

**From:** Brock, Terry  
**Sent:** 8 Sep 2015 19:44:51 +0000  
**To:** Pope, Tia  
**Subject:** Fw: Terry: Your letter to Crowley is ready for dispatch. Thanks - Shirley

Please distribute.

---

**From:** Flory, Shirley  
**Sent:** Tuesday, September 8, 2015 2:47:36 PM  
**To:** Brock, Terry  
**Subject:** Terry: Your letter to Crowley is ready for dispatch. Thanks - Shirley

**From:** Giitter, Joseph  
**Sent:** 15 May 2012 15:29:11 -0400  
**To:** Gibson, Kathy  
**Cc:** Brock, Terry; Bush-Goddard, Stephanie; Cruz, Holly  
**Subject:** FW: Yellow Ticket: Y020120096 NRR review of draft Phase I National Academy of Science cancer study  
**Attachments:** 120509\_RLC\_Comments on NAS Cancer Study\_Phase I\_For Yellow Ticket.docx, S Garry comments on NAS cancer study.docx, 120509\_SCM\_Comments on NAS Cancer Study\_Phase I\_For Yellow Ticket.docx

Kathy—Here are NRR comments on the NAS phase 1 study. At some point I would like to talk to you about steps we are taking to verify the statistical rigor of the epidemiological study.

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**From:** Shoop, Undine  
**Sent:** Tuesday, May 15, 2012 11:05 AM  
**To:** Giitter, Joseph; Lee, Samson  
**Cc:** Richards, Karen  
**Subject:** FW: Yellow Ticket: Y020120096 NRR review of draft Phase I National Academy of Science cancer study

Joe and Sam,

Attached are AHPB comments on the NAS phase 1 study. If you agree with our comments, please send them to Holly Cruz, Kathy Gibson, Terry Brock, and Stephanie Bush-Goddard.

Thanks,  
Undine

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**From:** Garry, Steven  
**Sent:** Monday, May 14, 2012 4:57 PM  
**To:** Shoop, Undine  
**Cc:** Conatser, Richard; Meighan, Sean  
**Subject:** Yellow Ticket: Y020120096 NRR review of draft Phase I National Academy of Science cancer study

Undine,

As requested and assigned in Yellow Ticket 020120096, attached are 3 sets of comments on the NAS Phase I cancer study from the AHPB staff (Richard Conatser, Sean Meighan, and myself).

Steve Garry  
301-415-2766  
NRR / DRA / AHPB

---

**From:** Craver, Patti  
**Sent:** Wednesday, May 02, 2012 1:13 PM  
**To:** Cruz, Holly; FAST Resource



**Cc:** Garry, Steven; Shoop, Undine; Conatser, Richard  
**Subject:** RE: Request to change date of YT: Y020120096

Done!

Thanks,  
Patti

---

**From:** Cruz, Holly  
**Sent:** Wednesday, May 02, 2012 12:49 PM  
**To:** FAST Resource  
**Cc:** Craver, Patti; Garry, Steven; Shoop, Undine; Conatser, Richard  
**Subject:** Request to change date of YT: Y020120096

Hi Patti,

Could you please change the due date of Y020120096, TAC ME8451 to May 15<sup>th</sup>, per the change in the RES memo noted below?

Thanks for your help,

Holly

Holly Cruz, Project Manager  
Licensing Processes Branch (PLPB)  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation  
Phone: (301) 415-1053  
Location: O12F12  
M/S: O12E1  
email: holly.cruz@nrc.gov



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**From:** Garry, Steven  
**Sent:** Wednesday, May 02, 2012 12:12 PM  
**To:** Shoop, Undine; Cruz, Holly; Conatser, Richard  
**Subject:** FW: REQUEST: NEW DUE DATE review and comment on the NAS Phase 1 Cancer Risk Study

Holly,

Can you revise the Yellow Ticket Y0120096 due date from May 7<sup>th</sup> to May 15<sup>th</sup> per the email below?  
(see attached yellow ticket).

Thanks

Steve Garry

---

**From:** Brock, Terry

**Sent:** Wednesday, April 25, 2012 3:04 PM

**To:** Brock, Terry; Cassidy, John; Burnell, Scott; Chapman, Gregory; Dacus, Eugene; Dehmel, Jean-Claude; Garry, Steven; Jones, Andrea; McIntyre, David; Milligan, Patricia; Mizuno, Beth; Nimitz, Ronald; Stearns, Don; VonTill, Bill; Weil, Jenny; Woodruff, Gena; Rakovan, Lance; Diaz, Marilyn; Bush-Goddard, Stephanie; Humberstone, Matthew; Conatser, Richard; Tomon, John; Salomon, Stephen; Burnell, Scott

**Subject:** REQUEST: NEW DUE DATE review and comment on the NAS Phase 1 Cancer Risk Study

All,

RES sent out the official memo requesting comments on the NAS Phase 1 cancer study report to your respective offices with a new due date of Tuesday, May 15.

Thanks for your continued support,

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

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**From:** Brock, Terry

**Sent:** Thursday, April 12, 2012 12:07 PM

**To:** Brock, Terry; Cassidy, John; Burnell, Scott; Chapman, Gregory; Dacus, Eugene; Dehmel, Jean-Claude; Garry, Steven; Jones, Andrea; McIntyre, David; Milligan, Patricia; Mizuno, Beth; Nimitz, Ronald; Stearns, Don; VonTill, Bill; Weil, Jenny; Woodruff, Gena; Rakovan, Lance; Diaz, Marilyn; Bush-Goddard, Stephanie; Humberstone, Matthew; Conatser, Richard; Tomon, John; Salomon, Stephen; Burnell, Scott

**Subject:** REQUEST: review and comment on the NAS Phase 1 Cancer Risk Study

All,

This is a heads-up that RES will be sending out a formal memo request for review and comment on the NAS Phase 1 Cancer Risk Study in the next couple of days. You all have been identified as the POC for your organizations in the memo. We're asking for comments back by Monday, May 7, 2012. Once I get the comments I'll put a meeting together to talk about next steps.

The NAS report, "Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase I" is available in ADAMS at ML120860057 .

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555

Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Case, Michael  
**Sent:** 3 Jun 2015 10:57:24 -0400  
**To:** Brock, Terry;Tadesse, Rebecca  
**Subject:** Fwd: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Fyi

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**From:** "Corbett, James"  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...  
**Date:** 03 June 2015 09:58  
**To:** "Case, Michael"  
**Cc:** "Bumpass, Sheila" , "Ford, Jennifer" , "Coffin, Stephanie" , "Moy, Romena"

Mike -

Hope all is well with you too. Things are going well here in acquisition. We're well ahead of last year's pace working with offices to get awards made.

Thanks for calling my attention to this draft paper. My team is huddling to ensure we can fully support the planned strategy. If we have any concerns, I'll get back with you before the week ends.

- James

James C. Corbett, Director

Acquisition Management Division

Office of Administration

Location: T5-D31 - MailStop: T5-E3

Phone: 301-415-8725

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**From:** Case, Michael

**Sent:** Tuesday, June 02, 2015 10:50 AM

**To:** Corbett, James

**Cc:** Jernell, Eleni; Bumpass, Sheila; Ford, Jennifer; Coffin, Stephanie

**Subject:** FW: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Hey James, how's it going! We sent this Commission Info paper over to Cyndi yesterday for ADM concurrence. The paper is on a Cancer Risk Study that we intend to do. It may not be overtly clear why we sent it to you. Although it isn't spelled out in the paper, we had been working with Jennifer on the contracting issue with NCRP. We wanted to understand whether it would be feasible to pursue a sole source contract with them given the circumstances. I think the general answer was yes.

We also had a reasonably quick turnaround on the concurrence as well (6/10) because we wanted to get it up to the Commission in the general time frame of their consideration of the budget. Thanks for all the help your team has been giving us on these issues!

Mike

---

**From:** Pope, Tia

**Sent:** Monday, June 01, 2015 5:39 PM

**To:** RidsOpaMail Resource; RidsRgn1MailCenter Resource; RidsOcofoMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrMailCenter Resource; RidsNsirMailCenter Resource;

RidsOgcMailCenter Resource; RidsAdmMailCenter Resource

**Cc:** Brock, Terry; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Ford, Jennifer; Ramsey, Kevin; Milligan, Patricia; Hinson, Charles; Garry, Steven; Mizuno, Beth; Burnell, Scott; Nimitz, Ronald

**Subject:** ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

MEMORANDUM TO: THOSE ON THE ATTACHED LIST

FROM: MICHAEL J. CASE

SUBJECT: RESULTS OF THE ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR  
NUCLEAR FACILITIES: PHASE 2 PILOT PLANNING  
PROJECT AND NEXT STEPS

[View ADAMS P8 Properties ML15141A343](#)

[Open ADAMS P8 Package \(SECY - Results of the Analysis of Cancer Risks in Populations Near Nuclear Facilities: Phase 2 Pilot Planning Project and Next Steps\)](#)



**From:** Case, Michael  
**Sent:** 3 Jun 2015 10:58:26 -0400  
**To:** Brock, Terry; Tadesse, Rebecca  
**Subject:** Fwd: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Fyi

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**From:** "Lorson, Raymond"  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...  
**Date:** 03 June 2015 08:24  
**To:** "Case, Michael" , "Trapp, James"  
**Cc:** "Nimitz, Ronald" , "Coffin, Stephanie" , "Noggle, James"

Mike:

Thanks; we will close the loop with Dan and get back with you. I am out after tomorrow for a few days so Jim Trapp will honcho if we don't complete today or tomorrow.

Ray

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**From:** Case, Michael  
**Sent:** Wednesday, June 03, 2015 7:57 AM  
**To:** Lorson, Raymond; Trapp, James  
**Cc:** Nimitz, Ronald; Coffin, Stephanie; Noggle, James  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

We sent it to the RA Rids box for Dan's concurrence. If Dan's OK with you concurring that works for us.

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**From:** Lorson, Raymond  
**Sent:** Tuesday, June 02, 2015 9:45 AM  
**To:** Case, Michael; Trapp, James  
**Cc:** Nimitz, Ronald; Coffin, Stephanie; Noggle, James  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Mike – thanks. Who do you need to concur on from Region I? I saw that Ron read it and appeared satisfied.

Ray

---

**From:** Case, Michael  
**Sent:** Tuesday, June 02, 2015 8:45 AM  
**To:** Lorson, Raymond; Trapp, James  
**Cc:** Nimitz, Ronald; Coffin, Stephanie  
**Subject:** FW: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Hey Folks,

We sent a draft Commission paper on the path forward for the Cancer Study to the RA's RIDS box last night. We wanted to get it up to the Commission in the same news cycle as the budget so it had a relatively quick turnaround (6/12). We've been working with Ron and it's a pretty quick read, so I don't think it would be a big problem.

Thanks for your help!

---

**From:** Pope, Tia  
**Sent:** Monday, June 01, 2015 5:39 PM  
**To:** RidsOpaMail Resource; RidsRgnlMailCenter Resource; RidsOcfMailCenter Resource; RidsNmssOd

Resource; RidsNroMailCenter Resource; RidsNrrMailCenter Resource; RidsNsrMailCenter Resource;  
RidsOgcMailCenter Resource; RidsAdmMailCenter Resource

**Cc:** Brock, Terry; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Ford, Jennifer; Ramsey, Kevin; Milligan,  
Patricia; Hinson, Charles; Garry, Steven; Mizuno, Beth; Burnell, Scott; Nimitz, Ronald

**Subject:** ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in  
Populations...

MEMORANDUM TO: THOSE ON THE ATTACHED LIST

FROM: MICHAEL J. CASE

SUBJECT: RESULTS OF THE ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR  
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PROJECT AND NEXT STEPS

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Nuclear Facilities: Phase 2 Pilot Planning Project and Next Steps\)](#)

**From:** Weber, Michael  
**Sent:** 13 Jan 2012 07:04:30 -0500  
**To:** Sheron, Brian; Holian, Brian  
**Cc:** Brock, Terry; Sanfilippo, Nathan; Holahan, Vincent; Milligan, Patricia; Jones, Cynthia; Brock, Kathryn; Burnell, Scott; Moore, Scott; Stahl, Eric; Virgilio, Martin; Leeds, Eric; Boger, Bruce; Dorman, Dan  
**Subject:** FYI - FRENCH STUDY SHOWS ELEVATED LEUKEMIA RISK TO CHILDREN

Good morning. I saw reporting (below) on a new French study that purportedly shows an elevated leukemia risk to children living within 5 km of nuclear power plants. Sounds similar to previous reports from the UK and Germany. FYI.

## **Children near French nuclear plants may run greater leukemia risk**

Jan 12 - McClatchy-Tribune Regional News - dpa, Berlin

Children living near French nuclear power plants may run a greater risk of contracting leukemia, French media reported Thursday, quoting a study published in the latest edition of the International Journal of Cancer.

The study carried out by INSERM, France's National Institute of Health and Medical Research between 2002 and 2007 found that children under the age of 15 living within 5 kilometres of a nuclear plant were twice as likely to have acute leukemia as other children.

The study found 14 cases of childhood acute leukemia in areas around the country's 19 nuclear power plants.

Based on national figures, researchers had expected to find 7.4 cases, out of a total 2,753 cases countrywide.

"The results suggest a possible excess risk of acute leukemia in the close vicinity of French nuclear power plants in 2002- 2007," the report said.

The head of the study, Jacqueline Clavel, told Le Figaro newspaper the findings came as a surprise, after a study carried out between 1990 and 2001 had found no increased risk of childhood leukemia around nuclear plants.

But she also cautioned against drawing hasty conclusions.

There was "no way" of knowing what caused the increased leukemia risk, she told the paper.

The survey sample was too small to draw conclusions. Plus, when the results of the 1990-2001 and 2002-2007 studies were combined, the increased risk of childhood leukaemia near nuclear plants was nil.



"We must now get down to researching parameters that could explain this increase, namely through international cooperations which will allow us to work on a bigger scale" Clavel said.

Anti-nuclear groups said the findings vindicated their fears over the safety of nuclear power. France gets 75 per cent of its electricity from 58 nuclear reactors. "Even in a non-accident situation, the proof is again there that nuclear technology doesn't belong in a civilized world," the Reseau Sortir du Nucleaire (Exit Nuclear Network) said in a statement.

The network drew a line between the findings of the Inserm study, which was carried out in collaboration with the French Institute for Radiological Protection and Nuclear Safety, and two previous studies that found a potentially higher risk of childhood leukemia near nuclear plants. A 1995 French study found a potential link between an increased incidence of childhood leukemia in the area around La Hague nuclear plant and discharges from the plant.

In 2008, a study commissioned by the German Federal Office for Radiation Protection (BFS) found clusters of leukemia cases among children aged under 5 living near 16 power stations in the country.

Mike

Michael Weber  
Deputy Executive Director for Materials, Waste, Research,  
State, Tribal, and Compliance Programs  
U.S. Nuclear Regulatory Commission

301-415-1705  
Mail Stop O16E15

**From:** Weber, Michael  
**Sent:** 9 Apr 2012 07:33:47 -0400  
**To:** Sheron, Brian;Holian, Brian  
**Cc:** Chen, Yen-Ju;McIntyre, David;Burnell, Scott;Brock, Kathryn;Brock, Terry;Gibson, Kathy  
**Subject:** FYI - NEI VIEWS ON MOVING FORWARD WITH PHASE 1A

Good morning. I was not sure whether you saw the article below from the New London Day regarding the NAS results from Phase 1 of the National Cancer Risk Assessment. Thought you might be interested....

## **Millstone data to be used in pilot study of cancer risks**

By **Judy Benson**

Publication: The Day

Published 04/05/2012 12:00 AM

Updated 04/05/2012 12:33 AM

### **At issue is whether incidence higher near nuclear plants**

Data from the Millstone Power Station in Waterford, the decommissioned Connecticut Yankee plant in Haddam and four other nuclear plants would be used in a proposed pilot study of whether there should be a new and larger study of cancer risk near nuclear power plants.

The National Academy of Sciences recommended the pilot study in a report released last week as part of a project it is undertaking for the Nuclear Regulatory Commission. Neil Sheehan, spokesman for the NRC, said the commission asked the academy to conduct a study because modeling tools and cancer incidence data available now are better than they were the last time such a study was done, in 1989.

That study determined that there is no link between cancer risk and proximity to nuclear power plants.

"The purpose is to answer the question, 'Is there an increased cancer risk and cancer mortality for people who live in the vicinity of nuclear power plants?'" he said. "We get these questions all the time from members of the public."

The academy's report is the first phase of the project for the NRC. It describes the ways such a study could be done, should the NRC decide to proceed. One method would look at cancer rates and cancer deaths in small areas within a 30-mile radius of a power plant.

Another approach would focus on the rates of cancers in children younger than 15 in relation to how close their mothers lived to a plant while they were pregnant. Both approaches also would focus on rates of leukemia, the cancer associated with radiation exposure in children, according to a news release from the academy.

The academy listed several challenges in conducting such a study, among them the quality of data available, information on cancer patients' exposures to toxic chemicals, sources of



radiation other than nuclear plants, and other factors that could affect cancer rates and mortality. It also noted that radioactive releases from nuclear plants are expected to be low, so that "cancer risks, if any, are likely small."

"It is not certain whether a full-scale study would have sufficient statistical power to detect such small effects, if present," the academy said.

Given those factors, the academy said, it would be prudent to first conduct a pilot study before embarking on one that would look at the cancer impact of all the nation's 104 nuclear reactors and 13 fuel cycle facilities. Jennifer Walsh, spokeswoman for the academy, said the six facilities were chosen to achieve a range of plant designs and operating histories.

Millstone Power Station has two operating reactors and one decommissioned one.

Connecticut Yankee, which closed in 1996, has one decommissioned plant.

Ken Holt, spokesman for Millstone owner Dominion, said the company had no comment on the recommendation at this time.

"It's so early in the process," he said.

Officials at Connecticut Yankee, owned by a consortium of companies including Northeast Utilities, could not be reached to comment Wednesday.

The Nuclear Energy Institute, an organization that represents the nuclear industry, criticized the proposal, making note of limitations the academy said such a study would encounter.

"The committee is recommending that significant resources be applied to a project that is looking for a needle in a haystack - when a needle may not even be there in the first place," Ralph Andersen, NEI's chief health physicist, said in an email message. "Based on our initial review of the report, it is not clear how the recommended study would produce scientifically defensible results that would serve to allay public concerns."

Sheehan said the data that would be used for the pilot study are routinely collected at Millstone and all nuclear plants as part of their operating license requirements. It includes water and aquatic life samples collected outside the Millstone property and meteorological data from a weather tower at the plant.

The NRC, he said, is studying the academy report.

"We will carefully consider the recommendations before deciding on any next steps," he said, adding that if a study is undertaken, it will be a multi-year initiative.

[j.benson@theday.com](mailto:j.benson@theday.com)

UBOX:

The National Academy of Sciences will accept public comments on the report until May 30. The comments will be considered in designing the next phase of the study. The academy report can be found at:

[www.nap.edu/catalog.php?record\\_id=13388](http://www.nap.edu/catalog.php?record_id=13388)

Comments can be submitted via email at: [crs@nas.edu](mailto:crs@nas.edu) or by fax at: (202) 334-3077.

Mike

Michael Weber  
Deputy Executive Director for Materials, Waste, Research,  
State, Tribal, and Compliance Programs  
U.S. Nuclear Regulatory Commission

301-415-1705  
Mail Stop O16E15

**From:** Coffin, Stephanie  
**Sent:** 18 Jun 2015 15:51:49 -0400  
**To:** Gaskins, Kimberly  
**Cc:** Brock, Terry  
**Subject:** heads up - high priority paper coming through tomorrow that will need some changes

It's already in ADAMS and formatted " we want to make some adjustments tomorrow.

Thanks Kim. Let me know if any concerns on your end.  
Steph

**From:** Case, Michael  
**Sent:** 24 Dec 2014 09:21:39 -0500  
**To:** Tadesse, Rebecca; Brock, Terry  
**Cc:** Coffin, Stephanie  
**Subject:** Next Day Thoughts

Brian shared a little more this morning about the Cancer Study. He was probably less optimistic about it. His concerns went back to time and money lamenting that we are already 4 years into it and probably 4 more and still without a result. Steve was more pessimistic but more from the results side. Couple of things to think about.

We probably will need to rough out an idea of how much (in time and money) the whole thing would cost.

Brian thought that maybe the study group is too academically oriented and maybe we should get some advice on whether to proceed from some more practical folks like ANS, HPS, etc (we sorted of resurrected your idea Rebecca about a workshop)

We also reprised the smaller pilot idea.

No decisions, just thinking out loud.

Enjoy the holidays!

**From:** Coffin, Stephanie  
**Sent:** 17 Jun 2015 08:58:50 -0400  
**To:** Brock, Terry  
**Cc:** Case, Michael;Tadesse, Rebecca  
**Subject:** query - status of revised cancer study SECY

Mike and I would love to get this back out to the offices for re-concurrence this week.  
How are you doing on making the changes?  
Let me know how I can help.



**From:** Case, Michael  
**Sent:** 3 Jun 2015 07:55:18 -0400  
**To:** Burnell, Scott;Pope, Tia;Brock, Terry;Coffin, Stephanie;Tadesse, Rebecca  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Thanks Scott. It's good to have you helping us on this!

---

**From:** Burnell, Scott  
**Sent:** Tuesday, June 02, 2015 9:54 AM  
**To:** Pope, Tia; Brock, Terry; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Good Morning;

I concur for OPA, and offer a few minor edits in the attached version. Thanks.

Scott

---

**From:** Pope, Tia  
**Sent:** Monday, June 01, 2015 5:39 PM  
**To:** RidsOpaMail Resource; RidsRgn1MailCenter Resource; RidsOcfoMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrMailCenter Resource; RidsNsrMailCenter Resource; RidsOgcMailCenter Resource; RidsAdmMailCenter Resource  
**Cc:** Brock, Terry; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Ford, Jennifer; Ramsey, Kevin; Milligan, Patricia; Hinson, Charles; Garry, Steven; Mizuno, Beth; Burnell, Scott; Nimitz, Ronald  
**Subject:** ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

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SUBJECT: RESULTS OF THE ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR  
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**From:** Case, Michael  
**Sent:** 3 Jun 2015 07:54:16 -0400  
**To:** Lorson, Raymond;Nimitz, Ronald;Trapp, James  
**Cc:** Coffin, Stephanie;Brock, Terry;Pope, Tia;Noggle, James  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Thanks Ray. We're working on a comm plan to help with the inevitable criticism. We'll keep you in the loop on that. Part of the reason for the Commission paper was to keep them involved so that they can react to the criticism as well.

---

**From:** Lorson, Raymond  
**Sent:** Tuesday, June 02, 2015 9:56 AM  
**To:** Nimitz, Ronald; Case, Michael; Trapp, James  
**Cc:** Coffin, Stephanie; Brock, Terry; Pope, Tia; Noggle, James  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Mike et al:

I read through it and thought that you provided a sound basis for the proposed recommendation. If approved by the Commission we need to keep OCA and PAO in the loop as there could be some criticism by some external stakeholders as a lessening in the rigor of the study.

Thanks

Ray

---

**From:** Nimitz, Ronald  
**Sent:** Tuesday, June 02, 2015 9:22 AM  
**To:** Case, Michael; Lorson, Raymond; Trapp, James  
**Cc:** Coffin, Stephanie; Brock, Terry; Pope, Tia; Noggle, James  
**Subject:** RE: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

I am fine with this ..

Terry does a great job keeping us in the loop and discussing plans, concerns, issues etc..

ron

---

**From:** Case, Michael  
**Sent:** Tuesday, June 02, 2015 8:45 AM  
**To:** Lorson, Raymond; Trapp, James  
**Cc:** Nimitz, Ronald; Coffin, Stephanie  
**Subject:** FW: ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

Hey Folks,

We sent a draft Commission paper on the path forward for the Cancer Study to the RA's RIDS box last night. We wanted to get it up to the Commission in the same news cycle as the budget so it had a relatively quick turnaround (6/12). We've been working with Ron and it's a pretty quick read, so I don't think it would be a big problem.

Thanks for your help!

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**From:** Pope, Tia  
**Sent:** Monday, June 01, 2015 5:39 PM  
**To:** RidsOpaMail Resource; RidsRgn1MailCenter Resource; RidsOcfoMailCenter Resource; RidsNmssOd Resource; RidsNroMailCenter Resource; RidsNrrMailCenter Resource; RidsNsirMailCenter Resource; RidsOgcMailCenter Resource; RidsAdmMailCenter Resource  
**Cc:** Brock, Terry; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Ford, Jennifer; Ramsey, Kevin; Milligan, Patricia; Hinson, Charles; Garry, Steven; Mizuno, Beth; Burnell, Scott; Nimitz, Ronald

**Subject:** ACTION: Review & Concurrence of Info SECY paper - Results of the Analysis of Cancer Risk in Populations...

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SUBJECT: RESULTS OF THE ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR  
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**From:** Coffin, Stephanie  
**Sent:** 17 Jul 2015 15:07:44 -0400  
**To:** Brock, Terry  
**Cc:** Case, Michael; Tadesse, Rebecca  
**Subject:** RE: Alternate Cancer Study Conclusion Paragraph.docx

Thanks I will look at it tomorrow. Is there a way I can get Brian's comments so that I can do a side-by-side comparison?

My personal experience with OGC is that they want to re-look after ANY change. Maybe your OGC is nicer. Beth is nice so just give her a call – you can blame me.

---

**From:** Brock, Terry  
**Sent:** Friday, July 17, 2015 2:00 PM  
**To:** Coffin, Stephanie  
**Cc:** Case, Michael; Tadesse, Rebecca  
**Subject:** RE: Alternate Cancer Study Conclusion Paragraph.docx

Hi Stephanie,

Attached is the revised SECY with comments addressed. I do not recommend re-concurrence with OGC and CFO. OGC has already NLOed this twice, there's no legal issue with this study, thus this would probably be annoying to them to bother them again. CFO concurred on the original SECY with a 2017 start date and the PMBA verbiage put in the original so I see no need to get them to re-concur.

AS far as Brian's comment to remove the word "recommendation" from the NAS Pilot 1 study designs should not be done. These were recommendations that were couched in the notion that the Phase 1 committee was uncertain if these methods were feasible in the U.S.-hence, the recommendation for the pilot study to determine their utility.

Here's the revised paper link in ADAMS, please give it a read and let me know if I need to change/add anything, then I think it is good for Brian's review and signage. Also attached is CFO's original concurrence.

[View ADAMS P8 Properties ML15141A343](#)

[Open ADAMS P8 Package \(SECY - Results of the Analysis of Cancer Risks in Populations Near Nuclear Facilities: Phase 2 Pilot Planning Project and Next Steps\)](#)

Have a good one,  
Terry

---

**From:** Coffin, Stephanie  
**Sent:** Tuesday, July 14, 2015 4:53 PM  
**To:** Brock, Terry  
**Cc:** Case, Michael; Tadesse, Rebecca  
**Subject:** FW: Alternate Cancer Study Conclusion Paragraph.docx

A minor tweak to make – see his comment below.

How are you doing addressing the remaining comments? We still need to get to OGC and CFO, right? I'm assuming Mike Weber agrees to the change...

---

**From:** Sheron, Brian  
**Sent:** Tuesday, July 14, 2015 4:49 PM  
**To:** Coffin, Stephanie  
**Cc:** Case, Michael; West, Steven  
**Subject:** RE: Alternate Cancer Study Conclusion Paragraph.docx

I like the alternate conclusion. However, it reads like contracting this work with NCRP is a done deal. I think the conclusion just needs to say that we like the NCRP proposed approach, but we need to follow government contracting practices as we move forward to utilize this approach.

---

**From:** Coffin, Stephanie  
**Sent:** Tuesday, July 14, 2015 2:24 PM  
**To:** Sheron, Brian  
**Cc:** Case, Michael; West, Steven  
**Subject:** Alternate Cancer Study Conclusion Paragraph.docx

Brian,

For your consideration and use, please see attached suggestion.

Stephanie



**From:** Brock, Terry  
**Sent:** 9 Sep 2015 15:04:09 +0000  
**To:** Johnson, Kevin;Armstrong, Kenneth  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

That's it.

**From:** Johnson, Kevin  
**Sent:** Wednesday, September 09, 2015 11:02 AM  
**To:** Brock, Terry; Armstrong, Kenneth  
**Cc:** Tadesse, Rebecca  
**Subject:** Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Terry,

**Please confirm if this is the letter that Yen was referring to last week. (additional task)**

**From:** ADAMS p8\_icm\_service  
**Sent:** Wednesday, August 26, 2015 6:19 AM  
**To:** ICM\_STARS\_OEDO <[ICM\\_STARS\\_OEDO@nrc.gov](mailto:ICM_STARS_OEDO@nrc.gov)>; ICM\_STARS\_SECYTasks <[ICM\\_STARS\\_SECYTasks@nrc.gov](mailto:ICM_STARS_SECYTasks@nrc.gov)>  
**Subject:** STARS Task Notification (SRM-SECY-15-0104, New)

A new Task has been created by Shea, Pamela (pws) on 08/26/2015. The Task information is below.

### Task Info

Document Number	<a href="#">SRM-SECY-15-0104</a>
Activity Title	Analysis of Cancer Risks in Populations Near Nuclear Facilities Study
Activity Type	SRM
Task Number	1
Description	Staff will provide a letter to the National Academy of Sciences (NAS) describing the basis of the staff's conclusion to end the cancer risks in populations near nuclear facilities study, per SECY-15-0104.
Priority	Normal
Lead Office	OEDO
Supporting Office	RES
Due Date	10/30/2015

Cross Reference SRM-SECY-15-0104-1  
Subject Codes Research  
Frequency  
Completion Date  
Closure Code  
Closure Date

[View ADAMS P8 Properties ML15244A494](#)

[Open ADAMS P8 Document \(Letter to K. Crowley for ending the "Analysis of Cancer Risks in Populations near Nuclear Facilities"\)](#)

One Team/One Goal

Kevin D. Johnson  
Research Information Specialist  
Office of Nuclear Regulatory Research  
RES/PMDA/HCITCT  
Email: [Kevin.Johnson@nrc.gov](mailto:Kevin.Johnson@nrc.gov)  
T-10-B-12  
Office: 301-415-1989  
Cell: (b)(6)

**From:** Sheron, Brian  
**Sent:** 8 Jun 2015 07:53:54 -0400  
**To:** Coffin, Stephanie; West, Steven; Case, Michael; Tadesse, Rebecca; Gibson, Kathy  
**Cc:** Brock, Terry  
**Subject:** Re: Briefing for Weber on cancer study

This was started in response to a user need letter from several offices. I understand Mike's feeling, but I'm not about to cancel this just because Mike thinks it's a nice but not necessary project. We need to discuss with our requestors and see what they think.

----- Original Message -----

**From:** Coffin, Stephanie  
**Sent:** Friday, June 05, 2015 01:38 PM  
**To:** Sheron, Brian; West, Steven; Case, Michael; Tadesse, Rebecca; Gibson, Kathy  
**Cc:** Brock, Terry  
**Subject:** Briefing for Weber on cancer study

Weber doesn't think the Agency can afford even the smaller scale approach and asked us to reconsider our recommendation to move forward at all. He emphasized he was always a "fan" but he can't help but see that these "nice to have but don't need to have" projects cannot be justified in the current environment.

Terry feel free to chime in.  
Scott Burnell and Yen joined us at the meeting.

ps - Mike Case you made an impact at last weeks meeting about how RES is getting squeezed by all the business lines - Weber reflected on that today too

Sent from an NRC blackberry

Stephanie Coffin

(b)(6)

**From:** Coffin, Stephanie  
**Sent:** 4 Feb 2015 16:39:42 -0500  
**To:** Tadesse, Rebecca  
**Cc:** Brock, Terry;Case, Michael  
**Subject:** RE: CA\_NOTE\_Cancer\_Pilot\_Planning\_011615 (Coffin comments)\_tab\_clean.docx

Nice!

Please proceed to work with Tia/Kim to develop a concurrence package.

---

**From:** Tadesse, Rebecca  
**Sent:** Wednesday, February 04, 2015 11:04 AM  
**To:** Coffin, Stephanie; Case, Michael  
**Cc:** Brock, Terry  
**Subject:** CA\_NOTE\_Cancer\_Pilot\_Planning\_011615 (Coffin comments)\_tab\_clean.docx

Hi Stephanie,

I think Terry has addressed all your comments in the attached CA Note. Please let me know if you are ok with it.

Thanks  
Rebecca



**From:** Burnell, Scott  
**Sent:** 4 Jun 2015 09:51:10 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer press release

Absolutely.

---

**From:** Brock, Terry  
**Sent:** Thursday, June 04, 2015 9:51 AM  
**To:** Burnell, Scott  
**Subject:** RE: cancer press release

I ask becuz of the short turnaround for tomorrow, but bullet points will work. You want to speak to that tomorrow and at the CA brief?

---

**From:** Burnell, Scott  
**Sent:** Thursday, June 04, 2015 9:48 AM  
**To:** Brock, Terry  
**Subject:** RE: cancer press release

You have to ask?

Actually, I'd prefer sticking to discussing the outline of what the release would say at this point.

---

**From:** Brock, Terry  
**Sent:** Thursday, June 04, 2015 9:18 AM  
**To:** Burnell, Scott  
**Subject:** cancer press release

Do you have time to draft a press release we can show tomorrow to Weber? I'll work on internal bullet points

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

**From:** Coffin, Stephanie  
**Sent:** 5 Jun 2015 16:51:24 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer SECEY ready to distribute for concurrence

Before I forget, if this SECY goes forward, we need to mention the User Need. Mike Case reminded me that Brian will definitely want to see it mentioned.  
How's the comm plan coming along?

**From:** Brock, Terry  
**Sent:** Monday, June 01, 2015 9:28 AM  
**To:** Case, Michael; Coffin, Stephanie  
**Cc:** Pope, Tia  
**Subject:** Cancer SECEY ready to distribute for concurrence

Mike/Stephanie,

The cancer secy should be ready to go. Needs your signature to exit the door. Once we get the ok Tia will distribute via RIDS.

Thx,  
Terry

[View ADAMS P8 Properties ML15141A343](#)

[Open ADAMS P8 Package \(SECY - Results of the Analysis of Cancer Risks in Populations Near Nuclear Facilities: Phase 2 Pilot Planning Project and Next Steps\)](#)

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

**From:** Coffin, Stephanie  
**Sent:** 14 Jul 2015 12:48:55 -0400  
**To:** Brock, Terry;Case, Michael;Tadesse, Rebecca  
**Subject:** RE: Cancer Study: Alternative Conclusion

Good catch

---

**From:** Brock, Terry  
**Sent:** Tuesday, July 14, 2015 12:48 PM  
**To:** Coffin, Stephanie; Case, Michael; Tadesse, Rebecca  
**Subject:** RE: Cancer Study: Alternative Conclusion

One more thing in the fourth sentence . . . , change "less modest" to "more modest". Thx

---

**From:** Coffin, Stephanie  
**Sent:** Tuesday, July 14, 2015 12:33 PM  
**To:** Case, Michael; Brock, Terry; Tadesse, Rebecca  
**Subject:** RE: Cancer Study: Alternative Conclusion

Love it

We will need to add CFO back onto concurrence if we move forward with this angle

I don't see a need to pester the other offices again – we can use their previous concurrences – maybe just give them a "heads up" after we hear from Weber....

---

**From:** Case, Michael  
**Sent:** Tuesday, July 14, 2015 11:34 AM  
**To:** Brock, Terry; Tadesse, Rebecca; Coffin, Stephanie  
**Subject:** Cancer Study: Alternative Conclusion

Hi folks. Can you take a look at the attached? After your consideration, we can forward to Brian and Steve to support the ongoing discussion with Mike W.

**From:** Sheron, Brian  
**Sent:** 3 Jun 2015 03:58:55 -0400  
**To:** West, Steven; Brock, Terry  
**Cc:** Case, Michael; Coffin, Stephanie  
**Subject:** Re: Cancer study CA briefing slides

Yep, good luck. If you do well, naturally I'll take all the credit. If you screw it up, I'll deny any responsibility and blame it all on Terry.

---

**From:** West, Steven  
**Sent:** Wednesday, June 03, 2015 09:56 AM  
**To:** Brock, Terry; Sheron, Brian  
**Cc:** Case, Michael; Coffin, Stephanie  
**Subject:** Re: Cancer study CA briefing slides

Terry,

Looks good. I don't have any comments. Good luck with the briefings.

Steve

Steven West, Deputy Director  
Office of Nuclear Regulatory Research  
U.S. NRC

---

**From:** Brock, Terry  
**Sent:** Monday, June 01, 2015 04:37 PM  
**To:** Sheron, Brian; West, Steven  
**Cc:** Case, Michael; Coffin, Stephanie  
**Subject:** Cancer study CA briefing slides

Brian/Steve,

Attached are the cancer study slides I plan on using to brief the CAs' on June 10 and M.Weber pre-brief on June 5. You've seen these slides before in different briefs. Let me know if you want to tweak anything,

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Coffin, Stephanie  
**Sent:** 30 Dec 2014 10:49:33 -0500  
**To:** Brock, Terry;Tapp, Katherine  
**Cc:** Tadesse, Rebecca;Hathaway, Alfred  
**Subject:** RE: Cancer Study EDO Daily.docx

Terry (b)(6)

The write-up below works for me and it's good to know that Brian has already blessed.

Katie - when you send it to Steve let him know that Brian has already seen this. Sorry for the duplicative work.

-----Original Message-----

**From:** Brock, Terry  
**Sent:** Tuesday, December 30, 2014 10:18 AM  
**To:** Coffin, Stephanie; Tapp, Katherine  
**Cc:** Tadesse, Rebecca; Hathaway, Alfred  
**Subject:** RE: Cancer Study EDO Daily.docx

All,

(b)(6) so I'm not available much. Looks like NAS issued the report too early. Below is the revised EDO note that Brian had already seen and provided feedback. I suggest we use this version. Thanks Katie!!

Terry

The National Academy of Science (NAS) Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 2 Pilot Planning Project has been completed. NAS was to re;lease the report on January 5, 2015, but erroneously released the public report on December 29, 2014â€”they provided staff a non-public advanced copy of the report that can be found in ADAMS (ML14357A430). Staff is reviewing the findings of the report to inform the execution step of the pilot study at seven sites: Dresden Nuclear Power Station, Millstone Power Station, Oyster Creek Nuclear Generating Station, Haddam Neck, Big Rock Point Nuclear Power Plant, San Onofre Nuclear Generating Station, and Nuclear Fuel Services. NAS communicated with staff that the pilot study will focus on the feasibility of the study methods and require significant resources to complete. NAS will be providing a cost estimate for the execution phase of the pilot study in February. Staff will communicate with the Commission on the next steps via a SECY paper, including updated cost estimates for completing the pilot study.

---

**From:** Coffin, Stephanie  
**Sent:** Tuesday, December 30, 2014 9:59 AM  
**To:** Tapp, Katherine  
**Cc:** Tadesse, Rebecca; Brock, Terry; Hathaway, Alfred  
**Subject:** RE: Cancer Study EDO Daily.docx

Katie,

Great job!

See attached suggested changes.

I modified it a little bit mostly to shorten but also to convey the message that the decision to go forward with the pilot study has not yet been made (which is my understanding of the status). So I added the sentence at the end. Let me know if you think I am missing something. If you are good with it, go ahead and accept all the changes.

Let's give Terry and Rebecca a few hours to respond to this email. If we don't hear from them by 1 pm or so, let's move the attached forward. Just send to Steve West for his review, and copy me and Shirley and Trey and Milton just so we are aware. Shirley knows how to process them.

Stephanie

From: Tapp, Katherine  
Sent: Tuesday, December 30, 2014 9:36 AM  
To: Coffin, Stephanie  
Cc: Tadesse, Rebecca; Brock, Terry  
Subject: Cancer Study EDO Daily.docx

As discussed. Please let me know if you have any comments/questions.  
Kaite

**From:** Coffin, Stephanie  
**Sent:** 10 Jul 2015 09:34:04 -0400  
**To:** Tadesse, Rebecca  
**Cc:** Brock, Terry  
**Subject:** RE: Cancer Study Meeting

Sorry Rebecca, I came in late and did not see this email before the meeting

Bottom line - Brian is going to try again with Weber!

-----Original Message-----

**From:** Pope, Tia  
**Sent:** Friday, July 10, 2015 6:47 AM  
**To:** Tadesse, Rebecca; Coffin, Stephanie; Brock, Terry  
**Subject:** Cancer Study Meeting

Bridgeline Information below:

Dial in: 888-922-9161

Passcode:

**From:** Case, Michael  
**Sent:** 19 Aug 2015 17:56:49 -0400  
**To:** Chen, Yen-Ju; Brock, Terry  
**Cc:** Coffin, Stephanie  
**Subject:** Re: Cancer Study Paper

Hi Yen. I was off today and couldn't tell if anyone had got back with you. Terry made the changes late yesterday. (I think) it's been shared with Brian. He had some additional thoughts based on the Million Worker study that Mike added in. I think Steve West and Stephanie will have the baton tomorrow b/c both Brian and I are out.

Thanks for your patience. The wheels are turning!

---

On: 19 August 2015 13:12, "Chen, Yen-Ju" wrote:  
Hi, Terry:  
How are you doing with the paper? Any chance that we will get it today?  
Yen



**From:** Burnell, Scott  
**Sent:** 25 Aug 2015 14:53:38 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer study press release

OK, I think I see the disconnect – don't our Regional state liaison officers talk to the State RP directors?

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 2:49 PM  
**To:** Burnell, Scott  
**Subject:** RE: Cancer study press release

Yep. Some are also the Liaison folks, but only about half.

Terry

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 25, 2015 2:45 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer study press release

RP directors as in non-NRC, Agreement State staff? We can work something out.

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 2:40 PM  
**To:** Burnell, Scott <[Scott.Burnell@nrc.gov](mailto:Scott.Burnell@nrc.gov)>; McGrady-Finneran, Patricia <[Patricia.McGrady-Finneran@nrc.gov](mailto:Patricia.McGrady-Finneran@nrc.gov)>  
**Cc:** Tadesse, Rebecca <[Rebecca.Tadesse@nrc.gov](mailto:Rebecca.Tadesse@nrc.gov)>  
**Subject:** RE: Cancer study press release

Scott, The SLOs cover about 50% of the OAS RP Directors. The RP directors will have a keen interest in this info since they will likely be called about it. Is there any way we can include all State program RP folks to ensure complete coverage in the release?

Terry

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 25, 2015 2:37 PM  
**To:** Brock, Terry; McGrady-Finneran, Patricia  
**Cc:** Tadesse, Rebecca  
**Subject:** Re: Cancer study press release

Hi all;

OPA's existing procedure sends the press release internally an hour before it's public, specifically so OCA and the SLOs can make their notifications.

Scott

Sent from an NRC Blackberry

Scott Burnell

(b)(6)

---

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 02:30 PM  
**To:** McGrady-Finneran, Patricia  
**Cc:** Burnell, Scott; Tadesse, Rebecca

**Subject:** Cancer study press release

Hi Patricia,

Good to talk to you. So the plan is we will distribute the cancer study press release to the State Liaison and OAS Radiation Protection Directors via the designated State list server the morning of September 8 prior to NRC releasing the press release. Sound like a plan?

Terry

---

**From:** McGrady-Finneran, Patricia

**Sent:** Tuesday, August 25, 2015 2:02 PM

**To:** Brock, Terry

**Subject:** Hey Information Man!

Hi Terrino!

I called and left a voice mail message earlier. Paul said you needed my help regarding sending something out via LYRIS list servers. If you can fill me in this afternoon. There's a good chance I'll be out tomorrow (jury duty) and I want to be able to fill in the person who will actually be emailing your message out-so get back to me please.



**Patricia McGrady-Finneran**

Project Manager, USNRC

Office of Nuclear Material Safety and Safeguards (NMSS)

Division of Materials Safety, States, Tribal and Rulemaking (DMSSTR)

Federal, State and Tribal Liaison Branch (FSTLB)

[Patricia.McGrady-Finneran@nrc.gov](mailto:Patricia.McGrady-Finneran@nrc.gov)

Phone: (301) 415-2326

**From:** Coffin, Stephanie  
**Sent:** 21 Aug 2015 11:20:11 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer study SECY.docx

Thanks, I responded to her.

We have a little bit of a version control issue that we can work out next week.

**From:** Brock, Terry  
**Sent:** Friday, August 21, 2015 11:16 AM  
**To:** Coffin, Stephanie <Stephanie.Coffin@nrc.gov>  
**Subject:** cancer study SECY.docx

Hi Stephanie,

Per Mike W's request, here's the latest SECY version with Brian's suggestion finished. I suggest we emphasize that we found out that the low dose study is dead and we plan to confab with Brian on Monday about possible alternate endings.

Terry

**From:** Case, Michael  
**Sent:** 1 Apr 2015 08:56:06 -0400  
**To:** Brock, Terry  
**Subject:** Re: cancer study slides and pop for EDO meeting tomorrow

Hey Terry. Good luck today. You'll do great. BTW, is congressional affairs going to be there? Might be good for them to hear in case there is an end run to Congress

---

On: 31 March 2015 13:30, "Brock, Terry" wrote:  
Attached are the revised slides for the cancer study EDO briefing and a meeting POP. Brian wanted a look-see before we forwarded to the EDO (Yen).  
Thanks  
Terry



**From:** Ramsey, Kevin  
**Sent:** 31 Mar 2015 10:18:00 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Study Update

Remind Mike Weber that if fuel facilities get dropped, public stakeholders will complain (especially NFS stakeholders).

---

**From:** Brock, Terry  
**Sent:** Tuesday, March 31, 2015 10:15 AM  
**To:** Ramsey, Kevin  
**Subject:** RE: Cancer Study Update

Not necessarily, NCRP is able to include new sites using the NCI protocol. I'll keep you in the loop as we move forward to some conclusion. Meeting with EDO tomorrow.

Thx,  
Terry

---

**From:** Ramsey, Kevin  
**Sent:** Tuesday, March 31, 2015 10:11 AM  
**To:** Brock, Terry  
**Subject:** RE: Cancer Study Update

Was unpacking in new office and missed the meeting. If NCRP option is selected, will fuel facilities be outside the scope of the effort? I don't believe fuel facilities were addressed in the original report, so there is nothing to update.

-----Original Appointment-----

**From:** Brock, Terry  
**Sent:** Monday, March 30, 2015 8:48 AM  
**To:** Milligan, Patricia; Garry, Steven; Burnell, Scott; Weil, Jenny; Ramsey, Kevin; Nimitz, Ronald; Hinson, Charles; Tadesse, Rebecca  
**Subject:** Update: Slides attached - Cancer Study Update  
**When:** Monday, March 30, 2015 3:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).  
**Where:** teleconference-bridge-line in message

Slides I'll be going over during the meeting.

<< File: cancer\_study\_pilot\_options\_0330201.pptx >> Hi All,

This call is to give you the program office staff and user-need requestors an update on what RES has been thinking about in regards to the NAS cancer risk pilot studies proposal. We've had some discussions internally and with NAS on their pilot study execution proposal and would like to share this with you as a heads-up and to solicit input in preparation for developing the SECY paper on the next steps of the study. Bridge-line below.

Thanks,

Terry

**Passcodes/Pin codes:**

Participant passcode: (b)(6)

For security reasons, the passcode will be required to join the conference.

**Dial in numbers:**

<b>Country</b>	<b>Toll Numbers</b>	<b>Freephone/ Toll Free Number</b>
----------------	---------------------	--

USA

800-779-2652

Thanks,  
Terry

**From:** Coffin, Stephanie  
**Sent:** 19 Jun 2015 11:11:26 -0400  
**To:** Brock, Terry  
**Cc:** Tadesse, Rebecca; Case, Michael  
**Subject:** RE: cancer\_secy\_take2

OK. Mike and I were anticipating Brian Sheron wanting this added but your points below make sense to me. So go ahead and ignore that suggested change.

**From:** Brock, Terry  
**Sent:** Friday, June 19, 2015 10:40 AM  
**To:** Coffin, Stephanie  
**Cc:** Tadesse, Rebecca; Case, Michael  
**Subject:** RE: cancer\_secy\_take2

Hi Stephanie. On the user-need reference . . . this is internal baseball stuff that Iâ€™ve been told from Brian to Weber over the years to not include in outside communications . . . Iâ€™ve added it before and it always gets taken out since this is all internal memos and not publicly available I recommend deleting the comment since the user-need requests arenâ€™t publicly available.

As far as sad, not really, with this project I try to keep an even keel . . . donâ€™t be surprised to hear about this again . . .

Terry

---

**From:** Coffin, Stephanie  
**Sent:** Friday, June 19, 2015 10:06 AM  
**To:** Brock, Terry  
**Cc:** Tadesse, Rebecca; Case, Michael  
**Subject:** RE: cancer\_secy\_take2  
**Importance:** High

Looks great.

Please see attached for minor edits. Let me know if any concerns with these changes.

Please ask Kim to update the ADAMS version and email it out like Tia did (minus CFO and ADM). Kim might appreciate it if you can find that email for her to use as a template. I have it but cannot access it as it is on my old computer.

And then you can give your WG partners a â€œheads upâ€ and I will give my counterparts a â€œheads upâ€ too.

Thanks Terry. Are you sad?

Stephanie

**From:** Brock, Terry  
**Sent:** Friday, June 19, 2015 9:27 AM  
**To:** Coffin, Stephanie; Case, Michael  
**Cc:** Tadesse, Rebecca  
**Subject:** cancer\_secy\_take2

See attached

**From:** Case, Michael  
**Sent:** 9 Jun 2015 07:12:55 -0400  
**To:** Brock, Terry; Coffin, Stephanie; Tadesse, Rebecca  
**Subject:** RE: cancer\_study\_CA\_brief\_NCRP\_2\_06152015.pptx

Looks good to me.

---

**From:** Brock, Terry  
**Sent:** Monday, June 08, 2015 2:53 PM  
**To:** Case, Michael; Coffin, Stephanie; Tadesse, Rebecca  
**Subject:** cancer\_study\_CA\_brief\_NCRP\_2\_06152015.pptx

Hi,  
Take a looksee at slides 15 and 16  
Terry



**From:** Burnell, Scott  
**Sent:** 25 Aug 2015 10:01:58 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer\_study\_comm\_plan\_2015\_Closeout\_1.docx

Thanks.

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 10:01 AM  
**To:** Burnell, Scott  
**Subject:** cancer\_study\_comm\_plan\_2015\_Closeout\_1.docx  
Draft comm plan and final secy

**From:** Burnell, Scott  
**Sent:** 25 Aug 2015 13:11:00 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer\_study\_comm\_plan\_2015\_Closeout\_1.docx

Links to the 1990 NCI study pages are dead, can't find anything in Google except IAEA, etc.

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 10:01 AM  
**To:** Burnell, Scott  
**Subject:** cancer\_study\_comm\_plan\_2015\_Closeout\_1.docx  
Draft comm plan and final secy

**From:** Coffin, Stephanie  
**Sent:** 25 Aug 2015 11:52:28 -0400  
**To:** Brock, Terry; Tadesse, Rebecca  
**Subject:** RE: cancer\_study\_comm\_plan\_2015\_Closeout\_opa.docx

Thanks Terry

Does this reflect the comments I provided on the previous version (to the extent they apply)?

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 11:37 AM  
**To:** Tadesse, Rebecca <Rebecca.Tadesse@nrc.gov>; Coffin, Stephanie <Stephanie.Coffin@nrc.gov>  
**Subject:** cancer\_study\_comm\_plan\_2015\_Closeout\_opa.docx

Here you go, Scott and I put this comm plan together. We're working on the press release.

Been on the phone with the State Liaison folks to give them a heads up and they will notify the states at the appropriate time.

**From:** Burnell, Scott  
**Sent:** 10 Aug 2015 23:42:25 -0400  
**To:** Brock, Terry  
**Cc:** McIntyre, David  
**Subject:** RE: cancer\_study\_comm\_plan\_2015\_srb

Hey Terry;

I'll be back next Monday; check with Dave if this has a shorter fuse. Thanks.

Scott

---

From: Brock, Terry  
Sent: Monday, August 10, 2015 12:33 PM  
To: Burnell, Scott  
Subject: cancer\_study\_comm\_plan\_2015\_srb

Straw responses to your three new Q's. Let's chat.. these need help.



