

Main text

1. In relation to the respective Plaintiffs specified in Exhibit “List of Plaintiffs 1,” Defendant shall not operate the Reactors of Units No.3 and No.4 of the Ohi Nuclear Power Plant at 1-1 Aza Yoshimi, 1 Oshima, Ohi-cho, Ohi-gun, Fukui, Japan.
2. We dismiss all the claims of the respective Plaintiffs as specified in Exhibit “List of Plaintiffs 2.”
3. The Plaintiffs shall bear the court costs incurred by the respective Plaintiffs in Section 2 above, and the Defendant shall bear the court costs other than those.

Facts and reasons

I. Claims

The Defendant may not operate the reactors of Units No.3 and No.4 of the Ohi Nuclear Power Plant at 1-1 Aza Yoshimi, 1 Oshima, Ohi-cho, Ohi-gun, Fukui, Japan.

II. Summary of case, etc.

1. Summary of case

This is a case in which the plaintiffs of the first case and the plaintiffs of the second case (collectively the “Plaintiffs”) sought injunctions, selectively based on the personal rights or environmental rights, against the Defendant of the first and second cases (the “Defendant”) to shutdown Units No.3 and No.4 of the Ohi Nuclear Power Plant (the “Ohi Nuclear Power Plant”) (collectively the “Nuclear Power Plant”) that were built by the Defendant at 1-1 Aza Yoshimi, 1 Oshima, Ohi-cho, Ohi-gun, Fukui, Japan.

2. Underlying facts

The facts stated below are those that are without conflict between the parties, or that can be easily found with the benefit of the stated evidence and the entire import of oral arguments.

(1) Parties

a. The addresses of the Plaintiffs are as described in Exhibit “List of Parties,” and the Plaintiffs live throughout Japan from Sapporo, Hokkaido to Okinawa, Okinawa Prefecture. (Entire import of oral arguments)

b. The Defendant is a general electricity utility that supplies electricity to Osaka, Kyoto, Hyogo (excluding certain area), Nara, Shiga, Wakayama, Mie (certain area), Gifu (certain area) and Fukui (certain area) Prefectures.

(Omitted)

IV. Judgement by the Court

1. Introduction

Organizations involved in any business that can cause serious damage to people's lives and bodies, and their foundations of life after a serious accident occurs, deserve to be required to provide safety and a high degree of reliability according to the scale and degree of damage. This not only reflects legitimate societal demands, but also provides guidelines for interpretation that should underpin the present case, considering that the personal rights that have basis on people's lives are deemed to have the highest value in any field of law, whether public or private law.

The interests related to the life, body, emotion and living of any individual are essential to the personality of such individual, and therefore rights in their entirety can be called personal rights. Personal rights are constitutional rights (Articles 13 and 25 of Japanese Constitution), which are based on the lives of individuals; therefore, it is impossible to find in the Japanese legal system any other value that prevails over it. Hence, it is concluded that, when there is any likelihood of the real infringement of the personal rights, *inter alia*, the foundation of such rights with which to protect lives and maintain livelihood, anyone may request an injunction of conducts of infringement of such rights based on the personal rights themselves, without regard to the reasons and grounds of the infringement, presence or absence of infringer's negligence, or the degree of inconvenience that may be associated with such injunction. The personal rights are derived from each individual herself/himself, and it is of no surprise that there will be a strong motivation to seek an injunction when the way of infringement has the nature of infringing the personal rights of many people simultaneously.

2. Fukushima Nuclear Power Plant Accident

The Fukushima Nuclear Power Plant Accident forced as many as 150 thousand of residents to evacuate, with at least 60 hospitalized patients of which died during their evacuation (see pp. from 15 through 16, from 37 through 38, and from 357 through 358 of Plaintiffs 1). It is not difficult to imagine that the lives of far more number of people were shortened in the circumstances of dispersion of family members and poor living

conditions during evacuation. Moreover, it was the Chair of the Japan Atomic Energy Commission who considered the possibility of issuing an evacuation recommendation for the residents living in a 250 km radius from the Fukushima Daiichi nuclear power plant, the scope of the evacuation zone of which is similar to that in the case of the Chernobyl Accident (KO 31, 32).

There are various views as to how much health harm is caused by radiation beyond a certain mSv count per year, and the desirable scope of the evacuation zone may differ depending on which view one takes. Having faced this issue for 20 years or more, the Republic of Ukraine and the Republic of Belarus still keep the broad scope of the evacuation zone (p. 275 of KO 32, 35). We think that there should be no difference between both Republics and Japan in that the government wishes to realize early return of the residents, while the residents have a strong wish to return. Nevertheless, the fact that both Republics have had to take the abovementioned measures casts serious doubts on the validity of the view that it is enough to set the minimum evacuation zone based on an optimistic understanding of health harm caused by radioactive substances. Although the abovementioned 250 km evacuation zone was merely one formulated at the time of the emergency, we should not decide at once that this assumption is excessive.

3. Safety and the burden of proof that should be required for the Nuclear Power Plant

(1) Safety that should be required for nuclear power plants

According to what was indicated in Sections 1 and 2 above, the safety and reliability that is required for nuclear power plants must be extremely high (more than mere possibility¹), and, even in an emergency, every possible measure must be taken in order to protect the public from the risk of radioactive substances.

