Dear FOIA Requester:

The FOIA Improvement Act of 2016, which was enacted on June 30, 2016, made several changes to the Freedom of Information Act (FOIA). Federal agencies must revise their FOIA regulations to reflect those changes by December 27, 2016. In addition to revising our regulations, we intend to update the Form 464, which we use to respond to FOIA requests.

In the interim, please see the comment box in Part I.C of the attached Form 464. The comment box includes information related to the recent changes to FOIA that is applicable to your FOIA request, including an updated time period for filing an administrative appeal with the NRC.

Sincerely yours,

Stephanie Blaney /S/

Stephanie Blaney
FOIA Officer

NRC FORM 464 Part I
(12-2015)

U.S. NUCLEAR REGULATORY COMMISSION

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) REQUEST

FOIA	RESPONSE NUMBER
2017-0005	2

RESPONSE TYPE ☐ INTERIM ☐ FINAL

REQUESTER:	DATE:
Lawrence Criscione	FEB 0 2 2017

DESCRIPTION OF REQUESTED RECORDS:

The records corresponding to items 2 (ML16204A001) and 4 (ML16236A230) of your request, as further explained in the Comments Section, below.

PART I. -- INFORMATION RELEASED

- ☐ Agency records subject to the request are already available in public ADAMS or on microfiche in the NRC Public Document Room.
- ☐ Agency records subject to the request are enclosed.
- ☐ Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- ☐ We are continuing to process your request.
- ☑ See Comments.

PART I.A -- FEES

AMOUNT*
$

*See Comments for details

- ☐ You will be billed by NRC for the amount listed.
- ☐ None. Minimum fee threshold not met.
- ☐ You will receive a refund for the amount listed.
- ☐ Fees waived.

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- ☐ We did not locate any agency records responsive to your request. *Note*: Agencies may treat three discrete categories of law enforcement and national security records as not subject to the FOIA ("exclusions"). 5 U.S.C. 552(c). This is a standard notification given to all requesters; it should not be taken to mean that any excluded records do, or do not, exist.
- ☑ We have withheld certain information pursuant to the FOIA exemptions described, and for the reasons stated, in Part II.
- ☑ Because this is an interim response to your request, you may not appeal at this time. We will notify you of your right to appeal any of the responses we have issued in response to your request when we issue our final determination.
- ☐ You may appeal this final determination within 30 calendar days of the date of this response by sending a letter or email to the FOIA Officer, at U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or FOIA.Resource@nrc.gov. Please be sure to include on your letter or email that it is a "FOIA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

In conformance with the FOIA Improvement Act of 2016, the NRC is informing you that you have the right to seek assistance from the NRC's FOIA Public Liaison.

This interim response addresses two more of the records enumerated in your request. Since the date of your request, ML16204A001 and ML16236A230 have been removed from ADAMS. However, because the NRC was able to locate them by the accession numbers when your request was received, we have processed the records (with the exception of [continued on next page]

SIGNATURE - FREEDOM OF INFORMATION ACT OFFICER

Stephanie A. Blaney

Add Continuation Page

Delete Continuation Page

NRC FORM 464 Part I (12-2015) U.S. NUCLEAR REGULATORY COMMISSION	FOIA	RESPONSE NUMBER
RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) REQUEST Continued	2017-0005	2
	RESPONSE TYPE ☐ INTERIM ☐ FINAL	

REQUESTER:	DATE:
Lawrence Criscione	FEB 0 2 2017

PART I.C COMMENTS (Continued)

ML16204A001, as noted below).

ML16236A230 is an early, preliminary, draft of a proposal to include the issue of random dam failure of an upstream dam in the Generic Issue Program (GIP), which was prepared by NRR staff. Although a draft, and therefore subject to the deliberative process privilege as subsumed within FOIA exemption 5, due to the passage of time and the fact that the issue was accepted into the GIP and the resulting report made publicly available (with modest redactions of security-sensitive information contained therein), NRC has exercised its discretion to release it to you.

ML16204A001 was determined to be a personal, rather than agency, record. It is an email, dated September 14, 2012, that you sent to various congressional staff members. Although two items are shown to have been attached to that email, neither was included in ML16204A001. Since NRC has not located another copy of the email received in the course of any NRC staff member's assigned duties in any of its records systems, nor did you write it as part of your assigned duties, we have determined that the email is a personal record. As such, it is not subject to the FOIA and has not been processed.

Generic Issue Program Proposal – Random Failure of an Upstream Dam

While reviewing a recent external flooding issue associated with a nuclear power plant (NPP), it was identified that, if a random failure of an adjacent upstream dam was not adequately evaluated, during the external flooding analysis of the NPP, it could have a potential impact on the public health and safety. The impact would be due to the amount of water that the reservoir would release and the associated effects on the environment, as well as on the common defense and security at the site. The overall result of this event at a nuclear site may contribute to an unacceptable level of probability of core damage frequency (CDF).

