

Sizewell A and B Stakeholder Group (SSG)

Minutes of the Special Sub-Group meeting held at 7pm on Wednesday 10th September 2014 at Sizewell Sports and Social Club to consider the Off-site Emergency Plan.

Item 1. Opening Comments

- 1.1 Chair welcomed attendees and advised that the purpose of this special sub-group meeting was to consider the Off-site Emergency Plan. Attention was drawn to the welcome slide and domestic arrangements were described. Chair explained that items had been grouped with opportunities for questions after each group. Attendees were advised that the slides provided would be placed into the public domain.
- 1.2 Mr Osman introduced himself and explained the rationale for the agenda to cover risk, the emergency planning areas, public protection and the revised off site emergency plan. A slide explaining the key responsibilities for each agency was displayed.

Item 2. Attendance

- 2.1 Present: Cllr Marianne Fellowes (MF) Chair; Mr Trevor Branton (TB); Mr J Carey (JC); Mr Declan Foy (DF); Ms Joan Girling (JG); Ms Pat Hogan (PH); Mr Mike Taylor (MT); Mr Colin Tucker (CT); Mr Pete Wilkinson (PW).
- 2.2 In Attendance: Mr Steve Ardern (SA), Emergency Planning Group, EDF Energy
Ms Marjorie Barnes, EDF Energy
Mr Martin Cubitt (MC), EDF Energy
Ms Janet Fendley (JF), Member of the Public
Dr Louise Franks, Minutes
Mr Tom Griffith-Jones (TGJ), Member of the Public
Ms Felice Lampard (FL), Member of the Public
Mr Charlie Mann, Plant Manager, Sizewell A
Mr Graham Moorcroft, Sizewell B Inspector, Office for Nuclear Regulation
Mr Jim Roberts, Magnox
Mrs Niki Rousseau, EDF Energy
Mr Barrie Skelcher (BS), Member of the Public
5 additional members of the public
- 2.3 Presenters: Dr Hamid Mahgoub (HM), Consultant, Public Health England
Dr Mary Orhewere (MO), Consultant in Public Health, Public Health Suffolk
Mr Andy Osman (AO), Head of Emergency Planning, Suffolk County Council
Supt Paul Sharp (PS), East Area Commander, Suffolk Constabulary
Mr Gareth Thomas (GT), HM Inspector, Office for Nuclear Regulation
Mr Tim Watkins (TW), Site Director Sizewell A
Mr Jeremy Western (JW), Director of Special Projects, EDF Energy
- 2.4 Apologies received by the secretariat: Cllr David Bailey; Dr Therese Coffey (and her representative Ms Tracey Green); Mr Tony Cooper; Cllr Terry Hodgson; Cllr Bill Howard; Cllr Andrew Nunn; Dr Sheena Robertson; Cllr Nigel Smith; Cllr Richard Smith; Mr Dayne West.

Item 3. Risks

3.1 *Sizewell A Site Risk*

Mr Watkins introduced himself and with the aid of a short presentation explained the risks during generation, during the defueling phase and into the future. The greatest current risk is still being assessed but was thought to be a fire in the active filtration system leading to a release of airborne contamination resulting in a very low off-site dose. He concluded that the site will very likely become no longer subject to REPPIR requirements.

3.2 *Sizewell B Power Station Risk*

Mr Western introduced himself and provided a presentation that described the approach and conclusions from the report that the ONR assess to determine the new off-site REPPIR planning areas. In summary the presentation:

- emphasised that the priority was to prevent serious releases of radioactivity
- clarified the two “reasonably foreseeable” (less than 1 in 300,000 chance per year) radiation emergency events (reference accidents)
- detailed the possible off-site consequences in terms of distances within which urgent countermeasures should be deployed, assuming the most vulnerable individual, maximum exposure and worst weather conditions - all less than 1km
- advised that food restrictions could extend up to 36km

He concluded that the plans in place for Sizewell were sufficient for the worst possible accident at Sizewell B.

3.3 *Department for Energy and Climate Change Nuclear Emergency Planning*

A statement was issued by Sarah Swash, Head of Civil Nuclear Emergency Planning and Response, circulated to all members and available in hard copy at this meeting.

