

# GREEN ACTION

グリーン・アクション

## --Background Briefing-- Why the Sendai Nuclear Power Plant Should Not be Operated

[Revised]

11 August 2015 (1:00pm)

*For immediate release from Sendai nuclear power plant gate, Kagoshima Prefecture.*

Aileen Mioko Smith

Executive Director, Green Action (Japan)

Contact: amsmith@gol.com / +81-90-3620-9251

### **Lack of Consideration of Potential Earthquakes Damage---In Violation of NRA Regulations**

Seismologist and emeritus professor of Kobe University, Member of the Diet *NAIIC* (*National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission*), has stated that the Nuclear Regulation Authority's Review of the Sendai Nuclear Power Plant is "careless and faulty and will invite a second Genpatsu-Shinsai (Earthquake-Nuclear Combined Disaster)".<sup>1</sup>

Ishibashi points out that the NRA's Review violates the legal rules of the New Regulatory Requirements by approving Kyushu Electric's restart application which neglected to fulfill the requirement that, when establishing the Standards Seismic Motion for the plant (how much earthquake motion the plant must be able to withstand), all 3 types of earthquakes (1. inland crustal earthquakes, 2. interplate earthquakes and 3. oceanic intraplate earthquakes) must be considered when evaluating "earthquake ground motion formulated with a hypocenter specified for each site". For the selection of the "Earthquakes for Investigation", Kyushu Electric ignored type 2 and 3 earthquakes, arguing that the largest earthquakes in the past in these two categories had been sufficiently distant from the Sendai Nuclear Power Plant site. The NRA approved Kyushu Electric's application with only the type 1 earthquake considered.

The legal requirement, however, is that not only historic but future potentially significant earthquakes must be considered. Kyushu Electric did not meet this requirement when it ignored the maximum possible Nankai trough earthquake that could occur in the future (magnitude 9). The value of seismic intensity around the Sendai Plant for this type 2 earthquake as evaluated by the Study Team in the Cabinet Office is a level of intensity that would have had to be considered under the Review.<sup>2</sup>

Moreover, according to the graph presented by Kyushu Electric itself, the seismic intensity of

---

<sup>1</sup> Ishibashi, Katsuhiko. Article in *May 2015 edition of "Kagaku" (Science) published by Iwanami Shoten*. "The Nuclear Regulation Authority's Careless and Faulty Review will Invite a Second Genpatsu-Shinsai (Earthquake-Nuclear Combined Disaster)". English translation issued by and available from Dr. Katsuhiko Ishibashi. [ishi@kobe-u.ac.jp](mailto:ishi@kobe-u.ac.jp)

<sup>2</sup> The Study Team in the Cabinet Office estimated the Nankai trough earthquake's seismic intensity to be 5 Lower (5-) around the Sendai Nuclear Power Plant. Kyushu Electric's application stated it would consider all earthquakes 5 Lower (5-) or greater in seismic intensity, thus this earthquake had to be considered.

the 1909 Western Miyazaki Prefecture earthquake (type 3 earthquake) would come to magnitude 5 Upper (5+) at the Sendai Nuclear Power Plant. But, Kyushu Electric did not include this type of earthquake for consideration in its restart application.

Ishibashi notes that, “J-SHIS, the Japan Seismic Hazard Information Station, which is made public by the National Research Institute for Earth Science and Disaster Prevention), shows that both type-2 and type-3 earthquakes could register 5 Upper (5+) or greater seismic intensity around the Sendai Nuclear Power Plant.”<sup>3</sup>

According to Dr. Ishibashi, what is of serious concern is that Shunichi Tanaka, the chair of the NRA appears to not grasp that NRA has violated its own regulations, and the Nuclear Regulatory Agency officials in charge of Safety Management for Earthquakes and Tsunamis have evaded answering media questions on this issue. (NRA chair’s response to media questions about Dr. Ishibashi’s concerns was, “Dr. Ishibashi may have his own views.” The NRA’s response to the public comment process for the Sendai restart Review on this issue was inadequate and did not address these violations even though they were pointed out during the process.

