

Investigation of concerns of enriched uranium contamination at Hinkley Point

A case study prepared for SAFEGROUNDS+

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1 Introduction

SAFEGROUNDS+

SAFEGROUNDS+ is a forum for developing and disseminating good practice guidance on the management of radioactively and chemically contaminated land on nuclear and defence sites in the UK¹. SAFEGROUNDS+ commissions independent case studies to:

- Provide real examples of the application of SAFEGROUNDS+ guidance [1] and its 'key' or underpinning principles and such as proportionality and community stakeholder engagement
- Identify and disseminate examples of evolving good practice across a broad range of management and remediation contexts
- Help maintain and broaden the engagement of community groups and other organisations in the SAFEGROUNDS+ network.

This case study

This case study covers the 2011 investigation of concerns of enriched uranium contamination at Hinkley Point. It was commissioned as a result of constructive discussion between pressure groups and regulators at a SAFEGROUNDS+ meeting and its purpose is to explore how concerns can be or should be raised and resolved, and the conditions for “joint fact finding” to work.

Opinions differ about whether the concerns raised have been resolved or not, but the case study deliberately offers no view as to which party is correct. Rather, the aim is to share some generic lessons learned from the events described on matters such as the applicability of joint fact finding and supporting community involvement, and the challenges of maintaining a constructive dialogue in a campaign context.

This is an independently-compiled case study. Although a draft has been checked for format, style and any major inaccuracies by the SAFEGROUNDS+ Steering Group (which includes perspectives from most parties to this dispute), the views expressed are those of the author alone. They should not be taken as necessarily representing the views of CIRIA (the network managers), or any contributor to the study, or any SAFEGROUNDS+ member organisation.

Format

This short note comprises a description in Section 2 of events as they unfolded, with a commentary in Section 3, which seeks to draw out some of the main lessons learned, followed by conclusions in Section 4. References are provided at the end.

¹ <http://www.safegrounds.com>

2 Overview of events

Contaminated land assessment reports

In October 2008, EDF commissioned AMEC to undertake an environmental investigation and contamination assessment of an area of land located at Hinkley Point to support its preparation of the Environmental Statement for its proposed new nuclear power station.

Those data which resulted in the concerns discussed in this case study were reported in [2] (“the EDF Report”), which was submitted as a reference to the Environmental Statement (ES), which was in turn part of a series of EDF planning applications relating to preparations for constructing a new nuclear power station on the site.

In fact, AMEC submitted four reports covering different aspects of this investigation and assessment, though the one referred to above was the only one that was questioned. The Environment Agency (EA) reviewed all four reports as a statutory consultee to the planning process, and concluded that the methodology was “fit for purpose” and that none of the reports gave rise to any significant concern.

NGO review

Green Audit (GA) is a non-governmental organisation (NGO) which aims to 'give citizens the information they need' to be able to question companies on environmental matters². It is not in itself a campaign group but it is probably fair to say that its researchers are sceptical on nuclear power matters and it works closely with campaign groups such as Stop Hinkley³ which are opposed to the expansion of nuclear power generally and specifically to the building of a new power station at Hinkley Point.

GA reviewed the list of supporting reports for EDF's applications and identified the aforementioned EDF report as being of potential interest. It published an “Occasional Paper” [3], which concluded that the data presented in it show that:

- The radiation levels and radionuclides present are not “background radiation”
- The quantity of “new uranium” present on the site alone may be calculated at roughly 10 tonnes
- All of this material is from the Hinkley Point historic operation.

The main recommendation in the GA paper was that all preparatory work at Hinkley Point should be stopped pending a more detailed (and preferably independent) investigation.

² www.greenaudit.org

³ www.stophinkley.org

Public concern

GA's analysis and conclusions were first raised by one of the paper's authors at a public meeting organised by DECC as part of its consultation on the draft Nuclear Power Generation National Policy Statement. The EA Inspector present had some advance warning and gave an initial response at the time, but without having seen the GA report he could say little more.

GA's conclusions were more widely announced in a press release embargoed to 12 January 2011. They were quickly repeated by campaign websites and reported in local media. A copy was also delivered to Somerset County Council's offices. It appears that the way the concerns were raised was intended to maximise publicity, which is not unexpected in a campaign context. The release of the paper was coordinated with campaign actions and the release of YouTube videos to maximise impact [4].