Lawsuits an injunction based on the personal rights include an injunction intended to protect honor or privacy against publication. There is a major difference between these lawsuits and the present case because the former ones involve difficulty in settling disputes by coordinating the relationships of constitutional rights that are competing between the right of honor or the right of privacy and the freedom of expression. Specifically, the interests in preserving honor or privacy presuppose that life and livelihood are maintained, and in this regard the interests in protecting life and maintaining livelihood can be said to be a fundamental right that forms the basis of the

¹ If I literally translated the original text, this part would be "the possibility of once in ten-thousand." However, because the possibility of a nuclear accident is said to be less than once in ten-thousand, I understand that the court use an idiom and I translated the phrase as "less than the mere possibility."

personal rights. What is at issue in the present case is the coordination between this fundamental right and the interest in operating nuclear power plants. Although nuclear power plants play an important social role such as electricity generation, the use of nuclear energy is limited to peaceful purposes only (Article 2 of the Atomic Energy Basic Act). In this respect, the operation of nuclear power plants is, in legal terms, supported by the freedom of economic activity as a means of energy generation (Article 22. paragraph 1 of the Japanese Constitution), which therefore should have a constitutionally lower status than the core of the personal rights. Therefore, it is difficult to envisage a situation (except for large natural disasters or war) in which people are widely deprived of this fundamental right other than Nuclear Power Plant Accidents. With respect to economic activities involving such risks, even in an abstract manner, it would be too much to say that the existence of such activities cannot be permitted under the Constitution, but it is legitimate that an injunction of such activities be upheld if there is any possibility of real risk that may result in the situation mentioned above. This is clear even in comparison with the fact that, if the fact or real risk of infringement is acknowledged by the court, petitions have been admitted even in terms of the right to petition for the statement of interference or the right to petition for the prevention of interference based on land ownership without questioning the existence of negligence, or the circumstances on the side of the infringer (i.e., the magnitude of disadvantage that the infringer may have due to the acceptance (by the court) of the existence of his/her negligence or the petition).

If the nature of the risk of new technology, or the magnitude of damage thereby caused, is not clearly understood, it is very difficult for the court to judge to order an injunction against an operation of such technology because there will be no development of society if the risk potentially associated with new technology is not allowed. However, if the nature of the risk of new technology, or the magnitude of damage caused thereby, is proven, then the operation of such technology will be required to provide safety according to the nature of the risk, and the magnitude of damage. In this respect, it suffices to judge whether such safety is secured or not, and there will be no conflict over the fear that development of society may be impeded unless the risk is allowed to a certain degree. The nature of the risk of nuclear power generation technology, and the magnitude of damage caused thereby, was sufficiently brought to light through the Fukushima Nuclear Power Plant Accident. In the present case, what should be subject to judgment is whether there is any real risk that may result in such a situation at the Nuclear Power Plant. The Court considers that avoiding judgment on this issue after the Fukushima Nuclear Power Plant Accident is tantamount to abandoning the most important duty imposed on the Court.

(2) Relationship with examinations under the Reactor Regulation Act

In the Japanese legal system, as indicated above, the reason for (1) above is derived from the status of the personal rights, derived in accordance with reason, or in any other manner which will therefore not be affected by the status and content of administrative regulations such as the Reactor Regulation Act.

The Plaintiffs assert that, in light of the holding in the judgment delivered on October 29, 1992, by the First Petty Branch of the Supreme Court (Ikata Nuclear Power Plant Supreme Court Judgment, Minshu Vol. 46, No. 7, p. 1174) stating “The purport of Article 24 of the Reactor Regulation Act is, in light of the risk of radioactive substances, to ensure the implementation of a sufficient examination of the technical capacity of a person who intends to construct a reactor, and of the safety concerning the location, structure and equipment for the relevant permit application, from scientific, and specialized and technical, perspectives at the stage of reactor construction permit so that the mere possibility of a disaster caused by radioactive substances will never occur” (III-1 Plaintiffs’ assertions (2)). Nevertheless, even if the purport of the said Act is the same as what was asserted by the Plaintiffs, it is still possible to argue, as in (1), that any risk is not allowed at worst independently of the purport of the said Act. Also, even if the Reactor Regulation Act intends that any decision concerning the safety of facilities using radioactive substances should be respected because an examination conducted from scientific, and specialized and technical perspectives involves discretion from specialized and technical perspectives due to the high level of expertise required for such decisions, the judicial review should be conducted from the viewpoint of (1) without regard to the purport mentioned above. Therefore, even if the New Regulatory Standards² under the amended Reactor Regulation Act leave power companies to conduct independent decisions on some of the matters concerning safety of nuclear power plants, such issues should be subject to the judgment of the court, and even the matters governed by the new regulatory standards should be subject to the judgment of the court based on the reasons indicated in (1), rather than from viewpoints such as whether the matters are compatible with the new regulatory standards, or whether the matters are suitable for examination by the Nuclear Regulation Authority in regard to the compatibility with the new regulatory standards.

In the meantime, it should be said that there were good reasons for the practice in which the courts in many cases have remained to make judgment on the availability of reasonable evidence or materials that support the judgment on the compatibility with

² This is formulated by the Japanese Authority as the safety standards for nuclear power plants after the Fukushima Accident.

regulatory standards, rather than making judgment on the compatibility, because it requires highly specialized and technical knowledge and information to judge on the compatibility with the regulatory standards in a strict manner. In contrast, the judgment of the court based on the reason indicated in (1) does not necessarily require highly specialized and technical knowledge and information as found and instructed in Section 4 and thereafter.