#### **Emergency Evacuation Planning for Accidents is Inadequate or Non-Existent**

Although the NRA states that evacuation plans (public emergency preparedness plans) are not a requirement for restarting reactors, Shunichi Tanaka is on record stating that evacuation and the regulatory requirements for restart are “two wheels on the vehicle.”

Kagoshima’s emergency management measure plans are grossly incomplete and inadequate. All Japanese nuclear emergency management plans including Kagoshima’s do not take into consideration multiple problems, such as a earthquake occurring at the same time, i.e. an earthquake causing a nuclear accident. (For regions with heavy snow in the winter, the climate factor not being taken into consideration is a major issue.)

The protection/evacuation of children, pregnant women, and evacuation of people with special needs are to be given priority, but the actual situation is the reverse with these members of the public receiving less protection than the rest of the public.

For the region surrounding the Sendai nuclear power plant, in spite of the post-Fukushima era, potassium iodide has not been distributed to children 3 years and younger even within the 5km radius of the Sendai nuclear power plant. (After citizen organizations pointed out this problem, a newspaper article ran on August 7<sup>th</sup> in the Minami Nihon Shimbun reporting that the prefecture was not considering distributing potassium iodide to elementary schools and children’s day care facilities.) Currently, children under three are to receive the potassium iodide after they evacuate. (The effectiveness of potassium iodide is reduced with time after radiation exposure.)

On 27 August, when citizen organizations met with Kagoshima Prefecture’s Public Health and Welfare Department, Pharmaceutical Administration Section, the responsible officials thought that all evacuation would take place without any radiation exposure. The officials were unaware that between the 5km and 30km zone, the government standards for radiation measurement to activate evacuation was 500 microsieverts/hour recorded on two consecutive days. Kagoshima plans for beyond 5 kilometers is to have evacuees receive potassium iodide pills at the

---

<sup>3</sup> Ibid.

screening locations or the locations where they have evacuated. It will take many hours to evacuate, so this is too late.

Evacuation within the 5km radius is to take place before radiation is released to the environment. It is questionable that this is feasible since the official worst case scenario has the reactor fuel starting to melt 20 minutes after start of the accident. No evacuation plans have been undertaken around the Sendai plant or any other nuclear power plant using this scenario.

Governor Yuichiro Ito is on record stating that the prefecture will not create plans in advance for evacuation of people with special needs (people in facilities such as those for disabled and senior citizens) in the zone of 10km to 30km radius because “It’s not realistic. It’s impossible anyway to have a plan that will work”. There are 272 such facilities in Kagoshima in the 10km to 30km zone. There will be no plans made in advance. Kagoshima has opted for a “flexible plan that will be implemented according to the situation at hand.”

The national government is on record asking for evacuation plans to be put in place for those in medical and welfare facilities. Nowhere in Japan has this been completed. Some prefectures have matched facilities: which facilities evacuate to which other facilities, but none have effective plans for transporting these people with special needs (people with physical and mental health problems). Kagoshima’s plans are especially poor with only a computer data input system for the 10km to 30km zone and no decision made as to who will be responsible for assessing the situation, deciding where people will be evacuated, and organize the means of transport in the event of an accident. Those with special needs residing at home or in day care are not even included under the data input system. In spite of this the national government agreed that Kagoshima’s emergency management plans were adequate.

Under Kagoshima’s plan, those members of the public without means of transportation are to be evacuated by buses, but this is only for the some 2000 people living within the 5 kilometer zone. There is no plan for those outside this radius except for making plans with neighbors with cars.

The evacuation of those within 5km of the plant is to be undertaken by bus companies with operations within the 30 kilometer zone. However, when Green Action interviewed the bus company union of this region on 24 July<sup>4</sup>, we learned that it would take a minimum of 2 to 3 hours before the buses could arrive at the site to transport the individuals, it is unclear how the people would get to the bus stops, unclear how many buses could be procured in an emergency, and, since bus companies could not force drivers to enter the zone if radiation releases had begun, it is unclear if the buses could be driven by the drivers. The union officials also made clear that bus drivers could not unilaterally decide to expose the bus vehicles to radiation since the vehicles are owned by the bus companies.

