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05 August 2015

Our Ref: J27035
Your Ref: Email received 07 August 2011

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Dear TAG Executive Committee

**RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No: 12/12/20/944)**

**RE: REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT FOR ESKOM'S PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTUCTURE (DEA Ref. No. 12/12/20/944)**

This document constitutes our TAG organisation's response, on behalf of all of its members, to the above-mentioned document, for which the extended public comment period ends on the 07th August 2011. Please take note of the new contact details for TAG per the above header, as well as the attached TAG membership list, where members' details that have changed have been highlighted in red. As was the case in the past, any correspondence to those of our members that do not have their own postal address may be posted c/o the TAG address listed above.

**Comment 1:**

1. As before, we are immensely relieved to find that this revised DEIR has not recommended the Bantamsklip site as being the preferred location for the proposed Nuclear-1 project. However, as was indicated to us at the public meetings during March 2010, the Bantamsklip site may still be reconsidered for future nuclear applications by Eskom. Whilst it is clear that such future projects do not fall within the ambit of this EIA process, many of the findings of this draft EIA report indicate, in our opinion, substantive reasons for the Bantamsklip site to be removed from any list of possible future nuclear power generation developments. As such, therefore, we feel obligated to make use of this forum to lay the groundwork for our objections should such project proposals for the Bantamsklip site ever be tabled in the future. We therefore reiterate our standpoint that the high level of local opposition, the eco-heritage and unspoiled sense of place which is integral to the burgeoning eco-tourism industry of the area, the cumulative findings regarding Bantamsklip by the various specialists in this revised DEIR, as well as the high cost and difficult logistical implications found to be associated with this proposed project, make this site unsuitable for a large-scale development such as this one.

**Response 1:**

Your comments are noted.

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GIBB Holdings Reg: 2002/019792/02
Directors: R. Vries (Chairman), Y. Frizlar, B Hendricks, H.A. Kavthankar, J.M.N. Ras

Arcus GIBB (Pty) Ltd, Reg: 1992/007139/07 is a wholly owned subsidiary of GIBB Holdings.
A list of divisional directors is available from the company secretary.

**Comment 2:**

Of concern is that whereas the DEIR issued for public comment in March 2010 removed the Bantamsklip site from contention for the Nuclear-1 project completely (per page 11 of that Executive Summary)

*"The comparative assessment of the three alternative sites by Arcus GIBB was based on the following:*

- *Results of the specialist studies: specialists have indicated the relative significance of potential impacts with mitigation at each of the three alternative sites;*
- *An integration workshop, involving all specialists, on 24 and 25 November 2009, where potential impacts and ranking of the sites was discussed;*
- *Costs; and*
- *Transmission integration requirements.*

***Although there are obvious differences between the significance of the impacts of the three alternative sites, all specialists agreed that there are no fatal flaws at any of the sites (provided appropriate mitigation is implemented) and that all three alternative sites are suitable for development of a nuclear power station in time, given sufficient mitigation of impacts.*** *Although the current application is only for a single nuclear power station, the assessment confirmed that all sites are suitable for the construction of nuclear power stations.*

*The impacts of high and medium significance after mitigation were considered important for decision-making. These impacts were further filtered to a manageable number of key impacts for the purpose of decision-making. The following decision factors were selected as most important for decision-making:*

- *Transmission integration factors;*
- *Seismic suitability of the sites;*
- *Impacts on dune geomorphology;*
- *Impacts on wetlands;*
- *Impacts on vertebrate fauna;*
- *Impacts on invertebrate fauna; and*
- *Economic impacts.*

*The Bantamsklip alternative would be costly because its location would require longer and larger transmission lines than either of the other two sites (900 km of combined 765 kV and 400 kV transmission lines at Bantamsklip vs. 500 km and 190 km of 400 kV lines at Thyspunt and Duynefontein respectively). The road and bridge upgrades that would have to take place to transport extra heavy loads from Cape Town harbour to Bantamsklip also contribute to the high costs of this site. The Bantamsklip alternative would be R 8 billion less costs effective than either of the other two sites.* ***Despite the positive benefits that could potentially be realised through conservation of the northern portion of the site, bearing the cost and integration factors in mind, the Bantamsklip site was regarded as the least preferred site alternative and was removed from further consideration for this application.*** *Only Thyspunt and Duynefontein were considered for selection of a recommended site and were compared using a numerical ranking model that takes only the weighted (filtered) decision factors into account. Thyspunt was identified as the preferred site for Nuclear-1."*

the current Executive Summary of the Revised DEIR states the following:

*"The comparative assessment of the three alternative sites was based on:*

- *Specialist studies: specialists have indicated the relative significance of potential impacts with mitigation at each of the three alternative sites;*
- *An integration workshop (November 2009), involving all specialists, where potential impacts and ranking of the sites was discussed;*
- *Costs; and*
- *Technical requirements (e.g. transmission integration, seismic suitability).*

*The 259 impacts were grouped into categories and then consolidated and filtered to provide the 16 most important impacts for decision-making. This involved the removal of impacts with low significance, impacts of equal significance across all sites as well as those not applicable to all sites.*

*An analysis of the impacts showed that Duynefontein could be the preferred site. However it was necessary to consider the relative importance of each of the impact categories between sites and within a site. To this end a weighted numerical comparison of the alternative sites was undertaken in an attempt to identify the most suitable site for Nuclear-1. Technical and environmental factors, including negative and positive impacts, were considered in this comparison. The following nine decision factors were applied in this weighted ranking exercise:*

- *Transmission integration;*
- *Seismic suitability of the sites;*
- *Impacts on dune geomorphology;*
- *Impacts on wetlands;*
- *Potential conservation benefits;*
- *Impacts on heritage resources;*
- *Economic impacts;*
- *Impacts on invertebrate fauna; and*
- *Impacts on vertebrate fauna.*

*The weighted comparison of alternative sites, undertaken in terms of the above-mentioned environmental and technical factors, and the weighting thereof, results in the following scores for the respective alternative sites:*

- *Duynefontein: -8*
- *Bantamsklip: -8*
- *Thyspunt: +5*

*This result indicates a higher score for Thyspunt, followed by Bantamsklip and Duynefontein. This suggests that Thyspunt is the preferred site from an environmental and technical perspective. The above conclusion has also been tested by applying a non-numerical comparison to the alternative sites and the conclusion with regards to a preferred site remains the same."*

Firstly, the reasons for taking the Bantamsklip site out of contention and consideration in 2010 DEIR are still valid in 2011 - the issues of costs, transmission line integration factors and the upgrading requirements of the roads and bridges are unchanged, and these can hardly have been affected by the inclusion of the 'potential conservation benefits' and the 'impacts on heritage resources' as decision-making factors in the current and revised DEIR. In addition the option of barging heavy load items to the Bantamsklip site has also been rejected as an option (Revised DEIR Executive Summary page 7) adding even further to its lack of desirability as a potential project site. So why was

Bantamsklip taken out of contention in the initial DEIR, but the revised DEIR now not only does not consider the site as being disqualified, but now even lists it as having the same preference score as Duynefontein? Perhaps the answer lies in the following - per the Peer/Process Review Report prepared by Sean O'Beirne and Mark Wood, on page 16 of this report:

***"2.3.3 Have cumulative impacts been adequately considered in the report?***

*There are two broad principles at stake here. The first of these is whether or not the full extent of the development has been adequately presented and assessed (viz. power station and transmission lines and staff village) and the second is whether the combined (cumulative) impacts of all activities in the area have been assessed. We deal only with the former issue as we have not reviewed the individual specialist studies. In our opinion the latter appears to have been satisfactorily addressed, bar the issue of significance rating and presentation of impacts which has already been dealt with extensively in this review.*

*In terms of the former issue we note the comments of both DEA&DP and DEA in respect of the need to present the „big picture". We also note the response provided by the EIA practitioners that to provide all the information on all the possible transmission line routes would require that multiple scenarios be presented in the EIR which in itself is already very difficult to digest. Our view is that the EIA practitioners must find a way of reducing the complexity so that the decision-making significance of the transmission lines (and other associated infrastructure) is properly presented. It simply has to be recognised that transmission line impacts (for example) could well influence the optimal siting of the NPS. The most important issue is to ensure that the authorities are not forced to approve the transmission lines at a later stage by virtue of the approval of the power station. However, this latter item only becomes important if the authorities are forced to approve the transmission lines in the face of a potentially intolerable impact. In these terms it is not incumbent on the EIA practitioners to present the transmission lines in detail but rather to simply highlight key concerns that could result in such a fatal flaw.*

*In using the sensitivity of the transmission line routing as one of the reasons for disqualifying the Bantamsklip site, the EIA practitioners have upheld this principle. We contend that in principle at least the practitioners are compelled to do no more than what they have already done, although there are two further issues that should also be addressed. The first of these is whether or not Bantamsklip does in fact remain a viable site for the later possible development of an NPS as indicated in the EIR (given the sensitivity of the transmission line routing and the other issues that lead to the site being excluded). The second is whether enough has been done in the existing EIR to present a compelling case for having adequately assessed the possible fatal flaws in the transmission line routings. We contend that the flexibility in routing a transmission line means that it is highly unlikely that authorities would be compelled to authorise the transmission lines (because they had already authorised the power station) despite being faced with a fatal flaw. The same would apply to the issue of the staff village.*

*A second important issue is that the applicant must also recognise that there is some risk in this approach. That risk is that the authorities find during the detailed EIA of the transmission lines or the staff village that they simply cannot approve one or both. For this reason, it is critical that the fatal flaw analysis on the transmission lines and the staff village be thorough and meaningful in the interests of both the applicant and the authorities."*

As we (and numerous other I&AP's) have repeatedly indicated, both in discussion forums and in our written responses, the cumulative impacts of the proposed project MUST be considered in order for a proper assessment of the impact of a NPS to be made, and it is indeed gratifying to have this view now supported by an independant party. Additionally, it is also clear that this Peer/Process Review feels that, based on the listed shortcomings and sensitivities of the Bantamsklip site and the principles

employed in disqualifying it from consideration for Nuclear 1, that a decision should be made sooner rather than later about whether this site should in fact continue to be considered as a potential nuclear site in the future – we support this view, and, as was made abundantly clear in our previous response document in this regard dated 30 June 2010, contend that Bantamsklip must be permanently removed from the list of potential NPS sites.

**Response 2:**

As indicated in Chapter 7 of the Revised Draft EIR, the assessment methodology, particularly the rating of impacts, has been changed substantively between the Draft EIR and the Revise Draft EIR version 2. Given this change in assessment methodology, it was considered important by the EIA team to apply this rating methodology consistently to the alternative sites.

