of DECC, but posted on the internet.

There have been many occasions when our cynicism in respect of politicians and DECC has been proved to be well-founded. We provide a few examples.

Volunteerism was coined by a Prime Minister and suggests choice. This is discussed and found to be unlikely to become a reality for west Cumbrian residents.

We end our arguments with a brief discussion of the dangers of modern technology and the potential for hacking or otherwise acquiring malicious control of electronic devices, control systems and computers.

There is a list of 42 conclusions from our paper, all of which we believe need to be addressed.

Several examples of correspondence and responses to previous consultations are included herewith.

NATIONAL POLICY STATEMENT FOR NEW NUCLEAR ABOVE 1GW POST 2025 SITING CRITERIA AND PROCESS

Introduction

In response to your invitation to take part in the consultation on the above matter, we would firstly observe that we have now had to take part in more than ten consultations on such matters over the last nine years, since our first involvement with RWE's proposals to build reactors at Braystones back in 2009 - when we were given just three weeks to prepare a response to RWE's plans carefully formulated over many years.

During the course of these multifarious consultations we have been obliged to read through, and sometimes print, at great expense, thousands of pages of complex, jargon- and acronym-filled text. A lot of the following is based on our experiences of consultation over the dump, as well as with NuGen's project.

Although we had no experience at the time, we, along with many others, presented a case against the proposals and ultimately were invited to give evidence at a Select Committee Hearing. You will appreciate that we were subsequently proved correct in our facts and the RWE proposals were rejected for a multitude of reasons. We reprint them on Page 1 of the attached document, the 2016 response to NuGen's consultation.

We like to think that it was at least partially due to the evidence we gave at that hearing that RWE made the decision to withdraw from the nuclear energy market altogether.

Unchanged Facts Following Refusal for RWE's Braystones Proposal

Following our session at Westminster, we subsequently naively assumed that, since the conditions and situations which remain extant around the Sellafield site, Braystones, Kirksanton, and west Cumbria in general, had been demonstrated to be unsuitable for further development, that would be the end of the matter. The requisite criteria could not be met, nor could they be made to fit.

It is difficult to imagine the political thinking that so resists and distorts the obvious facts with the sole aim of making west Cumbria a nuclear zone, despite these findings. The lack of logical progression indicates that, as with the dump application in 1994, the matter has already been prejudged. This is not just our experience:

"Members of the public could be forgiven if they came to the conclusion that, somehow and somewhere, a decision had already been made to construct a deep repository for radioactive waste at Sellafield."

Sir John Knill, *The Quarterly Journal of Engineering Geology*, Vol. 29, 1996.

Not an anti-nuclear rant by a blinkered and committed anti-nuclear protestor, but from an experienced and competent engineer.

As his obituary says:

"John Lawrence Knill, engineering geologist: born Wolverhampton, Staffordshire 22 November 1934; Assistant Lecturer, Imperial College, London 1957-59, Lecturer 1959-65, Reader in Engineering Geology 1965-73, Professor 1973-93 (Emeritus), Head of the Department of Geology 1979-88, Dean, Royal School of Mines 1980-83, Senior Research Fellow 1993-2002; Chairman and Chief Executive, Natural Environment Research Council 1988-93; He was knighted in 1994."

Source: <http://www.independent.co.uk/news/obituaries/sir-john-knill-138351.html>

There is little point in forming national policy statements if they are going to ignore the irrefuted facts and observations of those being consulted. Time and again we have listed our reasons for objecting to the proposals, most notably on our website, www.toxiccoast.com, yet we have only once received any response to our submissions to the multifarious consultation processes. Although none of the points we mention have been disputed, it appears that none have been accepted, presumably because they don't suit the aims of those with vested interests. They do, however, remain facts.

We find ourselves very frustrated that no attention appears to be paid to resident's submissions.

Changing Market Requirements - Are Large Reactors Needed?

There should be an acknowledgement that the electricity market is changing and the presumed "base-load" model is no longer applicable. It is noteworthy that the margin of error in the government's forecasting of electricity needs is so great. One has to wonder whether the forecasts were just guesswork, or whether they had been deliberately skewed to make it appear that nuclear generation is vital.

There seems to be little in the way of commonsense being applied when considering the siting of the new-build reactor sites. There are reports that by 2030 there will be an over-capacity of around 30% available to the National Grid, based on current consumption trends. If this trend continues, then there is no need whatsoever for the new-builds. The areas designated to have nuclear sites imposed on them are not areas that consume great quantities of electricity. Indeed, some of the thirty or so bungalows that constitute the Braystones Beach community do not have electricity at all. If rational thinking were to be applied to the matter, generating stations would be located very close to the main consumers. This would have the advantages of sparing beautiful remote areas, enabling them to generate income from tourism or other industries; necessity for ugly pylons would be cut to the minimum; transmission line losses (sometimes equating to the output of a small power station) would be minimised; transport systems would no longer be a problem.

Government forecasts for electricity consumption show a reduction in consumption by 2035. This would equate to one of the mooted 3GW projects - commonsense would dictate that the riskiest project would be the one immediately alongside Sellafield.

Recent developments, such as the announcement by Tesla that it had built a storage facility in Australia that enabled wind or solar electricity to be stored until required, point the way to a more sensible future, free of the hazards and risks attached to nuclear power. The 100 MW battery was completed within 100 days and is sufficient to power 30,000 homes.

Source: <http://www.bbc.co.uk/news/world-australia-42190358>

BP have announced that they will join the energy market, alongside Électricité de France, SSE, etc., but there is no mention of them building any nuclear plants. If such a long-established and successful company can see a future without nuclear, then it is plain to see that the rhetoric emanating from the nuclear industry is without merit.

Noteworthy, too, is that those experts informing the government about the projected use of electricity, dictated that there would be an increase of 15% between 2005 and 2015. In actual fact, there has been a reduction of the same amount over that period - a 30% margin of error. Obvious influences being the higher cost of electricity and the use of more efficient devices. That such flawed (again, one assumes it is not a deliberate over-estimate in order to bolster the case for the need for nuclear expansion,) data has been used to develop government policy, in light of the reviewed case, means we should now expect the policies to change - including the one for which this is a consultation.

Soundly-based Decisions, Not Salesmanship

Currently the perception is that the policies being produced are simply aimed at salesmanship. For example, the heading of this forthcoming policy, "National Policy Statement For New Nuclear Above 1GW Post 2025 Siting Criteria And Process", infers that the introduction of large capacity nuclear reactors is inevitable. This is patently not the case. We have a deep-seated objection to such installations and, as we have mentioned throughout this submission, the case for them is grossly distorted and based on false premises. The public have not been made truly aware of the risks involved.

Cosy Relationships Between Decision-makers, Regulators and the Industry

The rôle of the various nuclear bodies needs to be far more distanced from the industry. Currently there is a relationship which is too cosy for effective management. That the NDA were involved in promoting nuclear expansion merely in order to sell the land adjacent to Sellafield is a primary example, together with the seconding of industry personnel to government departments. Future policies should eradicate this kind of biased relationship. It seems that this situation is likely to be exacerbated should the staff shortages at the ONR forecast by M. Weightman come to fruition.

Respect For Rural Communities

There should be a modicum of respect for the rural community's mindset. Not all are orientated to use or understand management-speak, the many acronyms, or the jargon associated with consultation processes. It almost seems that there is a deliberate aim at excluding those people whose livelihoods are going to most affected.

Few of the residents have the time or inclination to plough through thousands (literally) of pages of technical material - it is not what they are good at. Few feel inclined to do research, or even keep up-to-date with current news stories. There is very much a feeling that they will not be able to change anything anyway.

Convenient remoteness and polite subservience, or stoic acceptance, are characteristic of rural residents, but that does not mean that their lifestyle is of no consequence and they can be manipulated merely to appease the greed of large corporations, or those in government who are determined to force through a "Cunning Plan". Freedom to dissent is becoming a myth.

In the case of Moorside the situation does not even fit the siting criteria, due to the existence of Sellafield and its historic and contemporary pollution. Its selection ignores the presence of SSIs, listed buildings and many other attributes.

The vulnerability of ordinary people is amply demonstrated by the fiasco that is Carillion's collapse. As with the nuclear industry, the government issued huge contracts to companies that are financially unsound and then feigned surprise when it all went wrong.

It should also be noted that, whilst the protagonists of nuclear expansion have access to huge sums of money to fund their campaigns, ordinary people have very limited resources and cannot possibly match the pro-nuclear propaganda machine. They do not have offices and experienced secretaries to assist them formulate documents to an approved design, nor do they have access to people in government to discuss their views with. These deficits do not render their views invalid.

Limiting the Obligations to External Forces

There should be a limit to the extent foreign companies and financiers can be involved in providing electricity, energy and infra-structure services, in order to prevent the obvious susceptibility to security and to prevent an over-dependence on foreign largesse - which may not be quite as altruistic as the government seems to imagine. It is obvious that, although the U.K. currently has polite relationships with the likes of France, South Korea, Japan, and China, we have nonetheless been at war with all of them at various times in the past. There is, therefore, no bar on circumstances changing and unfriendly relationships developing. What safeguards can there be against such changes? Those involved in the construction are the only ones that truly know and understand what they have built. For example, these days it would be quite easy to build in control systems that can be disabled remotely.

Any Project Should Consist of An Appraisal of All Potential Projects Within the Area of Interest

Even in isolation, the plans to build at Sellafield would be risky. However, at present there are proposals in west Cumbria to mine coal from under the Irish Sea bed, to build over 500 acres of green-fields and - if those in Westminster have their way - to tunnel kilometres of subterranean rock to form a dump for the highly toxic waste currently stored at Sellafield. None of this is going to improve the amenity for residents, nor render it an attractive venue for tourism. How much more desecration should the area's residents tolerate?

It is, therefore, imperative that the policy ensures that consideration be given, not just to the particular development in question, but also to its combination with any other major developments in the vicinity, including any which will arise as a result of the commissioning of the principal consideration.

The Lake District National Park boundary is conveniently just a few miles away and is defended zealously by influential, well-connected patrons. That the access route to beautiful places, such as Wastwater - recently voted England's prettiest scenery - is from past the Sellafield area is of no interest to them. Nor is the fact that the proposed development will be clearly visible from within the National Park over a 40 mile panorama.

We find it strange that the National Park committee can have so little regard for the setting of its main area of concern. Whether from the visual impact or the regular discharge of chemicals to the environment, the proposed development will definitely affect the Park. There is, too, the immense risk should there be another incident resulting in radioactive discharges. Any resultant pollutant will not respect National Park boundaries.

Verifiable Evidence Must be Taken Into Account

Consultation should not just be what is often referred to as a "tick-box" exercise. Properly formulated responses and genuine concerns should be respected and any questions and concerns answered.

