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Dear [Recipient's Name]:

Operating License Renewal of Oyster Creek Nuclear Generating Station

As a biologist at the University of Notre Dame and a part-time resident of the New York-New Jersey Metropolitan area, I would like to draw to your attention the information that I have gathered about Oyster Creek Nuclear Generating Station. I would like to point out my major concerns with approving license renewal for the facility. They include:

- The risks of terrorist attack on the facility (Appendix A)
- The risks of structural failure at the facility, particularly of the drywell containment liner (Appendix B)
- The high population density around the plant & unfeasibility of a successful evacuation in the case of an emergency (Appendix C)
- The inadequate consideration given to alternative energy sources such as wind and solar power (Appendix D)
- The negative health effects to workers and residents that occur even during normal operation (Appendix E)

The negative impacts of Oyster Creek Nuclear Generating Station are severe during both normal operation and in the event of an accident. Because of this research, I have come to the conclusion that AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed for 20 years. I hope that with this information you will do all that you can to act against the re-licensing of Oyster Creek Nuclear Generating Station.

Sincerely,

Michael J. McCann

Enclosures: Appendices A, B, C, D, E

Appendix A - Terrorist Attacks

AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed because a nuclear reactor is vulnerable to sabotage or terrorist attacks (Leventhal and Hoenig 1997, Ferguson 2004). These attacks would release large amounts of ionizing radiation causing harm to workers and residents in the nearby area. A disaster like the Three Mile Island meltdown in 1968 may be indicative of what would happen in the surrounding area if a terrorist attack struck Oyster Creek Nuclear Generating Station (Hatch et al. 1991, Shibata et al. 2001).

One might object and say that nuclear reactors have been built to resist the impact of a plane (Fisher 1989), but unfortunately this study did not look at the impact of multiple planes or other methods of attack.

Also, spent fuel is currently stored in a spent fuel pool and on-site "independent spent fuel storage facility" (NRC 2007). A 2001 report from the Nuclear Regulatory Commission states that, "1 of 2 [large] aircrafts are large enough to penetrate a 5-foot-thick reinforced concrete wall" of a pressurized water reactor spent fuel storage pool, potentially causing it to be "so damaged that it rapidly drains and cannot be refilled from either onsite or offsite resources" (NRC 2001). Therefore, both the reactor itself and the spent fuel storage sites are potential targets.

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Hatch M., Wallenstein S., Beyea J., Nieves J., Susser M., "Cancer Rates after the Three Mile Island Nuclear Accident and Proximity of Residence to the Plant." *American Journal of Public Health*. 81 (1991) 719-724.

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US Nuclear Regulatory Commission *Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants NUREG-1738* (Washington, DC; US NRC, 2001).

Appendix B – Structural Failure

AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed because the integrity of the drywell containment liner is in question (Sullivan and Wald 2007). Even, internal documents from AmerGen question the integrity of the drywell containment liner (Quintenz 2007). A disaster like the Three Mile Island meltdown in 1968 may be indicative of what would happen in the surrounding area if the drywell containment liner fails at Oyster Creek Nuclear Generating Station (Hatch et al. 1991, Shibata et al. 2001).

One might object because the investigation by Sandia National Laboratories shows that allowable stresses are met for the structure. If one reads the same report further it states that this analysis was conducted with limited raw data and only a small portion of the structure was examined. The data that was provided was provided from AmerGen (Sandia National Laboratories 2007). An investigation that is based on limited data and data from AmerGen, the operator of the facility, should not be considered conclusive. In a report by Jansky (1999), he finds that in order to extend the lifetime of nuclear power plants "it is essential to guarantee the integrity of components." Until this has been done, it would be foolish to renew the operating license for Oyster Creek Nuclear Generating Station.

References:

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< <http://www.nirs.org/reactorwatch/licensing/oclr01082007amdisclporc.pdf>>.

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Appendix C – Evacuation Plan

AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed because the high population density of the region near the facility would make evacuation in the case of an emergency unfeasible. Studies have hypothesized the difficulties of evacuating other high population areas in the case of other natural disasters such as the Florida Keys facing a hurricane (Chen 2006). Some of the same problems would apply to Oyster Creek Nuclear Generating Station since an eastern evacuation route would be impossible because of the facility's location on the Atlantic Coast.