(3) Burden of proof

In injunction lawsuits against nuclear power plants, it is the plaintiffs who bear the burden of proof for real risk in which the plaintiffs may be irradiated, or forced to evacuate in order to avoid irradiation, due to an accident or the like. In this respect, they do not differ from injunction lawsuits in general based on the personal rights, but they differ from general injunction lawsuits in that it suffices to prove the risk in emergency cases if such risk is real. The needs of fairness, arising from the fact that the most evidence is held by the Defendant, are what should be fulfilled as, for example, a matter of way of fact-finding in the case where the defendant does not submit evidence in spite of the court's control of court proceedings and other courts, and are different from a matter of the locus of burden of proof (i.e., which party will bear the risk of losing the suit if the presence or absence of the fact is uncertain). In addition, the Court has to say that, for the present case that is not for revocation of a construction or alteration permit for a reactor, it is circuitous to take an approach by which to have the defendant prove that the equipment of the nuclear power plant is compatible with the standards or that it is reasonable to find that the equipment is compatible with the standards, and, if such an attempt is successful, then have the Plaintiffs bear the burden of proof of the real risk. The Court therefore will not take this approach. Even in light of instructions given in (1) and (2) above, it is reasonable and suffices to have the issue of presence or absence of the real risk subject to direct hearing.

4. Characteristics of nuclear power plants

(Omitted)

In this case, the Nuclear Power Plant has the following flaws in its cooling function and containment structure that should work when an earthquake occurs.

5. Retention of cooling functions

(1) Earthquakes more than 1,260 gal

As indicated above, nuclear power plants have adopted the basic system in which to circulate water using alternating current from an external source to operate the cooling function for post emergency shutdown following an earthquake. If an earthquake of more than 1,260 gal occurs, this system collapses, which makes it almost impossible to be complemented by emergency equipment or backup systems, leading to meltdown. The Defendant admits that, if an earthquake of this magnitude occurs, there are almost no effective measures which can be taken. Specifically, according to page 47 of Plaintiffs' Exhibit 14 prepared by the Defendant with respect to the Stress Test³, "Since there will be no means available to avoid severe damage to fuels in the reactor cores in the area where the seismic safety margin is 1.80 Ss or more, or the tolerable tsunami height is 11.4 meters or more, such thresholds were identified as cliff edges." In this respect, according to the statements given on page 17 of Defendant's brief (9): "A cliff edge means the level of stress from an earthquake, tsunami or the like that causes a rapid change to the circumstances of a plant. Taking an earthquake as an example, when we gradually increase the magnitude of expected earthquake ground motions, at some points transcending such magnitude, damage is caused towards equipment that is important for the purpose of safety. As a result, a cliff edge refers to the level of earthquake ground motions that raise the possibility of resulting in severe damage to nuclear fuels." This is nothing but an admission by the Defendant as mentioned above. In addition, although, as will be instructed in (2)e above, not simply adopting the numerical value of 1.80 Ss (1,260 gal) asserted by the Defendant, the Court presupposes the Defendant's assertion in this section.

However, it is a commonly known fact that the Seismological Society of Japan have never been able to predict the occurrence of an earthquake of such magnitude. Since earthquakes are phenomena that occur deep underground, the analysis of the mechanism of their occurrence has to rely on hypotheses or speculations, and on past data because it is impossible to use experiments for formulation and testing of hypotheses. It is certain that earthquakes are phenomena that have repeatedly occurred since ancient times, but the frequency of occurrence is not necessarily high and correct records are limited to recent ones. In this respect, the scope of reliable past data is significantly limited (see KO 52). According to the evidence (KO 47), it is found that the Nuclear Regulation Authority has also attempted to estimate the magnitude of earthquake ground motions to be

³ The Stress Test is a test executed by nuclear operators (energy companies) to check the safety of nuclear power plants after the Fukushima Accident. Stress test in EU, see <https://ec.europa.eu/energy/en/topics/nuclear-energy/nuclear-safety/stress-tests>

formulated (see Article 4.5.3 of Appendix 2 of Exhibit 4) without identifying the potential epicenter by reference to 16 instances of earthquakes. It can be said that this small number of instances is indeed an indication of how small the number of reliable materials is in the field of seismology. It is therefore basically impossible to presume, based on solid scientific evidence, that no earthquake more than 1,260 gal will hit the Ohi Nuclear Power Plant. On the contrary, there is surely a risk that an earthquake more than 1,260 gal may hit the Ohi Nuclear Power Plant, in light of the following: (i) the largest seismic intensity recorded in Japan in the past was (undisputed between the Plaintiff and Defendant) 4,022 gal at the time of the Iwate-Miyagi Inland Earthquake, and 1,260 gal is much lower than this; (ii) the Iwate-Miyagi Inland Earthquake was an inland crustal earthquake (see Article 4.5.2 of Appendix 2 of Exhibit 4) that is considered likely to occur also in Ohi; (iii) no meaningful difference can be found in terms of earthquake occurrence frequency between the Tohoku Region where said Earthquake occurred and the Hokuriku Region where the Ohi Nuclear Power Plant is located, or the Kinki Region adjacent thereto, and there exist many known active faults either on land or at sea, to mention only those in the Wakasa Region (see pp. 756 and 778 of KO 18, p. 50 of OTSU 37, Underlying facts (2)b, and Exhibit 1); (iv) considering that the idea of “the largest in the past” merely means the largest in Japan in recent times, rather than the largest in the world since the beginning of recorded history.

(Omitted)

In the case where an earthquake of more than 1,260 gal hits the Ohi Nuclear Power Plant, it is highly likely that the cooling function will be lost, thereby leading to core damage and occurrence of a meltdown. If a meltdown occurs, there will be an increased risk of damage to the reactor containment vessels due to its pressure increase, a hydrogen explosion, or, in the worst-case scenario, such a steam explosion as to destroy the reactor containment vessels. In these cases, it is certain that large amounts of radioactive substances will be released from the facility, causing residents living in the vicinity to be exposed to such substances, or forcing said residents to evacuate for long periods of time in order to avoid radiation exposure.