Your comment regarding the permanent removal of the Bantamsklip site from consideration as a nuclear site is noted. Please note that Chapter 5 of the Revised DEIR Version 2 states that Bantamsklip is no longer considered as a feasible site for Nuclear-1. It may however be considered for future Nuclear power stations. Please refer to Chapter 5 for more information.

In terms of the consideration of strategic impacts, please refer to Chapter 10 of the RDEIR Version 2. This assessment chapter considers the residual risk of establishing a power station at the proposed sites. This approach not only extracts the key factors for decision making but also by virtue of the consideration of residual risks, considers the cumulative impacts of the power station.

**Comment 3:**

The Executive Summary gives no explanation as to why there is this change in approach regarding Bantamsklip's status, nor how the weighted ranking system resulted in this change - one cannot, therefore, help but have some questions about the how's and the why's of the processes employed in the drafting of the DEIR's, and whether or not there has been a 'shifting of the goal posts'.

Secondly, this change in the scoring/status of the Bantamsklip site is surely a substantive difference between the two DEIR's, and yet it is not mentioned under the "Key Changes" heading or anywhere else in the latest Executive Summary as such.

**Response 3:**

We apologize for this oversight, however please note that the Revised DEIR Version 2, no longer utilises the ranking system. Please refer to Chapter 10 of the RDEIR Version 2, for an updated assessment approach which focuses on residual risks of establishing a power station at the proposed sites. This chapter outlines the key decision making factors which need to be considered by the decision maker. Furthermore Bantamsklip is no longer considered feasible for Nuclear-1 (see response 2 above).

**Comment 4:**

2. The Peer Review Report prepared by Sean O'Beirne and Mark Wood reviews the EIA process and formulation of the DEIR. It raises some key issues regarding the significance rating method used, the presentation of key impacts and their mitigations, addresses the perception of bias with regard to how the recommendation was reached to propose Thyspunt as the preferred site as well as the lack of clarity on how the criteria were selected and weighted in order to reach this conclusion. This is summed up in the last paragraph of point 2.3.4 on page 19 as follows:

*"Overall the EIR is good technically but appears to have been weakened by the significance rating system that has been used and the presentation of multiple impacts at their smallest component level rather than synthesising and integrating. The weak significance rating system has exaggerated the significance of the impacts and made the site selection process appear biased because of that. It has also had the effect of reducing conviction in the mitigation presented. It is strongly recommended that the significance rating scheme be revisited and dramatically improved so that the revised EIR is more sensibly and coherently presented. We argue that if these changes are made the EIR will be a considerably more robust assessment than it is at present."*

We can only agree with this assessment.

**Response 4:**

Changes proposed by the peer reviewers have been implemented in the Revised Draft EIR Version 1. The impact significance rating system has been substantially revised in consultation with the team of specialists. The revised impact assessment rating system is indicated in Chapter 7 of the Revised Draft EIR. Furthermore, based on comments received from the DEA during the review of the RDEIR Version 1, The National Department of Environmental Affairs requested the EAP to review the impact assessment methodology used in the Revised Draft Environmental Impact Report (Version 1), so as to simplify the criteria for assessment of significance and identification of a preferred site. In response, an approach has been developed that identifies and describes key decision-making issues contained in the individual specialist studies. These decision-making issues apply to both the acceptability of the proposed Nuclear Power Station as well as to the preferred site. Please refer to Chapter 10 for the updated assessment approach.

**Comment 5:**

3. Per the Executive Summary page 7 "Forms of power generation" – please see the attached article "24 Hour Solar Power – here and now" which contradicts the statement made in this section that solar cannot provide guaranteed base-load generation capacity. Whilst this article is focused on Australian policy and conditions, it is equally applicable and relevant to our South African conditions and requirements.

**Response 5:**

Your comment is noted. Concentrated solar is the only solar technology that provides the potential for based load generation. The statement in the Executive Summary will be amended accordingly. Eskom has assessed the feasibility to construct a 100 MW Concentrated Solar pilot plant in the Northern Cape as part of its efforts at rolling out new renewable generation technologies. Information on this proposed development is available at:
http://www.eskom.co.za/content/RW_0003ConsentrSolPowRev1.pdf

Subsequent to the EIA commissioned by Eskom, Solafrica commissioned an EIA for a 50 MW plant on the sites identified by Eskom.

**Comment 6:**

4. Per the Executive Summary page 8/9 " No-go alternative" – *"Given the urgent power demand based on economic growth in South Africa, the No-Go alternative is not considered to be a logical alternative, as Eskom's mandate is to provide power to the country. Eskom, would in all likelihood, apply to develop more coal-fired power stations if the current application is declined*"

We do not dispute the need for more power generation, however logically it would be of benefit to the public and our country's economy to increase this capacity as quickly and cheaply as possible – nuclear is neither quick to get into place nor is it cheap, and the hazard potential of such a development must also be factored in when comparing power generation options. It is also presumptuous, to say the least, to indicate that Eskom would "*in all likelihood apply to develop more coal-fired power stations",* with its implied threat that the public would just have to grin & bear the nasty environmental impacts of these because the supposedly 'green' nuclear option was now off the table. In our opinion Eskom's mandate to provide power includes the duty to investigate, invest in and develop all possible forms of energy production and the no-go alternative regarding this nuclear development also has the potential impact of forcing Eskom to develop more renewable energy projects. More coal-fired power stations is thus most certainly not the only possible or likely consequence of a no-go decision, and for this Executive Summary to imply that this is so is misleading.

**Response 6:**

South Africa has started making progress to a more diversified mix. This brings along with it both positive and negative aspects. Cost as well as security and quality of supply remains important considerations which will support sustainable economic growth. To meet the needs of the country base load options are an essential component as reflected in the Integrated Resouce Plan (2010). The only two proven sources of base load power supply in South Africa are coal and nuclear generation. Thus, should nuclear power not be developed, the only other proven technology available for base load generation would be a coal-fired power station. The statement was by no means made as a threat. It is a reality that the only proven source of bulk baseload power generation besides nuclear is coal-fired generation. Taking into consideration the significance and focus of climate change and as stated in the IRP South Africa does need to move to a less carbon intensive technology mix.

**Comment 7:**

5. Per the executive Summary page 9 "Key mitigation measures and conditions of authorisation" – we submit that the Environmental Management Plan (EMP) **must** form part of the contract with the contractors appointed to construct the proposed nuclear power station and ancillary infrastructure, rather than "should".

**Response 7:**

Your comment is noted and GIBB is in agreement with your comment. The word "should" in the executive summary instead of "must" as used in your comment was in no way meant to lessen the importance of inclusion of the EMP in the construction contract. The wording will be changed in subsequent versions of the EIR to ensure that there is no room for interpretation.

**Comment 8:**

6. Per the "Summary of Specialists Findings" we have the following comments:

Seismic risk – pg 9/10 *"There is no physical upper limit for the seismic design of a nuclear power stations, but increasing the specification to seismic criteria above 0.3 g increases both cost and time required for design of the power station."*

Whilst this upper limit may be 'generally accepted internationally' one would think that some scope for increased cost and time in the design of the proposed nuclear power station would be recommended, given the recent, ongoing and frightening consequences in Japan (Fukushima) of what was thought to have been an 'improbable' scenario during the planning process at that nuclear power generation development.

**Response 8:**

The release of radioactivity from the Fukushima Daiichi nuclear power station was not caused directly by seismic activity but by the tsunami (tidal wave) caused by the earthquake. The earthquake itself caused no structural damage to the buildings that housed the nuclear reactors. The release of radioactivity was caused by the failure of all electrically-driven cooling systems to the nuclear reactors, including the flooding of backup diesel generators that were meant to supply power to the cooling systems in the event of the failure of the primary power supply. Emergency planning at Fukushima Daiichi assumed a tsunami height of only 5 m, which was inadequate in a country like Japan, considering that it is prone to frequent earthquakes. Please refer to the Beyond Design Accident Report (Appendix E33) for a more detailed discussion on the Fukushima events

This contrasts with the planning for Nuclear-1, where planning for extreme waves assumes that emergency power generation infrastructure should be located at least 12 m above sea level.

A "standard" design nuclear power station designed for a PGA of 0.3g would still be able to withstand an earthquake with a Magnitude of 7 on the Richter Scale (depending on site conditions). It is common practice for additional seismic design to be applied to designs of nuclear power stations in seismically active zones such as Japan. In seismically stable areas subject to lower seismic risk, it is not considered necessary to apply these additional seismic design measures, since a "standard" design can withstand a PGA up to 0.3g. In the case of the KNPS, however, the following measures have been taken to prevent an occurrence similar to Fukushima, even though no tsunami has ever been recorded on the affected coastline:

- The original design of Koeberg provided protection against earthquakes and tsunamis and loss of off-site power supplies.
- The two nuclear reactors at the KNPS are constructed on an "aseismic" raft, and all the components and plant systems that are important to nuclear safety have been designed to these seismic specifications so that they will be able to perform their expected functions during and after an earthquake.
- A 4 m tsunami (as a result of an earthquake in the South Atlantic) was considered in determining the Koeberg terrace height. This was considered to coincide with a maximum spring tide and a major storm surge and maximum wave set-up and run up, leading to a water level of 7 m above mean sea level. The Koeberg terrace height is at the 8 m level above mean sea level.
- During normal operation, each unit at Koeberg is supplied from two 400 kV lines connected to the national grid. The station also has supply from a 132 kV line connected to the national grid.
- If there is a problem with the normal 400 kV and 132 kV supply, the Acacia open cycle gas turbine power station (far inland) supplies electricity to Koeberg through a dedicated 132 kV line.
- Koeberg has two emergency diesel generators of 5MW each for each unit respectively to provide backup power supply. A fifth emergency diesel generator that can be switched between either of the two units is also installed. These five diesel generators are all located on the Koeberg terrace at 8 m above mean sea level.
- Two smaller (1 MW) diesel generators are installed, one for each unit, which are independent of the emergency diesel generators, and physically located in a different place (at a higher

elevation (14 m) above mean sea level). They will ensure that the batteries and hence the instrumentation & control systems have power, and will ensure the integrity of the reactor coolant pump seals – thus enabling the fuel to be cooled through natural convection if all other systems fail.

- There are a further two portable generators on site that could also provide emergency power supplies.
- Each unit at Koeberg has a steam driven auxillary feed water system, i.e. it operates without power supply, that can ensure that heat is removed from the steam generators and thus keep the nuclear fuel cool.