**From:** Burnell, Scott  
**Sent:** 27 Jul 2015 11:52:13 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer\_study\_communication\_plan\_2015.docx  
**Attachments:** cancer\_study\_comm\_plan\_2015\_srb.docx

Hi Terry;  
Made a few plain-language edits and added three Qs based on the change in approach.  
Thanks.  
Scott

---

**From:** Brock, Terry  
**Sent:** Wednesday, July 22, 2015 11:13 AM  
**To:** Burnell, Scott  
**Subject:** cancer\_study\_communication\_plan\_2015.docx  
Hereâ€™s the whole comm plan when you get a chance.  
Terry

## COMMUNICATIONS PLAN

### ANALYSIS OF CANCER RISKS IN POPULATIONS LIVING NEAR NUCLEAR FACILITIES—NEXT STEPS 2015

#### Introduction

The objective of this communication plan is to outline the Nuclear Regulatory Commission's (NRC) strategy for communicating the key messages regarding the agency's next steps of the Analysis of Cancer Risks in Populations Living Near Nuclear Facilities study to update a 1990 National Cancer Institute (NCI) report. This plan specifically addresses the 2015 staff plan to switch investigators from the National Academy of Sciences (NAS) to possibly the U.S. National Council on Radiation Protection and Measurements (NCRP) or some other entity following NRC's procurement process.

#### Key Messages

The NRC will communicate the following key messages to all stakeholders:

1. The NRC staff reviewed the NAS Pilot Planning Project Report and Pilot Execution Proposal and has decided to not move forward with it. The pilot project's due to the study duration, cost, and lack of usefulness of the pilot results for communicating cancer risks with stakeholders preclude the agency devoting further resources to this effort.
2. The staff s current decided on a more modest approach would directly update the NCI study with the same methods used in the original report. This approach is expected to would conclude be done sooner, and for cost less cost, and while still providing updated cancer risk information for staff to discuss with our stakeholders.
3. The NRC will request follow its normal procurement process to determine if that the U.S. National Council on Radiation Protection and Measurements (NCRP) or some other comparable entity selected through the normal procurement process do a can directly update of the original NCI study. This a more modest alternative to the approach than what NAS proposed, however staff would meet the project's original intent – providing the staff still find it valuable to have updated information on cancer risk the original intent of this project.

Appendix A provides responses to inquiries expected from the general public, congressional staff, the media, and other stakeholders. The appendices also include additional information for stakeholders who may be more familiar with these topics, such as elected officials, Federal and State Government officials, public interest groups, and certain members of the media.

#### Background

Each commercial nuclear power plant and fuel cycle facility that the NRC regulates is authorized to release radioactive materials to the environment as specified in the regulations and licensing



documents, in compliance with dose limits for members of the public and concentration limits for liquid and gaseous effluent releases to ensure offsite doses are as low as reasonably achievable (ALARA). The staff has concluded that offsite doses to individual members of the public as a result of these routine releases are ALARA and a small fraction of the dose limits specified in Title 10 of the Code of Federal Regulations (10 CFR) Part 20, "Standards for Protection Against Radiation," specifically 10 CFR 20.1301(a) and (e). The offsite dose to the highest exposed member of the public is also generally less than 1 percent of the amount of radiation the average U.S. citizen receives in a year from all background and medical sources. Nonetheless, some stakeholders have continued to express concerns about the potential effect of these releases on the health of residents living near nuclear facilities.

These concerns are not new or unique to the United States. Since 2008, Canada, France, Germany, Great Britain, Spain, and Switzerland have all conducted epidemiological studies near nuclear facilities within their borders to address public health concerns. These studies have generally found no association between facility operations and increased cancer risks to the public that are attributable to the releases. For example, the German study did find an association of increased childhood leukemia risk within 5 kilometers of the facilities; however, upon examination of the offsite exposures, the authors concluded the increased risk could not be explained by the releases from the facilities .

The regional and headquarter staff routinely interact with stakeholders about their concerns of cancer risk from facility operations. Although the offsite doses to the public from routine facility operations are very low, communicating this very low risk can often be a challenge. To help address these concerns, the staff has been using the 1990 ~~National Cancer Institute (NCI)~~ study, "Cancer in Populations Living near Nuclear Facilities" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15035A630), and other more recent epidemiological reports conducted by various State health departments when communicating with the public on cancer mortality in populations near nuclear power facilities. The staff relies on credible health studies to augment its discussions about the NRC's robust regulatory programs to keep offsite doses ALARA by providing public health information that directly applies to the health outcomes that are often of concern (i.e., cancer). However, the 1990 NCI report is now more than 25 years old and focused primarily on cancer mortality, with limited cancer incidence (i.e., occurrence of the disease) in two states. As a result, there was broad agency support for an update to this report, including a study of incidence if feasible, that would allow the staff to evaluate and communicate more contemporary cancer information for populations living near NRC-licensed nuclear facilities.

### **Audience/Stakeholders**

#### **Internal**

- Commission
- Office of the Executive Director for Operations (OEDO)
- Advisory Committee on Reactor Safety (ACRS)
- Office of the General Counsel (OGC)
- Office of Congressional Affairs (OCA)
- Office of International Programs

#### **External**

- Congress
- Federal agencies
- Institute for Nuclear Power Operations
- Electric Power Research Institute
- Nuclear Energy Institute
- Conference of Radiation Control Program Directors
- Organization of Agreement States



- (OIP)
- Office of Public Affairs (OPA)
- Office of Nuclear Regulatory Research (RES)
- Office of New Reactors (NRO)
- Office of Nuclear Reactor Regulation (NRR)
- Office of Nuclear Security and Incident Response (NSIR)
- Office of Federal State Materials and Environmental Management Programs (FSME)
- Office of Nuclear Material Safety and Safeguards (NMSS)
- Regions I-IV
- Agreement States
- news media (e.g., *Inside NRC*)
- International Atomic Energy Agency
- nuclear regulators of other countries
- residents living near nuclear power plants
- State and local governments
- public interest groups (e.g., Union of Concerned Scientists)
- academic and professional organizations (e.g., Health Physics Society, American Nuclear Society)
- NRC licensees
- Nuclear Energy Agency
- Foreign governments of countries with similar facilities

### Communication Team

The Communication Team will assist the Team Leader as needed in developing uniform and accurate messages, initiating communication vehicles, and coordinating implementation plans for this project. The members of the Regional Communication Team will be responsible for coordinating communication within their regions.

<u>Position</u>	<u>Name</u>	<u>Organization</u>	<u>Telephone Number</u>
<i>Team Leader</i>	Terry Brock	RES	(301) 415-1793
<i>NMSS Lead</i>	Kevin Ramsey	NMSS	(301) 415-7506
<i>NRR Lead</i>	Steven Garry	NRR	(301) 415-2766
<i>NRO Lead</i>	Charles Hinson	NRO	(301) 415-6619
<i>NSIR Lead</i>	Trish Milligan	NSIR	(301) 415-2223
<i>Region I Lead</i>	Ron Nimitz	RI	(610) 337-5267
<i>Region II Lead</i>	Gena Woodruff	RII	(404) 997-4739
<i>Region III Lead</i>	John Cassidy	RIII	(630) 829-9667
<i>Region IV Lead</i>	Don Stearns	RIV	(817) 200-1176
<i>State Liaison Lead</i>	June Cai	FSME	(301) 415-5192
<i>Legal Lead</i>	Beth Mizuno	OGC	(301) 415-3122
<i>Public Affairs Lead</i>	Scott Burnell	OPA	(301) 415-8204
<i>International Programs</i>	Andrea Jones	OIP	(301) 415-2309
<i>Congressional Affairs</i>	Jenny Weil	OCA	(301) 415-1691
<i>OEDO Lead</i>	Lance Rakovan	OEDO	(301) 415-2589

### Communication Tools

#### Tool

NRC External Web Site

#### Description/Purpose

The NRC's external website will provide links to the NAS study web page, to the NCI Web page and to other related publicly available



	documents.
Internal Briefings	The Communication Team will conduct internal briefings at various points in the process to keep internal stakeholders informed of its activities and messages.
Weekly Highlights and EDO Daily Notes	The weekly highlights and/or EDO Daily Notes will report on significant milestones.
Internet E-Mail	The Communication Team will e-mail significant information on the status of the study and deliverables to internal stakeholders.
Commissioners' Assistants Notes	Commissioners' Assistants Notes will be used to communicate information about public meetings, study status, and other items of significant interest
<b><u>Tool</u></b>	<b><u>Description/Purpose</u></b>
Commissioner Interactions	The Communication Team will coordinate and assist in preparing briefing materials for the interactions of Commissioners with various stakeholders.
Public Meetings	If necessary, public meetings could be held to discuss the final study report after NAS has briefed the staff and/or Commission on the findings and a Commission-approved message has been developed.
Issuance of Significant Correspondence	The project manager will coordinate the issuance of correspondence with key internal and external stakeholders. The Communication Team will coordinate with OPA when preparing press releases and interacting with the media.
Congressional Communications	OCA will coordinate all communication with Congress.
Media Communications	OPA will coordinate all communication with the media.

## **Communication Challenges**

The Communication Team is likely to encounter challenges in the following two areas while implementing this plan:

### **(1) Effective Communication with the General Public**

This study and its results will be of significant interest to the general public, particularly those members of the general public who live within the areas analyzed in the study. All NRC-produced materials must take into account the limited technical background of some stakeholders and the sensitivity of issues relating to cancer. In addition, various stakeholder groups have expressed concern with perceived elevated cancer risks in populations that live near nuclear facilities.

### **(2) Public Perceptions of the NRC and the NCRP**

Communications regarding this study should address the frequent misconception among some stakeholders that the NRC promotes the use of nuclear power (i.e., to generate electricity). In addition, communication efforts must stress the NCRP was established by Congress to provide scientific information and advice to the government, and that any NCRP report will be independent of the NRC and reflect the Council's best judgment.

## **Updates and Revisions**

If major revisions to this plan or its key messages are necessary, the Team Leader will ensure that a formal revision is made and placed in the Agencywide Documents Access and Management System and on the internal communications Web page. The Team Leader will also determine the need for updates to the questions and answers in Appendix A to this plan. These updates will not constitute a revision to this plan.

As needed, the Communication Team will assess the degree of success that key messages and talking points have with the target stakeholder audience, and will modify/adapt the key message as necessary.

The Team Leader will brief key staff as needed regarding revisions to the messages, talking points, or guidance based on immediate concerns or questions asked by the stakeholder audience.

### **Final Closeout**

At the conclusion of the study, the Team Leader will prepare a brief closeout statement about the challenges and successes related to the communication plan and attach it to the end of the last draft.



**Appendix A  
Questions and  
Answers**

**Q1. Why has the U.S. Nuclear Regulatory Commission (NRC) decided to conduct this study now?**

A1. This study will provide the NRC staff with the most current scientific information for responding to stakeholder concerns related to cancer mortality and incidence rates for populations that live near past, present, and proposed nuclear power facilities. The NRC staff has used a 1990 study conducted by the National Cancer Institute (NCI), "Cancer in Populations Living near Nuclear Facilities," as a valuable risk communication tool for addressing stakeholder concerns about cancer mortality attributable to the operation of nuclear power facilities. However, the NCI report is over 25 years old and a new study needs to be performed to reflect the current populations living near nuclear power facilities. In addition, the analyses in the NCI report focus on cancer deaths, and the general public is often also interested in cancer incidence (e.g., being diagnosed with cancer, but not necessarily dying from the disease).

**Q2. Why isn't NCI conducting this follow-up to their 1990 work?**

A2. The NRC staff approached NCI management in [2007?] about performing a new study under contract to the NRC, but because of staffing limitations, NCI was unable to commit resources for this activity for the foreseeable future.

**Q3. Why is the NRC abandoning the National Academies suggested research methods?**

A3.

**Q4. Why does the NRC think the cost of the study is more important than giving the public the best information about cancer risks from nuclear power?**

A4.

**Q5. Why should the public trust the NRC when it's abandoning a truly independent look at cancer risk?**

A5.

**Q3. Which additional nuclear facilities could be included in the study?**

A3. The NRC is to study all NRC-licensed nuclear power reactors and fuel cycle facilities (e.g., fuel enrichment and fabrication plants) that are in operation in the United States.

The 1990 NCI report included all 52 commercial nuclear power facilities in the United States that that started operation before 1982. Preliminary information indicates that 25 new reactor sites have begun operation since 1982. The 25 new reactor sites and fuel cycle facilities will also be included in the study.

**Q4. Does the NRC suspect that cancer mortality rates are elevated around nuclear power plants?**

A4. The study tests the basic premise that there is no difference in cancer rates near nuclear power plants compared to populations further away.

The staff does not believe the low doses from the routine operations of NRC-licensed facilities would result in are too small to cause observable elevated rates of cancer near the facilities in the populations. The NAS Phase 1 committee's decision to not calculate sample sizes based on actual off-site doses confirms the staff position that at the low offsite doses from these facilities, researchers would not expect to observe any increased cancer risks in the populations surrounding these facilities attributed to the regulated release of radioactive effluents. Nevertheless, the staff believes that despite these potential limitations and expected outcomes, the studies would be helpful to address public health concerns and are therefore still worthwhile to pursue.

**Q5. How can I be sure that the nuclear power plant is not causing cancer? If I lived near a power plant, how might I be exposed to radiation? For example, if my house is 2 miles away from a reactor, am I being exposed whenever I am at my house?**

A5. In the previous study NCI found no increased risk of cancer in those people who lived in counties near nuclear facilities. Nuclear facilities release very small regulated amounts of radioactivity, at very slow rates into the environment. The amounts released are strictly controlled within limits set by the NRC and the U.S. Environmental Protection Agency. Any exposures that may occur are below the established safety limits. The radioactive emissions from nuclear power plants only contribute a very small fraction ( $1/1000^{\text{th}}$ ) of our yearly total radiation exposure (approximately 0.1 percent). For comparison, your radiation exposure from natural radiation sources in soil and rocks, radon gas in homes, radiation from space, and other sources that are naturally found within the human body contributes to approximately 50 percent or 500 times more radiation than from nuclear facilities. The other half of your yearly exposure (also 500 times more radiation than nuclear facilities) is from man-made sources, such as consumer products, medical procedures, and to a much lesser extent, industrial sources.

**Q6. Will the study address cancer rates from leukemia in children near nuclear facilities?**

A6. Yes. The study will address leukemia in all age groups, including children (0–5 years).

**Q7. I live near a nuclear power plant and my husband died of cancer. Will this**

**Comment [BS]:** Strictly true? Should we explain the NCRP approach is overall mortality, not broken down by age?



**study prove that living near the plant caused the cancer?**

A7. No, the study is designed to survey trends in populations and does not evaluate the cause of individual cases. However, the study does give us an indication if the cancer rates of populations near nuclear facilities are the same, greater, or less than what is expected.

**Q8. Are such studies able to detect population health effects from industrial sources?**

A8. Yes. NCI has effectively used county-based studies in the past to study cancer mortality rates. For example, NCI has used county-based studies to show elevated rates of lung cancer deaths in counties with shipyard industries and in counties with arsenic-emitting smelters and refineries.

**Q9. Were past studies, such as the French and German studies on childhood leukemia and radiation from nuclear power plants, being considered?**

A9. Yes, these studies are considered in any literature review of this subject matter.

**Q10. Why some local cancer studies around some nuclear plants show increased cancer rates and some show no increase?**

A10. Numerous ~~local cancer studies that have been performed by~~ local groups near nuclear plants ~~have done studies that could suggest show~~ an increase in cancer risk. These local studies are sometimes based on small populations or groups and ~~may or may not~~could be influenced by local confounding factors, such as eating habits, cigarette smoking, and chemical exposures. In addition, some studies may not be using scientifically accepted epidemiology methods and as such may not be credible. Any local cancer studies should be submitted to the relevant State's Health Department, or to the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry.

However, the NRC has evaluated the radiation levels from radioactive effluents and radiation from nuclear power plants and found that the levels are very low. Therefore, even with a conservative linear, no-threshold assumption, the corresponding cancer risk is very low.

**Q11. How will the NRC consider this resulting data in new reactor reviews and relicensing decisions?**

A11. The NRC will use the results of the study to answer recurring questions from our stakeholders during the public comment period for regulatory actions. If necessary the results could prompt further review of both new reactor and existing regulations to ensure the effluent and direct radiation exposure dose limits adequately protect public health and safety.

**Q12. What will the NRC do if the results indicate an increase in cancer risk in some**

**populations that live near a specific nuclear facility?**

A12. While the project is still ongoing, the NRC expects any data suggesting increases in cancer risk will first be assessed against the levels of radiation doses attributable to strictly regulated radioactive materials released during plant operation, as well as any public radiation dose that might result from the releases. This data assessment would assist in examining any relationship between the study results and potential radiation exposures of the public at individual plants. Furthermore, the public radiation doses from operating plants are significantly below the radiation safety dose limits set to protect the public and are a small fraction of dose received from natural background. If there continues to be a concern then more refined epidemiology studies can be performed (e.g., case-control study).

**Q13. I live near a nuclear power plant or in near of the proposed pilot study sites. Will I be contacted during this study for information? Will my family or personal medical information be protected during this study or during a cancer incidence study?**

A13. The data used in this study will be obtained from anonymous state and national sources. These data do not contain personal identifying information making it impossible to determine to whom the medical information belongs.

**Q14. How does the NRC ensure the validity of the licensee's reporting of off-site doses and environmental monitoring results?**

A14. The licensee is required to establish, implement, and maintain an acceptable effluent and environmental monitoring program. As such the licensee has the primary responsibility to ensure conformance with all applicable requirements in the area of effluent and environmental monitoring. The NRC performs selective inspections of the program to validate that the licensee is implementing such a program and that public doses are maintained well below regulatory requirements and are in fact as low as reasonably achievable. The following points illustrate this approach:

- 1) NRC has imposed strict regulatory requirements for conduct of both station effluent monitoring control and environmental monitoring. These requirements are designed to ensure licensee doses to members of the public are well below regulatory limits and are as low as reasonably achievable. Consequently, licensees are obligated to establish, implement, and maintain programs to sample, monitor, evaluate, and control effluents. The licensee is also required to collect and analyze environment samples to detect activity associated with facility operations. The sampling program is designed to review exposure pathways and sampling results. The environmental monitoring program is designed to provide a check on the station effluents control program.
- 2) The NRC has established reporting requirements that require the licensee to report



effluent and or environmental monitoring issues as established in program requirements. NRC initiates appropriate reviews and evaluation of the reports and conducts follow-up inspections as appropriate.

- 3) The NRC conducts routine inspections in a variety of ways. The NRC maintains an onsite resident inspection staff that selectively and routinely reviews on-going activities to become aware of issues that may impact effluent or environmental monitoring including public dose. For example the residents review corrective action documents to evaluate potential impact on the effluents control program. The residents also review radiation monitors for indication of releases. During their inspections residents also look for potential unmonitored release paths.
- 4) The NRC also uses specialist inspectors, independent of the resident staff, to conduct periodic onsite inspections of both effluent release and environmental monitoring programs to ensure the licensee conforms with applicable requirements. As part of this review, NRC inspectors also review ground water controls. The inspectors evaluate the adequacy of quality assurance of measurements to ensure they are of appropriate quality and that the licensee is implementing a robust quality assurance program.
- 5) The NRC routinely reviews secondary evaluations conducted as part of the licensees' quality assurance programs (e.g., audits and assessments) as well as independent measurements conducted by other regulatory entities (e.g., state monitoring programs).
- 6) In addition, and as necessary, the NRC conducts independent confirmatory sampling to validate the accuracy of licensee measurements.
- 7) Information provided to the NRC by a licensee must be complete and accurate in all material respects. Submitting falsified information to the NRC is considered a violation of the regulations and will have severe implications. (For additional information, please refer to the [Enforcement Policy](#).)

**ADAMS Accession No.:**

OFFICE	RES/DSA/RPB	BC:RES/DSA/RPB	D:RES/DSA	R:RES/DSA
NAME	T. Brock	R. Tadesse	M. Case	B. Sheron
DATE	07/22/15			



**From:** Burnell, Scott  
**Sent:** 2 Sep 2015 09:28:17 -0400  
**To:** Brock, Terry  
**Subject:** Re: Comm plan discussion

Ok, I'll let you know when I break free here.

Sent from an NRC Blackberry  
Scott Burnell

(b)(6)

----- Original Message -----

From: Brock, Terry  
Sent: Wednesday, September 02, 2015 09:26 AM  
To: Burnell, Scott  
Subject: RE: Comm plan discussion

Sounds good

-----Original Message-----

From: Burnell, Scott  
Sent: Wednesday, September 02, 2015 9:22 AM  
To: Brock, Terry  
Subject: Re: Comm plan discussion

Ok, if I give you 15 min warning is that enough?

Sent from an NRC Blackberry  
Scott Burnell

(b)(6)

----- Original Message -----

From: Brock, Terry  
Sent: Wednesday, September 02, 2015 09:19 AM  
To: Burnell, Scott  
Subject: RE: Comm plan discussion

We can eat lunch and talk in the TWFN cafeteria if you want.

-----Original Message-----

From: Burnell, Scott  
Sent: Wednesday, September 02, 2015 9:16 AM  
To: Brock, Terry  
Subject: Re: Comm plan discussion

If it's still @ 1 I can call in. I'm over at the Adv Rx workshop this morning, closer to (or shortly after) noon would work better.

Sent from an NRC Blackberry  
Scott Burnell

(b)(6)

----- Original Message -----

From: Brock, Terry

Sent: Wednesday, September 02, 2015 08:35 AM

To: Burnell, Scott

Subject: RE: Comm plan discussion

Yes, the call is tomorrow. Are you completely out of pocket? We need to divvy up who does what. Can you stop by at 10?

-----Original Message-----

From: Burnell, Scott

Sent: Wednesday, September 02, 2015 8:34 AM

To: Brock, Terry

Subject: Comm plan discussion

Hi Terry;

Is it still set for tomorrow? In any case, I'll try and stop by later today if you'll be around. Thanks.

Scott

Sent from an NRC Blackberry

Scott Burnell

(b)(6)

**From:** Brock, Terry  
**Sent:** 9 Sep 2015 16:46:48 +0000  
**To:** Coffin, Stephanie  
**Subject:** RE: CONFIRMATION - Letter to NAS

Here you go >> [Open ADAMS P8 Document \(Letter to K. Crowley for ending the "Analysis of Cancer Risks in Populations near Nuclear Facilities"\)](#)

**From:** Coffin, Stephanie  
**Sent:** Wednesday, September 09, 2015 12:43 PM  
**To:** Brock, Terry  
**Subject:** RE: CONFIRMATION - Letter to NAS

Can you send me the letter to NAS? Not sure how it was distributed.

**From:** Weber, Michael  
**Sent:** Wednesday, September 09, 2015 12:41 PM  
**To:** Sheron, Brian <[Brian.Sheron@nrc.gov](mailto:Brian.Sheron@nrc.gov)>; West, Steven <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>  
**Cc:** Case, Michael <[Michael.Case@nrc.gov](mailto:Michael.Case@nrc.gov)>; Coffin, Stephanie <[Stephanie.Coffin@nrc.gov](mailto:Stephanie.Coffin@nrc.gov)>; Tadesse, Rebecca <[Rebecca.Tadesse@nrc.gov](mailto:Rebecca.Tadesse@nrc.gov)>; Rosales-Cooper, Cindy <[Cindy.Rosales-Cooper@nrc.gov](mailto:Cindy.Rosales-Cooper@nrc.gov)>; Foster, Jack <[Jack.Foster@nrc.gov](mailto:Jack.Foster@nrc.gov)>; Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>; Rihm, Roger <[Roger.Rihm@nrc.gov](mailto:Roger.Rihm@nrc.gov)>  
**Subject:** CONFIRMATION - Letter to NAS

OCA shared your letter to NAS with our Congressional contacts.

**From:** Weil, Jenny  
**Sent:** Wednesday, September 09, 2015 12:30 PM  
**To:** Weber, Michael <[Michael.Weber@nrc.gov](mailto:Michael.Weber@nrc.gov)>  
**Subject:** RE: RESPONSE - Letter to NAS

Hi Mike, we did pass along the letter to the Hill.

**From:** Weber, Michael  
**Sent:** Wednesday, September 09, 2015 9:28 AM  
**To:** Weil, Jenny <[Jenny.Weil@nrc.gov](mailto:Jenny.Weil@nrc.gov)>  
**Subject:** RESPONSE - Letter to NAS

Sure thing. Can you inform me when we have shared with the Hill?

**From:** Weil, Jenny  
**Sent:** Wednesday, September 09, 2015 9:25 AM  
**To:** Weber, Michael <[Michael.Weber@nrc.gov](mailto:Michael.Weber@nrc.gov)>  
**Subject:** RE: ACTION - Letter to NAS

Thanks Mike!

**From:** Weber, Michael

**Sent:** Wednesday, September 09, 2015 8:56 AM

**To:** Dacus, Eugene <[Eugene.Dacus@nrc.gov](mailto:Eugene.Dacus@nrc.gov)>; Colgary, James <[James.Colgary@nrc.gov](mailto:James.Colgary@nrc.gov)>

**Cc:** Weil, Jenny <[Jenny.Weil@nrc.gov](mailto:Jenny.Weil@nrc.gov)>; Decker, David <[David.Decker@nrc.gov](mailto:David.Decker@nrc.gov)>; Rihm, Roger <[Roger.Rihm@nrc.gov](mailto:Roger.Rihm@nrc.gov)>

**Subject:** ACTION - Letter to NAS

Good morning, Gene and Jim. Big day for the hearing this morning.

Attached is the letter that Brian Sheron sent to the National Academy of Sciences today (I thought he had signed it yesterday, but apparently it was not sent, following his discussion with NAS yesterday morning). Please share the letter with our oversight and appropriations committees for their awareness.

Thanks



**From:** Sheron, Brian  
**Sent:** 11 Sep 2015 09:02:06 -0400  
**To:** Burnell, Scott;Weber, Michael;Case, Michael;Coffin, Stephanie;Tadesse, Rebecca;Brock, Terry;West, Steven  
**Subject:** RE: CORRECTION STATEMENT: NRC decides to terminate study on cancer risks near nuclear facilities

BTW, this is a true statement.

The issues were that 1.) NAS does not have a good reputation for completing studies on schedule, so we expected that the 39 months would extend to close to 48 months, or 4 years, and 2.) they said we would not be able to draw any conclusions from the pilot study, and they told us informally that to do a study that would give us results we could draw conclusions from would likely take 52 months and cost about \$10M. We also expected that is was an optimistic estimate.

---

**From:** Sheron, Brian  
**Sent:** Friday, September 11, 2015 8:56 AM  
**To:** Burnell, Scott ; Weber, Michael ; Case, Michael ; Coffin, Stephanie ; Tadesse, Rebecca ; Brock, Terry ; West, Steven  
**Subject:** FW: CORRECTION STATEMENT: NRC decides to terminate study on cancer risks near nuclear facilities  
**Importance:** High  
FYI.

**From:** Interested parties list for activities pertaining to the Cancer Risk project  
[\[mailto:CANCERRISKSTUDY@LSW.NAS.EDU\]](mailto:CANCERRISKSTUDY@LSW.NAS.EDU) On Behalf Of Greenleaf, Toni  
**Sent:** Friday, September 11, 2015 8:54 AM  
**To:** [CANCERRISKSTUDY@LSW.NAS.EDU](mailto:CANCERRISKSTUDY@LSW.NAS.EDU)  
**Subject:** [External\_Sender] CORRECTION STATEMENT: NRC decides to terminate study on cancer risks near nuclear facilities  
**Importance:** High

*The National Academies of*  
**SCIENCES • ENGINEERING • MEDICINE**

Date: Sept. 10, 2015

**Correction regarding NRC cancellation of NAS study on cancer risks**

The Nuclear Regulatory Commission (NRC) announced Tuesday that it has decided to stop work on the National Academy of Sciences (NAS) study on cancer risks in populations living near U.S. nuclear facilities. The NRC cited the long duration and high cost of the NAS pilot study, and the long duration of a subsequent nationwide study, as reasons to end the study.

Several media outlets have reported incorrectly that NAS estimated the pilot study would take 8 to 10 years to complete at a cost of \$8 million.

In fact, the NAS estimated that it would take 39 months at a cost of \$8 million to complete the pilot study of 7 nuclear facilities, which was intended to inform the feasibility, schedule, and cost of a nationwide study. NAS did not provide time or cost estimates for a nationwide study. The NRC made its own estimate that it may take 8 to 10 years to complete both the pilot and subsequent nationwide studies, and offered no additional cost estimate.

Nuclear and Radiation Studies Board  
500 5<sup>th</sup> Street, NW  
Washington, DC 20001  
(202) 334-3066

**From:** Case, Michael  
**Sent:** 24 Dec 2014 09:47:05 -0500  
**To:** Brock, Terry  
**Subject:** RE: Cost of the NCI Study

thanks

-----Original Message-----

**From:** Brock, Terry  
**Sent:** Wednesday, December 24, 2014 9:44 AM  
**To:** Case, Michael  
**Cc:** Tadesse, Rebecca; Coffin, Stephanie; Sheron, Brian; West, Steven  
**Subject:** RE: Cost of the NCI Study

Let me check with John Boice, the original PI.

---

**From:** Case, Michael  
**Sent:** Wednesday, December 24, 2014 9:11 AM  
**To:** Brock, Terry  
**Cc:** Tadesse, Rebecca; Coffin, Stephanie; Sheron, Brian; West, Steven  
**Subject:** Cost of the NCI Study

Hi Terry. Don't know if you were in today. Do you know the approximate cost of the NCI Cancer Study?

**From:** Ramsey, Kevin  
**Sent:** 19 Mar 2014 10:34:07 -0400  
**To:** Brock, Terry;Diaz, Marilyn  
**Subject:** RE: Doceckt Number for NFS

How far back are you going? Some information is already posted at <http://www.nrc.gov/materials/fuel-cycle-fac/fuel-fab/nfs-effluent-reports.html>. Unfortunately, it doesn't appear to have been updated recently.

---

**From:** Brock, Terry  
**Sent:** Wednesday, March 19, 2014 10:22 AM  
**To:** Diaz, Marilyn  
**Cc:** Ramsey, Kevin  
**Subject:** RE: Doceckt Number for NFS

Thanks

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**From:** Diaz, Marilyn  
**Sent:** Wednesday, March 19, 2014 9:49 AM  
**To:** Brock, Terry  
**Cc:** Ramsey, Kevin  
**Subject:** RE: Doceckt Number for NFS

Hi Terry,

I'm not sure if Kevin has already responded to your email but if not, NFS docket number is 70-143.

Thanks,  
Marilyn

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**From:** Brock, Terry  
**Sent:** Wednesday, March 19, 2014 9:42 AM  
**To:** Ramsey, Kevin  
**Cc:** Diaz, Marilyn  
**Subject:** Doceckt Number for NFS

Hi Kevin,

I'm starting to collect environmental and effluent reports for the NFS site to support the NAS cancer risk study. Do you have their specific docket number handy? I have OIS plugged in to retrieve old paper records if they need to, I just need to get them some identifier information so they can retrieve the records from the catacombs.

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487



**From:** Ramsey, Kevin  
**Sent:** 19 Mar 2014 11:29:00 -0400  
**To:** Brock, Terry  
**Cc:** Diaz, Marilyn;Johnson, Robert  
**Subject:** RE: Docket Number for NFS  
**Attachments:** NFS effluent records 1986 - 1995 legacy library.pdf, NFS effluent records 1996 - 2000 legacy library.pdf, NFS effluent records 2002 - 2004 main library.pdf, NFS effluent records 2005 - 2013 main library.pdf, NFS effluent records before 1986 legacy library.pdf, NFS effluent records before 2002 main library.pdf

Here's what I found.

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**From:** Brock, Terry  
**Sent:** Wednesday, March 19, 2014 10:35 AM  
**To:** Ramsey, Kevin  
**Subject:** RE: Doceckt Number for NFS

As far back as we have records.

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**From:** Ramsey, Kevin  
**Sent:** Wednesday, March 19, 2014 10:34 AM  
**To:** Brock, Terry; Diaz, Marilyn  
**Subject:** RE: Doceckt Number for NFS

How far back are you going? Some information is already posted at <http://www.nrc.gov/materials/fuel-cycle-fac/fuel-fab/nfs-effluent-reports.html>. Unfortunately, it doesn't appear to have been updated recently.

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Accession Number 8602030038  
Document Title Forwards Nov 1985, "Radiological Monitoring of Stack Effluents - NFS,Erwin,TN," per NRC contractor team 850204-15 onsite visit.Comments re sizeable discrepancies between NRC & facility data requested.  
Document Date 1/22/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8603260436  
Document Title Ack receipt of Oak Ridge Associated Univs (ORAU) rept on monitoring of stack effluents.Good agreement between ORAU & NFS results for major discharge stack noted.Rept on impact of under-reporting of discharges from Stack 278 encl.  
Document Date 3/4/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8604210082  
Document Title Insp Rept 70-0143/86-04 on 860121-24.Violation noted: inadequate procedures for sampling,preparation & analysis of effluent radioactivity & environ samples.  
Document Date 4/8/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8609220142  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jan-June 1986." W/860829 ltr.  
Document Date 6/30/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8611260500  
Document Title Insp Rept 70-0143/86-44 on 861006-24.No violations or deviations identified.Major areas inspected:liquid effluent releases into sanitary sewer sys.Tables of results of sampling encl.  
Document Date 11/3/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8703190060  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jul-Dec 1986." W/870227 ltr.  
Document Date 12/31/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8704030062  
Document Title Insp Rept 70-0143/87-06 on 870209-13 & 0302-04.No violations or deviations noted.Major areas inspected:radwaste mgt, effluent monitoring & environ monitoring,seaboard railroad property,radwaste burial ground & waste treatment ponds.  
Document Date 3/10/87 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8704070467  
Document Title Advises that 861218 revs to Chapter 2.0 & App A of fundamental matl control plan to allow processing of laundry effluent in Bldg 111 or discharging to waste water treatment facility acceptable.License Condition 2.1 being revised.  
Document Date 1/2/87 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8705110212  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas for Jul-Dec 1986." W/870324 ltr.  
Document Date 12/31/86 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8709100181  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas for Jan-June 1987." W/870828 ltr.  
Document Date 6/30/87 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8808180248  
Document Title Insp Rept 70-0143/88-18 on 880711-15.No violations & 0.viations noted.Major areas inspected:environ monitoring, liquid radwaste treatment,effluent measurements & analyses & confirmatory measurements.  
Document Date 7/28/88 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8812220069  
Document Title Application for amend to License SNM-124, revising SG-2 Condition 2.12 re highly enriched U-bearing liquid effluents.Fee paid.  
Document Date 10/14/88 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8901090017  
Document Title Insp Rept 70-0143/88-31 on 881128-1202.No violations & deviations noted.Major areas inspected: radiological effluent sampling & monitoring,radiological environ enhancement projects & State of TN end-of-project radiation survey.  
Document Date 12/22/88 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8903210030  
Document Title "NFS Rept of Effluent Monitoring & Release to Unrestricted Areas,Jul-Dec,1988." W/890301 ltr.  
Document Date 12/31/88 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8910020064  
Document Title Insp Rept 70-0143/89-20 on 890814-18.No violations & deviations noted.Major areas inspected:areas of radiological effluent processing,radwaste,radiological environ monitoring,burial ground treatment & pond decommissioning.  
Document Date 9/7/89 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9005080060  
Document Title Insp Rept 70-0143/90-08 on 900319-23.No violations or deviations noted.Major areas inspected: radiological effluents, environ monitoring, onsite waste burial & Pu facility & pond decommissioning.  
Document Date 4/6/90 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9008240207  
Document Title Insp Rept 70-0143/90-16 on 900716-20 & 30-31.No violations or deviations noted.Major areas inspected: radiological effluents, environ monitoring, solid waste burials & Pu facility & pond decommissioning.  
Document Date 8/9/90 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9009070041  
Document Title Effluent monitoring rept for Jan-June 1990.W/900831 ltr.  
Document Date 6/30/90 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number 9010170149  
Document Title Submits amended rept of effluent monitoring at Erwin,TN plant for Jan-June 1990.Amended rept fulfills licensee commitment to provide update upon receipt of outstanding isotopic results.  
Document Date 10/9/90 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9010170173  
Document Title Amended rept of effluent monitoring & release to unrestricted areas for Jan-June 1990.  
Document Date 6/30/90 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9106050330  
Document Title Forwards NFS weekly status rept for wks of 910513-17 & 0520- 24.Regional insp will be conducted during wk of 910520 in area of decommissioning & radioactive effluents & chemistry.  
Document Date 5/20/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9109100285  
Document Title Forwards "Monthly Discharge Monitoring Rept for June 1991" & "Toxicological Evaluation of Treated Effluent Biomonitoring Support for NPDES Permit:NFS,Inc May Monitoring Period."  
Document Date 7/15/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9109100300  
Document Title "Toxicological Evaluation of Treated Effluent Biomonitoring Support for NPDES Permit:NFS,Inc May Monitoring Period."  
Document Date 5/31/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9110080178  
Document Title Forwards corrected rept of effluent monitoring at plant for Jan-June 1991,containing outstanding isotopic results.  
Document Date 9/9/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9110080349  
Document Title Corrected "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jan-June 1991."  
Document Date 6/30/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9110100159  
Document Title Forwards amended rept of effluent monitoring at Erwin,TN plant for period covering Jan - June 1991,in accordance w/ requirements set forth in 10CFR70.59.W/o encl.  
Document Date 9/6/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9112120015  
Document Title Insp rept 70-0143/91-29 on 911021-25 & 30-31.Noncited violation noted.Major areas inspected:plutonium facilities decommissioning,waste ponds decommissioning,radwaste mgt, including radioactive liquid effluents & environ protection.  
Document Date 11/27/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number 9204070279  
Document Title "Biannual Effluent Monitoring Rept," for Jul-Dec 1991. W/920228 ltr.  
Document Date 12/31/91 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9302100085  
Document Title Forwards corrected Page 11 to licensee 930126 response to NRC 921112 request for addl info re dose assessments & effluent data.  
Document Date 2/1/93 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9305120303  
Document Title "Biannual Effluent Monitoring Rept Jul-Dec 1992." W/930301 ltr.  
Document Date 12/31/92 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9307120070  
Document Title Forwards insp rept 70-0143/93-13 on 930504-0604. Violation noted being considered for escalated enforcement action & involves failure to comply w/existing nuclear criticality safety limits during transfers of liquid effluents.  
Document Date 6/24/93 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9310130309  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas." W/930827 ltr.  
Document Date 6/30/93 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9406060085  
Document Title Insp rept 70-0143/94-05 on 940414,18-22 & 28.No violations noted.Major areas inspected:environ monitoring,liquid & gaseous effluent waste mgt,plutonium facilities & waste ponds decommissioning activities & radwaste transport.  
Document Date 5/25/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9407280064  
Document Title "PCE WWTF Effluent Concentration Jan 1994." W/940215 ltr.  
Document Date 1/31/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9407280122  
Document Title "Rept Of Effluent Monitoring & Release To Unrestricted Areas," for period of Jul-Dec 1993.W/940301 ltr.  
Document Date 12/31/93 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9408290375  
Document Title Requests authorization of addl effluent stream to sanitary sewer & adjusted sewer rate to reflect advanced payment for any sewer discharges above 1993 average daily flow of 22,738 gallons per day.  
Document Date 6/16/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9409190260  
Document Title Forwards "Rept of Effluent Monitoring & Release to Unrestricted Areas Jan-June 1994" & amended "Effluent Monitoring Rept for First Half 1993."  
Document Date 8/29/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9409190262  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas Jan-June 1994."  
Document Date 6/30/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9409190264  
Document Title Amended "Effluent Monitoring Rept for First Half of 1993."  
Document Date 6/30/93 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9502160262  
Document Title Submits plans for remediating areas of Pond 4 outside of Bldg 410, including evaluations of estimated worker & public radiation exposures & potential groundwater impact. Summary rept, "Impact of Airborne Radioactive Effluent..." encl.  
Document Date 2/8/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9502160265  
Document Title "Summary Rept: Impact of Airborne Radioactive Effluent From Pond 4 Remediation Project."  
Document Date 11/10/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9503090295  
Document Title "Bi-annual Effluent Monitoring Rept Jul-Dec 1994." W/950228 ltr.  
Document Date 12/31/94 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9506280019  
Document Title Insp rept 70-0143/95-03 on 950522-26. No violations noted. Major areas inspected: environ monitoring program, effluent controls & mgt.  
Document Date 6/16/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9509080100  
Document Title "Radioactivity in Effluent Liquid & Air, Jan-June 1995." W/ 950829 ltr.  
Document Date 6/30/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9509180315  
Document Title Insp rept 70-0143/95-06 on 950807-11. No violations noted. Major areas inspected: onsite review of environmental monitoring program effluent controls & mgt program, status of "Pond 4" area decommissioning project.  
Document Date 9/8/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9603050369  
Document Title "Biannual Effluent Monitoring Rept Jul-Dec 1995," per 10CFR70.59.W/960129 ltr.  
Document Date 12/31/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9607030306  
Document Title "Radioactivity in Effluent Liquid & Air from Jul-Dec 1995." W/960229 ltr.  
Document Date 12/31/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9803060336  
Document Title Amended "Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Liquid," for period Jul-Dec 1995.  
Document Date 12/31/95 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9805140059  
Document Title Forwards "Biannual Effluent Monitoring rept for Jan-June 1992." Isotopic ratios applied to determine respective activity contributions were estimated by averaging available appropriate isotopic ratios. Amended rept will be provided.  
Document Date 8/28/92 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9805180092  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas for Jan-June 1992."  
Document Date 6/30/92 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number	9608280262
Document Title	"Bi-Annual Effluent Monitoring Rept for Jan-June 1996." W/960822 ltr.
Document Date	6/30/96 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9703040368
Document Title	"Bi-annual Effluent Monitoring Rept for Jul-Dec 1996." W/970225 ltr.
Document Date	12/31/96 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9707030103
Document Title	Insp rept 70-0143/97-05 on 970512-16.No violations noted. Major areas inspected:effluent waste mgt, environ protection & decommissioning activities.
Document Date	6/13/97 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9709190180
Document Title	"Bi-Annual Effluent Monitoring Rept in Effluent Liquid for Period of Jan-June 1997." W/970829 ltr.
Document Date	6/30/97 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9803060322
Document Title	Forwards "Bi-Annual Effluent Monitoring Repts" & amends to previous repts for 1996 & 1997.
Document Date	2/27/98 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9803060325
Document Title	"Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Liquid," for period Jul-Dec 1997.
Document Date	12/31/97 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9803060326
Document Title	"Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Air," for period Jul-Dec 1997.
Document Date	12/31/97 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9803060330
Document Title	Amended "Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Air," for period Jan-June 1997.
Document Date	6/30/97 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	9803060340
Document Title	Amended "Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Liquid," for period Jan-June 1996.
Document Date	6/30/96 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available



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Accession Number 9803060343  
Document Title Amended "Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Liquid," for period Jul-Dec 1996.  
Document Date 12/31/96 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9803060346  
Document Title Amended "Bi-Annual Effluent Monitoring Rept of Radioactivity in Effluent Liquid," for period Jan-June 1997.  
Document Date 6/30/97 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9806250186  
Document Title Forwards draft "Environ Assessment for Renewal of SNM-124." EA can be finalized after NRC provides guidance on how to resolve effluent & environ monitoring issues & on whether North Site actions will remain as proposed by NFS.  
Document Date 6/8/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9809030055  
Document Title Forwards "Rept of Radioactivity in Effluent Liquid for Period,Jan-June 1998." Attachment C includes amended repts for radioactivity in effluent air for listed monitoring periods Jul-Dec 1996,Jan-June & Jul-Dec 1997.  
Document Date 8/28/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9809030061  
Document Title "Radioactivity in Effluent Liquid Jan-June 1998."  
Document Date 6/30/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9809030066  
Document Title Amended "Radioactivity in Effluent Liquid Jul-Dec 1997."  
Document Date 12/31/97 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9810020015  
Document Title Forwards addl info on radiological air & liquid effluents reported for first six months of 1998,per 980914 telcon with H Astwood & W Gloersen of NRC.  
Document Date 9/28/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9903160151  
Document Title Forwards "Rept of Radioactivity in Effluent Liquid for Period Jul-Dec 1998" & "Rept of Radioactivity in Effluent Air for Period Jul-Dec 1998," IAW requirement of 10CFR70.59.  
Document Date 2/25/99 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9903160154  
Document Title "Rept of Radioactivity in Effluent Liquid for Period Jul-Dec 1998."  
Document Date 12/31/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9903160155  
Document Title "Rept of Radioactivity in Effluent Air for Period Jul-Dec 1998."  
Document Date 12/31/98 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9909010035  
Document Title Forwards bi-annual effluent monitoring repts for Jan-June 1999,IAW 10CFR70.59 requirements.Revised dose & air activity concentration summary rept for period July-Dec 1998,encl.  
Document Date 8/27/99 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9909010037  
Document Title "Rept of Radioactivity in Effluent Liquid for Period Jan- June 1999."  
Document Date 6/30/99 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9909010040  
Document Title "Rept of Radioactivity in Effluent Air for Period Jan-June 1999."  
Document Date 6/30/99 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML030690609  
Document Title Biannual Effluent Monitoring Report July through December 2002.  
Document Date 2/27/03 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML031070533  
Document Title 05/01/2003 Notice of Meeting with Nuclear Fuel Services, Inc Re BLEU Preparation Facility and Future BLEU Oxide Conversion Facility and Effluent Processing Building Licensing Amendment Applications.  
Document Date 4/17/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML032720728  
Document Title Biannual Effluent Monitoring Report, January Through June 2003.  
Document Date 8/26/03 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML033010178  
Document Title Proposed Revisions to the NFS Emergency Plan to support the Oxide Conversion Building (OCB) and Effluent Process Building (EPB).  
Document Date 10/24/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033140002  
Document Title 11/19/2003 Notice of NFS/NRC Meeting to Discuss Oxide Conversion and Effluent Processing Buildings in the BLEU Complex Submittal.  
Document Date 11/7/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033250324  
Document Title 11/19/2003 Overview of License Amendment Application for Oxide Conversion & Effluent Processing Buildings.  
Document Date 11/19/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033350258  
Document Title 10/23/03-License Amendment Request for Oxide Conversion Building and Effluent Processing Building at BLEU Complex.  
Document Date 10/23/03 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML033360220  
Document Title Nuclear Fuel Services, Inc., Meeting Summary, November 19, 2003, Kick-Off Meeting With Nuclear Fuel Services Re: Overview of License Amendment Application For Oxide Conversion & Effluent Processing Building.  
Document Date 11/21/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033380535  
Document Title 11/14/03-Non-Proprietary Version of Integrated Safety Analysis (ISA) Summary for the BLEU Project Oxide Conversion and Effluent Processing Buildings.  
Document Date 11/14/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number ML033420756  
Document Title Attachment II to 10/23/03 Letter, Revision 0 to 21T-03-0978, Integrated Safety Analysis Summary - Blended Low-Enriched Uranium Project - Oxide Conversion and Effluent Processing Buildings.  
Document Date 10/23/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033430563  
Document Title Federal Register Notice: Receipt Of Amendment Request And Opportunity to Request A Hearing for Oxide Conversion Building And Effluent Processing Building At The Blended Low-Enriched Uranium Complex.  
Document Date 12/17/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033490408  
Document Title 10/23/03-License Amendment Request for Oxide Conversion Building and Effluent Processing Building at BLEU Complex.  
Document Date 10/23/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033490413  
Document Title Revision 0 to 21T-03-0978, " Integrated Safety Analysis Summary Blended Low-Enriched Uranium Project Oxide Conversion and Effluent Processing Building."  
Document Date 10/31/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033490420  
Document Title Revision 0 to 21T-03-0978, " Integrated Safety Analysis Summary Blended Low-Enriched Uranium Project Oxide Conversion and Effluent Processing Building," Attachment III Decommissioning Cost Estimate.  
Document Date 10/31/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033520128  
Document Title Transmittal of Nuclear Criticality Safety Evaluations for the BLEU Complex Oxide Conversion Building and Effluent Processing Building (Proprietary and Non-Proprietary Versions).  
Document Date 12/11/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033520131  
Document Title Nuclear Criticality Safety Evaluations for the BLEU Complex Oxide Conversion Building and Effluent Processing Building.  
Document Date 12/11/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML033520132  
Document Title Revision 0 to " Nuclear Criticality Safety Evaluation for the Effluent Process Building Ammonia Recovery, and Liquid Waste Processes."  
Document Date 11/3/03 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number ML033640152  
Document Title Nuclear Fuel Services, Inc., Nuclear Criticality Evaluations For BLEU Complex Oxide Conversion Building And Effluent Processing Building Submittal Dated December 11, 2003, Public Disclosure Determination (TAC NO. L31791).  
Document Date 1/9/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML040480515  
Document Title 02/06/04-Commitment Letter to Address NRC Licensing Review Questions Pertaining to Instrumentation and Controls at the Oxide Conversion Building (OCB) and Effluent Processing Building (EPB).  
Document Date 2/6/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML040480518  
Document Title 02/11/04-Commitment Letter to Address NRC Licensing Review Questions Pertaining to Nuclear Criticality Safety at the Oxide Conversion Building (OCB) and Effluent Processing Building (EPB).  
Document Date 2/11/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML040570761  
Document Title Review of Nuclear Fuel Services Decommissioning Cost Estimate for BLEU Oxide Conversion Building and Effluent Processing Building.  
Document Date 2/26/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML040610801  
Document Title 02/25/04-Revision to Commitment Letter to Address NRC Licensing Review Question No. 5 Pertaining to Nuclear Criticality Safety at the Oxide Conversion Building (OCB) and Effluent Processing Building (EPB).  
Document Date 2/25/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML040750448  
Document Title 03/11/04-Memo Re: In-Office Verticle Slice Review of NFS Integrated Safety Analysis Summary for Oxide Conversion Building and Effluent Process Building on February 10-11, 2004.  
Document Date 3/11/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML040760278  
Document Title Transmittal of the Biannual Effluent Monitoring Report, July through December 2003.  
Document Date 2/27/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML040910468  
Document Title 03/31/04-B. Marie Moore Ltr. re: Nuclear Fuel Services, Inc., Oxide Conversion Building And Effluent Processing Building Request For Additional Information (TAC L31791).  
Document Date 3/31/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML040990147  
Document Title Comments on the Draft Environmental Assessment for Nuclear Fuel Services' Oxide Conversion Building and Effluent Processing Building at the Blended Low-enriched Uranium Complex.  
Document Date 4/7/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number	ML041270047
Document Title	B. Marie Moore Ltr. re: Nuclear Fuel Services, Inc., - Response To Request For Additional Information For Oxide Conversion Building And Effluent Processing Building At The Bleu Complex Submittal Dated April 30, 2004, Public Disclosure Determination.
Document Date	5/19/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML041280281
Document Title	04/30/04-Revised Affidavits to Reaffirm Proprietary Information Contained in the License Amendment Request for the Oxide Conversion and Effluent Processing Buildings.
Document Date	4/30/04 12:00AM
Docket Number	07000143
Availability	Publicly Available

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Accession Number	ML041280556
Document Title	04/30/04-NFS Response to Request for Additional Information for Oxide Conversion Building and Effluent Processing Building at the BLEU Complex.
Document Date	4/30/04 12:00AM
Docket Number	07000143
Availability	Publicly Available

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Accession Number	ML041280562
Document Title	Attachment 2 - NFS Response to Request for Additional Information for Oxide Conversion Building and Effluent Processing Building.
Document Date	4/30/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML041690008
Document Title	Review of Nuclear Fuel Services Letter of Credit for Oxide Conversion Building and Effluent Processing Building.
Document Date	6/21/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML041970681
Document Title	B. Marie Moore Ltr re: Nuclear Fuel Services, Inc., Amendment 51 - To Authorize Operations In The Blended Low-Enriched Uranium Oxide Conversion Building And Effluent Processing Building (TAC L31791).
Document Date	7/30/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML042110329
Document Title	Implementation Response to the NRC Order for Interim Compensatory Measures for Category III Fuel Cycle Facilities for the Bleu Oxide Conversion and Effluent Process Buildings.
Document Date	7/13/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML042180326
Document Title	ISA Summary, Revision 1, for the Oxide Conversion Building and Effluent Processing Building located at the BLEU Complex.
Document Date	7/30/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available