If, when an opinion has been assessed it is found to be soundly-based, it should influence the outcome of the consultation. For example, to quote from the government's own assessment of the impact of RWE's plans, back in 2010 a document entitled "Appraisal of Sustainability: Site Report for Braystones, EN-6: Revised Draft National Policy Statement for Nuclear Power Generation" found that:

'There are potential negative effects on nationally and internationally protected nature conservation sites including Drigg Coast, River Ehen, Wastwater and River Derwent and Bassenthwaite Lake; visual impacts on the landscape from the power station and new power lines that could be seen from several locations, including the Lake District National Park; effects on water quality and migratory fish in nearby coastal waters due to the abstraction and release of sea water for cooling; and potential effects on erosion and visual appearance of the coastline due to the need for new flood defences and a marine landing station. These effects are significant, but mitigation opportunities could be available following further study at the project level.'

The document is available on the government's own website as 1975-aos-braystones-en6.pdf

The rest of that document concerns itself with further reasons why the RWE (and, we believe, similar) developments are unreasonable, unsustainable and thus unsupportable.

There are no explanations how mitigation could be effected, nor what form it might take, rendering the statement meaningless and misleading. For anyone to propose that 500 acres of fields can be somehow turned into an industrial complex alongside the existing mess that is Sellafield's site and pretend that it can be done without a substantial and effectively-permanent adverse effect on the area is difficult to understand. The topography of the area - a coastal plain surrounded by high fells and England's highest mountain - precludes any attempts at mitigation.

The National Grid also suggested that their constructions could be somehow made inconspicuous, but could not explain how they would be able to mitigate the impact of the huge - 150' high - pylons striding across a coastal plain. The impact was described by the BBC as being likely to threaten an already fragile rural economy.

Ref: <http://www.bbc.co.uk/news/uk-england-cumbria-38516871>

As a result of the subsequent outcry, it was eventually agreed that, should the project ever come to fruition, some (but not all) of the cables will be buried. It is difficult to understand quite how National Grid will determine which areas will have buried cables and why the other sections will not be.

Prove Sweeping Statements

The continued but utterly unsubstantiated position that residents in the affected area (in our case, west Cumbria) are pro-nuclear must be either justified or abandoned. We have drawn attention to the various polls and

surveys conducted since the first plans were brought forward, and the evidence is that the overwhelming majority of residents are against any further nuclear development. Polls from different sources have produced diverse results, but all of them have been against any further nuclear development, the scale of antagonism ranging from 70% to 95%.

Ref.: Japanese Earthquake and Tsunami: Implications for the UK nuclear industry, 2011. (ONR).

Biased statements should be either ignored, or the makers thereof should be obliged to verify their claims. NuGen, have consistently tried to persuade others that they have been successful in their consultation processes. In our letter to the Whitehaven News of the 6/8/16 (reproduced in Appendix 1), we point to the fallacy that their claimed results carry any weight. A classic statement being that “We have given 3,000 the opportunity to respond”. When properly considered this is meaningless and does not support their case.

Even Sellafield employees have been announcing their objections to further expansion. In every response, be it from the RWE proposals, the dump, the National Grid, or “Moorside”, the majority have been against. This, despite the carefully crafted questionnaire put up by pro-nuclear campaigners, such as an early one in respect of the proposal for the dump, responses for which were analysed by GVA, who produced a report entitled, “Impact of a Nuclear Waste Repository Facility on Perceptions of West Cumbria” in 2012. The findings were not quite as expected by those who thought they had produced a questionnaire that would demonstrate a pro-nuclear community. The questions were so biased to produce the desired pro-nuclear result as to draw mockery in the local press. Even so, it failed.

A 1993 paper on the Cumbrian resident’s view of the nuclear industry, re-visited in 2007, found:

The main point is not specific contents so much as the underlying nature of attitudes about the industry and its risks and benefits. In addition to emphasising the strongly interwoven nature of attitudes, the fieldwork showed that specific attitudes about say, environmental risks, could not be divorced from wider social-contextual experiences and judgements. Risk was in that important sense a social concept, tied up substantively in the concrete nature of social relations such as dependency, the historical isolation of West Cumbria, and the feeling of being unfairly neglected and 'dumped upon' by the rest of the country, yet powerless to change this.

Source: Public Perceptions and the Nuclear, Industry in West Cumbria, 2007. B. Wynne, C. Waterton, R. Grove-White

Legacy of Sellafield Cannot Be Ignored

If any one of these projects goes ahead, what are the implications for the radioactive materials currently on the seabed? What will be the policy about disturbing historical and continuing nuclear wastes?

According to the NDA’s website, work on Sellafield site includes:

- *spent fuel management including reprocessing*
- *waste treatment and packaging*
- *storage of radioactive wastes*
- *decommissioning*

It is home to some hazardous materials. Our priority is to ensure these are managed appropriately. In some cases they will be placed into robust storage facilities before they are conditioned and packaged ahead of final disposal.

Also on the site is:

- *Calder Hall, which opened in 1959 and was the first nuclear power station to supply domestic electricity in the UK*
- *Windscale which produced plutonium for military purposes in the 1950s*

The 1957 fire at one of the Windscale reactors created a significant additional decommissioning challenge.

Sellafield's fuel management services allow EDF nuclear power stations around the UK to help 'keep the lights on'.

[The standard classic statement with its implicit threat should one choose not to continue to support nuclear power. The reality is that there is absolutely no reason why the lights should go out. It is as accurate as the Électricité de France statement that we would all be cooking our 2017 Christmas dinner using Hinkley electricity.]

Sellafield's historic facilities were not built with decommissioning in mind. Dismantling them often requires novel uses of existing technology or the development of new technologies.

Source: <https://www.gov.uk/government/organisations/nuclear-decommissioning-authority/about#mission>

The circulation of two and a half billion gallons of Irish Sea water each day, lacing them with biocides before returning the mix to the Irish Sea at 14° above intake temperature will inevitably have an impact on the environment, as will the construction of pipelines, pumping stations, intake and discharge portals, together with the two jetties proposed by NuGen, all of which will have the effect of disturbing the sediments, re-suspending the radioactive discharges, which will then wash ashore before blowing inland.

We later mention the government's 2016 publication, "Radioactivity in Food and the Environment", and express some of our concerns about its findings. Throughout the United Kingdom children's teeth contain plutonium as a result of Sellafield's contamination.

The marine environment, too, is polluted as far as Nova Scotia and Scandinavian countries. The classic response to these findings is to diminish the importance thereof by suggesting alternative levels of radioactivity that are found naturally. This, of course, overlooks the obvious fact that no level of exposure to radioactivity can be said to be safe and that the nuclear industry's discharges are additional, not an alternative to the naturally-occurring material. Amongst the chemicals released the above report points to the release of quantities of ²¹⁰Po, or polonium, used for assassination purposes by some states. (e.g. <https://www.gov.uk/government/speeches/home-secretary-statement-on-litvinenko-inquiry-report>.) Officially, of course the release of Sellafield's polonium will not have caused any health problems.

A report by WISE (World Information Service on Energy) in 2000 found that:

The risk potential of certain hazards at Sellafield is very large. Liquid high level wastes currently stored at Sellafield contains about 7 million TBq (2,100 kg) of caesium-137, which is about 80 times the amount released through the 1986 Chernobyl accident. Assuming a 50 percent release of caesium-137 in an accident at Sellafield, population dose commitment would range up to tens of millions of person-Sv resulting in over a million fatal cancer cases.

Also that:

The reprocessing of spent nuclear fuel at Sellafield (UK) and at La Hague (France) leads to the largest man-made releases of radioactivity into the environment worldwide. The releases correspond to a large-scale nuclear accident every year. Some of the radionuclides released in great quantities have half-lives of millions of years.

Concentrations identified in recent years in the environment repeatedly exceeded EU Community Food Intervention Levels (CFILs). The discharge trends through the 1990s towards large increases in the releases of certain key radionuclides at Sellafield and La Hague and further planned increases in releases constitute a violation of letter and spirit of the OSPAR Convention. Accidental radionuclide releases from Sellafield and La Hague could be by two orders of magnitude larger than in the case of the Chernobyl disaster and could lead globally over the long term in both cases to over one million fatal cancers.

Source: <http://www.wise-paris.org/english/reports/STOAFinalStudyEN.pdf>

As we note later on, this seems to be very much at odds with the official U.K. position, but seems in line with the reported health effects in west Cumbria.

Decisions Should Only Be Made Once, Unless Evidence of Profound Change is Later Forthcoming

The factors that have stood in the way of further nuclear development are intrinsic to the area, and do not just comprise of local animosity to nuclear development. Neither do they change. Thus if a project is rejected because of problems of a permanent nature (rock formations, water flow, etc.) there should be no subsequent attempts to impose it.

There have already been five attempts to impose the dump on west Cumbria and it would appear that, despite all the evidence of geological and infra-structure unsuitability, along with a total lack of public support, the government is returning yet again. This time with a bribe which amounts to 58 pence per resident per week for 15-20 years. Considering the potential disruption and, ultimately, the destruction of the peaceful lifestyle enjoyed by residents, along with the huge risks attached to the burial of highly toxic chemicals underground in an untried and untested (and untestable) system about which the Nuclear Waste Advisory Associates are known to have 100 key technical and scientific concerns, the rewards seem like a pittance.

Source: Nuclear Wastes Advisory Associates Issues Register, March, 2010.

When a similar system for waste disposal was submitted to Swedish authorities recently, it was refused. Despite the assertions of scientists, who attempted to convince the court that disposal underground was safe (using a system similar to that proposed at Sellafield), it was said that "There is still uncertainty about the ability of the capsule to contain the nuclear waste in the long term," adding that further documentation was required.

Source: <https://www.reuters.com/article/us-sweden-nuclear-regulator/swedish-regulators-disagree-on-safety-of-nuclear-waste-plan-idUSKBN1FC21P>

Whilst not directly connected to the 1GW reactor policy, this does have an impact on what the government have assured the public (no further nuclear development until a safe system of dealing with nuclear waste has been found) and shows the susceptibility of scientists to over-estimate their abilities.

We have yet to see proof that even the "Moorside" proposal is based on sound geological evidence that the site is suitable for development.

Planning Blight

Since the subject of nuclear development was made public there has obviously been an impact on the housing market. There are no certainties that can be leant on in order to guess how a property may be affected - as one county councillor put it: *'We don't even know where the main gates are going to be'*. Yet anyone wishing to sell their home will find it difficult to gain a proper market price for it because of the detrimental effect of the proposals.