For illustrative purposes, the 1969 Tulbagh earthquake (the highest ever magnitude earthquake in the Western Cape) had a magnitude of 6.3 on the Richter Scale. The PGA experienced during this earthquake, based on the probable location of the epicentre approximately 25 km from Tulbagh, was 0.22g[1]. A standard nuclear power station design, capable of withstanding a PGA up to 0.3g, would therefore have withstood the Tulbagh earthquake. The KNPS, having been designed for a PGA value of 0.3 would also have withstood this earthquake. The earthquake with the highest ever magnitude recorded off the coast of South Africa occurred in 1932, had a magnitude of 7 and originated approximately 40 km offshore from St. Lucia on the northern coastline of Kwa-Zulu-Natal. In contrast, the earthquake that led to the Fukushima tragedy had a magnitude of 9 on the Richter Scale.

The seismic design of the power station would result in sufficient protection against a nuclear disaster.Greater planning is required to mitigate against loss of power to the power station to allow the cooling systems to continue to function and to provide several forms of alternative backup power supply at a height above sea level that will be unaffected by a possible tsunami event.

**Comment 9:**

Social impacts – pg 15 – it is said that the potential positive impacts include temporary employment of workers, however no mention is made of the potential negative impact of these same temporary workers that no longer have work at the end of the construction phase. A truly positive social impact would be an increase in permanent employment, which no NPS can provide extensively.

There is no indication of whether potential positive impacts outweigh the potential negative impacts, nor is there an indication of whether the different sites will experience the social impacts differently.

**Response 9:**

Your comment is noted. It is quite correct to state that there would be a negative impact on temporary workers after the end of the construction phase. This is assessed as “Loss of employment after construction” in the Social Impact Assessment (Appendix E18 of the Revised Draft EIR).

Your comment regarding positive impacts outweighing negative impacts is noted. It is very difficult, if not impossible, to say with absolute authority whether one social impact or set of impacts outweighs another social impact. Due to the nature of social impacts, they are experienced by different members of society, who have different perspectives, background and perceptions of social changes. The Social Impact Assessment has, therefore, not expressed an opinion on the controversial question of whether one social impact can be regarded as more important than another social impact. Such an opinion would amount to saying that one person is more important than another. However, the experience at other large infrastructure projects is that such projects provide the opportunity to provide many people

[1] Kijko, S, Retief, J. P. and Graham. G. 2002. Seismic Hazard and Risk Assessment for Tulbagh, South Africa: Part I – Assessment of Seismic Hazard. *Natural Hazards* 26: 175–201, 2002

with basic building skills which can be used in other infrastructure projects and possible entrepreneurial opportunities. For many individuals such a project could provide opportunities for a productive future.

**Comment 10:**

Impacts of nuclear and non-nuclear waste – pg 17 – no mention is made of the hazard and risk potential of low-level and intermediate level nuclear waste being transported from each of the three proposed sites to Vaalputs – there are risks to the road users as well as the inhabitants of towns along the routes which must be considered and assessed.

**Response 10:**

Only Low Level Waste (LLW) and Intermediate Level Waste (ILW) will be transported from the nuclear power station to the Vaalputs nuclear waste disposal site in the Northern Cape. LLW and ILQW will be transported in sealed drums (metal drums and concrete drums, respectively) that prevent the escape of radiation into the environment. This is an internationally acceptable practice that will be undertaken in terms of the conditions of the National Nuclear Regulator and the IAEA Regulations for the Safe Transport of Radioactive Material, In terms of the Regulations, the transport process is subject to radiation protection, emergency response, quality assurance and compliance assurance programmes. Such waste transport to Vaalputs has taken place from Koeberg Nuclear Power Station without incident for several decades.

**Comment 11:**

7. We do not dispute the fact that there is an urgent need to reduce greenhouse gas emissions and carbon footprints as a matter of urgency, worldwide. To this end, we would never support development of a coal-fired power station. And whilst it may be true, as is stated in the Need & Desirablity report on page 4-7 that "*nuclear power generation does not emit sulfur dioxides (SOx), nitrous oxides (NOx) and requires much less water than coal-fired power stations."* the hazard aspect of nuclear emissions and radioactive waste, which is inherent to nuclear power production should be considered, but is not mentioned. Any and every process will have negative aspects associated with it, what must be considered however is the extent and overall long-term impact of developments we undertake now – and whilst wind and solar production might have the carbon equivalent of nuclear power production, neither wind nor solar has the nuclear hazard and risk factor associated with it. To illustrate the point, we attach a copy of "Nuke Info Tokyo – Citizens' Nuclear Information Centre" and highlight the article on pages 1 – 5 about the Fukushima situation which gives some idea of not only the hazards associated with extreme environmental events happening that could affect the functioning of a NPS, but also that design issues could compound any problems associated with the running of a NPS. Whilst many arguments and assurances can made about mitigating measures being employed, and design and procedural requirements that have to be met, and statistical data can be presented to try and illustrate the minimal potential of such events happening, the mere fact that such measures have to employed mean that the risks are there, and the potential for problems occurring is there. As stated in our previous response, our view centres on the argument: why inflict such potential long-term hazard on an area when there are other, proven, sustainable and inherently less risky and costly means of achieving the same result?

**Response 11:**

It is not factually correct to state that the waste impacts of nuclear power stations are not mentioned. The Nuclear Waste Assessment (Appendix E29 of the Revised Draft EIR) and Section 9.29 of the previous Revised Draft EIR are dedicated to assessing the potential impacts of nuclear waste.

Your statement " … *and every process will have negative aspects associated with it, what must be considered however is the extent and overall long-term impact of developments we undertake now – and whilst wind and solar production might have the carbon equivalent of nuclear power production, neither wind nor solar has the nuclear hazard and risk factor associated with it.*" is completely correct and is not disputed.

However, as indicated in the Revised Draft EIR, nuclear generation is not considered as an alternative to renewable electricity generation i.e. it is not a question of either nuclear generation or renewable generation. It is accepted, both by GIBB as the Environmental Assessment practitioner, and by Eskom as the applicant, that renewable generation must make up an increasing proportion of South Africa's generation mix. To this end, the Integrated Resource Plan (IRP) has targeted the inclusion of 17.8 Giga Watt of renewable generation in the generation mix, as well as 9.6 GW of nuclear generation.

The EIA for Nuclear-1 is undertaken in the context of the IRP. The environmental application for Nuclear-1 is for a nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal fired power stations currently under construction. In all these previous instances, the scope of the EIA was restricted to a specific power station on a specific site or sites within a defined geographical area. It cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa's electricity needs. This is especially the case in the instance of the Nuclear-1 application, where the government has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa's future electricity needs for the next two decades.

**Comment 12:**

8. Per page 9-3 of the Impact Analysis document:

*"It is a requirement of Section 32(2)(e)(iv) of the EIA regulations (Government Notice No. R 385 of 2006) that the EIR must include copies of any representations, objections and comments received from registered Interested and Affected Parties (I&APs). In this instance, all such representations, objections and comments are included verbatim in the Issues and Response Reports (IRRs) appended to this Report. Inclusion of the original written comments as appendices to the report is impractical due to the volume of these documents. Therefore, these documents will be made available for viewing on request, if required."*

We request that this document as well as all other response documents (together with their various appendices) which we have submitted to date during this EIA process must be appended verbatim and in their entirety to the final EIR which will be submitted to the DEA for a decision, rather than just the documents which include the EAP's and specialists' responses (IRRs) to selected issues and comments raised. This should in fact be the case for responses submitted by all I&AP's, particularly as the volume of these has been deemed large enough to be considered 'impractical' to submit – as such, one would think therefore, that these responses can be deemed as being a fair reflection of the opinions, input and sentiment of the public at large, and consequently the DEA must be given the

opportunity to review the extent and nature of the public's responses received in their entirety, as part and parcel of making its decision about the proposed project, in our opinion.

**Response 13:**

Due to the sheer volume of comments submitted for the Nuclear-1 EIA process, inclusion of hardcopy original responses from all respondents is considered impractical. The Revised Draft EIR is very large. Adding very long appendices which I&AP's have used as reference information will be referenced and made available on the website and in electronic versions. However please note that your submissions are included in this IRR.

**Comment 14:**

We would like to have it noted that consideration must be given to the fact that, with the limited resources available to an organisation like TAG it is impossible to comment on all the technical aspects and specialist reports in detail, and our failing to do so does not imply that we agree with the information, methodologies, statements or conclusions contained in this report or any of the specialist reports included therein.

**Response 14:**

Your comments are noted.

Yours faithfully
for GIBB (Pty) Ltd

_____
The Nuclear-1 EIA Team

Attachments: TAG membership list
24 hour solar power: here and now
From Fukushima to disarmament – by Malcolm Fraser
Nuke Info Tokyo CNIC No.143

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http://www.greenleft.org.au/node/48104

# 24-hour solar power: here and now

Saturday, July 9, 2011

Spain's Gemasolar concentrated solar thermal power plant.

It's the best news on climate change for years, and you've probably not heard about it.

Spain's new Gemasolar power plant produced uninterrupted clean energy all day and all night for the first time on July 3. That's 24 hours of zero emissions power, here and now.

Gemasolar is a concentrated solar thermal power plant. It uses a field of mirrors to concentrate solar radiation in a central tower.

What's new about Gemasolar is that the plant can store solar energy for up to 15 hours. That's baseload renewable energy, supplied all through the night.

Even better, unlike coal or nuclear plants, solar thermal power is dispatchable: it can be used to meet peaks in energy use. Baseload or peakload — solar thermal can do both.

Solar thermal power is expensive. But the costs will come down sharply once more plants are built.

Australia has some of the best conditions for solar power in the world. If Australia were to roll out solar thermal power on a large scale, it would bring the costs down fast here and around the world. This would be a great help to the global effort to halt climate change.

But in financial terms, concentrated solar thermal power is the smart move. Once it is in place, there are no more fuel costs — ever.

Oil, gas and coal prices are all forecast to rise sharply in coming decades. In time, a solar powered Australia will save billions of dollars each year, money which otherwise would be spent paying for dirty fossil fuels.

Solar thermal power is the economic gift that keeps on giving.

Detractors of renewable energy are fond of saying that Australia cannot rely on renewable energy because the sun doesn't shine at night and the wind doesn't blow all the time.

But the sun is always shining somewhere, and the wind is always blowing somewhere. By building solar thermal plants and wind farms in strategic points across the country, Australia could be powered with 100% renewable energy.

Solar thermal technology is commercially available. It's ready to go. More investment and research will refine and improve it.

It makes coal and gas-fired power obsolete, in the same way the advent of the internal combustion engine made the horse-drawn carriage obsolete.