Environment Agency response

The possibility that the site was contaminated by large quantities of enriched uranium naturally caused significant concern in the local area. EDF made its view clear, but under the circumstances the responsibility for responding to the concerns raised fell to the EA as the regulatory body. GA commented on these initial responses [5]

The EA obtained a copy of the GA paper and considered its conclusions against their assessments of the four assessment reports, which contained a very large amount of detailed data. It concluded that:

- The methodology used by AMEC was fit for purpose, and the inherent uncertainties in the measurements meant that the presence of enriched uranium could not be inferred as GA suggested
- There seemed to be no possible way in which large quantities of enriched uranium could be deposited around Hinkley Point, and no indication of the fission products that would have accompanied any large scale release
- Nevertheless, the matter was of such importance that the absence of enriched uranium should be positively confirmed, which would require a new survey using different equipment, capable of measuring uranium isotopes to a high resolution.

The EA released an interim statement [6] covering these points on 14 February, five weeks after the GA paper was released.

Independent investigation

Although the EA believed it extremely unlikely, the significance of such contamination would obviously be very high if it were present. The EA recognised an urgent investigation was necessary, even if just because of the level of community concern, NGO leafleting is said to have increased the pressure from community stakeholders for a swift investigation. The EA (and other stakeholders) also felt that to be credible, the investigation had to be independent of both the original survey and of EDF.

The EA set about identifying suitable contractors, both independent and competent enough to be credible. Southampton University was selected to do the analysis and Nuvia to do the sampling, working to a specification and sampling pattern provided by the EA. The Nuvia/Southampton Report [7] concluded that there was no enriched uranium in the soil and that surface radiation levels were consistent with background levels for the geology and soil type. The EA released a statement [8] to this effect on 29 March which was also widely reported locally (six weeks after its interim statement, 11 weeks after the GA report).

Campaigners' position

Campaigners remained unsatisfied with the explanations given in the EA interim statement. GA rejected [9] the initial EDF and EA comments on its paper and raised further questions about uncertainties and potential sources of contamination. It also suggested that EDF, EA and HPA should investigate the matter urgently and “*in collaboration with stakeholders and organisations with credibility like SAFEGROUNDS*”⁴. Similar comments were made by members of other NGOs at the DECC NGO forum in March 2011. The NGO consensus seemed to be that the absence of Joint Fact Finding was a missed opportunity and repeated in GA's commentary on the EA's survey results statement.

Judging by statements made, the Nuvia/Southampton survey seems to have resolved local authority and institutional stakeholders' concerns but GA and some campaigners remained unconvinced by the results. The NGOs involved said the survey lacked credibility due to the absence of stakeholder input into the specification and lacked independence because the EA specified what should be measured and where. GA also queried the results, which it said were not consistent with its own survey results [9], and did not accept that there was no credible mechanism for the undetected release of large quantities of enriched uranium.

EA and GA agreed to meet to try to resolve the matter. The meeting in July 2011 was attended by EA, GA, Stop Hinkley, local authorities, and the Marine Management Organisation [10] [11]. However, positions generally seem to have remained unchanged.

Current position

There has been some subsequent contact between EA, GA and local campaigners but without coming to any agreed conclusion [12].

At the date of writing (May 2012), the EA and other official bodies consider the matter resolved and say there is no enriched uranium contamination. GA and local campaigners remain concerned that there is, and have also suggested the possibility that it arrived through aqueous discharges. They believe further collaborative investigation is justified. GA's own survey results have recently been released in report form [13] and an EA response in due course seems likely.

⁴ Note: SAFEGROUNDS (now SAFEGROUNDS+) is not actually an organisation but is a “learning network” for members to share and develop good practice.

3 Commentary

Raising concerns, including in a campaign context

Opinions clearly differ about the Hinkley Point situation, but either way the general point is clear. The fact that a concern proves to be unfounded or based on a misunderstanding does not mean that it should not have been raised, though a deliberately mischievous act would be a different matter. The review of submissions and the raising of concerns by an NGO is perfectly legitimate. It is an important safeguard and helps give communities more confidence in the regulatory system as a whole. Indeed, publishing planning application material on the internet is designed to facilitate challenge and criticism, and depending on the situation there are many ways and routes for NGOs to raise concerns about a contaminated land issue.

Having said which, an NGO comment made during the preparation of this case study, was that operators and more importantly the regulators should pro-actively inform the community of problems and how they are proposing to be resolved. NGO and communities should not have to “dig the dirt” as this creates the sorts of problems discussed here.