(2) Earthquakes more than 700 gal and less than 1,260 gal

a. Event tree asserted by the Defendant

Even if an earthquake that may hit the Ohi Nuclear Power Plant is presumed slightly more than 700 gal (i.e., the design basis ground motion (DBGM) Ss) and less

than 1,260 gal, it is admitted by the Defendant that such earthquake may be causes that lead to the reactor core damage. In these respects, the Defendant asserts that such earthquake will never lead to the reactor core damage if effective measures are taken. The Court, however, can hardly be expected.

Assuming the events in the case where an earthquake of more than 700 gal occurs, and asserting that there are responses to be taken against them, the Defendant has formulated an event tree that describes these events and responses, and also formulated the similar event tree for responses to be taken when a tsunami over 4.65 meters in height arrives (the aforementioned Underlying facts (6), KO 14). The Defendant asserts that, if the described responses are taken in order, neither the reactor core damage nor a major accident will occur unless hit by an earthquake of more than 1,260 gal, or a tsunami over 11.4 meters in height.

However, in order to really make effective the responses described in the event tree, all of the following three points must be fulfilled: (i) All the events that may be linked to the accident cause arising from an earthquake and a tsunami, (ii) Technically effective responses are taken against these events, and (iii) Such responses can be carried out at the time of an earthquake and tsunami.

b. Events described in the event tree

It can be said that it is very hard to take up every possible event that may lead to the accident cause as stated in (i) of the points mentioned above because, in a severe accident, an event that has occurred is likely to cause another event, or events may occur simultaneously. In light of the Defendant's earthquake event tree indicating that events that may lead to a severe accident will occur if an earthquake is 1,225 gal or more (except for the issues of main feed water and external power sources), it is very hard to see that no damage or event will occur (at the time of an earthquake) between 700 and 1,225 gal (KO 14). It is hard to find that the Defendant has taken up in the event tree all the events that may lead to the accident cause.

c. Effectiveness of measures described in the event tree

Furthermore, aside from whether the measures against events described in the event tree are technically effective or not, once an event occurs, the more serious the situation is, the more difficult it will be to require power plant employees to appropriately and promptly take such measures amid the confusion and frustration caused by said event. In particular, in light of the following facts, such difficulty is more clearly understood.

First, earthquakes by their nature also occur at night, when fewer employees are

at work, with the same probability in daytime. As indicated in 3(2) above, even if the number of personnel on night duty is not subject to regulatory standards, since this will be a factor for judgment of risks in the present case, it is obviously important in practice to understand how many personnel are immediately available for the conduct of measures in an unexpected crisis situation, or whether the plant general manager serving as the leader in the command structure at site is on duty or not.

Secondly, in order to take measures in accordance with the aforementioned event tree, it is necessary to understand what events have occurred, but understanding it is in itself a difficult task. The research reports prepared by the government's Accident Investigation Committee and NAIIC (the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission), respectively, on the cause of the Fukushima Nuclear Power Plant Accident were submitted as evidence, and both reports commonly recognize that external power sources were lost due to the earthquake. However, the government's Accident Investigation Committee states that, except for the problem of external power sources, the direct cause of the accident was the tsunami that arrived shortly after the earthquake because no damage caused by the earthquake, leading to the cause of the accident, could be found (KO 1, 19, 20; OTSU 9). On the other hand, the NAIIC focuses its efforts on seismic analysis, and after analyzing the arrival times of the earthquake and tsunami, and conducting hearing investigations with relevant employees, points out the possibility that damage directly leading to the accident was caused by the earthquake, as well as by the (lack of) external power sources, prior to the tsunami arrival; however, it falls short of identifying what damage was caused to which part of the plant by the earthquake and what event was brought about by it (in particular, pp. from 196 through 230 of KO 1). Generally, once an accident occurs, the accident cause will be analyzed and determined, which will then provide the basis for enhancing technology safety. However, with respect to nuclear power technology, once an accident occurs, it is highly likely that the accident cause will remain undetermined because it is impossible to enter the accident site, and thus, there is no guarantee that the accident cause of the Fukushima Nuclear Power Plant Accident can be determined in the future (according to pp. from 208 through 220 of KO 32, it is found that the cause of the Chernobyl accident has yet been confirmed to this today). It is similarly, or even more difficult to grasp what damage is caused to which part of the plant in the process of a Nuclear Power Plant Accident, and what event is going to result.

Thirdly, even if it is successful in grasping what event has occurred, it can be assumed that there are many things that should be addressed, because there will be damage to many parts of the plant at the same time as loss of external power sources

caused by an earthquake, while only about five hours remain between the occurrence of a plant blackout and the beginning of core damage, and less than two hours between the beginning of the core damage and the start of meltdown; therefore, it is deemed that even small damage to water pipes may lead to core damage due to the decrease in coolant within less than 10 hours. (see pp. from 131 through 133, and p. 211 of KO 1, and p. 11 of the Defendant's brief (5); although the abovementioned length of time is an example taken from the Fukushima Daiichi Nuclear Power Plant, such length of time for the Reactors is not found to be particularly longer than that for the Fukushima Daiichi Nuclear Power Plant; the coolant loss rate caused by damage to the water pipes related to the primary coolant is considered to be faster in the Reactors (i.e., pressurized water reactors) than that in the reactors of the Fukushima Daiichi Nuclear Power Plant (i.e., boiling water reactors).

Fourthly, some of the means that are considered to be taken are, by their nature, those to be taken without choice in an emergency, and unsuitable for ordinary training or commissioning. As mentioned above, the reactor cooling during plant shutdown is considered to be operated on external power sources, and, for emergencies, the reactors are equipped with water-cooled emergency diesel generators, air-cooled emergency power generators and power source cars (see KO 16-1 and III-2 Defendant's Assertions (2)). However, it is too dangerous to, for example, test whether it is actually able to cool the reactors only with air-cooled emergency power generators.