But the Australian government is not investing in any solar thermal plants that can store energy. It's committed to burning fossil fuels, which will cook the planet.

The problem is that the government is more afraid of the fossil fuel and mining companies than it is of its people. The mining industry brought down former prime minister Kevin Rudd. That's real power, and they know it.

Until that power equation is changed, we won't get 24-hour solar power in Australia.

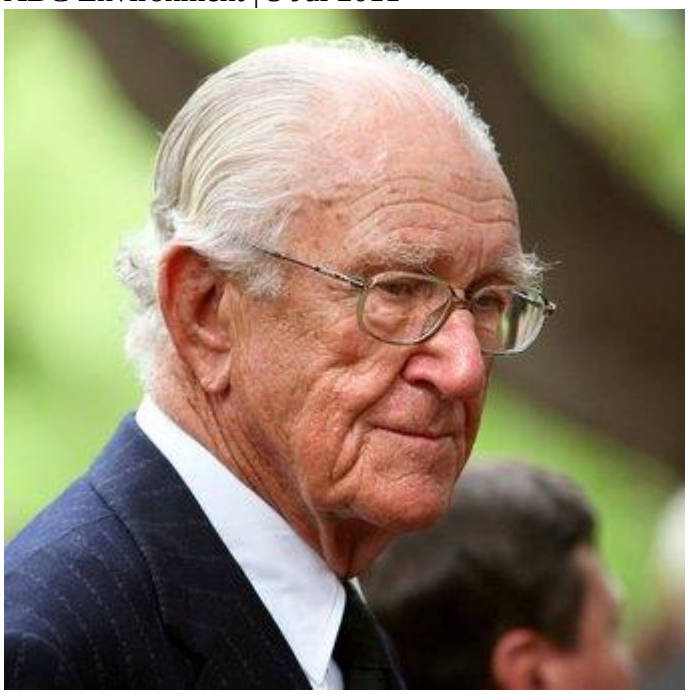
But don't let anyone tell you there is no alternative to fossil fuels or nuclear energy. There is. Solar thermal is a key part of the answer to climate change and its ready.

http://www.abc.net.au/environment/articles/2011/07/05/3260732.htm

# From Fukushima to disarmament

## By Malcolm Fraser

ABC Environment | 5 Jul 2011



Malcolm Fraser says the risks of nuclear warfare are too great for nuclear power to be considered (file). *Credit: Astrid Volzke (AAP).*

## See also

- **Related Story:** Crews 'facing 100-year battle' at Fukushima, News Online, 01/04/2011
- **Related Story:** Japan extends the exclusion zone around Fukushima, AM, 16/05/2011

**In our rush to find a solution to climate change, nuclear energy has again been promoted. But the disaster at Fukushima reminds us of just how devastating nuclear can be.**

MONTHS AFTER THE devastating March 11 earthquake and tsunami hit Japan, the ongoing nuclear disaster at Fukushima compounds the humanitarian tragedy and impedes recovery. The damaged reactors and spent-fuel ponds contain around 10 times as much nuclear fuel as did the Chernobyl reactor that exploded in 1986. In three reactors, the fuel has melted, almost certainly through the reactor vessels; primary containment structures have been breached; explosions have torn away the secondary containment (the buildings); radioactive releases continue; and closed-loop cooling has not been re-established.

More than 100,000 tonnes of highly radioactive wastewater now flood the facility to capacity, as water continues to be poured in to prevent further massive radioactive emissions. The spent fuel in pools adjacent to each reactor, containing more radioactivity than the reactors themselves, has also been severely damaged, has leaked radioactivity, and is still without needed stable cooling. The spent fuel at the Reactor 4 caused a hydrogen explosion and fire on March 15.

As a result, large amounts of radiation, on a scale comparable to Chernobyl, have already been released into the air, earth, and ocean. Further releases will continue, probably for years.

And yet, while the Fukushima disaster is attracting overdue global attention to nuclear safety and security, and provoking a reconsideration of nuclear power, its implications for nuclear weapons remain largely unremarked. The nuclear reactions that drive reactors and weapons are the same, as are the radioactive products that are dispersed by wind, rain, and water if released, with the same lack of respect for borders and the same indiscriminate long-term cancer and genetic hazards.

At Fukushima, a perfect storm - a massive earthquake and tsunami, multiple vulnerable coastal reactors with spent-fuel ponds in the same buildings, inadequate barriers, loss of power, and back-up generators situated too low - may have seemed a remote possibility. But was it really? Problems had occurred at similar reactors before. Fukushima's operator, Tokyo Electric Power Company (TEPCO), had a poor safety culture and a long history of falsifying and covering up inspection and safety data.

No nuclear reactors are designed to withstand an earthquake of magnitude 8.0. Yet there were 11 earthquakes greater than 8.5 last century, and, only 11 years into this century, there have been five. Almost all were followed by tsunamis. The seawall at Fukushima was designed for a tsunami no higher than 5.7 metres. Yet the same coast was devastated by a 38-metre tsunami in 1896, and again by a 29-metre tsunami in 1933.

Moreover, no nuclear reactors are built to withstand an attack like that of September 11, 2001 - which was also unforeseen. The aircraft that crashed in a Pennsylvania field was, it should be recalled, less than 10 minutes away from the Three Mile Island nuclear plant.

Fukushima has highlighted how vulnerable spent-fuel ponds are to direct damage or disruption of power, water, or pumps for cooling. These pools contain vast amounts of long-lived radioactivity, typically in a simple building, without multiple engineered layers of containment. Each of the world's 437 nuclear power reactors and associated spent-fuel ponds are effectively enormous pre-positioned radiological weapons, or "dirty bombs."

Moreover, the world is wired with 22,400 purpose-built nuclear weapons. Around 1,770 of them in Russia and the US, and a further 64 in France and 48 in the United Kingdom, remain on high alert, ready to be launched in response to a perceived attack with only minutes for verification and decision. Recent history is peppered with a litany of false alerts and near misses, each unforeseen, each a combination of technical and human failure. The growing potential for a nuclear disaster by cyber attack adds to the existential danger.

We now know that just 100 relatively 'small' Hiroshima-size nuclear weapons, less than one-thousandth of the global nuclear arsenal, could lift millions of tonnes of dark smoke high into the atmosphere. There, it would abruptly cool and darken the planet, slashing rainfall and

food production in successive years - and thus causing worldwide starvation on a scale never before witnessed. This could result from the arsenals of any of the 10 currently nuclear-armed states, with the exception of North Korea.

Intent, miscalculation, technical failure, cyber attack, or accident could cause the nuclear escalation of a conflict between India and Pakistan, in the Middle East (embroiling Israel's nuclear weapons), or on the Korean peninsula. Such outcomes are at least as plausible or likely - if not more so - than a massive earthquake and tsunami causing widespread damage to four Japanese nuclear reactors and their adjacent spent-fuel ponds.

Any country that can enrich uranium to fuel nuclear reactors has everything it needs to enrich uranium further, to weapons-grade strength. In a nuclear reactor, one to two per cent of the uranium fuel is inevitably converted to plutonium. This can be separated through chemical processing and used to build a bomb, as Israel, India, and North Korea did - and as many fear that Iran is seeking to do.

Currently, there is no restriction on any country building a uranium-enrichment plant or reprocessing spent nuclear fuel to extract plutonium. As we have seen, safeguards alone are not up to the job. We will not prevent further proliferation of nuclear weapons and their eventual use, much less achieve a world free of nuclear weapons, without strict international control of all uranium enrichment, and without banning the separation of plutonium from spent fuel.

That which cannot be controlled must be prevented. Today, that means preventing the threat of climate change and eradicating nuclear weapons. But we cannot afford efforts to address one challenge that end up aggravating the other. Attempting to reduce greenhouse-gas emissions through nuclear energy, thereby fueling the dangers of the ultimate global incendiary - nuclear war - could be the most tragic of all miscalculations.

*Malcolm Fraser was Prime Minister of Australia from 1975 to 1983.*

# NUKE INFO TOKYO

July/Aug. 2011
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Citizens' Nuclear Information Center

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# TEPCO will do anything to maintain the 'unforseeable' theory

## - The 'simulation analysis' deception technique -

*photo released by TEPCO*

**Highly likely LOCA in Reactor Unit 1**

If they possibly can, what the Japanese state and Tokyo Electric Power Company (TEPCO) would like to see buried once and for all is the notion that the critical equipment at TEPCO Fukushima Daiichi Nuclear Power Station Reactor Units 1, 2, and 3 (1F 1-3) sustained serious damage from seismic motion unrelated to the 'unforeseeable' giant tsunami. The reason is that if it becomes known that even in one of the three reactors critical piping was damaged in the seismic motion and that a 'loss of coolant accident' (LOCA), where coolant gushes out from a damaged pipe into the containment vessel, occurred, then the grave issue of 'earthquake vulnerability of the central structures of nuclear power stations' would arise, shaking the very foundations of the safety of nuclear power in 'earthquake country Japan.' If that happens, the tsunami measures and external power supply measures that are the current government's basic policy conditions for the resumption or continuation of operations of existing nuclear power plants NPPs will be forced to undergo a fundamental review and it may become impossible ever to resume the operation of Chubu Electric Power Company's (CEPCO) Hamaoka NPP.

However, the facts cannot be suppressed forever. Judging from the various kinds of data released by TEPCO thus far, there is an extremely high probability that an LOCA occurred in the reactor piping in at least Unit 1 at the time the

**Contents**

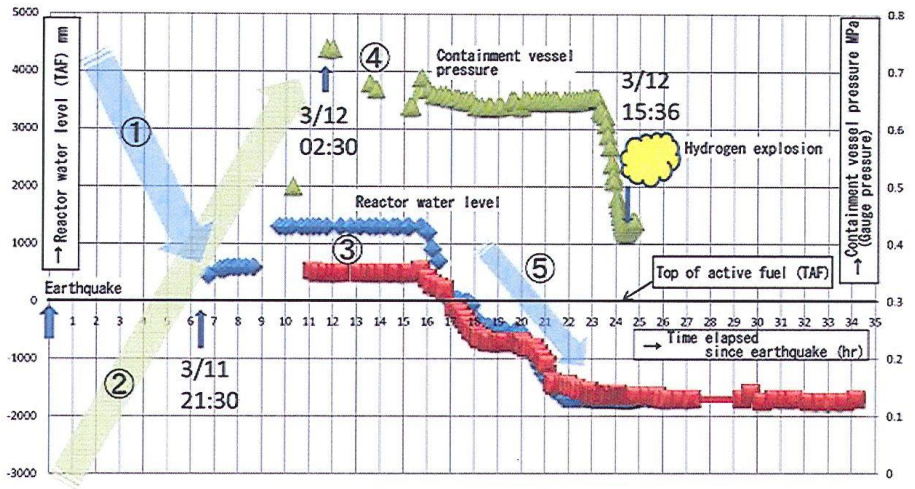



Figure 1. Changes in reactor water level and containment vessel (drywell) pressure

earthquake struck. Figure 1, based on data released by TEPCO on 16 May, shows in one figure both the changes in the 'reactor water level' (the depth of water above 'top of active fuel' [TAF]) and the changes in 'containment vessel pressure' (Note 1) in Unit 1 following the earthquake. Using this figure, I will describe below the outline of the 'LOCA sequence' that I presume occurred in 1F 1.