Application of SAFEGROUNDS+ guidance [15] suggests that unless there is good reason, NGOs should look first to constructive dialogue before turning to other avenues. On that basis, it seems good practice would be for the originator of the concern to check with the site operator or regulator that there is no simple misunderstanding before raising the profile. For instance: *“We think there is a problem. We’re giving you an opportunity to comment before we go public. We will then make our point and campaign on the issue, but we are still willing to work with you to resolve matters.”*

Similarly, those responding to a concern would normally check their understanding with the originator before forming their initial conclusions as to its validity, and give some notice of their intended conclusions. For instance: *“We have investigated and think there is/is not a cause for concern. This is our proposed course of action. Our reasoning is follows. We’re giving you an opportunity to comment before we go public. We will then release our report but we are still willing to work with you to resolve matters.”*

The problem in a potentially highly charged campaign context is that as well as resolving a concern there may be campaign objectives that have to be satisfied and this may, for an NGO, constitute a “good reason” for not following SAFEGROUNDS+ guidance – even though subsequent criticism of others for not following the principles can then seem unreasonable.

Certainly, site owner/operators seem not to expect a campaign group to share potential problems they have uncovered with them in the same way that a community group working long-term with a site might. It seems reasonable to ask campaigners to explicitly consider and accept responsibility for the impact on communities of raising concerns in a high profile way before giving dialogue a chance.

Discussions during the preparation of this case study suggest site-based campaigners generally believe that is what they do, and it is worth noting that EA has illustrated good practice by reference to the approach Stop Hinkley has taken on other occasions. Nevertheless, in a campaign context no one would, for instance, expect campaigners to assist the developer by placing everything fairly into context during media interviews.

However frustrating it may be on occasions, everybody understands these drivers and the legitimacy of typical campaign tactics. A spiral into distrust is not inevitable. It is possible to maintain a constructive dialogue that leads to concerns being resolved one way or another or at least the degree of divergence lessened, and the community reassured that either: it is a legitimate but ultimately false alarm, or that there is indeed a problem and it is being promptly and fairly dealt with.

Admittedly, the challenge is greater when the basis on which the two sides assess the problem is completely different. For instance, the facts may be jointly established in contamination terms but consensus on significance may not be possible if perceptions of the risks from that level of contamination differ, eg on the risks from low levels of radiation or internal emitters [14].

Examples of good practice suggested to us include avoiding personal attacks – especially in public, not going public prematurely on the basis of information shared in confidence, and more generally always trying to act in good faith and acknowledging that others are also acting in good faith (“even if you think they are wrong or politically (small ‘p’) motivated”).

Applicability of Joint Fact Finding

Participation builds trust, and trust in information can be improved through “joint fact finding” (JFF). Joint fact finding is a methodology but it also reflects an underlying belief embedded in the SAFEGROUNDS+ process, which is that where practicable potentially contentious issues are best both raised and resolved collaboratively [15].

In a “text book” joint fact finding application, the stakeholders work together to define the questions to be answered and select the experts to carry out the task. They then help set the terms of reference, monitor or participate in the work, and review and interpret the findings. They share the data they already have. JFF is most likely to be invoked where there are strategic decisions to be made or high-profile arguments to be resolved. The result should be agreement on underpinning information at least, leaving the debate to focus on, for example, meaning and acceptability. The process also helps build shared understanding, and improves collaboration and mutual trust.

Many believe a prerequisite for JFF is that both parties are open to the possibility of being wrong, even if they are not going to publicise the fact. Doubts about the other party’s openness are commonly and genuinely held by all sides on nuclear-related matters, and unless they can be mitigated the motivation for participating in JFF may be much reduced. Under these circumstances, separation of ‘facts’ and ‘conclusions’ becomes even more important.

A campaign context adds additional strains, but it seems that a useful degree of transparency and opportunity for comment can often still be achieved, even if the obvious partners for JFF are not willing to participate or relationships have broken down. There may well be others who can be engaged, for instance local authorities, and even if the level of technical input is more limited and universal buy in to the results is less likely, those who are involved may still make a valuable contribution and the community will be more confident in the results because of their governance role.

JFF advocates [16] emphasise shared ownership, the removal of partiality to the extent possible, and the appointment of experts in whom the NGOs have trust. Peer-review is undertaken as part of the quality assurance and as part of the ongoing process of enhancing “buy in” to the results. NGOs on their part may have to relinquish “campaign” aspects of the dispute in order to resolve a technical or scientific issue. NGOs as well as regulators and operators stand to gain significantly by being seen to be seekers of the truth (as far as it can be achieved).

