

RESPONSE TO SECOND DRAFT ENVIRONMENTAL IMPACT REPORT

APPENDIX E 26, SECTION 1.1

EMERGENCY PLANNING SPECIALIST REPORT

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1. The Achilles heel of the Thyspunt site

Eskom has been aware for years that emergency and disaster management planning are serious issues affecting the viability of the Thyspunt site. This goes back to the Nuclear Siting Investigation Programme of the early nineties and the resultant Kouga Coast Sub-Regional Structure Plan of 1998, both of which recognized that population expansion in the area threatened the viability of the site in terms of emergency planning requirements. What were not acknowledged at that time were the additional complications of wind speed & direction and the single escape route for five communities along ten kilometers of coastline. In combination these make disaster management planning a pipe dream for this area.

Eskom's method of getting around this hurdle is to change the rules, and lobby for more relaxed emergency planning requirements, which would eliminate the embarrassment of the vulnerability of the Greater St Francis community.

2. The Fukushima factor

It will be some time before the full details of the Fukushima disaster will be made public. The nuclear lobby will argue that this was a different technology from the modern PWR technology being proposed; that it was forty years old; and that the tsunami which hit it was far in excess of anything that had been anticipated.

However, at this stage, certain conclusions can be drawn. Briefly, these are that nuclear power generation remains a potentially hazardous activity; that nuclear contamination can be catastrophic, threatening life and health, and potentially rendering large tracts of land unfit for human habitation for decades, if not centuries to come; that, despite full knowledge of the tsunami risk, and the extensive safety engineering design incorporated by one of the most advanced engineering countries in the world, the system failed; that risk assessment in this case was too optimistic; that the accident was caused by failure of the defence- in-depth cooling system; that far greater transparency

is required; and that there is a case for a complete review of the safety assumptions being used by the nuclear industry, as has been called for by most advanced countries.

A moratorium should be placed on all nuclear developments until the final outcome of the Fukushima disaster is known; lessons learnt from this disaster have been fully assessed; and plant design and safety features have been modified to accommodate these new insights.

In particular Fukushima has emphasized that there is no place for fragmented, superficial, inaccurate, incomplete or politically pre-determined impact assessments for such plants.

3. Generation 111 nuclear power plants

It is repeatedly stated in the Draft EIR that Eskom favours the use of “Generation 111” technology. This despite the fact that government some two years ago stated that this was unaffordable, and took over negotiations for the selection of the specific technology to be used. To this day this has still not been announced. The Emergency Planning Objectives in Appendix E26 take it for granted that Generation 111 will be used, and that EUR requirements will apply.

Definitions of Generation 111 technology can be found in Ch 3 “Project Description section 3.5, and Appendix E26, based on a document (NSIP-01344) prepared by Eskom on a framework for demonstrating that a proposed nuclear installation can be built in South Africa without the need for off-site short-term emergency interventions like sheltering, evacuation or iodine prophylaxis, in line with the European Utility Requirements (EUR) for a Light Water Reactor (LWR) Nuclear Power Plants. These documents prescribe that modern nuclear power plants should have no or minimal need for emergency interventions (e.g. evacuation) beyond 800m from the reactor, and provide a set of criteria that a reactor must meet in order to demonstrate that it can be built without such emergency planning requirements.

4. EUR Requirements

The EUR requirements can be summarized as follows:

- Minimal emergency protection action beyond 800m from the reactor during early releases from the reactor containment;
- No delayed action, such as temporary transfer of people at any time beyond approximately 3km from the reactor;
- No long-term action involving permanent (longer than 1 year) resettlement of the public at any distance beyond 800m from the reactor;
- Restriction on the consumption of foodstuffs and crops should be limited in terms of timescale and ground area, in order to limit the economic impact.