The NRA is now deliberating establishment of allowable radiation exposure standards for local/regional civil servants (there is already a standard for national government civil servants), bus and truck drivers, etc., raising permissible exposure from the general public’s permissible exposure of 1mSV/year from manmade sources. It is expected that the standard will be decided by the end of the calendar year.<sup>5</sup> The Kagoshima Bus Association has signed a contract with

---

<sup>4</sup> The interviews took place on 27 August 2015 in Kagoshima city. Bus company officials interviewed were 2 chief officials of the unions in the vicinity of the Sendai nuclear power plant.

<sup>5</sup> The official presiding over the 7-member NRA-appointed committee is Dr. Shunichi Yamashita, board member of Nagasaki University.

Kagoshima Prefecture to cooperate with emergency evacuation in the event of a nuclear accident at the Sendai nuclear power plant. However, the Association is on record stating that this contract would need to be negotiated from scratch if permissible limits for bus drivers are to be increased from the current 1mSv/year.<sup>6</sup>

Much of the evacuation plans of towns and cities within the 30km zone is to evacuation points heading downwind from the Sendai nuclear power plant. The main routes of evacuation is National Road Number 3. Part of the route is in a natural hazard zone prone to flooding. There are 14 areas within the towns and cities of the 30km radius evacuation zone (total population 1,375) that are designated as “isolated hamlets” by government authorities, prone to difficulties in evacuating.

### **No Rights to Approve/Disapprove Restart. No explanation meetings by Kyushu Electric and/or the National Government**

(For more information about this issue, please contact the author.)

The “gentleman’s agreement” for the right to say yes/no to restart has only been granted to the local and prefecture authorities where the nuclear power plant is located. This is also the case nationwide. However, at the same time, it is acknowledged that in the event of a serious nuclear power accident, areas within the UPZ zone (30 kilometers) may be contaminated with radiation, and local authorities in these areas are required to establish emergency evacuation plans.

The city legislatures of Aira, Ichikikushikino, Hioki, and Akune within the Sendai plant UPZ (30 km) zone have all issued statements/petitions seeking that public explanation meetings be undertaken about restart and evacuation issues *before* the plant is restarted. To date, Kyushu Electric has refused to undertake such public meetings and Kagoshima Prefecture will not ask the national government to come to Kagoshima to explain these issues to its citizens. The only meeting being considered is for the national government to come to Kagoshima to explain “the necessity of nuclear power.”

On 24 June 2014, citizens of Ichikikushikino City, located within the 30km evacuation zone of the Sendai nuclear power plant, submitted 15,464 signatures of its citizens (more than half the population of the city) to city officials. The petition opposed restart of the Sendai plant without a viable evacuation plan for its citizens. The petition was later submitted to Kagoshima Prefecture as well. The authorities have not acted on this petition.

### **NRA in Violation of its own Ageing Management Guide**

NRA’s Ageing Reactor Management Implementation Guide states in section 3.2 “Development and Revision of the Long-Term Maintenance Management Policy” that, “The implementation period for the long-term maintenance management policy developed under Commercial Reactor Regulation, Article 82, Section 1, shall commence from the first day after the 30<sup>th</sup> year of start of operation.”

This implementation pertains to ageing nuclear reactors in outage / cold shutdown as well as reactors that are fueled and producing electricity.

---

<sup>6</sup>30 June 2013, Mainichi Newspaper (in Japanese) 「被ばく線量：避難誘導者、上限引き上げ 再稼働に備え検討」 毎日新聞  
<http://mainichi.jp/select/news/20150630k0000m040136000c.html>

The NRA, however, neglected to apply this for the Sendai nuclear power plant Unit 1 which reached its 30<sup>th</sup> year of operation on 3 July 2014.