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Accession Number	ML042190180
Document Title	Ltr to B. Marie Moore Re: Response to NRC Order or ICM for Category III Fuel Facilities for BLEU Oxide Conversion and Effluent Process Building - Nuclear Fuel Services Inc.
Document Date	8/5/04 12:00AM
Docket Number	07000143
Availability	Non-Publicly Available



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Accession Number ML042540343  
Document Title 07/30/04-NFS - Amendment 51 to Authorize Operations in the Blended Low-Enriched Uranium Oxide Conversion Building and Effluent Processing Building - letter.  
Document Date 7/30/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML042540349  
Document Title 07/30/04-Nuclear Fuel Services, Inc., Safety Evaluation Report, License Amendment 51, Blended Low-Enriched Uranium Oxide Conversion Building and Effluent Processing Building.  
Document Date 7/30/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML042590496  
Document Title NFS Operation of Blended Low-enriched Uranium Oxide Conversion Building and Effluent Processing Building.  
Document Date 9/14/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML042600037  
Document Title NFS Biannual Effluent Monitoring Report January through June 2004.  
Document Date 8/27/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML042660407  
Document Title 07/30/04-NFS, Amendment 51 to Authorize Operations in the Blended Low-Enriched Uranium Oxide conversion Building and Effluent Processing Building License.  
Document Date 7/30/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML042720620  
Document Title Nuclear Fuel Services, Inc., Operation of Blended Low-Enriched Uranium Oxide Conversion Building and Effluent Processing Building.  
Document Date 9/14/04 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML042720621  
Document Title Nuclear Fuel Services, Inc., Operation of Blended Low-Enriched Uranium Oxide Conversion Building and Effluent Processing Building.  
Document Date 9/14/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML050120007  
Document Title Non-Proprietary Version of Integrated Safety Analysis (ISA) Summary for the BLEU Project Oxide Conversion and Effluent Processing Buildings.  
Document Date 11/14/03 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML050130096  
Document Title License Amendment Request for the Oxide Conversion Building and Effluent Processing Building at the BLEU Complex.  
Document Date 10/23/03 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML080510458  
Document Title Nuclear Fuel Services - Biannual Effluent Monitoring Report January - June 2002.  
Document Date 8/29/02 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML081360251  
Document Title 05/19/04 - B.Marie Moore Ltr. re: Nuclear Fuel Services, Inc.,-Response to Request for Additional Information for Oxide Conversion Building and Effluent Processing Building at the BLEU Complex Submittal Dated 04/30/2004, Public Disclosure Determination  
Document Date 5/19/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML081500560  
Document Title Response to NRC Order for Category III Fuel Facilities for BLEU Oxide Conversion and Effluent Process Building.  
Document Date 8/5/04 12:00AM  
Docket Number 07000143  
Availability Publicly Available



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Accession Number ML050350098  
Document Title "Integrated Safety Analysis Summary, Blended Low-Enriched Uranium Project Oxide Conversion and Effluent Processing Buildings," Revision 2.  
Document Date 1/27/05 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML051150066  
Document Title Amendments to Biannual Effluent Monitoring Report July Through December 2004  
Document Date 3/11/05 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML051150075  
Document Title Biannual Effluent Monitoring Report July through December 2004.  
Document Date 2/25/05 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML060450323  
Document Title Nuclear Fuel Services - ISA Summary for Oxide Conversion and Effluent Processing Buildings, Revision 3.  
Document Date 1/31/06 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML060860092  
Document Title Biannual Effluent Monitoring Report for January through June 2005.  
Document Date 8/29/05 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML061000099  
Document Title Biannual Effluent Monitoring Report, July through December 2005.  
Document Date 3/30/06 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML070590627  
Document Title Biannual Effluent Monitoring Report July through December 2006.  
Document Date 2/26/07 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML072670156  
Document Title Nuclear Fuel Services - Biannual Effluent Monitoring Report, January Through June 2007.  
Document Date 8/16/07 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML080510464  
Document Title Nuclear Fuel Services - Biannual Effluent Monitoring Report January - June 2006.  
Document Date 8/25/06 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML082960743  
Document Title NFS, Submittal of Biannual Effluent Monitoring Report January through June 2008.  
Document Date 8/28/08 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML090710718  
Document Title NFS, Inc., Submittal of Biannual Effluent Monitoring Report for July through December 2008.  
Document Date 2/26/09 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML092570831  
Document Title Biannual Effluent Monitoring Report January through June 2009.  
Document Date 8/26/09 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML100700519  
Document Title Nuclear Fuel Services, Biannual Effluent Monitoring Report, July - December 2009.  
Document Date 2/22/10 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML102360147  
Document Title Biannual Effluent Monitoring Report January through June 2010.  
Document Date 8/18/10 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML103610258  
Document Title E-mail from K. Ramsey, NRC, Response to 11/19/10 Questions re; NFS Biannual Effluent Monitoring Reports.  
Document Date 12/22/10 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML103610273  
Document Title Response to 11/19/10 Questions re; NFS Biannual Effluent Monitoring.  
Document Date 12/22/10 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML110610416  
Document Title Nuclear Fuel Services, Inc. - Submittal of Biannual Effluent Monitoring Report for Period July through December 2010.  
Document Date 2/22/11 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML11249A064  
Document Title Biannual Effluent Monitoring Report January through June 2011.  
Document Date 8/29/11 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML12055A051  
Document Title Nuclear Fuel Services, Inc. Biannual Effluent Monitoring Report July through December 2011.  
Document Date 2/16/12 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML12059A303  
Document Title Nuclear Fuel Services, Inc. - Biannual Effluent Monitoring Report January through June 2011, Rev. 1.  
Document Date 2/21/12 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML12249A027  
Document Title Nuclear Fuel Services, Inc., Biannual Effluent Monitoring Report January through June 2012.  
Document Date 8/27/12 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML13064A286  
Document Title Biannual Effluent Monitoring Report July Through December 2012.  
Document Date 2/18/13 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML13254A069  
Document Title Nuclear Fuel Services, Inc., Biannual Effluent Monitoring Report January through June 2013 and Amendment to Biannual Effluent Monitoring Report July through December 2012.  
Document Date 8/27/13 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML14057A396  
Document Title Biannual Effluent Monitoring Report July through December 2013.  
Document Date 2/18/14 12:00AM  
Docket Number 07000143  
Availability Publicly Available



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Accession Number 7907160268  
Document Title IE Insp Rept 70-0143/79-12 on 790321.No noncompliance noted. Major areas inspected:nonradiological liquid effluents, underground tank monitoring program & stack fluoride monitoring program.  
Document Date 5/9/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 7908270282  
Document Title IE Insp Rept 70-0143/79-29 on 790723-08.No noncompliance noted.Major areas inspected:air sampling data,contamination surveys,effluent controls & review of operator qualifications.  
Document Date 7/16/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 7909250683  
Document Title Forwards "Rept of Effluent Monitoring" for Jan-June 1979.  
Document Date 8/31/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 7909250684  
Document Title "Rept of Effluent Monitoring" for Jan-June 1979.  
Document Date 6/30/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 7910220459  
Document Title PNS-II-79-102E supplementing 790924 PNS-II-79-102D:lab results of soil samples confirmed presence of low enriched U consistent w/normal effluents.Detailed environ survey is in progress.  
Document Date 9/25/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8002110297  
Document Title IE Insp Rept 70-0143/79-40 on 790917-27,1002-06 & 09-12. Noncompliance noted:failure to adequately survey stack effluents,make dilution of dispersion calculations & establish adequate contamination control procedures.  
Document Date 11/27/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8002190258  
Document Title IE Insp Rept 70-0143/79-40 on 791127.Noncompliance noted: failure to adequately stack effluents,failure to make dilution & dispersion calculations & to establish adequate contamination control proPROBABLE DELETE:DUPE OF 8002110297.  
Document Date 11/27/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8004300003  
Document Title Forwards "Effluent Monitoring Rept," Jul-Dec 1979.  
Document Date 2/26/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8004300024  
Document Title "Effluent Monitoring Rept," Jul-Dec 1979.  
Document Date 2/26/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number 8005130155  
Document Title Requests info re encl G McKinney ltr commenting on inventory difference & NRC decision re continued operation. Also requests info re continued federal govt monitoring of effluent releases & radiation background levels near plant.  
Document Date 3/7/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8008280445  
Document Title Amends rept of effluent monitoring & release to unrestricted areas, Jul-Dec 1979. Corrects quantity of gaseous effluents released. Amended rept is necessary due to re-evaluation of quantity of U released during 790807 leak.  
Document Date 8/22/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8009090504  
Document Title Forwards "Rept of Effluent Monitoring & Release to Unrestricted Areas, Jan-June 1980."  
Document Date 8/29/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8009090507  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas, Jan-June 1980."  
Document Date 8/29/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8009240631  
Document Title Responds to NRC 800626 ltr re violations noted in IE Insp Rept 70-0143/80-13. Corrective actions: employee exposure repts & effluent release data updated.  
Document Date 7/21/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8010100020  
Document Title IE Insp Rept 70-143/80-01 on 800109-10 & 0519-23. No noncompliance noted. Major areas inspected: U effluent scrubber sys, stack sampling sys, safety committees & operations review.  
Document Date 6/6/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8010100023  
Document Title "Analysis of Ventilation Scrubbers & Gaseous Effluent Measurement Sys at NFS Plant, Erwin, TN."  
Document Date 5/5/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8011260407  
Document Title IE Insp Rept 70-0143/80-28 on 800818-22. No noncompliance noted. Major areas inspected: airborne effluent monitoring, environ air sampling & soil decontamination.  
Document Date 10/6/80 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8103130662  
Document Title IE Insp Rept 70-0143/80-42 on 801027-1216. No noncompliance noted. Major areas inspected: criticality safety, radiation protection, stack effluents, access controls & physical inventory. Encl 2 withheld (ref 10CFR2.790).  
Document Date 2/5/81 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8103260910  
Document Title IE Insp Rept 70-0143/80-36 on 801103-04.No noncompliance noted.Major areas inspected:effluent control & measurement.  
Document Date 1/28/81 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8104280409  
Document Title Forwards "Radioactive Effluent Release Quarterly Rept, Jan-Mar 1981."  
Document Date 4/22/81 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8104280410  
Document Title "Radioactive Effluent Release Quarterly Rept,Jan-Mar 1981."  
Document Date 4/22/81 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8209020396  
Document Title IE Insp Rept 70-0143/82-28 on 820712-16.No noncompliance noted.Major areas inspected:radioactive effluents,external exposure control,solid waste & followup on inspector identified items.  
Document Date 7/30/82 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8209020509  
Document Title Forwards "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jan-June 1982."  
Document Date 8/16/82 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8209020513  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jan-June 1982."  
Document Date 8/16/82 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8211170150  
Document Title Discusses commitment re bioassay program,liquid effluents, impinger solutions & soil.QA program will be revised per Reg Guide 4.15.  
Document Date 7/2/82 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8211190043  
Document Title Application to amend License SNM-124,permitting installation of new ventilation sys to combine gaseous effluents from highly enriched U processing & lab areas & discharge from one emission point.  
Document Date 8/5/82 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8211190045  
Document Title Requests G Kosinski technical assistance to evaluate NFS Erwin,TN facility gaseous effluent sys.  
Document Date 12/19/79 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8307140382  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas for Jul-Dec 1982."  
Document Date 2/24/83 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8308160157  
Document Title "Rept of Effluent Monitoring & Releases to Unrestricted Areas,Jul-Dec 1975." W/760226 ltr.  
Document Date 2/26/76 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8308160162  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jul-Dec 1976."  
Document Date 2/9/77 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8308160165  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas Jan-June 1977." W/770901 ltr.  
Document Date 9/1/77 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8310040556  
Document Title "Effluent Monitoring & Release to Restricted Areas,Rept for Jan-June 1983." W/830831 ltr.  
Document Date 6/30/83 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8401090121  
Document Title IE Insp Rept 70-0143/83-46 on 831128-1202.No violations noted.Major areas inspected:gaseous effluents,liquid effluents,solid waste mgt & followup on previous identified enforcement matters.  
Document Date 12/18/83 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8404060075  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,Jul-Dec 1983." W/840224 ltr.  
Document Date 12/31/83 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8405070208  
Document Title IE Insp Rept 70-0143/84-10 on 840319-23.No violations or deviations noted.Major areas inspected: nuclear criticality safety of effluent scrubbers,procedures,audits,training, mods & plant tours.  
Document Date 4/9/84 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8412060339  
Document Title Forwards proposed stack effluent monitoring plan conducted under contract w/Oak Ridge Assoc Univs.  
Document Date 11/19/84 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number 8412060346  
Document Title Forwards 841022 revised proposed stack effluent monitoring plan.  
Document Date 10/26/84 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8502270031  
Document Title Forwards response to environ questions,per 851228 request, environ monitoring rept re groundwater monitoring wells & Science Applications Intl 831018 rept re sampling study of process effluents.  
Document Date 2/8/85 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8502270039  
Document Title Vol 1 to "Sampling Study of Process Effluents at Nuclear Fuel Svcs Facility,Irwin,TN."  
Document Date 5/8/81 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8503180296  
Document Title "Rept of Effluent Monitoring & Release to Unrestricted Areas,for Jul-Dec 1984." W/850228 ltr.  
Document Date 12/31/84 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8504170236  
Document Title IE Info Notice 85-031, "Buildup of Enriched U in Ventilation Ducts & Associated Effluent Treatment Sys."  
Svc list encl.  
Document Date 4/19/85 12:00AM  
Docket Number 07000008  
07000027  
07000036  
07000143  
07000364  
07000371  
07000687  
07000734  
07000754  
07000820  
07000824  
07000925  
07000984  
07001100  
07001113  
07001143  
07001151  
07001201  
07001257  
07001308  
Availability Publicly Available

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Accession Number 8509250114  
Document Title Effluent monitoring rept for Jan-June 1985.  
Document Date 8/29/85 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 8602030040  
Document Title "Radiological Monitoring of Stack Effluents - NFS,Erwin,TN," final rept.  
Document Date 11/30/85 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available



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Accession Number 8603190380  
Document Title Effluent monitoring rept for Jul-Dec 1985.W/860228 ltr.  
Document Date 12/31/85 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number 9210120023  
Document Title Discusses State of NY Health & Safety Lab participation in measurement of effluent samples from NFS plant at West Valley,NY & lab role in subsequent news stories that effluents 36,000 times permissible amounts of Sr-90.  
Document Date 2/29/68 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML003670798  
Document Title Letter forwarding bi-annual effluent monitoring report for January - June 1999, per requirements of 10CFR70.59.  
Document Date 8/27/99 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML003746089  
Document Title REVISION OF INFORMATION TO SUPPORT DOSE-BASED EFFLUENT DISCHARGE CRITERIA AS SPECIFIED IN CHAPTERS 5 AND 15 OF SNM-124  
Document Date 8/18/00 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML003746676  
Document Title NFS - Bi-Annual Effluent Monitoring Report: January through June 2000  
Document Date 8/28/00 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML003748970  
Document Title Memo: Comments on EA for NFS License Amendment to change liquid effluent action levels  
Document Date 9/12/00 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML003748992  
Document Title EPAB markup of EA for NFS license amendment to change liquid effluent action levels  
Document Date 9/12/00 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML010120046  
Document Title Nuclear Fuel Services, Inc. Amendment 12 Tac No. L1387 Adjust Liquid Effluent Discharge Limits, and NRC Correction of Previous Amendments  
Document Date 10/27/00 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML010650462  
Document Title Nuclear Fuel Services - Bi-Annual Effluent Monitoring Report July - December 2000.  
Document Date 3/1/01 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML010720037  
Document Title Bi-Annual Effluent Monitoring Report July - December 2000.  
Document Date 3/1/01 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML010960361  
Document Title Nuclear Fuel Services, Inc. - Amendment 12 Letter and SER - Tac L31387 - Adjust Liquid Effluent Discharge Limits  
Document Date 10/27/00 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML012490200  
Document Title Submittal of report of Radioactivity in Effluent Liquid for period January-June 2001, report of Radioactivity in Effluent Air for period of January-June 2001, & evaluation of dose & air activity concentration for maximally exposed individual.  
Document Date 8/28/01 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML012490405  
Document Title Submittal of report of Radioactivity in Effluent Liquid for period January-June 2001, report of Radioactivity in Effluent Air for period of January-June 2001, & evaluation of dose & air activity concentration for maximally exposed individual.  
Document Date 8/28/01 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

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Accession Number ML020710079  
Document Title Nuclear Fuel Services, Bi-Annual Effluent Monitoring Report, July - December 2001  
Document Date 12/31/01 12:00AM  
Docket Number 07000143  
Availability Publicly Available

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Accession Number ML080800400  
Document Title Ltr from S. Smiley of USAEC to A. Abreu of Whittaker Corporation, Regarding Uniform Methods for Monitoring Effluents Release to the Environment.  
Document Date 3/24/72 12:00AM  
Docket Number 05000201  
05000268  
07000008  
07000025  
07000027  
07000033  
07000036  
07000064  
07000072  
07000082  
07000135  
07000143  
07000150  
07000157  
07000287  
07000337  
07000364  
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07000456  
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07000824  
07000903  
07000925  
07000938  
07001007  
07001059  
07001068  
07001086  
07001100  
07001113  
07001143  
07001151  
07001193  
07001201  
07001257  
Availability Publicly Available



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Accession Number ML100890081  
Document Title Bi-Annual Effluent Monitoring Report January - June 1997.  
Document Date 8/29/97 12:00AM  
Docket Number 07000143  
Availability Non-Publicly Available

**From:** Coffin, Stephanie  
**Sent:** 16 Jan 2015 10:16:02 -0500  
**To:** Brock, Terry; Tadesse, Rebecca  
**Cc:** Case, Michael  
**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report  
**Attachments:** CA note example.pdf

The attachment, which does not pertain to the Cancer Risk Study, has been treated as outside-the-scope of this request.

The attached is a recent example of a CA note. It "tells a story" in that there is a bit of background, relevant references, next steps. Hope this helps.

---

**From:** Brock, Terry  
**Sent:** Friday, January 09, 2015 9:19 AM  
**To:** Coffin, Stephanie; Tadesse, Rebecca  
**Cc:** Case, Michael  
**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

Here's the draft CA note. Let me know if you want to change anything. Brett Rini told me he and EDO will put it into the proper format once you approve the content and distribution list.

Thx,  
Terry

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**From:** Brock, Terry  
**Sent:** Wednesday, January 07, 2015 10:42 AM  
**To:** Coffin, Stephanie; Tadesse, Rebecca  
**Cc:** Case, Michael  
**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

Yep, I think we got our notes crossed. I had shown Brian a draft note that he commented on "that was what we sent up as the EDO note. I'll do a CA note with more details.

Terry  
Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

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**From:** Coffin, Stephanie  
**Sent:** Wednesday, January 07, 2015 10:21 AM  
**To:** Brock, Terry; Tadesse, Rebecca  
**Cc:** Case, Michael  
**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

This has been an area of confusion  
My interactions with Brian and Steve indicated they were both expecting a CA note (not a Daily note) and still want one as a "heads up" to the SECY paper. I think Rebecca was thinking along these lines as well when I talked with her last week. Brian thought you had one already crafted, in fact.

---

**From:** Brock, Terry  
**Sent:** Wednesday, January 07, 2015 9:06 AM  
**To:** Coffin, Stephanie; Tadesse, Rebecca  
**Cc:** Case, Michael  
**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

Hi Mike/Stephanie,

Does Brian want to do the CA note in addition to the EDO note as described by Steve? My understanding from our conversations with Brian was that an EDO note would be sufficient.

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

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**From:** Coffin, Stephanie

**Sent:** Tuesday, December 30, 2014 2:11 PM

**To:** Tadesse, Rebecca; Brock, Terry

**Cc:** Case, Michael

**Subject:** FW: Draft EDO Daily Note regarding NAS cancer study report

The Daily Note went up.

See Steve's email about when he would like to send a CA note (soon). Hopefully this is consistent with all your discussions and plans from last week.

Let Mike and I know if any concerns.

Stephanie

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**From:** West, Steven

**Sent:** Tuesday, December 30, 2014 1:42 PM

**To:** Coffin, Stephanie; Tapp, Katherine

**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

I support the plan, but maybe not the timing. I don't think we can wait until we've reviewed the report and get additional cost information from NAS (sometime in February?) before we provide additional detail to the CAs. We should shoot for something in the much shorter term that presents some of the key information from the report and introduces some of our concerns (e.g., cost, based on best available information and our own judgment about how projects like this run (over schedule and over budget)), and some of the other key points we discussed/made during our internal meeting and the NAS briefing. Among other things, this might help the CAs (and the individual Commissioners) decide if they want a briefing. Let's talk if you'd like.

Steve

---

**From:** Coffin, Stephanie

**Sent:** Tuesday, December 30, 2014 1:03 PM

**To:** West, Steven

**Cc:** Flory, Shirley; Tapp, Katherine

**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report

Steve,

If you support, our plan is to send the Daily Note today as a "heads up." Then after we review their report and get some more financial insights, we plan to prepare a CA note. Right now we don't have enough info to write a meaningful CA note.

And then eventually we plan to right a SECY paper with our plans.

We are also coordinating with OPA.

---

**From:** West, Steven

**Sent:** Tuesday, December 30, 2014 11:22 AM

**To:** Tapp, Katherine

**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Brock, Terry; Flory, Shirley; Hathaway, Alfred; Valentin, Milton

**Subject:** RE: Draft EDO Daily Note regarding NAS cancer study report



Thanks Katie. I think Shirley told you that it needs to be trimmed so the system will accept it. Also, is the daily note a substitute for the CA note I think Brian (or maybe OEDO) asked for?  
Steve

---

**From:** Tapp, Katherine

**Sent:** Tuesday, December 30, 2014 11:08 AM

**To:** West, Steven

**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Brock, Terry; Flory, Shirley; Hathaway, Alfred; Valentin, Milton

**Subject:** Draft EDO Daily Note regarding NAS cancer study report

**Importance:** High

Steve,

Attached is a EDO daily note for your review regarding the release of the National Academy of Science (NAS) report regarding the pilot cancer study. Brian has previously seen and provided feedback on this note.

Please let me know if you have any questions.

Thank you,

Katie

**Katie Tapp (Streit), Ph.D.**

**Health/Medical Physicist**

**Office of Nuclear Regulatory Research | Radiation Protection Branch**

**Phone: (301) 251-7520**



**From:** Case, Michael  
**Sent:** 3 Sep 2015 06:39:35 -0400  
**To:** Brock, Terry  
**Cc:** Coffin, Stephanie  
**Subject:** RE: From NAS on the cancer study

Thanks Terry. Nice intel.

**From:** Brock, Terry  
**Sent:** Wednesday, September 02, 2015 5:36 PM  
**To:** Sheron, Brian; West, Steven; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca  
**Cc:** Burnell, Scott; Weil, Jenny  
**Subject:** FYI: From NAS on the cancer study

All,

Below is an e-mail from my counterpart at NAS. Per Weber's request I invited Dr. John Samet to join the call—he was the chair of the Cancer Study Pilot Project Planning cmt that briefed us last December. In addition, I invited Dr. Dynes to join the call—he's the chair of the cmt that Kevin Crowley reports to. The initial angst described in the e-mail is because Drs. Samet and Dynes live in California and balked a bit about the early phone call, however they will join us. I asked Dr. Dynes of the NAS cmt to join us because he will be around for awhile and will have first hand knowledge of our reasoning to cancel the study. In contrast, Dr. Samet is done with the project and will not be helpful in future communications with the board. Dr. Dynes is also less political and I wanted him to hear from us directly to communicate our rationale to the board in future meetings.

Later in the e-mail there's a pitch to support NAS in their home grown initiative to do a BEIR VIII study with a reference to EPA, implying they support this. I went to the NAS public meeting earlier this year on BEIR VIII and the scientific consensus was that this is too early. John Boice is not in favor of this until we get more information from the Million Worker Study (MWS). Additionally, I called EPA to gauge their interest in BEIR VIII. What I learned was that NAS' comment below is overstated and EPA is not actively interested in BEIR VIII. In fact, they are more interested in funding the MWS to glean the information we will get from these cohorts. They also support Brian calling DOE to raise the issue about them cancelling the low dose program and the MWS without notifying us—EPA also signed an interagency agreement with DOE like us and were not notified of the impending sunset of the program.

Finally, I assure you I did not tip our hand on us cancelling the study, however I thought it was important for you all to know what NAS is thinking.

Terry

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**From:** Kost, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Wednesday, September 02, 2015 1:54 PM  
**To:** Brock, Terry  
**Subject:** [External\_Sender] RE: RE: RE: RE: RE: RE: schedule a teleconference this week

Terry:

Jon Samet and Bob Dynes were not happy with the request to reschedule the call an hour earlier—in our view it is disrespectful to ask them to participate at a 6 AM call. However they said they will connect. I have forwarded the call-in information.

Kevin and I had a call with Jon and Bob earlier today. We have been reading between the lines and suspect that the USNRC has made a decision not to fund the pilot study on cancer risks near nuclear facilities and that it will make a public announcement of its decision. We are certainly disappointed—if this is indeed the decision—as we were looking forward to working on the study using the best possible information to answer the stakeholders' questions about risks near nuclear facilities. However we understand that your agency's priorities may have changed

since inception of the project some 5 years ago and that staff have no control over this. We are sympathetic that your decision was not easy.

We expect that there will be some negative reaction to the announcement. The USNRC informed its stakeholders that it will be funding the Academies study in 2012 and now it will reverse its decision. We would like to work with you and help you be responsive to the stakeholders' health concerns. Although there is no direct substitute to an epidemiological study in populations near nuclear facilities we would like to work with you to identify and engage in activities that address some of the stakeholders' concerns related to chronic low dose and low dose-rate radiation-induced health effects.

As you know, our board has started thinking of the next BEIR study and have initiated discussions with EPA on the timing and scope of the BEIR VIII. BEIR VIII will address, among other topics, risks related to chronic low radiation doses. There is an opportunity for the USNRC to support the BEIR VIII study and announce its intent to do so when it announces its decision about the cancer risk study. There might be other ways for the USNRC to acknowledge that even if it will not sponsor the study in cancer risks near nuclear facilities it will continue to engage in activities aiming to better understand risks at low radiation doses.

I welcome any initial thoughts you might have. In any case we will talk September 8 at 9 AM (ET).

Rania



**From:** Burnell, Scott  
**Sent:** 9 Sep 2015 10:26:08 -0400  
**To:** Sheron, Brian  
**Cc:** Weber, Michael;'eliotb@cox.net';Tadesse, Rebecca;Case, Michael;Coffin, Stephanie;West, Steven;Brock, Terry;Brenner, Eliot;Harrington, Holly  
**Subject:** Re: FYI - BEYOND NUCLEAR's RESPONSE TO NRC's CANCELLATION OF THE NATIONAL CANCER RISK STUDY

Hello all;

At least one reporter in today's articles recognized the errors in Folkers' statement, and I believe the coverage has been tilted in our favor so far. If Folkers gets any further traction we can push back with the tools in hand -- the SECY and comm plan address the main points of her errors.

Scott

Sent from an NRC Blackberry

Scott Burnell

(b)(6)

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**From:** Sheron, Brian  
**Sent:** Wednesday, September 09, 2015 10:20 AM  
**To:** Burnell, Scott  
**Cc:** Weber, Michael; Eliot Brenner (eliotb@cox.net) ; Tadesse, Rebecca; Case, Michael; Coffin, Stephanie; West, Steven; Brock, Terry  
**Subject:** FW: FYI - BEYOND NUCLEAR's RESPONSE TO NRC's CANCELLATION OF THE NATIONAL CANCER RISK STUDY

Scott, I agree with Mike that the "Beyond Nuclear" release is very distorted, makes totally unfounded allegations, and in some places is flat out wrong. Would you like us to provide any rebuttal talking points?

---

**From:** Weber, Michael  
**Sent:** Wednesday, September 09, 2015 9:53 AM  
**To:** Satorius, Mark ; Johnson, Michael ; Ash, Darren ; Galloway, Melanie  
**Cc:** Brenner, Eliot ; Harrington, Holly ; Sheron, Brian ; West, Steven ; Case, Michael ; Coffin, Stephanie ; Tadesse, Rebecca ; Burnell, Scott ; Rosales-Cooper, Cindy ; Brock, Terry ; Rihm, Roger ; Rasouli, Houman ; Pham, Bo  
**Subject:** FYI - BEYOND NUCLEAR's RESPONSE TO NRC's CANCELLATION OF THE NATIONAL CANCER RISK STUDY

Good morning. Jenny Weil, OCA, shared the attached release from Beyond Nuclear that was prompted by our announcement yesterday that we are not going forward with the update to the National Cancer Risk Study. Quite distorted.

*Mike*

Michael Weber  
Deputy Executive Director for Materials, Waste, Research,  
State, Tribal, and Compliance Programs

U.S. Nuclear Regulatory Commission  
301-415-1705  
Mail Stop O16E15





**From:** Burnell, Scott  
**Sent:** 2 Sep 2015 17:41:58 -0400  
**To:** Brock, Terry;Sheron, Brian;West, Steven;Case, Michael;Coffin, Stephanie;Tadesse, Rebecca  
**Cc:** Weil, Jenny  
**Subject:** Re: FYI: From NAS on the cancer study

Ourania's tea-leaf reading is not at all surprising, nor is the "we're available to help communicate" message and their approach to the issue.

Sent from an NRC Blackberry  
Scott Burnell

(b)(6)

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**From:** Brock, Terry  
**Sent:** Wednesday, September 02, 2015 05:35 PM  
**To:** Sheron, Brian; West, Steven; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca  
**Cc:** Burnell, Scott; Weil, Jenny  
**Subject:** FYI: From NAS on the cancer study

All,

Below is an e-mail from my counterpart at NAS. Per Weber's request I invited Dr. John Samet to join the call—he was the chair of the Cancer Study Pilot Project Planning cmt that briefed us last December. In addition, I invited Dr. Dynes to join the call—he's the chair of the cmt that Kevin Crowley reports to. The initial angst described in the e-mail is because Drs. Samet and Dynes live in California and balked a bit about the early phone call, however they will join us. I asked Dr. Dynes of the NAS cmt to join us because he will be around for awhile and will have first hand knowledge of our reasoning to cancel the study. In contrast, Dr. Samet is done with the project and will not be helpful in future communications with the board. Dr. Dynes is also less political and I wanted him to hear from us directly to communicate our rationale to the board in future meetings.

Later in the e-mail there's a pitch to support NAS in their home grown initiative to do a BEIR VIII study with a reference to EPA, implying they support this. I went to the NAS public meeting earlier this year on BEIR VIII and the scientific consensus was that this is too early. John Boice is not in favor of this until we get more information from the Million Worker Study (MWS). Additionally, I called EPA to gauge their interest in BEIR VIII. What I learned was that NAS' comment below is overstated and EPA is not actively interested in BEIR VIII. In fact, they are more interested in funding the MWS to glean the information we will get from these cohorts. They also support Brian calling DOE to raise the issue about them cancelling the low dose program and the MWS without notifying us—EPA also signed an interagency agreement with DOE like us and were not notified off the impending sunset of the program. Finally, I assure you I did not tip our hand on us cancelling the study, however I thought it was important for you all to know what NAS is thinking.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, September 02, 2015 1:54 PM  
**To:** Brock, Terry  
**Subject:** [External\_Sender] RE: RE: RE: RE: RE: RE: schedule a teleconference this week  
Terry:

Jon Samet and Bob Dynes were not happy with the request to reschedule the call an hour earlier—in our view it is disrespectful to ask them to participate at a 6 AM call. However they said they will connect. I have forwarded the call-in information.

Kevin and I had a call with Jon and Bob earlier today. We have been reading between the lines and suspect that the USNRC has made a decision not to fund the pilot study on cancer risks near nuclear facilities and that it will make a public announcement of its decision. We are certainly disappointed—if this is indeed the decision—as we were looking forward to working on the study using the best possible information to answer the stakeholders' questions about risks near nuclear facilities. However we understand that your agency's priorities may have changed since inception of the project some 5 years ago and that staff have no control over this. We are sympathetic that your decision was not easy.

We expect that there will be some negative reaction to the announcement. The USNRC informed its stakeholders that it will be funding the Academies study in 2012 and now it will reverse its decision. We would like to work with you and help you be responsive to the stakeholders' health concerns. Although there is no direct substitute to an epidemiological study in populations near nuclear facilities we would like to work with you to identify and engage in activities that address some of the stakeholders' concerns related to chronic low dose and low dose-rate radiation-induced health effects.

As you know, our board has started thinking of the next BEIR study and have initiated discussions with EPA on the timing and scope of the BEIR VIII. BEIR VIII will address, among other topics, risks related to chronic low radiation doses. There is an opportunity for the USNRC to support the BEIR VIII study and announce its intent to do so when it announces its decision about the cancer risk study. There might be other ways for the USNRC to acknowledge that even if it will not sponsor the study in cancer risks near nuclear facilities it will continue to engage in activities aiming to better understand risks at low radiation doses.

I welcome any initial thoughts you might have. In any case we will talk September 8 at 9 AM (ET).

Rania



**From:** Burnell, Scott  
**Sent:** 22 Dec 2014 12:33:44 -0500  
**To:** Brock, Terry  
**Subject:** RE: Heads-Up: FW: Report on Cancer Risks near Nuclear Facilities: Pilot Planning

Dangit, I sat so long on the shuttle I blanked on OCA and went straight to my cube. Thanks for forwarding that.

---

**From:** Brock, Terry  
**Sent:** Monday, December 22, 2014 12:32 PM  
**To:** Weil, Jenny  
**Cc:** Tadesse, Rebecca; Dacus, Eugene; Burnell, Scott  
**Subject:** Heads-Up: FW: Report on Cancer Risks near Nuclear Facilities: Pilot Planning

Hi Jenny,

NAS came into today to brief staff on the results of the cancer study pilot planning project. Attached are their slides and the embargoed report. NAS told us they plan on briefing Senator Markey's staff this afternoon--no other NAS congressional briefings are scheduled. Please note that I am still briefing my RES management on the study, but wanted you to know what NAS was planning today.

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

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**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Monday, December 22, 2014 7:29 AM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania; Crowley, Kevin  
**Subject:** Report on Cancer Risks near Nuclear Facilities: Pilot Planning

Dr. Brock:

Attached is the advance copy of the report on *Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 2 Pilot Planning*. Also attached are the slides that the pilot planning committee chair, Dr. Jon Samet, will be presenting tomorrow at the briefing to the U.S. Nuclear Regulatory Commission. I will bring copies of both for our discussions today.

Thank you,

Rania

Ourania (Rania) Kosti, Ph.D.  
Senior Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
email: [okosti@nas.edu](mailto:okosti@nas.edu)  
phone: 202 334 3066



**From:** Case, Michael  
**Sent:** 17 Aug 2015 13:54:37 -0400  
**To:** Chen, Yen-Ju; Brock, Terry  
**Cc:** Coffin, Stephanie; Pope, Tia; Tadesse, Rebecca  
**Subject:** RE: I Response: Example of Resource in SECY Enclosure

OK, we'll cross that bridge when we come to it and Tia can probably give us some good advice.

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 17, 2015 1:51 PM  
**To:** Case, Michael; Brock, Terry  
**Cc:** Coffin, Stephanie  
**Subject:** I Response: Example of Resource in SECY Enclosure

I still have the package. Once you made the changes in ADAMS, just let me know. I can print a copy for the package. However, let me know if you prefer to have the package back. I can bring it back.

Yen

---

**From:** Case, Michael  
**Sent:** Monday, August 17, 2015 1:41 PM  
**To:** Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>; Brock, Terry <[Terry.Brock@nrc.gov](mailto:Terry.Brock@nrc.gov)>  
**Cc:** Coffin, Stephanie <[Stephanie.Coffin@nrc.gov](mailto:Stephanie.Coffin@nrc.gov)>  
**Subject:** RE: Response: Example of Resource in SECY Enclosure

Got it. Thanks.

---

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 17, 2015 1:31 PM  
**To:** Case, Michael; Brock, Terry  
**Subject:** Response: Example of Resource in SECY Enclosure

See the recent SECY-15-0077 where resource is placed in a non-public enclosure. Let me know if you have questions about Mike's comments on the cancer study paper.

[View ADAMS P8 Properties ML15054A139](#)

[Open ADAMS P8 Package \(SECY-15-0077: Options for Emergency Preparedness for Small Modular Reactors and Other New Technologies.\)](#)

**From:** Milligan, Patricia  
**Sent:** 19 Jun 2015 07:34:02 -0400  
**To:** Brock, Terry  
**Subject:** RE: I'm in 3wfn; you here for a drive by around 11:45 - eom

Je suis en Paris.  
not completely surprised given the budget environment.. disappointed but wait until Congress gets a hold of it.. it may be back on.

---

**From:** Brock, Terry  
**Sent:** Wednesday, June 17, 2015 11:13 AM  
**To:** Milligan, Patricia  
**Subject:** RE: I'm in 3wfn; you here for a drive by around 11:45 - eom

I see you are on travel. The EDO canceled the cancer study due to budget reasons, even though we already had all concurrences for the NCRP approach. Regardless, I need to write another SECY paper informing the Commission we are not going forward. Stay tuned, thought you should know.

Terry

---

**From:** Milligan, Patricia  
**Sent:** Wednesday, June 17, 2015 11:09 AM  
**To:** Brock, Terry  
**Subject:** Out of Office: I'm in 3wfn; you here for a drive by around 11:45 - eom  
I am out of the office on travel from 6/15-6/19. I will have periodic access to email and will respond to emails.

**From:** Case, Michael  
**Sent:** 17 Aug 2015 10:29:54 -0400  
**To:** Brock, Terry  
**Cc:** Coffin, Stephanie;Tadesse, Rebecca;Bush-Goddard, Stephanie  
**Subject:** RE: Input on the Cancer Study

Thanks. I just talked with Brian. We complained a lot but he's OK in principle if it matches his mental picture. I told him we would crank them in and let him see a clean result. The comments are handwritten and I got some verbal ones from Yen as well. Want me to have Tia scan it out to you?

**From:** Brock, Terry  
**Sent:** Monday, August 17, 2015 10:02 AM  
**To:** Case, Michael  
**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Bush-Goddard, Stephanie  
**Subject:** Re: Input on the Cancer Study

I'm working at home, but can call in when ready.

---

**From:** Case, Michael  
**Sent:** Monday, August 17, 2015 9:54 AM  
**To:** Brock, Terry  
**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Bush-Goddard, Stephanie  
**Subject:** Input on the Cancer Study

Hi Terry. I have the EDO input on the Cancer Study. We'll need to make the changes (that they seem to be looking for in the next couple of days). Brian wasn't in yet but we may want to swing by to see if he has any verbal direction.



**From:** Case, Michael  
**Sent:** 17 Aug 2015 12:14:55 -0400  
**To:** Brock, Terry  
**Cc:** Coffin, Stephanie;Tadesse, Rebecca;Bush-Goddard, Stephanie  
**Subject:** RE: Input on the Cancer Study

OK. Great. Tia will beam it out to you. Yen's verbal direction had to do with moving out year budget information to an attachment (probably so that the paper can be released publically without it). She said she had a sample. I'll follow up.

**From:** Brock, Terry  
**Sent:** Monday, August 17, 2015 10:02 AM  
**To:** Case, Michael  
**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Bush-Goddard, Stephanie  
**Subject:** Re: Input on the Cancer Study

I'm working at home, but can call in when ready.

---

**From:** Case, Michael  
**Sent:** Monday, August 17, 2015 9:54 AM  
**To:** Brock, Terry  
**Cc:** Coffin, Stephanie; Tadesse, Rebecca; Bush-Goddard, Stephanie  
**Subject:** Input on the Cancer Study

Hi Terry. I have the EDO input on the Cancer Study. We'll need to make the changes (that they seem to be looking for in the next couple of days). Brian wasn't in yet but we may want to swing by to see if he has any verbal direction.

**From:** Case, Michael  
**Sent:** 19 Nov 2014 07:11:36 -0500  
**To:** Tadesse, Rebecca; Brock, Terry; Coffin, Stephanie  
**Subject:** RE: Interesting Bill

Yep, let's get them to keep us in the loop. DOE could help us with the Cancer Study. It like a shovel ready project!

---

**From:** Tadesse, Rebecca  
**Sent:** Tuesday, November 18, 2014 1:53 PM  
**To:** Brock, Terry; Case, Michael; Coffin, Stephanie  
**Subject:** Interesting Bill

It will be interesting if this Bill goes any were. Do you think it might be worth asking OCA to keep us inform as the bill goes thru the Senate. We might want to get involved if DOE gets funding. The **House** reconvened at 2:00 p.m. Monday, November 17, 2014. The **House** passed **H.R. 5544**, which requires DOE to conduct research to enhance the scientific understanding of the health effects of exposure to low doses of ionizing radiation, and will be considering several EPA-related bills (**H.R. 1422**, **H.R. 4795**, and **H.R. 4012**). The **President** has come out in strong opposition of these three bills and threatens to veto them, saying that they would threaten public health goals, undermine the agency's integrity and create unnecessary requirements.

**From:** Brock, Terry  
**Sent:** 1 Sep 2015 12:25:08 +0000  
**To:** Zabel, Joseph;Pope, Tia;Gaskins, Kimberly  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: Letter to NAS  
**Attachments:** Crowley\_Closeout.cor.docx

Thanks Joe!

Tia/Kim,

Would you please use the clean version and give it to Mike Case for concurrence. I need to get this to the FO this week.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop TWFN-10  
phone: 301-415-1793

---

**From:** Zabel, Joseph  
**Sent:** Monday, August 31, 2015 10:18 AM  
**To:** Brock, Terry; Pope, Tia; Gaskins, Kimberly  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: Letter to NAS

Hi Terry:

I have attached my redline and corrected versions of the letter.

Joe

---

**From:** Brock, Terry  
**Sent:** Monday, August 31, 2015 9:46 AM  
**To:** Pope, Tia <[Tia.Pope@nrc.gov](mailto:Tia.Pope@nrc.gov)>; Gaskins, Kimberly <[Kimberly.Gaskins@nrc.gov](mailto:Kimberly.Gaskins@nrc.gov)>; Zabel, Joseph <[Joseph.Zabel@nrc.gov](mailto:Joseph.Zabel@nrc.gov)>  
**Cc:** Tadesse, Rebecca <[Rebecca.Tadesse@nrc.gov](mailto:Rebecca.Tadesse@nrc.gov)>  
**Subject:** Letter to NAS

Tia/Kim,

Another short leash for the cancer study..  
Brian needs this letter for the communication with NAS early next week.

Would you please put in the concurrence block me, Rebecca, Joe Zabel, Stephanie Coffin, and Brian Sheron.



Joe,

Would you please give the attached an edit. Tia will put it in the correct format, so if you could focus on the text..

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

Dr. Kevin Crowley, Senior Board Director  
Nuclear and Radiation Studies Board  
Division on Earth and Life Studies  
The National Academies of Science, Engineering, and Medicine  
500 5<sup>th</sup> St. NW, Washington DC 20001

Dear Dr. Crowley,

This letter is to inform you that the U.S. Nuclear Regulatory Commission (NRC) has decided to end the "Analysis of Cancer Risks in Populations near Nuclear Facilities" study due to the current agency budget environment, the cost and time estimate to complete the study, and the uncertainty in the NRC staff's ability to use the study results to communicate risk estimates to our stakeholders. We knew this study would be a challenge to execute because of the very low offsite doses from the operation of NRC-licensed facilities and the limited ability for epidemiology to detect health effects at these low exposures—the National Academy of Sciences (NAS) Phase 1 and Phase 2 Pilot Planning reports thoroughly document these challenges. However, even with these technical challenges, the NRC thought it was worthwhile to continue exploring the feasibility of performing the study through the pilot study. Unfortunately, current agency fiscal realities preclude us from continuing.

The NRC staff appreciates NAS's candid advice on the limited usefulness of the pilot results in communicating risks to the public and the large costs to perform the study. As a result, the staff will continue to monitor international and national activity in this area to determine if further study is warranted. We also encourage any other entities in the United States that would want to do these types of studies to use the NRC-funded Phase 1 and Phase 2 Pilot Planning reports as guidance in initiating any future efforts.

Sincerely,

Dr. Brian Sheron, Director  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission

**From:** Milligan, Patricia  
**Sent:** 5 Feb 2015 14:59:10 -0500  
**To:** Brock, Terry  
**Subject:** RE: Meet with Brian next week

Send me a scheduler. Thanks

---

From: Brock, Terry  
Sent: Thursday, February 05, 2015 12:37 PM  
To: Milligan, Patricia  
Subject: RE: Meet with Brian next week

Can you make it to the staff meeting on Tuesday too! Please do. if you feel up to it.

---

From: Milligan, Patricia  
Sent: Wednesday, February 04, 2015 7:06 PM  
To: Brock, Terry  
Subject: RE: Meet with Brian next week

I can join you in person

---

From: Brock, Terry  
Sent: Wednesday, February 04, 2015 2:20 PM  
To: Milligan, Patricia  
Subject: RE: Meet with Brian next week

Best number to call?

-----Original Message-----

From: Milligan, Patricia  
Sent: Wednesday, February 04, 2015 2:18 PM  
To: Brock, Terry  
Subject: RE: Meet with Brian next week

Ok. I should be k with that time

---

From: Brock, Terry  
Sent: Wednesday, February 04, 2015 1:51 PM  
To: Milligan, Patricia  
Subject: RE: Meet with Brian next week

Next week Thursday (Feb. 12) 3:30 to 4:30. See attached for inspiration

-----Original Message-----

From: Milligan, Patricia  
Sent: Wednesday, February 04, 2015 1:17 PM  
To: Brock, Terry  
Subject: RE: Meet with Brian next week



Yes. When? I have dr appts on thursday \_\_\_\_\_

From: Brock, Terry

Sent: Tuesday, February 03, 2015 3:26 PM

To: Milligan, Patricia

Subject: Meet with Brian next week

Hey, Brian wants to meet next week about the cancer study to plan on moving forward. Would you please attend? He's bringing in the budget people so I think it's going to happen, but your input would be valuable.

T

---

From: Milligan, Patricia

Sent: Tuesday, February 03, 2015 11:14 AM

To: Brock, Terry

Subject: Out of Office: Reschedule: Cancer Study Update and Discussions on Path Forward

I am out of office and will return Monday Feb 9

**From:** Burnell, Scott  
**Sent:** 22 Jul 2015 10:18:38 -0400  
**To:** Brock, Terry  
**Subject:** Re: My contact info for next week

OK, so where are we, process and timeline-wise??

---

**From:** Brock, Terry  
**Sent:** Wednesday, July 22, 2015 10:17 AM  
**To:** Burnell, Scott  
**Subject:** My contact info for next week

Scott,

I'm going to be in Oregon tonight and next week. My bat phone is (b)(6) if you need to get a hold of me.

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop TWFN-10

phone: 301-415-1793

**From:** Coffin, Stephanie  
**Sent:** 13 Aug 2015 10:38:32 -0400  
**To:** Brock, Terry; Case, Michael  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: NAS Cancer Risk study update/Greeneville Sun

Sounds good. And maybe provide the link to the recent NAS report.

---

**From:** Brock, Terry  
**Sent:** Thursday, August 13, 2015 10:19 AM  
**To:** Case, Michael; Coffin, Stephanie  
**Cc:** Tadesse, Rebecca  
**Subject:** FW: NAS Cancer Risk study update/Greeneville Sun

Mike /Stephanie,

OPA is getting asked about the study by the Erwin, TN local paper. At this point, I propose we tell them that the staff is still evaluating options and will be informing the Commission of our plans soon. Any thoughts?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop TWFN-10  
phone: 301-415-1793

---

**From:** McIntyre, David  
**Sent:** Thursday, August 13, 2015 10:10 AM  
**To:** Ledford, Joey; Conley, Maureen  
**Cc:** Hannah, Roger; Brock, Terry  
**Subject:** Re: NAS Cancer Risk study update/Greeneville Sun

Terry - last I heard we were still a little bit in flux on this. Anything we can say to answer these questions?

Dave

---

On: 13 August 2015 10:05, "Ledford, Joey" <[Joey.Ledford@nrc.gov](mailto:Joey.Ledford@nrc.gov)> wrote:  
Dave, Maureen:

Scott talks about the cancer study almost weekly on the call, but of course he isn't here when I have an actual inquiry on it.



Do either of you have any idea what, if anything, we can say at this point?

Thanks,  
Joey

**From:** Ken Little [<mailto:ken.little@greenevillesun.com>]  
**Sent:** Thursday, August 13, 2015 9:23 AM  
**To:** Ledford, Joey <[Joey.Ledford@nrc.gov](mailto:Joey.Ledford@nrc.gov)>  
**Subject:** [External\_Sender] NAS Cancer Risk study update/Greeneville Sun

Hi Joey: I'm trying to provide an update on the NAS "Analysis of Cancer Risks in Populations Near Nuclear Facilities."

Do you have any information on the status of the study? Have NAS officials met or updated the NRC recently?

Is the Nuclear Regulatory Commission still funding the study? Do additional funds have to be provided for its completion? If so, how will that work?

Also, are there any NRC meetings planned this year in Erwin?

Thanks,

Ken Little  
(423) 359-3141

**From:** Case, Michael  
**Sent:** 6 Feb 2015 09:34:13 -0500  
**To:** West, Steven  
**Cc:** Coffin, Stephanie; Brock, Terry; Bamford, Lisa; Flory, Shirley; Landau, Mindy; Tadesse, Rebecca  
**Subject:** RE: NAS Cancer Study Pilot Program Recommendation, etc.

Thanks. Got it. Rebecca will be our point person for setting it up.

---

**From:** West, Steven  
**Sent:** Tuesday, February 03, 2015 3:16 PM  
**To:** Case, Michael  
**Cc:** Coffin, Stephanie; Brock, Terry; Sheron, Brian; Bamford, Lisa; Flory, Shirley; Landau, Mindy  
**Subject:** NAS Cancer Study Pilot Program Recommendation, etc.  
**Importance:** High

Mike,

I understand we now have both the NAS report on the pilot program and its cost proposal for the pilot program (~8M over 39 months). Could you get the right folks with Brian and me next week to discuss your recommendation and the plan/status for communicating with the Commission. Please invite Lisa so she or someone of her choosing can participate in the discussion wrt the contract/funding. Thanks.

Steve

Steven West, Deputy Director  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
301-251-7400

[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)

**From:** Burnell, Scott  
**Sent:** 3 Feb 2015 09:15:11 -0500  
**To:** Brock, Terry  
**Subject:** RE: NAS Pilot Study Proposal

So I'll tell Jennifer we'll make their report public through our usual process but any announcement would wait, etc etc?

-----Original Message-----

From: Brock, Terry  
Sent: Tuesday, February 03, 2015 9:14 AM  
To: Burnell, Scott  
Subject: RE: NAS Pilot Study Proposal

Yes, eventually. We're probably not sticking to their self-selected schedule. We still need to get staff alignment, a SECY paper out, and most importantly, find the money.

-----Original Message-----

From: Burnell, Scott  
Sent: Tuesday, February 03, 2015 9:12 AM  
To: Brock, Terry  
Subject: FW: NAS Pilot Study Proposal

We're sticking to the schedule that would suggest a press release if the staff recommends moving forward, correct?

-----Original Message-----

From: Walsh, Jennifer [<mailto:JWalsh@nas.edu>]  
Sent: Tuesday, February 03, 2015 9:09 AM  
To: Burnell, Scott  
Subject: NAS Pilot Study Proposal

Scott,

I was alerted that we submitted a proposal to your organization for the pilot execution portion of the cancer risk study. I understand that the USNRC hasn't committed to carrying out the pilot yet, but I was wondering if you would make an announcement that you received the proposal. I want to be prepared in case we receive any media calls. We are not going to make any announcements on our end.

Thanks,  
Jennifer

Jennifer A. Walsh  
Senior Media Officer  
(202) 334-2183  
Institute of Medicine  
National Academy of Sciences  
National Research Council



**From:** Ramsey, Kevin  
**Sent:** 17 Dec 2014 08:08:56 -0500  
**To:** Brock, Terry  
**Subject:** RE: NEW DATE AND TIME: Cancer Risk Study - Pilot Planning Project Coming to an End

Like Tiny Tim said, "It will cost you, everyone."