JFF may not be quick or cheap, and delay may affect the project programme with potential cost implications. JFF is unlikely to be taken up where the direct + indirect costs are grossly disproportionate to the direct + indirect benefits, though views as to where the balance lies are likely to differ between different stakeholders.

In this case study, the EA was not concerned about EDF's project timeline and expense was not a decisive issue. However, speed of response was: the EA's judgement was that the potential risk to people, if the contamination were real, and the anxiety people were experiencing constituted a very real cost for the community which outweighed the benefits of negotiated JFF it could expect on this occasion. The EA therefore commissioned the work in the normal way. Even so, it took five weeks to issue an interim report and 11 before the final one, which could be perceived as a long time for an anxious community, so there may well have been some learning points here for the Agency.

The discussion above suggests that the approaches advocated in SAFEGROUNDS+ documentation [15], including dialogue and JFF, *can* be applied to situations where a concern of this type is being raised. They still apply to all parties, even if they have to be applied with some appreciation for the realities of the context, and even if there is inevitably a different focus when compared to, for example, more familiar contaminated land clean-up contexts.

For a site undergoing clean-up and/or delicensing, all parties are likely to have the same ultimate aims concerning managing exposure and clearing the site. A known contaminated site would not open to the public. Although timescales matter, time is available to develop working relationships and employ JFF if concerns are raised.

Where new nuclear build is envisaged, some stakeholders will definitely not have the same aims, and sites with ongoing nuclear activities are a different context with a different balance of drivers. Actual or potentially contaminated locations that have public access, such as that in the current case, the Dounreay “particles”, and the Dalgety Bay contamination, are different again. Where the public is potentially at current risk of being exposed to a hazard, matters become more urgent. Levels of anxiety can also grow quickly and trust can be easily lost if prompt action is not taken to investigate and resolve matters, but at the same time not involving key stakeholders and communicating on survey methods can cause serious problems so again a balance has to be struck.

Independence

This case study also raises again the question of what is meant by an “independent expert”. If anyone can be so described when every non-academic contractor may have worked for one side or the other and when many of the most interested academics have acted as contractors or voiced a view on the technology or project.

JFF advocates suggest that the experts involved do not need to be independent in the absolute sense of the word, but they have to be qualified to undertake the work and have to enjoy the trust of the nominating party. This gives all sides a representative in the process, perhaps using a steering group model?

Supporting community involvement

Campaign groups have well organised networks for disseminating information amongst like-minded people. The rest of the community presumably got its information from local print and broadcast media. The level of interest was such that there was a good deal of coverage, very largely straight reporting. But this might not be the case for less newsworthy concerns, which raises the questions “can regulators and site owner/operators’ websites provide up-to-date information” and “would the public know where to look?”

A feature of this case study was the contribution of nuclear industry bloggers – not necessarily even from the UK. A significant amount of technical analysis was put online. The EA were not actively monitoring channels, though they were aware of the analysis. They did not respond to or contribute to these blogs. If they are as easy to find using search engines as institutional or pressure groups websites are, then there is potential for confusion.

Local community liaison groups or site stakeholder groups offer one potentially valuable channel of communication between ‘their’ sites, regulators and the wider community. Many relevant stakeholders will be represented on them, but not all, and some groups are more active than others in seeking alternative views. Those wanting to hear from local or national pressure groups will normally have to do it directly. As a body, liaison groups meet quarterly at best so face to face briefings on developing concerns cannot be relied on. In this case, briefings were directed at the Chair and cascaded down to Members, which was said to work well, for those in the network.

Finally, although there were other EDF technical studies related to this problem in the public domain it was actually very hard to find them amongst the hundreds of other reports available on council and contractor websites and put them in context. It contributed to misunderstandings here, because there was another report that might have answered some of GA’s questions but it was easy to overlook. The lesson is that attention needs to be paid to information system structure with such a large amount of material, and it has to be made available in consistently and predictable ways and places.

4 Summary

This case study covers the 2011 investigation of concerns of enriched uranium contamination at Hinkley Point. Opinions differ about whether the concerns raised have been resolved or not, but the case study deliberately offers no view as to which party is correct. Rather, the aim is to share some generic lessons learned from the events described on matters such as the applicability of joint fact finding and supporting community involvement, and the challenges of maintaining a constructive dialogue in a campaign context.