Questions and Answers

- Q1a PW cited accidents at other nuclear sites, expressed concern that unforeseen accidents had occurred and suggested that the principles of extendability would not be adequate if an unforeseen accident were to occur at Sizewell B.
- Q1b PW suggested that the Detailed Emergency Planning Zone (DEPZ) was based upon a false premise as considerations like the fuel to be stored in the dry fuel store had not been taken into consideration.
- Q1c PW suggested that the relationship between dose and risk being implemented was not credible given the conflicting evidence available and that inhalation of minute quantities of an alpha emitter could lead to significant consequences. He reiterated his call for a DEPZ of at least 20km.
- A1 JW advised that studies of accidents such as those at Fukushima reveal that the accidents were not unforeseeable just not considered and planned for within the design. He explained that determination of the reference accidents and consequences assumed a loss of all safety features, and this was beyond what was foreseeable. He confirmed that acts of terrorism are included in considerations.
- A1b JW explained that the dry fuel store had yet to be licensed and that the off-site consequences for a worst case accident in the dry fuel store was unlikely to exceed that for the reference accidents, however, this would be determined when the safety case for the dry fuel store was under consideration. He advised that the dry fuel store at Fukushima had been unaffected by the accident.
- A1c JW explained that the current dose risk paradigm was based upon International consensus, that this area of risk was better understood than any other and that evidence proved this to be correct. PW disputed that this was the case. Chair reminded attendees that the SSG Action Tracker had an open action with Public Health England to address this issue.

- Q2 Chair questioned the effectiveness of extendability if the communities affected were not informed about how to respond to an event. After receiving the answer below, she added that members of the community want to be informed.
- A2 JW advised that the zone size was a matter for the Office for Nuclear Regulation (ONR) to determine and that the off-site plans assumed that no-one has been provided with prior information. He clarified that the principle of extendability was to consider how the detailed plans could be implemented if required over a wider distance. He added that this has been demonstrated for the Sizewell area.
- Q3 Chair questioned how, if dispatch of the spent fuel from Sizewell A correlated to a reduced site risk, storage of spent fuel within the dry fuel store at Sizewell B could not cause increased risk.
- A3 JW advised that the spent fuel to be stored in the dry fuel store has been through a period of cooling before being stored in robust shielded containers, whereas spent fuel in the reactors or ponds was not protected. He added that, prior to commissioning, the safety of the spent fuel will have to be demonstrated to the regulators and that he anticipates the overall risk from the dry fuel store to be less than the identified reference accidents.
- Q4 JF asked what changes have been made to the Sizewell B site since the Fukushima accident and whether these were linked to the stress tests.
- A4 JW explained that since the Fukushima accident a whole raft of changes had been undertaken at the site and that these were nearing completion. JW summarised these improvements as ensuring that if a safety feature was suddenly disabled that an independent system could be deployed, adding that this, essentially, applied to power and cooling.
- Q5 JF asked why food restrictions would extend up to 36km and yet this distance was not the area for protecting people.
- A5 JW clarified the difference between the zone for food restrictions and that for countermeasures. He explained that the key hazard to people was inhalation of radiation present immediately after the event. By contrast food production could be affected by even minute quantities of radiation falling to the ground after the event and described how this may be concentrated by consuming the affected foodstuffs over a period of time.
- Q6a TGJ expressed concern that the Weightman Report (describing events and outcomes of the Fukushima accident) did not address important issues like the probable causes, suggesting that build up of hydrogen was instrumental. He questioned how free hydrogen would be prevented from exploding during an accident. He suggested that the Fukushima event was entirely predictable, was man-made and that the similarities in design concept to Sizewell B meant that a similar accident was entirely feasible. He questioned how the public could be reassured that such an accident would not occur.
- Q6b TGJ questioned the risk of flooding at the site, reminding attendees of the sudden rise in sea level by 400ft approx 8000yrs ago.
- Q6c TGJ advised that a substantial proportion of the nations early vegetables are grown in the East Anglia region suggested that if there was a major release of radioactivity that this would have a significant impact upon this production.
- A6c Chair reminded members that the concern about early vegetable crops had already been posed to the FSA and a response was awaited.
- A6a MC agreed to provide a written answer to the free hydrogen question. **ACTION**
- A6b JW advised that flooding was one of the risks already considered within the safety case for the station. He advised that the greatest risk was from an event that happened so quickly that there was very little time to react.
- Q7 MT advised that he had toured the Sizewell B Emergency Response Centre and had been told that this covered all eventualities. He questioned how this could be the case given that all eventualities could not be known. He cited Baroness Verna (of DECC) describing the UK as a beacon for progressing emergency planning. MT expressed his concern that this was rhetoric from the PR arm of the Government and suggested that an increased DEPZ would enable the best preparation for a large event.