---

**From:** Brock, Terry  
**Sent:** Tuesday, December 16, 2014 8:27 AM  
**To:** Milligan, Patricia; Burnell, Scott; Garry, Steven; Ramsey, Kevin; Diaz, Marilyn; Cassidy, John; Nimitz, Ronald; Stearns, Don; McCoppin, Michael; Jones, Andrea; Weil, Jenny; Rakovan, Lance; Pinckney, David; Mroz, Sara  
**Cc:** Tadesse, Rebecca; McIntyre, David; Dacus, Eugene  
**Subject:** NEW DATE AND TIME: Cancer Risk Study - Pilot Planning Project Coming to an End  
NAS has confirmed these dates and times for the cancer study pilot planning project briefing and report release.

- Tuesday, December 23, 1 PM: Committee Chair briefs NRC
- Monday, December 29, 11 AM: Release of report to the public

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

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**From:** Brock, Terry  
**Sent:** Thursday, December 11, 2014 8:43 AM  
**To:** Milligan, Patricia; Burnell, Scott; Garry, Steven; Ramsey, Kevin; Diaz, Marilyn; Cassidy, John; Nimitz, Ronald; Stearns, Don; McCoppin, Michael; Jones, Andrea; Weil, Jenny; Rakovan, Lance; Cai, June; Pinckney, David  
**Cc:** Tadesse, Rebecca; McIntyre, David; Dacus, Eugene  
**Subject:** UPDATE RE: UPDATE-HEADS-UP: Cancer Risk Study - Pilot Planning Project Coming to an End  
Hi All,

The cancer study briefing will not happen tomorrow. NAS needs some more time to get the cost estimates for the pilot execution phase ready. It may happen on 12/23 if all the briefings can be scheduled. If not, we're looking early in January for the brief. I'll let you know.

Terry  
Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Brock, Terry  
**Sent:** Wednesday, December 03, 2014 1:32 PM  
**To:** Milligan, Patricia; Burnell, Scott; Garry, Steven; Ramsey, Kevin; Diaz, Marilyn; Cassidy, John; Nimitz, Ronald; Stearns, Don; McCoppin, Michael; Jones, Andrea; Weil, Jenny; Rakovan, Lance; Cai, June; Pinckney, David  
**Cc:** Tadesse, Rebecca; McIntyre, David; Dacus, Eugene  
**Subject:** UPDATE-HEADS-UP: Cancer Risk Study - Pilot Planning Project Coming to an End  
All,



Terry Brock here from RES. We're coming to the end of another stage of the NRC –sponsored National Academy of Sciences Cancer Risk Study. As you may recall, we informed the Commission in SECY 2012-0136 (attached) that we were embarking on the Phase 1 NAS recommendation to perform pilot studies at seven sites: Dresden, SONGS, Oyster Creek, Haddam Neck, Millstone, Big Rock Point, and Nuclear Fuel Services. In the last year, NAS assembled a committee to plan the pilot project to give NRC the best cost estimate for performing the pilot study. Another two important parts of this effort were to determine the feasibility of retrieving cancer data from the various State agencies and the availability of effluent records for the dose assessment part of the study. On this last point, I must acknowledge the excellent help I received in retrieving and reviewing archived effluent records from David Pinckney (OIS), Kevin Ramsey/Marilyn Diaz (NMSS), and Steve Garry (NRR). NAS is planning on briefing the RES Office Director on the results of the planning project **next Friday, December 12, 2014 from 1:00 to 2:00**. NAS will publicly release the report on **Monday, December 15**. RES plans to review the report and I'll distribute it to you all. In January I'll meet with you all to discuss the findings and our recommendation for the next step. This may involve another SECY paper to the Commission depending on the resource implications to complete the pilot execution phase of the study. At this point I don't have anything to share because NAS holds things close to the vest until they brief us, so stay tuned.

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

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phone: 301-251-7487

**From:** Coffin, Stephanie  
**Sent:** 28 Aug 2015 07:56:09 -0600  
**To:** Brock, Terry;Sheron, Brian;Case, Michael;Tadesse, Rebecca  
**Subject:** RE: Notifyng NAS

Thanks Terry

---

**From:** Brock, Terry  
**Sent:** Friday, August 28, 2015 9:23 AM  
**To:** Coffin, Stephanie <Stephanie.Coffin@nrc.gov>; Sheron, Brian <Brian.Sheron@nrc.gov>; Case, Michael <Michael.Case@nrc.gov>; Tadesse, Rebecca <Rebecca.Tadesse@nrc.gov>  
**Subject:** RE: Notifyng NAS

I also think we should invite the chair of NAS Nuclear Science and Radiation Studies Board (NSRB) who oversee this project. The chair of the study committee is done and gone and won't be able to talk to this at the board meetings. Having the chair of the NSRB on the call will ensure he gets the information first hand from us and he can deliver it to the board in future meetings—the NAS staff defer to the board quite a bit. I'll contact NAS to include both chairs on the call.

Terry

---

**From:** Coffin, Stephanie  
**Sent:** Thursday, August 27, 2015 4:46 PM  
**To:** Sheron, Brian; Case, Michael; Tadesse, Rebecca; Brock, Terry  
**Subject:** RE: Notifyng NAS

I think it's a good idea if we can work out the logistics

---

**From:** Sheron, Brian  
**Sent:** Wednesday, August 26, 2015 11:32 AM  
**To:** Case, Michael <Michael.Case@nrc.gov>; Coffin, Stephanie <Stephanie.Coffin@nrc.gov>; Tadesse, Rebecca <Rebecca.Tadesse@nrc.gov>; Brock, Terry <Terry.Brock@nrc.gov>  
**Subject:** Notifyng NAS

Weber was saying we should not only notify Crowley personally, but also the chair of the NAS Committee. What do you think?

**From:** Burnell, Scott  
**Sent:** 8 Sep 2014 14:01:33 -0400  
**To:** Brock, Terry  
**Subject:** RE: On cancer study backgrounder title please change Risk to Risks

OK

---

**From:** Brock, Terry  
**Sent:** Monday, September 08, 2014 1:41 PM  
**To:** Burnell, Scott  
**Subject:** On cancer study backgrounder title please change Risk to Risks  
<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bg-analys-cancer-risk-study.html>

Thx,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

**From:** Burnell, Scott  
**Sent:** 9 Sep 2014 11:28:51 -0400  
**To:** Brock, Terry  
**Subject:** RE: On cancer study backgrounder title please change Risk to Risks

De nada.

---

**From:** Brock, Terry  
**Sent:** Tuesday, September 09, 2014 11:28 AM  
**To:** Burnell, Scott  
**Subject:** RE: On cancer study backgrounder title please change Risk to Risks  
merci

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Burnell, Scott  
**Sent:** Tuesday, September 09, 2014 10:25 AM  
**To:** Brock, Terry  
**Subject:** RE: On cancer study backgrounder title please change Risk to Risks  
Done, changes should be posted shortly.

---

**From:** Brock, Terry  
**Sent:** Monday, September 08, 2014 1:41 PM  
**To:** Burnell, Scott  
**Subject:** On cancer study backgrounder title please change Risk to Risks  
<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bg-analys-cancer-risk-study.html>

Thx,

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Burnell, Scott  
**Sent:** 24 Aug 2015 14:17:26 -0400  
**To:** Brock, Terry  
**Subject:** RE: pilot planning link

I think we can stick to these three main Q&A (and derive a key message or two from them):

**Q3. Why is the NRC abandoning the National Academies suggested research methods?**

A3. The NAS approach remains publicly available for those who have the resources and time to carry it out. The NRC's current path forward enables research on safety-significant topics for licensing, inspection, enforcement, and rulemaking. The NAS Phase I report called out several challenges to completing the study, not least of which was the work "may not have adequate statistical power to detect the presumed small increases in cancer risks arising from... monitored and reported releases."

**Q4. Why does the NRC think the cost of the study is more important than giving the public the best information about cancer risks from nuclear power?**

A4. The NRC must appropriately balance the need to provide updated information with the agency's responsibility to use taxpayer funds as wisely as possible. The methods proposed by NAS are publicly available and can be performed by any other entity willing to support the study. The NAS Phase I report called out several challenges to completing the study, not least of which was the work "may not have adequate statistical power to detect the presumed small increases in cancer risks arising from... monitored and reported releases." The NAS Phase 2 report explicitly stated the proposed pilot was "not a small-scale study of analysis of risks around the pilot nuclear facilities." The Phase 2 report also explicitly warned that "any data collected during the pilot study will have *limited use for estimating cancer risks* in populations near each of the nuclear facilities or for the seven nuclear facilities combined because of the imprecision inherent in estimates from small samples." These drawbacks, when considered alongside the significant time and resources estimated for the pilot study, argue against continuing the project in the current budget environment.

**Q5. Why should the public trust the NRC when it's abandoning a truly independent look at cancer risk?**

A5. The original 1990 NCI study was conducted by researchers independent of the NRC. Any future NRC efforts in this area will ensure researcher independence and any final product will undergo independent peer review. The agency carried out this entire effort with the NAS in full view of the public.

**From:** Brock, Terry  
**Sent:** Monday, August 24, 2015 12:56 PM  
**To:** Burnell, Scott  
**Subject:** pilot planning link

[View ADAMS P8 Properties ML15035A128](#)

[Open ADAMS P8 Package \(Analysis of Cancer Risk in Populations near Nuclear Facilities\)](#)

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop TWFN-10

phone: 301-415-1793



**From:** Sheron, Brian  
**Sent:** 19 Aug 2015 17:58:17 -0400  
**To:** Case, Michael; West, Steven  
**Cc:** Coffin, Stephanie; Brock, Terry; Tadesse, Rebecca  
**Subject:** RE: Proposed Alternative Conclusion to Cancer paper

Mike Weber is OK with this conclusion. I told him we would try to get the customer offices on board, and he would like us to add something about what the schedule is for the million worker study. Terry and Steve need to update Mike on what's going on with the million worker study at DOE and who, if anyone, the EDO or Chairman need to call to make sure it is funded.

**From:** Case, Michael  
**Sent:** Wednesday, August 19, 2015 5:52 PM  
**To:** Sheron, Brian ; West, Steven  
**Cc:** Brock, Kathryn  
**Subject:** Re: Proposed Alternative Conclusion to Cancer paper

Thanks Brian. I like the million worker study too. It had a few cohorts of interest to us so maybe it could be pursued in bite size chunks.

---

On: 19 August 2015 17:39, "Sheron, Brian" <[Brian.Sheron@nrc.gov](mailto:Brian.Sheron@nrc.gov)> wrote:

New Conclusion:

***After considering the approaches described above, the staff has decided not to move forward at this time with the update of the 1990 NCI study. The staff believes the NAS proposal is not timely and the costs are excessive. While the NCRP proposal is more modest in scope but could be done faster and for significantly less cost than the NAS study, it continues to have the same limitations as the 1990 study (county-based and primarily examining only mortality rates). The staff believes that the million worker study will provide more meaningful insights into the effects of radiation exposure on cancer risks. Assuming that the million worker study is taken to completion, we intend to evaluate the results regarding any relationship between radiation exposure and cancer risk. Based on the results of that evaluation, the staff can decide if an update to the 1990 NCI study is necessary.***

The one potential problem is that Terry tells me that DOE is cutting way back on the million worker study. I was hoping that the Chairman could bring this up when he meets with Asst. Secretary Kotek, but Terry says that this was funded under the DOE Office of Science, which I understand is not under Kotek.

(b)(6) so Shirley has been looking for days on my calendar she can keep open so I can take AL a day or two at a time. Tomorrow and Friday I plan to be (b)(6) However, I'll be home if you would like to discuss. Home phone is (b)(6) (b)(6) Steve is acting tomorrow and Rich Correia on Friday. Terry is in tomorrow so you can also call him. Let me know what you think. If you agree, we'll start to work it with the customer offices, and also find out if we need someone to make a call to the DOE Office of Science to push them to continue funding the million worker study.

**From:** Burnell, Scott  
**Sent:** 25 Aug 2015 08:53:27 -0400  
**To:** Brock, Terry  
**Subject:** RE: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

I'll get back to you after a quick discussion here.

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 8:53 AM  
**To:** Burnell, Scott  
**Subject:** FW: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Hey,

See below.

I'll churn on a new comm plan if you want to take a cut at a press release.

Terry

**From:** Sheron, Brian  
**Sent:** Tuesday, August 25, 2015 7:39 AM  
**To:** Chen, Yen-Ju; West, Steven  
**Cc:** Burnell, Scott; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca; Brock, Terry  
**Subject:** RE: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

I will discuss with staff at my morning staff meeting. Steve suggested, and I agree, that a press release is probably the way to go. I will have Terry work with Scott to craft one. I want to call Kevin Crowley at NAS first so he hears it from me rather than read it in a press release.

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 24, 2015 5:26 PM  
**To:** Sheron, Brian <[Brian.Sheron@nrc.gov](mailto:Brian.Sheron@nrc.gov)>; West, Steven <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>  
**Cc:** Burnell, Scott <[Scott.Burnell@nrc.gov](mailto:Scott.Burnell@nrc.gov)>  
**Subject:** Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

The cancer study paper will become public on Sept 8...the day after Labor Day. Mike is asking about our plan in reaching out to stakeholders (NAS, NCRP, NEI, HPS, States, public around Braidwood and NFS, etc.). We will need to work out a communication strategy/plan. I cc Scott on this email.

**From:** Weber, Michael  
**Sent:** Monday, August 24, 2015 4:47 PM  
**To:** Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>  
**Cc:** West, Steven <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>  
**Subject:** Response/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

...And other public stakeholders (NEI, HPS, States, public around Braidwood and NFS,...).

Thanks

---

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 24, 2015 04:42 PM  
**To:** Weber, Michael  
**Subject:** RE: Response - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations



Near Nuclear Facilities Study

I understand that RES is working to talk with NAS...they asked about the public date. I will make sure that RES also reach out to NCRP.

**From:** Weber, Michael

**Sent:** Monday, August 24, 2015 4:39 PM

**To:** Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>

**Subject:** Response - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Thanks. Are we reaching out proactively to stakeholders (including NAS and NCRP)?

---

**From:** Chen, Yen-Ju

**Sent:** Monday, August 24, 2015 04:21 PM

**To:** Sheron, Brian; West, Steven

**Cc:** Rini, Brett; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Brock, Terry; Weber, Michael

**Subject:** FYI: Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

The cancer study paper (SECY-15-0104) is being distributed. Note that it will be publicly available on Sept 8.

**From:** Akstulewicz, Brenda

**Sent:** Monday, August 24, 2015 3:09 PM

**To:** Bellinger, Alesha <[Alesha.Bellinger@nrc.gov](mailto:Alesha.Bellinger@nrc.gov)>; EDO Distribution <[EDODistribution@nrc.gov](mailto:EDODistribution@nrc.gov)>; Ellmers, Glenn <[Glenn.Ellmers@nrc.gov](mailto:Glenn.Ellmers@nrc.gov)>; Giitter, Rebecca <[Rebecca.Giitter@nrc.gov](mailto:Rebecca.Giitter@nrc.gov)>; Gonzalez, Hipolito <[Hipolito.Gonzalez@nrc.gov](mailto:Hipolito.Gonzalez@nrc.gov)>; Hackett, Edwin <[Edwin.Hackett@nrc.gov](mailto:Edwin.Hackett@nrc.gov)>; Julian, Emile <[Emile.Julian@nrc.gov](mailto:Emile.Julian@nrc.gov)>; Meador, Sherry <[Sherry.Meador@nrc.gov](mailto:Sherry.Meador@nrc.gov)>; OCA Distribution <[OCADistribution@nrc.gov](mailto:OCADistribution@nrc.gov)>; OPA\_TNT <[OPA\\_TNT@nrc.gov](mailto:OPA_TNT@nrc.gov)>; Riddick, Nicole <[Nicole.Riddick@nrc.gov](mailto:Nicole.Riddick@nrc.gov)>; RidsAdmMailCenter Resource <[RidsAdmMailCenter.Resource@nrc.gov](mailto:RidsAdmMailCenter.Resource@nrc.gov)>; RidsAslbpManagement Resource <[RidsAslbpManagement.Resource@nrc.gov](mailto:RidsAslbpManagement.Resource@nrc.gov)>; RidsCsoMailCenter Resource <[RidsCsoMailCenter.Resource@nrc.gov](mailto:RidsCsoMailCenter.Resource@nrc.gov)>; RidsHrMailCenter Resource <[RidsHrMailCenter.Resource@nrc.gov](mailto:RidsHrMailCenter.Resource@nrc.gov)>; RidsNmssOd Resource <[RidsNmssOd.Resource@nrc.gov](mailto:RidsNmssOd.Resource@nrc.gov)>; RidsNroMailCenter Resource <[RidsNroMailCenter.Resource@nrc.gov](mailto:RidsNroMailCenter.Resource@nrc.gov)>; RidsNrrMailCenter Resource <[RidsNrrMailCenter.Resource@nrc.gov](mailto:RidsNrrMailCenter.Resource@nrc.gov)>; RidsNsirOd Resource <[RidsNsirOd.Resource@nrc.gov](mailto:RidsNsirOd.Resource@nrc.gov)>; RidsOcaaMailCenter Resource <[RidsOcaaMailCenter.Resource@nrc.gov](mailto:RidsOcaaMailCenter.Resource@nrc.gov)>; RidsOcfoMailCenter Resource <[RidsOcfoMailCenter.Resource@nrc.gov](mailto:RidsOcfoMailCenter.Resource@nrc.gov)>; RidsOeMailCenter Resource <[RidsOeMailCenter.Resource@nrc.gov](mailto:RidsOeMailCenter.Resource@nrc.gov)>; RidsOgcMailCenter Resource <[RidsOgcMailCenter.Resource@nrc.gov](mailto:RidsOgcMailCenter.Resource@nrc.gov)>; RidsOigMailCenter Resource <[RidsOigMailCenter.Resource@nrc.gov](mailto:RidsOigMailCenter.Resource@nrc.gov)>; RidsOipMailCenter Resource <[RidsOipMailCenter.Resource@nrc.gov](mailto:RidsOipMailCenter.Resource@nrc.gov)>; RidsOIS Resource <[RidsOIS.Resource@nrc.gov](mailto:RidsOIS.Resource@nrc.gov)>; RidsResOd Resource <[RidsResOd.Resource@nrc.gov](mailto:RidsResOd.Resource@nrc.gov)>; RidsRgn1MailCenter Resource <[RidsRgn1MailCenter.Resource@nrc.gov](mailto:RidsRgn1MailCenter.Resource@nrc.gov)>; RidsRgn2MailCenter Resource <[RidsRgn2MailCenter.Resource@nrc.gov](mailto:RidsRgn2MailCenter.Resource@nrc.gov)>; RidsRgn3MailCenter Resource <[RidsRgn3MailCenter.Resource@nrc.gov](mailto:RidsRgn3MailCenter.Resource@nrc.gov)>; RidsRgn4MailCenter Resource <[RidsRgn4MailCenter.Resource@nrc.gov](mailto:RidsRgn4MailCenter.Resource@nrc.gov)>; RidsSbcrMailCenter Resource <[RidsSbcrMailCenter.Resource@nrc.gov](mailto:RidsSbcrMailCenter.Resource@nrc.gov)>; Shea, Pamela <[Pamela.Shea@nrc.gov](mailto:Pamela.Shea@nrc.gov)>; Svinicki, Kristine <[Kristine.Svinicki@nrc.gov](mailto:Kristine.Svinicki@nrc.gov)>; Wellock, Thomas <[Thomas.Wellock@nrc.gov](mailto:Thomas.Wellock@nrc.gov)>

**Cc:** Jimenez, Patricia <[Patricia.Jimenez@nrc.gov](mailto:Patricia.Jimenez@nrc.gov)>; Temp, SECY <[SECY.Temp@nrc.gov](mailto:SECY.Temp@nrc.gov)>

**Subject:** Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Greetings,

This is to inform you that **SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study** {[ML15141343](#)}, is available for your information and use.

Hard copies are being distributed to each Commission Office and OGC; all others – electronic distribution only.

This paper will be publicly available, September 8, 2015. Please do not distribute the paper outside the agency prior to its release.

Best regards,

Brenda

*Brenda Akstulewicz*

*Office of the Secretary*

*Nuclear Regulatory Commission*

*301-415-1968*

*[Brenda.Akstulewicz@nrc.gov](mailto:Brenda.Akstulewicz@nrc.gov)*



**From:** Burnell, Scott  
**Sent:** 25 Aug 2015 09:47:38 -0400  
**To:** Brock, Terry  
**Subject:** RE: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

OK, let me see the latest draft of the paper and I'll get the release going. I would suggest a minimal, 'c' comm plan focused on the latest decision.

**From:** Brock, Terry  
**Sent:** Tuesday, August 25, 2015 8:53 AM  
**To:** Burnell, Scott  
**Subject:** FW: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Hey,

See below.

I'll churn on a new comm plan if you want to take a cut at a press release.

Terry

**From:** Sheron, Brian  
**Sent:** Tuesday, August 25, 2015 7:39 AM  
**To:** Chen, Yen-Ju; West, Steven  
**Cc:** Burnell, Scott; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca; Brock, Terry  
**Subject:** RE: Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

I will discuss with staff at my morning staff meeting. Steve suggested, and I agree, that a press release is probably the way to go. I will have Terry work with Scott to craft one. I want to call Kevin Crowley at NAS first so he hears it from me rather than read it in a press release.

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 24, 2015 5:26 PM  
**To:** Sheron, Brian <[Brian.Sheron@nrc.gov](mailto:Brian.Sheron@nrc.gov)>; West, Steven <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>  
**Cc:** Burnell, Scott <[Scott.Burnell@nrc.gov](mailto:Scott.Burnell@nrc.gov)>  
**Subject:** Query/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

The cancer study paper will become public on Sept 8...the day after Labor Day. Mike is asking about our plan in reaching out to stakeholders (NAS, NCRP, NEI, HPS, States, public around Braidwood and NFS, etc.). We will need to work out a communication strategy/plan. I cc Scott on this email.

**From:** Weber, Michael  
**Sent:** Monday, August 24, 2015 4:47 PM  
**To:** Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>  
**Cc:** West, Steven <[Steven.West@nrc.gov](mailto:Steven.West@nrc.gov)>  
**Subject:** Response/Action - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

...And other public stakeholders (NEI, HPS, States, public around Braidwood and NFS,...).

Thanks

---

**From:** Chen, Yen-Ju  
**Sent:** Monday, August 24, 2015 04:42 PM  
**To:** Weber, Michael



**Subject:** RE: Response - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

I understand that RES is working to talk with NAS...they asked about the public date. I will make sure that RES also reach out to NCRP.

**From:** Weber, Michael

**Sent:** Monday, August 24, 2015 4:39 PM

**To:** Chen, Yen-Ju <[Yen-Ju.Chen@nrc.gov](mailto:Yen-Ju.Chen@nrc.gov)>

**Subject:** Response - Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

Thanks. Are we reaching out proactively to stakeholders (including NAS and NCRP)?

---

**From:** Chen, Yen-Ju

**Sent:** Monday, August 24, 2015 04:21 PM

**To:** Sheron, Brian; West, Steven

**Cc:** Rini, Brett; Coffin, Stephanie; Case, Michael; Tadesse, Rebecca; Brock, Terry; Weber, Michael

**Subject:** FYI: Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

The cancer study paper (SECY-15-0104) is being distributed. Note that it will be publicly available on Sept 8.

**From:** Akstulewicz, Brenda

**Sent:** Monday, August 24, 2015 3:09 PM

**To:** Bellinger, Alesha <[Alesha.Bellinger@nrc.gov](mailto:Alesha.Bellinger@nrc.gov)>; EDO Distribution <[EDODistribution@nrc.gov](mailto:EDODistribution@nrc.gov)>; Ellmers, Glenn <[Glenn.Ellmers@nrc.gov](mailto:Glenn.Ellmers@nrc.gov)>; Giitter, Rebecca <[Rebecca.Giitter@nrc.gov](mailto:Rebecca.Giitter@nrc.gov)>; Gonzalez, Hipolito <[Hipolito.Gonzalez@nrc.gov](mailto:Hipolito.Gonzalez@nrc.gov)>; Hackett, Edwin <[Edwin.Hackett@nrc.gov](mailto:Edwin.Hackett@nrc.gov)>; Julian, Emile <[Emile.Julian@nrc.gov](mailto:Emile.Julian@nrc.gov)>; Meador, Sherry <[Sherry.Meador@nrc.gov](mailto:Sherry.Meador@nrc.gov)>; OCA Distribution <[OCADistribution@nrc.gov](mailto:OCADistribution@nrc.gov)>; OPA\_TNT <[OPA\\_TNT@nrc.gov](mailto:OPA_TNT@nrc.gov)>; Riddick, Nicole <[Nicole.Riddick@nrc.gov](mailto:Nicole.Riddick@nrc.gov)>; RidsAdmMailCenter Resource <[RidsAdmMailCenter.Resource@nrc.gov](mailto:RidsAdmMailCenter.Resource@nrc.gov)>; RidsAslbpManagement Resource <[RidsAslbpManagement.Resource@nrc.gov](mailto:RidsAslbpManagement.Resource@nrc.gov)>; RidsCsoMailCenter Resource <[RidsCsoMailCenter.Resource@nrc.gov](mailto:RidsCsoMailCenter.Resource@nrc.gov)>; RidsHrMailCenter Resource <[RidsHrMailCenter.Resource@nrc.gov](mailto:RidsHrMailCenter.Resource@nrc.gov)>; RidsNmssOd Resource <[RidsNmssOd.Resource@nrc.gov](mailto:RidsNmssOd.Resource@nrc.gov)>; RidsNroMailCenter Resource <[RidsNroMailCenter.Resource@nrc.gov](mailto:RidsNroMailCenter.Resource@nrc.gov)>; RidsNrrMailCenter Resource <[RidsNrrMailCenter.Resource@nrc.gov](mailto:RidsNrrMailCenter.Resource@nrc.gov)>; RidsNsirOd Resource <[RidsNsirOd.Resource@nrc.gov](mailto:RidsNsirOd.Resource@nrc.gov)>; RidsOcaaMailCenter Resource <[RidsOcaaMailCenter.Resource@nrc.gov](mailto:RidsOcaaMailCenter.Resource@nrc.gov)>; RidsOcfoMailCenter Resource <[RidsOcfoMailCenter.Resource@nrc.gov](mailto:RidsOcfoMailCenter.Resource@nrc.gov)>; RidsOeMailCenter Resource <[RidsOeMailCenter.Resource@nrc.gov](mailto:RidsOeMailCenter.Resource@nrc.gov)>; RidsOgcMailCenter Resource <[RidsOgcMailCenter.Resource@nrc.gov](mailto:RidsOgcMailCenter.Resource@nrc.gov)>; RidsOigMailCenter Resource <[RidsOigMailCenter.Resource@nrc.gov](mailto:RidsOigMailCenter.Resource@nrc.gov)>; RidsOipMailCenter Resource <[RidsOipMailCenter.Resource@nrc.gov](mailto:RidsOipMailCenter.Resource@nrc.gov)>; RidsOIS Resource <[RidsOIS.Resource@nrc.gov](mailto:RidsOIS.Resource@nrc.gov)>; RidsResOd Resource <[RidsResOd.Resource@nrc.gov](mailto:RidsResOd.Resource@nrc.gov)>; RidsRgn1MailCenter Resource <[RidsRgn1MailCenter.resource@nrc.gov](mailto:RidsRgn1MailCenter.resource@nrc.gov)>; RidsRgn2MailCenter Resource <[RidsRgn2MailCenter.Resource@nrc.gov](mailto:RidsRgn2MailCenter.Resource@nrc.gov)>; RidsRgn3MailCenter Resource <[RidsRgn3MailCenter.Resource@nrc.gov](mailto:RidsRgn3MailCenter.Resource@nrc.gov)>; RidsRgn4MailCenter Resource <[RidsRgn4MailCenter.Resource@nrc.gov](mailto:RidsRgn4MailCenter.Resource@nrc.gov)>; RidsSbcrMailCenter Resource <[RidsSbcrMailCenter.Resource@nrc.gov](mailto:RidsSbcrMailCenter.Resource@nrc.gov)>; Shea, Pamela <[Pamela.Shea@nrc.gov](mailto:Pamela.Shea@nrc.gov)>; Svinicki, Kristine <[Kristine.Svinicki@nrc.gov](mailto:Kristine.Svinicki@nrc.gov)>; Wellock, Thomas <[Thomas.Wellock@nrc.gov](mailto:Thomas.Wellock@nrc.gov)>

**Cc:** Jimenez, Patricia <[Patricia.Jimenez@nrc.gov](mailto:Patricia.Jimenez@nrc.gov)>; Temp, SECY <[SECY.Temp@nrc.gov](mailto:SECY.Temp@nrc.gov)>

**Subject:** Electronic Distribution SECY-15-0104: Analysis of Cancer Risks in Populations Near Nuclear Facilities Study

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Hard copies are being distributed to each Commission Office and OGC; all others – electronic distribution only.

This paper will be publicly available, September 8, 2015. Please do not distribute the paper outside the agency prior to its release.

Best regards,

Brenda

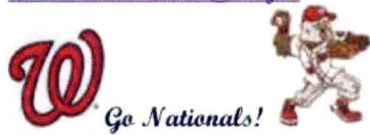
*Brenda Akstulewicz*

*Office of the Secretary*

*Nuclear Regulatory Commission*

*301-415-1968*

*[Brenda.Akstulewicz@nrc.gov](mailto:Brenda.Akstulewicz@nrc.gov)*





- Drug Testing
- Low. Biomarkers studies
- 100 R
- "Update" monitoring data
- Regulatory

FOR: The Commissioners

FROM: R. W. Borchardt  
Executive Director for Operations

SUBJECT: NEXT STEPS FOR THE ANALYSIS OF CANCER RISKS IN  
POPULATIONS NEAR NUCLEAR FACILITIES STUDY

PURPOSE:

The purpose of this paper is to inform the Commission of staff plans for the next steps of the Nuclear Regulatory Commission (NRC)-sponsored Analysis of Cancer Risks in Populations near Nuclear Facilities study.

SUMMARY:

In April 2010, the NRC staff requested the National Academy of Sciences (NAS) to perform a study on cancer mortality and incidence risks in populations living near NRC-licensed facilities to update the 1990 National Cancer Institute (NCI) report on "Cancer Risks in Populations near Nuclear Facilities." The study was divided into two phases. In Phase 1, NAS explored the feasibility of conducting an updated study by developing modern methods to perform the analysis. The staff has reviewed the results of the Phase 1 study and the NAS recommendations for the next phase. The staff's next step will be to proceed with the NAS-recommended approach to determine the feasibility of the Phase 1 methods through pilot studies at seven sites recommended by the NAS committee: Dresden in Illinois, Millstone in Connecticut, Oyster Creek in New Jersey, Haddam Neck (decommissioned) in Connecticut, Big Rock Point (decommissioned) in Michigan, San Onofre in California, and Nuclear Fuel Services in Tennessee. Upon completion of the pilot studies, NAS will comment whether further study is beneficial, and the NRC staff will determine whether to perform the studies at all NRC-licensed facilities (i.e., balance of operating nuclear power plants and fuel-cycle facilities).

CONTACT: Terry Brock, RES/DSA  
301-251-7487





## **MEDIA RELEASE**

For immediate release

Contact: Cindy Folkers, (240) 354-4314

Paul Gunter, (301) 523-0201

Linda Gunter (media director), (301) 455-5655

### **Agency to leave children unprotected and public in the dark on cancer risks around nuclear power facilities Vital cancer study canceled as nuclear industry moves in to offer end-run cover-up**

TAKOMA PARK, MD, September 8, 2015 — Beyond Nuclear, a leading U.S. NGO of record on the health, safety and environmental dangers of nuclear power facilities, today decried the outrageous decision by the U.S. Nuclear Regulatory Commission (NRC) to cancel a study that would have examined cancer incidence and mortalities and the connection to U.S. nuclear facilities.

“Study after study in Europe has shown a clear rise in childhood leukemia around operating nuclear power facilities, yet the NRC has decided to hide this vital information from the American public,” said Cindy Folkers, radiation and health specialist at Beyond Nuclear. The study, initiated in 2009 and carried out under the auspices of the National Academy of Sciences (NAS), had completed Phase 1 and was looking at seven pilot nuclear sites around the country, a project that was estimated to cost \$8 million.

“An \$8 million price tag for the next phase of this study is a drop in the bucket for an agency with a \$1 billion annual operating budget,” added Folkers. The NRC identified the “significant amount of time and resources needed and the agency’s current budget constraints” as its excuse for terminating the study.

Folkers noted that, in reality, nuclear industry manipulation, rather than budget constraints, could be behind the NRC’s sudden decision to abandon the NAS study.

[In documents](#) obtained by Beyond Nuclear it was revealed that NRC staff had been approached by the president of U.S. National Council on Radiation Protection and Measurements (NCRP), John Boice, offering a cheaper, faster and less sensitive study design to replace the NAS study, although the NRC has not yet agreed to accept the NCRP bid.

“NCRP is not only funded in part by the nuclear industry but its decision-makers also have strong pro-nuclear ties,” said Folkers, who has been leading a six-year effort by Beyond Nuclear and other groups to ensure the NAS cancer study went forward with scientific integrity.

“John Boice has repeatedly taken industry funding for health studies and has testified against plaintiffs in radiation exposure cases,” Folkers continued. “The public will have absolutely no confidence in any conclusions reached by such a study and would recognize it as an attempt by the NRC to, yet again, bury public concerns about radiation exposure,” Folkers added.

What’s also behind the cancelation, Folkers alleges, is the incontrovertible evidence of negative health impacts caused by the routine operation of nuclear power reactors and especially on children, that such a study would have made public.

Last year, Dr. Ian Fairlie, a noted British radiation biologist, conducted a meta-analysis of cancer studies around nuclear plants in the UK, Germany, France and Switzerland and found “a highly statistically significant 37% increase in childhood leukemias within 5 km (3 miles) of almost all nuclear power plants” in those countries.

Reacting to the NRC’s decision, Fairlie said it was “highly regrettable and inexplicable given the large amount of good evidence from countries outside the U.S. which strongly pointed to increased leukemias near nuclear power plants.”

The influence of the nuclear industry over the NRC is no surprise, given the agency receives 90% of its funding from the nuclear industry itself. But a recent pattern of dismissing public engagement and canceling minimal safety measures at U.S. nuclear plants is a worrying trend.

“Funding a cancer study around nuclear power plants is a legitimate cost of doing radioactive business that the NRC could have collected through its licensing fees,” said Paul Gunter, Director of Reactor Oversight at Beyond Nuclear and an NRC watchdog. “Instead, the NRC has decided to pass along another cost savings to the nuclear industry at the expense of public health and safety.”



**ANALYSIS OF CANCER RISKS IN POPULATIONS LIVING NEAR  
NUCLEAR FACILITIES-PROJECT CLOSEOUT**

**One - Pager**

**Key Messages**

- **The NRC staff reviewed the National Academy of Sciences (NAS) Pilot Planning Project Report and Pilot Execution Proposal. The pilot project's duration, cost, and lack of useful results for communicating cancer risks preclude the agency from devoting further resources to this effort in the NRC's current budget environment.**
- **The methods developed by NAS in Phase 1, and discussed further in the pilot planning project are publicly available for other agencies or organizations to use.**
- **The staff will continue to monitor international and national studies in this area to determine if any future work in this area is warranted.**

**Facts**

- The NAS Phase I report called out several challenges to completing the study, not least of which was the work "may not have adequate statistical power to detect the presumed small increases in cancer risks arising from... monitored and reported releases."
- The Phase 2 report also explicitly warned that "any data collected during the pilot study will have *limited use for estimating cancer risks* in populations near each of the nuclear facilities or for the seven nuclear facilities combined because of the imprecision inherent in estimates from small samples."
- These issues, when considered alongside the significant time and resources estimated for the pilot study, argue against continuing the project in the current budget environment.
- The NRC continues to find U.S. nuclear power plants comply with strict requirements that limit radiation releases from routine operations. The NRC and state agencies regularly analyze environmental samples from near the plants. These analyses show the releases, when they occur, are too small to cause observable increases in cancer risk near the facilities.



## Analysis of Cancer Risks in Populations Living Near Nuclear Facilities Project Closeout

### Key Messages

- The NRC staff reviewed the National Academy of Sciences (NAS) Pilot Planning Project Report and Pilot Execution Proposal. The pilot project's duration, cost, and lack of useful results for communicating cancer risks preclude the agency from devoting further resources to this effort in the NRC's current budget environment.
- The methods developed by NAS in Phase 1, and discussed further in the pilot planning project are publicly available for other agencies or organizations to use.
- The staff will continue to monitor international and national studies in this area to determine if any future work in this area is warranted.

### Facts

- The NAS Phase I report called out several challenges to completing the study, not least of which was the work "may not have adequate statistical power to detect the presumed small increases in cancer risks arising from... monitored and reported releases."
- The Phase 2 report also explicitly warned that "any data collected during the pilot study will have *limited use for estimating cancer risks* in populations near each of the nuclear facilities or for the seven nuclear facilities combined because of the imprecision inherent in estimates from small samples."
- NAS communicated to the staff that the execution phase of the pilot study would require significant time and resources to complete: 39 months and \$8 million. The staff estimates that it may take NAS 8 to 10 years to complete the pilot and the subsequent nation-wide studies before NRC has final cancer risk results to share with NRC stakeholders—the original intent of the project. That would possibly prolong the study to 2025, 15 years after the start of the project with NAS
- These issues, when considered alongside the significant time and resources estimated for the pilot study, argue against continuing the project in the current budget environment.
- The NRC continues to find U.S. civilian nuclear facilities and users of radioactive material comply with strict requirements that limit radiation releases from routine operations. The NRC and state agencies regularly analyze environmental samples from near nuclear power plants. These analyses show the releases, when they occur, are too small to cause observable increases in cancer risk near the facilities.

**U.S. NUCLEAR REGULATORY COMMISSION  
NOTICE OF GRANT/ASSISTANCE AWARD**

1. GRANT/AGREEMENT NO. NRC-04-10-152	2. MODIFICATION NO. M002	3. PERIOD OF PERFORMANCE FROM: 09/01/2010 TO: 05/31/2012	4. AUTHORITY Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended
5. TYPE OF AWARD <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT	6. ORGANIZATION TYPE Nonprofit Publically Supported Organization Duns: 041964057 <b>NAMS: 541620</b>	7. RECIPIENT NAME, ADDRESS, and EMAIL ADDRESS National Academy of Sciences National Research Council 500 Fifth Street, NW, Room T433C Washington, DC 20001 ddenning@nas.edu	

8. PROJECT TITLE:  
Analysis of Cancer Risks in Populations Near Nuclear Facilities - Phase I

9. PROJECT WILL BE CONDUCTED PER GOVERNMENT'S/RECIPIENT'S PROPOSAL(S) DATED See Program Description AND APPENDIX A-PROJECT GRANT PROVISIONS	10. TECHNICAL REPORTS ARE REQUIRED <input checked="" type="checkbox"/> PROGRESS AND FINAL <input type="checkbox"/> FINAL ONLY <input type="checkbox"/> OTHER (Conference Proceedings)	11. PRINCIPAL INVESTIGATOR(S) NAME, ADDRESS and EMAIL ADDRESS The National Academies Attn: Kevin Crowley Sr. Board Director/ Nuclear and Radiation Studies Board Email: kcrowley@nas.edu Phone: 202-334-3066
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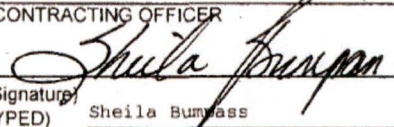
12. NRC PROGRAM OFFICE (NAME and ADDRESS) US Nuclear Regulatory Commission Office of Research Attention: Robin Barnes Mailstop: CSE C6-D20 Washington DC 20555 301-251-7487 Terry Brock	13. ACCOUNTING and APPROPRIATION DATA APPN. NO.: 31X0200 B&R NO.: 2012-60-11-6-110 JOB CODE: G6000 BOC NO: 4110 OFFICE ID NO: RES-12-105 <b>FAIMS: RES-C12-105</b>	14. METHOD OF PAYMENT <input type="checkbox"/> ADVANCE BY TREASURY CHECK <input type="checkbox"/> REIMBURSEMENT BY TREASURY CHECK <input type="checkbox"/> LETTER OF CREDIT <input checked="" type="checkbox"/> OTHER (SPECIFY) Electronic ASAP.gov (See Remarks in Item #20 "Payment Information")
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15. NRC OBLIGATION FUNDS	16. TOTAL FUNDING AGREEMENT
THIS ACTION \$0.00	NRC \$1,036,653.00
PREVIOUS OBLIGATION \$1,036,653.00	RECIPIENT \$0.00
TOTAL \$1,036,653.00	TOTAL \$1,036,653.00

This action provides funds for Fiscal Year in the amount of 0.00

17. NRC ISSUING OFFICE (NAME, ADDRESS and EMAIL ADDRESS)

U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Attn: Chris Walston  
Mail Stop: TWB-01-B10M  
Washington, DC 20555

18.	19. NRC CONTRACTING OFFICER  (Signature) _____ (Date) 2/2/2012 NAME (TYPED) Sheila Bumass TITLE Contracting Officer TELEPHONE NO. (301) 492-3484
-----	---

20. PAYMENT INFORMATION

Payment will be made through the Automated Standard Application for Payment (ASAP gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 215 (OMB Circular A110).

21. Attached is a copy of the "NRC General Provisions for Grants and Cooperative Agreements Awarded to Non-Government Recipients. Acceptance of these terms and conditions is acknowledged when Federal funds are used on this project.

22. ORDER OF PRECEDENCE  
In the event of a conflict between the recipient's proposal and this award, the terms of the Award shall prevail.

23. By this award, the Recipient certifies that payment of any audit-related debt will not reduce the level of performance of any Federal Program.

**TEMPLATE - ADM001**

**SUNSI REVIEW COMPLETE**

**ADM002**



**DESCRIPTION OF MODIFICATION:**

The purpose of this modification M002 is:

1. Change the Project Manager
2. *To extend the period of performance.*

As a result of this modification:

1. Robin Barnes has replaced Terry Brock as the RES Project Manager and Mr. Terry Brock is hereby designated as the Technical Analyst;
2. The Period of Performance is extended for an additional three months:

FROM: 09/01/2010 TO: 05/31/2012

Base Period: September 01, 2010–May 31, 2012 (changed)  
Total Agreement Amount: \$1,036,653.00 (unchanged)  
Total Obligated Amount: \$1,036,653.00 (unchanged)

All terms and conditions remain the same.



**From:** Armstrong, Kenneth  
**Sent:** 16 Jun 2014 17:33:10 +0000  
**To:** Tadesse, Rebecca  
**Cc:** Rini, Brett  
**Subject:** RE: QUERY: Possible Radiation Protection Topics for the Chairman @ HPS Meeting  
**Attachments:** RAMP - RIC 2014.pptx, Analysis of Cancer Risk.pdf, Part 20.pdf

Rebecca,

They also asked for background information, what do you think about the attached? Should we refer them to FSME for Patient Release? Or, do we have something already canned?

Thanks!

---

**From:** Armstrong, Kenneth  
**Sent:** Monday, June 16, 2014 11:30 AM  
**To:** Rini, Brett  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: QUERY: Possible Radiation Protection Topics for the Chairman @ HPS Meeting

Brett,

As requested:

- Patient Release
- Cancer Risk Study
- Radiation Protection Code Analysis & Maintenance Program (RAMP)
- Part 20 Rulemaking

---

**From:** Rini, Brett  
**Sent:** Friday, June 13, 2014 2:15 PM  
**To:** Tadesse, Rebecca  
**Cc:** Armstrong, Kenneth  
**Subject:** QUERY: Possible Radiation Protection Topics for the Chairman @ HPS Meeting

Rebecca,

See the e-mail below from Jennifer Schwartzman regarding the Chairman's speech at the HPS meeting next month. She's not looking for immediate input, but do you have any thoughts on what RP topics it would be good for her to discuss?

Thanks,

Brett

---

**From:** Rosales-Cooper, Cindy  
**Sent:** Friday, June 13, 2014 2:09 PM  
**To:** Rini, Brett  
**Subject:** FW: Are you still doing RES?

Hi Brett,  
How are ya???

See below the inquiry from the Chairman's Office for topics the Chairman can speak on at the HPS annual meeting. Let me know what RES' thoughts are so we can relay back to the Chairman's Office.

Thanks,  
Cindy

---

**From:** Schwartzman, Jennifer  
**Sent:** Friday, June 13, 2014 2:05 PM  
**To:** Rosales-Cooper, Cindy  
**Subject:** RE: Are you still doing RES?

The Chairman will speak at the Health Physics Society annual meeting in Baltimore next month. Kim Morgan-Butler and I have been working on topics and messages, and one area that she thinks might be of interest to the audience is the NRC's ongoing radiation protection research – things like the NAS cancer study, patient release, MILDOS (uranium recovery), and others in the reactor, fuel, waste and other areas. I'd appreciate some input from the staff on what issues would be good to raise, and what background might be available that I can crib from. Some of this might touch FSME or other offices too but I thought I'd start with RES.

I don't need anything today certainly so this is something we could discuss next week.

Thanks!

Jen

# Analysis of Cancer Risks in Populations Near Nuclear Facilities

## Background

Nuclear facilities that the U.S. Nuclear Regulatory Commission (NRC) licenses (Figure 4.5) sometimes release very small amounts of radioactivity during normal operations. These releases are a very small fraction of background radiation and the amount of radiation the average U.S. citizen receives in a year from all sources. NRC regulations ensure that plant operators monitor and control these releases to meet very strict radiation dose limits, and plants must publicly report these releases to the agency. Nonetheless, some communities have expressed concern about the potential impact of these releases on the health of citizens living near nuclear facilities.

To help address these concerns the NRC requested that the U.S. National Academy of Sciences (NAS) conduct a study analyzing the cancer risk of populations living near NRC-licensed facilities. This study will be used as an update to the 1990 National Cancer Institute (NCI) report, “Cancer in Populations Living Near Nuclear Facilities.” The NAS is a nongovernmental organization chartered by the U.S. Congress to advise the Nation on issues of science, technology, and medicine. Through the National Research Council and Institute of Medicine, it carries out studies independent of the government using processes designed to promote transparency, objectivity, and technical rigor. More information on its methods for performing studies is available at <http://www.nationalacademies.org/studycommitteeprocess.pdf>.

NRC staff has used the 1990 NCI study as a valuable risk communication tool for addressing stakeholder concerns about cancer mortality attributable to the operation of nuclear facilities. Stakeholders often ask the staff about perceived elevated cancer rates in populations working or residing near NRC-licensed nuclear facilities, including power reactors and fuel cycle facilities (e.g., fuel enrichment and fabrication plants). The NCI study was produced in response to concerns about elevated risk of childhood leukemia to persons near a British nuclear facility (Sellafield). NCI researchers studied more than 900,000 cancer deaths using county mortality records collected from 1950–1984. Changes in mortality rates for 16 types of cancer were evaluated. The NCI report concluded that cancer mortality rates generally are not elevated for people living in the 107 U.S. counties containing or closely adjacent to 62 nuclear facilities. However, the population data that the NCI report used is now more than 20 years old and should be updated.

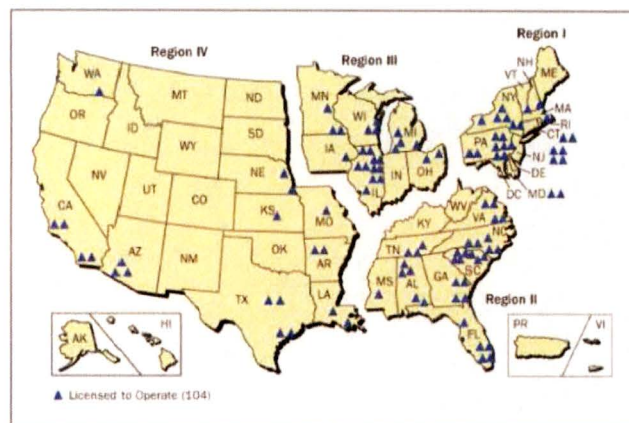


Figure 4.5 Locations of operating nuclear power facilities

Today, stakeholder interest continues about perceived elevated cancer rates in populations near reactors, including cancer *incidence* (i.e., being diagnosed with cancer, but not necessarily dying from the disease). The NRC is having NAS conduct this study to provide up-to-date information on cancer risks in populations near nuclear facilities.

## Approach

The proposed study will be performed in two-phases: (1) preparation of a scoping study to determine the best methodology, the best approach, and the potential limitations for performing the cancer incidence and mortality epidemiology study and (2) conduct of the actual study. The NRC’s objective is to have the latest cancer epidemiology information to communicate with its stakeholders. The study also will evaluate whether the risks are different for various age groups, including children.

## Study Status—Phase 1 results and next steps

The NAS published the Phase 1 committee report on March 28, 2012, which can be accessed on the NAS Web site at: [http://www.nap.edu/catalog.php?record\\_id=13388#toc](http://www.nap.edu/catalog.php?record_id=13388#toc).

The Phase 1 study committee made three recommendations to the NRC for the next phase of the study:

**Recommendation 1:** Two study designs were recommended subject to the feasibility assessment described in Recommendation 2.

1. An ecologic study of multiple cancer types of populations living near nuclear facilities.
2. A record-linkage based case-control study of cancers in children born near nuclear facilities.



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**Recommendation 2:** A pilot study should be carried out to assess the feasibility of the committee-recommended dose assessment and epidemiology studies and to estimate the required time and resources.

**Recommendation 3:** The epidemiology studies should include processes for involving and communicating with stakeholders. A plan for stakeholder engagement should be developed before the initiation of data gathering and analysis.

The NRC has engaged with the NAS to perform the Phase 1 recommendations and expects the pilot studies to be completed in 2015.

The NCI fact sheet on the original 1990 study is available at <http://www.cancer.gov/cancertopics/factsheet/Risk/nuclear-facilities>.

The press release on NRC's request to NAS is available at <http://www.nrc.gov/reading-rm/doc-collections/news/2010/10-060.html>.

**For More Information**

Contact Terry Brock, RES/DSA, at [Terry.Brock@nrc.gov](mailto:Terry.Brock@nrc.gov).

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# Regulatory Basis for NRC Standards for Protection Against Ionizing Radiation

## Background

The U.S. Nuclear Regulatory Commission (NRC) provides the fundamental radiological protection criteria for licensees to use in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, “Standards for Protection against Radiation.” The last major revision to 10 CFR Part 20 was completed in 1991. It was primarily based on the 1977 recommendations contained in International Commission on Radiological Protection (ICRP) Publication 26, “Recommendations of the International Commission on Radiological Protection.”

Since 1991, the NRC has made minor revisions to 10 CFR Part 20, such as a reduced public dose limit that incorporates the recommendations of ICRP Publication 60, “1990 Recommendations of the International Commission on Radiological Protection,” issued in 1991. However, in other NRC regulations, such as Appendix I, “Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion ‘As Low as is Reasonably Achievable’ for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents,” to 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” some radiation dose criteria are based primarily on ICRP Publications 1 and 2 (the 1958 and 1959 “Recommendations of the International Commission on Radiological Protection”). In addition, NRC fuel cycle licensees have received authorization, on a case-by-case basis, to use the newer ICRP methodology (ICRP Publication 66, “Human Respiratory Tract Model for Radiological Protection,” issued January 1995 and beyond) in their licensed activities. The Agreement States’ requirements for their licensees are essentially identical to 10 CFR Part 20. As a result, three different sets of ICRP recommendations are in use today by various licensees.

## Approach

In December 2008, the NRC staff provided the Commission with a summary of regulatory and technical options for moving—or not moving—toward a greater alignment of the NRC’s radiation protection regulatory framework with ICRP Publication 103, “Recommendations of the International Commission on Radiological Protection,” issued February 2008. The Commission subsequently directed the staff to begin engaging with stakeholders and interested parties to initiate development of a regulatory basis for possible revision of the NRC’s radiation protection regulations, as adequate and

appropriate where scientifically justified, to achieve greater alignment with the recommendations in ICRP Publication 103. In response, the NRC staff engaged a wide range of stakeholders on potential issues, conducted preliminary assessments of the impacts of implementation of ICRP’s recommendations, and participated in international and national meetings. In April 2012, the NRC summarized in a paper to the Commission the staff’s multiyear effort, and identified several technical and policy issues that require further study. This paper, SECY-120064, “Recommendations for Policy and Technical Direction To Revise Radiation Protection Regulations and Guidance,” is available on the NRC’s Web site at <http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2012/2012-0064scv.pdf>.