Commonsense says that you don't buy a house that is liable to be compulsorily purchased or will be on top of a nuclear dump. Yet, when asked, the NuGen manager did not even know whether the beach bungalows were included in the property support scheme. They would bear the brunt of all marine building work, including pipelines and pumping installations, and have their current amenity destroyed by the building work and construction of two harbour jetties. At the end of any construction, the Braystones area will not be a place that would be suitable as a holiday venue.

This concept is officially recognised by the government as "statutory planning blight"; it enables the residents of any area affected by infra-structure planning, such as Beckermeth, Braystones, Calder Bridge and Seascale, to apply for financial compensation in the event that they are unable to sell their property, or can only sell at a lower than normal market price as a result of the proposed development.

The law states that, under certain conditions statutory blight can permit parties with a qualifying interest in land to require the relevant authority to purchase their interests in that land. This is fine in theory, but in practice is very difficult to achieve.

There needs to be a much better, simplified, scheme by which affected parties can determine their eligibility, discover how they can apply, and be able to assess the amount of assistance they will be able to claim. Those

causing the blight should acknowledge the impact their proposals will have and be more pro-active in helping those wishing to avail themselves of the scheme.

Dishonest and Flawed Practices

Attached is our response to NuGen's consultation of 2015. It contains most of the comments we wish to make in respect of that proposal and, with some slight variation, on the subject of the dump, too. On Page 3 of that document we quoted from an article that had appeared in The Guardian newspaper:

'In 2007, the High Court ruled that the government's consultation was "misleading, seriously flawed, manifestly inadequate and procedurally unfair", and its plans to build a new generation of nuclear power stations were unlawful, yet ministers still continue to press ahead.'

Source: <http://www.theguardian.com/uk/2007/feb/15/nuclear.greenpolitics1>.

Nothing has changed and we believe that the entire process of rolling out new nuclear expansion is built on sand. The consultation processes are unfair and largely directed at establishments and multi-national industrialists, whereas the local resident has little knowledge of the processes, cannot afford to acquaint themselves with the vast quantities of paperwork and the jargon and convoluted English contained therein. The system is for the pro-nuclear and enables those with vested interests to emphasise the possible benefits, whilst ignoring, or covering up entirely, the inevitable, and non-optional detrimental factors.

This determination to promote nuclear is widely apparent. The Whitehaven News is a weekly newspaper local to west Cumbria. As part of a propaganda exercise (one cannot accurately call it anything else), it published on behalf of the nuclear industry a supplement entitled Britain's Energy Coast - a title dreamed up by pro-nuclear supporters, including the local MP at the time, who was previously a press manager for Sellafield and, after resigning in 2017, returned there.

In 2009 one issue of the publication, distributed on 26th of May ('Lessons will be learned from events in Japan'), stated that the reactors at the Fukushima nuclear plant '*remained intact in spite of both earthquake and tsunami*'.

Greatly concerned about the obvious factual errors in the article and the diminution of the catastrophe that continues even now to unfurl in Japan, we lodged an objection with the Press Complaints Commission, who agreed with us and required the following correction to be made:

We would like to make clear that, in fact, all three of the reactors failed following failure of the cooling system. The events led to a failure of the power supply and water cooling systems, with the result that the cores melted through the bottom of the reactors, releasing radioactive chemicals. We apologise for the misleading statement.

Ref.: <http://www.pcc.org.uk/cases/adjudicated.html>

The article was signed by Brian Wilson, a former Energy Minister. He was, at the time of the article, chair of the quango, "Britain's Energy Coast", a pro-nuclear group of lobbyists. He would, therefore, we believe have had very good contacts from whom accurate information would have been available. After leaving parliament Wilson worked as a non-executive director to Amec Foster Wheeler Nuclear. Amec's clients included BNFL, British Energy, UKAEA and AWE Aldermaston. It ran a concerted PR campaign to push nuclear.

Source: http://powerbase.info/index.php/Brian_Wilson

Britain's Energy Coast is a commercial organisation owned by Copeland Borough Council, Allerdale Borough Council and Cumbria County Council, along with the Nuclear Decommissioning Authority. We understood that the rôle of the latter prohibits its involvement in the promotion of nuclear expansion.

For many years we have drawn attention to a book by Harold Bolter, a senior manager at Sellafield at the time of several contamination incidents. Entitled "Inside Sellafield", (ISBN 0-7043-8017-X), Bolter describes what counter measures should be taken. Sellafield managers had been very concerned about the recent series of events and the broadcast by Yorkshire Television, in its First Tuesday series, of a programme called "Sellafield:

The Nuclear Laundry". These counter-measures would involve "getting the greenhouse effect, caused by burning fossil fuels, on to [sic] the political and environmental agenda."

The book also explains that Bolter believed that the nuclear industry had to capture the minds, if not the hearts, of young children. The success of this campaign is self-evident. The most obvious being the establishment of the West Lakes Academy, which says on its website that three sponsors were involved in the setting up of West Lakes Academy in 2008: *Sellafield Ltd.; the Nuclear Decommissioning Authority (NDA) and the University of Central Lancashire (UCLan)*. *All three share an ambition and motivation to support the education and development of young people in West Cumbria and to ensure that West Cumbria is an attractive, vibrant and aspirational place in which to live and work. The Nuclear Decommissioning Authority and Sellafield Ltd. are two of the most important energy organisations in the UK and two of Cumbria's largest employers; they provide invaluable resources and industry support to our specialism in science.*

Ref.: <http://www.westlakesacademy.org.uk/about-us/>

If this kind of manipulative policy had been discovered in any other country it would have been denigrated as brain-washing.

It is widely mooted whether the nuclear industry - usually Sellafield when referring to west Cumbria - should be handing out financial incentives and assistance to educational and similar projects when elsewhere the government funds them directly or *via* the local councils. The question is often asked: what does the nuclear industry expect in return for its investment? The answer is obvious.

The determination of the pro-nuclear lobby to impose new-build on the Cumbrian community was apparent from when they first re-assigned the "Moorside" area as a brown-field site. Never having been used previously for any form of industry, consisting primarily of ex-farmland, this was patently a ruse to make the land available for nuclear development, even though we believe its proximity to the Sellafield site means it must harbour quantities of radioactive material. Should the project go ahead, we would hope that this situation, along with the associated risk, is made clear to those who gain work there.

Employment Potential and the Impact of Withdrawal From the EU

Much is made of the number of employment opportunities that "Moorside" and similar projects will allegedly present. In the case of "Moorside" the number is quoted as being "up to 5,000" - which is attractive, but ultimately meaningless. Even so, when commissioned, the number will drop to around 600. NuGen suggest that there will be need for a further 1,000 employees available for times of planned maintenance. It is difficult to imagine that people with the relevant skills for them to be employed at a nuclear site would be hanging around awaiting the whim of NuGen for work.

The availability of a workforce adequately skilled and formally qualified to work on nuclear sites should be a requirement of the policy. This should be accompanied by details of how these employees will be able to fit in with the existing housing arrangements and how the needs of the employees will be assured. The proposed policy should dictate that development should only be permitted when accommodation, educational, social, mental and physical healthcare, and welfare arrangements are in place. Consideration should be given to whether the developer should foot the bill for all the changes that they require or necessitate: if there are any shortcomings in the area's infra-structure, the developer should be obliged to make good any deficiencies. In the case of "Moorside", this would involve NuGen paying for the improvements to the A595 and local roads, railways, public transport, social housing and amenities, and increasing the availability of NHS treatment - GPs, nurses and hospitals, along with social security provisions. The latter especially if 1,000 people are expected by NuGen to be out of work for long periods awaiting the next phase of planned maintenance.

It is noteworthy that the state of social and health services in the Sellafield area is already poor and struggling to cope with current demand, a situation which will be exacerbated by the influx of "up to" another 6,000 people.

The numbers quoted as being required for the construction phase are vastly more than those unemployed and living in the area who already have, or might be able to acquire, the desired skills, or who would want to work on a nuclear site. Whilst the EU currently permits free movements of workers, the result has been that

considerable numbers of migrant workers have come to work on infra-structure projects. They have mainly been involved in working at the lower end of the scale, being willing to work well for low wages. Their work ethos is somewhat different to the average U.K. worker, who expects better conditions, wages and hours.

Presumably the availability of foreign unskilled/semi-skilled staff will come to an end when we finally exit the EU, making it difficult to find labour. This will potentially have the effect of raising the cost of construction.

The Ultimate Vision

Nuclear reactors have a finite life. What will happen when these sites are no longer capable of generating electricity? Even at the end of the construction phase there is likely to be a severe impact on the social status of the area. Will there be other opportunities for the redundant work-force, or will they have to move away to find employment? If they move away, what will happen to the housing, social services and health provisions? There were serious problems when the construction of Sellafield/Windscale/Calder Hall came to an end. Will this situation recur?

Obvious Risks

In 2009, Citigroup produced a report that listed points against nuclear expansion. To paraphrase its findings:

There are five big risks to nuclear power station developers: planning, construction, power price, operational, and decommissioning.

The government has sought to limit the planning risk. While important for encouraging developers to bring forward projects, this is the least important risk financially.

The three corporate killers are construction, power price, and operational. These are so large and variable that individually they could each bring even the largest utility company to its knees financially. This makes new nuclear a unique investment proposition for utility companies.

Uniquely, this country's government policy remains that the private sector takes full exposure to those three main risks. Nowhere else in the world have nuclear power stations been built on this basis.

It concludes:

'Nor will they be built in the U.K. We see little, if any, prospect that new nuclear stations will be built in the U.K. by the private sector unless developers can lay off substantial elements of the three major risks: financing guarantees, minimum power prices, and/or government-backed power off-take agreements may all be needed if stations are to be built.'

In an article in "Unearthed", a publication by Greenpeace, even the National Audit Office warned about the Hinkley nuclear new-build as being a risky and expensive project. It also accused the government of failing to protect the consumer.

www.unearthed.greenpeace.org (15th December, 2017.)

The article goes on to quote the Energy Minister who agreed the terms of the Hinkley deal as saying that the current moves to involve government financing new nuclear are dangerous, pointing out that we will only start paying for Hinkley once it starts producing electricity. Until then the risk is with the supplier. If the government is involved in the financial arrangements then the risk will increase throughout the process, not just after commissioning. Although, presumably, any large-scale incident will still render the government liable.

We believe that any forecasting or computer modelling needs to be thoroughly tested before the results are accepted for nuclear development. The long-range forecasts for future energy consumption made on behalf of the government have proved to be wide of the mark, forming a bias in favour of nuclear development. Many of the more troubling aspects of the NuGen proposal, when queried, revealed that the answers are not known. This is in relation to serious matters such as the impact of circulating 2½ billion gallons of Irish Sea water every day, lacing it with biocides before returning it to the sea at 14° above intake temperature.

Computer Modelling

When asked, NuGen said they didn't know what impact the water circulation would have, but it would be dealt with by computer modelling. This seems to be an incredibly poor answer.

