No Security Marking

Adrian J Bull 18/05/2005 15:50

To: "Miranda Kirschel" <miranda.kirschel@niauk.org>
cc: Jenny Kisalu/R&T/Risley/BNFL
Fax to:
Subject: Re: Greenpeace thingy

Miranda,

Jenny has drafted the attached in response to the main themes of anti-nuclear argument in the Greenpeace report.....

The responses have not been "wordsmithed" for publication, so suggest you use as verbal briefing if necessary, rather than sending off verbatim. I guess if the issues emerge in the debate, we'll use this as a starting point to draw up specific responses.

Adrian

Outline summary of Greenpeace report and possible Platform Respons

"Miranda Kirschel" <miranda.kirschel@niauk.org> on 26/04/2005 15:52:27

"Miranda Kirschel" <miranda.kirschel@niauk.org> on 26/04/2005 15:52:27

To: Adrian J Bull/Group Office/Risley/BNFL@BNFL
cc:
Fax to:
Subject: Green with NV

Seen the joys of Greenpeace's new report?:

http://www.greenpeace.org/international/press/reports/nuclearreactorhazards.

I'd read it but am very very busy and important, so thought you might have done already and have the basic summary/comments??

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Outline summary of Greenpeace report and possible Platform Responses

Main messages and themes:

Every commercial reactor type has severe safety flaws and is dangerous. An accident at an LWR nuclear power station would give rise to worse consequences than Chernobyl because there is more radioactivity content in an LWR core. (15,000 acute radiation sickness cases, 1 million cancer deaths). [Report gives the impression that there have been many narrow escapes at NPPs round the world from a severe accident eg Davis Besse pressure vessel head corrosion]. Regulators and utililities are blind to these dangers.
This claim assumes that any accident will result in large fractions of the entire core is released to atmosphere and the consequences are then being postulated to be many, many times worse even than Chernobyl where there was also a very large release.

In fact there are many layers of safety at a nuclear power station so that even if there is an accident, there are many barriers to prevent the release of radioactivity. The working of these barriers is illustrated by the Three Mile Island accident where the core was damaged, but the radioactivity release was less than the authorised limits for a week. The chances of a major release of radioactivity at a modern power plant are very low.

Regulators and reactor operators are very aware of the importance of safe operation and the expectations for nuclear safety are very high. From an operator's point of view good safety is "good business".

Recent blackouts illustrate that station blackout is one of the biggest vulnerabilities of a NPP. Although each NPP has emergency diesel generators these are notoriously unreliable.
In case of loss of all ac electrical power, NPPs have battery backed power supplies which will allow essential control and monitoring to carry on uninterrupted (rather like many electric bedside alarm clocks which carry on working during a power cut if they have a battery inserted). Many safety systems also don't rely on electrical power: for example the shutdown rods will always drop under gravity to trip the reactor if power supplies are lost.

Staff are trained for emergency situations such as loss of all ac electrical power. One of their priorities will be starting emergency diesel generators, if they fail to do so automatically. The diesels then provide ac power to electrically driven safety systems and this makes it much easier to maintain safety.

The emergency diesel generators are tested regularly and if they routinely fail to start first time, then the station will be shutdown until the problem is corrected.

Advanced nuclear power plants are able to maintain safety much more easily even if the emergency diesel generators fail to start: AP1000 is very notable here as its passive safety systems do not rely on electrical power supplies at all.

Reactors are ageing (average age 21). This means lots are degrading & getting in a poor condition with lots of components needing frequent costly replacement. As a result many reactors are now in a dangerous condition.
All reactors are operated whilst they are safe and economic. They are regularly inspected throughout their life to ensure that key components are in good condition to deliver safe and economic operation. Their lifetimes can be extended with replacement of key components and this is done if this is an economic proposition. For example steam generators have been successfully replaced on many nuclear power plants.

Climate change is happening and will cause:

- rises in sea level (and flooding of many NPP sites);
- more frequent severe weather events (hurricanes, drought etc)

Nuclear power plants are not equipped to deal with the dangers of this.
Nuclear power plants are designed to safely withstand extreme events such as earthquake, tornadoes, drought and flood. Current predictions for the rate of sea level rise would suggest that there is plenty of time to build any needed sea defences for existing stations. New plants can be sited so that they would be unaffected by rising sea levels predicted as a result of climate change.

Nuclear reactor sites are very attractive terrorist targets and there are many ways of attacking them not just the airplane crash event that has had all the focus. NPPs are vulnerable. Fuel pools are also problematic. [Greenpeace also assert that a decentralised small scale generation network would be more robust against terrorist action]
The threat assessments for nuclear power plant will look at all vulnerable areas and various modes of attack and is not limited to aircraft attack. Security precautions are ten developed in response. In his 2004 annual report, the Director of Office for Civil Nuclear Security (OCNS) stated that "I remain confident that stringent security precautions are being taken to protect nuclear and radioactive materials on civil nuclear sites, nuclear transports, sensitive information, and those employed in the civil nuclear industry within the UK"

Generation IV reactors may not work well, and won't be ready until 2045 at the earliest. Even nuclear industry insiders say Gen IV is a waste of time and money.
Agree Gen IV is a long way off into the future and so while we can't make decisions on what may or may not emerge in the the next few decades it would be short-sighted to foreclose on better options emerging. Thus LWRs are key to maintaining the momentum for future nuclear development (including Generation IV) as they are a technology that works well today.

There are lots more detailed assertions but it would be a marathon task to list them individually and develop rebuttals.