Comment

- It will be noted that this proposal derives from the European Utility Requirements, and not from either the International Atomic Energy Agency, or from any National Nuclear Regulator.
- The EUR regulations are the product of a joint exercise by twelve companies or organizations in Europe, all of which are involved in nuclear power generation. The prime motivation has to be promotion of the nuclear power industry, rather than protection of people and property. This is the responsibility of nuclear regulators, none of whom world-wide have recognized EURs for regulatory purposes.
- It will also be noted that nowhere in these regulations is it suggested that nuclear power generation has become inherently safe. It is accepted that some intervention may be required within the 800m zone; that people living within 3 kilometres of the plant may need to be evacuated; that it might be necessary to resettle people living outside the 800m zone, but not for more than a year; and that the economic implications of restricting consumption of foodstuff and crops should be taken into account.
- Obvious questions arising from this are the scientific basis for selecting 800m and 3 kilometres as the limits for emergency planning, and whether there is any conceivable event which could lead to the need for active intervention over a wider area, for example if the cooling system were to fail as at Fukushima.
- It is difficult to avoid the conclusion that this is a pure marketing exercise, to make it easier for utilities to obtain authorization to operate NPSs, and that the most optimistic attitude is taken towards risk and public safety.

- It is hardly surprising that to our knowledge, no Nuclear Regulator has endorsed these requirements.
- These requirements are in marked contrast to those imposed by the United States Nuclear Regulatory Commission, which are summarized in a Fact Sheet on Emergency Planning and Preparedness, released in March 2002, and reviewed & updated on 4 February, 2011.

5. United States Nuclear Regulatory Commission Requirements

The fact sheet lists details of the available documentation.

It recognizes the need for “reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.” Following the Three Mile Island accident, emergency planning was added to the “defence-in-depth” safety philosophy.

The “defence-in-depth” philosophy requires high quality in the design, construction & operation of nuclear plants to reduce the likelihood of malfunctions; recognizes that equipment can fail and operators can make errors, therefore requiring safety systems to reduce the chances that malfunctions will lead to accidents that release fission products from the fuel; and recognizes that, in spite of these precautions, serious fuel damage may happen, therefore requiring containment structures and other safety features to prevent the release of fission products off-site.

Despite all of this, the NRC demands that, in the “unlikely” event of a release of radioactive materials to the environment, there is reasonable assurance that actions can be taken to protect the population around nuclear power plants.

With this in mind, the following emergency planning is required, and remains so to this day:

“For planning purposes, the Commission has defined a plume exposure pathway emergency planning zone (EPZ) consisting of an area about 10 miles (16km) in radius and an ingestion pathway EPZ about 50 miles (80km) in radius around each nuclear power plant. EPZ size and configuration may vary in relation to local emergency response needs and capabilities as affected by such conditions as demography, topography, land characteristics, access routes etc”

These requirements are pretty well identical to those currently used for the so-called “Koeberg model”, which Eskom is now seeking to abandon. There is nothing in the US regulations to indicate that safety margins have increased to such an extent that EPZs can virtually be disposed of.

6. Contradictions

In a written response, dated 20 March, 2011, to submissions to the first Draft EIR by the St Francis Kromme Trust, the Environmental Assessment Practitioner, Jaana Maria Ball of Arcus Gibb, made the following comment (p.10, response 5):

“US regulations represent an important benchmark since there are at present no specific South African regulations regarding the licensing of nuclear power plant sites. Eskom therefore follows the regulations of the United States Nuclear Regulatory Commission (US NRC) which is considered to be the most stringent and detailed (and tested) set of regulations in the world. Also, by following US NRC regulations Eskom will also comply to IAEA regulations (which represent the second of the two sets of internationally accepted regulations used for the siting of nuclear power stations)”.

7. Comment

It would be difficult to imagine a greater contrast between the EUR and the US NRC requirements. It is clear that Eskom is seeking to run with the hares and hunt with the hounds. While US requirements suit them, they are happy to conform, but when they do not, they seek other solutions, and present them as if they are internationally accepted criteria.

8. Demand

In the context of the recent events at Fukushima, and of the conservative position being taken by the US NRC, which is supposed to be our benchmark, we demand that any proposal to move away from the US regulations, especially towards criteria which have been developed by the nuclear industry itself, be rejected out of hand.

The Thyspunt Alliance demands that this submission be included as a formal response to the second Draft EIR, and that the issues raised be addressed in full, not only by the EAP, but also by the Department of Environmental Affairs and the National Nuclear Regulator.