May 28, 2013

Dr. Barbara J. Pellegrini
4022 Evergreen Lane
Benton Harbor, MI 49022

Dear Dr. Pellegrini,

I very much appreciated your time and the engaged conversation during the meeting on March 25 at the Beach Haven Event Center in South Haven Michigan. As promised, I am responding to your letter dated March 25, 2013, which expressed concerns regarding the safe operation of Palisades. A record of these and other questions from local citizens, as well as my responses, is documented in the Nuclear Regulatory Commission's (NRC) Agencywide Documents Access and Management System No. ML13142A424. The discussion with you and the other participants was very helpful to me as I continue to consider public concerns about nuclear safety.

You raised issues regarding the assessment of the integrity of material and the assessment of data at nuclear power plants. In the enclosure, I have provided specific responses to the items you provided to me.

The NRC maintains safety as our top priority to ensure the protection of our citizens and the environment. I and all my colleagues at the agency are firmly dedicated to ensuring the safe operation of nuclear power plants and to protecting public health and safety.

Thank you for sharing your views and insights. If you have any additional questions, don't hesitate to contact me at 301-415-8430.

Sincerely,

/RA/

William D. Magwood, IV

Enclosure:
Responses to Questions

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The correspondence addresses policy issues previously resolved by the Commission, transmits factual information, or restates Commission policy.

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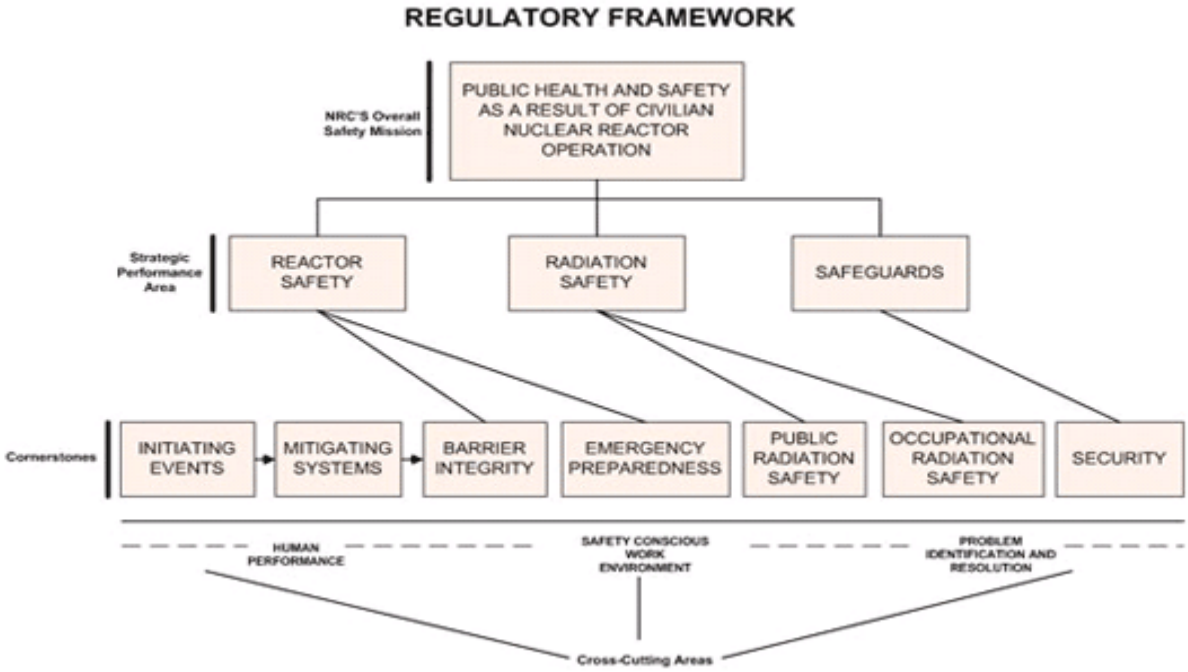
Responses to Questions and Concerns Raised in Letter Sent to the NRC by Dr. Barbara Pellegrini of Benton Harbor Michigan

1. **Does the NRC have a definition of "plant safety"? What are the variables? Which ones are most salient?**