For computer modelling to be accurate, the projected result must be compared with the actual result and adjustments made to the model until the actual and projected results are as near identical as possible - the process would take many years to achieve anything like accurate results, which seems to indicate that the process will have to have been commissioned before they can even start to work out the answer, but anything else would just be guesswork.

There would also be a need to know the effect of the pumping on the sediments of the Irish Sea together with some knowledge of the location of radioactive materials that will become re-suspended by the exercise. To our knowledge there is no such information available, as the original thinking behind the discharges was that everything would become diluted and dispersed. That thinking, of course was wrong, as the data from Sellafield's own research has demonstrated.

Of course, the re-suspension of Sellafield's legacy discharges would be very likely to mean that such material is actually pumped round the new reactors. Would this render leak alarm systems pointless?

Inefficiency and Pollution

Nuclear power is only, at best, 30% efficient, which means that for the proposed 3.2 GW development at "Moorside", the thermal equivalent of 6.4 GW will be discharged to the environment. The effect of this has not been assessed and is, indeed, unknowable, but it is difficult to reconcile this form of direct heating with the professed reduction in CO₂ producing a reduction on the impact of global warming.

Is there a difference between heat developed by nuclear power and heat developed as a result of the production of CO₂?

What of the chemicals which are utilised and/or produced as part of the nuclear cycle? It may be convenient to overlook the mining and refining activities, especially those that take place in foreign countries, and to ignore the toxic output from the waste processing operations, or even the transportation associated with it all, but these things are part of the process and should be included in the figures quoted when claiming that nuclear is somehow "clean" and "greener" than any other form of generation.

Failure of Due Diligence Checks

Recent events have confirmed our belief that the requisite due diligence, which determines whether a company has adequate organisation and funding before being awarded government contracts has not been undertaken.

The problems of Toshiba, the main company behind NuGen, must have been well-known or at least rumoured, long before it was forced to withdraw because of "financial irregularities" to the tune of £280 million. Other partners in the NuGen project withdrew, forcing Toshiba to pay compensation. Combined with other financial problems, Toshiba was obliged to file for Chapter 11 Bankruptcy in the USA. Is this a sound and ethical company to trust with a multi-billion pound contract?

How did the government not know about these liabilities if due diligence checks had been carried out?

If they did know, why did they not stop these major projects?

Électricité de France (EdF) also appears to be unsound. In what seems to be a precursor for another Carillion-like fiasco, Électricité de France's financial director left the company in 2017, as he felt the plans to proceed with Hinkley would bankrupt the company. Yet the Prime Minister still endorsed the scheme. This is indefensible. Due diligence checks would surely reveal the scale of indebtedness and potential liabilities - according to our calculations, around £330 billion - and there would have been no possibility of the government awarding contracts. We believe that, as stated in the Citigroup report mentioned above, financial institutions will not support nuclear power - it is too expensive and risky.

Residential Radioactivity

We have already mentioned the November, 1983, Yorkshire Television broadcast "Windscale The Nuclear Laundry" as one of its First Tuesday series, which dealt, in part, with the radioactive material that was present over the entire area around Sellafield. Not just in the external environment but also in people's houses. That now is more than 34 years ago.

We raised the matter of risk with Public Health officials a few years ago and were assured that there was no chance that the particles being washed ashore and detected by Sellafield contractor Nuvia, could end up in houses. Indeed, we were told there was no danger at all. Although we were dubious about that at the time and argued to the contrary, there was nothing we could do against the official "experts".

Recent readings, however, reveal that we were in fact correct to worry. Radioactive materials do move in storms and can get blown about the entire area; many kilometres inland.

In the programme the question was posed by Dimbleby as to whether Sellafield would cause checks to be made inside people's houses. Nearly 35 years on no-one has ever checked our property, or, indeed any others in the neighbourhood. The properties are beach bungalows at Braystones, actually built on the beach - prime candidates for blown particles.

Storm Desmond a few years ago, severely damaged the whole beach community and the tide swept around, under, and into the homes and outbuildings. Still no checks have been made on whether radioactive particles were present inside properties around Sellafield.

RIFE With Errors

We have read, with considerable concern, the government's document "Radiation in Food and the Environment". It is a subject on which we have had correspondence several years ago. Some of the statements contained in the publication, on which risks have presumably been based, are wrong; others demonstrate a distinct lack of local knowledge. Indeed, the document is so erroneous that the number of corrections entailed a separate publication.

The community of Braystones Beach has changed quite dramatically in recent years. Gone are the almost self-sufficient diehards; those that do remain are now too elderly to participate in gathering seafood and fishing. They have been replaced by residents with different interests and better income. There are also more holiday home owners. These changes are neither mentioned nor taken into account. It seems to have been assumed that the community is static and thus unchanged from when the criteria for the original reports were compiled.

A minor, but perhaps demonstrative example of error being the statement that there is no commercial exploitation of seaweed for laverbread. (*No harvesting of Porphyra in west Cumbria, for consumption in the form of laverbread, was reported; this exposure pathway has therefore remained dormant in recent years. Page 49.*) Last year we spoke to one of several pickers who were doing just that, He had gathered reasonable quantities of the porphyra and was a regular visitor to the area. His harvest was transported to Wales for the manufacturing process. We do not know the ultimate market for these. He also proved knowledgeable about the organised gangs who zealously protected their territories further up the coast. We are also aware of many non-local pickers of periwinkles, cockles and mussels who arrive during the hours of darkness and spend several hours between the tides gathering sackfuls of the sea-foods, especially over the rocks at Nethertown.

The fact that a considerable number of those who ingest sea-food and are involved in beach activities are holiday-makers is also ignored. It is highly likely that some holiday-makers ingest at least as much local food as the indigenous residents. They then go home and any potential illnesses or ill effects of their consumption of radioactive material is overlooked.

Lobsters are also mentioned in the report. While the report suggests that lobsters form a lesser part of the locals' menu, it overlooks the fact that lobsters are hugely popular in up-market restaurants. So commercial are they that it is well worthwhile transporting lobsters and crabs to hotels and restaurants within the Lake District National Park, especially around Windermere, where visitors will happily pay city prices for them. It is a moot point whether they would be quite so keen if they knew the origins of their food.

On our website we include pictures of boats from Whitehaven and elsewhere fishing directly over the end of the

Sellafield discharge pipeline. Whitehaven would not figure in RIFE's calculations.

Ref. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/665561/Radioactivity_in_Food_and_the_Environment_2016__RIFE_22_.pdf

Erratum: https://www.food.gov.uk/sites/default/files/erratum_0.pdf

There is a Marine Conservation Zone along with all the other protected areas, which will be adversely affected by the proposal. These specialist areas are unique and once they have been destroyed will be irreplaceable, no matter what mitigation or restoration measures are promised.

By the time for decommissioning new-build power stations no-one will know what restoration should entail. All that will be left for residents is the waste and the radiation.

The UK is a signatory to the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic. It is inevitable that the proposals for "Moorside" will impinge on the current status quo for the Irish Sea, and thus also the adjacent section of the north east Atlantic.

Measures must be taken to ensure there will be continued compliance with the terms of the treaty in spirit as well as the letter.

We would add that we have contacted the Marine Climate Change Impacts Partnership, asking for their views on the pumping of hot water into the Irish Sea. They suggest that, despite the volume of water under consideration, "*the effect that [we] describe is likely at a very local level and, therefore, the most detailed information on the impacts will come from the modelling that NuGen will carry out*". We received a similar statement from CEFAS.

That we have doubts about the published results in the RIFE document, seems to be justified by a report to the Scientific and Technical Committee of the EU. Some of the conclusions of a 2000 report are:

The deposition of plutonium within 20 km of Sellafield attributable to aerial emissions has been estimated at 160-280 GBq (billion becquerels), that is two or three times plutonium fallout from all atmospheric nuclear weapons testing. In addition, significant quantities of radionuclides can become airborne in sea spray and be transported inland by the wind.

The average activity due to actinides from the sea may occasionally exceed the international limit of 1 mBq/m³. It has been estimated that over 40,000 TBq (trillion becquerels) of caesium-137, 113,000 TBq of beta emitters and 1,600 TBq of alpha emitters have been discharged into the Irish Sea since the inception of reprocessing at Sellafield. This means that between 250 and 500 kilograms of plutonium from Sellafield is now adsorbed on sediments on the bed of the Irish Sea.

The migration of undersea deposits of actinides to coastal environments represents a long-term hazard of largely unknown proportions.

Technetium-99 (half-life 214,000 years) discharges have led to particular concern. In 1997, technetium concentrations in crustacean – particularly in lobster – reached 13 times the European Council Food Intervention Level (CFIL) in the vicinity of Sellafield. Some technetium concentrations above CFIL limits have also been found in molluscs (winkles, mussels, limpets and whelks).

Recent environmental surveys along the Norwegian coast indicate a six-fold increase in technetium concentrations in seaweed since 1996. Concentration factors are greater than 1,000 for some biota such as macrophytic brown algae, worms and lobsters and are particularly high for some seaweeds (around 100,000).

In 1999, a number of high concentrations of various radionuclides were also recorded in fish, shellfish, sediments and aquatic plants, some exceeding CFILs several times. Large uncertainties remain in the field of transfer of technetium in the biosphere.

Conclusions on Radionuclide Concentrations in the Sellafield Environment:

Marine discharges at Sellafield have led to significant concentrations of radionuclides in foodstuffs, sediments and biota. Discharges lead to current concentrations in some foodstuffs, which exceed European Community Food Intervention Levels (CFILs). The transfer of technetium to the biosphere is of particular concern, because of its long half-life (214,000 years), its mobility in seawater and the high concentration factors in plants. Large uncertainties remain as to the transfer mechanisms and environmental fates of many radionuclides.

Source: <http://www.wise-paris.org/english/reports/STOAFinalStudyEN.pdf>

Road Transport and Rail Links

Over many years we have expressed our concerns about the transport situation and explained them in the NuGen consultation document, as well as pursuing Network Rail and the Office of the Rail Regulator as it was then, to press for improvements to safety for rail users and the Braystones Beach residents who depend on the level crossing to access their beach track.

The sole railway line in the area is a single-track line with a poor history of maintenance and safety. At Braystones there is a manually self-operated level crossing which poses a substantial risk at current levels of usage.

It should be noted that there are problems at various points along the line with landslips which, in recent times, have caused derailments and blockages of the line.

The signalling system is based on practices from 150 years ago. Yet there are plans to put all the coal mined at St. Bees onto this line, should that project go ahead. Whether the traffic goes north or south it seems difficult to imagine that this volume of material could be moved safely on the existing system. Yet the road system is equally restrictive.