The Duke Energy Oconee Nuclear Station (ONS) did not originally evaluate the random failure of the Jocassee Dam in the plant design flooding analysis. The random failure of the Jocassee Dam will result in a flooding scenario, where approximately 18.5 feet of water could result at the site. Presently, the plant is only protected for a flood level of approximately 7 feet. Once the dam failure scenario starts, the plant has three hours until the water reaches the site. This amount of water will result in the loss of the switchyard, loss of the emergency power supply (hydro units), loss of the safe shutdown facility, and the loss of other mitigation equipment. With the loss of the above equipment, there will be core damage in 8 to 10 hours, followed by containment failure in 59 to 68 hours. The public would receive a significant radiation dose as a result of the combined fuel and containment failure.

The risk and safety significance of this issue has been adequately determined by the NRR staff (i.e., it does not involve phenomena or other uncertainties that would require long-term studies and/or experimental research to establish the risk or safety significance). After reviewing all of the available data, the present calculations show that a dam failure has an initiating event frequency (IEF) of 2.0 x 10-4. This calculated initiating frequency is consistent to the dam failure frequency studies performed by others as listed below in Table 1.

Table 1. Frequency of Occurrence of Dam Failures Reported in the Literature*

Area	Reference	No. of Failures	Total Dam Years ($x10^{-3}$)	Failure Rate
USA	Gruner (1963, 1967)	33	71.0	5×10^{-4}
	Babb & Mermel (1968)	12	43.0	3×10^{-4}
	USCOLD (1975)	74	113.0	7×10^{-4}
	Mark & Stuart-Alexander (1977)	1	4.5	2×10^{-4}
World	Mark & Stuart-Alexander (1977)	125	300.0	4×10^{-4}
	Middle brooks (1953) and Mark & Stuart-Alexander (1977)	9	47.0	2×10^{-4}
Japan	Takase (1967)	1046	30 000	4×10^{-5}
Spain	Gruner (1967)	150	235	6×10^{-4}
Overall Average Dam Failure Rate				4×10^{-4}

* ACRES International Newsletter, August 2004, "Issues in Dam Safety" (ACRES International, Niagara Falls, Ontario, Canada)

The CDF will be based on the plant configuration. At Oconee, the conditional core damage probability (CCDP) can be has high as 1, due to the loss of the mitigating equipment listed above. With the CCDP of 1, the result will give an overall CDF of 2.0 x 10-4 per year. Based on this outcome, the issue has to be properly evaluated.

The key point here is that a tremendous amount of water, from a random failure of an upstream dam, could reach a downstream nuclear site with the results being catastrophic. The potential catastrophic results would be due to the loses of the plant's mitigating equipment, due to the site flooding, which would lead to fuel failure and containment failure. This issue becomes even more relevant if the site did not adequately evaluate and mitigate a random dam failure scenario for the upstream dam.

Therefore, the NRR staff has determined that this issue is a good candidate for inclusion in the generic issue program (GIP). The issue cannot be readily addressed through other regulatory programs and processes; existing regulations, policies, or guidance; or voluntary industry initiatives. However, this issue can be resolved by a new or revised regulation, policy, or guidance.

Finally, we believe that the issue is well-defined, discrete, and technical, and the resolution of this issue may potentially involve review, analysis, or action by the affected licensees operating the nuclear power plants (NPPs) located downstream of dams.

Based on the potential outcome of this issue, the NRR staff conducted a brief investigation to determine if similar flooding situations existed at other nuclear plant sites, and found that there are, indeed, several sites with the potential of external flooding issues as a result of upstream dam failures.

Attached is Table 2 with a preliminary list of dams located upstream of several NPPs, entitled, "Review of Dam and/or Levee Failures for Nuclear Plants," which was prepared by the Division of Reactor Licensing (DORL)/NRR. This list contains comments (shown as "FSAR Discussion," in the last column of the table) regarding whether an analysis was completed regarding the potential failure of the dams.

Table 2 Preliminary List of Nuclear Sites w/o Dam Failure Evaluations

Site Name	State	Area	Body of Water	Max. Design Basis (ft. msl)	Yard Grade (ft. msl)	Random Sunny Day Upstream Dam Failure Evaluated
Arkansas Nuclear	AR	Stream	Arkansas River	361	353	NO
Cooper	NE	Stream	Missouri River	906	903	NO
Fort Calhoun	NE	Stream	Missouri River	1014	1000	NO
Indian Point	NY	Stream	Hudson River	15	?	NO
Prairie Island	MN	Stream	Mississippi River	684.5	695	NO
Robinson	SC	Lake	Lake Robinson	NA	225	NO
Salem	DE	Stream	Delaware River	NOT AVAILABLE	9	NO
Surry	VA	Stream	James River	28.6	26.5	NO
Three Mile Island	PA	Stream	Susquehanna River	310	304	NO

In view of the information discussed above, concerning the potential hazards caused by dam breaks at more than a couple of NPPs, we request that you initiate expeditious action to enter the external flooding issue into the GIP. If you have any questions, your staff may contact George Wilson (301-415-1711) or Meena Khanna (301-415-2150).