Instead, the NRA announced on 2 July 2014, without giving a reason why it could bend its own rules, that approval and implementation of the policy would be extended. The gap occurred, among other things, because new post-Fukushima regulatory standards had not been put in place in time to implement a plan under that new regime. It is negligent of the NRA to have allowed a gap in safety requirements between NISA and NRA oversight regimes. During NISA, never had a plant's ageing management policy not been approved before the 30<sup>th</sup> year. In comparison, no plan was in place even after Sendai Unit 1 went into its 32<sup>nd</sup> year.

On 3 July 2015, Kyushu Electric submitted its revised application for its long-term maintenance management policy (which took into consideration the basic seismic motion's upward revision.)

The NRA had first stated that restart approval for the Sendai nuclear power plant and NRA's approval and Kyushu Electric's implementation of Sendai's ageing reactor management policy beyond the 30<sup>th</sup> year were separate issues and the plan did not have to be in place when restart was approved. However, probably due to citizen organizations raising concern about this NRA position and media inquiries about this, on July 13<sup>th</sup> the NRA began examining Kyushu Electric's application in order to approve this policy. The NRA had to examine the plan under the new, revised basic seismic motion of the plant, now raised to 620 gals. This should have been a complicated matter. However, the NRA approved the policy on August 5<sup>th</sup>.

It had become clear by July 13<sup>th</sup> that there were ageing reactor concerns at the Sendai plant. The seismic resistance analysis for the main feed water pipe system showed reduction in the pipe wall thickness (extrapolation of corrosion rates to 40 years) of 0.991 compared to the maximum allowable figure of 1.

On August 4<sup>th</sup> at a Diet office building meeting organized by citizens (including Green Action) with former prime minister Naoto KAN arranging the meeting and attending, Nuclear Regulatory Agency officials stated that they did not have any additional measurement figures concerning this important item, nor did the NRA undertake any extensive physical examination of the plant when it undertook its one on site investigation, nor was it intending to undertake any further on site investigations when deliberating the application. Moreover, when citizens pointed out that the NRA had violated its own "NRA Ageing Reactor Management Implementation Guide" when it allowed Kyushu Electric to go beyond its 30<sup>th</sup> year without implementing the long-term maintenance management policy for the Sendai plant, the Nuclear Regulatory Agency official stated, "the NRA Guide does not have to be adhered to."

Citizens are concerned that there is uncertainty in this estimation and that reduction in the pipe wall thickness could result in pipe rupture in the event of a large earthquake. Citizens demanded that the NRA examine the issue further and establish an outside expert committee to review Kyushu Electric's ageing reactor maintenance policy. As mentioned above, however, the NRA gave its final approval to Kyushu Electric's policy the next day, August 5<sup>th</sup>.

On August 7<sup>th</sup>, 1973 citizens filed an administrative complaint to the NRA, protesting NRA's approval of Kyushu Electric's revised long-term maintenance management policy application. The complain stated that there was no indication that the NRA had, during the review of the application, looked into whether the 0.991 figure noted above was the maximum figure this equipment and others around it had registered, nor whether deviation and uncertainty had been

taken into consideration. The complaint stated the NRA had not increased the number of equipment to be examined, or undertaking a detailed examination of the area where this finding (0.991) had been registered, nor obtain the opinion of outside experts. The complaint lists other items: the fact the implementation delay violated NRA's own standards, and the fact the Ss-2 seismic motion review which had been added on in the revised application had not been undertaken although the NRA had said it would undertake this review.

**Volcanoes: the NRA is Violating its Own Volcano Guide when it Approved Sendai Restart**

Japan is a land of volcanoes. Kagoshima Prefecture is an active volcano area. Kyushu Electric admits that in the past there is a possibility that pyroclastic flow from a caldera eruption reached the location where the Sendai nuclear power plant is now located. Since that is the case, the NRA Volcano Guide stipulates that surveillance of volcanic activity (monitoring) be undertaken and if and when precursor activity of a caldera explosion is observed, that the reactor site be shut down and a plan created to remove all the fuel before such an eruption takes place.

The NRA's Volcano Guide is not as stringent as the IAEA, nor has the NRA even followed its own Volcano Guide. (More details to follow.)