One might object and say that evacuation is feasible because the New Jersey Office of Emergency Management has come up with a Community Emergency Planning Information that details the evacuation process (NJOEM 2005), unfortunately this plan only accounts for the region within a 10-mile radius of the plant (a population of less than 250,000) while the region with a 50-mile radius has a population of about 4.2 million (NRC 2007).

Zeigler et al. (1981) observed an "evacuation-shadow phenomenon." This means that an official announcement to evacuate usually results in evacuation from a much larger area than intended. So even if the NJOEM's Emergency Plan considers a 10-mile radius around Oyster Creek Nuclear Generating Station, any official advisories in the case of a disaster will also affect the area beyond this due to the "evacuation-shadow phenomenon." The operating license for Oyster Creek Nuclear Generating Station should not be renewed since the large population beyond the 10-mile radius has not been addressed.

References:

Chen X., "Agent-based modeling and analysis of hurricane evacuation procedures for the Florida Keys." *Natural Hazards*. 38 (2006) 321-338.

New Jersey Office of Emergency Management "Community Emergency Planning Information for Oyster Creek Generating Station" (W. Trenton, NJ; Office of Emergency Management) (2005).

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Zeigler D., Brunn S., Johnson J., "Evacuation from a Nuclear Technological Disaster." *Geographical Review*. 71 (1981) 1-16.

Appendix D - Alternative Energy Sources

AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed because adequate consideration has not been given to alternative energy sources such as wind and solar power.

Despite many pages devoted to analyzing the costs and benefits of alternative energy sources in the environmental impact statement (NRC 2007), the analysis only looks at the immediate environmental impacts of power sources like wind and solar power. A long-term cost-benefit analysis of these power sources is not conducted. A study by Pimentel et al. (1994) shows that although alternative energy sources such as wind and solar require large amounts of land (short-term costs), they do not have the same long-term costs like long-lived radioactive isotopes from nuclear or global climate change from fossil fuels. While some may see nuclear power as a way to reduce greenhouse gas emissions, if all stages in the nuclear fuel cycle are considered, it releases more carbon-dioxide emissions than most renewable-energy options (Mortimer 1991).

Also, the environmental impact statement's conclusion about alternative energy sources is that the environmental impacts "could vary from small to large depending on the location, size and number of facilities (NRC 2007). Saying that the impacts could be small to large is an inadequate conclusion; this is an appeal to ignorance (Shrader-Frechette 2005).

References:

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Pimentel D., Rodrigue G., Wang T., Abrams R., Goldberg K., Staecker H., "Renewable Energy: Economic and Environmental Issues." *BioScience*. 44 (1994) 536-547.

Shrader-Frechette K. *Environmental Justice: Creating Equality, Reclaiming Democracy*. Oxford: Oxford University Press, 2005.

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Appendix E – Health of Residents & Workers

AmerGen Energy Company's operating license for Oyster Creek Nuclear Generating Station should not be renewed because ionizing radiation has negative effects on workers (Iwasaki et al. 2003) and possibly on nearby residents (Sagan 1972) and it has been shown that there is no safe dose of ionizing radiation (NRC 2006).

One might object and say that workers in the plant are compensated for the additional risks that they take by the higher wages that they receive (Starr 1976). This argument assumes that free markets are "accurate indicators of legitimate values." If this were true, then government intervention in markets to protect victims would not be necessary (Shrader-Frechette 2002). The idea of a compensating wage differential also requires that employees are informed and aware of the risks they are taking, but this is often not the case (Shrader-Frechette 2002).

References:

Iwasaki T., Murata M., Ohshima S., Miyake T., Kudo S., Inoue Y., Narita M., Yoshimura T., "Second Analysis of Mortality of Nuclear Industry Workers in Japan, 1986-1997" *Radiation Research*. 159 (2003) 228-238

National Research Council (NRC), *Health Risks from Exposure to Low Levels of Ionizing Radiation: Biological Effects of Ionizing Radiation (BEIR) VII – Phase 2*, 2006. Washington, DC: National Academy Press, 2006.

Sagan L., "Human Costs of Nuclear Power." *Science*. 177 (1972) 487-493.

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