Fifthly, it can also be expected that an earthquake causes damage to the system itself that is related to the protective means considered necessary to should be taken. It may be assumed that, if the Ohi Nuclear Power Plant's hundreds of meters of emergency inlet channel (KO 17, OTSU 2-2, entire import of oral arguments) is even partially damaged by an earthquake of more than 700 gal, all the water-cooled emergency diesel generators that rely on its functioning in the emergency inlet channel will become unable to operate. In addition, if, as asserted by the Plaintiffs (Defendant's brief 17), there runs, below the emergency inlet channel, a fault that has the potential to be active in the future or likely to cause ground slippage, it means that there is a risk that all the water-cooled emergency diesel generators may become inoperable, even in the case of an earthquake of less than 700 gal; however, in the present case, the Court finds that there is no need to judge the validity of the above assertions of the Plaintiffs. Also, although it does not mean that there was any active fault movement in the premises of the Kashiwazaki-Kariwa Nuclear Power Plant at the time of the Niigata Chuetsu Offshore Earthquake, it is found that a 1.6-meter step was formed in the soil backfilled area of the premises (KO 92, OTSU 8). The Ohi Nuclear Power Plant also has a soil backfilled area similar to that of the

Kashiwazaki-Kariwa Nuclear Power Plant (see Defendant's brief (12)); therefore, it can be assumed that a step may be formed in an earthquake, which may result in a situation where it is impossible, or significantly difficult to operate power source cars as a final resort for reactor cooling. Although it is found that the Ohi Nuclear Power Plant has various types of emergency equipment such as emergency diesel generators (see KO 16-1 and III-2 Defendant's assertions (2)), it can be said that, as in the example indicated above, because it is legitimate to expect that, as in the nature of machines, various types of equipment may, at or around the same time, become inoperable or fail due to an earthquake, resulting in various types of equipment for (reactor) protection not significantly enhancing safety at the time of earthquake.

Sixthly, if there is any leakage of radioactive substances, even partial one, it will be impossible for anyone even to approach the place of leakage.

Responses to the occurrence of an earthquake would be taken while, at the same time, always paying attention to the risk of radioactive substances when removing debris; if any radioactive substance actually leaks, nobody will be able to work at the site of the leakage. At worst, even evacuation from the central control room will be required.

Seventhly, the roads to the Ohi Nuclear Power Plant are limited and no support is expected from outside. These roads run along the coastline surrounded by mountains and through several tunnels (p. 3 of KO 14, OTSU 2-2); therefore, it can easily be assumed that an earthquake may cause landslides and transportation disruption.

d. Reliability of the DBGGM

The Defendant asserts that it is almost impossible to assume that an earthquake of more than 700 gal will strike Ohi because the maximum value (of the peak ground acceleration) is 700 gal in seismological theory, taking in consideration the status of active faults etc. based on the survey of active faults around Ohi (III-2 Defendant's Assertions (4)a). However, it goes without saying that, rather than arguing the validity or accuracy of the theoretical numerical calculation, we should emphasize the actual fact, as described below (five examples for the present case), that five earthquakes beyond the expected ground motion have hit four nuclear power plants out of less than 20 plants in Japan in less than a decade since 2005 (Underlying facts (10)). There can be various ways to explain the reasons that the assumption about earthquakes contained such errors, which includes as follows: in light of the limitations of seismology indicated in (1) above, there is a problem in estimating the ground motion by assuming the scale and location of the asperity based on the existence of asperities, which is merely a hypothesis, or, although there is no problem in presupposing the existence of asperities, there could be, as asserted

by the Plaintiffs, some errors in the selection of multiple methods for estimating the ground motion. However, these issues are what should be academically solved in the future, and there is no need for the Court to judge.

Notes:

- (i) August 16, 2005
 - Miyagi Prefecture Offshore Earthquake
 - Onagawa nuclear power plant
- (ii) March 25, 2007
 - Noto Peninsula Earthquake
 - Shika nuclear power plant
- (iii) July 16, 2007
 - Niigata Chuetsu Offshore Earthquake
 - Kashiwazaki-Kariwa nuclear power plant
- (iv) March 11, 2011
 - Great East Japan Earthquake
 - Fukushima Daiichi nuclear power plant
- (v) March 11, 2011
 - Great East Japan Earthquake
 - Onagawa nuclear power plant

The Defendant asserts that these examples of earthquake scale assumptions do not provide evidence supporting the insufficiency in the earthquake scale assumptions for the Ohi Nuclear Power Plant (III-2 Defendant's Assertions (4)c) because the three ((i), (iv), (v)) earthquakes mentioned above were interplate earthquakes which have different mechanisms from that of an earthquake which can affect the premises of the Ohi Nuclear Power Plant, because the earthquake scale assumptions of the Ohi Nuclear Power Plant were prepared based on the other two ((ii), (iii)), although they were not interplate quakes, or because the earthquake scale assumptions for (i), (ii) and (iii) are based on the S1 and S2 standards in accordance with previous guidelines before the 2006 revision and therefore are different from the earthquake scale assumptions based on the Ss standards adopted for the Nuclear Power Plant.

However, as for the three ((i), (iv), (v)) earthquakes mentioned above, it is nothing but a mistake to evaluate the interpolate earthquakes, in spite of analyzing interplate earthquakes, not only in Japan but also around the world (see Article 4.5.2(3) of Appendix 2 of Exhibit 4). It can also be said that the other two ((ii), (iii))

abovementioned earthquake scale assumptions came to an incorrect conclusion in spite of being based on as much information as available at the time of preparation and conducted in accordance with the criteria based on the latest findings of the day. It can only be said that these examples show limitations in human capacity prior to acts of nature, i.e., earthquakes. Notwithstanding that the earthquake scale assumptions for the Ohi Nuclear Power Plant were made based on the method of survey analysis of the past earthquake records and surrounding active faults (see the entire import of oral arguments and III-2 Defendant's Assertions (4)a, OTSU 21), the Court is unable to find any ground that only the Defendant's earthquake scale assumptions for the Nuclear Power Plant are reliable.