The sole main road, the A595 is for the majority of its length decidedly unsuitable for heavy traffic. Indeed, it struggles with the everyday traffic. Any accident resulting in the closure of the road entails a diversion of over 90 miles or, obviously, extremely long traffic jams.

Recently the Transport minister has announced that planned improvements to roads throughout the north-west will not now go ahead, while Network Rail's problems seem likely to restrict their plans for any routes other than those running east to west across the Pennines, so nothing is likely to change in Cumbria for the foreseeable future.

Worse Than CO₂?

For some time on our website we asked the question: "When did plutonium, caesium, tritium, *et al* become less injurious than CO₂?" Adding that even if the nuclear industry does produce less CO₂ (which we do not accept), why are these products more acceptable? As yet there has been no answer.

Reprocessing of the nuclear waste produces a higher volume (x70) of radioactive material than the initial material. The resultant product is far more concentrated than the initial waste. New design reactors will utilise more of the radioactivity, resulting in an even more concentrated waste to be treated.

The radioactive material dumped, deliberately discharged, or accidentally leaked into the Irish Sea will continue to decay for centuries, producing much more toxic material as it does so. This will result in the Irish Sea becoming more polluted - even if the discharges were to cease immediately. Most of that material will wash ashore and eventually find its way around the world, but particularly concentrate on the west Cumbrian coastline.

Safety Zones and the Domino Effect

There is a two kilometre zone around Sellafield which was designed to protect the local population from any immediate effects of an incident. It is difficult to see how placing three reactors within that safety zone can be,

in any way, best practice. Even if the two kilometre zone for each of the sites were to be observed, the close proximity would still be patently unsafe. Commonsense decrees that there is great potential for the domino effect, whereby an incident at one site impinges directly on the activities and safety of the other.

Other voices, too, illustrate doubts about the statements from the Environment Agency about the size of the area affected by Sellafield's discharges and the transport mechanisms of radioactive particles around the environment.

The fire at Sellafield in 1957 caused contamination to the land for miles around, (Richard Wakeford, 2017, <http://iopscience.iop.org/article/10.1088/1361-6498/aa7e87/meta>) as well as being thought to be responsible for health effects around the world. If a similar event were to occur during the construction of "Moorside", hundreds or thousands of workers would be contaminated.

Even today, the discharges to the atmosphere and Irish Sea are at levels which would not be permitted elsewhere in the world.

Will any policy continue to ignore the representations from other governments, such as the Isle of Man, Northern Ireland and Eire, and the Scandinavian countries?

Cost of Dealing With Waste

The nuclear industry in Cumbria has existed for seventy years. The total amount for cleaning up Sellafield's polluted site is currently said to be around £77 billion. Pro-nuclear lobbyists suggest that this is of huge benefit to the local communities. Yet one only has to look at the area to see that dereliction and poor living standards are obvious. Egremont and its environs, along with Cleator, Frizington and parts of Whitehaven, all have areas of deprivation. Even the sole local hospital in Whitehaven has been threatened with closure.

Emergency Plans

This raises the obvious question of what would happen if there were a major incident at either "Moorside" or Sellafield? Would casualties really be transported to Carlisle, more than 40 miles away - when the roads would likely be congested as a result of the incident, too? Or, worse, have to be taken to Newcastle-on-Tyne, a distance of nearly a hundred miles. It is obvious that the additional billions of pounds that are touted as being the cost of the new development will go the same way as those for Sellafield - into corporate pockets.

Other Opinions

In confirmation of what we had been posting on our toxiccoast.com website for many years, in 2011 a note from a Babcock employee (albeit an ex-Sellafield manager) appeared on the Office for Nuclear Regulation's web-site for two days before it was removed. The questions as submitted, replete with inappropriate capitalisation and strange grammar are listed below:

- There were occasions when the exercises required the utilisation of "Off Site support" [cranes etc]. These off Site units were never called in to Site on a "Real Time basis ", due to exercise time constraints.
- Rehearsal of 'multiple' or concurrent emergencies, was occasionally played out but frequent the scenarios were interrelated. Loss of Services and uncontrolled release of activity to the environment.
- Only once on the Sellafield Site was an exercise played out in " Real time" and this was abandoned after less than 24 hours: with minimum involvement of replacement Emergency Duty Team Members.
- It is several years since a "TOTAL Loss of Electricity Supply" to Site were exercised, requiring the coupling of Diesel Back up generators etc.

The writer went on to ask:

- Have they rehearsed adequately concurrent and inter dependant Emergency Scenarios, such as Loss of Power and other utilities?

- Have they 'played out' an emergency exercise in REAL Time over say a 48+ hour's basis?
- Have they ever tried to secure Off Site Support Equipment in 'Real Time': specifically: cranes, Mobile generators, additional /replacement emergency staff etc.
- Have they considered within their Emergency Planning the possibility of losing ALL the Key Utilities to the Site: Electricity, Water, Steam, Compressed air & other essential gases, concurrent with say Chemical or other toxic releases.
- Have they got contingency plans in place to secure whatever additional resources they may require.
- Have they considered the scenario where by staff on site at the time of a Major Incident, also affecting the local area, may demand to be released to go to the aid of their families?

Possible scenarios include:

- A terrorist team attack from out with the Site Security Fence.
- The Team could destroy the following, without requiring access to the Site.
- Take out not only Fellside [for Electricity & steam] but also the adjacent stand-by Diesel & Steam Supply units.
- Destruction of the standby Gas Turbine and Diesels Generators on the main Site
- Followed by destruction of the Brow Top Reservoir & pumping station.
- Destroy a couple of Electricity Supply Pylons to both North & south of the Site, rendering it, and the whole of West Cumbria, completely devoid of electricity supplies.
- *The Result would be the need to secure large Diesel Generators, pumps & fuel supplies from say Manchester or Newcastle: not an easy task if the attack was timed for say a bank holiday Friday!!*

The writer concludes with:

- Had the above scenario been necessary last year when the Bridges in Workington were down, how long could it have taken to secure equipment from those cities???
- Yes it may have been possible to provide police escorts but many of these large items of equipment do not travel at speeds greater than approx 30 mph: and require considerable road space. If these items were acquired, what about the logistics of keeping them supplied with diesel fuel etc??
- *Apologies if this sounds negative, but it was a debate that was held by the Duty Engineering Teams following a terrorist attack some years ago, the Sites preparedness at that time was based on minimum personnel infiltration to the Site, where as it was considered that there is the potential for sever damage that could readily and easily be caused, without gaining access to the secure areas, and the impact would not only be to the Site but also the surrounding areas*

That there is bias and the influence of vested interests in the entire process is amply demonstrated by those who leave political positions and take up senior positions in nuclear companies, or companies with contracts to service the nuclear industry.

That Électricité de France staff were seconded to work with DECC to "advise" on Hinkley is amazing. Were any independent experts appointed to similar positions and given access to the same material?

The benefit of the information available to Électricité de France amounts to a serious breach of the impartiality which we are led to believe is key to the democratic process. One can only imagine that the advice given by the Électricité de France staff would be fully in favour of the development, whilst, inevitably, the information gleaned by virtue of their access would be fed back to Électricité de France management to enable counter arguments and “solutions” to be put forward.

The Rewards For Using Influence and Assisting Private Companies

When we gave evidence to the Select Committee in respect of RWE, it was noteworthy that RWE staff were greeted by politicians and civil servants all of whom were on first name terms. We were treated to cold civility. To make matters worse, a division part way through was deemed to be time taken out of the 15 minutes which was all we had been allowed to give our evidence.

Ref.: <http://www.parliament.uk/business/news/2010/01/energy-policy-statements-inquiry-continues/>

This was eventually rescinded only by dint of our determination. However, we feel that this type of thing demonstrates the inherent corruption of the democratic process and could be of interest to the courts.

A variety of politicians and civil servants have left their positions in government and taken up posts with companies they worked with during their tenure. One Energy Minister even went to jail for perverting the course of justice. The chair of the Westminster meeting we attended was also sent to jail for expenses fraud.

Copeland's M.P. re-joined Sellafield after being in Westminster for twelve years. After resigning he resumed his career with his original employers, taking up a new rôle as Head of Development and Community Relations for Sellafield Ltd. Copeland's head of planning changed to being head of NuGen's planning.

When politicians and civil servants use their contacts to join the industry when they leave office, it is difficult to accept that there is any integrity in either the individuals or the democratic processes.

There seems little point in constantly reiterating everything we have already said, so herewith a copy of the document we compiled as a response to NuGen. The relevant objections should be noted and given proper weight in any forthcoming proposals. We hold little hope that this will happen, and thus would like to see the consultation process subjected to rigorous assessment by a court of law.

Volunteerism or Imposition?

In 2008, the government announced that the following conditions would have to be met before any consideration could be given to nuclear expansion:

- *no subsidies;*
- *a method and location for the disposal of nuclear waste - legacy and new to be in place before further expansion could be undertaken;*
- *designs would have to be generically approved and safe in operation;*
- *energy security needs would have to be met;*
- *approval of local residents obtained before any project was permitted to start.*
- *all three of the groups involved in the "Partnership" - Cumbria CC, Allerdale and Copeland - must all agree. A negative result from any one would mean the end of the project.*

Whether subsidies or not, the nuclear industry has undoubtedly been assisted by a variety of means.

We have seen how the government has failed to accept the decision of Cumbria County Council not to agree to the expansion, despite 95% of the parish councils voting against it.

There are attempts now to isolate the two councils, Allerdale and Copeland, from Cumbria County Council influence, permitting them to decide about any future development.

33% of Cumbria County Council are obliged to register an interest when matters relating to Sellafield are debated; we can well believe that the percentage of local councillors beholden to the nuclear industry may be even higher. We thus believe that it is just a matter of time until the other conditions are circumvented. After all, Copeland's Local Plan, 2001 - 16, which stated (10.1.2) "*Important areas of Government policy are: There are no current plans to invest in further nuclear power stations and the current BNFG business plan envisages that all reprocessing will cease by 2012*", was still extant when RWE et al announced their plans.

Gross Abuse of Parliamentary Process - But No Redress

Through a "clever" wheeze and early morning sittings of the House involving certain MPS, changes were made to the government's liabilities in respect of incidents affecting private companies. In the event of any incident or accident the liability of the private company was capped. Anything over that amount now falls on the tax-payer. It was this wheeze was described as "*a gross abuse of parliamentary procedure*", by the then Speaker, Michael Martin. We chased this for two years, being fobbed off by a wide variety of politicians a peer and officials, until Mr. Martin's successor, Speaker John Bercow, explained for us that any change proposed which will have an impact on government liability has to be presented to the House or a relevant committee. The relevant papers have to be sent in advance and placed in the library. It is necessary to avoid periods of holidays, etc., to enable sufficient time to be given to consideration of the proposed change. By some strange quirk of fate, this did not happen, thereby assisting nuclear power generators to avoid the consequences of their industry. Despite this gross abuse of parliamentary procedure, nothing has been done to rectify the wrong.