- A7 JW cited Vincent DeRivaz, Director General EDF Energy, advising that Sizewell B was designed and maintained to ensure that all events were considered and that potential risks assumed that there were safety system failures. The Emergency Response Centre enabled power and cooling to be provided to the station in any event. He concluded that it was entirely correct to have appropriate protection provided by the station rather than place this burden on the community.
- Q8 BS asked for further details of the reference accidents and suggested that if the risks were as described then the ideal location for the power station was a city, such as London.
- A8 JW advised that additional slides describing the reference accidents were available and agreed to go through these with BS after this meeting. He added that he was not able to comment on the suggestion to site power stations in cities.
- Q9 BS questioned why emergency exercises were not open to public scrutiny.
- A9 JW advised that he believed wholeheartedly in openness and transparency adding that it was the ONR that made the decision about who could observe an emergency exercise.

Chair invited comments and questions about the DECC statement and none were forthcoming. The meeting felt that attendance by DECC would have been of assistance.

Item 4. Emergency Planning Areas

- 4.1 Gareth Thomas, Office for Nuclear Regulation, introduced himself and his colleague, Graham Moorcroft, and drew attention to the two additional reports available in hard copy at this meeting and electronically on the ONR website:
- ONR principles for determination of offsite emergency planning areas (formerly known as DEPZs)
 - Sizewell off-site emergency planning area
- 4.2 A presentation, "ONR revision of Sizewell site Emergency Planning Area" was provided and the rationale for the revision was cited as due to a substantial change in the risk posed by Sizewell A site and to enable improved emergency planning for public protection. Mr Thomas emphasised that the ONR determines the 'where' and not the 'what'. An overview of UK emergency planning areas was provided and it was noted that a dose limit of 5mSv was used. The process undertaken to revise the emergency planning area was described and the rationale for moving from a circular area to a mis-shapen bubble explained as following the following principles:
- prevent intersection of communities
 - include immediately adjacent vulnerable groups
 - take account of International good practice
 - ensure credibility
 - consider the benefits and disbenefits of countermeasures
 - consider site specific other factors like possible future developments
- The revised area was drawn on a map and noted to include the town of Leiston.

Questions and Answers

- Q1a JG described how visitors to the area had called her saying that smoke had been coming from Sizewell B, that a loud bang had been heard and that they didn't know what they should do. She said that she did not know how to advise them and, fortunately, that the event did not involve Sizewell B but had emanated from Walberswick. JG expressed concern that local residents have no idea what to do in an emergency and questioned how residents and visitors will be told of an event and how to respond appropriately. After receiving the answer below, JG

added that prior information was needed. Chair added that visitors to the area need to be advised.