## Current Activities

As part of this effort, the Radiation Protection Branch (RPB) is developing technical information on the benefits and burdens associated with revising the NRC’s radiation protection regulatory framework. RPB will consider (1) impacts on licensees, (2) impacts on public confidence, (3) cost-benefit issues, (4) backfit issues, (5) impacts on the NRC’s materials program, and (6) other benefits and burdens of adopting ICRP Publication 103 recommendations. Currently, development of this regulatory basis comprises the four technical areas described below.

## Impacts of Changing Occupational Dose Limits and Using Dose Constraints

The purpose of this task is to collect and analyze information about the actual dose distributions from industrial and medical licensees and to determine the impact of reduced dose limits from 50 to 20 millisievert (5 rem to 2 rem) per year both on an annual basis and averaged over 5 years. The staff is developing a report that provides technical information and a policy synopsis for agencywide use. RPB also contributed to the technical development of a 2011 report on dose constraints issued by the Nuclear Energy Agency (NEA) entitled, “Dose Constraints in Optimization of Radiological Protection” (NEA/CRPPH/R (2011) (see Figure 4.1). This report can be viewed on the NEA’s Web site at [www.oecd-nea.org](http://www.oecd-nea.org).



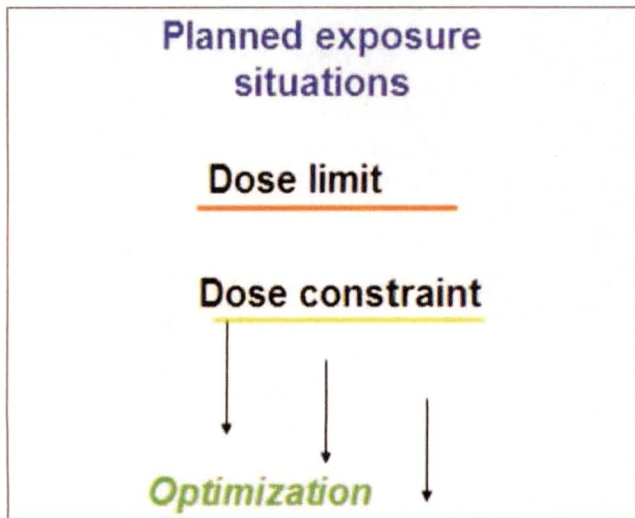


Figure 4.1 Planned exposure situations

## Occupational Dose Information and Evaluation of Potential Compliance Issues

This analysis will address potential changes to the occupational dose limit, the dose limit to an embryo or fetus of a declared pregnant woman, and the use of dose constraints. Although, there is minimal information on occupational exposures at Agreement State-licensed facilities, medical institutions, or for exposures to the embryo or fetus, the staff continues to explore additional approaches with external stakeholders to gather data needed to support this analysis. In August 2010, NRC staff issued a letter to Agreement State Radiation Control Programs requesting occupational dose information from Agreement State-licensed materials licensees. Information received from Agreement State materials licensees was analyzed for trends and impacts associated with a potential reduction in the occupational dose limit. RPB developed the July 2012 report entitled, "Occupational Radiation Exposure at Agreement State-Licensed Materials Facilities, 1997-2010" (NUREG-2118). This report is available on the NRC's public Web site at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr2118/v1/>.

## Support Development of New Biokinetic and Dosimetric Models and Dose Coefficients for Occupational and Public Exposure

The purpose of this task is to support and monitor work that Oak Ridge National Laboratory (ORNL) is conducting on the development of biokinetic and dosimetric models (see Figure 4.2) and dose coefficients for occupational and public exposure to radionuclides that are based on ICRP Publication 103.

recommendations. This is a multiyear effort that will continue until ICRP finalizes the numerical values associated with ICRP Publication 103.



RES staff is working closely with other Federal agencies to share the cost of funding ORNL for related work, and participate in domestic and international working groups that assess potential technical and policy issues associated with the implementation of ORNL's research.

Figure 4.2 Biokinetic model

## Costs and Impacts of Implementing ICRP Publication 60 in the United States

To estimate the potential costs of implementing ICRP Publication 103, the NRC is seeking information from domestic and international sources on costs for implementing ICRP Publication 60. Based on the results of initial data gathering efforts, RES staff is currently focusing on strategies that other Federal agencies and the international radiation protection community use to implement ICRP Publication 60 and more recent recommendations.

## Use of Research Results

The overall goal of this effort is to obtain sufficient information to proceed with a rulemaking and to identify policy issues that require future Commission decisions. In particular, this will support the NRC staff in developing a regulatory basis, associated guidance, and proposed language for rulemaking.

### For More Information

Contact Tony Huffert, RES/DSA, at [Anthony.Huffert@nrc.gov](mailto:Anthony.Huffert@nrc.gov).



**From:** Armstrong, Kenneth  
**Sent:** 10 Apr 2014 11:46:23 +0000  
**To:** Collins, Daniel  
**Subject:** RE: FY16 Cut List, Cancer Risk Study question from Brian  
**Attachments:** FY16 Cancer Risk Study Question from Brian.docx

Update attached, per our discussion.

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**From:** Armstrong, Kenneth  
**Sent:** Thursday, April 10, 2014 7:39 AM  
**To:** Collins, Daniel  
**Cc:** Richards, Stuart  
**Subject:** FW: FY16 Cut List, Cancer Risk Study question from Brian

Dan,

Kathy had one minor edit which I implemented in the attached. It's ready for Brian.

Thanks!

---

**From:** Armstrong, Kenneth  
**Sent:** Wednesday, April 09, 2014 4:53 PM  
**To:** Gibson, Kathy  
**Cc:** Collins, Daniel; Tadesse, Rebecca  
**Subject:** FY16 Cut List, Cancer Risk Study question from Brian

Kathy,

Brian reviewed our proposed FY16 Operating Reactors "cut list" this morning and approved our approach. However, he did have a question pertaining to our inclusion of the Cancer Risk Study.

In the attached, I tried to capture his question and propose a response (after discussing with RPB).

Will you please review and let me know of any concerns before we respond to Brian?

Thanks!

Question from Brian:

DSA identified the Cancer Risk Study as part of their FY16 low priority cut list (40% cut to DSA's contracting budget).

- If we have an active grant with NAS, can we contractually implement this cut?
- What will be the effect on the NAS committee?

Answer:

When approving a grant, we have language in the agreement that payment from the grantor to the grantee is dependent upon funding availability. So, the agreement allows for the funding to be discontinued.

NAS is currently undertaking the planning for the cancer risk pilot study. This planning effort is expected to be completed in early FY15. Thus, if we don't have a current active grant with NAS entering FY16, then the project would simply be delayed. If RES decides to proceed with the pilot study in FY15 and the funding is cut in FY16, then NAS would likely try to stretch the FY15 money as long as possible.

However, once they ran out of funding, there is no guarantee that the committee would stay together. There is a chance that the committee disbands due to other work priorities and if the NRC found funding in late FY16 or later, a new committee may be formed to complete the work.

**From:** Armstrong, Kenneth  
**Sent:** 5 Feb 2015 12:18:12 +0000  
**To:** Moore, Ross  
**Subject:** FW: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY  
**Attachments:** Kathy Halvey Gibson2.vcf, CA NOTE ON THE STATUS\_brock cor.docx, RE: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

Ross,

Attached is the last version that I have. Note that I also attached an email where Brian approved this document but had a question related to timeframe for the study.

This should help. But, I would also try and locate the final OEDO/OCA approved version. Hopefully, Terry or Rebecca has.

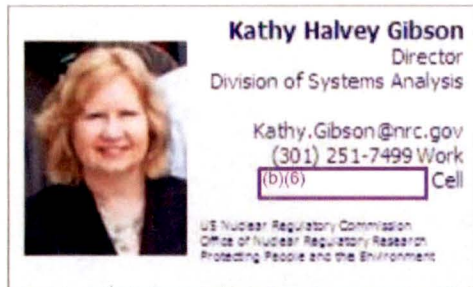
Thanks!

---

**From:** Gibson, Kathy  
**Sent:** Tuesday, November 12, 2013 1:29 PM  
**To:** Sheron, Brian; West, Steven  
**Cc:** Bush-Goddard, Stephanie; Colon, Jessica; Armstrong, Kenneth; Brock, Terry; Richards, Stuart  
**Subject:** RE: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

Brian, Steve,  
Attached is the CA note for the cancer risk study for your review.

Thanks,  
Kathy



---

**From:** Brock, Terry  
**Sent:** Tuesday, November 12, 2013 1:23 PM  
**To:** Gibson, Kathy; Armstrong, Kenneth  
**Cc:** Bush-Goddard, Stephanie; Colon, Jessica  
**Subject:** RE: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

Kathy,



Here's the cancer study CA note Brian asked for with your comments addressed and tech edit by Joe Zabel.

Should be good to go to Brian.

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Gibson, Kathy  
**Sent:** Monday, November 04, 2013 11:44 AM  
**To:** Armstrong, Kenneth  
**Cc:** Bush-Goddard, Stephanie; Brock, Terry; Colon, Jessica  
**Subject:** RE: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

It needs tech edited.

It needs to add the interactions with the public that NAS has or is planning.

It needs to add the link to the NAS webpage for this study.

Then it should be in good shape to pass along to Brian.

Thanks!



---

**From:** Armstrong, Kenneth  
**Sent:** Monday, November 04, 2013 11:33 AM  
**To:** Gibson, Kathy  
**Cc:** Bush-Goddard, Stephanie; Brock, Terry; Colon, Jessica  
**Subject:** CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

Kathy,

Will you please review the attached draft CA note.

Thanks!

**From:** Sheron, Brian  
**Sent:** 12 Nov 2013 17:06:16 -0500  
**To:** Gibson, Kathy; West, Steven  
**Cc:** Bush-Goddard, Stephanie; Colon, Jessica; Armstrong, Kenneth; Brock, Terry; Richards, Stuart  
**Subject:** RE: CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR NUCLEAR FACILITIES PILOT STUDY

I have no problem with the CA note. What I do have a problem with is the schedule. We started this effort in 2010. The feasibility study was supposed to take a year, and the actual study was supposed to take about 3 years. Thus, we were thinking about 5 years total.

Now I see that 3+ years has elapsed since we started the study, they want 2-3 years just to do the pilot, which we all know will evolve to probably 4+ years. They will submit the pilot results and we'll chew on them for a year or so. Then we'll start the actual study, which will probably take at least 5+ years. Thus, I do not see this study finishing up until beyond 2020. If we have to keep funding them, how much is this going to cost?

How long did the NCI study take back in 1990? Why are we comfortable with this schedule? If we keep sending NAS \$, they obviously have no incentive to move it along and get it finished. And what does taking perhaps 13 years to do a study like this say about our credibility?

---

**From:** Gibson, Kathy  
**Sent:** Tuesday, November 12, 2013 1:29 PM  
**To:** Sheron, Brian; West, Steven  
**Cc:** Bush-Goddard, Stephanie; Colon, Jessica; Armstrong, Kenneth; Brock, Terry; Richards, Stuart  
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Brian, Steve,  
Attached is the CA note for the cancer risk study for your review.

Thanks,  
Kathy



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Kathy,

Here's the cancer study CA note Brian asked for with your comments addressed and tech edit by Joe Zabel.

Should be good to go to Brian.

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

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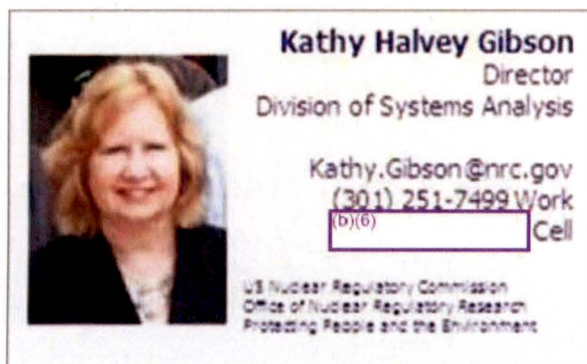
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It needs to add the interactions with the public that NAS has or is planning.

It needs to add the link to the NAS webpage for this study.

Then it should be in good shape to pass along to Brian.

Thanks!



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**Sent:** Monday, November 04, 2013 11:33 AM  
**To:** Gibson, Kathy



**Cc:** Bush-Goddard, Stephanie; Brock, Terry; Colon, Jessica

**Subject:** CA NOTE ON THE STATUS OF THE ANALYSIS OF CANCER RISK IN POPULATIONS NEAR  
NUCLEAR FACILITIES PILOT STUDY

Kathy,

Will you please review the attached draft CA note.

Thanks!

**From:** Armstrong, Kenneth  
**Sent:** 20 May 2014 20:27:44 +0000  
**To:** Rini, Brett  
**Subject:** Cancer Risk Study one-pager is OK as is.  
**Attachments:** RES\_Cancer Risk Study.docx

Kenneth Armstrong  
Technical Assistant  
RES/DSA

## **Analysis of Cancer Risks in Populations near Nuclear Facilities**

**Message: The NRC-sponsored National Academy of Sciences (NAS) study aims to update and provide information on potential cancer risks around nuclear sites from the 1990 U.S. National Institutes of Health - National Cancer Institute (NCI) report "Cancer in Populations Living Near Nuclear Facilities."**

1. NAS completed the first phase of the study in an open, transparent manner providing opportunities for interested parties to participate.
2. Communicating to the public the limitations and findings of health studies is a challenge.

### **Key Points**

- The NRC has used the 1990 NCI report as a primary resource when communicating with the public about cancer risks in counties that contain or are adjacent to nuclear sites.
- Recent international studies indicate that epidemiology studies can be an important tool for informing stakeholders about public health concerns.
- This effort can demonstrate NRC's commitment to working constructively with interested parties.
- Many technical challenges must be met in performing these types of studies because of low population sizes, low estimated doses, and thus low statistical power (how big of a sample size is needed to detect a certain level of a health effect). The pilot studies are being performed to see if these limitations can be overcome.

### **Possible Questions**

#### **1. How is the study being carried out?**

The study was divided into phases. In the first phase, NAS recommended two study designs to assess cancer risks in the general population and, specifically, in children. For the second phase, NAS recommended pilot studies in populations near seven operating or decommissioned facilities. The sites are:

- Millstone Power Station, Waterford, Conn.
- Oyster Creek Nuclear Generating Station, Forked River, N.J.
- Haddam Neck (decommissioned), Haddam Neck, Conn.
- Big Rock Point Nuclear Power Plant (decommissioned), Charlevoix, Mich.
- San Onofre Nuclear Generating Station (permanently shut-down), San Clemente, Calif.
- Dresden Nuclear Power Station, Morris, Ill.
- Nuclear Fuel Services, Erwin, Tenn.

This phase of the study should take two years and, once it is completed, the NRC staff will evaluate the results and decide on the next steps.

#### **2. Why is NAS, rather than NCI, conducting this follow-up study to NCI's 1990 work?**

The NRC staff approached NCI management about performing a new study under contract to NRC. Because of staffing limitations, NCI was unable to commit resources for this activity for the foreseeable future. NAS will draw its project team from a wide range of technical experts that could include NCI members.



**3. Is NRC aware of recent studies being reported regarding the adverse health effects to children in the Western U.S. from exposure to small amounts of Iodine-131 from the Fukushima accident; as well as the study that noted cancer rates went down around Rancho Seco after it shut-down?**

Yes. The staff is aware of these studies and has examined them. Since 2008, Canada, France, Germany, Great Britain, Spain, and Switzerland have all conducted epidemiology studies of populations near nuclear facilities within their borders to address public health concerns. Most of these studies did not find an increase in cancer risk, and if they did, any increases could not be attributed to the very low radiation doses the public receives from the routine operations of these facilities.

The NRC has not identified any substantive data or new evidence that routine operation of licensed nuclear power and fuel cycle facilities impacts the health and safety of the public. The staff believes that the NAS study will be helpful in addressing public questions on the health effects of near-by facilities.

**4. Is the schedule for this study affected by sequestration?**

Yes, there were initial delays associated with starting the pilot study grant (second phase) due to FY2013 funding being sequestered. However, FY2013 year-end funds became available and NRC awarded a grant to NAS on September 1, 2013, to start the planning phase of the pilot studies.

**From:** Armstrong, Kenneth  
**Sent:** 20 May 2014 20:21:31 +0000  
**To:** Gibson, Kathy  
**Subject:** Cancer Risk Study, One-pager update  
**Attachments:** RES\_Cancer Risk Study.docx

Kathy,

OEDO asked us to update our one-pager on the Cancer Risk Study. Terry reviewed the document and believes everything is current.

OK to tell OEDO that no updates are needed?

Thanks!

## **Analysis of Cancer Risks in Populations near Nuclear Facilities**

**Message: The NRC-sponsored National Academy of Sciences (NAS) study aims to update and provide information on potential cancer risks around nuclear sites from the 1990 U.S. National Institutes of Health - National Cancer Institute (NCI) report "Cancer in Populations Living Near Nuclear Facilities."**

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The NRC has not identified any substantive data or new evidence that routine operation of licensed nuclear power and fuel cycle facilities impacts the health and safety of the public. The staff believes that the NAS study will be helpful in addressing public questions on the health effects of near-by facilities.

**4. Is the schedule for this study affected by sequestration?**

Yes, there were initial delays associated with starting the pilot study grant (second phase) due to FY2013 funding being sequestered. However, FY2013 year-end funds became available and NRC awarded a grant to NAS on September 1, 2013, to start the planning phase of the pilot studies.

**From:** Case, Michael  
**Sent:** 15 Jun 2015 15:40:19 -0400  
**To:** Brock, Terry  
**Subject:** RE: 3rd request: Final Reports for G6027 (NRC-HQ-13-G-04-0051)

Thanks!

**From:** Brock, Terry  
**Sent:** Monday, June 15, 2015 1:04 PM  
**To:** Case, Michael  
**Subject:** RE: 3rd request: Final Reports for G6027 (NRC-HQ-13-G-04-0051)

I'll close it out. I got the reports from NAS and considering this is not going forward we can completely kill this vehicle.

Terry

---

**From:** Case, Michael  
**Sent:** Monday, June 15, 2015 11:15 AM  
**To:** Brock, Terry  
**Subject:** FW: 3rd request: Final Reports for G6027 (NRC-HQ-13-G-04-0051)

Hi Terry. Were we ever able to close the loop on this one?

**From:** Brock, Terry  
**Sent:** Tuesday, May 12, 2015 8:14 AM  
**To:** Shaffer, Sarah  
**Cc:** Tadesse, Rebecca; Case, Michael; Coffin, Stephanie  
**Subject:** RE: 3rd request: Final Reports for G6027 (NRC-HQ-13-G-04-0051)

Hi Sarah,

I'm waiting for NAS to send me the final closure statement. I'll check with them again today.

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

---

**From:** Shaffer, Sarah  
**Sent:** Tuesday, May 12, 2015 7:12 AM  
**To:** Brock, Terry  
**Cc:** Tadesse, Rebecca; Case, Michael; Coffin, Stephanie  
**Subject:** FW: 3rd request: Final Reports for G6027 (NRC-HQ-13-G-04-0051)  
**Importance:** High

Hello Terry:

Please submit your reports for closeout of this grant.

**Sarah Shaffer**

Program Analyst

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

RES/PMDA/FPMB

Phone: 301.251.7942

E-mail: [sarah.shaffer@nrc.gov](mailto:sarah.shaffer@nrc.gov)

---

**From:** Shaffer, Sarah  
**Sent:** Friday, May 01, 2015 9:14 AM  
**To:** Brock, Terry  
**Cc:** Tadesse, Rebecca

**Subject:** FW: Final Reports for G6027 (NRC-HQ-13-G-04-0051)

**Importance:** High

Hello Terry:

I have not received the reports or your final evaluation concerning this grant as of today (5/1). Can you please submit ASAP.

Thank you,

**Sarah Shaffer**

Program Analyst

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

RES/PMDA/FPMB

Phone: 301.251.7942

E-mail: [sarah.shaffer@nrc.gov](mailto:sarah.shaffer@nrc.gov)

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**From:** Shaffer, Sarah

**Sent:** Thursday, April 16, 2015 7:34 AM

**To:** Brock, Terry

**Subject:** Final Reports for G6027 (NRC-HQ-13-G-04-0051)

**Importance:** High

Good morning Terry:

The final reports for this grant were due to us by end of last month. Can you please submit them to me along with your final evaluation so we can proceed with closeout. I've attached a final evaluation for your convenience. All forms are on the PMDA Grants Management SharePoint site. Please submit all forms to me by Friday 4/24/2015.

What is needed is:

Final Progress Report

Final F245 (financial form)

F428 (property form)

Final TA evaluation

Thank you,

**Sarah Shaffer**

Program Analyst

U.S. Nuclear Regulatory Commission

Office of Nuclear Regulatory Research

RES/PMDA/FPMB

Phone: 301.251.7942

E-mail: [sarah.shaffer@nrc.gov](mailto:sarah.shaffer@nrc.gov)



**From:** Brock, Terry  
**Sent:** 20 Feb 2015 09:11:21 -0500  
**To:** Tadesse, Rebecca  
**Subject:** RE: cancer\_study\_pilot\_options\_draft\_02182015.pptx

ORAU public interest was when all the antis got upset about using an organization affiliated with, although loosely, DOE. I plan on verbally explaining the issue.

NCI did address childhood leukemia, but not in the more analytical study design in a case-control study. Case control studies are more better study designs for finding/ruling out associations.

As far as the current budget environment, sure >>> do you want to add some bullets, I'm not sure what to say?

---

**From:** Tadesse, Rebecca  
**Sent:** Friday, February 20, 2015 9:03 AM  
**To:** Brock, Terry  
**Subject:** Re: cancer\_study\_pilot\_options\_draft\_02182015.pptx

Hi Terry,

I like the slides the only comment I have is that it is not clear to me what ORAU public interest means. Also did the NCI study address childhood leukemia? if not should we also let them know that updating the NCI study would not help us in communicating the risk. One more thing should we have a slide the would discuss the current environment is cost prohibitive to move forward with such a large study?

Sent from an NRC BlackBerry  
Rebecca Tadesse

(b)(6)

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**From:** Brock, Terry  
**Sent:** Friday, February 20, 2015 08:43 AM  
**To:** Tadesse, Rebecca  
**Subject:** cancer\_study\_pilot\_options\_draft\_02182015.pptx

Pls review for the EDO brief

**From:** Case, Michael  
**Sent:** 4 Jun 2015 07:11:09 -0400  
**To:** Brock, Terry; Coffin, Stephanie  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: SECY - Cancer Risks in Populations Near Nuc Facilities

Certainly.

Question 1--It's in Operating Reactors--Research. There is no more available internally to redirect. There is about \$200K on the shortfall list but the prospects of getting that is slim.

Question 2--No budget in FY16. We would have to use redirected funds (if we started the project). Either internally, externally from any of the offices in the user need, or short fall money. All those avenues look pretty dismal next year based on conditions now.

-----Original Message-----

From: Brock, Terry  
Sent: Wednesday, June 03, 2015 3:13 PM  
To: Coffin, Stephanie; Case, Michael  
Cc: Tadesse, Rebecca  
Subject: FW: SECY - Cancer Risks in Populations Near Nuc Facilitie

AHi

From OCFO. Not sure how to answer this one. Any words to share?

Thx  
Terry

---

From: Champion, Tanya  
Sent: Wednesday, June 03, 2015 3:11 PM  
To: Brock, Terry  
Subject: SECY - Cancer Risks in Populations Near Nuc Facilitie

Hi Terry

I am reviewing the resources section for OCFO. I have a few questions, to suggest re-wording in this section

RES has \$110K budgeted for this year. Is this in OR/Research/Reactor Research? Do you plan to plan to redirect additional resources this year or will only use what is currently budgeted? What will be the source of funding?

How do you expect you will get resources in FY 2016? Since you plan to request a nominal amount in FY 2017, what amount do you plan to obligate next FY?

Your planned obligations for each FY would help.

Thanks  
Tanya  
301 415 7544

**From:** Kosti, Ourania  
**Sent:** 23 Jun 2011 12:43:44 -0400  
**To:** Brock, Terry  
**Subject:** RE: Atlanta slides and San Onofre tour

Hello Terry,

I know you keep me updated.... but is there any progress on the San Onofre tour? Also, did you get the chance to talk to the region officer about combining the NRC community meeting at NFS with a potential tour? I called Marie Moore from NFS again yesterday and left another message – have not heard back.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, June 16, 2011 9:59 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Atlanta slides and San Onofre tour

I sent the licensee an e-mail yesterday and have not heard back yet. If I don't hear back today I'll call tomorrow.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, June 16, 2011 9:49 AM  
**To:** Brock, Terry  
**Subject:** RE: Atlanta slides and San Onofre tour

Hello Terry,  
Any progress regarding the tour?  
Rania

---

**From:** Kosti, Ourania  
**Sent:** Wednesday, June 08, 2011 3:13 PM  
**To:** 'Brock, Terry'  
**Subject:** RE: Atlanta slides and San Onofre tour

I think it went very well. The audience asked some very good questions which to me means that they could follow the presentation and were interested in the subject. The Director, John Kinneman was very kind to me.

Thank you for moving the tour so fast! We are pretty much organized with the basic things that a meeting needs (conference area, hotel, presenters). I am waiting for Kevin to come next week to discuss/approve and then I will send you the information. You probably already know that the meeting will take place at the Beckman Center.

Rania



---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, June 08, 2011 3:07 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Atlanta slides and San Onofre tour

NRC regional and resident inspector folks are on board. We're waiting for confirmation from the licensee. Hopefully by Friday, if not sooner.

Vered said you did well yesterday at the Fuel Cycle meeting. How do you think it went? Sorry I missed it, I was at a mandatory acquisition training class.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, June 07, 2011 6:30 PM  
**To:** Brock, Terry  
**Subject:** RE: Atlanta slides and San Onofre tour

Hello Terry,  
Any progress regarding the tour?  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 31, 2011 1:57 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Atlanta slides and San Onofre tour

thanks  
Oops, I'll make sure it's Tuesday not Wednesday.

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, May 31, 2011 11:21 AM  
**To:** Brock, Terry  
**Subject:** RE: Atlanta slides and San Onofre tour

Hello Terry,

1. We have permission from all presenters to post their slides and they should be posted by the end of this week (we are slightly understaffed here because of a meeting in Russia!). I will send you a note when it is done so that you know.
2. The committee would prefer to tour Tuesday, July 19<sup>th</sup>. Thank you for working on that!

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 31, 2011 10:36 AM  
**To:** Kosti, Ourania  
**Subject:** Atlanta slides and San Onofre tour

Hi Rania,

2 questions:

- 1) Do you know when the Atlanta meeting slides will be posted on the study website? We received some requests for slides and would like to point them to the site.
- 2) I wanted to confirm that the committee would prefer to tour the San Onofre nuclear power plant on Wednesday, July 19<sup>th</sup>?

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 25 May 2011 15:15:24 -0400  
**To:** Brock, Terry;Crowley, Kevin  
**Cc:** Shaffer, Vered  
**Subject:** RE: Atlanta meeting recap.

Sounds good. Please ask to be connected with me and Kevin will join us if he is available.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 25, 2011 3:00 PM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Cc:** Shaffer, Vered  
**Subject:** RE: Atlanta meeting recap.

Friday at 2 works for me. I'll call you since I'll probably be in a conference room when I make the call and don't know the number.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 25, 2011 2:57 PM  
**To:** Brock, Terry; Crowley, Kevin  
**Cc:** Shaffer, Vered  
**Subject:** RE: Atlanta meeting recap.

Hello Terry,

We thought it was a good meeting and the closed session was indeed very productive. I can tell you that whole day tomorrow and half day Friday both Kevin and I will be at our bi-annual NRSB Board meeting, therefore will not be available to talk. I am available Friday 2pm onwards to discuss if this works for you; I will need to confirm with Kevin if he is available also. You may remember that Kevin will be out of the office next week.

Thank you –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 25, 2011 2:47 PM  
**To:** Kosti, Ourania; Crowley, Kevin



**Cc:** Shaffer, Vered

**Subject:** Atlanta meeting recap.

Rania/Kevin,

Good meeting in Atlanta. It was a content rich day, I hope the closed session was productive. Are you available tomorrow afternoon to discuss what was covered in the closed session? How does 2:30 – 3:30 work? I would also like to provide some feedback on what I heard during the meeting, some suggestions for the LA meeting, and confirm ongoing/forthcoming NRC action items to support the committee—e.g., survey of state environmental monitoring programs, NFS tour, San Onofre reactor tour, effluent and dose reports for uranium recovery and other fuel cycle facilities.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 13 Feb 2012 09:28:07 -0500  
**To:** Brock, Terry;Crowley, Kevin  
**Subject:** RE: are you in today?

Yes, I am in and I heard your voicemail. Please, let's talk at 10:00 AM if this is good for you. I will call you at 301 251 7487.

Regards,  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, February 13, 2012 9:25 AM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Subject:** are you in today?

Kevin/Rania

Left a message. Are you available to chat about the roll-out some more? I have some new info to discuss about your presentation on Monday, March 12<sup>th</sup> and the RIC slides.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 3 Aug 2011 14:39:50 -0400  
**To:** Brock, Terry  
**Subject:** RE: Are we calling Kevin's office at 3:00?

OK!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, August 03, 2011 2:40 PM  
**To:** Kosti, Ourania  
**Subject:** Are we calling Kevin's office at 3:00?

We can call Kevin's office at 3:00 for the meeting if you two are going to be co-located there.  
Ok?

Terry



**From:** Kosti, Ourania  
**Sent:** 23 Feb 2011 11:00:33 -0500  
**To:** Brock, Terry  
**Subject:** RE: any other speakers confirmed?

Hi Terry,  
Dr. Michal Freedhoff cancelled due to another commitment. This means that we do not have any confirmed talks from congressional staff.  
Regarding comments from the public, we will not know till tomorrow when people sign up.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, February 23, 2011 9:49 AM  
**To:** Kosti, Ourania  
**Subject:** any other speakers confirmed?

Hi Rania,

Do you have an update on who is speaking tomorrow at the meeting?

Terry

**From:** Crowley, Kevin  
**Sent:** 13 Jan 2011 16:25:15 -0500  
**To:** Brock, Terry  
**Subject:** RE: all set for next week Wednesday

Thanks Terry. Her full name is Ourania Kosti, but she goes by Rania.

See you next week.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, January 13, 2011 1:06 PM  
**To:** Crowley, Kevin  
**Subject:** all set for next week Wednesday

Hi Kevin,

I checked with security and there is no issue with non-US citizens gaining access to the building. Please provide your new employees full name and I will enter her info into our visitor registration system. See you next week.

Terry

**From:** Crowley, Kevin  
**Sent:** 29 Mar 2010 15:14:29 -0400  
**To:** Brock, Terry  
**Subject:** RE: agenda items for tomorrow's meeting

Terry:

This looks good to me. We will have a speaker phone in the room.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 29, 2010 2:28 PM  
**To:** Crowley, Kevin  
**Subject:** agenda items for tomorrow's meeting

Hi Kevin,

Below are some items I thought we could cover during our meeting tomorrow. Let me know if you want to add anything. Also, will we have access to a speaker-phone? Our grants person, Sheila Bumpass, plans to call-in for the meeting. See you at 10 AM.

Thanks, Terry

1. Introductions — All
2. Study background — Terry Brock, NRC
3. Study path forward; open discussion on the phased approach — Kevin Crowley/NA, Terry Brock/NRC
  - a. Analysis of off-site doses and source terms from routine operations
  - b. Cancer mortality and incidence study
  - c. Smaller study geographic areas using geographic information systems
4. National Academies grant process — National Academies
5. Press release concept — Scott Burnell / NRC Public Affairs

Terry Brock, Ph.D.  
U.S. Nuclear Regulatory Commission  
301-251-7487



**From:** Kosti, Ourania  
**Sent:** 15 Oct 2014 09:01:18 -0400  
**To:** Brock, Terry  
**Subject:** RE: Advice: BEIR VIII report

Terry:

This sounds good. Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 15, 2014 8:55 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Advice: BEIR VIII report

This will most likely fall in my lap. I'm not sure having a meeting before your NSRB meeting would be very fruitful. I'll have to pre-brief Brian before you come and I would like to hear what the NSRB has to say before we discuss BEIR VIII internally. I recommend we meet with Brian after the NSRB meeting.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, October 14, 2014 9:06 AM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** Advice: BEIR VIII report

Terry:

Kevin Crowley and I would like to pay the Office of Nuclear Regulatory Research a visit to discuss the National Academy of Sciences' November 17 meeting on Planning Towards the BEIR VIII Report and the possible way forward towards a BEIR VIII report.

Do you think I (or Kevin) should be contacting Dr. Brian Sheron directly? Should you be part of the discussion?

Thank you for the advice.

Rania

Ourania (Rania) Kosti, Ph.D.  
Senior Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
email: [okosti@nas.edu](mailto:okosti@nas.edu)  
phone: 202 334 3066

**From:** Brock, Terry  
**Sent:** 12 Apr 2011 19:59:05 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: add Richard Conatser to Dosimetry subgroup agenda

Yes, that's ok. I want to attend the epidemiology and statistics session—Rich and Steve can handle the dosimetry subgroup.

Thanks,  
Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, April 12, 2011 3:57 PM  
**To:** Brock, Terry  
**Subject:** RE: add Richard Conatser to Dosimetry subgroup agenda

Hi Terry,

I will correct that in the public agenda. To make sure; your name will not appear in the agenda at all?  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, April 12, 2011 3:08 PM  
**To:** Kosti, Ourania  
**Subject:** add Richard Conatser to Dosimetry subgroup agenda

Hi Rania,

The agenda is looking good. Please remove my name from the Dosimetry working group agenda and replace it with:  
Richard Conatser, Health Physicist, Office of Nuclear Reactor Regulation. Richard will be participating by phone.

Thanks,  
Terry

**From:** Kosti, Ourania  
**Sent:** 30 Jan 2012 16:37:20 -0500  
**To:** Brock, Terry  
**Subject:** RE: 2011-2012 NRC Info Digests in the mail

Terry,

Yes, please call Kevin's office at 202 334 3198.

I had the chance to talk to Kevin briefly about the report release strategy today. As everything will be happening in the nick of time, one thing to discuss with you on Wednesday is the tradeoff of having the opportunity to brief the NRC before the study is released to the public (that includes the RIC presentation) or not. In other words, if the NRC wants to receive a briefing before the official release of the report to the public, then very likely the findings cannot be discussed at the RIC conference, unless a briefing is scheduled for earlier in the week before the RIC presentation (this depends on your availability and the committee's chair or other member availability).

Thank you very much for sending is the NRC info digest.

Regards –

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, January 30, 2012 4:21 PM  
**To:** Kosti, Ourania  
**Subject:** 2011-2012 NRC Info Digests in the mail

On their way. Talk with you on Wednesday at 5 PM. There will be a couple of us, should we call Kevin's office?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Kosti, Ourania  
**Sent:** 27 Sep 2011 13:33:12 -0400  
**To:** Brock, Terry  
**Subject:** RE: 1979 DC Cook reports mailed tomorrow

I will do so, thank you. I have received the NFS 1979 and 1992 renewal reports.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, September 27, 2011 1:31 PM  
**To:** Kosti, Ourania  
**Subject:** 1979 DC Cook reports mailed tomorrow

Rania,

We found both semi-annual 1979 DC Cook Environmental Operating Reports and will be mailing the hard copies tomorrow. Please let me know when you have received them.

Thanks,  
Terry  
Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Brock, Terry  
**Sent:** 7 Apr 2011 14:41:50 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: 2 papers on our study

Thanks. I'm starting to see a theme about the original NCI study design, re: Wing, et al.

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, April 06, 2011 5:49 PM  
**To:** Brock, Terry  
**Subject:** 2 papers on our study

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Kosti, Ourania  
**Sent:** 25 Feb 2011 15:17:52 -0500  
**To:** Brock, Terry  
**Cc:** Shaffer, Vered  
**Subject:** RE:

Sounds good!

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, February 25, 2011 3:16 PM  
**To:** Kosti, Ourania  
**Cc:** Shaffer, Vered  
**Subject:** RE:

Sure. How about Monday around 10:30? Vered and I will be together so we can call you directly.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Friday, February 25, 2011 3:04 PM  
**To:** Brock, Terry  
**Subject:** RE:

Thank you Terry. It was nice seeing you on Thursday.

Shall we plan to talk on the phone beginning of next week so that I give you an update on the closed/open sessions from the committee's perspective? Kevin and I were hoping we can do that together but he will be in Hiroshima the whole of next week. He is certainly available on email if you have any direct questions for him.

Let me know if there is a time that works best for you, my schedule is pretty open next week.

Thank you and have a good weekend –

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, February 25, 2011 2:14 PM  
**To:** Kosti, Ourania  
**Subject:**

A recent Spanish study to add to your bibliography.

Terry



**From:** Crowley, Kevin  
**Sent:** 6 Apr 2010 12:36:12 -0400  
**To:** Brock, Terry  
**Subject:** RE: ? for you RE: Tomorrow's announcement

Terry:

Thanks for the quick response.

At this point we are not planning a webcast of the board meeting, but I will check to see if it is feasible to have one.

We have meeting facilities in S. California and Massachusetts. However, we often meet in other cities in rented space such as hotels and convention centers. Getting appropriate meeting space is generally not a problem.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, April 06, 2010 12:05 PM  
**To:** Crowley, Kevin  
**Subject:** ? for you RE: Tomorrow's announcement

Hi Kevin,

The Chairman still has the press release. I'll let you know the time once he approves. The press release will have wide distribution to congress, the states, and key non-governmental organizations. The distribution of the press release is handled by the program offices responsible for notifying congress, states, and the general public.

? for you

1) Some of our regional management wanted to view the April 26, 2010 NRSB meeting. Is it available through VTC or web?

2) What cities does the NAS have facilities in that you could hold regional public meetings during the study? I got one vote for Atlanta from the regional office. I remember Boston and somewhere in California.

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Tuesday, April 06, 2010 11:23 AM  
**To:** Brock, Terry  
**Subject:** Tomorrow's announcement

Hi Terry:

I know that you are scrambling to tie up loose ends before tomorrow's big announcement. Could you let me know what time tomorrow you plan to release the announcement? I want to make sure that we are ready to respond to inquiries.

Also, how do you plan to disseminate the announcement and who will you send it to?

Thanks,

Kevin

**From:** Brock, Terry  
**Sent:** 4 May 2011 17:02:49 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** pls call me when you have a chance -eom

301-251-7487



**From:** [Kosti, Ourania](#)  
**To:** [Brock, Terry](#)  
**Subject:** Fw: Effluent Reports for Dose subcmt consideration  
**Date:** Friday, June 24, 2011 1:24:29 PM  
**Attachments:** NFS biannual effluent report 01 to 06 2009.pdf  
crow butte uranium recovery Feb 2011 ML1108401241.pdf

---

Terry,

You may remember this email exchange a few weeks back. The dosimetrists would like to have similar reports for those two facilities for other periods of time, if possible earlier, in order to have an idea of the variation with time of the doses to the MEIs.

Can you please provide me with these?

Thank you,

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, May 27, 2011 11:31 AM  
**To:** Kosti, Ourania  
**Subject:** Effluent Reports for Dose subcmt consideration

Rania,

Attached are two recent effluent and dose reports for the Crow Butte uranium recovery facility and the Nuclear Fuel Services fuel cycle facility that the subcommittee is planning to tour. Please forward these to the dose subcommittee for their review and consideration.

Let me know if the committee members need additional NRC expertise to discuss these reports

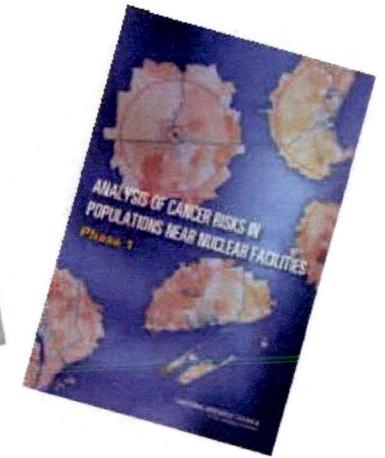
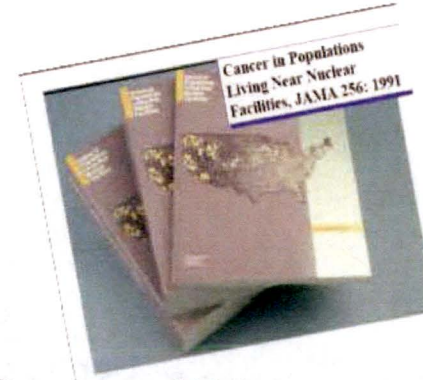
Thank,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Brock, Terry  
**Sent:** 20 Feb 2015 08:43:04 -0500  
**To:** Tadesse, Rebecca  
**Subject:** cancer\_study\_pilot\_options\_draft\_02182015.pptx  
**Attachments:** cancer\_study\_pilot\_options\_draft\_02182015.pptx

Pls review for the EDO brief

# NAS Alternate Approach Proposal



- Reconvene the Pilot Planning Committee
  - \$200-300k for 9 months
  - Select sites with enough statistical power to draw conclusions about cancer risk
    - Develop test hypothesis
  - Provide cost estimate to complete final study (final cost unknown at this time)
- Perform final analysis



## **Second Approach**

- Staff received an unsolicited proposal to provide a 20 year follow-up to the NCI study at a much reduced time (2-3 years at ~\$1 million)
- Updated NCI study would still be useful to staff in communicating cancer mortality risks, but lack the additional information asked for when project started

# Since the last time

- Unsolicited NCRP approach
  - OGC/ADM – No comparable NAS approach to funding
- Options for Consideration
  - Open the grant solicitation, OR
  - Reconvene the NAS Pilot Planning Committee and determine how many sites needed to draw conclusions (\$200k; 6 months) OR
  - Open solicitation to update NCRP 1990 Cancer Study

## **Staff Recommendation**

- Do not move forward with NAS
- Open solicitation for a contract to perform a direct update to the NCI study
  - Completed sooner and at less cost than NAS proposals

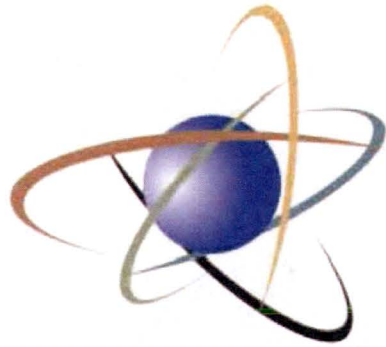


## **Next Steps**

- TA brief on current recommendation (Near-term)
  - Already sent-up a CA note on the results of the NAS pilot planning project
- Develop SECY paper informing Commission of next steps (Summer)

## **External Communication**

- Question to the EDO – In what sequence do we inform the public of this new approach?
  - Public meeting before SECY paper; provides additional data for Commission
  - Public meeting after SECY paper; Commission direction frames discussion



**U.S.NRC**

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

# **Radiation Worker and Russian Health Studies**

RES/DSA brief

Terry Brock, Ph.D. / RES

April 22, 2015



# Introduction

- Why study occupationally exposed workers?

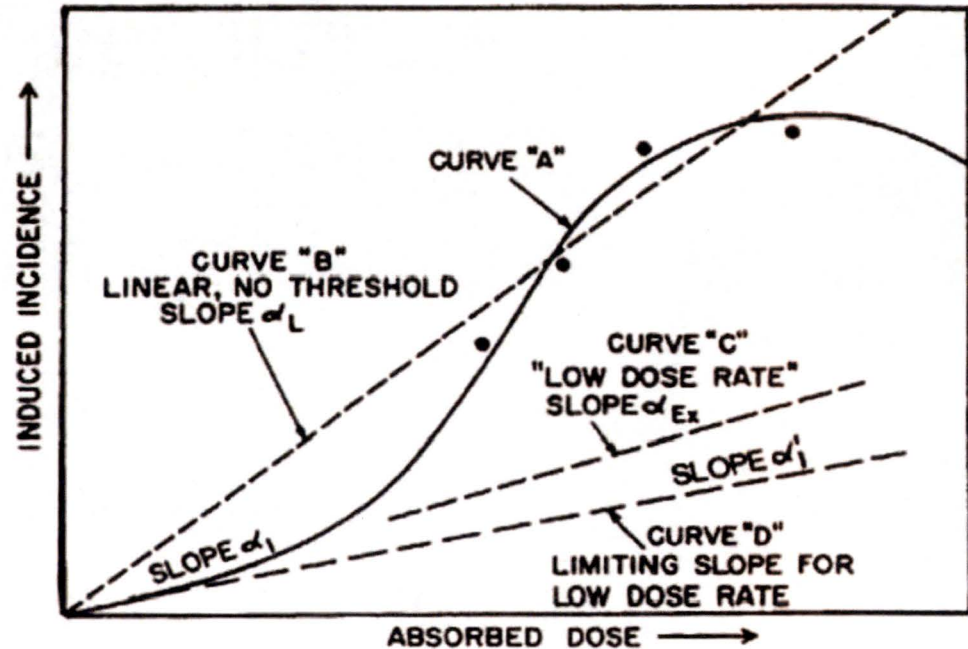


# **Health Studies - epidemiology**

- The primary basis for our judgments and decisions on the effects of ionizing radiation on man
- Epidemiology is the study of the distribution and determinants of disease in human populations

# Current Risk Estimates

- Based on high dose, dose-rate exposures
- LNT interpolation to lower dose and dose rates
- Dose and Dose-Rate Effectiveness factor (DDREF)



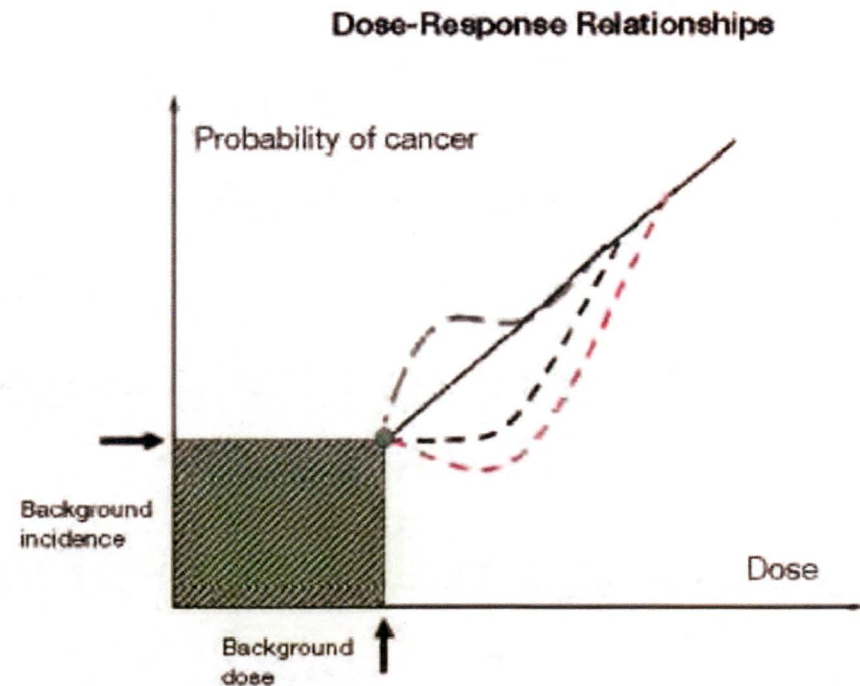
What is the level of risk when exposure occurs gradually over time and not briefly as in the study of atomic bomb survivors?



# LNT – Plausible and Practical Although Risk Below 10 REM Uncertain

From ICRP 103: the adoption of the LNT model combined with a judged value of a dose and dose rate effectiveness factor (DDREF) provides a prudent basis for the practical purposes of radiological protection, i.e., the management of risks from low dose radiation exposure.