Outstanding Matters

There is still no method for the disposal of nuclear waste. The word "safe" has been omitted. This has enabled the proposition of digging a deep hole and shoving the waste into it to prosper.

The designs for reactors planned to be installed in the U.K. cannot be said to be safe in operation until such time as they have been thoroughly assessed by knowledgeable independent engineers and scientists. Yet it is noteworthy that the Hinkley development has been permitted to start but the designs of the reactors and ancillary equipment have not yet been fully assessed. In the case of "Moorside", it would appear the AP1000 designs will not now be utilised, so it is impossible to say whether any alternative designs are safe in operation.

There are inherent and very serious flaws in energy security when it is outsourced to foreign companies. Being at the mercy of foreign governments for electricity supplies is surely very risky; *entente cordiale* can be somewhat ephemeral.

We have already stated that it is impossible for residents to approve something that they have no knowledge of. In the case of "Moorside" all that is on offer from NuGen is a series of artists' impressions and statements of intent, with nothing more substantial. Even the long-term future of the company has been in doubt for some time now.

Computer Problems

There have been many serious attacks on computer systems across the world in recent years. The primary example being the Stuxnet virus, which deliberately caused serious problems for computer control circuitry, notably in Iranian nuclear centrifuge equipment. Accessed via a USB stick and using aspects of the intrinsic firmware to look for specific Siemens' equipment. Of course, development has continued and the target will now have changed. That it deletes its own trail makes it more difficult to deal with. It is readily apparent that any computer connected to the internet will expose itself and become vulnerable to attack. The number of hackers will continue to grow, whether the curious or malevolent. It is our understanding that computers used in the nuclear industry use Windows operating systems, albeit sometimes covertly, but whatever operating system is used, there are people who will discover and exploit its weaknesses.

Virtually all computers with networking capacity will be utilising integrated circuits produced by Taiwan or, more likely, China. This is also true of the integrated circuits used in routers and modems. Unless the firmware coding in these circuits is analysed and verified safe, it is very possible that routines could be built-in and be hidden from the ultimate user. It is clear, therefore, that any computer connected to the internet is intrinsically vulnerable.

Forthcoming changes to national legislation will require major institutions to demonstrate that their systems are secure. The security case should be stated in any application for development; similarly all compliance with European General Data Protection Regulation (GDPR), which will come into force on 25th of May, 2018.

Conclusions

- 1) Consultations should be more widely advertised and made easier to take part in. It is doubtful whether many outside the industry are even aware of this particular consultation. If it is unknown then, it seems to us, that we are back at the High Court's assessment, as mentioned earlier: that the consultation is *"misleading, seriously flawed, manifestly inadequate and procedurally unfair."* On that basis alone, one might expect there to be a case for judicial review.
- 2) There should be a modicum of respect for the rural community's mindset. Not all are orientated to use or understand management-speak, the many acronyms, or the jargon associated with consultation processes. It almost seems that there is a deliberate aim at excluding those people whose livelihoods are going to most affected and a contumelious attitude to rural communities.
- 3) Few of the residents have the time or inclination to plough through (literally) thousands of pages of technical material - it is not what they are good at. Few feel inclined to do research, or even keep up-to-date with current news stories. There is very much a feeling that they will not be able to change anything anyway, because no-one listens and the plans have already been made.
- 4) Convenient remoteness and polite subservience, or stoic acceptance, are characteristic of rural residents, but that does not mean that their lifestyle is of no consequence, merely to appease the greed of large corporations or those in government who are determined to force through a "Cunning Plan". In the case of "Moorside" the site does not even fit the criteria, due to the existence of Sellafield and its historic and contemporary pollution.
- 5) There must be a limit to how many protected areas or other scientific sites or amenity assets can be destroyed in order to build power stations.
- 6) The vulnerability of ordinary people is amply demonstrated by the fiasco that is Carillion's collapse. As with the nuclear industry, the government issued huge contracts to companies that are financially unsound.
- 7) Closer attention must be paid to the process of due diligence. The awarding of huge contracts to companies with unsound financial status or a history of unethical conduct should be prevented. We would refer to the scandals and allegations connected to the largest of the accounting companies such as are used by the U.K. government and large energy companies alike. Conflicts of interest must be almost inevitable.
- 8) Residents must be given far more detail than is currently available to them before they are asked to respond to any more consultations.
- 9) There is a necessity for the consultation processes to become more honest and evidence-based. Links between government officials and "special advisors" must preserve at least a minimum of isolation from those with vested interests and pro-nuclear goals. ACOBA should be more rigorous in its supervision of appointments made after official tenure of all posts held during which there is a possibility that they could have been influenced by the external company and which offer post-resignation employment opportunities.
- 10) Recent examples of conflicts of interest, (e.g. KPMG advising both the U.K. government and China General Nuclear Power Corp., and the spectre of Whitehall officials being rebuked for "egregious" and "unjustifiable delays" in revealing details of government contracts for Hinkley and allegations of a conflict of interest¹; Leigh Fisher, owned by Jacobs Engineering, an American group, was paid £1.2 million for its advice on the Hinkley project, while Jacobs Engineering - whose advice helped to justify the government agreeing to the 35 year term with Électricité de France - was working for Électricité de France, an arrangement described as "stinking like rotten fish")^{2,3} should be prevented from recurrence.

Ref. ¹ <https://economia.icaew.com/en/news/january-2018/kpmg-accused-of-conflict-of-interest-over-hinkley-point-c>

Ref. ² <https://www.thetimes.co.uk/article/advisers-on-hinkley-point-c-nuclear-power-station-had-cosy-ties-to-both-sides-xftxcl9sz>

Ref. ³ <http://www.independent.co.uk/news/business/news/exclusive-consultants-pocket-8m-in-fees-for-new-uk-nuclear-plant-in-hinkley-8958513.html>

- 11) Verifiable facts must be considered in the decision-making process. There seems to be a pattern of altering evidence to prove the case in favour of nuclear expansion, despite the veracity of the evidence against.
- 12) If making generalisations, there should be a requirement of proof. We mention on P. 7 of this document the generalisation that west Cumbrians are in favour of nuclear, which is oft-repeated by the pro-nuclear lobby, but which runs contrary to the opinion polls. The sinister aspect of that being that the nuclear industry is currently endeavouring to force people to that viewpoint, or trying to curtail their involvement by limiting their chance to take part in consultations or polls.
- 13) Similarly, the rôle of the various nuclear bodies needs to be far more distanced from the industry. Currently there is a relationship which is too cosy for effective management and regulation. It seems to us that there is too much collusion between all parties, from the private companies to local politicians and councillors through to multi-national companies, accountants and financiers.
- 14) Consider whether the NDA acting outside their remit by being involved in promoting nuclear expansion merely in order to sell the land adjacent to Sellafield is a primary example?
- 15) There should be an acknowledgement that the electricity market is changing and the presumed "base-load" model is no longer applicable. It is noteworthy that the margin of error in the government's forecasting of electricity needs is so great. One has to wonder whether the forecasts were just guesswork, or whether they had been skewed to make it appear that nuclear generation is vital.
- 16) Question whether the increasing importance of wind, tidal, and other generating methods preclude the necessity for large-scale nuclear development, especially considering the likely development of means of high-power storage, such as batteries developed by Tesla in Australia.
- 17) Currently a common perception is that the policies being produced are simply aimed at salesmanship. For example, the heading of this forthcoming policy, "National Policy Statement For New Nuclear Above 1GW Post 2025 Siting Criteria And Process", infers that the introduction of large capacity nuclear reactors is inevitable. This is patently not the case. We have a deep-seated objection to such installations and, as we have mentioned throughout this submission, the case for them is grossly distorted and based on false premises. The public have not been made truly aware of the risks involved. It is to be hoped that one of the larger "green" institutions will take on the task and financial burden of pursuing a judicial review.
- 18) There should be a limit to the extent foreign companies can be involved in providing electricity, energy and infra-structure services, in order to prevent the obvious susceptibility to security problems and to prevent an over-dependence on foreign largesse - from sources may not be quite as altruistic as the government seems to imagine.
- 19) Is it possible to justify involving countries such as China in infra-structure projects in the U.K. when their human rights record gives so much concern? (1,000,000 Tibetans murdered in recent years, for example.)
- 20) More should be done to protect affected residents from the effects of development: destruction of their established way of life and amenity; planning blight; the imposition of work opportunities to the exclusion of alternative industries. By promoting such a concentration of nuclear-related industry there is a distortion of the more typical employment range.
- 21) The influence of the nuclear industry on local communities must be curtailed. Currently it dictates what services are available and is even influencing the educational sector to its own advantage. The provision of these services should revert to national and local government, as happens in non-nuclear areas.
- 22) The health aspects of the nuclear industry on workers and on others who reside in the area needs to be more closely considered.
- 23) No action was taken to investigate the crimes uncovered by the Redfern Enquiry. Cumbria's Acting Chief Constable advising that, "*It would not be in the public interest to start an investigation.*" Other investigations into health effects seem to have been heavily influenced by interested parties and not

to have been as thorough as they should have been. A mechanism should be devised to prevent this undue influence.