Note 1: TEPCO released only the 'absolute pressure' data, which includes the atmospheric pressure component, for the containment vessel (drywell and [pressure] suppression chamber) pressure, but since the problem from the viewpoint of structural strength is the 'gauge pressure,' given by subtracting the atmospheric pressure component from the absolute pressure, this figure uses gauge pressure.

Before the earthquake struck, the reactor water level was 5 m above TAF, but some reactor piping (pipes entering or exiting the reactor, such as the main steam pipe, main feed-water pipe, recirculation piping, ECCS-related piping, and so on) was damaged due to seismic motion, and as coolant began to leak from the damaged piping, by 6 hours and 44 minutes after the earthquake struck, i.e. at 21:30 on 11 March, the reactor water level had descended to a level only 45 cm above TAF (**Fig. 1, [1]**).

The pressure in the containment vessel during normal operation is almost the same as atmospheric pressure (although the gas inside it is not air; nitrogen is enclosed inside it to prevent hydrogen explosions). Immediately following the earthquake, however, large amounts of coolant at 7 MPa (roughly 70 atmospheres [atm]) began to gush out of the damaged piping, the pressure and temperature inside the containment vessel began to rise gradually, and 11 hours and 44 minutes after the earthquake, i.e. at 02:30 on 12 March the containment vessel pressure rose to 0.74 MPa (about 7.4 atm), greatly exceeding the design pressure (approximately 0.4 MPa, about 4 atm) (**Fig. 1, [2]**).

Meanwhile, from data released by TEPCO, by almost the same time, 02:45 on 12 March, it is clear that the reactor pressure had declined to 0.8MPa (about 8 atm). Thus, since at about this time the pressure inside the reactor and inside the containment vessel were roughly equal, the leaking of coolant from the damaged piping had slowed, and for several hours after that the reactor water level was almost unchanged (**Fig. 1, [3]**)

Nevertheless, since the pressure in the containment vessel had greatly exceeded the design pressure, steam was beginning to leak from the bolted joint (flange) of the 'upper lid' at the top of the containment vessel, causing the pressure inside the containment vessel to gradually subside (**Fig. 1, [4]**).

Because of this, the pressure balance between the reactor pressure and the containment vessel pressure collapsed, coolant once again began to gush from the damaged piping, and the reactor water level plunged (**Fig. 1, [5]**). The result of

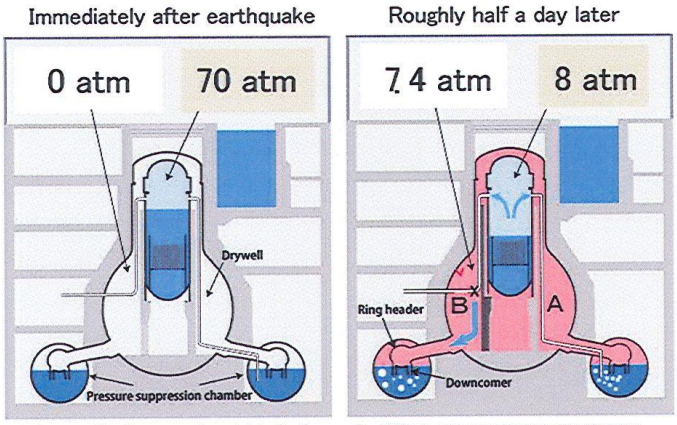



Figure 2. The 'abnormal' rise in containment vessel pressure

this was that the nuclear fuel rods were exposed far above the surface of the water, finally leading to the melting of the vast majority of them. Large amounts of hydrogen being produced by a 'zirconium-steam reaction' within the reactor then gushed out into the containment vessel along with the steam from the damaged piping, and following that, hydrogen, being light, migrated to the top of the containment vessel and finally leaked out into the operation floor through the upper lid flange.

Thus, at 15:36 on 12 March, a hydrogen explosion occurred on the operation floor.

**The most puzzling aspect of the accident – Why did the containment vessel pressure exceed the design pressure?**

The most puzzling aspect of the 1F 1 accident sequence data is why the containment vessel pressure rose very rapidly from 0 MPa to 0.74 MPa (about 7.4 atm), far above the approximately 0.4 MPa (about 4 atm) design pressure (**Fig. 2**). I think it is not too much to say that this is the greatest puzzle of the 1F 1 accident. The reason is that the containment vessel design pressure is set to the theoretically presumed greatest overpressure created when the reactor piping with the greatest diameter (in actuality the recirculation outlet pipe) undergoes an instantaneous guillotine break, and then a little more for safety.

I do not believe that a large diameter pipe such as a recirculation outlet pipe experienced a guillotine break at the time of the 11 March earthquake. If such a massive LOCA had taken place, the reactor water level would have dropped precipitously, as if the plug had been pulled out of the bath, but no such phenomenon took place. The LOCA that I assume occurred was, at least at first, a quite unpretentious one. I think it was a relatively small or medium LOCA of this nature: First, a relatively small crack appeared in some reactor pipe, from which coolant began to blow out, and as this crack grew gradually larger, increasing amounts of coolant began to gush out. However, if this is so, then all the more reason to be puzzled about why, in just half a day after the earthquake struck, the containment vessel pressure rose 'abnormally' and exceeded the design pressure.

**Unresolved safety issue of the Mark-I containment vessel**

Already by the early 1970s, General Electric (GE, a US company) engineers were whistle-blowing the so-called Mark-I containment, used in 1F 1-5 as a 'defective' containment vessel. This was frequently reported in all Japanese media for some time immediately after the Fukushima Daiichi nuclear power plant accident. The issue raised by GE engineers was later named the 'Unresolved Safety Issue' by the United States Nuclear Regulatory Commission (NRC), and in 1980 the NRC published technical guidelines for the issue. What was this unresolved safety issue?

Kindly refer once again to **Figure 2**. When a pipe breaks and an LOCA occurs, large amounts of steam blow out into the drywell from the crack (marked as B in **Fig. 2**) and head furiously toward the (pressure) suppression chamber. The steam entering the suppression chamber is at first guided to a doughnut-shaped pipe called a 'ring header,' and is then introduced into the water in the suppression chamber through a large number of pipes known as downcomers. When this happens, the volume of the steam is reduced as it condenses

into water, and thus the pressure is relieved ('suppressed').

However, in fact, 'before' the steam passes through the downcomers and enters the water, the nitrogen gas filling the containment vessel is firstly pushed violently down through the downcomers and into the water. Since nitrogen gas does not dissolve in water, the instant it exits the downcomers the nitrogen gas greatly expands in the water (called 'swelling'). This causes the large mass of water in the suppression chamber to shake violently, both vertically and horizontally. This can result in the ends of the downcomers to come above the water level, failing to introduce the steam into the water correctly. The steam is then ejected into the space at the top of the suppression chamber. The water does not therefore lose volume through condensation and the containment vessel pressure is not relieved (loss of function of the pressure suppression mechanism).

Or perhaps, because of the violent shaking of the water, the downcomers and the ring header were damaged, again possibly resulting in a total loss of function of the pressure suppression mechanism. This issue of the structural strength of the suppression chamber and loss of suppression mechanism brought about by the 'hydrodynamic loads' is the NRC's 'unresolved safety issue.'

In the case of the 1F accident, the problem was extremely severe, since the extra load of the seismic motion was added to the hydrodynamic loads. The large mass of water in the suppression chamber (1750 tons of water in the case of 1F 1) must have been 'sloshing' violently during the main earthquake and the aftershocks, and thus the suppression chamber mechanism may not have been functioning correctly or the downcomers and ring header may have been damaged.

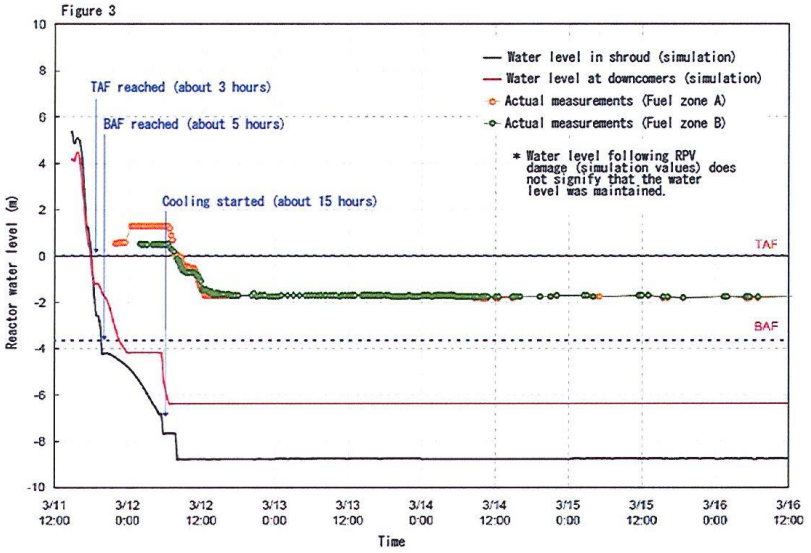
**The 'simulation analysis' deception technique**

It seems to me that an LOCA occurred due to pipe damage; large amounts of steam blew out into the containment vessel (drywell) heading toward the suppression chamber, but due to the hydrodynamic loads and the 'sloshing' at the time of the earthquake, the structures were damaged and the pressure suppression mechanism was lost. As a result, steam volume was not reduced through condensation, and thus the pressure in the containment vessel rose to 0.74 MPa (about 7.4 atm), and this is the answer to the 'greatest puzzle of the 1F 1 accident.'

Meanwhile, on Sunday, 15 May, TEPCO held an emergency press conference to explain that, as a result of a 'simulation analysis,' 1F 1 had experienced a 'meltdown' (by this term TEPCO apparently meant that molten fuel rods had fallen to the bottom of the reactor) at quite an early stage.