- A1a GT advised that the Local Authority were responsible for communication and that this questioned should be posed to Mr Osman. Information would be disseminated to those residents within the revised area and if outside of this then no prior information was necessary.
- Q2 MT cited the International Atomic Energy Agency (IAEA) guidance and questioned why the UK was not implementing zones of similar sizes. He asked specifically why Thorpeness had not been included within the area, explaining that this village may have a small number of residents but attracted a large transient population. He asked why a caravan park adjacent to the outlined area had not been included. He questioned why the IAEA guidance for a 4km immediate response area had not been followed.
- A2 GT displayed a slide that detailed the IAEA guidance. He explained that the criteria used to determine the size of the guidance areas was based on a much higher maximum dose, that the guidance states that determination should use specific data for a reactor and when this was not known that the guidance zone sizes should be deployed and that the guidance zone sizes were circular and did not take into consideration any of the principles used to determine the zone for the Sizewell area. GT emphasised that the Sizewell zone determination had used a technical basis to enable a credible emergency plan to be developed that it included areas with a high density population, like Leiston. He concluded that there was a more detailed explanation of the process for the determination in the two additional reports (para 4.01) and that the revised zones enabled better emergency planning.
- Q3 PW expressed his scepticism, suggesting that it was the cost of increasing the DEPZ to 20km and of having 10's of thousands of people that would need to be informed about evacuation procedures that had really driven the determination of the area size.
- A3 GT emphatically advised that the costs are not considered.
- Q4 It was questioned why several local parishes and villages had been excluded.
- A4 GT explained that local representatives had been consulted. Chair added that the representatives may not have consulted the communities they represent, adding that it was preferable to have information you may never need than to need information you did not have.
- Q5 TGJ suggested that the human brain had an inability to understand low probability - high impact events and that sudden occurrences of unexpected events were very difficult to mitigate against.
- A5 JW explained that emergency planning was about looking ahead and having provision ready to implement if an event occurred. GT advised that all hazards are taken into consideration explaining that emergency planning was for the reasonably foreseeable and that extendability was deployed for the less foreseeable. He advised that predicting the impact of future developments was particularly difficult as the timeline for these may change. He concluded that every three years the sites submit details of reasonably foreseeable accidents and that these were made available in the public domain.

Item 5: Public Protection

- 5.1 Dr Hamid Mahgoub and Dr Mary Orhewere provided a presentation about the revised public protection countermeasures that specifically covered the following elements:
- Sheltering
 - Use of stable iodine
 - The driver for change
 - Local reassessment
 - Reassurance and next steps

- 5.2 HM explained that revisions to countermeasures advice were only made when the emergency status changes sufficiently to warrant a change and that the reduced Sizewell A risk had driven the current revisions. MO emphasised that a consensus of several agencies had determined what should happen (shelter and take stable iodine) within a 1km zone surrounding the Sizewell B reactor building should an off-site nuclear emergency occur. MO added that information would be provided to residents in a far wider area than previously.
- 5.3 Supt Paul Sharp introduced himself and used two slides to describe the evacuation arrangements in the event of an emergency. It was noted that an independent assessment of the road network had been undertaken in 2013 to ensure capacity for evacuation for both the residents and the transient population and that the impact of both wind direction and self-evacuation had been taken into consideration. PS used the example of the tidal surge event to describe how an emergency would be properly resourced with a command and control dedicated cell to oversee the evacuation.

Questions and Answers

- Q1 PW stated that section 14 of REPPIR states that officers need to be authorised to receive a higher dose of radiation and questioned whether officers within the constabulary that may be called upon in an emergency had been duly authorised. He suggested that REPPIR regulations had been breached.
- A1 PS advised that there were dedicated officers that had been trained to provide the correct advice to ensure compliance with statutory guidance.
- Q2 PW stated that if evacuation was necessary that there would be complete chaos and that it was ridiculous to suggest that evacuation would be controlled and ordered.
- A2 PS reiterated that appropriate evaluation and assessment had been undertaken that had taken into account self-evacuation and matters affecting traffic management.
- Q3 PW asked what information was being disseminated to people within the ONR determined area in terms of the spectrum of radionuclides, their half lives, bioaccumulation parameters and impacts on health. He advised that stable iodine only countered the effects of one of approx 200 radionuclides that could be present.
- A3 HM agreed an **ACTION** to take this question back to colleagues at the Centre for Radiation, Chemical and Environmental Hazards at Public Health England and provide a written answer to the SSG.
- Q4 BS questioned the resources available to officers asked to attend an emergency in terms of appropriate protective clothing and training to use specialized equipment.
- A4 PS agreed and **ACTION** to provide a written answer to the SSG.
- Q5 BS advised that appropriate shelter from radiation exceeded simply shutting windows and doors and required all vents to be sealed and those sheltering to take appropriate actions like extinguishing domestic fires to prevent carbon monoxide poisoning. He questioned the focus on a 1km radius suggesting that the nature of the event and the prevailing weather conditions may mean that any plume is carried beyond this radius. BS concluded by questioning how dependent the arrangements were on mains power, suggesting that traffic lights etc could go out if the national grid failed.
- A5 PS advised that the emergency services had business continuity plans to cover loss of mains power.
- Q6 Chair expressed her concern that information about resources and training was not known by PS, adding that one of the significant lessons learnt from the tidal surge event was to ensure local knowledge. Chair said that effective evacuation was dependent on having appropriate resources.