The NRC does not have a specific definition of "plant safety". Although there is no specific definition, licenses, rules, regulations and policies exist to ensure safety at the plants. The Atomic Energy Act of 1954 establishes that licenses for plants will provide "adequate protection" to the health and safety of the public. The NRC only issues licenses (or changes to a license) if it determines, after a deliberative process, that there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act of 1954, and the NRC's rules and regulations. It is determined on a case by case basis, and it does not mean zero risk. The NRC has a Policy Statement (completed in 1986) on safety goals which broadly defines acceptable levels of radiological risk. The NRC Policy Statement is described in the Federal Register (51 Federal Register 30028).

The NRC can revoke a license for failure to construct or operate a facility in accordance with the rules and regulations. We consider that a plant is operating safely by assessing plant performance continuously through the Reactor Oversight Program (ROP). The program utilizes two distinct inputs: 1) inspection findings resulting from NRC's inspection program of rules and regulations; and 2) performance indicators (PIs) reported by the licensee. Both inputs into the NRC's risk-informed regulatory framework provide a means to collect and track information about licensee performance; to assess safety significance; and to determine appropriate licensee and NRC response. The figure below depicts the NRC's regulatory framework structure:



Enclosure

The NRC does not consider any item in the regulatory framework to be more salient than the others. Rather we take a holistic approach to safety and adverse licensee performance in any area could result in NRC action (e.g., supplemental inspections; downgrade of licensee performance). Additional information on the ROP Program can be found on the NRC website by following this link:

(http://www.nrc.gov/reactors/operating/oversight/rop-description.html)

2. What has NRC done to create a standard protocol for assessing the integrity of materials used in aging nuclear plants?

The NRC performed extensive evaluations to determine if existing licensee programs were adequate for "aging management" prior to approving plant operation beyond the initial 40-year operating license. As a result, NUREG-1801, "Generic Aging Lessons Learned (GALL)," was developed (see http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1801/r2/index.html). The GALL report contains the staff's generic considerations for the aging management programs that are currently in use at all 104 operating nuclear power plants in the United States. These programs monitor, control, and limit the effects of aging on materials performance, hence the term "aging management." The GALL report documents the staff's technical basis for determining where existing programs are adequate without modification versus where existing programs need to be augmented for operation beyond the initial 40-year plant operating license. The report addresses the aging management of all major systems in a nuclear power plant (i.e., containment structures, support structures, the reactor pressure vessel, reactor vessel internals, the engineered safety features, electrical components, auxiliary systems, and the steam and power conversion system). Each section of the report contains information on the materials that comprise each system; the environment(s) these materials are subjected to; the aging mechanism (or mechanisms) that result from each material/environment combination; and a reference to the aging management program that the NRC considers acceptable to provide a reasonable assurance of safety for each aging mechanism.

3. Over the tenure of Palisades, the NRC has collected a lot of data. What has the NRC done to convert that data into derived variables for purposes of trend analysis and prediction modeling?

The NRC's ROP is inherently performance based; we do not analyze trends for the purpose of predicting future performance (and responding to those predictions). Rather, we assess performance using current or recent data (inspection findings and performance indicators over the last 1 to 3 years). This data informs our regulatory response (level of inspection and oversight) to the assessed performance. The ROP is indicative in nature in that it is designed to generally look at indications and performance at the site. If issues of safety significance occur, the ROP progressively looks more diagnostically – looking at underlying causes. As has been previously mentioned, one of the inputs into this program are the PIs. The PIs are objective data regarding licensee performance in the ROP cornerstones of safety and security. PIs are a means of tracking licensee performance. PIs provide indication of problems that, if uncorrected, may increase the probability and/or the consequences of an off-normal event; and the PI data submitted by the licensee is reviewed by the NRC during baseline inspections to verify that the data is accurate. There are thresholds for the PIs. When certain thresholds are reached, the NRC takes additional actions and performs additional inspections. There is data for 17 PIs that is submitted to the NRC on a quarterly basis. Examples of PIs include areas such as: unplanned scrams,

unplanned power changes and safety system functional failures. Because not all aspects of licensee performance can be monitored by PIs, safety and security significant areas not covered by PIs are assessed using the ROP Inspection Program. A list of all the performance indicators and their current values for all the operating nuclear plants can be found on the NRC website. The following link contains a list of Palisades Performance Indicators:

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/PALI/pali_chart.html

The NRC also collects data from plants that are used for operational experience monitoring. Through this monitoring the agency can identify focus areas and potential areas for improvement. This information can also provide additional guidance to assist in performing 'smarter' inspections – looking at possible links or common areas of concern. Additional information on this topic can be found through the following link:

http://www.nrc.gov/reactors/operating/ops-experience.html

4. What criteria does the NRC use to judge the integrity of reports received from plant officers?

Certain applications for licenses, certifications and requests for license amendments are required by the *Code of Federal Regulations* to be submitted to the NRC under oath or affirmation. In addition, the NRC requires, through regulations, such as 10 CFR 50.9, "Completeness and Accuracy of Information", that information provided to the Commission by a licensee be complete and accurate in all material aspects. If an individual deliberately provides information which is not accurate, this would be a violation of 10 CFR 50.5, "Deliberate Misconduct." These violations could be subject to some significant enforcement action depending on the level of person causing the violation. The following link discusses enforcement actions: http://www.nrc.gov/about-nrc/regulatory/enforcement.html.

The NRC independently reviews the information submitted by licensees for accuracy and can request additional documents to verify or supplement certain statements.

5. Has the NRC ever called in a third party to validate test results received from any plant?

Yes, the NRC has on certain occasions called in a third party to validate test results provided by a licensee. A recent example of such an action occurred when the NRC evaluated the through-wall leak on Control Rod Drive Mechanism (CRDM) 24 at the Palisades Nuclear Plant, which had led to a plant shutdown on August 12, 2012. During the evaluation, the Agency contracted an independent laboratory (Pacific Northwest National Laboratory (PNNL)) to review and verify the licensee's ultrasonic data generated during the CRDM housing's inspections. The independent review by PNNL yielded important information that was used in the NRC's evaluation. Additional information is contained in the NRC Special Inspection Report 05000255/2012-012 (ML12291A806) and on Meeting Summaries (ML12300A410 and ML12305A255).

6. Does the NRC regard the nuclear industry as an entity in need of monitoring? Why or why not?

The NRC was created as an independent agency by the Energy Reorganization Act, which was signed into law October 11, 1974. Our responsibility, as mandated by law, is to license and regulate the nuclear industry under the provisions of the Atomic Energy Act as amended. We are tasked with ensuring that the reactors in the U.S. are designed properly; built as designed; and operated in a manner to protect the public health and safety. The NRC is responsible for reviewing and approving applications from licensees to construct and operate nuclear power plants. Additionally, we conduct various kinds of inspections to assure that plant activities are conducted in compliance with the license conditions and NRC regulations, and enforce compliance as necessary.

7. Chairman Jaczko at the meeting on May 25, 2012, in South Haven said, "It is very hard to shut down a plant because we need hard empirical data". Does the NRC concur with that statement? What policies have NRC advanced that would increase the collection and amount of hard empirical data for decision making?

Unfortunately I did not have the benefit of attending the May 25, 2012, meeting that your letter refers to. I understand from your question that your concern resides with the NRC's ability to shut down a plant if necessary. I would like to assure you that the NRC, through the ROP, has processes in place to assess licensee performance regarding safe plant operations. If at any point the NRC deemed Palisades, or any other U.S. plant to be unsafe, the NRC would take action to shut down the plant. The NRC's oversight of Palisades shows that the plant is operating safely.

8. How many employees at the NRC have a doctorate in nuclear science/engineering? Out of how many employees?

The NRC currently has 79 employees that possess a doctorate degree out of 2,075 employees that are engineers or scientists.

9. Who among the NRC Commissioners have a doctorate in nuclear science/engineering? In any science?

Among the NRC Commissioners two out of the five members have doctorate degrees. Chairman Allison MacFarlane has a doctorate degree in Geology and Commissioner George Apostolakis has a doctorate degree in Electrical Engineering.