Also, with respect to the Defendant's earthquake scale assumptions for the Ohi Nuclear Power Plant, according to the (pieces of) evidence (Plaintiffs 41, 72) and the entire import of oral arguments, in addition to the facts described in Underlying Facts (2), it is found that there are the following circumstances that obviously undermine their reliability. Specifically, the opinions of experts have been divided over whether the crush zone (called F-6 crush zone), which runs practically north-south under the emergency inlet channel running practically east-west through the premises of the Ohi Nuclear Power Plant, is an active fault or not. This was one of the main issues also in a provisional disposition case at the Osaka District Court to claim an injunction against the Ohi Nuclear Power Plant. This issue fought for the evaluation of the crush zone in Daibahama trench located in the northern part of the emergency inlet channel which was deemed to have continuity with the F-6 crush zone mentioned above, based on the Defendant's past survey results on the crush zone in the premises of the Power Plant. That is, the Defendant denied the past survey results and asserted that there is no continuity between the aforementioned Daibahama trench and the crush zone running under the emergency inlet channel. The crush zone called F-6 crush zone running north-south under the emergency inlet channel, the existence of which was confirmed by excavation thereafter, was unanimously evaluated as the one that is neither an active fault, nor has a risk of landslide, after the decision of dismissal of the provisional disposition application mentioned above was rendered.

Come to think of it, it can be said that the alteration of assertions implies the lack of surveying capacity of, and the sloppiness of the surveys conducted by, the Defendant with respect to how the crush zone runs. In light of the status of the Defendant's surveys, even inside the premises of the Power Plant, the Court must say that it is impossible to rely that the Defendant's surveys on the active faults around the Power Plant were rigorously conducted. Considering this in combination with that earthquakes do not

necessarily occur on known active faults, it should be impossible to deny the possibility of occurrence of earthquakes involving active faults that were not detected due to the insufficiency of surveys by the Defendant, or earthquakes with the characteristics mentioned above, around the Ohi Nuclear Power Plant. In this respect, it can be said that the Defendant's earthquake scale assumptions are of little reliability.

e. Safety allowance

(Omitted)

f. Suggestions from the Central Disaster Management Council

(Omitted)

(3) Earthquake less than 700 gal

a. Risk of facility damage

In the Ohi Nuclear Power Plant, it is found that an earthquake of less than 700 gal (to the DBGM) may cause the loss of external power sources and damage to the main feed water pump, thereby cutting off the main feed water (page 20 of Plaintiff's Exhibit 14 indicates that the "loss of main feed water" and the "loss of external power sources" are expected to occur in an earthquake motion of less than S_s because such losses occur due to damage to equipment etc. of earthquake resistance Class B or C). Although the reactor is designed to shut down in an emergency when an earthquake of 160 gal or larger hits the premises of the Ohi Nuclear Power Plant (see the entire import of oral arguments and p. 8 of Defendant's brief (3)), the Defendant also asserts that, in the event of, for example, an earthquake of 200 gal, the reactor will be cooled by external power sources if available, or by emergency diesel generators if such sources are cut off, and by main feed water if available, or by auxiliary feed water equipment if the main feed water is cut off (see the 6th record of oral proceedings).

b. Impact of facility damage

(Omitted)

c. Limitations of auxiliary feed water equipment

(Omitted)

d. Assertions of the Defendant

The Defendant asserts that, because the main feed water pump is not an important safety equipment, its seismic safety against the DBGM has not been verified (III-2 Defendant's Assertions (3)a); however, even a brief look at the positional relation of such pump as shown by the figure at the bottom of Exhibit 3 raises questions about the denial of the importance of such pump. Also, the Defendant admits that the roles of the main feed water pump is to supply the main feed water that supports the cooling functions of the reactors, which is what the reactor is supposed to be about. The Court considers that it would be sound social acceptance to deem equipment playing a necessary role for ensuring safety as important and seek earthquake resistance that deserves such equipment. The Court must say that it is far from understandable that the Defendant sees such equipment as not important for safety.

e. Meaning of the DBGM

According to the common usage in Japanese, the DBGM is construed that, if an earthquake is less than the DBGM, the functions and safety are stably maintained. If an earthquake of less than the DBGM Ss can result in a situation that leads to a serious accident, the DBGM is meaningless as a standard. If so, even discussion of whether an earthquake more than the DBGM (700 gal) may hit the Ohi Nuclear Power Plant comes to have slight meaning.

(4) Conclusion of this section

It is said that 10 percent of earthquakes in the world occur in Japan because the Japanese archipelago is located on the boundary between four plates (Pacific, Okhotsk, Eurasian and Philippine Sea Plates). When marking on a world map the epicenters of earthquakes with magnitude 4 or higher, and a depth of 100 km or less between 1991 and 2010, the shape of the Japanese archipelago is almost covered. This shows that there is no area that is completely free from earthquakes in Japan (see p. 756 and pp. from 778 through 779 of KO18, and p. 31 of Complaint), which is the reason that Japan is called a country prone to earthquakes.

In Japan, a country prone to earthquakes, the prediction that no earthquake beyond the DBGM will hit the Ohi Nuclear Power Plant is just an groundless optimistic projection. Furthermore, if an earthquake of less than the DBGM may cause a severe accident due to the loss of cooling functions, the risk can be evaluated to be a real and

imminent risk far beyond the extent of the mere possibility. In light of such a state of the facility, the Court must find that the Defendant is much too optimistic.