- A6 PS reiterated that there was a group of trained officers knowledgeable about radiological emergencies and that whilst he could reassure attendees that there was sufficient resources available, he would need to refer to this group for the specific details.
- Q7 TGJ emphasised the importance of having appropriate resources locally, suggesting that the success of an emergency plan would depend upon immediate implementation of resources. He advised that post Fukushima an independent agency had evaluated the time taken to evacuate people within the 30km zone around all the nuclear power stations in Japan and found that this had ranged from at least 12hours to in some cases 5.5days. He stressed that evacuation was far from straightforward and that keeping roads open was difficult. He quoted a paragraph from the independent report that concluded that it was almost impossible for all residents to evacuate quickly enough to avoid the effects of the radiation.
- A7 PS thanked TGJ for his comments and explained that communication was a key factor in ensuring that everyone concerned knew what they had to do. He reiterated that the independent assessment had considered self-evacuation.
- Q8 Chair asked specifically what had been communicated to the local schools.
- A8 AO responded to this question later in the meeting by advising that an accident could impact upon three schools, all outside of the 1Km radius, and that information about evacuation procedures would be provided to them. He cautioned that it was dependent upon the risk as to whether evacuation would be advised.
PW argued that it should not be the decision of the emergency services and that parents should decide whether to evacuate their children.
- Q9 Chair questioned why the 1km zone for immediate response was a circle around the station and why the parameters considered to determine the DEPZ had not been applied.
- A9 MO reiterated that the 1km zone was the area in which sheltering and taking stable iodine tablets was the immediate response to an off-site nuclear emergency whereas the DEPZ was the zone within which the detailed emergency plan would be implemented.
- Q10 Chair sought clarification of whether the 1Km zone was extended around communities or intersected them, and questioned what happens outside of the 1km zone.
- A10 MO confirmed that the zone extended to a 1km radius and AO later clarified that this was based on postcodes up to a 1km radius. MO advised that the 1Km zone was the boundary for immediately sheltering and taking stable iodine and would be implemented to mitigate against immediate contamination. The DEPZ was where a raft of measures to mitigate the effects of an off-site emergency would be implemented.
HM added that residents would be advised via TV and radio as to what the appropriate measures would be.
- Q11 Attendees questioned how communications would be maintained if there was a loss of power and Chair sought confirmation of her understanding that urgent countermeasures were only being applied within the 1Km zone.
- A11 MO confirmed that countermeasures were planned for everyone within the DEPZ and that it was just sheltering and taking stable iodine that was limited to the 1Km zone.
- Q12 Chair questioned when the new plan would be implemented.
- A12 MO stressed the importance of ensuring that a single plan was in the public domain and that all agencies simultaneously replaced the current plan with the revised version to ensure continuity and clarity of which plan was in place.
- Q13 MT expressed his concern that current UK housing did not enable effective sheltering and that stable iodine did not protect individuals from the effects of all radionuclides, summarising that the immediate countermeasures were not effective forms of protection.
- A13 MO said that she accepted that there were limitations to both sheltering and use of stable iodine and that whilst both provided some benefit, neither were all encompassing. MO stressed that it

was better that fewer homes were reliant on this prevention, clarifying that this reflected reduced risk.

HM added that stable iodine was only useful to protect the thyroid against the accumulation of radioactive iodine.

Q14 BS asked why the zone within which shelter and stable iodine were to be deployed had been reduced from 2.4kKm to 1Km.

A14 HM advised this was based on the risk and that the ONR determined the size of the area. JW advised that the reference accident risks had assumed the worst weather conditions (that meant that the levels of radioactivity remained concentrated) and the area over which this may extend and this was well within the 1Km zone determined. He added that if there was a reactor accident the most significant dose would be from radioactive iodine.