- 24) The long-overdue check on the radioactivity present in homes around nuclear plants (especially Sellafield) should be implemented before any expansion is considered.
- 25) Historical industrial discharges which will have an impact for millennia must be taken into account when considering a proposed site. The re-circulation of such material will prove injurious to residents and workers alike, as well as having an adverse effect on the environment.
- 26) Once a decision has been made it should stand. Most reasons for refusal are due to the inherent characteristics of the site and its environs. These rarely change. In west Cumbria, three out of four sites have been refused due to these vital characteristics. It would be incongruous to permit development alongside the most dangerous chemical works in the world and which shares the same characteristics as the other sites at Braystones and Kirksanton.
- 27) Achieving compensation for planning blight should be an easier process. It is not the resident's fault that the situation has arisen. Perhaps the developer should circulate claims forms along with the propaganda leaflets?
- 28) Plans for the ultimate disposal of highly toxic waste materials must be drawn up before further expansion of the nuclear industry is permitted. These need to be soundly-based and universally acknowledged to be satisfactory. It is not satisfactory to bury them in a leaky hole in the hope the materials won't leach out.
- 29) A regulatory system must be devised to replace the Euratom membership that may be forfeited when we leave the European Community.
- 30) Plans must be drawn up to show how the developer intends to deal with the post-commissioning effects on local communities. These should have formed part of the initial consultation process.
- 31) No approval for nuclear development should be given until such time as the many computer modelling projects have been demonstrated to be accurate and the means of dealing with the results from the modelling properly dealt with.
- 32) Any technical equipment for use in the nuclear industry must be tested for integrity and all access points (USB, CD drives, etc.) secured before commissioning.
- 33) Consideration should be given to the direct and indirect thermal effects of a nuclear reactor. Especially considering the 30% efficiency, which means that more than twice as much heat is wasted by venting to the environment as is used to generate electricity.
- 34) Siting power stations closer to where they are needed, in order to alleviate transmission line losses should be given higher priority.
- 35) When considering emissions to the atmosphere, due consideration must be given to the chemicals given out by nuclear plant, together with the discharges entailed by the whole process, not just the acceptance that at the point of generation there is a benefit from the reduction of CO₂ production.
- 36) Plans for expanding the road and rail links, housing, social and health service provision, should be made available during the initial phase of consultation - not late on.
- 37) The safety zone around nuclear plants was intended to be primary protection to the neighbourhood in the event of an incident or accident. This implies that such an event could happen and that the impact of that event would manifest itself at least to inhabitants and environment within the safety zone. How can any development be permitted within that protection zone, when it will put at risk a further "up to 5,000" employees, on top of the existing number.
- 38) When forming the policy, it should be noted that scientists are not infallible. We note that forty years ago a group of influential scientists wrote to the President of the United States pressing the case for global cooling and the possibility that the world was about to enter a new ice age. Other influences have been demonstrated to have originated from malevolent institutions that seek to damage western civilisation.

- 39) The case for taxpayers having to pay for the consequences of an incident or accident and the eventual clean-up costs should be more thoroughly investigated. How is it possible to determine now what the extent of the event will be in 50 or 200 years' time?
- 40) The negotiations for a MW/h unit price for electricity from new build sites should be at parity with the cost of supplies from other methods of generation. The unit cost agreed with Électricité de France for supplies generated at Hinkley C are universally agreed to be far in excess of a sensible and commercial price.
- 41) The company staff seconded to government departments should be excluded from knowledge of the highest achievable price that the government is prepared to pay.
- 42) The government has reassured the populace of certain criteria that have to be met before any nuclear expansion can take place. We look forward to these requirements being adhered to.

Attachments

Submission to NuGen's Consultation re. Proposed "Moorside" Nuclear Generation Site - June, 2015.

Response to NuGen's Consultation From Residents of Braystones Beach - July, 2016.

Braystones Level Crossing - Progress Report for Braystones Residents' Group - April, 2014.

Braystones Station and Crossing Concerns - 2015.

Article written for The Ecologist - Heatsinking Nuclear Power Stations - July, 2016.

Part copy of e-mail sent to ITV Borders re. Braystones Beach Residents' Level Crossing Concerns - May, 2015.

Other relevant material can be found on the website www.toxiccoast.com

The "Dunster Experiment", Bellona Report, 2003

Dr. John Dunster, was a physicist at the UKAEA, and at the time [in the early 1950s] he was in charge of Sellafield. In 1958, at the second UN conference [held in Geneva] concerning peaceful uses of nuclear energy, Dunster told UN delegates about the experiment:

"The intention has been to discharge fairly substantial amounts of radioactivity ... the aims of this experiment would have been defeated if the level of radioactivity discharged had been kept to a minimum."

He continued, explaining that the discharges had been:

"... high enough to obtain detectable levels in samples of fish, seaweed and shore sand, and the experiment is still proceeding. In 1956 the rate of discharge of radioactivity was deliberately increased, partly to dispose of unwanted waste, but principally to yield better experimental data."

In more recent years, it has become clear that the experiment started in May 1952 and continued well into the decade. In the mid of the 1980s, Dunster became director of the National Radiological Protection Board (NRPB), which is the national authority that advises on maximum permissible radiation doses to the British population.

Source: http://www.bellona.org/filearchive/fil_sellaengweb.pdf

It might be interesting to enquire whether the decision-makers, politicians, peers of the realm and industrialists would be happy for they and their families to be experimented on in this fashion.

If this is the current political view, then small wonder that there was no interest in pursuing the findings of the Redfern Enquiry.

Appendix 1

Letter to the Whitehaven News following previous correspondence extolling the NuGen consultation process.

Regarding the two letters in last week's edition, entitled "Singular Views", especially the response from NuGen's spokesperson, I would raise the following points:

NuGen's representatives seem not to know answers to some of the questions asked; appearing to make up responses which are disputed even by other members of their staff at the same event.

How many individuals have taken part in the consultation? Do repeat visits count as new attendances?

Even accepting at face value that "3,000 people have been given the opportunity to ask questions", that still only equates to less than 0.6% of Cumbrians; restricting the catchment area to a combination of Allerdale and Copeland increases the figure to 1.8%, whilst reducing the catchment area to just Copeland gives a figure of 4.3%.¹ These are hardly representative or significant numbers. More importantly, it does not provide the data for NuGen to claim that residents are in favour of the proposed development. One of the requirements for approval of major projects is local support, yet we read elsewhere that according to the local paper 85% are against nuclear expansion. Even in Keswick, a street poll suggested that 90% of those approached were against it².

4,000 workers will be provided with accommodation. Does that include their families? In their sales brochures NuGen state that work will be provided for 6,000. Where will the other 2,000 workers be housed? Given the number of large projects elsewhere around the U.K., where will these workers come from? There are, after all, five or six major projects already planned in the area.

Without NuGen's proposed site, there will be no need for any of the changes ("improvements") to the environment and infra-structure that they propose. For example, the existing and future traffic trends could be fairly easily accommodated with some comparatively minor road and rail improvements. We already have internationally-renowned long- and short-distance walks, cycle-paths, and wonderful beaches and countryside whose development for tourism would amply reward just a small fraction of the proposed expenditure on nuclear expansion. None of the changes touted as benefits by NuGen, e.g. the relocation of species - whose success rates look dubious, huge earthworks, pylons, harbours, and possibly cooling towers, will be necessary if the project fails, and visitors and residents can enjoy the (relatively) unspoilt natural environment.

Instead of potential tourism we are expected to approve of plans to create an industrial zone which will stretch from Drigg to Beckermeth (at least). When the area has been stuffed full of nuclear waste, will those responsible hang around, or will they go back home, leaving an industrial wasteland for others to endeavour to clean up with an ever-escalating budget?

Will NuGen be required to return the countryside to its original condition should their application be rejected?

The major problem for any nuclear reactor is that the process is only about 32% efficient³. That means that only 1/3 of the heat produced is used. Twice as much as the used heat is just wasted. (Equivalent to enough electricity to supply 5 to 6 million homes by NuGen's calculations.) What happens to this heat? NuGen propose to circulate 2.5 billion gallons of water a day from the Irish Sea, returning it at 14° above intake temperature⁴. They do not know what impact this will have, but rely on computer modelling to solve the obvious problem.

As with several of the difficult questions, NuGen suggest that computer modelling will provide the answer.

The BBC's weather forecasts are produced using computer modelling that has been developed over decades, using multi-million pound mainframe computers. They struggle to work out the weather for five days in advance, so the chances of any computer modelling being accurate over the 50-year lifetime of the proposed "Moorside" project are pretty minimal.

How many people understand what a cumec is? NuGen's brochures say 45 (or 50, depending on which document you read) cumecs of water will be required. What they do not make clear is that this is per reactor. So a total of either 135 or 150 cumecs for the site. That does not sound much, which is probably why they stated the figure that way. A cumec is a cubic metre per second. A cubic metre is equivalent to 219.97 gallons. Or 2,565,730,080 gallons every day. (Alternatively, 1,154,578,536 tonnes.)

You do not have to be anti-nuclear to understand that that is a huge amount of water. Even worse is the failure to mention that other sites, Heysham and Wylfa, will also be using the same method to dissipate their own waste heat. The result being that one third of the total volume of the Irish Sea will be taken in, heated by 14° and discharged every year. Marine biologists have discovered that a mere 0.6° rise in temperature has resulted in species changes⁵ as indigenous species suffer while non-native species take over.

NuGen will also require their pipes and equipment to be kept clear, so they will add chemicals (biocides) to kill marine growths. It seems that anything that survives the heat increase will be killed by the chemicals. If not in the system, then in the discharges to the environment. Again, the impact is unknown and the infamous computer modelling will produce an answer. Until this and similar answers are known, it is impossible to arrive at an informed opinion and the consultation process is thus premature and meaningless.

The recirculation of radioactive materials currently bound to the mud, silt and sands on the sea-bed, which will inevitably be disturbed by both the construction processes and the day-to-day operations must surely be of concern.

Even so, and assuming that there is no impact on the immediate environment by the dissipation of so much heat, this still means that despite the omission of CO₂ producing processes, the atmosphere is being warmed considerably – even if some of the heat goes into the Irish Sea, ultimately it will end up as part of the global warming. Does the absence of the CO₂ middleman matter? The absence of CO₂ discharges into the earth's atmosphere is given as the major benefit of nuclear power. The reason is that increasing amounts of CO₂ cause atmospheric heating. So, where is the real benefit?

Increasing levels of CO₂ have actually benefited some areas, due to a process colloquially known as "greening". I can't think of any areas that have gained from being polluted by nuclear processes.

NuGen persist in suggesting that they can be truly divorced from Sellafield's operations, while being – literally – just across the road, and a few hundred metres away. How far did the last leak from Sellafield spread? Did it stop at fences or boundaries? Commonsense says that putting two vulnerable and intrinsically unsafe buildings next to each other is plain stupid. The authorities may change the rules, but the facts remain indisputable.

We were told by NuGen staff that there were four similar reactors "up and running" around the world, so the design was "tried and tested". Yet it is difficult to find a single instance of the U.K. design reactor anywhere. If it is so well designed, why are changes being insisted on by the regulators?

Will NuGen pay anything for the fresh water supplies and requisite changes to the infra-structure needed to supply it?

What is the total cost of this project to be and what is the liability of U.K. residents?

We have seen elsewhere that nuclear development always runs very late and costs far more than budgeted for. Given that the large-scale generating site is now considered an obsolete model⁶, what is the point?

To add insult to injury, we have been told by NuGen's head of corporate communications that there will be no impact on the residents of Braystones Beach as a result of the project⁷. He didn't understand the meaning of amenity, either.

References:

- ¹ Based on National Audit Office figures for 2011 (latest available on-line).
 - ² <http://www.nwemail.co.uk/news/Evening-Mail-debate-Should-Cumbria-be-home-to-a-new-nuclear-power-station-0d926ded-0d64-454c-83a1-d5c15928d6e-4-ds>, and <https://mariannewildart.wordpress.com/?s=keswick>
 - ³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291077/scho0610bsot-e-e.pdf
 - ⁴ NuGen documentation
 - ⁵ *Seabed Habitats of the Southern Irish Sea*: Karen A. Robinson, Andrew S.Y. Mackie, Charles Lindenbaum, Teresa Darbyshire, Katrien J.J. van Landeghem, William G. Sanderson
 - ⁶ http://www.theecologist.org/News/news_analysis/2985269/the_archaic_
 - ⁷ Letter from NuGen's project director.
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Letter to the Whitehaven News, 16th August, 2014.