6. Structure of confinement (risk of spent nuclear fuels)

(1) Current status of storage of spent nuclear fuels

(Omitted)

(2) Risk of spent nuclear fuels

Because spent nuclear fuels are nuclear fuels removed from reactors and continues to emit decay heat, it must be kept cooled by water and electricity (Underlying facts (5)b), the operation of which therefore carry significant risk. In the Fukushima Nuclear Power Plant Accident, the evacuation plan mentioned above was considered in response to the emerging risk posed by the spent nuclear fuels in the spent fuel pool of Unit 4 that fell into a critical situation. The most significant damage anticipated by the Chair of the Atomic Energy Commission was radioactive contamination from the spent nuclear fuel pool. In this respect, if contamination from the other spent nuclear fuel pools of different Units is also taken into account, there could be possibilities that residents will be forced to relocate, even in the areas outside the 170 km radius from the Fukushima Daiichi Nuclear Power Plant, or that residents wishing to relocate should be permitted even in the areas outside the 250 km radius from the Fukushima Daiichi Nuclear Power Plant (including almost all of Tokyo and part of Yokohama City). It was considered that, if matters go with the flow, such scope of areas will persist for at least a few decades (Plaintiffs 31).

At the time of March 11, 2011, the place called the reactor well, located adjacent to the spent nuclear fuel pool and usually with no water, was filled with water because Unit 4 was in a scheduled shutdown. Before March 15, the water in the reactor well unexpectedly poured into the spent nuclear fuel pool where its water level was lowered in tandem with water evaporation due to the temperature increase of spent nuclear fuels caused by the plant blackout, which was triggered by the shifting of the protective wall between the well and the pool due to a difference in water pressure. Also, this was overlapped with the factors that the water-retaining function of the spent nuclear fuel pool was retained in spite of the hydrogen explosion of Unit 4, and that, because the roof of the reactor building was blown off in the hydrogen explosion, it became easier to pour water from the top of the building (pp. from 159 through 160 of KO 1; pp. from 215 through 240 of KO 19). Therefore, it can also be said that it was fortunate that the spent

nuclear fuel pool of Unit 4 was spared from a catastrophic event, and thus the evacuation plan mentioned above was not put into practice.

(3) Defendant's assertions

The Defendant asserts that, if the primary coolant is lost due to damage to pipes or the like, radioactive substances are likely to be released because the core part in the reactor containment vessel is filled with the primary coolant at high temperature and pressure, and that spent nuclear fuels does not require a robust facility that encloses it because it sufficiently maintains water submergence of spent nuclear fuels as it is stored submerged in water that is usually kept below 40 degrees (III-3 Defendant's assertions (1)), which is, in the opinion of the Court, unreasonable as described below:

a. Loss of coolant accident

If the coolant is lost due to damage, the state of water submergence of spent nuclear fuels cannot be maintained, the risk of which does not significantly differ from the case of pipe failure related to the primary coolant of the reactor containment vessel. Rather, in comparison to the scale of damage as indicated in (2) above, it can be said that spent nuclear fuels are more dangerous because it contains far more fission products (so-called dirty fallout) than that of nuclear fuels in the reactor (Underlying facts (5)b). The technology to contain nuclear fuels in a robust facility called the reactor containment vessel not only is designed to avoid leakage of radioactive substances related to nuclear fuels, but also has an aspect of protecting nuclear fuels from accidents outside the reactor containment vessel, which is, for instance, also able to protect nuclear fuels against contingency in the building. Also, taking account of the fact that the melting temperature of fuel pellets that constitute the first of five barriers is far higher than that of the reactor containment vessel, (according to page 7 of Defendant's brief, the melting temperature of (i) nuclear fuels pellets is 2,800 degrees Celsius, (ii) fuel clads, 1,800 degrees Celsius, (iii) reactor pressure vessel and (iv) reactor containment vessel, 1,500 degrees Celsius, respectively, and (v) building, 1,300 degrees Celsius, which indicates that the more external part has a lower melting temperature), it is concluded that the reactor containment vessel will be unable to offer any robust defense function against thermal decay from the inside of the reactor core. It can therefore be said that it is hard to neglect the role of the reactor containment vessel in protecting nuclear fuels against contingencies that may occur outside the reactor containment vessel. In addition, the Defendant asserts that such function is not required for the reactor containment vessel, but nevertheless considers the reactor containment vessel as an outer shell of the protective facility against

tornados (pp. from 35 through 36 of KO 68). In this respect, the Defendant's assertions are unacceptable.

In spite of not being enclosed by any robust facility such as a reactor containment vessel with respect to the Fukushima Nuclear Power Plant Accident, the Court must say that it was truly fortunate that the spent nuclear fuel pool of Unit 4 did not result in the loss of coolant due to accidents such as piping ruptures after withstanding the hydrogen explosion inside the building, or that spent nuclear fuels did not suffer significant damage from accidents such as debris rolling thereto (pp. from 159 through 161 of KO 1, pp. from 215 through 240 of Plaintiffs 19). It can be said that every possible measure is taken for spent nuclear fuels only if spent nuclear fuels are protected with a robust facility against external contingencies, in the same manner as the reactor core part inside the reactor containment vessel.

b. Loss of power source accident

(Omitted)

The spent nuclear fuel pool in the present case will become unable to maintain the submergence of such spent fuel within three days after the occurrence of the plant blackout (pp. from 15 through 14 of Plaintiffs 70). Although this may cause damage posing a serious threat to national survival, the pool will fall into a critical condition within three days after the occurrence of the plant blackout. It must be emphasized that such pool remains almost exposed to the atmosphere without being contained by any robust facility.