Item 6: Revised Sizewell Off Site Emergency Plan

6.1 Andy Osman introduced himself, drew attention to the slides that explained the revised plan and the key changes from the current plan. He emphasised that the station operators detail the risks, the ONR assess these and, using the process already outlined, determine the zones. The off-site emergency plan covers both reasonably foreseeable and beyond reasonably foreseeable accidents and details the countermeasures to be deployed. Several agencies consider how to protect public health and determine what needs to happen within the area for immediate deployment, now to be a 1km zone. AO advised that the process is determined by law and that the Local Authority has responsibility for planning the off-site emergency arrangements.

6.2 AO advised that arrangements were in place for providing specific information to the public on actions post any incident. Prior public information will be issued by the operators to a wider area (the revised DEPZ) in accordance with REPPiR. The Suffolk responders will provide a package of prior information that includes details of what to do in the event of an emergency, within the new extended emergency planning zone (postcodes up to a 15km radius of Sizewell B reactor). AO later advised that the latter was not a statutory requirement.

6.3 Steve Ardern, EDF Energy Emergency Planning Group, introduced himself and advised that this group had considered how best to communicate this information and that appropriate letters explaining the changes to the zones and two National leaflets from Public Health England would be disseminated. PW reminded attendees that the SSG had offered to assist with the content of the information and **SA agreed that the SSG could review the letters.**

Questions and Answers

Q1 JG sought clarification of the names given to each of the zones.

A1 AO explained that this was currently of National consideration and that the guidance from DECC was to continue to use the term DEPZ for the zone within which the operators had a statutory requirement to provide public information and EEPZ for the extended zone for emergency plans. Historically, the DEPZ was the zone within which immediate countermeasures were applied, however, in the revised plan this zone was reduced to the postcodes within a 1Km radius. AO referred to the maps within his presentation that showed the old DEPZ, the revised DEPZ, the 1Km immediate countermeasures zone and the EEPZ. AO advised that the information to be disseminated would include an explanatory map.

Q2 PW asked whether the SSG could have an input into the information to be disseminated.

A2 AO advised that it had already been agreed that the SSG would be invited to comment on the letters to be sent out. MO advised that the PHE leaflets were formulated nationally and would not be subject to local review. PW persisted that the SSG should be able to contribute to the contents of all information.

- Q3 JG sought clarification of what plan was in place currently and whether the distributed stable iodine tablets were still in date.
- A3 Chair advised that it was the old plan as the revised plan had not yet been introduced. PH confirmed that the stable iodine tablets were still in date.

Item 7: Final Comments

- 7.1 MO emphasised that it was important that it was understood that there was one emergency plan and that this would be replaced by the revised emergency plan in a coordinated manner.
- 7.2 PS commented that although the prospect of evacuation suggests chaos that the Police will minimise the chaos by advising the community and directing the flow of traffic.
- 7.3 GT reiterated that the risks have reduced and that this has meant that the zone for immediate response has reduced. The outlined new zones are now credible and have enabled better emergency planning.
- 7.4 Chair suggested that the investment in revising the emergency plans would be wasted given that future events may impact the plans and necessitate further revisions. GT countered that the cost was irrelevant and that it was important to have the best plans possible even if further revisions happened in the future. PW added that if new build were to go ahead that this would attract thousands of extra workers to the area and would surely mean more revision of the plans. GT advised that this would be unlikely to impact the zone areas just the 'what' within them. PW stated that the emergency plans won't work and that the views of the SSG had been ignored.
- 7.5 Chair advised that she had been able to observe a Local Authority flood exercise but that her request to observe a nuclear emergency exercise had been refused, despite offering to undertake appropriate training or to sign appropriate confidentiality and security agreements. GT questioned the reasons given and a discussion about this matter ensued. GT agreed to take an **ACTION** to clarify why the ONR refused this request.
- 7.6 PW stated that there was overwhelming public interest in nuclear safety and emergency planning. JW reiterated that the focus of the operators was to prevent nuclear accidents and to ensure that the emergency plans would not be implemented.
- 7.7 Chair thanked all attendees, suggested that the SSG convened a sub-group meeting to discuss the findings from the special meeting tonight and closed the meeting at 22.25.

Next SSG meeting: 10.00 on Thursday 11th September 2014 at Yoxford Village Hall.