TEPCO did not really need to explain this as it had already become quite obvious to many people that a meltdown had occurred, but perhaps because this was the moment when TEPCO at last 'formally' recognized the fact, this meltdown press conference is still accepted

Figure 3



by the general public in a positive and favorable light. In fact, it was clearly a TEPCO 'trap,' and most people walked straight into it. In a simulation analysis, you can get any result you want simply by altering the conditions of the analysis (i.e. the input data). However, most people were so surprised by TEPCO's admission of the so-called 'high-speed meltdown' that almost no one thought to ask about the simulation analysis conditions.

Once again, the greatest puzzle of the 1F 1 accident sequence was why the containment vessel pressure rose to 0.74 MPa (about 7.4 atm). TEPCO must naturally have thought at first that it was an LOCA. They probably wondered about what sorts of things could happen to cause the containment vessel pressure to rise to 0.74 MPa. The Mark-I containment vessel's 'unresolved safety issue' must have passed through the analyst's mind. Certainly, the 'sloshing' problem at the time of the earthquake must also have passed through his mind. However, TEPCO would not wish to take up these matters in the simulation analysis, because that would then make an issue out of 'earthquakes.' If this were to be presented in a simulation, the ten Mark-I containment vessels still being used in Japan (excluding those used in 1F 1-5) would immediately become a 'big problem.'

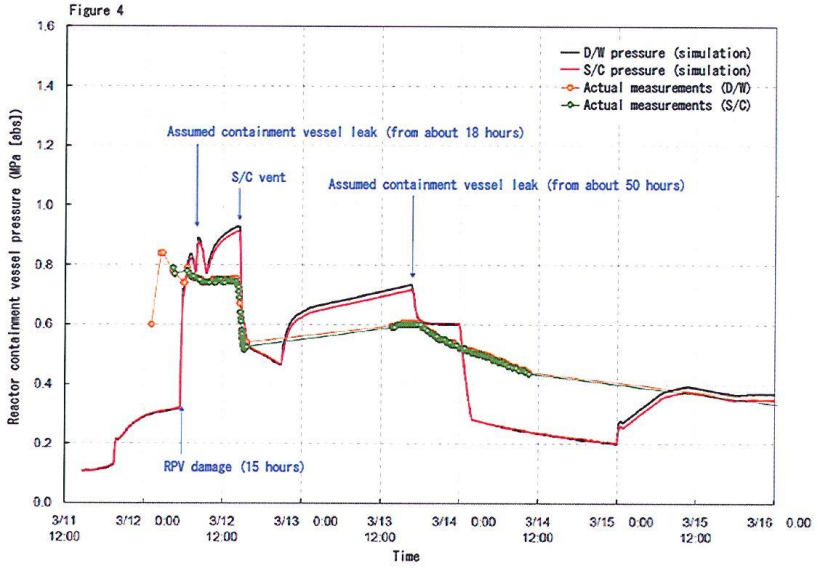
The TEPCO simulation analysis considered no impact from the earthquake. So how did TEPCO manage to arrange for the simulation to achieve the 'abnormal' containment vessel pressure rise? **Figures 3 and 4** give the answer. Looking at **Figure 3**, the reactor water level drops precipitously (because the input conditions are set for it to do that, but I will not go into the details here). In this case the fuel rods very quickly melt down. In fact, looking at **Figure 4**, you can see that it says 'RPV (reactor pressure vessel) damage' at about 15 hours after the earthquake struck. That is, a meltdown occurred and a hole opened up 'somewhere' in the RPV.

As a result, as the meltdown proceeded in the RPV, the high temperature, high pressure gas blasted violently out through that hole into the containment vessel. Thus the containment vessel pressure rose rapidly (**Fig. 4**). This is TEPCO's 'simulation analysis' deception technique.

This is nothing but a 'voodoo simulation' in which the earthquake issue is cleverly ignored using the smokescreen of the high-speed meltdown. The undeniable gap between the actual measured values for the reactor water level and the result of the simulation is the very piece of evidence that is needed to see through this disgraceful deception.

Mitsuhiko Tanaka (Science writer; ex-RPV designer)

Figure 4



# Lax radiation dose calculations continue at Fukushima Nuclear Power Station:

## CNIC and other groups hold joint negotiations with government on plant worker exposure

At Fukushima Daiichi Nuclear Power Station, workers are being forced to undertake dangerous work while being exposed to high levels of radiation. The plant operator Tokyo Electric Power Co. (TEPCO) continues to be lax with radiation dose calculations, and the mass media are reporting almost daily cases of plant workers exposed to extremely high levels of radiation.

On June 20, TEPCO announced that a total of nine plant workers are known to have been exposed to radiation higher than the legal limit of 250 mSv. (See **Table 1**)

On March 15, four days after the accident at Fukushima Daiichi, the Ministry of Health, Labor and Welfare (MHLW) revised its ministerial ordinance and raised the maximum exposure limit for workers engaged in emergency operations at the plant from 100 mSv to 250 mSv.

On April 28, the ministry issued an administrative notification 0428-1 entitled 'Guidance concerning exposure rates for workers engaged in emergency work when they carry out non-emergency work following the emergency work' to the heads of all regional labor departments. In this notice, the ministry said it will not issue a guidance to the worker even if he exceeds the annual radiation exposure limit of 50 mSv, but will direct him not to exceed the "100 mSv in five years" limit. This is taken as an easing of ministerial action against worker radiation exposure.

On May 2, the Citizens' Nuclear Information Center (CNIC) submitted to the government a request that the government protect the health and safety of both the workers exposed to radiation at Fukushima Daiichi nuclear power plant and local residents, and compensate for damage to their health. CNIC submitted this request jointly with six other groups tackling the problems facing the plant workers.

**Table 1:** Evaluated external and internal exposure levels of emergency workers who started work at Fukushima Daiichi Nuclear Power Plant up to the end of March (Preliminary values)

| Level | TEPCO | Subcontractor | Total |
|---|---|---|---|
| 250mSv～ | 9 | 0 | 9 |
| 200～250mSv | 4 | 4 | 8 |
| 150～200mSv | 20 | 6 | 26 |
| 100～150mSv | 59 | 22 | 81 |
| 50～100mSv | 179 | 109 | 288 |
| 20～50mSv | 271 | 352 | 623 |
| 10～20mSv | 232 | 523 | 755 |
| ～10mSv | 650 | 1074 | 1724 |
| Total | 1424 | 2090 | 3514 |

(Based on TEPCO report of June 20)

On May 16 and June 17, CNIC negotiated with the government jointly with the Japan Occupational Safety and Health Resource Center (JOSHRC) and Campaign Against Radiation Exposure (CARE).

On June 21, CNIC and the six other groups that submitted the request on May 2 engaged in negotiations with the government and held a meeting between the citizens concerned and lawmakers in the Diet building. The citizens participating in the meeting included Koshiro Ishimaru and Tatsuhiko Sato representing the citizens' league in Futaba Town, Fukushima Prefecture, opposing the Fukushima Nuclear Power Station, and Takumi Aizawa from Iitate Village, Fukushima Prefecture.

In the May 16 negotiations, it was revealed that no officials from the Labor Standard Inspection Office (LSIO) have been dispatched to the Fukushima Daiichi Nuclear Power Station since the outbreak of the crisis at the plant in March, except when cabinet ministers visited the plant. According to the ministry, the officials summoned the plant operator to the ministry office whenever necessary in order to avoid exposure to radiation.

At the plant, however, many workers are being forced to work without receiving any of the necessary radiation-related education in advance, and are eating and smoking in the highly contaminated environment. This clearly indicates that there is a need for LSIO officials to visit the plant and inspect the working conditions there. On May 27, LSIO officials finally went to the plant to carry out the inspection.

On March 24, three workers from a TEPCO subcontractor company were exposed to radiation as high as 180 mSv. Why did LSIO not go to the plant and conduct an on-the-spot inspection at that time?

It was later revealed that a female worker was also exposed to a level of radiation in excess of the official limit of a total of 5 mSv over three months, which is stipulated in the Labor Safety and Sanitation Law. We were stunned by the ministry's excessively slow response.

On June 7, the ministry reportedly conducted an on-the-spot inspection to check the working conditions at the plant before determining whether there were problems with TEPCO's and its partner company Kandenko's handling of radiation dose management. As a result, on June 10 the ministry ordered TEPCO to correct practices regarding its failure to prevent the plant workers from being exposed to excessive amounts of radiation in violation of the Labor Safety and Sanitation Law.

In the negotiations on June 17, the Ministry

of Economy, Trade and Industry explained why it decided to lift the 50 mSv annual radiation exposure limit on the workers participating in emergency operations at Fukushima nuclear power plant and who intend to go on working at other nuclear power plants. According to the Ministry, TEPCO had demanded the elimination of the limit because it had estimated that the total number of workers who would probably exceed the 50 mSv limit and become unable to work at other plants at around 1600, which would mean that other nuclear power plants may face labor shortages.

Furthermore, it has been revealed that thousands of workers are currently working under very severe conditions in the radiation-controlled areas, but that only one medical doctor is stationed there. Immediately after the accident, there were occasions when no doctor was present. However, since May 14, when a worker died of a cardiac infarction while delivering drainage machinery and materials, a doctor has been stationed in the plant twenty-four hours a day. It is obvious that only one doctor is insufficient for this large number of workers. With the searing summer heat coming on, proper measures need to be taken promptly.

CNIC and other groups have demanded that the government provide them with a list of TEPCO subcontractor companies to which the workers belong. The government, however, stated that it does not know which workers belong to which company. Although MHLW ordered TEPCO to conduct, before the end of June, whole body counter examinations on about 3,700 workers who took part in emergency operations in March, TEPCO is still unable to identify around 30 of the workers.

On June 27, the head of the Industrial Safety and Health Department of MHLW's Labour Standards Bureau summoned medical experts to the ministry to hold discussions on long-term health management of the workers at the Fukushima Daiichi nuclear power plant.

This was the first meeting of its kind and the main objective of the meeting was to discuss how to provide long-term health management, including post-retirement management, for the workers engaged in emergency operations. There are concerns that in the future the workers may have health problems resulting from their exposure to radiation, and the participants of the meeting discussed various issues, such as the types of data that should be included in the database.

In view of this situation, it is necessary for the public to closely monitor the plant workers' exposure to radiation.