(4) Conclusion of this section

Considering that spent nuclear fuels are what is generated day by day through the operation of the Nuclear Power Plant, the Court must say that the Defendant's responses mentioned above are based on the view that a severe accident rarely occurs, rather than the views that the safety of the public should be a primary concern, and that it requires huge cost to construct a robust facility to contain spent nuclear fuels.

7. Safety of the Nuclear Power Plant and the necessity of an injunction in the current situation

As shown above, from a perspective of protecting from the risk of radioactive substances the personal rights based on the lives of the public, the Court not only is of the

opinion that there remains some doubt that the safety technology and equipment for the Nuclear Power Plant are not fully sufficient, but rather must admit that such technology and equipment are vulnerable and can be justified only on the basis of groundless optimistic views.

In light of the fact indicated in Section 4 above, the risk of the Nuclear Power Plant and spent nuclear fuels in the spent nuclear fuel pool will not be immediately removed by an injunction of the operation. However, on the one hand, the nuclear fuels in the Reactors will be greatly generated once it starts operation, and, on the other hand, the nuclear fuels will certainly lose energy over time after the Reactor shutdowns. In this respect, an hourly loss of power will no longer cause a severe accident. The spent nuclear fuels that has the potential to cause destructive damage will also lose decay heat over time; Reactor shutdowns can prevent this increase. Seen in this light, an injunction to shut down the Reactors is considered to be an appropriate and effective means that mitigates the aforementioned real risk.

Currently, the New Regulatory Standards are being formulated, and various measures are being taken at each nuclear power plant. The New Regulatory standards have not incorporated measures, such as the increase of the strength of both external power sources and the main feed water (system) to withstand the DBGM, the significant raising of the DBGM, and the execution of the construction work for strengthening the relevant equipment accordingly, or the enclosure of spent nuclear fuels by a robust facility (see Exhibit 4). Therefore, the Defendant's application for the restart of the Nuclear Power Plant may pass the assessment of the New Regulatory Standards, and the Nuclear Power Plant may start its operation, without resolving the problems indicated in Sections 5 and 6 above. In this case, the vulnerability of the safety technology and equipment of the Nuclear Power Plant will remain.

8. Other assertions of the Plaintiffs

(Omitted)

In addition to the various points mentioned above, and in light of the fact that the disposal site for high-level nuclear wastes has not been determined yet, that the risk of such wastes is extremely high, and that it takes several tens of thousands of years until such said risk ceases to exist, the Plaintiffs assert that the reason for requesting an injunction is that this issue of disposal will bequeath a huge burden on future generations (III-4). With regards to the worst moral problem on the responsibility of our generation

to future generations, it is doubtful whether the court in charge of the injunction lawsuits based on the legal rights of current citizens is entitled to judge the problem; however, according to the opinion in Section 7 above, there is no need to judge.

9. Other assertions by the Defendant

On the other hand, while the Defendant asserts that the operation of the Nuclear Power Plant leads to a stable power supply and a reduction in costs (III-5), the Court is of the opinion that it is not legally allowed to join a discussion that puts rights so closely linked to the lives of a significant number of people on the same table as the issue of cheap/expensive electricity costs, or to judge the validity of such discussion. In light of the issues such as the rate of Japan's dependence on nuclear power generation, it can be said that we are in a situation where there is no need to take account of the reasoning that the suspension of power supply due to the shutdown of the Nuclear Power Plant may endanger people's lives or bodies. With respect to the inconveniences arising from the shutdown of the Nuclear Power Plant, the Defendant's assertion remains to refer to the issues of stability and the cost of power supply. Although there is a discussion about the drain or loss of national wealth in relation to the issue of costs, even if a large trade deficit is driven by the shutdown of the Nuclear Power Plant, this should not be called the drain or loss of national wealth. The Court is of the opinion that national wealth means what there is abundant land and people residing therein, and that the loss of national wealth means the situation where such wealth can no more be recovered.

Moreover, although the Defendant asserts that nuclear power has an environmental advantage because the operation of nuclear power plants contributes to the reduction of CO₂ (carbon dioxide) emissions (III-6), in light of the fact that environmental pollution arising from a severe accident at a nuclear power plant is horrible, and that the accident that occurred at the Fukushima Nuclear Power Plant Accident is the largest environmental pollution ever since the foundation of the country, it is absolutely absurd to see such environmental issues as a basis for continuing the operation of the Nuclear Power Plant.

10. Conclusion

For all these reasons, and because it is found that the Plaintiffs who live in a 250 km radius from the Ohi Nuclear Power Plant (the Plaintiffs listed in Exhibit "List of Plaintiffs 1") face the real risk that their personal rights can be directly infringed by the operation of the Nuclear Power Plant, the claims by the Plaintiffs should be accepted.

The Plaintiffs assert that, if a severe accident occurs at the Nuclear Power Plant,

the employees of the neighboring nuclear power plants will also be forced to evacuate, thereby causing accidents at such nuclear power plants and a chain reaction of similar events, which will result in damage by which all Japanese people may lose the foundations of their lives. The Plaintiffs also assert that, because in the case of the Chernobyl accident, the areas polluted by radioactive substances still exist up to a radius of at least 1,000 km from Chernobyl, all the Plaintiffs are entitled to file the Claims (3-7). Although these assertions are understandable, the risk assumed here is not deemed as a real risk that sufficiently forms the basis for a legal injunction against a specific nuclear power plant, that is, the Nuclear Power Plant. Therefore, the claim by the Plaintiffs who live outside a 250 km radius from the Ohi Nuclear Power Plant (the Plaintiffs listed in Exhibit "List of Plaintiff 2") is groundless and shall, therefore, be dismissed.

END