Radiation epidemiology has yet to tell us about low dose rate exposures



Boice, 2-22-11

# Dose and Dose-Rate Effectiveness

- Full ranges historically considered could be from 1 to 10
- Human data shows little effect of fraction with values of 3-4 at most
- Statistical data on the A-Bomb cohort shows no more than a factor of 2
- UNSCEAR (86) suggested up to 5 in 1988 (2-10), BEIRV said 2, BEIR VII said 1.5
- ICRP, NCRP, and NRC use 2

# NRC Collaboration



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

**LOW DOSE RADIATION RESEARCH PROGRAM**

- Originally a \$25 million dollar study over five years
- NRC Interagency agreement for the last 3 years
  - \$2.0 million
  - Prioritized the early nuclear power and industrial radiographer worker cohort
- DOE pulled the plug on LDR in 2015
- Future





# **‘Million Man Study’ Research Collaboration**

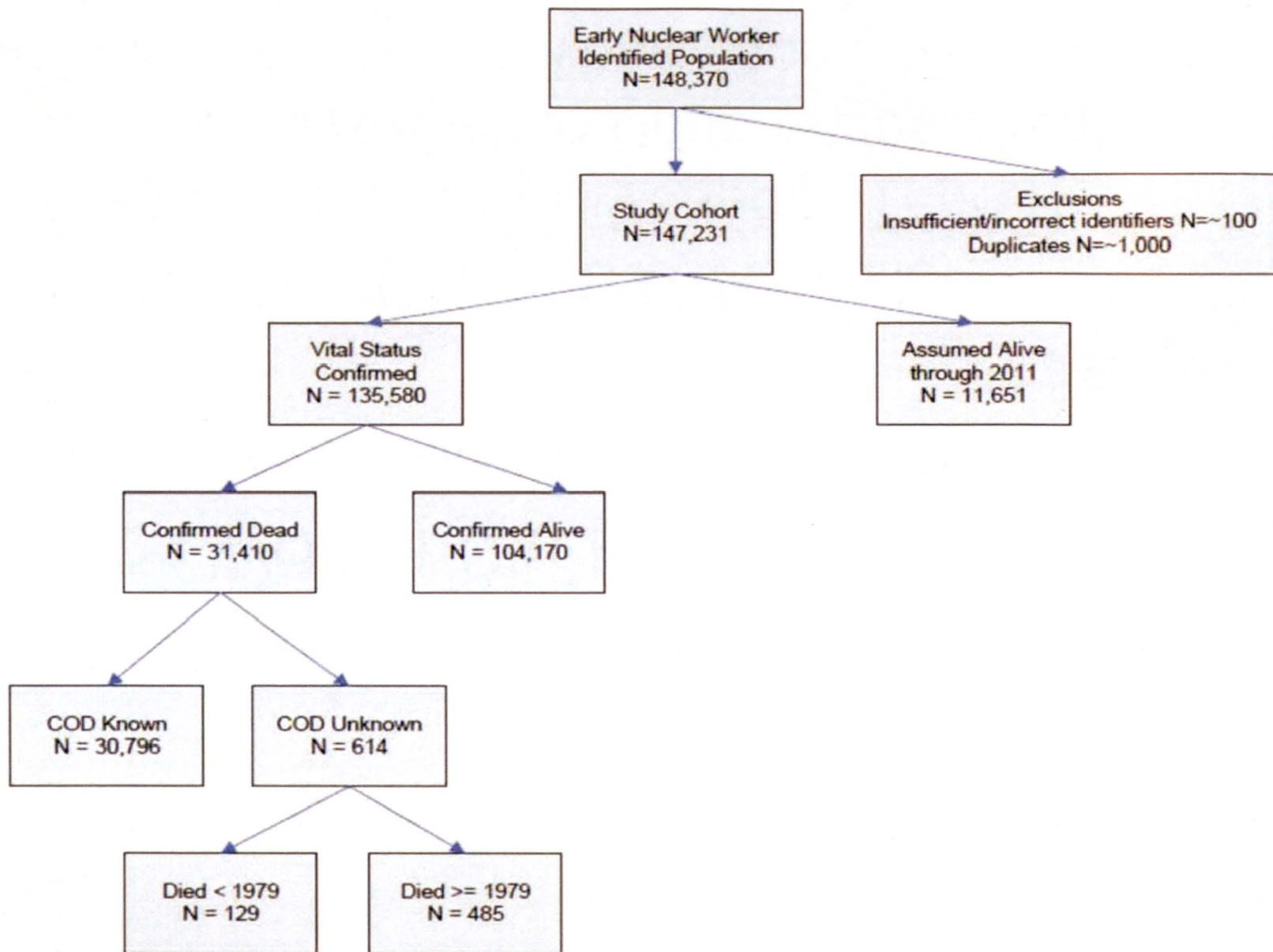
- National Council on Radiation Protection and Measurements, Bethesda, Maryland
  - John Boice, Sc.D.
- Oak Ridge Associated Universities, Oak Ridge, Tennessee
  - Donna Cragle, Ph.D., Richard Toohey, CHP, Ph.D., Derek Hagemeyer, REIRS PM
- Oak Ridge National Laboratory, Oak Ridge, Tennessee
  - Keith Eckerman, Ph.D., Richard Leggett, Ph.D.
- University of Southern California, Los Angeles, California
  - Daniel O. Stram, Ph.D.
- Vanderbilt University, Nashville, Tennessee
- Risk Assessment Corporation, Neeses, South Carolina
  - Jon E. Till, Ph.D.
- Los Alamos National Laboratory, Los Alamos, New Mexico

## **Results so far**

- Paper 1: Dose Reconstruction for the Million Worker Study: Status and Guidelines: Health Physics, Feb, 2015
- Draft NCRP SC 6-9: U.S. Radiation Workers and Nuclear Weapons Test Participants Radiation Dose Assessment - Sami, Terry, James Thompson (RI)
- NRC cohorts

# Early Nuclear Utility Workers Vital Status as of Dec 31, 2011

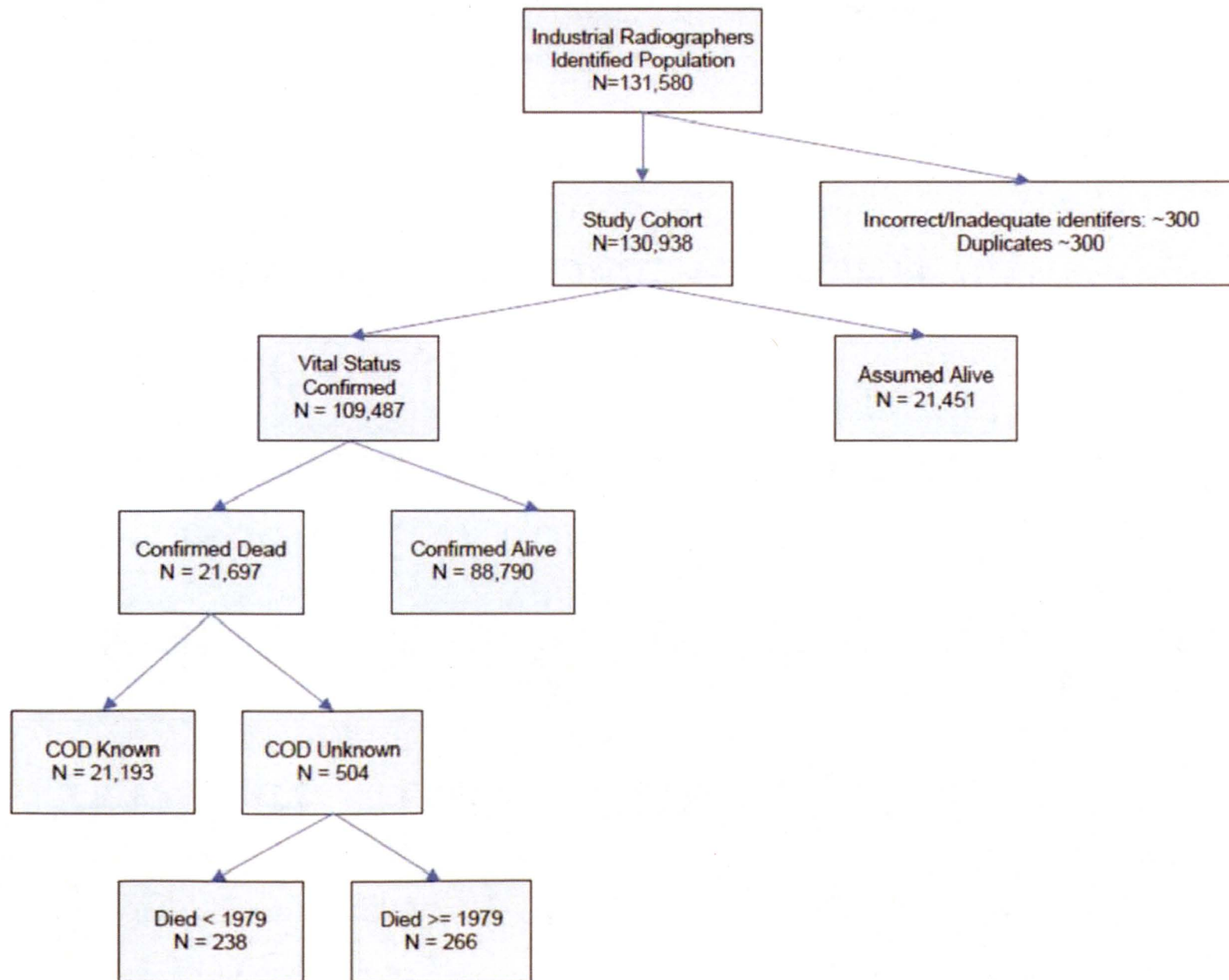
(updated March 3, 2015)





# Industrial Radiographers Vital Status as of Dec 31, 2011

(updated March 4, 2015)



## **Worker Study next steps**

- Papers on NRC cohort leukemia risk
  - Need Navy doses of workers to complete career doses for individuals
- Stable funding
  - Working with DOE and EPA



## **Other Government Agencies and the “Million Man Study”**

- Veterans Affairs – Provides data linkages, death certificates, staff expertise
- Centers for Disease Control - NIOSH, EPA, NASA





# DOE Russian Health Studies

## Purpose

To assess worker and public health risks from radiation exposure resulting from nuclear weapons production activities in the former Soviet Union

## Goals

To better understand the relationship between health effects and chronic, low-to-medium dose rate radiation exposures

To estimate cancer risks from exposure to gamma, neutron, and alpha radiation

To provide information to the national and international organizations that determine radiation protection standards and practices



# Joint Coordinating Committee Radiation Effects Research (JCCRER)



## U.S. Members:

- Department of Energy (DOE), U.S. Executive Agent
- Department of Defense (DoD), including the Armed Forces Radiobiology Research Institute (AFRRI)
- Department of Health and Human Services (DHHS), including the Centers for Disease Control and Prevention (CDC)
- Environmental Protection Agency (EPA)
- National Aeronautics and Space Administration (NASA)
- Nuclear Regulatory Commission (NRC)



## Russian Members:

- Federal Medical-Biological Agency (FMBA), Russian Executive Agent
- State Research Center-Burnasyan Federal Medical Biophysical Center (BFMBC)
- State Atomic Energy Corporation (Rosatom)
- State Scientific Center – Institute of Medical and Biological Problems of the Russian Academy of Sciences (IBRAE)
- Mayak Production Association (Mayak)



## 5 Current Projects

### Community Studies

1.1, Techa River Population Dosimetry

1.2b, Techa River Population Cancer Morbidity and Mortality

### Worker Studies

2.2, Mayak Worker Cancer Mortality

2.4, Mayak Worker Dosimetry

2.8, Human Radiobiology Tissue Repository



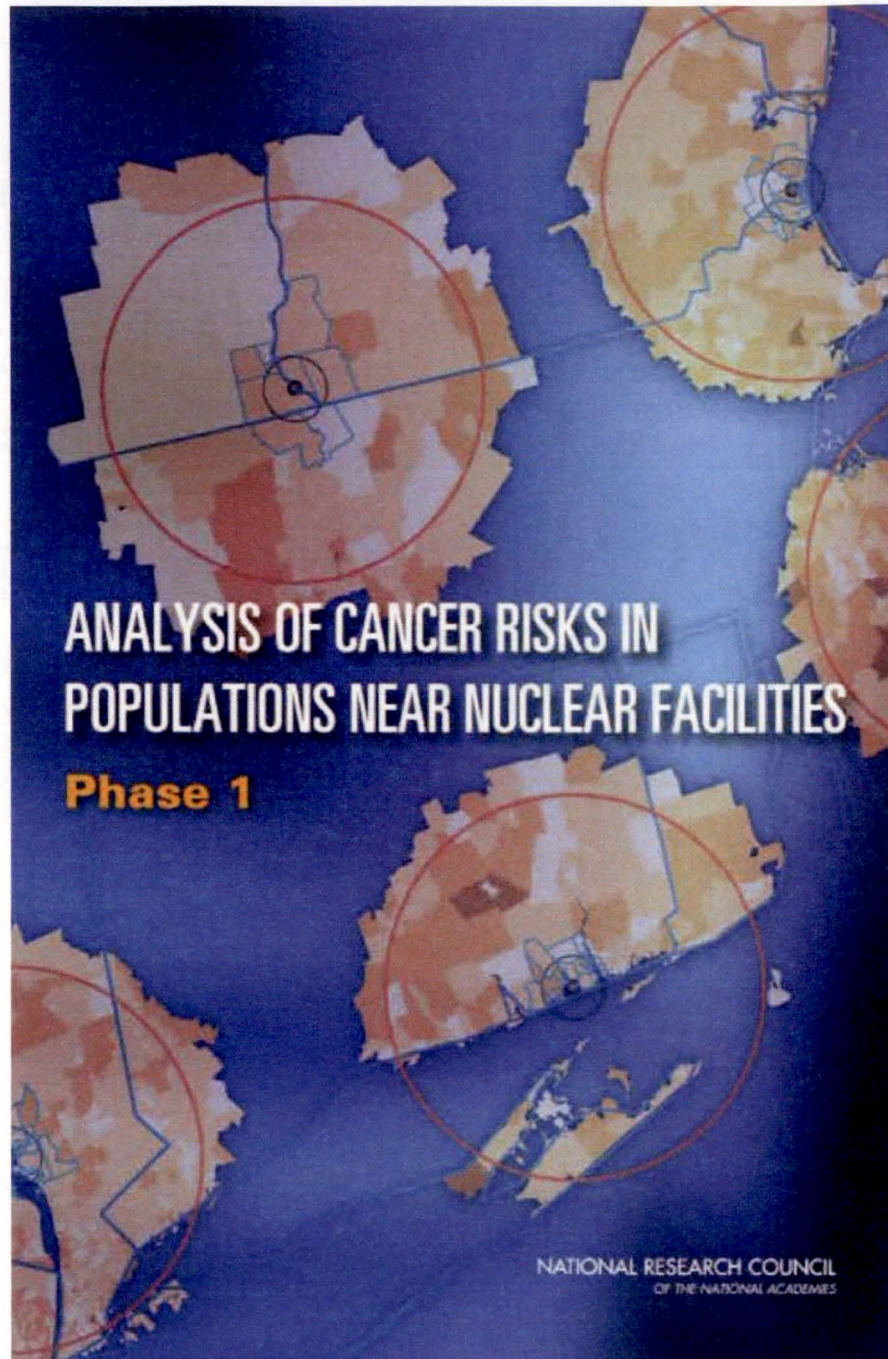
# Mayak worker

- Program fills data gaps in radiation research
- Mayak worker cohort is a unique resource for evaluating:
  - Risk of cancer from exposure to plutonium
  - Risk of cancer from extended external exposure
- Large female population in workforce
- Complements the Million Worker Study

## **Next Steps**

- IAA SOW developed
- NRC provides nominal support for the effort (\$5 k to start)
- OIP - no NRC impediments to signing agreement / Follows Executive Branch (DOE)
- Spoke to DOE – Full steam ahead





## Since the last time

- Unsolicited NCRP approach
  - OGC/ADM – No comparable NAS approach to funding
- Staff Recommendation
  - Open the grant solicitation, OR
  - Reconvene the NAS Pilot Planning Committee and determine how many sites needed to draw conclusions (\$200k; 6 months) OR
  - Open solicitation to update NCRP 1990 Cancer Study



# Information

- Presenting a 1.5 day class on Understanding Health Studies and How to Communicate them (6/16-17)
  - Yours truly, Donna Cragle (ORAU), Trish Milligan, and Gladys Figueroa
  - In iLearn
  - Already requests for a second session

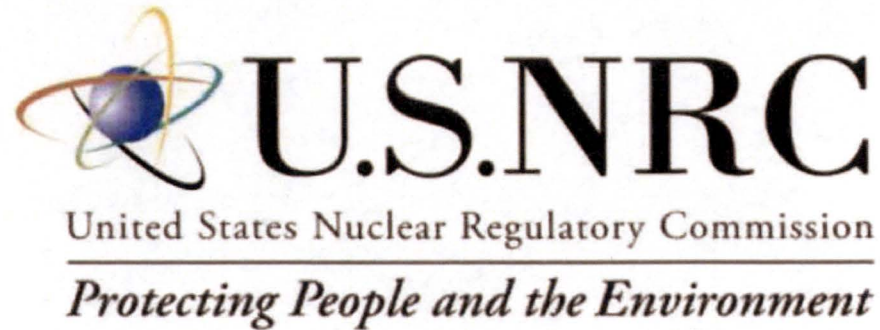


**From:** Brock, Terry  
**Sent:** 20 Feb 2015 11:40:54 -0500  
**To:** Case, Michael;Coffin, Stephanie  
**Cc:** Tadesse, Rebecca  
**Subject:** cancer study EDO briefing slides  
**Attachments:** cancer\_study\_pilot\_options\_draft\_02182015.pptx

Hi Mike/Stephanie,

Brian asked us to brief the EDO on our proposed plan to use NCRP to finish the cancer study. Attached are the slides we prepared to show Brian next week. Would you please review. I'm setting up a meeting with Brian for us to go over them before being sent up.

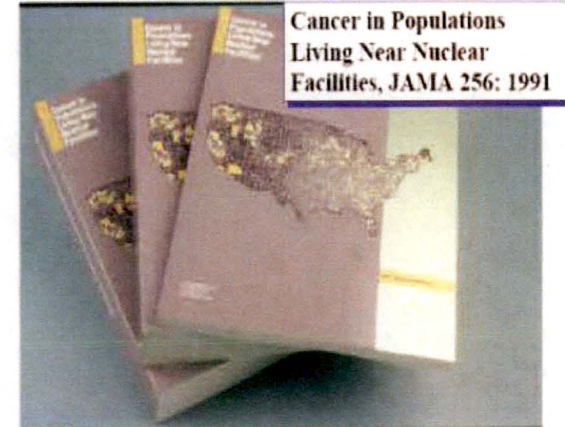
Thx,  
Terry



# **Analysis of Cancer Risks in Populations Living Near Nuclear Facilities: Pilot Studies Next Steps**

Terry Brock  
Office of Nuclear Regulatory Research  
EDO Briefing  
Feb, 2015

# Background



- Staff identified need for contemporary cancer epidemiology information for responding to recurrent stakeholder concerns
- Staff have been using the sentinel 1990 National Cancer Institute (NCI) report “Cancer in Populations Living Near Nuclear Facilities” to help answer these questions



# National Cancer Institute (NCI)

- Looked at 16 different types of cancers
- Three Control Counties for each study county

<http://dceg.cancer.gov/about/organization/programs-ebp/reb/fact-sheet-mortality-risk>

National Cancer Institute

## FactSheet

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
National Institutes of Health

### **No Excess Mortality Risk Found in Counties with Nuclear Facilities**

A National Cancer Institute (NCI) survey published in the *Journal of the American Medical Association*, March 20, 1991, showed no general increased risk of death from cancer for people living in 107 U.S. counties containing or closely adjacent to 62 nuclear facilities. The facilities in the survey had all begun operation before 1982. Included were 52 commercial nuclear power plants, nine Department of Energy research and weapons plants, and one commercial fuel reprocessing plant. The survey examined deaths from 16 types of cancer, including leukemia. In the counties with nuclear facilities, cancer death rates before and after the startup of the facilities were compared with cancer rates in 292 similar counties without nuclear facilities (control counties).

## What did the NCI study find?

- No Excess Mortality Risk Found in Counties with Nuclear Facilities
- Showed no general increased risk of death from cancer for people living in 107 U.S. counties containing or closely adjacent to 62 nuclear facilities.

Overall Relative Risks		
Disease	Before Startup	After Startup
Leukemia		
- Childhood	1.08	1.03
- All Ages	1.02	0.98

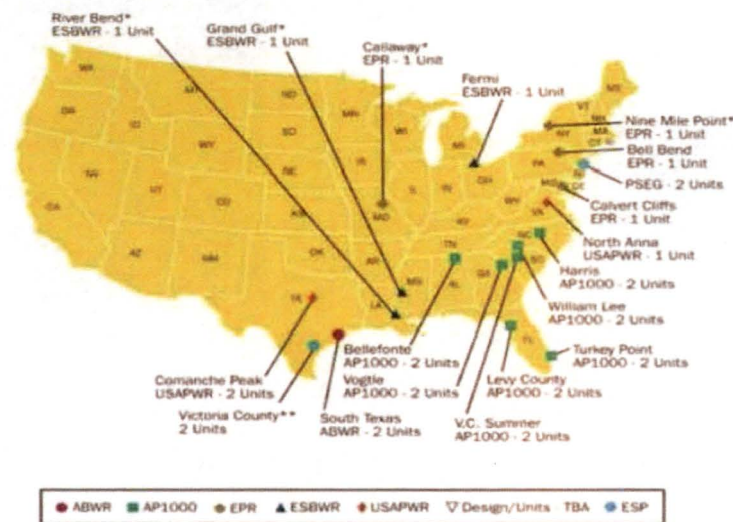
Jablon et al, *JAMA* 265:1403-1408, 1991

Time Pattern



# Why is NRC Sponsoring an Update?

- Provide stakeholders with the **latest cancer epidemiology information**
- Develop an approach to assess cancer risk in **geographic areas smaller than the county level**
- Account for **off-site dose**
- Study **cancer incidence** (occurrence or morbidity)



\*Review Suspended by Applicant  
 \*\* COL Application Amended by Applicant to ESP on 03/25/2010



## Recent International Studies

- Public concerns are not unique to the U.S.
  - Germany (2008)
  - Spain (2009)
  - Switzerland (2011)
  - Great Britain (2011)
  - France (2012)
  - Canada (2013)



Studies generally found no increased cancer risk attributable to the facilities

## Timeline



- 2007 – Staff request for update
  - User-need from NSIR, NRR, NRO, OPA, and RI
  - Offered interagency agreement to NCI to update report
    - After many discussions/meetings, NCI declined to take on project
- 2008 – Started work with Oak Ridge Associated Universities' Center for Epidemiologic Research
  - Staff established external peer-review panel to review ORAU's work

## Timeline cont.



- 2009 – Public Interest in ORAU selection
- 2010 – Selected the National Academy of Sciences (NAS) to perform update
  - Phased Approach
- 2012 – NAS Phase 1 report complete (\$1 M)
  - Recommended two study designs and pilot studies at seven sites
  - Staff communicated plans to Commission to move forward with the pilot studies
  - Provided an approach that met our initial request to build on NCI methods (i.e., dosimetry, morbidity, and smaller geographic regions)
- 2014 – Pilot Planning Project complete (\$0.5 M)
  - Very expensive to complete with limited usefulness of pilot results for estimating risks
  - (\$8 M and 3.5 years)



## Timeline cont.



- Today - DECISION POINT
- 
- ~2019 – Complete Pilot Execution
    - Limited usefulness of results
  - ~2023 – Complete balance of plants for staff to have usable risk estimates

## Alternate Approach

- The U.S. National Council on Radiation Protection and Measurements (NCRP)
  - Unsolicited proposal to provide 20-25 year follow-up to NCI study at a much reduced time (2-3 years at ~\$1 million)
  - Updated NCI report by NCRP would still be useful to staff in communicating cancer mortality risks, but lack the additional information asked for when project started



# Alternate Approach Pros

## Cancer in Populations Living Near Nuclear Facilities - UPDATE

San Onofre	1950-1967 (Before Start-Up)					1968-1984 (After Start Up)					1968-2004 (After Start Up)				
	Study		Controls		Relative	Study		Controls		Relative	Study		Controls		Relative
	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR
Cause of Death															
Leukemia and Aleukemia	1796	1.00	928	0.93	1.07	3,536	0.97	1729	1.01	0.97	10,315	1.00	4,733	0.96	1.04
Childhood Cancer (age < 10)	623	1.12	291	1.01	1.11	521	1.09	282	1.17	0.93	1,039	1.11	526	1.04	1.07
Childhood Leukemia (age <10)	310	1.13	135	0.95	1.19	229	1.07	124	1.15	0.93	433	1.17	205	1.04	1.12

Study Counties: Orange, CA and San Diego, CA  
Control Counties: Santa Barbara, CA, San Bernadino, CA and Ventura, CA

Comment: RR's higher before start up than after

Dresden	1950-1960 (Before Start-Up)					1961-1984 (After Start Up)					1961-2004 (After Start Up)				
	Study		Controls		Relative	Study		Controls		Relative	Study		Controls		Relative
	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR
Cause of Death															
Leukemia and Aleukemia	125	0.94	338	1.07	0.88	407	0.95	1005	1.03	0.92	977	1.00	2,086	1.00	1.00
Childhood Cancer (age < 10)	41	1.01	99	1.06	0.94	92	1.06	187	1.12	0.95	130	0.98	255	1.08	0.91
Childhood Leukemia (age <10)	19	0.95	55	1.20	0.79	32	0.79	78	0.99	0.80	48	0.87	93	0.91	0.95

Study Counties: Grundy IL, Will IL  
Control Counties: Woodford IL, Jefferson WI, Cass IN, Winnebago IL, Porter IN, McHenry IL

Comment: All RRs below 1.0 whether before or after startup

Millstone	1950-1970 (Before Start-Up)					1971-1984 (After Start Up)					1971-2004 (After Start Up)				
	Study		Controls		Relative	Study		Controls		Relative	Study		Controls		Relative
	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR	Obs	SMR	Obs	SMR	RR
Cause of Death															
Leukemia and Aleukemia	246	0.90	1,101	0.88	1.02	223	0.98	929	0.95	1.03	595	0.96	2,459	0.94	1.03
Childhood Cancer (age < 10)	66	0.93	273	0.97	0.95	30	1.13	70	0.73	1.56	45	0.95	130	0.72	1.32
Childhood Leukemia (age <10)	33	0.94	138	0.99	0.95	17	1.45	34	0.79	1.83	22	1.18	60	0.84	1.40

Study County: New London CT  
Control Counties: Worchester MA, Litchfield CT, Tolland CT

Comment: High RR of death related to incidence before startup. Jablon 1990



## Alternate Approach Pros

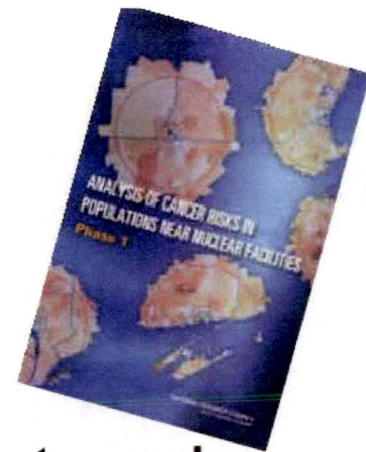
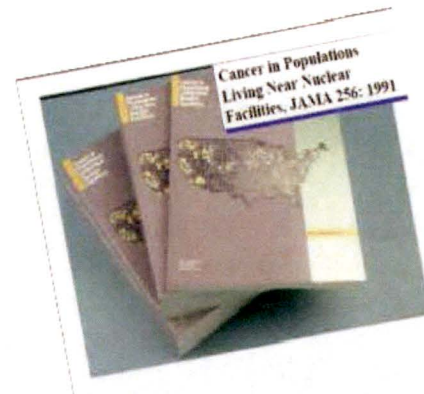
- NCRP is an independent organization chartered by Congress to support radiation protection by providing independent scientific analysis, information, and recommendations that represent the consensus of leading scientists
- Original NCI Principle Investigator is now at NCRP and will lead the study
- NCRP already has access to the files
  - No start-up costs
- Most importantly >> staff will have updated cancer information to communicate to stakeholders in the short-term!

## **Alternate Approach Cons**

- No morbidity analysis
- No smaller geographic units of study
  - Census tracts versus county
- No dosimetry
- Only using the ecologic study design, not the additional case-control study design recommended by NAS



## Bottom-line



- Continuing with NAS through the pilot and nation-wide studies will take ~8 more years and tens of million of dollars to complete before staff has usable results
- The alternative approach can be completed much sooner and provide staff adequate cancer information, but not have the added features of investigating morbidity, dose assessment, and smaller geographic areas proposed by NAS.



## Next Steps

- TA brief on current status(Near-term)
  - Already sent-up a CA note on the results of the NAS pilot planning project
- Develop SECY paper informing Commission of next steps (Summer)
  - Possible public meeting to discuss approach, solicit stakeholder feedback, and inform SECY paper (Spring)

**From:** Coffin, Stephanie  
**Sent:** 11 Jun 2015 12:51:38 -0400  
**To:** Chen, Yen-Ju;Tadesse, Rebecca;Brock, Terry;Case, Michael;Sheron, Brian;West, Steven  
**Cc:** Burnell, Scott  
**Subject:** RE: Response: Cancer Study Info Paper

Thanks Yen.

We don't need more time, assuming the other offices can quickly provide their re-concurrences.  
Stephanie

---

**From:** Chen, Yen-Ju

**Sent:** Thursday, June 11, 2015 12:50 PM

**To:** Tadesse, Rebecca; Brock, Terry; Case, Michael; Coffin, Stephanie; Sheron, Brian; West, Steven

**Cc:** Burnell, Scott

**Subject:** Response: Cancer Study Info Paper

Yesterday's CA briefing went well. I brought it up at our morning meeting today. EDO/DEDOs agreed that we should completed the info paper as scheduled (due to SECY on 7/31/2015). Please also continue with the Communication Plan. I understand that you need to go back to offices for concurrence. Please let me know if you need more time to complete the paper.

Thanks,

Yen

**From:** Coffin, Stephanie  
**Sent:** 19 Aug 2015 13:16:34 -0400  
**To:** Brock, Terry  
**Subject:** RE: fyi - the User need does not call out Region 1 as a User Office

Yes, I understand that.

But NSIR did not call Region 1 out in the memo.

-----Original Message-----

**From:** Brock, Terry  
**Sent:** Wednesday, August 19, 2015 1:16 PM  
**To:** Coffin, Stephanie <Stephanie.Coffin@nrc.gov>  
**Subject:** RE: fyi - the User need does not call out Region 1 as a User Office

The userneed came from NSIR and was concurred on by RI and the other offices. That's why I changed the text to concurred with. Sam Collins of RI concurred at the time.

-----Original Message-----

**From:** Coffin, Stephanie  
**Sent:** Wednesday, August 19, 2015 12:25 PM  
**To:** Brock, Terry  
**Subject:** fyi - the User need does not call out Region 1 as a User Office

[https://nrcsearch.nrc.gov/search/ESFetchServlet?cid=ADAMS\\_Main\\_Library&uri=p8ce%3A%2F%2Fhqpwsem003%3A9080%2Fwsi%2FFNCEWS40MTOM%2FMain%2520Library%2F%7BFBD4E-7E62-482F-9CAD-D1DF553F75A8%7D%3Fprotocol%3Dhttp](https://nrcsearch.nrc.gov/search/ESFetchServlet?cid=ADAMS_Main_Library&uri=p8ce%3A%2F%2Fhqpwsem003%3A9080%2Fwsi%2FFNCEWS40MTOM%2FMain%2520Library%2F%7BFBD4E-7E62-482F-9CAD-D1DF553F75A8%7D%3Fprotocol%3Dhttp)



**From:** Brock, Terry  
**Sent:** 12 Feb 2015 19:34:03 -0500  
**To:** Coffin, Stephanie  
**Cc:** Tadesse, Rebecca  
**Subject:** RE: CANCER STUDY PILOT EXECUTION PATH FORWARD

The DD of RES/DE thinks I'm a blockhead, so we should get along just fine :>.

---

From: Coffin, Stephanie  
Sent: Thursday, February 12, 2015 5:05 PM  
To: Brock, Terry  
Cc: Tadesse, Rebecca  
Subject: RE: CANCER STUDY PILOT EXECUTION PATH FORWARD

Terry

I heard all went well.

I missed the meeting because I am a knucklehead. Rebecca can give you details.

Stephanie

-----Original Appointment-----

From: Flory, Shirley  
Sent: Wednesday, February 04, 2015 1:03 PM  
To: Flory, Shirley; Sheron, Brian; West, Steven; Case, Michael; Coffin, Stephanie; Bamford, Lisa; Tadesse, Rebecca; Brock, Terry  
Subject: CANCER STUDY PILOT EXECUTION PATH FORWARD  
When: Thursday, February 12, 2015 3:30 PM-4:30 PM (UTC-05:00) Eastern Time (US & Canada).  
Where: CSB 6A1

<< Message: Pls Schedule meeting with Brian/Steve >>

**From:** Brock, Terry  
**Sent:** 3 Mar 2011 20:09:41 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: Cytogenetic biodosimetry

---

Funny . . . I wasn't advocating this for the study . . . just FYI. This reminds me of the many DOE workers that have to provide fecal samples for transuranic internal dosimetry estimates... no IRB for that.

Terry

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 03, 2011 3:02 PM  
**To:** Brock, Terry  
**Subject:** RE: Cytogenetic biodosimetry

That is interesting. And who would you sample? Workers or residents? I know from my research years that often people are resistant to DNA work!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 03, 2011 3:00 PM  
**To:** Kosti, Ourania  
**Subject:** Cytogenetic biodosimetry

FYI per our conversation today. NRC funds and uses this group at Oak Ridge as a ready resource in case of accidental high-dose exposures >>>  
<http://orise.orau.gov/reacts/capabilities/cytogenetic-biodosimetry/default.aspx>

**From:** Crowley, Kevin  
**Sent:** 11 May 2011 14:31:07 -0400  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania;Shaffer, Vered  
**Subject:** RE: CR assessment study

That's great—thank you Vered!

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 11, 2011 2:30 PM  
**To:** Crowley, Kevin  
**Cc:** Kosti, Ourania; Shaffer, Vered  
**Subject:** RE: CR assessment study

We don't have a list, but Vered is working on putting one together as we speak. I did find out the NRC used to fund states to do environmental and TLD monitoring around nuclear power plants from the 70's to the mid-90's. The program was cancelled due to budget cut-backs, but we know some states continued the program—that's what we are working on now.

Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Wednesday, May 11, 2011 2:19 PM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** CR assessment study

Hi Terry:

You and I spoke a few weeks ago about whether your agency keeps a list of state agencies that conduct independent monitoring around nuclear plants. You indicated that you would check. Have you been able to come up with anything?

Thanks,

Kevin



**From:** Kosti, Ourania  
**Sent:** 12 Sep 2011 10:04:41 -0400  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** RE: conference call with the sponsor; cancer risk analysis project

How about 3:30 pm. Below the call in details (Kevin and I will be calling in from different sites.)

USA Toll Free: 866-528-2256

Access Code (b)(6)

Thank you –

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, September 12, 2011 9:58 AM  
**To:** Kosti, Ourania  
**Subject:** RE: conference call with the sponsor; cancer risk analysis project

I'm open today, working on your information requests. Let me know a good time.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, September 12, 2011 9:56 AM  
**To:** Brock, Terry  
**Subject:** conference call with the sponsor; cancer risk analysis project

Dear Terry,  
I hope you had a good trip back to DC. Kevin suggests that we plan to talk on the phone and exchange views on the Erwin meeting. Are you available today or later this week?

Thank you –

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001

phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 26 Oct 2011 14:40:24 -0400  
**To:** Brock, Terry  
**Subject:** RE: conference call next week

OK. Tomorrow it is.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 26, 2011 2:39 PM  
**To:** Kosti, Ourania  
**Subject:** Re: conference call next week

Ok. My new backup John Tomon is out on Friday and I want him on the call. Thanks.

---

**From:** Kosti, Ourania <OKosti@nas.edu>  
**To:** Brock, Terry  
**Sent:** Wed Oct 26 14:36:31 2011  
**Subject:** RE: conference call next week

Still no Kevin, but it is fine by me.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 26, 2011 2:36 PM  
**To:** Kosti, Ourania  
**Subject:** Re: conference call next week

How about 10 tomorrow instead?

---

**From:** Kosti, Ourania <OKosti@nas.edu>  
**To:** Brock, Terry  
**Sent:** Wed Oct 26 11:15:28 2011  
**Subject:** RE: conference call next week

Terry, let's talk at 10 am Friday. Kevin will not join us as he is in Paris with work.  
Please, call my direct line: 202 334 3506.

Thank you.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 26, 2011 11:02 AM  
**To:** Kosti, Ourania  
**Subject:** Re: conference call next week

Rania

I'm on travel the next two weeks in Moscow and Paris. We should talk this Friday at 10, 11, or 2.

Terry



---

**From:** Kosti, Ourania <OKosti@nas.edu>  
**To:** Brock, Terry  
**Sent:** Wed Oct 26 09:44:36 2011  
**Subject:** conference call next week

Hello Terry,

Hope you are well. Are you available next week to talk on the phone about the cancer risk study meeting and the overall schedule? Please suggest a couple of time slots that are good for you (Kevin's schedule looks pretty open at the moment.)

Thank you.

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Kosti, Ourania  
**Sent:** 9 May 2011 10:41:39 -0400  
**To:** Brock, Terry  
**Subject:** RE: COMARE 14th Report

Thank you Terry,  
The committee is aware of the report.

Rania

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Monday, May 09, 2011 10:40 AM  
To: Kosti, Ourania  
Subject: COMARE 14th Report

Timely report on childhood leukemia around nuclear power plants in Great Britain for the committee to consider.

Terry

**From:** Kosti, Ourania  
**Sent:** 11 Oct 2011 11:47:17 -0400  
**To:** Brock, Terry  
**Subject:** RE: cell phone number

Kevin's number: 202 680 3748.

---

**From:** Kosti, Ourania  
**Sent:** Tuesday, October 11, 2011 10:10 AM  
**To:** 'Brock, Terry'  
**Cc:** Crowley, Kevin  
**Subject:** RE: cell phone number

Mine is (b)(6) Please feel free to store it for future needs also. Remember that I will not be at the tour and you may need to contact Kevin instead.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, October 11, 2011 9:16 AM  
**To:** Kosti, Ourania  
**Subject:** cell phone number

Hi Rania,

What's your cell phone number in case I need to get a hold of you in Tn? Mine is (b)(6)

Terry



**From:** Kosti, Ourania  
**Sent:** 19 Aug 2011 12:57:06 -0400  
**To:** Brock, Terry  
**Subject:** RE: CAT III Meeting Presentations.

Thank you.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, August 19, 2011 12:54 PM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Subject:** FW: CAT III Meeting Presentations.

Rania/Kevin,

Forwarding NFS meeting info from John Pelchat RII.

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Pelchat, John  
**Sent:** Tuesday, August 16, 2011 3:05 PM  
**To:** Holahan, Vincent; Ramsey, Kevin; Park, James; Diaz-Toro, Diana  
**Cc:** Vias, Steven; Brock, Terry  
**Subject:** CAT III Meeting Presentations.

Vince, Kevin, James, Diana

- Attached is a set of Q's and A's regarding NFS that are based on actual questions from the public. I hope these might help you focus on what areas your presentation really needs to address.

James and Diana – I am providing this to both of you because I expect that you both will have significant roles in the preparation of your presentation.

NOTE: This is a DRAFT document. If you have a comment as you go through the Q's and A's, please share them with us. Kevin had already done so once; Thank you Kevin.

- Please submit a PowerPoint slide set and talking points (I'm not asking for a script) as soon as you can, but please no later than COB August 18, 2011.
- As discussed before, there will be an opportunity for you to answer questions informally with members of the public while other presentations are being made. Please provide me with anywhere from 1 – 4 PowerPoint slides that list your main points and we will have those printed as posters for you to use while talking to folks. Feel free to be

creative and illustrate these posters in any way that will help you make your respective points.

Terry – please pass this along to the NAS. At some point we will ask for their slide set too, not to edit or comment on in any way but to load onto the computers that we will carry up for the meeting.

- Finally, I am trying to schedule a conference call sometime Tuesday August 16, so we can talk and align on ideas and approaches for the meeting.

If some or none of this make any sense to you, please call me and thank you in advance for helping us with this important public meeting.

John

John M. Pelchat  
Senior Fuel Facility Inspector  
U.S. Nuclear Regulatory Commission, Region II  
245 Peachtree Center Avenue, NE, Suite 1200  
Atlanta, Georgia 30303-1257

Telephone: 404-997-4729  
800-577-8510, extension 2-4729  
FAX: 404-997-4910  
E-mail: [john.pelchat@nrc.gov](mailto:john.pelchat@nrc.gov)



Please consider the environment before printing this e-mail. Thank you.

**From:** Crowley, Kevin  
**Sent:** 2 Aug 2010 10:33:22 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer study peer-reviewers

Thanks Terry.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, July 29, 2010 10:35 AM  
**To:** Crowley, Kevin  
**Subject:** FW: cancer study peer-reviewers

Additional names for you to consider.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Brock, Terry  
**Sent:** Tuesday, April 06, 2010 3:26 PM  
**To:** 'Crowley, Kevin'  
**Subject:** cancer study peer-reviewers

As discussed. Attached are two lists of the peer review cmt members established last fall. I'll let them know that NAS is performing the study and that I have forwarded their information to you.

Thanks,  
Terry

Terry Brock, Ph.D.  
U.S. Nuclear Regulatory Commission  
301-251-7487



**From:** Kosti, Ourania  
**Sent:** 9 Feb 2012 12:09:15 -0500  
**To:** Brock, Terry;Crowley, Kevin  
**Subject:** RE: cancer study briefing for NRC

Dear Terry,

We do not think that Friday March 9 is realistic as a briefing date. Signoff is likely to come too late in the day. What about a briefing on Monday 12 only to you (as we originally discussed it might happen)?

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, February 09, 2012 11:41 AM  
**To:** Crowley, Kevin; Kosti, Ourania  
**Subject:** cancer study briefing for NRC

Hi Kevin/Rania,

I've spoken to a number of managers here at NRC and they think holding the brief on the Monday before the RIC will make it difficult for many to attend. This is usually a very busy week for NRC staff with multiple meetings with many of our national and international stakeholders. You mentioned the report may be signed out by NAS on Friday, March 9<sup>th</sup>. Would you be able to support the brief on that Friday instead of the following Monday?

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

**From:** Crowley, Kevin  
**Sent:** 28 May 2010 10:30:39 -0400  
**To:** Brock, Terry  
**Subject:** Re: Cancer Risk Study

Terry:

Good suggestions.

Thanks,

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu

---

**From:** Brock, Terry <Terry.Brock@nrc.gov>  
**To:** Crowley, Kevin  
**Sent:** Fri May 28 10:10:41 2010  
**Subject:** RE: Cancer Risk Study

Hi Kevin,

Looks good. A couple of things . . . please change contaminate fate and transport to radionuclide fate and transport. We're looking primarily at legally allowed releases to the environment and thus are not considered contamination. Also, under the public health discipline you might go for someone that has a geographical information systems background or some spatial analysis expertise.

Thanks,  
Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, May 27, 2010 4:40 PM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** Cancer Risk Study

Hi Terry:

I have pulled together an expertise list for the cancer risk study—see below. The numbers in parenthesis are the number of committee members.

At this point I am thinking that this committee would be appointed as a single group but would break into two panels to address the two parts of the task statement. If we had a chair and vice chair they could run the two panels. I think it is important to have a single product rather than two separate reports.

Your further thoughts about expertise, numbers, and the committee structure would be appreciated.

Thanks,

Kevin

Epidemiology (rad and non rad) (3)  
Radiobiology (2)  
Statistics/Biostatistics (2)  
Industrial toxicology (1)  
Public health (1)  
Nuclear engineering (1)  
Health physics (2)  
Dosimetry (2)  
Contaminant fate and transport (air and water) (2)  
Social science (environmental justice) (1)  
Demography (1)  
Risk communication (1)



**From:** Crowley, Kevin  
**Sent:** 27 May 2010 14:29:52 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study Update

Woods Hole—not easy to get to.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 27, 2010 2:27 PM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study Update

How about one in the NE, say Boston . . . NA has a building there, right?

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, May 27, 2010 2:25 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study Update

I'm still trying to figure that out—but we will certainly hold more than 4 meetings.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 27, 2010 2:20 PM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study Update

Hi Kevin,

How many meetings do you anticipate holding? I'm thinking a meeting in DC, Atlanta, Chicago, and LA should do it.

What do you think?

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, May 27, 2010 1:38 PM  
**To:** Brock, Terry  
**Subject:** Cancer Risk Study Update

Hi Terry:

Just wanted to give you an update on the cancer risk study. I distributed the draft prospectus to the members of the NRSB (except Dick Meserve, who has voluntarily recused himself because he is doing paid work for the nuclear industry) for comments. The feedback so far has been very positive; members thought that the write-up did a good job of capturing the issues that were surfaced at the board meeting, and they are giving me good advice on the kinds of expertise that will be needed on the committee.

We are now in the process of developing a draft budget for phase 1. I hope to have a number to share with you before the end of next week. Let me again ask for your advice on venues that we should visit during the phase 1 study. We will need to factor that into our budgeting.

Many thanks,

Kevin

**From:** Crowley, Kevin  
**Sent:** 7 Jun 2010 15:22:55 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study Update

Perfect. Do you remember the way?

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, June 07, 2010 3:22 PM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study Update

I'm available. How about 1 pm at your office?

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Monday, June 07, 2010 3:03 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study Update

Terry:

It looks like we should have a preliminary budget by midweek. I am tied up most of Wednesday and Thursday but am available on Friday. Are you available that day for a meeting to discuss the budget?

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 27, 2010 2:20 PM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study Update

Hi Kevin,

How many meetings do you anticipate holding? I'm thinking a meeting in DC, Atlanta, Chicago, and LA should do it.

What do you think?

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, May 27, 2010 1:38 PM  
**To:** Brock, Terry  
**Subject:** Cancer Risk Study Update

Hi Terry:

Just wanted to give you an update on the cancer risk study. I distributed the draft prospectus to the members of the NRSB (except Dick Meserve, who has voluntarily recused himself because he is doing paid work for the nuclear industry) for comments. The feedback so far has been very positive; members thought that the write-up did a good job of capturing the issues that were



surfaced at the board meeting, and they are giving me good advice on the kinds of expertise that will be needed on the committee.

We are now in the process of developing a draft budget for phase 1. I hope to have a number to share with you before the end of next week. Let me again ask for your advice on venues that we should visit during the phase 1 study. We will need to factor that into our budgeting.

Many thanks,

Kevin

**From:** Crowley, Kevin  
**Sent:** 31 Aug 2010 10:43:34 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk study site

Terry:

I received your phone message. We will get the paperwork signed and back to you.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, August 31, 2010 10:31 AM  
**To:** Wingo, Erin  
**Cc:** Crowley, Kevin  
**Subject:** RE: Cancer Risk study site

Thanks Erin.

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Wingo, Erin [mailto:EWingo@nas.edu]  
**Sent:** Tuesday, August 31, 2010 10:14 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** Cancer Risk study site

Terry:

Kevin asked me to pass along this information: the NRSB webpage for the Cancer Risk study can be found here: <http://www.nationalacademies.org/CancerRiskStudy>. The page has just been updated with our most recent information.

Kind regards,  
Erin

---

Erin Wingo  
Program Assistant  
Nuclear and Radiation Studies Board  
(202) 334-3066  
[ewingo@nas.edu](mailto:ewingo@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 10 Aug 2011 11:49:32 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer risk study meeting #5

Thanks!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, August 10, 2011 11:46 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Cancer risk study meeting #5

Actually now we have two speakers for the stakeholder piece. Here's the talk titles and speaker affiliation information:

- 1) Next Steps for the Analysis of Cancer Risk in Populations Near Nuclear Facilities Study – Terry Brock, Senior Program Manager, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission
- 2) NRC and Stakeholder Interactions – Scott Burnell, Public Affairs Officer, Office of Public Affairs, U.S. Nuclear Regulatory Commission and Lance J Rakovan, Senior Communications Specialist, Office of the Executive Director for Operations, U.S. Nuclear Regulatory Commission

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, August 10, 2011 10:36 AM  
**To:** Brock, Terry  
**Subject:** RE: Cancer risk study meeting #5

Terry,

I suggest 20 for you and 15 for Scott with 10 minutes for discussion and questions each. If you could send me the titles of your and Scott's presentation and Scott's exact title and affiliation, it would be great. I need to make the open session agenda public by August 15<sup>th</sup>.

Thanks.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, August 10, 2011 10:32 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Cancer risk study meeting #5

How long for both talks? Scott Burnell from our OPA will give the other talk.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research



U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, August 09, 2011 3:58 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer risk study meeting #5

Terry,

Please send me the slides by Thursday 25<sup>th</sup>. Thank you –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, August 09, 2011 2:19 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Cancer risk study meeting #5

Rania,

I will present the information requested below. When do you need slides?

I've notified our outreach staff and public affairs to see who will give the talk on the risk-communication. I'll send you the name once the person is identified.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, August 09, 2011 6:57 AM  
**To:** Brock, Terry  
**Subject:** Cancer risk study meeting #5

Dear Terry Brock,

The committee would like to invite you to its August 29 meeting in Washington, DC, to talk about how the U.S.NRC will use the committee's Phase 1 report for deciding on the direction(s) for the Phase 2 follow-on study. In particular, the committee would be interested in learning about the Commission's process and schedule for getting from Phase 1 to Phase 2. Additionally, given that the upcoming meeting may be the committee's last information-gathering meeting, I invite you to provide the committee with your perspectives about what types of information/findings/recommendations the Commission/Commission staff would (or would not) find useful in the Phase 1 report.

The committee has also asked me to invite a short presentation from your USNRC colleagues with risk-communication expertise on the Commission's risk communication and public engagement processes. More specifically, committee members are interested in learning about how the U.S.NRC identifies, interacts with, and uses feedback from its various stakeholders, especially on issues involving risk. I would appreciate it if you could help me identify the appropriate speakers for this presentation.

Thank you.

Rania

Ourania (Rania) Kostis, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 4 Nov 2014 15:21:24 -0500  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: cancer risk study briefing

Terry:

Your suggested schedule seems to be working for the committee chair and NAS staff. We are aiming for the following report briefing and dissemination plan:

- 9 AM, Thursday, December 11: Staff pre-brief the U.S.NRC's liaison to the committee
- 1 PM, Friday, December 12: Committee Chair, Jon Samet, briefs the sponsor via conference call
- TBD, Monday, December 15: The report is released to the public

Thanks,

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, November 04, 2014 1:56 PM  
**To:** Kosti, Ourania  
**Subject:** RE: cancer risk study briefing

Our preference is Plan B. Working backwards, Brian Sheron is available for the NRC briefing on Friday, December 12<sup>th</sup> at 1 PM. Please come and brief staff the morning of Thursday, December 11<sup>th</sup> at Church Street, say 9 AM?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, November 04, 2014 12:53 PM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: cancer risk study briefing

Terry:

I remember you are back in the office today. If at all possible please respond to this email today as the committee's chair is waiting to hear about the report briefing plan to make his travel arrangements.

Thank you for considering this request.

Rania

---

**From:** Kosti, Ourania  
**Sent:** Friday, October 31, 2014 8:45 AM  
**To:** Terry Brock (Terry.Brock@nrc.gov)  
**Cc:** Kosti, Ourania  
**Subject:** cancer risk study briefing

Terry:

Let me apologize as I offered a pre-briefing before a potential December 1 briefing without looking at the calendar; it is the Thanksgiving break and I am not available.

I am trying to schedule alternative dates for the Chair to brief the USNRC in December but it seems that he may only be able to do the briefing by phone.



I think we have the following two options:

Plan A: To accommodate a face-to-face briefing with the Chair

- The Chair briefs you and other staff December 1 at 4 PM
- Either the Chair (via conference) or I brief the USNRC December 2 or 3
- The report is released December 3 or 4

Plan B: Without a face-to-face briefing with the Chair, at some point before December 15

- Day 1 The Chair (via conference) or I brief you
- Day 2 The Chair briefs the USNRC (via conference)
- Day 3 The report is released

Please let me know how you would like to proceed.

Rania

Ourania (Rania) Kosti, Ph.D.

Senior Program Officer

Nuclear and Radiation Studies Board

The National Academies

email: [okosti@nas.edu](mailto:okosti@nas.edu)

phone: 202 334 3066

**From:** Kosti, Ourania  
**Sent:** 4 Nov 2014 13:56:39 -0500  
**To:** Brock, Terry  
**Subject:** RE: cancer risk study briefing

I will check with Jon Samet and come back to you.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, November 04, 2014 1:56 PM  
**To:** Kosti, Ourania  
**Subject:** RE: cancer risk study briefing

Our preference is Plan B. Working backwards, Brian Sheron is available for the NRC briefing on Friday, December 12<sup>th</sup> at 1 PM. Please come and brief staff the morning of Thursday, December 11<sup>th</sup> at Church Street, say 9 AM?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, November 04, 2014 12:53 PM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: cancer risk study briefing

Terry:

I remember you are back in the office today. If at all possible please respond to this email today as the committee's chair is waiting to hear about the report briefing plan to make his travel arrangements. Thank you for considering this request.

Rania

---

**From:** Kosti, Ourania  
**Sent:** Friday, October 31, 2014 8:45 AM  
**To:** Terry Brock (Terry.Brock@nrc.gov)  
**Cc:** Kosti, Ourania  
**Subject:** cancer risk study briefing

Terry:

Let me apologize as I offered a pre-briefing before a potential December 1 briefing without looking at the calendar; it is the Thanksgiving break and I am not available.

I am trying to schedule alternative dates for the Chair to brief the USNRC in December but it seems that he may only be able to do the briefing by phone.

I think we have the following two options:

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- The report is released December 3 or 4

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- Day 1 The Chair (via conference) or I brief you
- Day 2 The Chair briefs the USNRC (via conference)

- Day 3 The report is released

Please let me know how you would like to proceed.

Rania

Ourania (Rania) Kosti, Ph.D.

Senior Program Officer

Nuclear and Radiation Studies Board

The National Academies

email: [okosti@nas.edu](mailto:okosti@nas.edu)

phone: 202 334 3066



**From:** Crowley, Kevin  
**Sent:** 22 Jul 2010 11:05:54 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study

Thanks again. Please do let me know if anything changes.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, July 22, 2010 10:43 AM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study

Below is our standard process. If the Commission asks for a review then we will have to adjust. At this point I've received no formal request to review the document. That doesn't mean it won't happen, but I'm optimistic we can get this through in a month.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, July 22, 2010 10:29 AM  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Study

Thanks Terry. I thought that you also needed to share with the commission. Will that happen before you award the funds?

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, July 22, 2010 10:21 AM  
**To:** Crowley, Kevin  
**Subject:** RE: Cancer Risk Study

The funds should be awarded in 3-4 weeks. The package is to go to our contracts people tomorrow and they will take about a week to review and talk to your people about any missing information from a budgetary perspective. Our OGC and Small Business office will review for about 2 weeks, and depending on their comments, we'll be able to fund after their sign-off.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555

Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, July 22, 2010 9:43 AM  
**To:** Brock, Terry  
**Subject:** Cancer Risk Study

Terry:

It would be helpful if you could provide me with a brief description of your process and schedule for reviewing and approving our proposal for the cancer risk study. We want to be prepared to put up a website for the project and issue a formal call for committee nominations as soon as our proposal and budget have been approved.

Thanks,

Kevin

**From:** Brock, Terry  
**Sent:** 13 Apr 2011 20:05:56 +0000  
**To:** 'Kosti, Ourania'  
**Cc:** Crowley, Kevin  
**Subject:** RE: cancer risk study; welcoming the new provisional committee member

Ok, thanks for the heads-up.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, April 13, 2011 10:20 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** cancer risk study; welcoming the new provisional committee member

Dear Terry,

It is our pleasure to announce that Harold Beck has accepted appointment as the 20<sup>th</sup> member of the Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 1. A short bio describing Harold's expertise is included at the end of the email. Harold will be participating at the Chicago meeting.

According to the FACA Section 15 requirements, we will re-initiate the 20-calendar day public comment period on the updated membership.