Mikiko Watanabe (CNIC)

*A list of the requests for protecting the health and safety of nuclear power plant workers and local residents, and for compensating for damage to their health, which was included in CNIC's written request submitted to the government on May 2. This list was presented during the negotiations with the government and in the meeting held between the citizens and lawmakers concerned in the Diet on June 21.*

*1) Promptly repeal the 250 mSv radiation exposure limit for the plant workers engaged in emergency operations,*

*2) Guarantee non-radiation-related jobs for TEPCO's sub-contractors and affiliated companies' workers who were exposed to radiation exceeding the maximum permissible exposure level in ordinary conditions while engaged in emergency operations. Such jobs should be offered not only to the plant workers who are exposed to a total of 100 mSv or higher in five years, but also to those who absorb a total of 50 mSv or higher in one year,*

*3) Determine the total number of plant workers engaged in emergency operations not carrying a dosimeter, and accurately evaluate their external and internal exposure levels, record their readings in the radiation dosage management notebook, and notify them of the results immediately. In addition, strictly manage the radiation dose calculations of not only the plant workers exposed to radiation, but also all other workers as well,*

*4) Provide all nuclear power plant workers with health-record books immediately, and manage the condition of their health appropriately. Moreover, provide various types of health management for those who have worked in Fukushima Daiichi plant, including mental care,*

*5) Improve the existing extremely poor working environment for the workers dealing with the problems arising from the accident at the nuclear power plant,*

*6) Repeal the maximum allowable radiation exposure level for children at 20 mSv/year (3.8 μSv/hour outdoors) stipulated in the "Provisional concept for determining the usability of school buildings and playgrounds in Fukushima Prefecture," and radically lower the limit in consideration of the maximum allowable exposure level for the public. The central government should carry out the removal (or purification) of contaminated topsoil from Fukushima school grounds and take responsibility for this work,*

*7) The government should provide the victims of the accident at the Fukushima Nuclear Power Station with a health-record book and take responsibility for management of their health. It should compensate victims for health damage caused by the accident.*

*Futaba Anti-Nuclear Energy Alliance, Japan Congress Against A- and H-Bombs, Ibaraki Anti-Nuclear Collective, No Nukes Hiroshima, Citizens' Nuclear Information Center, Campaign Against Radiation Exposure (CARE)*

# Reassessment of the geological condition of the ground beneath Kashiwazaki-Kariwa Nuclear Power Plant.

## Niigata Prefecture should hold an earthquake and ground condition subcommittee meeting as soon as possible.

Although more than 100 days have passed since the accident, nobody knows when and how the problems of the Fukushima Daiichi Nuclear Power Plant (NPP) will be resolved. However, we now see the effects of what the government calls the peaceful use of atomic energy - the continuing trial and error in the work to remove radioactive materials from heavily contaminated water; the danger of further releases of tons of radioactive materials; the difficulties of cooling down the nuclear fuel which has already gone into a state of meltdown; the nuclear reactors, the reactor containments and the reactor buildings in a seriously damaged state; the workers at the plants being exposed to high levels of radiation; children being exposed to radiation on a day-to-day basis; the people of Fukushima distraught as they have little option but to roam from town to town; and many tons of radioactive debris at the accident site.

When the Niigata Chuetsu-Oki Earthquake struck in July 2007, all seven nuclear reactors at the Kashiwazaki-Kariwa NPP shut down. As Niigata Prefecture's technical committee on the safety control of nuclear power plants endorsed the restart of the nuclear plants, four reactors are now operating. However, the four reactors are not safe to run even though they have been restarted, with pro-nuclear people supporting the restart of the reactors and anti-nuclear power people opposing the restart. The people of Niigata Prefecture, for their safety and assurance, wanted the committee to reconsider, pointing out a number of matters the committee had not sufficiently discussed. However, the chairman of the technical committee and each chairman of the other two subcommittees which discuss technical matters repeated only the engineering points of view without due consideration for safety issues, and thus the reactors were restarted. We should not allow the members of these committees to get away with the excuse that the disaster at Fukushima Daiichi NPP was "unforeseeable."

**Seismic activity possible in the Madogasaka Fault and the fault immediately beneath the Kashiwazaki-Kariwa NPP**

The Great East Japan Earthquake on March 11th was a magnitude 9.0 earthquake, which lead to large crustal disturbances. It is likely that these have altered the stress fields over a wide area of the Japanese archipelago.

The next morning, March 12th, an M6.7 earthquake occurred in the area between Niigata and Nagano Prefectures. The ground under the Iiyama Line, running along the Shinano River collapsed, leaving the railroad track hanging in the air. Heavy damage occurred in Sakae Village, Nagano Prefecture, and in Tsunan Machi and Tokamachi City, Niigata Prefecture. Furthermore, on April 11th, an M7.0 earthquake occurred in Iwaki City, Fukushima Prefecture. A new earthquake fault has shown up on the surface of the ground along the Yunotake and Idotani faults in Iwaki City. From government back-checks concerning earthquakes for the Fukushima NPPs, the government had judged that the Yunotake fault was not active.

The Nuclear and Industrial Safety Agency (NISA) therefore sent an official notice to all electric power companies asking them to report two matters to NISA by May 31st: 1. Reassess the faults, fault geometries, and lineaments which should be considered for seismic design; 2. If there is a fault which will affect the ground under nuclear plants, reassess the potential seismic movements.

Tokyo Electric Power Company (TEPCO) reported to NISA that they had summarized the information about other faults which they did not consider when the nuclear plants were built based on former investigations. They also reported that they would gather data concerning the impacts of the Great East Japan Earthquake and the relationship between earthquakes and faults, which they would reflect in future assessments.

This official NISA notice revealed that nationwide a total of 432 faults were ignored in assessments. NISA issued an additional official notice on June 3rd, to which reports must be submitted by August 31st.

On May 31st, TEPCO reported three faults which were not considered when Kashiwazaki-Kariwa NPP was designed: 1. Hosogoe fault (7 km in length); 2. Madogasaka syncline (11.5km in length); and 3. a fault inside the Kashiwazaki-Kariwa NPP. This fault inside the NPP includes many sub-faults such as alpha-faults, beta-faults, F-faults, and V-faults. If these faults move, reactor buildings or turbine buildings may begin to tilt. The Madogasaka syncline is a fault that runs into the power station from the northwest. If this fault moves, it will probably cause a serious earthquake in which the ground will move. While the local anti-nuclear movement has repeatedly asserted this concern since August 1974, it has been disregarded by the Japanese government

and by TEPCO and scholars who support nuclear power in the Niigata Prefecture's subcommittee on earthquakes and the geological condition of the ground.

**Discussion in the Japanese Parliament**

If the fault inside the Kashiwazaki-Kariwa NPP or the Madogasaka syncline were active, this would have prevented the Kashiwazaki-Kariwa NPP from being built. The government and TEPCO have therefore repeatedly asserted that these faults will not move as they are old faults.

On November 22nd, 1991, the following discussion was held at the Senate's Science and Technology Special Committee.

*Q: If the fault directly under the Kashiwazaki-Kariwa NPP reactor core moves, is the Kashiwazaki-Kariwa nuclear power plant safe? Or is it safe because the fault does not move?*

*A: Because we recognize that the fault does not move, the plant is safe.*

*Q: What are the grounds for asserting that the fault does not move?*

*A: The fault passes through the Nishiyama fault and the lower part of the Yasuda fault, but does not go through the upper part of the Nishiyama fault and the Banjin sand stratum. Based on guidelines for seismic design that the fault should not have moved for over 50,000 years, we concluded that the fault will not move in the future.*

On September 2006, the Regulatory Guide for Aseismic Design of Nuclear Power Reactors was revised. The basis for judging an active fault was changed from 50,000 years to 130,000 years in the past; the Late Pleistocene. After the Niigata Chuetsu-Oki earthquake in July 2007, anti-nuclear power representatives asked NISA the following.

*Q: The standard was changed from 50,000 years to 130,000 years in the past. The existence of the fault inside the Kashiwazaki-Kariwa NPP indicates that the plant is in an inappropriate location for a nuclear power plant, doesn't it?*

*A: The upper Yasuda layer was accumulated after the Late Pleistocene (130,000 years ago). Since the fault does not pass through the Yasuda layer the guideline for plant location has not been contravened.*

However, on April 11th 2011, the fault which does not pass through the layer accumulated in the Late Pleistocene moved, suggesting that the standard is clearly deficient. Therefore, although the May 31st TEPCO report disregarded the three faults discussed above for Kashiwazaki-Kariwa NPP, it is possible that the fault inside the Kashiwazaki-Kariwa NPP will cause the most serious damage to the power plant.

Niigata Prefecture's technical committee on nuclear power plant safety held a second meeting on June 21st. Several members pointed out that the government has absolutely no grounds for guaranteeing that other nuclear power plants besides Hamaoka NPP are safe. Some of the members who had formerly agreed with the government also spoke up.

We are seriously concerned for the future of Kashiwazaki-Kariwa NPP, and so since the Fukushima disaster we shall be paying close attention to the discussion in Niigata Prefecture in order to ensure that the details are correctly handled without any further deception.

Kazuyuki Takemoto (Kashiwazaki Alliance Against Nuclear Energy), Yukio Yamaguchi (CNIC Co-Director)

## *Come and join in the "Goodbye to Nuclear Power Plants" Rally!*

We will hold the "Goodbye to Nuclear Power Plants" Rally as follows. Please participate with your family and friends.

***Date: September 19th, 2011, Starting at 13:00***

***Place: Meiji Park, Tokyo***

(5 mins walk from JR Sendagaya station, 2 mins walk from the metro Oedo Line 'Kokuritsu Kyogijo' station (Exit E25)

Expected number of participants: 50,000 (There will also be a parade after the rally.)

**10 Million People's Action to say Goodbye to Nuclear Power Plants**

The executive Committee declares 17th to 19th September as "Fukushima Day" (provisional title), and calls for actions nationally and internationally.

Please share information about your own actions. (Submission form to be prepared)

***More information;*** http://sayonara-nukes.org/english/

Anti-Nuke Who's Who

# Atsuko Ogasawara

**Owner of Asako House, built in the center of the planned Ohma Nuclear Power Plant premises**

by Mayumi Nishioka*

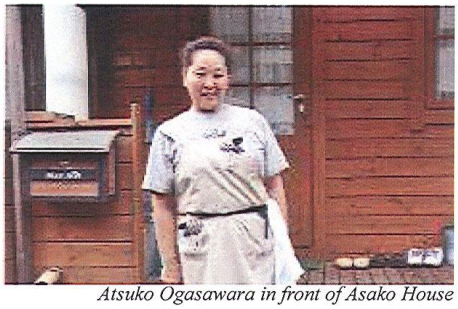
A major earthquake hit eastern Japan on March 11, 2011. The Fukushima Daiichi NPP was critically damaged and has been emitting large amounts of radionuclides since that time. This earthquake-vulnerable country has nuclear power plants nationwide. A small but increasing number of municipalities are adopting antinuclear policies. Regarding the Ohma NPP project, however, politicians and local municipalities are clear about having no plan to give it up.