There are points of apparent agreement. The review of submissions and raising of concerns by an NGO is perfectly legitimate. There are many ways and routes for NGOs to raise concerns about a contaminated land issue and publishing planning application material on the internet is designed to facilitate it.

SAFEGROUNDS+ approaches and key principles should apply to all parties, which suggests that unless they had good reason, NGOs should look first to constructive dialogue before turning to other avenues and those responding to concerns should do likewise. The problem in a potentially highly charged campaign context is that as well as resolving a concern there may be campaign objectives that have to be satisfied. Nevertheless, ways are suggested for maintaining a constructive relationship.

Participation builds trust, and trust in information can be improved through “joint fact finding” (JFF), which is discussed in SAFEGROUNDS+ guidance [15]. There are preconditions for successful JFF, but even in a campaign context, it should be possible to find partners to work with. Difficulties remain about the definition or need for “independence” in JFF.

Finally, contexts of this type pose particular challenges to communication with potentially very concerned communities, and the issues need to be carefully thought through.

References

- [1] SAFEGROUNDS (2009) *Good practice guidance for the management of contaminated land on nuclear-licensed and defence sites*. Version 2. W29, CIRIA, London. Downloaded March 2012 from the SAFEGROUNDS+ website: <http://tinyurl.com/cxh5nqu>
- [2] AMEC (2009) *Phase 2 Supplementary Investigation of potential radiological contamination*. AMEC report. Ref 15011/TR/00091, Issue 2, 23 December 2009. Downloaded February 2012 from: <http://tinyurl.com/862bccj>.
- [3] LLWR (2011) *Evidence of significant enriched uranium atomic fuel contamination of the Hinkley Point proposed nuclear site in Somerset and its potential implications*. Green Audit Occasional Paper 2011/1. Downloaded March 2012 from the LLWR website: <http://tinyurl.com/bqus3bp>.
- [4] YouTube videos. Downloaded March 2012: <http://tinyurl.com/coba7mg> and <http://tinyurl.com/c7shlls>.
- [5] LLRC (2011) *Response to the statements by EdF and the Environment Agency on the contamination by Enriched Uranium at Hinkley Point*. C Busby, 23 January 2011. Downloaded March 2012 from the LLRC website: <http://tinyurl.com/7e3aluh>.
- [6] Environment Agency (2011) *Uranium contamination allegations at Hinkley Point: Initial views on Green Audit report*. Downloaded March 2012 from the Environment Agency website: <http://tinyurl.com/c63uq2n>.
- [7] Nuvia (2011) *Analysis of 238U, 235U and 234U in twenty soil samples by HR-ICPMS*. Nuvia Report, 18 March 2011
- [8] Environment Agency (2012) *Allegations of contamination by enriched uranium at Hinkley Point: results from the Environment Agency's soil sampling*. Downloaded March 2012 from the Environment Agency website: <http://tinyurl.com/cr64489>.
- [9] Environment Agency (2011) *Statement on the Environment Agency Report on the Enriched Uranium at Hinkley Point. Green Audit*. Downloaded March 2012 from the Stop Hinkley website: <http://tinyurl.com/cfrb7ka>
- [10] Environment Agency (2011) *Meeting notes from alleged Hinkley point enriched uranium contamination meeting*, 1 July 2011
- [11] Stop Hinkley (2011) *Environment Agency meeting on Hinkley Point contamination*. Press release. Downloaded March 2012 from the Stop Hinkley website: <http://tinyurl.com/6vrmjq3>.
- [12] Environment Agency/Collingridge (2011) *Allegations of enriched uranium contamination at Hinkley Point*. Letter 12 July 2011
- [13] Stop Hinkley (2012) *Measurements of radiation dose rates, radionuclides and other contaminants on EdF Energy's site for the proposed Hinkley Point C nuclear power station*. Green Audit Report 2012/1, May 2012. Downloaded July 2012 from the Stop Hinkley website: <http://tinyurl.com/d5byfgk>
- [14] SAFEGROUNDS (2011). *Perspectives on the health risks from low levels of ionising radiation. Debate paper*. Version 1. W39, CIRIA, London. Downloaded March 2012 from the SAFEGROUNDS+ website: <http://tinyurl.com/86luog9>

- [15] SAFEGROUNDS (2011): *Community stakeholder involvement*. Version 3. W38, CIRIA, London. Downloaded March 2012 from the SAFEGROUNDS+ website: <http://tinyurl.com/6pmm6ze>
- [16] Wilkinson, P (2007) *Joint fact finding (or joint working) – a brief outline of the practice*