Thank you –

Rania

Mr. Beck is an expert in radiation dose reconstruction. A physicist for the U.S. Department of Energy/Atomic Energy Commission for over 36 years, he retired in 1999 as the Director of the Environmental Science Division of the DOE Environmental Measurements Laboratory (EML) in New York City and is presently a private consultant conducting various dose reconstructions in cooperation with scientists at the National Cancer Institute and Vanderbilt University. During his tenure at EML, he also served as director of the EML Instrumentation Division and as acting deputy director of the Laboratory. Mr. Beck has authored well over 100 publications on radiation physics, radiation measurement, dose reconstruction, environmental radiation, and radiation dosimetry. His efforts in the development of the scientific approach to reconstructing fallout doses to the U.S. population from above-ground nuclear weapons testing in Nevada earned him the DOE Meritorious Service award in 1988, the second highest award in the department. Mr. Beck served as scientific vice president for radiation measurements and dosimetry of the National Council on Radiation Protection and Measurements (NCRP) from 1996-2003 and in 2004 was elected to distinguished emeritus membership in NCRP. From 2004-2006, he served as a member of the National Research Council's (NRC's) Board on Radiation Effects Research/ Nuclear



and Radiation Studies Board. He currently serves as a member of the Veterans (federal advisory) Board on Dose Reconstruction and the U.S. Scientific Review Group for the Department of Energy Russian Health Studies Program. He has served as an expert member or chair on a number of NCRP and NRC scientific studies related to radiation dosimetry.

Ourania (Rania) Kostis, Ph.D.  
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Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: [okostis@nas.edu](mailto:okostis@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 14 Mar 2011 11:28:19 -0400  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin;Shaffer, Vered  
**Subject:** RE: cancer risk study; meeting dates

You are welcome.

I also found that the panel represented different views and concerns associated with the study task. I understand that you will make all presentations available on your site; we would like to share those views with the committee.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 14, 2011 11:21 AM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin; Shaffer, Vered  
**Subject:** RE: cancer risk study; meeting dates

Thanks for the information. I hope you two found the RIC session last week useful. We were pleased with the opportunity for the different views to be shared in this public forum. See you on Wednesday to discuss fuel cycle facilities.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, March 14, 2011 11:11 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** cancer risk study; meeting dates

Hello Terry,  
Please see table below for the schedule of the committee meetings.

	<b>location</b>	<b>dates</b>
Meeting #2	Chicago	April 18-19, 2011
Meeting #3	Atlanta	May 23-24, 2011
Meeting #4	Los Angeles	July 20-21, 2011
Meeting #5	NAS facility TBD (CA, DC or MA)	August 29-30, 2011
Meeting #6 (optional)	TBD	TBD

We will plan on having a nuclear facility tour the day before or after the meeting. I will let you know of those dates when I know more.

Hope all is well!  
Rania

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email: [okosti@nas.edu](mailto:okosti@nas.edu)



**From:** Crowley, Kevin  
**Sent:** 8 Mar 2012 14:08:02 -0500  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Report Fact Checking

Thanks again, Terry. This is very helpful. Kevin

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Thursday, March 08, 2012 10:11 AM  
To: Crowley, Kevin  
Cc: Kosti, Ourania; Tomon, John; Marilyn Diaz  
Subject: RE: Cancer Risk Report Fact Checking

I heard back from the uranium recovery folks. The reference to RG 4.14 is correct. Here's some suggested language to help clarify, starting at Line 30:

-----  
Guidance for uranium recovery monitoring programs can be found in Table 2 of Regulatory Guide 4.14 "Radiological Effluent and Environmental Monitoring at Uranium Mills". This guide recommends that licensees perform:

- \* Soil sampling and analysis at five or more locations that were used for air particulate sampling
- \* Surface water and Groundwater sampling and analysis (NOTE-surface water in semi-arid locations tend to be ephemeral, and surface water is sampled only when available).
- \* Periodic fish, food, and vegetation sampling and analysis, if available.
- \* Sediment sampling and analysis

-----  
I hope this helps,

Terry

---

From: Brock, Terry  
Sent: Wednesday, March 07, 2012 2:51 PM  
To: Crowley, Kevin  
Cc: Kosti, Ourania  
Subject: RE: Cancer Risk Report Fact Checking

I'm checking with the uranium recovery folks.

Terry

From: Crowley, Kevin [<mailto:KCrowley@nas.edu>]  
Sent: Wednesday, March 07, 2012 2:24 PM  
To: Brock, Terry  
Cc: Kosti, Ourania; Crowley, Kevin  
Subject: Cancer Risk Report Fact Checking

Terry:

Thanks again for fact checking the materials that I sent to you. This was very helpful.

I have addressed all of the fact checking comments except the last one (number 35), because it doesn't make sense to me. The reviewer appears to be suggesting that we insert material from Reg Guide 4.14 in a section that describes material from Reg Guide 4.16. Could you double check this comment with the reviewer? Maybe I am missing something.

Many thanks,

Kevin

**From:** Kosti, Ourania  
**Sent:** 29 Oct 2014 13:01:12 -0400  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Pilot Planning Report Briefing

Unfortunately the Chair has other commitments Tuesday/Wednesday that week and cannot extend his visit. If my suggested plan does not work I can look into dates mid/end December.

Let me know what you think.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 29, 2014 11:15 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Cancer Risk Pilot Planning Report Briefing

Ok, Sunday may be the case unless the Chair can come on Tuesday or later in the week, or the following week. I have to brief three levels (Branch Chief, Division Director, and Office Director) before you come in and that can be a challenge in one day, on a Monday before 4 PM. I strongly suggest you give me the time to prep the management for what is coming.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, October 29, 2014 10:24 AM  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Pilot Planning Report Briefing

I understand. Of course the Phase 2 planning report is much shorter and its purpose and content differs from that of the Phase 1 report—being less technical.

From my side the inhibiting factor is the Chair's availability. I do not object to briefing you on a Sunday, if you are available.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, October 29, 2014 9:32 AM  
**To:** Kosti, Ourania  
**Cc:** Heimberg, Jennifer; Tadesse, Rebecca  
**Subject:** RE: Cancer Risk Pilot Planning Report Briefing

Let me check. I would prefer a staff to staff briefing a day before the main briefing. The Phase 1 staff briefing was not very useful because I had no time to let my management know what was coming—thus, creating some surprises that I had to spend a lot of time untangling.

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, October 29, 2014 8:14 AM  
**To:** Brock, Terry  
**Cc:** Heimberg, Jennifer  
**Subject:** Cancer Risk Pilot Planning Report Briefing

Terry:

We have started thinking about the briefing of the committee's report to the USNRC.



We suggest **December 1**. NAS staff can brief you and other colleagues first in a rather informal setting first (similar to what we did for Phase 1) and then we invite the NAS committee Chair and other committee members for a more formal briefing. The Chair is available for a briefing December 1 at 4 PM. Would that plan work for you and your colleagues?

Thanks,

Rania

Ourania (Rania) Kosti, Ph.D.

Senior Program Officer

Nuclear and Radiation Studies Board

The National Academies

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phone: 202 334 3066

**From:** Burnell, Scott  
**Sent:** 4 Jun 2015 09:47:40 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer press release  
**Attachments:** CancerRisk\_SECY.docx

You have to ask?

Actually, I'd prefer sticking to discussing the outline of what the release would say at this point.

---

**From:** Brock, Terry  
**Sent:** Thursday, June 04, 2015 9:18 AM  
**To:** Burnell, Scott  
**Subject:** cancer press release

Do you have time to draft a press release we can show tomorrow to Weber? I'll work on internal bullet points

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

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# OPA

# DRAFT

(Source: NRO)

---

## NRC REVISING APPROACH TO STUDYING CANCER RISK NEAR U.S. COMMERCIAL NUCLEAR FACILITIES

The Nuclear Regulatory Commission is revising its effort to obtain up-to-date information on cancer risks in populations living near U.S. nuclear power plants and related facilities.

Agency staff have informed[[link to SECY](#)] the Commissioners the NRC is accepting a National Council on Radiation Protection (NCRP) proposal to add information to a 1990 National Cancer Institute study, "Cancer in Populations Living near Nuclear Facilities." The NCRP proposal benefits from access to the original NCI data and analysis methods. The NRC is asking the council to include additional U.S. facilities. These include reactors that started operating after the NCI study, such as the Braidwood and Byron plants in Illinois, as well as facilities otherwise not part of the NCI work, such as Nuclear Fuel Services in Tennessee.

The NCRP proposal is in addition to the NRC's [collaboration](#) with the National Academy of Sciences (NAS) on cancer risk studies, which dates back to 2010. The NAS effort began with an examination of scientifically sound methods for conducting cancer risk studies. The academy then produced a plan for testing those methods at several U.S. sites, including permanently shut down reactors.



The NRC expects the NCRP proposal will produce updated mortality risk numbers within three years. The NCRP work will provide additional insights on the need to conduct the NAS studies, which have longer completion timelines due to their complexity. The NRC staff 's paper to the Commission lays out additional details on both approaches.

###

**From:** Kosti, Ourania  
**Sent:** 7 Mar 2011 15:59:43 -0500  
**To:** Brock, Terry  
**Subject:** RE: call at 3:30

Terry,  
We are ready to talk now!  
Rania

---

**From:** Kosti, Ourania  
**Sent:** Monday, March 07, 2011 2:57 PM  
**To:** 'Brock, Terry'  
**Subject:** RE: call at 3:30

He should be done by then. Please try –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 07, 2011 2:56 PM  
**To:** Kosti, Ourania  
**Subject:** RE: call at 3:30

No clue yet. I'm going to grab a manager's empty office at the time, most conference rooms are full. How about at 3:45 we call you and Kevin at his office.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, March 07, 2011 2:44 PM  
**To:** Brock, Terry  
**Subject:** call at 3:30

Hi Terry,  
Kevin is running a bit behind with his interviewing, what is the best number for us to call you? It should not be too long after 3:30.  
Rania

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500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Crowley, Kevin  
**Sent:** 29 Mar 2011 13:56:12 -0400  
**To:** Brock, Terry  
**Subject:** RE: call

Thanks.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, March 29, 2011 1:56 PM  
**To:** Crowley, Kevin  
**Subject:** RE: call

Four is good. I will be at my desk waiting for your call.

Terry

phone: 301-251-7487

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Tuesday, March 29, 2011 1:55 PM  
**To:** Brock, Terry  
**Subject:** RE: call

Terry: are you available at 4:00pm today? I will call you. Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, March 29, 2011 9:24 AM  
**To:** Crowley, Kevin  
**Subject:** call

Kevin,

What time would you like to talk about the statement of task?

Thanks,  
Terry



**From:** Crowley, Kevin  
**Sent:** 16 Mar 2011 11:33:45 -0400  
**To:** Brock, Terry;Kosti, Ourania  
**Subject:** RE: bring a thumb drive

Will do. I carry one with me all the time.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, March 16, 2011 10:39 AM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Subject:** bring a thumb drive

Hello,

Please bring a thumb drive with you today to take home the presentation material and other resources.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 4 Dec 2014 13:46:21 -0500  
**To:** Brock, Terry  
**Subject:** RE: Briefing

Still good!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, December 04, 2014 1:45 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Briefing

I was wrong on the time. Will 3:30 work?

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 04, 2014 1:42 PM  
**To:** Brock, Terry  
**Subject:** RE: Briefing

Very good. Thanks.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, December 04, 2014 1:41 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Briefing

My Branch Chief Rebecca wants to be in on the call. Call us at 301-251-7490.

Thx

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 04, 2014 1:38 PM  
**To:** Brock, Terry  
**Subject:** RE: Briefing

Sounds great. What time can we call?

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, December 04, 2014 1:38 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Briefing

2:30?

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 04, 2014 1:07 PM  
**To:** Brock, Terry  
**Subject:** Briefing

Terry:

I talked with Kevin about our conversation and he suggested that the three of us talk. Are you available to talk now?

Rania

Ourania (Rania) Kosti, Ph.D.

Senior Program Officer

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The National Academies

email: [okosti@nas.edu](mailto:okosti@nas.edu)

phone: 202 334 3066

**From:** Kosti, Ourania  
**Sent:** 17 May 2011 13:49:24 -0400  
**To:** Brock, Terry  
**Subject:** Re: how's this for a title page?

I meant the committee meeting...trying to sort out some details, that's why I am on the phone and not paying (100%) attention to the speaker!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 17, 2011 01:44 PM  
**To:** Kosti, Ourania  
**Subject:** RE: how's this for a title page?

With who? I'm not sure if we'll have time.

---

**From:** Kosti, Ourania [OKosti@nas.edu]  
**Sent:** Tuesday, May 17, 2011 1:42 PM  
**To:** Brock, Terry  
**Subject:** Re: how's this for a title page?

Do you want a meeting Monday?!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 17, 2011 01:40 PM  
**To:** Kosti, Ourania  
**Subject:** RE: how's this for a title page?

Quit checking your e-mail and pay attention to the speaker!

---

**From:** Kosti, Ourania [OKosti@nas.edu]  
**Sent:** Tuesday, May 17, 2011 1:28 PM  
**To:** Brock, Terry  
**Subject:** Re: how's this for a title page?

I got it!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 17, 2011 01:08 PM  
**To:** Kosti, Ourania  
**Subject:** FW: how's this for a title page?

Rania,

Here's the uranium recovery talk for the May 23 meeting in Atlanta. It's 14 MB, let me know if it makes it.

Terry



**From:** Crowley, Kevin  
**Sent:** 7 Apr 2011 14:37:06 -0400  
**To:** Brock, Terry  
**Subject:** RE: Help!

Thanks for trying. NEI does have one but it is 7 feet tall and 200 pounds!

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, April 07, 2011 2:36 PM  
**To:** Crowley, Kevin  
**Subject:** RE: Help!

Kevin,

So far no luck here. Someone mentioned NEI might have one. If anything else turns up I'll let you know.

Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, April 07, 2011 12:51 PM  
**To:** Brock, Terry  
**Cc:** Burnell, Scott; Crowley, Kevin  
**Subject:** Help!

Terry:

Could you help me with the following request—or direct me to someone who can help?

I am supposed to be interviewed/taped by CNN on Monday about the NAS spent fuel storage report. The reporter wants to ask me a few general background questions to educate viewers about what used fuel is and how it is being stored. Does the NRC have a small section of a spent fuel assembly that I could show during the interview? I would be happy to pick it up and return it.

Many thanks,

Kevin

**From:** Crowley, Kevin  
**Sent:** 24 Nov 2010 14:53:34 -0500  
**To:** Brock, Terry  
**Subject:** RE: got your message, typo on NAS study site

Thanks for the heads up Terry. I'll have the website fixed asap.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, November 24, 2010 2:53 PM  
**To:** Crowley, Kevin  
**Subject:** got your message, typo on NAS study site

Hi Kevin,

I got your message, thanks. I noticed a typo on the study website. Scoping is spelled scooping in two places.

Have a happy thanksgiving.

Terry

**From:** Coffin, Stephanie  
**Sent:** 19 Aug 2015 13:16:34 -0400  
**To:** Brock, Terry  
**Subject:** RE: fyi - the User need does not call out Region 1 as a User Office

Yes, I understand that.

But NSIR did not call Region 1 out in the memo.

-----Original Message-----

**From:** Brock, Terry  
**Sent:** Wednesday, August 19, 2015 1:16 PM  
**To:** Coffin, Stephanie <Stephanie.Coffin@nrc.gov>  
**Subject:** RE: fyi - the User need does not call out Region 1 as a User Office

The userneed came from NSIR and was concurred on by RI and the other offices. That's why I changed the text to concurred with. Sam Collins of RI concurred at the time.

-----Original Message-----

**From:** Coffin, Stephanie  
**Sent:** Wednesday, August 19, 2015 12:25 PM  
**To:** Brock, Terry  
**Subject:** fyi - the User need does not call out Region 1 as a User Office

[https://nrcsearch.nrc.gov/search/ESFetchServlet?cid=ADAMS\\_Main\\_Library&uri=p8ce%3A%2F%2Fhqpwscm003%3A9080%2Fwsi%2FFNCEWS40MTOM%2FMain%2520Library%2F%7BFBD4E-7E62-482F-9CAD-D1DF553F75A8%7D%3Fprotocol%3Dhttp](https://nrcsearch.nrc.gov/search/ESFetchServlet?cid=ADAMS_Main_Library&uri=p8ce%3A%2F%2Fhqpwscm003%3A9080%2Fwsi%2FFNCEWS40MTOM%2FMain%2520Library%2F%7BFBD4E-7E62-482F-9CAD-D1DF553F75A8%7D%3Fprotocol%3Dhttp)



**From:** Kosti, Ourania  
**Sent:** 13 Jan 2012 10:21:36 -0500  
**To:** Brock, Terry  
**Subject:** RE: FYI - FRENCH STUDY SHOWS ELEVATED LEUKEMIA RISK TO CHILDREN

Yes, we do, thank you. It is an interesting study as a distance based versus releases based analysis has different results.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, January 13, 2012 10:21 AM  
**To:** Kosti, Ourania  
**Subject:** FYI - FRENCH STUDY SHOWS ELEVATED LEUKEMIA RISK TO CHILDREN

Hi Rania,

The NRC wanted to make sure you and the cancer study committee were aware of this recent study.

Thanks,  
Terry

Terry Brock, Ph.D.  
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## **Children near French nuclear plants may run greater leukemia risk**

Jan 12 - McClatchy-Tribune Regional News - dpa, Berlin

Children living near French nuclear power plants may run a greater risk of contracting leukemia, French media reported Thursday, quoting a study published in the latest edition of the International Journal of Cancer.

The study carried out by INSERM, France's National Institute of Health and Medical Research between 2002 and 2007 found that children under the age of 15 living within 5 kilometres of a nuclear plant were twice as likely to have acute leukemia as other children.

The study found 14 cases of childhood acute leukemia in areas around the country's 19 nuclear power plants.

Based on national figures, researchers had expected to find 7.4 cases, out of a total 2,753 cases countrywide.

"The results suggest a possible excess risk of acute leukemia in the close vicinity of French nuclear power plants in 2002- 2007," the report said.

The head of the study, Jacqueline Clavel, told Le Figaro newspaper the findings came as a surprise, after a study carried out between 1990 and 2001 had found no increased risk of childhood leukemia around nuclear plants.

But she also cautioned against drawing hasty conclusions.

There was "no way" of knowing what caused the increased leukemia risk, she told the paper. The survey sample was too small to draw conclusions. Plus, when the results of the 1990-2001 and 2002-2007 studies were combined, the increased risk of childhood leukaemia near nuclear plants was nil.

"We must now get down to researching parameters that could explain this increase, namely through international cooperations which will allow us to work on a bigger scale" Clavel said.

Anti-nuclear groups said the findings vindicated their fears over the safety of nuclear power. France gets 75 per cent of its electricity from 58 nuclear reactors. "Even in a non-accident situation, the proof is again there that nuclear technology doesn't belong in a civilized world," the Réseau Sortir du Nucleaire (Exit Nuclear Network) said in a statement.

The network drew a line between the findings of the Inserm study, which was carried out in collaboration with the French Institute for Radiological Protection and Nuclear Safety, and two previous studies that found a potentially higher risk of childhood leukemia near nuclear plants. A 1995 French study found a potential link between an increased incidence of childhood leukemia in the area around La Hague nuclear plant and discharges from the plant.

In 2008, a study commissioned by the German Federal Office for Radiation Protection (BFS) found clusters of leukemia cases among children aged under 5 living near 16 power stations in the country.

**From:** Bamford, Lisa  
**Sent:** 26 Feb 2015 08:54:43 -0500  
**To:** Brock, Terry  
**Cc:** Case, Michael; Coffin, Stephanie; Tadesse, Rebecca  
**Subject:** RE: funding the cancer study

Hi Terry – I am not knowledgeable about what gives NAS their exception to the FOA process – I can reach out to Sheila Bumpass and ask if NCRP has the same exception. I'll let you know her response.

Lisa

---

**From:** Brock, Terry  
**Sent:** Thursday, February 26, 2015 8:19 AM  
**To:** Bamford, Lisa  
**Cc:** Case, Michael; Coffin, Stephanie; Tadesse, Rebecca  
**Subject:** funding the cancer study

Hi Lisa,

We all met with Brian yesterday to talk about the next steps for the cancer study. One question Brian had was about the unique funding arrangement we have with the National Academy of Sciences to provide sole-source grant funding to them directly for projects. Like NAS, the U.S. National Council on Radiation Protection and Measurements (NCRP) is a congressionally chartered organization that provides independent, expert advice on radiation protection matters to the U.S. As such, shouldn't we be able to fund them directly as we do NAS? Your insight is appreciated.

Thanks,  
Terry



**From:** Kosti, Ourania  
**Sent:** 18 Feb 2011 09:31:29 -0500  
**To:** Brock, Terry  
**Subject:** RE: fuel cycle facilities

Thank you Terry.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, February 18, 2011 9:29 AM  
**To:** Kosti, Ourania  
**Subject:** RE: fuel cycle facilities

Hi Rania,

We set up a meeting with the fuel cycle facilities staff on Wednesday, March 16, 2011 from 1:00-3:00 PM at the NRC's Executive Boulevard Building in Rockville (behind the Toys R' Us and near NCI). Get off at the White Flint stop.

Address here  
Executive Boulevard Building  
6003 Executive Boulevard  
Rockville, MD 20852

Map here  
[http://maps.google.com/maps?safe=active&q=6003+Executive+Boulevard+Rockville,+MD+20852&um=1&ie=UTF-8&hq=&hnear=6003+Executive+Blvd,+Rockville,+MD+20852&gl=us&ei=AoFeTbqXBIGdlqfB6vyVDA&sa=X&oi=geocode\\_result&ct=title&resnum=1&ved=0CBYQ8gEwAA](http://maps.google.com/maps?safe=active&q=6003+Executive+Boulevard+Rockville,+MD+20852&um=1&ie=UTF-8&hq=&hnear=6003+Executive+Blvd,+Rockville,+MD+20852&gl=us&ei=AoFeTbqXBIGdlqfB6vyVDA&sa=X&oi=geocode_result&ct=title&resnum=1&ved=0CBYQ8gEwAA)

Vered and I will meet you and Kevin at the front security desk of this building to escort you all to the meeting room.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 17, 2011 2:41 PM  
**To:** Brock, Terry  
**Subject:** fuel cycle facilities

Terry,

The week of March 14<sup>th</sup> is good for us to meet with the exception of;

Monday 14<sup>th</sup> am

Tuesday 15<sup>th</sup>

Let us know what works best for you and your colleagues.

Thank you –

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 8 Aug 2013 15:57:27 -0400  
**To:** Brock, Terry;Crowley, Kevin  
**Subject:** RE: Forwarding Calabrese citation on LNT and NAS

Thank you Terry,  
Rania

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Thursday, August 08, 2013 3:50 PM  
To: Kosti, Ourania; Crowley, Kevin  
Subject: Forwarding Calabrese citation on LNT and NAS

Hi Rania/Kevin,

Our Chairwoman received the two article citations below from the author. We wanted to forward them to you so you are aware these are out there . . . no action requested, just an FYI.

Best,  
Terry  
PubMed Results

Items 1 -2 of 2 (Display the 2 citations in  
PubMed<<http://www.ncbi.nlm.nih.gov/pubmed/23887208,23912675>>)

1.

Origin of the linearity no threshold (LNT) dose-response  
concept.<<http://www.ncbi.nlm.nih.gov/pubmed/23887208>>

Calabrese EJ.

Arch Toxicol. 2013 Jul 26. [Epub ahead of print]

PMID: 23887208 [PubMed - as supplied by publisher]

Related  
citations<[http://www.ncbi.nlm.nih.gov/pubmed/?linkname=pubmed\\_pubmed&from\\_uid=23887208](http://www.ncbi.nlm.nih.gov/pubmed/?linkname=pubmed_pubmed&from_uid=23887208)>

2.

How the US National Academy of Sciences misled the world community on cancer risk assessment: new findings challenge historical foundations of the linear dose response.<<http://www.ncbi.nlm.nih.gov/pubmed/23912675>>

Calabrese EJ.

Arch Toxicol. 2013 Aug 4. [Epub ahead of print]

PMID: 23912675 [PubMed - as supplied by publisher]

Related

citations<[http://www.ncbi.nlm.nih.gov/pubmed?linkname=pubmed\\_pubmed&from\\_uid=23912675](http://www.ncbi.nlm.nih.gov/pubmed?linkname=pubmed_pubmed&from_uid=23912675)>

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Brock, Terry  
**Sent:** 27 May 2011 15:37:36 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: For committee consideration: Documents for the Chair & Commission re Nuclear Fuel Services (NFS), Erwin, Unicoi County, TN

Yes, thanks for asking. The reports are publically available documents that anyone can retrieve from our ADAMS system.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Friday, May 27, 2011 11:35 AM  
**To:** Brock, Terry  
**Subject:** RE: For committee consideration: Documents for the Chair & Commission re Nuclear Fuel Services (NFS), Erwin, Unicoi County, TN

Thank you Terry, I will share with the committee.  
I know you understand that this will be available for public access.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 26, 2011 9:21 AM  
**To:** Kosti, Ourania  
**Subject:** For committee consideration: Documents for the Chair & Commission re Nuclear Fuel Services (NFS), Erwin, Unicoi County, TN

Rania,

For committee review and consideration below is an e-mail with attachments to the NRC from Ms. Linda Modica in reference to the NFS site in Erwin, Tn.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07

phone: 301-251-7487

---

**From:** LC M [mailto:(b)(6)]  
**Sent:** Wednesday, May 25, 2011 2:44 AM  
**To:** NRCExecSec Resource  
**Cc:** Batkin, Joshua; Bradford, Anna  
**Subject:** Documents for the Chair & Commission re Nuclear Fuel Services (NFS), Erwin, Unicoi County, TN

25 May 2011

Ms. Annette L. Vietti-Cook  
Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16G4  
Washington, DC 20555-0001

Dear Ms. Vietti-Cook,

As you probably know, on Friday, May 27th the Commission will be briefed by Staff on the results of the latest AARM which focused, in part, on Nuclear Fuel Services, Inc. - Erwin, TN. I plan to attend that meeting as a public representative, and to bear witness to the Staff's characterization of health, safety and security issues at NFS.

You might recall that I have spoken at Commission briefings & workshops within the past couple of years, and that my dialog with the Commissioners has focused on health concerns for the community of Erwin in Unicoi County. To further those discussions, I am writing to ask you to provide the attached "Unicoi County Cancer" slides (dated 03-06-08) to the Chair and Commissioners prior to this Friday's AARM Briefing.

Also attached, please find an Interim Report by Michael Ketterer, PhD who documented highly-enriched uranium (HEU) contamination with NFS's signature in Greeneville, Tennessee's municipal drinking water supplies. This finding has caused great local & EPA concern, and it would be helpful to the Chair & Commissioners, I believe, to have this report prior to Friday's AARM briefing.

With the hope that Chairman Jaczko and the Commissioners will query Staff on Friday on increased cancer mortality in Unicoi County and on widespread HEU contamination caused by NFS, I appreciate your providing the Commission with the attached documents.

Respectfully,  
Linda Modica.

Linda Cataldo Modica, Chair  
Fuel Facilities Working Group  
Sierra Club Nuclear Issues Activist Team  
266 Mayberry Road  
Jonesborough, TN 37659

(b)(6)

**From:** Kosti, Ourania  
**Sent:** 18 Mar 2015 16:52:55 -0400  
**To:** Brock, Terry  
**Subject:** RE: Follow-up

Terry:  
What number should Kevin and I call tomorrow?  
Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Wednesday, March 11, 2015 10:54 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Follow-up

thanks

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Wednesday, March 11, 2015 9:44 AM  
**To:** Brock, Terry  
**Subject:** RE: Follow-up

Confirmed. 9 AM Thursday!

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Wednesday, March 11, 2015 9:34 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Follow-up

Rebecca has to go to another meeting now at 10:00.  
How about 9:00 AM on Thursday?

Terry

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Tuesday, March 10, 2015 10:28 AM  
**To:** Brock, Terry  
**Subject:** RE: Follow-up

Yes and again my apologies!

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Tuesday, March 10, 2015 10:25 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Follow-up

Thursday 10-11?

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Tuesday, March 10, 2015 10:18 AM  
**To:** Brock, Terry  
**Subject:** RE: Follow-up

Terry:

I hate to do that but that time-slot is now unavailable. We are available again PM that day. Anything else that works for you?

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Tuesday, March 10, 2015 10:15 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Follow-up

March 18, 10-11 AM would work for us.

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]

**Sent:** Monday, March 09, 2015 3:23 PM

**To:** Brock, Terry

**Subject:** RE: Follow-up

Terry:

What about a conference call the week of March 16 to discuss the two pieces of information you have listed below? Here are some dates/times that are good for Kevin and me:

Monday, March 16: 9 – 11 AM

Tuesday, March 17: 1 – 4 PM

Wednesday, March 18: 9 AM – 4 PM

Thursday, March 19: 9 AM – 4 PM

Thanks,

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]

**Sent:** Friday, February 27, 2015 10:00 AM

**To:** Kosti, Ourania

**Subject:** Follow-up

Hi Rania,

It was nice to talk to you today. I thought I would follow-up our call with an e-mail just to make sure we're on the same page. The two pieces of information that would be very helpful in our decision making:

- 1) How long would the pilot study take to complete if we reduced the scope to just three sites and only did the case control study design? What's your best estimate on budget for this approach?
- 2) How many sites do we need for the case-control study design to have enough statistical power to generalize the risk estimate results?

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487



**From:** Kostis, Ourania  
**Sent:** 23 Mar 2015 09:43:28 -0400  
**To:** Brock, Terry  
**Subject:** RE: follow-up conference call

Thanks Terry—I got the information. Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, March 23, 2015 9:43 AM  
**To:** Kostis, Ourania  
**Subject:** RE: follow-up conference call

Sounds good. Bridge-line info attached.

---

**From:** Kostis, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Monday, March 23, 2015 9:27 AM  
**To:** Brock, Terry  
**Subject:** RE: follow-up conference call

Terry:

Let's do 11 AM.

Thanks,

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Friday, March 20, 2015 12:44 PM  
**To:** Kostis, Ourania  
**Subject:** RE: follow-up conference call

11-12 or 1-2?

---

**From:** Kostis, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Friday, March 20, 2015 11:23 AM  
**To:** Brock, Terry  
**Subject:** follow-up conference call

Terry:

Are you and Rebecca available next Friday (March 27) for a follow-up conference call with Kevin and me?

Please suggest a couple of time slots that work with your schedules. (I will be at a meeting but will plan to take the call from there.)

Rania

Ourania (Rania) Kostis, Ph.D.

Senior Program Officer

Nuclear and Radiation Studies Board

The National Academies

email: [okosti@nas.edu](mailto:okosti@nas.edu)

phone: 202 334 3066

**From:** Greenleaf, Toni  
**Sent:** 8 Apr 2013 09:24:10 -0400  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: final sponsor report for cancer risk study phase 1

I have been working with Sunshine Wilson but I believe Sheila Bumpass is aware of all of this. Toni

*Toni Greenleaf*

Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077



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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, April 08, 2013 9:22 AM  
**To:** Greenleaf, Toni  
**Cc:** Kosti, Ourania  
**Subject:** RE: final sponsor report for cancer risk study phase 1

Ok, don't bother if you have been working with them. I'll use the last one and tell my people you are handling it with the finance people.

Thanks,  
Terry

---

**From:** Greenleaf, Toni [mailto:TGreenle@nas.edu]  
**Sent:** Monday, April 08, 2013 9:20 AM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: final sponsor report for cancer risk study phase 1

I will be glad to do that for you but since the rates changed along the way it will now show an overage that NAS owes NRC in the amount of \$1,263.25. Your close out group knows this as I have been working with them to get this closed out. I think they have what they need from us now. I have no idea how long it will take them (our group) to issue that check.

Toni

*Toni Greenleaf*

Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077



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---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, April 08, 2013 9:03 AM  
**To:** Greenleaf, Toni  
**Cc:** Kostj, Ourania  
**Subject:** RE: final sponsor report for cancer risk study phase 1

Hi Toni,

I'm closing out some paperwork on the cancer risk study phase 1 grant and need the last sponsor report that addresses the \$2000 overage you discussed below. I would prefer to submit a revision that has resolved the issue.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Greenleaf, Toni [<mailto:TGreenle@nas.edu>]  
**Sent:** Tuesday, September 11, 2012 12:32 PM  
**To:** Brock, Terry; Kostj, Ourania  
**Subject:** RE: final sponsor report for cancer risk study phase 1

Terry, I have to first apologize because there is still an adjustment that wasn't made in August so it shows we are over by about \$2,000. Please note that will definitely be fixed.  
I am attaching two reports for you (the first one is through May and is for information only):

Please also note this is not the report that goes to M'Lita Carr, she will receive an official one from our accounting office. Toni

*Toni Greenleaf*

Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Wednesday, August 22, 2012 12:14 PM  
**To:** Kostj, Ourania

**Cc:** Greenleaf, Toni

**Subject:** RE: final sponsor report for cancer risk study phase 1

Thanks. I'll wait for the final report. Toni: Please cc me when you send the report out.

Thanks,

Terry

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]

**Sent:** Wednesday, August 22, 2012 11:17 AM

**To:** Brock, Terry

**Cc:** Greenleaf, Toni

**Subject:** final sponsor report for cancer risk study phase 1

Terry,

I attach the last technical report submitted to the USNRC grants office. I consulted with Toni Greenleaf about the financial report and she says that your accounting office should be able to provide the financial report to you. Toni is out of the office today but did state that adjustments are still being made and a report at the end of August (which would be available approximately September 10) would be a more accurate report.

I hope this helps.

Rania

Ourania (Rania) Kosti, Ph.D.

Program Officer

Nuclear and Radiation Studies Board

The National Academies

500 Fifth Street, NW

Washington, DC 20001

phone: 202 334 3066

fax: 202 334 3077

email: [okosti@nas.edu](mailto:okosti@nas.edu)



**From:** Brock, Terry  
**Sent:** 10 Feb 2011 18:31:53 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: Febr 24th open session

Sure does, thanks. Please let me know the names of the congressional staffers and any known stakeholders that plan to present after you catch up with Kevin. I share this information with my management and congressional affairs folks.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 10, 2011 1:18 PM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

I do not have the answer regarding the congressional staffers, Kevin is the one doing these communications and given that he is away and 6 hours ahead our communication has been limited. As you know, Kevin is back tomorrow so he can update us on the progress.

Regarding the public comments; we do not know yet who is going to show up. What I know is that Beyond Nuclear has been asking for the agenda of the open session to be made public, so this might be an indicator that they would like to speak. We will have a signup sheet in the room the day of the open session, so on the day we will know who would like to make a comment.

Hope this helps –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, February 10, 2011 1:09 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Febr 24th open session

Thanks. What congressional staffers? Do you know who from the public has indicated they would like to speak?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 10, 2011 12:56 PM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

Terry,  
After your presentations we have dedicated time for comments from Congressional Staff, DVD presentation of the 1990 NCI survey, followed by opportunity for public comments. As it is now, you are scheduled to start your presentation 1:40pm (the open session starts at 1:00pm).  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, February 10, 2011 12:49 PM  
**To:** Kosti, Ourania  
**Subject:** RE: Febr 24th open session

Thanks.

Who else is speaking after us during the public session?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 10, 2011 11:28 AM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

We will print name tags. Thank you for the list. Let me know if there are any additions as we get closer to the date.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, February 10, 2011 11:24 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Febr 24th open session

I expect at least 7 of us to attend, probably more. Are you printing name tags for the meeting? At the April NSRB meeting there were name tags. If so, here are the names of the NRC folks I know who are attending and would like to have name tags ready for them.

Brian Sheron  
Terry Brock  
Stephanie Bush-Goddard  
Vered Shaffer  
Kathy Halvey Gibson  
Scott Burnell  
Steve Schaffer

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 10, 2011 9:41 AM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

Good morning Terry,

I would suggest 30 to cover the committee (n=19) and NAS staff (n=4) and members of the public. Of course, your colleagues also. Do you have an idea of how many USNRC staff will attend? At this point we do not know how many members of the public to expect. Our staff can always make extra copies as needed; we will ask for your slides to upload closer to the meeting date.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, February 10, 2011 9:28 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Febr 24th open session

Hi  
How many hard copies of the slides should we bring?

Thanks

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, February 09, 2011 11:38 AM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

Terry,  
Presenters do get to control their own slides. Let me know if you have any other questions -  
Rania

---

**From:** Kosti, Ourania  
**Sent:** Wednesday, February 09, 2011 11:11 AM  
**To:** 'Brock, Terry'  
**Subject:** RE: Febr 24th open session

Terry,

Shauntee Whetsone, our program assistant, has contacted the hotel to confirm that you will have a device to forward the slides yourself and is waiting to hear back. I will come back to you with the answer. Thank you for your patience -  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, February 09, 2011 11:02 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Febr 24th open session

Rania,

I would like to have control over the slide progression. Will we have a device to forward our own slides?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, February 09, 2011 10:47 AM  
**To:** Brock, Terry  
**Subject:** RE: Febr 24th open session

Correction: you estimated 35 minutes.

---

**From:** Kosti, Ourania  
**Sent:** Wednesday, February 09, 2011 10:44 AM  
**To:** 'Brock, Terry'  
**Cc:** Crowley, Kevin  
**Subject:** RE: Febr 24th open session

You are welcome. Let us know if you think you and Brian may need more time than the approximately 45 minutes you estimated. We are in the process of finalizing the agenda, so please let us know in advance.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, February 09, 2011 9:39 AM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin  
**Subject:** RE: Febr 24th open session

Ok got it. Thanks

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, February 09, 2011 9:34 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** RE: Febr 24th open session

Hello Terry,

Here is the list of topics we suggest you include in your presentation. Please let me know if you need any clarifications, I hope I can help. Kevin will be back Friday and you can contact him then if you want to discuss further.

- Why the USNRC asked NCI to carry out the 1990 study



- Why the USNRC is seeking to update that study
- Why the USNRC decided to engage the NAS for the update
- What the USNRC intends to do with the study results (both phase 1 and phase 2)
- Specific advice that the USNRC has for the committee as it embarks on Phase 1: e.g., in terms of issues that should get special attention, people/groups that the committee should consult, places that the committee should visit.
- Kinds of advice that would be helpful (or would not be helpful) to have in the Phase 1 report: e.g., in terms of the types recommendations for phase 2. As an example, USNRC might point out that the decision on how to proceed in phase 2 will be based in part on non-technical considerations such as cost, likelihood of success, and feedback from stakeholders; although the USNRC does not want the committee to base its recommendations on these considerations, it would be helpful if the committee could provide options for carrying out the Phase 2 study, including for example phasing and pilot studies, to address these nontechnical factors.
- a review of the number and types of plants NRC regulates, touching on years of operation and projections. If possible give an idea to the committee through examples on the density of the population that lives near the plants
- what does 'regulation' of nuclear facilities mean

Thank you,  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, February 07, 2011 12:05 PM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin  
**Subject:** RE: Febr 24th open session

Hi Rania,

Kevin mentioned at our last meeting that he had a list of topics he thought that we should cover in the talk. Would you please forward when you get a chance.

The title of the talk is ***The U.S. NRC's request to the National Academy of Sciences to Perform the Study, "Analysis of Cancer Risks in Populations Near Nuclear Facilities - Phase 1 Feasibility Study"***

Presenters:  
Brian Sheron, Ph.D., Director  
Office of Nuclear Regulatory Research

Terry Brock, Ph.D., Senior Program Manager  
Office of Nuclear Regulatory Research

Give Brian 15 minutes and me 20 minutes

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, February 03, 2011 1:58 PM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** Febr 24th open session

Hello Terry,

Hope all is well. As you know, the 1<sup>st</sup> committee meeting for the cancer risk assessment study is scheduled for February 24-25 and it will take place at the Melrose Hotel in Washington DC. The afternoon of February 24<sup>th</sup> (1:00pm-5:30pm) is an open session and you are invited to present and inform our committee and the public on what NRC is, types of nuclear installations it regulates etc.

I would like to ask you to please send me the title of your presentation(s) and names of presenters. Also, an estimation of the time you will need.

Thank you,

Rania

**From:** Kosti, Ourania  
**Sent:** 30 Jun 2011 16:49:41 -0400  
**To:** Brock, Terry  
**Subject:** RE: Effluent and NUREG reports for submt consideration RE: request for NRC reports on NPPs

Thank you Terry. I will forward this email to our experts and will come back to you with any comments/questions they may have. I will notify you when I receive the package. Thank you.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, June 30, 2011 4:41 PM  
**To:** Kosti, Ourania  
**Subject:** Effluent and NUREG reports for submt consideration RE: request for NRC reports on NPPs

Rania,

Per your e-mail request below, I'm preparing to FedEx you hard copies of the effluent reports and a cd with the pdf versions of the specific NUREGS. A cd is needed because the pdfs are rather large and will not be transmitted by our e-mail system. For the older effluent reports the licensee was required to submit semi-annual reports—resulting in two reports per year for the January-June and July-December time frames. We found reports for all the sites in the years requested, but some only have one semi-annual report that we could find in our microfiche system. If after the subcommittee reviews the documents and they still need the other semi-annual report we can then try to contact the licensee to find them—that's the last place I can think to look. I noted on the list below of the sites that only had one semi-annual report, all others have both.

Please let me know when you receive the package and if you have any questions.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Friday, June 10, 2011 12:35 PM  
**To:** Brock, Terry  
**Subject:** request for NRC reports on NPPs

Terry,

Our dosimetry experts would appreciate it if you could send me - preferably in pdf format- the following reports. I understand that they were unable to find the reports online.



**NUREG/CR-1497 (BNL-NUREG-51192), march 1981, "Radioactive Materials Released from Nuclear Power Plants, 1978"**

**NUREG-0521.**

**NUREG-CR-2907 (BNL-NUREG-51581), Radioactive Materials Released from Nuclear Power Plants, (Vol. 1, 5,,6 in particular-Was able to download volumes 2,3,11,14)  
(These reports also claim that all the detailed release data from 1978-1990 were stored in a database in digital form).**

**NUREG-/CR-2850 (PNL-4221). Dose Commitments Due to Radioactive Releases from Nuclear Power Plant Sites" , (Volumes 1, 4 ,8 in particular-was able to download vol. 13 and 14)**

They only requested the volumes indicated but it would be helpful if you gave us an idea as to whether the entire set is available.

In addition, they would like copies of the annual effluent release and environmental reports for the following NPP for the years indicated below. Only reports for recent years are available on the NRC web site.

**Millstone, 1975  
Dresden, 1975  
Oyster Creek, 1979  
Browns Ferry, 1984  
Nine Mile Point, 1975 (January to June)  
Zion, 1984 (January to June)  
McGuire, 1984  
Oconee, 1977 (July to December)  
Peach Bottom, 1979 (January to June)  
North Anna, 1984  
Quad Cities, 1980  
Pilgrim, 1977**

Thank you for helping them with this request.

Rania

Ourania (Rania) Kostis, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu



**From:** Kosti, Ourania  
**Sent:** 12 Apr 2011 11:49:49 -0400  
**To:** Brock, Terry  
**Subject:** RE: Dresden reports

It appears that the tour will be considered as a non-meeting and no posting will be required...

---

**From:** Kosti, Ourania  
**Sent:** Tuesday, April 12, 2011 10:54 AM  
**To:** 'Brock, Terry'  
**Subject:** RE: Dresden reports

We just received the official OK from our management regarding the tour. We will discuss with them further if there needs to be an announcement etc.

Rania

---

**From:** Kosti, Ourania  
**Sent:** Tuesday, April 12, 2011 10:26 AM  
**To:** 'Brock, Terry'  
**Subject:** RE: Dresden reports

Still waiting to hear.  
Thank you for the links – I will send a supplementary email.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, April 12, 2011 10:16 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Dresden reports

Thanks, also please share the links below to the publicly available NRC inspection procedures applicable for the tour and relevant to the talk on Monday. BTW: is the tour still on?

Terry

IP	<a href="#">71124.05</a>	Radiation Monitoring Instrumentation	12/02/09	<a href="#">09-030</a>	<a href="#">.doc</a>
IP	<a href="#">71124.06</a>	Radioactive Gaseous and Liquid Effluent Treatment	12/02/09	<a href="#">09-030</a>	<a href="#">.doc</a>
IP	<a href="#">71124.07</a>	Radiological Environmental Monitoring Program	12/02/09	<a href="#">09-030</a>	<a href="#">.doc</a>

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, April 11, 2011 7:19 PM  
**To:** Brock, Terry  
**Subject:** RE: Dresden reports

Thank you Terry. I will.  
Rania

---

**From:** Brock, Terry [Terry.Brock@nrc.gov]  
**Sent:** Monday, April 11, 2011 4:38 PM  
**To:** Kosti, Ourania  
**Subject:** Dresden reports

Hi Rania,

I strongly suggest the dosimetry subgroup and those that want to go on the tour review the Dresden Radioactive Effluent Reports, Offsite Dose Calculation Manual, and Environmental Reports for 2009 here >> <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-specific-reports/dres2-3.html> These documents will give them a good background of what we will be talking about on Monday, April 18<sup>th</sup> and during the tour on the 20<sup>th</sup>.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Crowley, Kevin  
**Sent:** 12 May 2010 09:43:31 -0400  
**To:** Brock, Terry  
**Subject:** RE: Draft task statement for the cancer risk study

Terry:

This looks good with two possible exceptions.

- (1) I am not sure what you want out of the first bullet of point 1. As written, it appears that you are asking for a program review.
- (2) Did you intentionally omit the last bullet of the original point 2 in your rewrite? If so, why?

I'm around most of the day if you would prefer to discuss by phone: 202-334-3198.

I am now working on the full prospectus and should have a preliminary draft to share with you before the end of the day today.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 12, 2010 8:14 AM  
**To:** Crowley, Kevin  
**Subject:** RE: Draft task statement for the cancer risk study

Hi Kevin,

Here's my mark-up on the latest SOT. I've supplied the red-line strikeout version and the clean version.

Let me know if you need to discuss.

Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Friday, May 07, 2010 3:43 PM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** Draft task statement for the cancer risk study

Terry:

Attached is a draft task statement for the cancer risk study. I included all of the tasking issues that we discussed yesterday.

This is about the right length and level of detail for a typical NAS study task. You will no doubt notice that I did not include information in the task statement about how the study would be carried out--except for language about phasing. That was intentional: It is important to keep the task statement focused on the issues to be addressed and avoid cluttering it up with extraneous information. As I mentioned yesterday, there will be "background" and "preliminary work plan" sections in the project prospectus and in our proposal to you that provides information about

how we will carry out the study. This will include, for example, information about specific facilities to be examined, approaches to be used to engage stakeholders, and the process for getting from Phase 1 to Phase 2.

Please feel free to mark this up with your comments and suggestions.

Regards,

Kevin



**From:** Crowley, Kevin  
**Sent:** 27 Apr 2010 20:56:22 -0400  
**To:** Brock, Terry  
**Subject:** RE: draft sow

Terry:

I thought it was a good meeting too. I'll take a look at the draft sow and get back to you, probably on Friday, with some comments. I am very solidly booked tomorrow and Thursday.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, April 27, 2010 4:41 PM  
**To:** Crowley, Kevin  
**Subject:** draft sow

Hi Kevin,

Good meeting yesterday. I think we got a nice range of views on the issue.

Attached is the draft SOW for your review and comment. Please let me know when you would like to discuss.

Thanks,  
Terry

**From:** Kosti, Ourania  
**Sent:** 19 Dec 2014 11:43:12 -0500  
**To:** Brock, Terry  
**Subject:** RE: Draft Proposal and Budget: Pilot execution

Terry:  
This is fine. We could send you an official proposal mid-February.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, December 19, 2014 10:40 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Draft Proposal and Budget: Pilot execution

We'll have to discuss the numbers publicly, I don't see how we cannot. That doesn't mean the draft documents have to be released publicly until they are made final by NAS and officially submitted to us for our consideration. How long do you think it will take to officially send over the proposal?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 18, 2014 1:35 PM  
**To:** Brock, Terry  
**Subject:** Draft Proposal and Budget: Pilot execution

Terry:  
We are finalizing the discussion draft proposal and draft budget for the next step of the study as you requested. The current draft as is contains detailed information not appropriate for sharing with the public. Can you let me know whether you intend to make the draft proposal and associated budget public?

Thanks for the clarification.

Rania

Ourania (Rania) Kosti, Ph.D.  
Senior Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
email: [okosti@nas.edu](mailto:okosti@nas.edu)  
phone: 202 334 3066

**From:** Burnell, Scott  
**Sent:** 27 May 2015 15:32:27 -0400  
**To:** Brock, Terry  
**Subject:** RE: draft cancer risk secy 2015.docx

Just one teensy thing:

Additionally, the NCRP's lead investigator ~~used to work for NCI~~ where he designed, directed, and completed the original 1990 **NCI** study.

---

**From:** Brock, Terry  
**Sent:** Tuesday, May 26, 2015 2:08 PM  
**To:** Burnell, Scott  
**Subject:** FW: draft cancer risk secy 2015.docx

thx

---

**From:** Brock, Terry  
**Sent:** Tuesday, May 26, 2015 9:44 AM  
**To:** Case, Michael; Coffin, Stephanie  
**Cc:** Tadesse, Rebecca  
**Subject:** draft cancer risk secy 2015.docx

Here's a draft to share with Brian. Rebecca has reviewed and concurred. I haven't received QTE comments yet-- I expect those later today.

Terry

**From:** Crowley, Kevin  
**Sent:** 1 Mar 2011 02:48:48 -0500  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: discussion about bio-indicators when you get back

Hi Terry:

I would be happy to talk with you about this after I return.

Kevin

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Monday, February 28, 2011 5:49 PM  
To: Crowley, Kevin  
Cc: Kosti, Ourania; Shaffer, Vered  
Subject: discussion about bio-indicators when you get back

Kevin,

Rania clarified what was meant by the bio-indicator comment made at the 2/24 NAS meeting. As I thought about it, the NRC did not ask for an assessment of ecological risk, environmental risk indicators, or so-called surrogates of risk. I question the utility of this approach in light of the already well-established link between radiation exposure and human carcinogenesis (with quantifiable risk estimates). I could see developing surrogates of risk if we couldn't quantify the dose or the outcomes (cancer), but we can do both. I'm a bit concerned where this is going especially after you commented that this was already decided to be in the report without obvious consensus from the committee. Let's discuss further when you get back from Japan.

Thanks,  
Terry



**From:** Kosti, Ourania  
**Sent:** 4 Dec 2014 09:56:07 -0500  
**To:** Brock, Terry  
**Subject:** RE: December 12 briefing

I am sure I will find it! I believe Kevin will be coming with me for the pre-briefing.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, December 04, 2014 9:48 AM  
**To:** Kosti, Ourania  
**Subject:** RE: December 12 briefing

Ok, Yes please come to Church Street. Do you remember how to get here? We're in the white building adjacent to the Rockville Metro stop.

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 04, 2014 9:45 AM  
**To:** Brock, Terry  
**Subject:** RE: December 12 briefing

Andre will be out of town that day and cannot participate at the briefing.

Thanks for the information. Do I come to the same place for the December 11 pre-briefing?

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, December 04, 2014 9:29 AM  
**To:** Kosti, Ourania  
**Subject:** RE: December 12 briefing

Please come to Church Street 6<sup>th</sup> floor for the meeting. I'll meet you at the security desk. I've set-up a bridge-line, info below. Also, could Andre could show up in person, in addition to having Harold on the phone?

Phone: 888-677-1833

Participant passcode (b)(6)

Thx, Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, December 04, 2014 8:32 AM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** December 12 briefing

Terry:

As we discussed the Chair (Jon Samet) will be calling in at 1 PM for the briefing. Harold Beck will also be calling in to support the briefing as needed. Do you prefer if I come to the NRC or should I just call in? I am happy to travel, I am unsure of the set-up at your side. Please let me know. Also, when possible send me the call-in information to share with Jon, Harold, and Academies staff.

Rania

Ourania (Rania) Kosti, Ph.D.