The town of Ohma, where the nuclear power plant is under construction, is situated at the northernmost tip of Honshu, the largest Japanese island. There are two large plots of land, about one hectare in total, in the middle of the planned NPP premises. Their former owner was the late Asako Kumagai, who opposed the NPP project and did not agree to sell the land to the Electric Power Development Company (J-Power), the would-be operator of the plant. Because of the disagreement with Ms. Kumagai, the company reviewed the construction plan and moved the reactor core position, which was originally very close to her land, about 200 meters. (The reactor core will still be only 300 meters away from the land, if completed.)

Atsuko Ogasawara is Asako Kumagai's daughter. The mother and daughter together built a log house on one of the plots to show their resistance, but Asako passed away in 2006, before moving into the house. Atsuko Ogasawara has been guarding Asako House ever since.

Ms. Ogasawara, whose home is located in Hakodate, the city facing Ohma across the Tsugaru Strait, visits Asako House several times a week to take care of the house and the vegetables she raises there. The antinuclear action she is most committed to is to request people to write to her at Asako House. She always carries prepaid postcards on which the address of Asako House is printed. The one-kilometer pathway J-Power prepared to allow access to Asako House is unpaved and fenced in on both sides. If someone writes to her, a mail carrier must visit the house, treading the pathway. This whole routine implicitly tells the company, and the neighborhood that cannot see the house from the outside, that Asako House is there, and has not been abandoned.

When I visited Asako House in 2008 for the first time, soon after the Ministry of Economy, Trade and Industry granted a reactor construction license to J-Power, the movement against the Ohma project was rather small. Subsequently, however, geomorphologists have reported that it is highly possible that there are active faults in the areas near the planned NPP site, and in 2010 a group of Hakodate residents filed a lawsuit against the Japanese government and J-Power to suspend construction. Ogasawara joined the group and delivered a speech during the first oral proceedings.



*Atsuko Ogasawara in front of Asako House*

While having a bright and cheerful character, Ogasawara is often filled with emotion and moved to tears when talking in public. I believe that at such a time she strongly wishes she could show the audience to her late mother. When the Ohma NPP project was announced, many local landowners were against it and refused to sell their land at first. However, one after another, they gave up and finally Asako became the only landowner to own major plots of land in the very center of the premises. In the town, where a great majority of the population was in favor of the project, Asako faced a very lonely struggle.

In late May 2011, a rock festival was held on Atsuko's plots, surrounded by cranes and plant facilities under construction, including the bizarre containment vessel. The festival attracted many supporters and music lovers, and was covered by multiple media outlets. Atsuko, who took over her mother's lone struggle, is no longer alone.

*If you wish to send a postcard to Atsuko, please address it to:*
*Ms. Atsuko Ogasawara, c/o Asako House, 396 Aza Ko-okoppe, Oh-aza Ohma, Ohma Machi, Shimokita Gun, Aomori Prefecture, JAPAN 039-4601*

*Mayumi Nishioka is founder of the Ohma Message Flag Project

# NEWS WATCH

### Lithuania receives bids from Westinghouse and Hitachi-GE Nuclear Energy for NPP project

Lithuania plans to build a nuclear power reactor in Visaginas City, Utena Region, located in the northeastern part of the nation, and is aiming to start operation between 2018 and 2020. Toshiba-affiliated Westinghouse and Hitachi-GE Nuclear Energy have submitted bids for this project. Westinghouse proposed a 1,100 MW AP1000 pressurized water reactor, while Hitachi-GE have proposed an advanced boiling water reactor of the 1,350 MW class. A Korean company had obtained priority negotiation rights for this project in 2010, but withdrew before the end of the year due to disagreements in funding conditions, according to sources.

### Obama City's municipal assembly adopts antinuclear statement

The municipal assembly of Obama City in Fukui Prefecture, Japan, which neighbors Ohi Town, where Kansai Electric Power Company has four pressurized water reactors (Units 1 and 2, 1,175 MW each, and Units 3 and 4, 1,180 MW each), unanimously adopted a statement on June 9, 2011 proposing withdrawal from nuclear power generation.

### Yamaguchi Prefecture's governor mentions possible suspension of Kaminoseki NPP project

Sekinari Nii, the governor of Yamaguchi Prefecture, mentioned in the prefectural assembly on June 27, 2011 that, in consideration of current circumstances, he would not renew the land reclamation license for the construction of the proposed Kaminoseki Nuclear Power Plant (two ABWRs, 1,373 MW each). The Kaminoseki NPP project, a long-standing issue in Yamaguchi, is scheduled to build the reactors on sea-reclaimed land. The prefecture granted the reclamation license to Chugoku Electric Power Company (CEPCO), the would-be operator of the plant, in October 2008. The license will expire in October 2012. Following the Fukushima Daiichi disaster, the prefecture requested CEPCO to exercise prudence in proceeding with the project. Construction work was actually suspended before that time and it will now be effectively impossible for the operator to complete the reclamation before the expiry. If the governor does not renew the license, the construction will no longer be possible.

### Electric power companies hold shareholder meetings

On June 28 and 29, 2011, Japan's ten electric power companies that are operating (or constructing) nuclear power plants, held their annual shareholder meetings. On the 28th, four power companies, Tokyo, Chubu, Hokuriku and Kyushu, as well as Electric Power Development (J-Power), held shareholder meetings, and on the 29th, meetings were held by five companies, Hokkaido, Tohoku, Kansai, Chugoku, and Shikoku. Proposals for withdrawal from nuclear power generation were submitted by shareholders at six of these meetings, but were voted down because major shareholders such as banks and life insurance companies voted against the motions (five to eight percent of shareholders were in favor). Compared with past shareholder meetings, however, more shareholders were in favor of the anti-nuclear proposals, and at Tokyo Electric Power Company's meeting, shareholding Minami-Soma City and Shirakawa City, both in Fukushima Prefecture, supported the anti-nuclear proposals for the first time. Japan Proxy Governance Institute, an institutional investor advisory organization, advised its clients to vote in favor of the proposals, which was also a first instance. Kunio Hiramatsu, Mayor of Osaka City, the company's biggest shareholder, participated in Kansai Electric Power Company's shareholder meeting. He stated that it was the electric power company's responsibility to shift from dependence on nuclear power generation to more diverse energy resources, and requested that the power company make prompt efforts to develop renewable energy sources.

### Japanese government requests restart of Genkai NPP reactors

On June 18, Japanese Minister of Economy, Trade and Industry, Banri Kaieda, issued a "safety declaration" for nuclear power generation reactors that are undergoing regular inspections, but the governors of the host prefectures are showing reluctance to give their approval for reactor restarts. Under these circumstances, the government is engineering a bald campaign to restart the operation of Kyushu Electric Power Company's Genkai NPP Unit 2 (PWR, 559 MW) and Unit 3 (PWR, 1,180 MW) reactors, to set a precedent to be followed by other suspended reactors. On June 9, the Nuclear and Industrial Safety Agency (NISA) and the Agency for Natural Resources and Energy (ANRE) explained to Saga governor

Yasushi Furukawa and prefectural assembly members that restarting the Genkai reactors would pose no safety concerns. The assembly of Genkai Town unanimously adopted a statement requesting an early reactor restart on the 17th, and Hideo Kishimoto, Mayor of Genkai Town, expressed his acceptance of the restart. However, the Saga governor had not yet expressed approval. On the 26th, the NISA and ANRE held a local explanatory meeting in Saga City, in which seven "citizen representatives" were selected to participate by an advertising agency. The meeting was broadcast via cable television networks and the Internet. However, even the "citizen representatives" were not persuaded by the claims of safety. On June 29, METI minister Banri Kaieda visited the Mayor of Genkai Town, the Governor of Saga Prefecture, and the Mayor of Karatsu City, which neighbors Genkai Town. On July 4, the Genkai Town mayor met with Toshio Manabe, president of the Kyushu Electric Power Company, and officially delivered the Town's agreement to restart the reactors. At the time, the Saga governor was intending to approve the restart after extracting a promise from Prime Minister Naoto Kan that the reactors would be "safe." However, it became apparent on July 6 that the management board of the Kyushu Electric Power Company had instructed both its own employees and those of its affiliates to send messages to the cable TV station that broadcast the above-mentioned explanatory meeting in which "citizen representatives" participated (some of the messages would be read out during the meeting). On the same day, the Minister of Economy, Trade and Industry announced that all reactors would be obliged to undergo a new safety test (stress test). The Genkai Town mayor, who became upset about this sudden news from Tokyo, withdrew the Town's agreement to restart the reactors. The Saga governor then indicated that the restart would be unlikely to occur before the completion of the test.

## *10 Million Signature Campaign to say Goodbye to Nuclear Power Plants*

***Petition for the Realization of Denuclearization and a Society Focused on Natural Energy***

***Demands***

1. *We demand the cancellation of construction plans for new nuclear power plants and the planned termination of existing nuclear power plants, including the Hamaoka power plant.*
2. *We demand that the fast-breeder reactor "Monju" and the nuclear reprocessing plants, which use the most dangerous material on earth, plutonium, not be operated and that they be shut down permanently.*
3. *We demand an immediate shift in energy policy towards energy conservation and placing natural energy in the center.*

***Sponsoring Organization/ Core Promoters***
*Citizens' Committee for the 10 Million People's Petition to say Goodbye to Nuclear Power Plants*

***Core Promotors:***
*Katsuhito Uchihashi, Kenzaburo Oe, Keiko Ochiai, Satoru Kamata, Ryuichi Sakamoto, Hisae Sawachi, Jakucho Setouchi, Takashi Tsujii, Shunsuke Tsurumi*

***Signature format***
http://sayonara-nukes.heteml.jp/nn/wp-content/uploads/2011/07/0620sayonara_genpatu_E2.pdf

***Deadline***
*Initial deadline: 10th September 2011, Second deadline: 20th December 2011, Final deadline: 28th February 2012*

***How to send the petition***
*Please send the original copy (duplicate copies and faxes are not accepted) to the above sponsoring organization*
*c/o Gensuikin, 1F 3-2-11 Kanda Surugadai, Chiyoda-ku, Tokyo 101-0062,JAPAN*

***More information***; http://sayonara-nukes.org/english/

**Nuke Info Tokyo** is a bi-monthly newsletter that aims to provide foreign friends with up-to-date information on the Japanese nuclear industry as well as on the movements against it. It is published in html and pdf versions on CNIC's English web site: http://cnic.jp/english/

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