Sir,

The anonymous letter (P27, 14/8/14), excellent though it was in pointing out the shortcomings of transport and the infra-structure in relation to Sellafield, left quite a bit unsaid. In a submission to a Select Committee in London several years ago, it was pointed out that the construction of suitable roads, rail and other necessities, would result in west Cumbrians being deprived of its character and amenities. Is the writer suggesting that the construction of motorway-standard roads and other major constructional projects should go ahead? Have the residents been made adequately aware of what they are in for if the plans come to fruition?

In the event of a major contamination incident at Sellafield, it is unlikely any road would be long enough to escape. Aren't places as far away as Holland and Scandinavia likely to be affected, so what would be the use of fast roads that end at Carlisle? Would Sellafield employees not be locked in rather than kicked out?

The comments about deprivation, I feel, would be best demonstrated by an examination of the various data collected by government bodies, such as the state of child welfare, drunkenness and crime figures, drug use, etc.

Surely the point about future benefits is that they have to remain in the future. The incentive of dangling a carrot in front of a donkey fails as soon as you allow the carrot to reach the donkey's teeth! After that, why should it bother to move any further? Half a century on, does the area look as if any of the £1½ billion per year has reached anyone other than large corporations? Even so, the majority of developments seem to be to "educate" the local youngsters about the alleged benefits of nuclear power, and more and more offices for managers.

The union representative who said that 70% of the U.K.'s nuclear waste is safely stored at Sellafield has failed to say whether the remaining 30% is in the Irish Sea, or whether it is being stored unsafely somewhere. Didn't Margaret Hodge's Select Committee have something to say on the state of storage of radioactive materials at Sellafield a couple of years back?

It seems unlikely that allowing the nuclear industry to have an even greater amount of power over the populace of west Cumbria, whether the expansion is in the form of new build reactor sites, or the dump, is going to result in any improvement. If indeed the destruction of the area's beauty is an improvement. What of the towns bypassed by new roads and what happens at the terminii? Will tourists still want to visit when the entire coastal area is given over to nuclear industries and has been defiled by the addition of monster pylons, no matter how good the roads? Or are the "improvements" to be solely with Sellafield/Moorside/the dump traffic in mind?

Would Anyone Live and Work Alongside This? Let Alone Build Another High-risk Plant Across the Road

"The concrete is in dreadful condition, degraded and fractured, and if the ponds drain, the Magnox fuel will ignite and that would lead to a massive release of radioactive material," nuclear safety expert John Large told the Ecologist magazine. "I am very disturbed at the run-down condition of the structures and support services. In my opinion there is a significant risk that the system could fail."

Source: <https://www.theguardian.com/environment/2014/oct/29/sellafield-nuclear-radioactive-risk-storage-ponds-fears>

It should be noted that seagulls landing on the ponds then flying elsewhere to die have to be treated as nuclear waste and handled accordingly when they are detected. There are no instructions to beach users who may come across carcasses - or whose pets might regard them as a food bonus.



A BBC Reporter Visited Sellafield

It's a strange feeling to be told "whatever you do don't put anything down on the ground". The warning is serious and it sends a shiver down the spine. As we enter the innermost part of Sellafield it becomes clear how much those tasked with decommissioning the plant have still to learn about what they are taking on.

Sellafield's oldest sector is a known unknown. Potentially everything around us is radioactive. There was no proper inventory made back in the day. The Cold War was raging and Britain needed nuclear weapons to fend off the threat from the East.

In west Cumbria a top secret programme was under way. The construction of nuclear reactors was a priority. Only now are people venturing back inside Sellafield to tackle the radioactive legacy. As the accompanying cooling ponds and chimneys were built at breakneck speed no-one ever thought about the day it would all have to come down.

The default position of those trying to make it safe is that everything is potentially lethal. When this part of the nuclear site was abandoned it was simply locked up. For decades it was out of bounds to all but the maintenance crews. Only now are people venturing back inside to tackle its radioactive legacy.

I've been inside nuclear plants, waste stores and repositories before; but nothing quite prepared me for this.

As we approached the water ponds which were used to cool and store nuclear waste, I suddenly squinted because my eyes were surprised by daylight.

This once top secret operation was literally out in the open. The ponds are still, reflecting the clouds above. Imagine a massive concrete open air swimming pool, only here you can't even dip a toe. The water is radioactive. Beneath the surface lurks the problem: old fuel rods and who knows what else lies on the bottom?

Then the next surprise, although it should have been obvious to me. A seagull swoops down and lands on the water. I wish it away, but it stays and then it takes a drink. My own guts almost go into spasm as I contemplate the implications for the bird.

Why on Earth was this ever left open to the elements?

My guide tells me that when it was built after World War II they weren't thinking about the future because they didn't know if there'd be a tomorrow.

Covering it now is not an option, we're told, as an original crane has to travel along its length to get access to waste below.

While doing a piece to camera I'm positioned next to a warning sign which screams - 'Do not linger here'. Of course I move on, but the gulls are blissfully unaware of the danger.

Another issue with the ponds is that wind and rain bring dust and dirt. Over the decades it has settled in the ponds, so now there's also a contaminated sludge that is going to be a nightmare to scoop up and dispose of safely.

Then there are large concrete silos. Only these don't store grain, but a junk pile of old discarded waste. Again there's no list of what's inside. They'll have to open it up and invent ways of dealing with what they find.

It is a monumental task and one that won't be finished in my lifetime.

As we leave the inner zone we discard our over-clothes, and insert our bodies into a succession of monitoring machines that ensure we are clean. The decommissioning teams must take this process as a daily routine.

BBC reporter, N.E. & Cumbria: Chris Jackson.
Broadcast: 23/9/13, "Inside Out".

Source: <http://www.bbc.co.uk/news/uk-england-24206028>

"It takes a single alpha particle to hit a single gene in a single cell to kill you." Dr. Helen Caldicott.

As one experienced observer says:

The West Cumbria Sites Stakeholders Group is not a watchdog in any sense of the word; it has no powers and, by and large, acts as a rubber stamp for anything that Sellafield wants. There is little genuine independence on the committee other than the regulators (and even that has sometimes been questionable) and the emergency services.

In Rosia Montana, Romania, a company wants to extract gold. In the process, villagers will be relocated and there will be vast development - none of which is wanted by the inhabitants, who like their life as it is. The Romanians are suspicious of the foreign investors who will be grabbing their resources; the way in which local politicians are being "schmoosed"; land purchased, and are unhappy with the threat of their village being destroyed.

A legacy of gold mining will be large quantities of cyanide, which, of course, will be unwanted. A spokesperson for the company involved says that the industry will save Romania from poverty, but the Romanian president retorted

"They will just take the gold and leave the cyanide."

Sound familiar to anything you know?

"We concentrated so much on nuclear that we lost sight of everything else, and nuclear has failed to deliver. It has turned out to be a costly gamble for Finland, and for the planet."

Ora Tynkynen, a climate policy adviser in the Finnish prime minister's office.

"Polite people get polluted."

Tim Farron (Westmorland & Lonsdale, Liberal Democrat):

In all of that, it is essential that local communities are in control of their own destiny. As we have seen from the loss of post offices, the decline of many communities and the cuts to rural health services, there is an overwhelming sense of anger at things being done to us without our consent. We are sometimes offered consultations, but that has become a meaningless word under this Labour Government. Never have we been more consulted and less listened to. The top-down decisions to close jobcentres in rural areas, rob our rural communities of post offices, take away rural tax offices, force through the reduction in social housing stock and remove acute hospital services have all damaged our rural communities, but we were given no say in them.

Source: Hansard HC Deb, 15 June 2009, c62

Rebecca Johnson, former senior advisor to the Blix commission on weapons of mass destruction, writing about the Fukushima disaster:

"Nuclear disaster is both avoidable and inevitable. Nuclear technologies have too many inherent risks and widespread consequences to be a sensible choice for energy production."

Private Eye 1285, 1/4/11:

"Thanks to a policy of seconding private sector employees to Whitehall, the Department of Energy's current deputy director of nuclear strategy is also a director of Costain, one of the firms hoping to profit from Britain's plan to build a new generation of nuclear power plants."

Article From www.toxiccoast.com, 10/10/13:

Food For Thought

Sellafield exists solely to service the needs of Sellafield and the nuclear industry - mainly cleaning up pollution caused by Sellafield. Although the contrary illusion is maintained, Sellafield does not make a profit and thus has no spending power other than that provided by the tax-payer. It is now just a £1½ billion a year drain on the public purse. As it does not earn any money, the largesse spread (albeit very thinly) around the communities in Cumbria stems purely from central government. Stories that Sellafield are to fund such and such a project are thus totally illusory - they are in fact just spending tax-payer's money whilst skimming off substantial payments for the companies and individuals involved. Any other project could be funded in this way without the corruption and pollution of the nuclear industry and the local community would be a lot better off.

Generation of electricity for the National Grid ceased more than ten years ago. Since then the site has been a considerable consumer of electricity and gas, the latter via the 168 MWatt Fellside gas-powered power station.

Although considerable quantities of radioactive materials have been discharged by Sellafield, as part of a deliberate policy or by carelessness or accident, the quantities being recovered from the beaches is negligible in comparison. A recent BBC programme gave further food for thought. One of the most illustrative sentences being "Whatever you do, do not put anything on the ground."

The much vaunted "clean up" and the alternative, but not quite so graphic "decommissioning", of Sellafield does not mean the safe and complete disposal of nuclear materials. It merely means the re-packaging (at best) of the contaminated material to a different location within the site. There is currently no way of cleaning up radioactive material in the sense that it is rendered completely free of radiation and thus safe. Some of the materials contaminated to a somewhat lesser degree are dumped at the Drigg site, where, apparently due to an oversight, illegally dumped higher-level contaminated materials were found by Greenpeace. Other material is sent to landfill sites with no independent check on what it is that is being dumped. Historically, of course, Sellafield management have a reputation. Most recently, equipment designed to check the levels of materials due to be dumped was found not to have been calibrated and was, naturally, indicating that everything that passed through it was safe to dispose of in a normal landfill site. How much radioactive material ended up being dumped in this manner is open to conjecture. Other materials are handled by Studsvik in Workington. The U.K. President of that company left rapidly around the time that a discrepancy of £1million was found in the accounts. [It is now owned by Électricité de France.]