Senior Program Officer

Nuclear and Radiation Studies Board

The National Academies

email: [okosti@nas.edu](mailto:okosti@nas.edu)

phone: 202 334 3066

**From:** Kosti, Ourania  
**Sent:** 25 Aug 2011 09:53:15 -0400  
**To:** Brock, Terry  
**Subject:** RE: dead link on study page

Terry, I forwarded your message to the appropriate person and will notify you when this is fixed.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, August 25, 2011 9:51 AM  
**To:** Kosti, Ourania  
**Subject:** dead link on study page

There's a dead link on the study page to the presentations section for the first meeting on 2/24/11 >> <http://dels.nas.edu/Upcoming-Event/Analysis-Cancer-Risks-Populations/DELS-NRSB-10-02/4977>

Do you have the live link so I can access?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, August 25, 2011 9:44 AM  
**To:** Brock, Terry  
**Subject:** RE: NRC slides for 8/29 NAS meeting

Thank you for the presentations Terry.

My guess is by 3 pm we will be sending the email out. We are contacting our travels office now to see if they have a feel of what the airlines are thinking. I will keep you posted.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, August 25, 2011 9:42 AM  
**To:** Kosti, Ourania  
**Subject:** NRC slides for 8/29 NAS meeting

Hi Rania,

Attached are the two NRC presentations for the 8/29 meeting. When on Friday do you plan to make a decision about canceling the meeting, re: Hurricane Irene?

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 26 Aug 2011 13:17:08 -0400  
**To:** Brock, Terry  
**Subject:** RE: dead link on study page

Oh no.....

Well, you need batteries and candles! And board games to entertain the little ones!

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Friday, August 26, 2011 1:16 PM  
To: Kosti, Ourania  
Subject: RE: dead link on study page

At home, but I live near work so the same service area.

---

From: Kosti, Ourania [[OKosti@nas.edu](mailto:OKosti@nas.edu)]  
Sent: Friday, August 26, 2011 1:15 PM  
To: Brock, Terry  
Subject: RE: dead link on study page

At work or home?

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Friday, August 26, 2011 1:14 PM  
To: Kosti, Ourania  
Subject: RE: dead link on study page

Thx. I just got an automated voice mail from PEPCO for us to expect multi-day outages. Ughhh

---

From: Kosti, Ourania [[OKosti@nas.edu](mailto:OKosti@nas.edu)]  
Sent: Friday, August 26, 2011 12:35 PM  
To: Brock, Terry  
Subject: RE: dead link on study page

Link is alive again!

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Thursday, August 25, 2011 9:51 AM  
To: Kosti, Ourania  
Subject: dead link on study page

There's a dead link on the study page to the presentations section for the first meeting on 2/24/11 >>  
<http://dels.nas.edu/Upcoming-Event/Analysis-Cancer-Risks-Populations/DELS-NRSB-10-02/4977>

Do you have the live link so I can access?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission



Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

From: Kosti, Ourania [<mailto:OKosti@nas.edu>]  
Sent: Thursday, August 25, 2011 9:44 AM  
To: Brock, Terry  
Subject: RE: NRC slides for 8/29 NAS meeting

Thank you for the presentations Terry.

My guess is by 3 pm we will be sending the email out. We are contacting our travels office now to see if they have a feel of what the airlines are thinking. I will keep you posted.

Rania

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Thursday, August 25, 2011 9:42 AM  
To: Kosti, Ourania  
Subject: NRC slides for 8/29 NAS meeting

Hi Rania,

Attached are the two NRC presentations for the 8/29 meeting. When on Friday do you plan to make a decision about canceling the meeting, re: Hurricane Irene?

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Crowley, Kevin  
**Sent:** 14 Jan 2010 15:23:52 -0500  
**To:** Brock, Terry  
**Subject:** Re: NRC study

Terry:

I am planning to send it to you this evening. I am traveling myself so it has taken a little longer than usual to run the internal traps.

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; [kcrowley@nas.edu](mailto:kcrowley@nas.edu)

---

**From:** Brock, Terry <[Terry.Brock@nrc.gov](mailto:Terry.Brock@nrc.gov)>  
**To:** Crowley, Kevin  
**Sent:** Thu Jan 14 15:15:12 2010  
**Subject:** RE: NRC study

Hi Kevin,

I will be out of the office and reach until Monday, January 25th. You can wait until then to submit the information if you wish.

Thanks,  
Terry Brock

Terry Brock, Ph.D.  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Crowley, Kevin [<mailto:KCrowley@nas.edu>]  
**Sent:** Monday, January 11, 2010 3:16 PM  
**To:** Brock, Terry  
**Subject:** RE: NRC study

Terry:

I will get back to you in the next day or two with the requested information.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, January 08, 2010 4:34 PM  
**To:** Crowley, Kevin  
**Subject:** NRC study

Dr. Crowley,

Thanks for talking with me today today about the National Academies potential interest and capabilities in performing a study to analyze cancer mortality and incidence in populations living near commercial nuclear power facilities in the United States. As you know, we have a Sources Sought notice that is currently open until January 31, 2009 to evaluate potential commercial entities that may be interested and capable of performing the work. Link here >>  
[https://www.fbo.gov/index?s=opportunity&mode=form&id=5b7778a6a2fcc16e9f789253d24deaa&tab=core&\\_cvview=1&cck=1&au=&ck](https://www.fbo.gov/index?s=opportunity&mode=form&id=5b7778a6a2fcc16e9f789253d24deaa&tab=core&_cvview=1&cck=1&au=&ck)

It is my understanding that the National Academies does not submit to open solicitations, nor respond to Sources Sought announcements. However, I would like to get your feedback on your organization's interest and capabilities in performing the study as described in the linked announcement. Does the National Academies have the capabilities to perform the study at a level consistent with the seven criteria listed in the announcement? The information you provide on the seven criteria will be helpful for us in comparing your capabilities to any potential commercial organizations.

If you have any additional questions or comments please call me at the number below.

Thanks,  
Terry

Terry Brock, Ph.D.  
Senior Project Manager  
U.S. Nuclear Regulatory Commission  
301-251-7487

**From:** Crowley, Kevin  
**Sent:** 11 Mar 2010 18:15:19 -0500  
**To:** Brock, Terry  
**Subject:** Re: NRC study

Many thanks Terry. Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu

---

**From:** Brock, Terry <Terry.Brock@nrc.gov>  
**To:** Crowley, Kevin  
**Sent:** Thu Mar 11 17:55:16 2010  
**Subject:** RE: NRC study

Hi Kevin,

Brian's earlier meeting with the Chairman was postponed until tomorrow. Once we get his feedback I'll be in touch by e-mail. Have a safe trip.

Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, March 11, 2010 5:13 PM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** NRC study

Terry:

Just checking in to see if there have been any new developments with the NPP health study. Friday (tomorrow) is my last day in the office until March 24. (I'll be in Vienna for an IAEA meeting followed by a couple days of vacation.) I'll be on e-mail if anything comes up.

Regards,

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu



**From:** Crowley, Kevin  
**Sent:** 29 Feb 2012 13:44:16 -0500  
**To:** Brock, Terry  
**Subject:** RE: NRC staff comments on NAS cancer risk fact check pages

Terry:

Thanks so much for your help with this.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, February 29, 2012 9:49 AM  
**To:** Crowley, Kevin  
**Cc:** Kosti, Ourania; Tomon, John; Bush-Goddard, Stephanie; Diaz, Marilyn  
**Subject:** NRC staff comments on NAS cancer risk fact check pages

Kevin,

Attached are the NRC staff comments on the 28 page fact check material for the forthcoming NAS report, "Analysis of Cancer Risk in Populations near Nuclear Facilities---Phase1" that you e-mailed to me on February 8, 2012.

Please let me know if you need to discuss any further.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 11 May 2011 12:21:30 -0400  
**To:** Brock, Terry  
**Subject:** RE: NRC speaker names and titles

Terry, are all presenters going to be physically in Atlanta? Are any of your colleagues calling in?

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 11, 2011 11:45 AM  
**To:** Kosti, Ourania  
**Subject:** NRC speaker names and titles

Hi Rania,

Here's the NRC speakers and talk titles for the Atlanta meeting:

Uranium Recovery Regulations and Operations, Dr. Elise Striz, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission

Fuel Cycle Facilities, Dr. Dennis Damon and John Pelchat, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 5 Dec 2011 12:10:04 -0500  
**To:** Brock, Terry  
**Subject:** RE: NRC RIC speaker forms: deadline DEC 12th

Thank you. Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, December 05, 2011 12:08 PM  
**To:** Kosti, Ourania  
**Subject:** RE: NRC RIC speaker forms: deadline DEC 12th

The session is on Thursday, March 15<sup>th</sup> from 10:30 AM to 12:00 PM. It will be at the same hotel as last year (Bethesda North Marriott), not sure of the room yet.

Terry

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Monday, December 05, 2011 11:48 AM  
**To:** Brock, Terry  
**Subject:** RE: NRC RIC speaker forms: deadline DEC 12th

With pleasure. When is his presentation? Remember that John is not available March 13.

Thank you –

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, December 05, 2011 11:46 AM  
**To:** Kosti, Ourania  
**Subject:** NRC RIC speaker forms: deadline DEC 12th

Hi Rania,

Would you please have John Burriss fill out the attached forms for the 2012 RIC and returned by next week, Dec. 12<sup>th</sup>.

Thanks,

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 24 Jan 2011 17:49:05 -0500  
**To:** Brock, Terry  
**Subject:** RE: NRC info digest

That sounds great. Thank you, I could download the documents with no problems –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, January 24, 2011 10:02 AM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin  
**Subject:** RE: NRC info digest

Rania,

I put the two ORAU/ORISE documents in our ADAMS system and they are now publically available. To retrieve go to <http://wba.nrc.gov:8080/ves/> and enter in the document identifier ML110200172 for both reports. Let me know if you have any trouble retrieving the documents.

The NRC information digest on-line can be found here <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1350/>

I have 30 hard copies of the digest and cds to hand out to the committee on Feb. 24.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, January 24, 2011 9:31 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** NRC info digest

Dear Terry,

I have received the 2010-2011 NRC Information Digest. Thank you for sending it to us. We look forward to receiving the electronic version of the material you gave us during our visit last week. If the digest is also available as a pdf, it would be great to have.

Thank you again –  
Rania



**From:** Kosti, Ourania  
**Sent:** 21 Jun 2011 09:00:49 -0400  
**To:** Brock, Terry  
**Subject:** RE: NFS tour

Sure. The reason I am asking is because I hope Marie will be returning my call today. I did not think it would be appropriate for me to spread the news of the NRC meeting.

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Tuesday, June 21, 2011 8:59 AM  
To: Kosti, Ourania  
Subject: RE: NFS tour

I presume, the meeting however is for the NRC and the general public to interact.

-----Original Message-----

From: Kosti, Ourania [<mailto:OKosti@nas.edu>]  
Sent: Tuesday, June 21, 2011 8:57 AM  
To: Brock, Terry  
Subject: RE: NFS tour

Great. I assume Marie Moore and NFS colleagues are aware that the NRC is holding the meeting September 8th?

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Tuesday, June 21, 2011 8:55 AM  
To: Kosti, Ourania  
Subject: RE: NFS tour

I think this is a good idea. Let me check with the RII staff holding the meeting.

-----Original Message-----

From: Kosti, Ourania [<mailto:OKosti@nas.edu>]  
Sent: Monday, June 20, 2011 8:19 PM  
To: Brock, Terry  
Subject: NFS tour

Terry,

What do you think about trying to arrange the NFS tour around the NRC's community meeting so that we have committee participation?

Rania

**From:** Burnell, Scott  
**Sent:** 12 Sep 2014 11:27:31 -0400  
**To:** Brock, Terry;Mendez-Gonzalez, Sandra;Hannah, Roger;Ledford, Joey  
**Cc:** Ramsey, Kevin  
**Subject:** RE: NFS Public Meeting Sept 30

Roger or Joey if anyone.

---

**From:** Brock, Terry  
**Sent:** Friday, September 12, 2014 11:27 AM  
**To:** Mendez-Gonzalez, Sandra  
**Cc:** Burnell, Scott; Ramsey, Kevin  
**Subject:** FW: NFS Public Meeting Sept 30

Is OPA attending?

---

**From:** Burnell, Scott  
**Sent:** Friday, September 12, 2014 11:07 AM  
**To:** Brock, Terry  
**Subject:** RE: NFS Public Meeting Sept 30

Thanks for the update. Roger or Joey will be there, I imagine.

---

**From:** Brock, Terry  
**Sent:** Friday, September 12, 2014 11:06 AM  
**To:** Mendez-Gonzalez, Sandra  
**Cc:** Tadesse, Rebecca; Burnell, Scott; Ramsey, Kevin  
**Subject:** RE: NFS Public Meeting Sept 30

Sandra,

Here are my slides for the NFS public meeting on 9/30/2014. Scott, RII is hosting a public meeting about NFS in Erwin, TN and the cancer study is one of the topics (FYI).

Terry

---

**From:** Mendez-Gonzalez, Sandra  
**Sent:** Wednesday, September 03, 2014 2:22 PM  
**To:** Brock, Terry  
**Subject:** NFS Public Meeting Sept 30

Terry,

Just a friendly reminder of the presentation draft and the bio for the NFS public meeting. We requested to have both by the end of next week.

Thank you for your support,

***Sandra L. Mendez Gonzalez***

Fuel Facility Inspector  
R-II/Division of Fuel Facilities/Projects Branch 1  
US Nuclear Regulatory Commission  
Marquis One Tower  
245 Peachtree Center Ave., NE Suite 1200  
Atlanta, GA 30303-1257  
Office: 404-997-4707

---

**From:** Mendez-Gonzalez, Sandra  
**Sent:** Tuesday, August 19, 2014 10:45 AM  
**To:** Hickey, James; Ramsey, Kevin; Johnson, Robert; Park, James; Hartland, David; Stancil, Charles; Gody, Tony; Brock, Terry  
**Cc:** Evans, Carolyn; Hannah, Roger; Ledford, Joey; Gamberoni, David; Pelchat, John; Toth, Matthew  
**Subject:** Proposed Agenda for the NFS Public Meeting Sept 30

Please find the attached meeting agenda after the proposed changes of the 8/15 meeting were incorporated. Please review at your convenience, we are getting ready to start finalizing the agenda.

If you are a presenter we would like to have the final presentations by September 12. Please let us know if there are any challenges with that due date. Also we are drafting the presenters bios, so please provide a short bio. I am researching old briefing books for bios. But if you have never provided a bio for NFS, I will need your bio by Sept 12 as well.

Lodging

For those visiting for the 1<sup>st</sup> time we suggest the CARNEGIE HOTEL. It is a local hotel and most of the R2 meeting participants will be staying in this hotel. The hotel has a nice restaurant that we normally have diner after the meeting if you wish to join us. <http://www.carnegiehotel.com/>

There are other options like the Marriott and Hilton chain hotels

<http://www.marriott.com/hotels/travel/trijc-courtyard-johnson-city/>

<http://doubletree3.hilton.com/en/hotels/tennessee/doubletree-by-hilton-hotel-johnson-city-TRIDTDT/index.html>

<http://hamptoninn3.hilton.com/en/hotels/tennessee/hampton-inn-johnson-city-TRIJCHX/index.html>

Thanks for all of the support.

***Sandra L. Mendez Gonzalez***

**Fuel Facility Inspector**

**R-II/Division of Fuel Facilities/Projects Branch 1**

**US Nuclear Regulatory Commission**

**Marquis One Tower**

**245 Peachtree Center Ave., NE Suite 1200**

**Atlanta, GA 30303-1257**

**Office: 404-997-4707**



**From:** Kosti, Ourania  
**Sent:** 11 May 2011 17:27:03 -0400  
**To:** Brock, Terry  
**Subject:** RE: NFS briefing

I am sure you did! Thanks.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 11, 2011 5:23 PM  
**To:** Kosti, Ourania  
**Subject:** RE: NFS briefing

I tried my best, no luck.

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 11, 2011 5:23 PM  
**To:** Brock, Terry  
**Subject:** RE: NFS briefing

Terry,

You probably already know this but NFS will not be briefing us during the Atlanta meeting due to previous engagements. They invited members of the committee to tour their facility. We will discuss with the committee when we meet in Atlanta potential dates for the tour.

Thank you for trying!

Rania

---

**From:** Kosti, Ourania  
**Sent:** Tuesday, May 10, 2011 9:14 AM  
**To:** 'Brock, Terry'  
**Cc:** Shaffer, Vered  
**Subject:** RE: NFS briefing

Absolutely. Thank you for trying. If it helps at all, below are the points the committee would like to hear from the NFS representative.

- Background on the company and facilities
- Monitoring and sampling program and dose assessment (routine and inadvertent)
- Quality assurance of monitoring and dose assessment programs
- Public outreach related to monitoring and sampling

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 10, 2011 9:11 AM  
**To:** Kosti, Ourania  
**Cc:** Shaffer, Vered  
**Subject:** RE: NFS briefing



Rania,

Mark left me a voice message and did not think they would support the Atlanta meeting, but would support a tour at a later date. I still want to talk to him directly and see if I can persuade him to participate. He gave me his cell number and I left him a message. Can you give me a day or two to chat with him?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, May 10, 2011 8:28 AM  
**To:** Brock, Terry  
**Cc:** Shaffer, Vered  
**Subject:** NFS briefing

Hello Terry,

I have not been able to communicate with Mark Elliott, your contact at NFS. He is out of the office till Thursday. I wanted to get your feel from your communication as to whether he is available and committed to participating at the meeting.

Thanks

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Kosti, Ourania  
**Sent:** 3 May 2011 13:22:41 -0400  
**To:** Brock, Terry  
**Subject:** RE: NFS tour

Thank you!  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 03, 2011 12:16 PM  
**To:** Kosti, Ourania  
**Subject:** RE: NFS tour

Hi Rania,  
I should have a name tomorrow—we want to get the right person to make this happen. Kevin also asked for a name from CDC's ATSDR as a possible speaker to discuss how they handle epidemiology studies and cluster investigations around fixed sites. I should have that name soon too.

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, May 02, 2011 3:31 PM  
**To:** Brock, Terry  
**Subject:** RE: NFS tour

Terry,

Thank you for your email. We may need to consult with the committee as to when the tour will be taking place and this may have to wait till we next meet in Atlanta.

On a similar note, can you please send me the contact details of the person from Nuclear Fuel Services that is appropriate to invite to our meeting in Atlanta and brief the committee on the environmental monitoring programs at NFS?

Thank you –  
Rania

---

**From:** Crowley, Kevin  
**Sent:** Friday, April 29, 2011 4:23 PM  
**To:** Brock, Terry; Kosti, Ourania  
**Subject:** RE: NFS tour

Terry:

It won't be the week of the symposium. Rania and I need to talk about the schedule when she returns to the office next week.

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, April 29, 2011 4:19 PM  
**To:** Crowley, Kevin; Kosti, Ourania  
**Subject:** NFS tour

Kevin/Rania,

I'm working the Nuclear Fuel Services (NFS) tour. Do you have a rough estimate when you would like the select members to go? Do you want it the same week as the Atlanta meeting? Week after?

Terry

**From:** Crowley, Kevin  
**Sent:** 26 Apr 2011 06:47:55 -0400  
**To:** Brock, Terry  
**Subject:** Re: NAS study

Terry:

I'm available at 2:00. My direct line is 202-334-3198.

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, April 26, 2011 06:44 AM  
**To:** Crowley, Kevin  
**Cc:** Kostj, Ourania  
**Subject:** RE: NAS study

Kevin,

I would like to discuss the Chicago meeting as well as the forthcoming Atlanta meeting. I'm available this afternoon, is 2 pm ok?

Terry

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Friday, April 22, 2011 12:59 PM  
**To:** Brock, Terry  
**Cc:** Kostj, Ourania  
**Subject:** NAS study

Terry:

Thanks again for your help with this week's committee meeting, especially the USNRC presentations and Dresden/Braidwood tours. The committee was very happy with the meeting, as was I.

We have already begun organizing the next meeting in Atlanta. The committee wants to hear from the ORAU group on the reports that they produced for you. Who would you recommend that we contact to set up a briefing?

Kevin



**From:** Kosti, Ourania  
**Sent:** 7 May 2015 14:47:46 -0400  
**To:** Brock, Terry  
**Subject:** RE: NAS presentation to ASN meeting

Thanks Terry. Are you going to the NCI radiation epi course this year? I recall you saying you are probably not.

I wanted to share with you some personal news--we are waiting for baby no. 2. Boy again!

I hope all is well.

Rania

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]

Sent: Thursday, May 07, 2015 2:45 PM

To: Kosti, Ourania

Subject: RE: NAS presentation to ASN meeting

Hi Rania,

The slides and abstract look good. Sorry I don't have an update for you on the next step. We are still having discussions internally. Have a great trip.

Terry

---

From: Kosti, Ourania [[OKosti@nas.edu](mailto:OKosti@nas.edu)]  
Sent: Tuesday, May 05, 2015 4:29 PM  
To: Brock, Terry  
Cc: Kosti, Ourania  
Subject: NAS presentation to ASN meeting

Hello Terry,

I wanted to share with you the abstract and presentation I have prepared on the Cancer Risk Study to present to the ASN meeting in June. I welcome any comments you may have. I would appreciate it if you could come back to me by the end of this week.

Also, any update on NRC's decision to move forward (or not) with the pilot?

Thanks-I hope all is well!

Rania

Ourania (Rania) Kosti, Ph.D.  
Senior Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
email: [okosti@nas.edu](mailto:okosti@nas.edu)  
phone: 202 334 3066

**From:** Brock, Terry  
**Sent:** 14 Apr 2011 17:32:09 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: more logistics for the tour

I think we will have time to include the Braidwood tour because many of the Dresden environmental samples locations are very close to the Braidwood facility. We could disband from Braidwood and the committee members could go to the airport directly from there.

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, April 14, 2011 1:24 PM  
**To:** Brock, Terry  
**Subject:** RE: more logistics for the tour

Just realized that I made a hybrid of Dresden – Braidwood with my spelling below. Sorry!  
Anyway, if the Braidwood tour is something that we could decide on Wednesday it would be great. We will bring it to the committee Monday-Tuesday.

I talked to the Exelon people and I think we have everything under control.

Thanks!  
Rania

---

**From:** Kosti, Ourania  
**Sent:** Thursday, April 14, 2011 11:43 AM  
**To:** 'Terry.Brock@nrc.gov'  
**Subject:** Re: more logistics for the tour

The majority of the tour participants need to catch 7pm flights. Not sure if we have time for Draisdren but it would be great if we did. Will discuss with Kevin.

The staff will rent 3-4 cars and likely transport the committee to the airport immediately after the tour.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, April 14, 2011 11:30 AM  
**To:** Kosti, Ourania  
**Subject:** RE: more logistics for the tour

I suggest you give them who you have now so they can process the bulk of the folks ahead of time. If you have to substitute one or two on Monday then it should not be a big deal.

Curious, how are you transporting the committee members to the tour? We may have some time in the afternoon while looking at Dresden's environmental monitoring stations to drive to Braidwood and tour where the tritium releases occurred off-site—Braidwood is about twenty minutes from Dresden.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, April 14, 2011 11:27 AM  
**To:** Brock, Terry  
**Subject:** Re: more logistics for the tour

Sure. We will take care of this. It is possible that we will not have the complete list till Monday.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, April 14, 2011 10:59 AM  
**To:** Kosti, Ourania  
**Subject:** more logistics for the tour

Rania,

Exelon needs to do a security pre-screening of the tour attendees. They need each person's social security number, date of birth, and full legal name. Due to PII concerns I think the best way to handle this is for you to communicate directly with Exelon and transfer the information. The contact person at Exelon for you to call is **Jerry Ice at 815-416-2813**

Terry

**From:** Crowley, Kevin  
**Sent:** 8 Jul 2010 14:14:15 -0400  
**To:** Brock, Terry  
**Subject:** Re: minor edit to cancer study prospectus

Terry:

Will do. Our Governing Board will consider the prospectus next week. After they approve it I can make changes like this. I should be able to send you the formal proposal before the end of next week.

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu

---

**From:** Brock, Terry <Terry.Brock@nrc.gov>  
**To:** Crowley, Kevin  
**Sent:** Thu Jul 08 14:09:08 2010  
**Subject:** minor edit to cancer study prospectus

Hi Kevin,

Before you send over the grant proposal could you add the following text in bold:

- Demographic characteristics of the study and control populations (e.g. all age groups, including children **and nuclear facility workers**)

That should take care of the prior issue we discussed.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Crowley, Kevin  
**Sent:** 18 Jan 2011 13:18:38 -0500  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** Re: meeting agenda

Terry:

This looks good. See you tomorrow.

Kevin

Sent from my iPad

On Jan 18, 2011, at 10:31 AM, "Brock, Terry" <[Terry.Brock@nrc.gov](mailto:Terry.Brock@nrc.gov)> wrote:

Hi Kevin,

Here's what we have planned for tomorrow's meeting. Would you like to add anything?

Terry

<NAS staff meeting 011811.docx>

**From:** Brock, Terry  
**Sent:** 3 Mar 2011 19:42:48 +0000  
**To:** 'Kosti, Ourania'  
**Subject:** RE: meeting

Ok, sounds good. I'm at (b)(6). See you on Monday.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 03, 2011 2:41 PM  
**To:** Brock, Terry  
**Subject:** RE: meeting

I like your suggestion. I will be at the NCRP conference for the 1:40 session onwards. I will look for you so that we plan the call with Kevin for 3:30 or around. My cell is 301 471 7189 and I will be receiving emails also.

I am not familiar with NRDCS's work, Tom or his relationship with the current project, so please allow me to consult Kevin first when he is back before I communicate any messages about them. Thank you -

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 03, 2011 2:29 PM  
**To:** Kosti, Ourania  
**Subject:** RE: meeting

Rania,

We could call Kevin from the NCRP meeting, so we don't have to miss the entire afternoon. My iPhone has a speakerphone—it's not great, but it would probably work so we won't miss too much of the NCRP meeting. We would also have to find a room to make the call. How about we scope it out on Monday and if we can secure a room to call let's do it from there. If not, I can go down to NAS to meet.

Thanks for the info about Thom. Kevin recommended him as an NGO member for the panel. I'm curious what his/NRDCS's take will be on the study. Any clues?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 03, 2011 2:05 PM  
**To:** Brock, Terry; Crowley, Kevin  
**Cc:** Greenleaf, Toni  
**Subject:** meeting

Terry and Kevin,

We are good to meet Monday March 7<sup>th</sup> at 3:30 pm. Terry I understand that you prefer to come down, alternatively we can arrange a conference call. Your choice, just let us know, it would be good to see you!

Also, Terry, I talked to your colleague Thomas Cochran on the phone who was seeking basic information on epidemiologic study designs. I hope he found the brief description that I sent him helpful.

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Kosti, Ourania  
**Sent:** 28 Mar 2011 12:28:01 -0400  
**To:** Brock, Terry  
**Subject:** RE: meeting #2 location

Terry,  
I believe the open session will start between 9:00-9:30, but I will get back to you on that when the agenda is finalized.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 28, 2011 10:18 AM  
**To:** Kosti, Ourania  
**Subject:** RE: meeting #2 location

Thanks for the info. What time will the Monday session start?

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 24, 2011 4:03 PM  
**To:** Brock, Terry  
**Subject:** meeting #2 location

Dear Terry,

This is a note to let you know that the committee meeting will be held at the Chicago Marriott Southwest at Burr Ridge. The link is below.

<http://www.marriott.com/hotels/travel/chisw-chicago-marriott-southwest-at-burr-ridge/>

Although the agenda has not been finalized yet, we anticipate that the first day of the meeting (Monday April 18<sup>th</sup>) will be the open sessions day when we receive briefings from the NRC and other institutions/individuals. The second day will most likely be a closed session and on Wednesday there will be an optional tour to the Dresden and Braidwood power plants. I should note that we are still waiting to hear from our contact if touring the facilities is still a possibility.

Also, we are in the process of developing a list of specific topics/questions that the committee would like to hear on from NRC. I will send you that list as soon as we have it finalized.

Thank you,  
Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW



Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Brock, Terry  
**Sent:** 19 Apr 2016 15:22:59 -0400  
**To:** Tadesse, Rebecca  
**Subject:** closeout to cancer study user-need  
**Attachments:** Closeout memo to USER-NEED NSIR2007-001\_041916\_dd.docx

Any edits?

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop TWFN-10  
phone: 301-415-1793

MEMORANDUM TO: Marissa G. Bailey, Director  
Division of Preparedness and Response  
Office of Nuclear Security and Incident Response

FROM: Michael Case, Director  
Division of Systems Analysis  
Office of Nuclear Regulatory Research

SUBJECT: CLOSEOUT OF USER NEED NSIR-2007-001 "ANALYSIS OF  
CANCER RISKS IN POPULATIONS LIVING NEAR NUCLEAR  
FACILITIES"

This memorandum is to inform you that the Office of Nuclear Regulatory Research (RES) is closing User Need NSIR-2007-001 (ML071550069) "Analysis of Cancer Risk in Populations Living near Nuclear Facilities" that originated from your Division. The staff informed the Commission in SECY-15-0104 *Analysis of Cancer Risks in Populations Near Nuclear Facilities Study* (ML15141A404) to cancel the study due to the current budget operating environment and the proposed high costs and length of the National Academy of Sciences' proposed Phase 2 pilot study. As a result, the staff will not be proceeding with the pilot and subsequent nationwide study.

**From:** Brock, Terry  
**Sent:** 20 Feb 2015 08:43:04 -0500  
**To:** Tadesse, Rebecca  
**Subject:** cancer\_study\_pilot\_options\_draft\_02182015.pptx  
**Attachments:** cancer\_study\_pilot\_options\_draft\_02182015.pptx

Pls review for the EDO brief



**From:** Crowley, Kevin  
**Sent:** 25 Mar 2011 15:48:36 -0400  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: Statement\_of\_task\_revised\_031811.docx

Terry:

Rania and I have received some preliminary feedback from the committee on the revised statement of task. The only change that seems to be causing heartburn so far is the addition of the words "if feasible" at the end of the statement. One member commented that the addition of these words makes it look like the NRC is trying to back out of the phase 2 study. There is also a concern that the public might perceive this addition as a lack of commitment by the NRC to following through on the study.

What are your thoughts about this?

Thanks,

Kevin

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, March 25, 2011 3:15 PM  
**To:** Crowley, Kevin  
**Cc:** Kosti, Ourania  
**Subject:** RE: Statement\_of\_task\_revised\_031811.docx

Thanks All.

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Thursday, March 24, 2011 4:35 PM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: Statement\_of\_task\_revised\_031811.docx

Terry:

Thanks for your help with this. Rania's questions reflect our anticipation of issues that are likely to be raised by the committee so we can move forward.

I appreciate the addition you made on "feasibility" at the bottom of the task. Our report will not be of value if it isn't actionable. I see this as a challenge to the committee to identify a way forward that is

practical to implement and that provides useful information for addressing the concerns that are being raised by your stakeholders.

Kevin

**From:** Greenleaf, Toni  
**Sent:** 22 Sep 2014 13:13:34 -0400  
**To:** Brock, Terry  
**Subject:** RE: Phase 1 copies?

Terry, I am going to courier these to your office. They should go out Tuesday (tomorrow) by noon. If you need sooner just let me know and I can put a rush on them. Toni

*Toni Greenleaf*

*The National Academies  
Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077  
Email: tgreenle@nas.edu*

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, September 22, 2014 12:13 PM  
**To:** Greenleaf, Toni  
**Subject:** FW: Phase 1 copies?

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Brock, Terry  
**Sent:** Monday, September 22, 2014 11:42 AM  
**To:** 'Kosti, Ourania'  
**Subject:** RE: Phase 1 copies?

Send it to my address below. I don't have a preference on who sends it.

Thx

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Monday, September 22, 2014 11:38 AM  
**To:** Brock, Terry  
**Cc:** Greenleaf, Toni  
**Subject:** RE: Phase 1 copies?

Terry:

What address should we send the box to? Any preference on FedEx versus courier? Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, September 22, 2014 10:04 AM  
**To:** Kosti, Ourania  
**Subject:** RE: Phase 1 copies?

Pls Do.  
Thx

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]  
**Sent:** Monday, September 22, 2014 10:03 AM  
**To:** Brock, Terry  
**Subject:** RE: Phase 1 copies?

I do. Would you like them sent to you?

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
**Sent:** Monday, September 22, 2014 9:13 AM  
**To:** Kosti, Ourania  
**Subject:** Phase 1 copies?

Hi,

I hope all is well. Do you have about 20 extra copies of Phase 1. I'm all out and people keep asking me for a copy.

Thx,  
Terry  
Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Brock, Terry  
**Sent:** 13 Feb 2015 12:13:56 -0500  
**To:** Rini, Brett  
**Cc:** Tadesse, Rebecca; Moore, Ross  
**Subject:** RE: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Hi Brett,

No WITS Item. Congrats on your new temp gig.

T

---

From: Rini, Brett  
Sent: Friday, February 13, 2015 11:53 AM  
To: Brock, Terry  
Cc: Tadesse, Rebecca; Moore, Ross  
Subject: FW: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Thanks Terry.

I'm going to ask Ross to process this one next week. In the meantime, is there a WITS number associated with this action? I don't think there is but wanted to double check.

Thanks,

Brett

-----Original Message-----

From: Brock, Terry  
Sent: Friday, February 13, 2015 11:47 AM  
To: Rini, Brett  
Cc: Tadesse, Rebecca  
Subject: FW: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Hi Brett, Brian approved this CA note to go up.

Thx,

Terry

---

From: Brock, Terry

Sent: Thursday, February 12, 2015 1:16 PM

To: Sheron, Brian

Cc: West, Steven; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca

Subject: RE: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Here you go. I would have gotten this to you earlier, but my rat terrier ate my homework . . . See you at 3:30.

From: Sheron, Brian

Sent: Wednesday, February 11, 2015 4:09 PM

To: Brock, Terry

Cc: West, Steven; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca

Subject: RE: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Not quite. I re-read it and gave a few more comments to Rebecca.

From: Brock, Terry

Sent: Wednesday, February 11, 2015 1:34 PM

To: Sheron, Brian

Cc: West, Steven; Case, Michael; Coffin, Stephanie; Tadesse, Rebecca

Subject: CA\_NOTE\_Cancer\_Pilot\_Planning study\_2.docx

Brian,

I made your edits to the cancer study CA note (attached). Should be good to go.

**From:** Ramsey, Kevin  
**Sent:** 8 Dec 2014 10:06:30 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Notification of DPC Completion of Processing for ML14339A518

Just in time for the holidays...

---

**From:** Davis, Donna  
**Sent:** Friday, December 05, 2014 2:26 PM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14339A518

[View ADAMS P8 Properties ML14339A518](#)

[Open ADAMS P8 Document \(Environmental Impact Appraisal of Nuclear Fuel Services.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 2 Oct 2014 11:26:46 -0400  
**To:** Brock, Terry;Kosti, Ourania (OKosti@nas.edu);jheimberg@nas.edu  
**Subject:** FW: Notification of DPC Completion of Processing for ML14269A112

This will be available on the public server on 10/6. The normal processing has a 5-day wait time (to catch mistakes). I need to start requesting immediate release.

---

**From:** Davis, Donna

**Sent:** Tuesday, September 30, 2014 8:33 AM

**To:** Ramsey, Kevin

**Subject:** Notification of DPC Completion of Processing for ML14269A112

[View ADAMS P8 Properties ML14269A112](#)

[Open ADAMS P8 Document \(Redacted Letter Responding to Senator Sasser re: Possible Discharge from Nuclear Fuel Services.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 15 Oct 2014 10:15:27 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Notification of DPC Completion of Processing for  
ML14260A298,ML14260A296,ML14260A297

More NFS stuff. These are old records received from the licensee. Quality not great.

---

**From:** DeWolfe, Wendy  
**Sent:** Wednesday, October 15, 2014 8:30 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14260A298,ML14260A296,ML14260A297  
[View ADAMS P8 Properties ML14260A298](#)  
[Open ADAMS P8 Document \(Nuclear Fule Services - Biannual Effluent Monitoring Report for January-June 1988.\)](#)  
[View ADAMS P8 Properties ML14260A296](#)  
[Open ADAMS P8 Document \(Submittal of Effluent Monitoring Report for January through June 1984.\)](#)  
[View ADAMS P8 Properties ML14260A297](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report for July-December 1987.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,  
Wendy  
NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 6 Oct 2014 08:03:56 -0400  
**To:** Brock, Terry;Kosti, Ourania (OKosti@nas.edu);jheimberg@nas.edu  
**Subject:** FW: Notification of DPC Completion of Processing for  
ML14251A300,ML14251A296,ML14251A106,ML14251A108,ML14251A110,ML14251A293

More records.

---

**From:** DeWolfe, Wendy  
**Sent:** Monday, October 06, 2014 7:34 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for  
ML14251A300,ML14251A296,ML14251A106,ML14251A108,ML14251A110,ML14251A293  
[View ADAMS P8 Properties ML14251A300](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1990.\)](#)  
[View ADAMS P8 Properties ML14251A296](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1986.\)](#)  
[View ADAMS P8 Properties ML14251A106](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1979.\)](#)  
[View ADAMS P8 Properties ML14251A108](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1982.\)](#)  
[View ADAMS P8 Properties ML14251A110](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1983.\)](#)  
[View ADAMS P8 Properties ML14251A293](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1984.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 6 Oct 2014 08:02:17 -0400  
**To:** Brock, Terry;Kosti, Ourania (OKosti@nas.edu);Heimberg, Jennifer  
**Subject:** FW: Notification of DPC Completion of Processing for  
ML14251A295,ML14251A297,ML14251A299,ML14251A103,ML14251A104,ML14251A105

See below.

---

**From:** DeWolfe, Wendy  
**Sent:** Monday, October 06, 2014 7:36 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for  
ML14251A295,ML14251A297,ML14251A299,ML14251A103,ML14251A104,ML14251A105

[View ADAMS P8 Properties ML14251A295](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1985.\)](#)

[View ADAMS P8 Properties ML14251A297](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1986.\)](#)

[View ADAMS P8 Properties ML14251A299](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1988.\)](#)

[View ADAMS P8 Properties ML14251A103](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1975.\)](#)

[View ADAMS P8 Properties ML14251A104](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1976.\)](#)

[View ADAMS P8 Properties ML14251A105](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report through June 1979.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 2 Oct 2014 12:48:56 -0400  
**To:** Heimberg, Jennifer;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Notification of DPC Completion of Processing for ML14251A294, ML14251A298, ML14251A107, ML14251A109

Here are 4 more.

---

**From:** Davis, Donna  
**Sent:** Tuesday, September 30, 2014 7:54 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14251A294, ML14251A298, ML14251A107, ML14251A109

[View ADAMS P8 Properties ML14251A294](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1985.\)](#)

[View ADAMS P8 Properties ML14251A298](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1987.\)](#)

[View ADAMS P8 Properties ML14251A107](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1982.\)](#)

[View ADAMS P8 Properties ML14251A109](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January through June 1983.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 7 Oct 2014 15:50:28 -0400  
**To:** Brock, Terry;jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu)  
**Subject:** FW: Notification of DPC Completion of Processing for  
ML14248A619,ML14248A460,ML14248A461,ML14248A463,ML14248A616,ML14248A618,ML14248A45  
8,ML14248A462,ML14248A617

May have missed this one. Sorry.

---

**From:** DeWolfe, Wendy  
**Sent:** Friday, October 03, 2014 8:16 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for  
ML14248A619,ML14248A460,ML14248A461,ML14248A463,ML14248A616,ML14248A618,ML14248A458,  
ML14248A462,ML14248A617  
[View ADAMS P8 Properties ML14248A619](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Additional Information on Effluents for  
January through June 1998.\)](#)  
[View ADAMS P8 Properties ML14248A460](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report  
January through June 1993.\)](#)  
[View ADAMS P8 Properties ML14248A461](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report  
January through June 1995.\)](#)  
[View ADAMS P8 Properties ML14248A463](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report  
January through June 1996.\)](#)  
[View ADAMS P8 Properties ML14248A616](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report  
January through June 1997.\)](#)  
[View ADAMS P8 Properties ML14248A618](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report  
January through June 1998.\)](#)  
[View ADAMS P8 Properties ML14248A458](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July  
Through December 1991.\)](#)  
[View ADAMS P8 Properties ML14248A462](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July  
through December 1995.\)](#)  
[View ADAMS P8 Properties ML14248A617](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July  
through December 1997 and Amendments to Previous Reports.\)](#)  
If you have any questions or require additional information, you may contact the  
ADAMS Customer Support Center by sending an e-mail to ADAMS IM.  
Thanks,  
Wendy  
NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 2 Oct 2014 12:47:15 -0400  
**To:** Heimberg, Jennifer;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Notification of DPC Completion of Processing for ML14248A459

This one should be available now.

---

**From:** Davis, Donna  
**Sent:** Tuesday, September 30, 2014 7:55 AM  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14248A459

[View ADAMS P8 Properties ML14248A459](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July through December 1992.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 14 Aug 2014 15:22:46 -0400  
**To:** Brock, Terry  
**Subject:** FW: National Academy of Sciences' Pilot Planning Study on Cancer Risks near Nuclear Facilities: Schedule Extension  
**Attachments:** National Academy of Sciences' Pilot Planning Study on Cancer Risks near Nuclear Facilities: Schedule Extension

Do you have background on this? Is our search for records part of the reason for the extension?

**From:** Interested parties list for activities pertaining to the Cancer Risk project on behalf of Greenleaf, Toni  
**Sent:** 14 Aug 2014 14:33:03 -0400  
**To:** CANCERRISKSTUDY@LSW.NAS.EDU  
**Subject:** National Academy of Sciences' Pilot Planning Study on Cancer Risks near Nuclear Facilities: Schedule Extension

**Please do NOT respond to this email. Send any emails go [CRS@NAS.EDU](mailto:CRS@NAS.EDU)**

Dear Interested Parties:

In order to finish the activities related to planning for the pilot, the schedule for the National Academy of Sciences' (NAS') Study titled *Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 2 Pilot Planning* has been extended to December 2014.

Please direct comments and questions to the project email: [crs@nas.edu](mailto:crs@nas.edu).

PRESS ONLY: If you are member of the press and have questions regarding this message, please contact Lauren Rugani at [news@nas.edu](mailto:news@nas.edu).

*Toni Greenleaf*

*The National Academies  
Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077*



**From:** Burnell, Scott  
**Sent:** 15 Dec 2014 16:13:17 -0500  
**To:** Brock, Terry  
**Subject:** FW: NAS Phase 2 pilot planning study

FYI

---

**From:** Rugani, Lauren [mailto:LRugani@nas.edu]  
**Sent:** Monday, December 15, 2014 4:13 PM  
**To:** Burnell, Scott; Hiruo, Elaine  
**Subject:** RE: NAS Phase 2 pilot planning study

Hi Elaine,

The report will be made available on Monday, December 29 at 11 a.m. EST.

Lauren

Lauren Rugani · 202-334-3593 · [lrugani@nas.edu](mailto:lrugani@nas.edu)

---

**From:** Burnell, Scott [mailto:Scott.Burnell@nrc.gov]  
**Sent:** Monday, December 15, 2014 2:42 PM  
**To:** Hiruo, Elaine; Rugani, Lauren  
**Subject:** RE: NAS Phase 2 pilot planning study

Hi Elaine;

My understanding is we'll have it soon. My counterpart Lauren Rugani at NAS might have more details. Thanks.

Scott

---

**From:** Hiruo, Elaine [mailto:elaine.hiruo@platts.com]  
**Sent:** Monday, December 15, 2014 2:20 PM  
**To:** Burnell, Scott  
**Subject:** NAS Phase 2 pilot planning study

Hi, Scott.

NAS was supposed to release its Phase 2 pilot planning phase study today. Has it been delivered to NRC?

Thanks.

Elaine Hiruo

Elaine Hiruo

Managing Editor, NuclearFuel



1200 G St NW, 10th Floor, Washington, DC 20005

T +1.202.383.2163 | M (b)(6)

[elaine.hiruo@platts.com](mailto:elaine.hiruo@platts.com)

[www.platts.com](http://www.platts.com)

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**From:** Ramsey, Kevin  
**Sent:** 17 Nov 2014 10:52:30 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release  
ML14311A738,ML14311A732,ML14311A736,ML14311A735,ML14311A733,ML14311A734 Has Been Replicated

Gross! Lots and lots of gross!

---

**From:** DeWolfe, Wendy  
**Sent:** Friday, November 14, 2014 9:35 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release  
ML14311A738,ML14311A732,ML14311A736,ML14311A735,ML14311A733,ML14311A734 Has Been Replicated

[View ADAMS P8 Properties ML14311A738](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for November 1981.\)](#)

[View ADAMS P8 Properties ML14311A732](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for December 1981.\)](#)

[View ADAMS P8 Properties ML14311A736](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for September 1981.\)](#)

[View ADAMS P8 Properties ML14311A735](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for August 1981.\)](#)

[View ADAMS P8 Properties ML14311A733](#)

[Open ADAMS P8 Document \(Meteorological Assessment of NFS Facility.\)](#)

[View ADAMS P8 Properties ML14311A734](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for July 1981.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

TDEC

Rockville, MD 20852

301-415-6558

[wjd1@nrc.gov](mailto:wjd1@nrc.gov)

[www.tdec.com](http://www.tdec.com)

TDEC is a HUBZone Small Business and an ISO 9001:2008 Certified Company

**From:** Ramsey, Kevin  
**Sent:** 17 Nov 2014 10:47:33 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14311A737 Has Been Replicated

Just when you thought it was safe to go back into the e-mail...

---

**From:** Davis, Donna  
**Sent:** Friday, November 14, 2014 12:09 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14311A737 Has Been Replicated

[View ADAMS P8 Properties ML14311A737](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for October 1981.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 17 Nov 2014 11:07:08 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14308A018,ML14308A019,ML14308A017 Has Been Replicated

They just keep "stacking" up.

---

**From:** DeWolfe, Wendy  
**Sent:** Friday, November 14, 2014 8:08 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14308A018,ML14308A019,ML14308A017 Has Been Replicated  
[View ADAMS P8 Properties ML14308A018](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Stack Concentrations for May 1981.\)](#)  
[View ADAMS P8 Properties ML14308A019](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for July 1981.\)](#)  
[View ADAMS P8 Properties ML14308A017](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Release Data and Evaluation of Potential Off-Site Exposure, Dated 03/02/1981.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe  
NRC Document Processing Center  
TDEC  
Rockville, MD 20852  
301-415-6558  
[wjd1@nrc.gov](mailto:wjd1@nrc.gov)  
[www.tdec.com](http://www.tdec.com)

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**From:** Ramsey, Kevin  
**Sent:** 5 Nov 2014 08:08:51 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release  
ML14307B029,ML14307B025,ML14308A026,ML14307B030,ML14307B032 Has Been Replicated

Stacks, stacks, and more stacks.

---

**From:** DeWolfe, Wendy  
**Sent:** Wednesday, November 05, 2014 7:43 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14307B029,ML14307B025,ML14308A026,ML14307B030,ML14307B032  
Has Been Replicated

[View ADAMS P8 Properties ML14307B029](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for November 1982.\)](#)

[View ADAMS P8 Properties ML14307B025](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services Redacted Stack Concentrations for April 1983.\)](#)

[View ADAMS P8 Properties ML14308A026](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services, Inc., Redacted Stack Concentrations for July 1982.\)](#)

[View ADAMS P8 Properties ML14307B030](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for October 1982.\)](#)

[View ADAMS P8 Properties ML14307B032](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Status of Investigative and/or Corrective Actions Taken on Main Process Stacks.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

TDEC

Rockville, MD 20852

301-415-6558

[wjd1@nrc.gov](mailto:wjd1@nrc.gov)

[www.tdec.com](http://www.tdec.com)

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**From:** Ramsey, Kevin  
**Sent:** 5 Nov 2014 09:42:56 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14307B019 Has Been Replicated

Me again.

---

**From:** DeWolfe, Wendy  
**Sent:** Tuesday, November 04, 2014 8:02 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14307B019 Has Been Replicated

[View ADAMS P8 Properties ML14307B019](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for October 1983.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

TDEC

Rockville, MD 20852

301-415-6558

[wjd1@nrc.gov](mailto:wjd1@nrc.gov)

[www.tdec.com](http://www.tdec.com)

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**From:** Ramsey, Kevin  
**Sent:** 28 Oct 2014 12:47:02 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14296A289 Has Been Replicated

The NFS paper mill is still running.

---

**From:** Davis, Donna  
**Sent:** Tuesday, October 28, 2014 12:34 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14296A289 Has Been Replicated  
[View ADAMS P8 Properties ML14296A289](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services, Inc., Submitta lof Summary Report of Impact of Airborne Radioactive Effluent from the Pond 4 Remediation Project.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,  
Donna Davis  
NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 29 Oct 2014 13:26:13 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14296A288 Has Been Replicated

Another brick in the wall.

---

**From:** Davis, Donna  
**Sent:** Wednesday, October 29, 2014 12:33 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14296A288 Has Been Replicated

[View ADAMS P8 Properties ML14296A288](#)

[Open ADAMS P8 Document \(Response to Senator Sasser re: Constituent Concerns About Nuclear Fuel Services.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 3 Nov 2014 09:09:28 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14288A432,ML14288A430 Has Been Replicated

More fuel for the fire.

---

**From:** DeWolfe, Wendy  
**Sent:** Friday, October 31, 2014 7:42 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14288A432,ML14288A430 Has Been Replicated  
[View ADAMS P8 Properties ML14288A432](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Concentrations Released from Plant Stacks for November 1982.\)](#)  
[View ADAMS P8 Properties ML14288A430](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Evaluation of Possible Under-Reporting of Stack Effluent.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

TDEC

Rockville, MD 20852

301-415-6558

[wjd1@nrc.gov](mailto:wjd1@nrc.gov)

[www.tdec.com](http://www.tdec.com)

TDEC is a HUBZone Small Business and an ISO 9001:2008 Certified Company

**From:** Ramsey, Kevin  
**Sent:** 3 Nov 2014 09:11:47 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release  
ML14288A429,ML14288A431,ML14287A252,ML14288A419,ML14287A251,ML14288A414,ML14288A421,ML14287A250,ML14288A424 Has Been Replicated

The goblins were busy on Halloween.

---

**From:** DeWolfe, Wendy  
**Sent:** Friday, October 31, 2014 7:41 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release  
ML14288A429,ML14288A431,ML14287A252,ML14288A419,ML14287A251,ML14288A414,ML14288A421,ML14287A250,ML14288A424 Has Been Replicated  
[View ADAMS P8 Properties ML14288A429](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report for July - December 1986 with Values Not Available in 2/27/87 Report.\)](#)  
[View ADAMS P8 Properties ML14288A431](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - NPDES Permit Discharge Monitoring Report for February 1992.\)](#)  
[View ADAMS P8 Properties ML14287A252](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July - December 1994.\)](#)  
[View ADAMS P8 Properties ML14288A419](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Report of Stack Concentrations for June 1981.\)](#)  
[View ADAMS P8 Properties ML14287A251](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January - June 1994.\)](#)  
[View ADAMS P8 Properties ML14288A414](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Tennessee Report of Monitoring Data.\)](#)  
[View ADAMS P8 Properties ML14288A421](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Gross Alpha Analysis of Environmental Air Samplers for June 1981.\)](#)  
[View ADAMS P8 Properties ML14287A250](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July - December 1993.\)](#)  
[View ADAMS P8 Properties ML14288A424](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Concentrations Released from Main Plant Stack.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,  
Wendy DeWolfe  
NRC Document Processing Center  
TDEC  
Rockville, MD 20852

301-415-6558

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[www.tdec.com](http://www.tdec.com)

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**From:** Ramsey, Kevin  
**Sent:** 29 Oct 2014 07:56:44 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14287A253 Has Been Replicated

Another piece of the puzzle.

---

**From:** DeWolfe, Wendy  
**Sent:** Wednesday, October 29, 2014 7:43 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14287A253 Has Been Replicated

[View ADAMS P8 Properties ML14287A253](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July - December 1996.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

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[www.tdec.com](http://www.tdec.com)

TDEC is a HUBZone Small Business and an ISO 9001:2008 Certified Company



**From:** Ramsey, Kevin  
**Sent:** 30 Oct 2014 08:57:22 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14287A249 Has Been Replicated

And the beat goes on...

---

**From:** DeWolfe, Wendy  
**Sent:** Thursday, October 30, 2014 7:39 AM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14287A249 Has Been Replicated

[View ADAMS P8 Properties ML14287A249](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services, Submittal of Biannual Effluent Monitoring Report for January-June 1992.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy DeWolfe

NRC Document Processing Center

TDEC

Rockville, MD 20852

301-415-6558

[wjd1@nrc.gov](mailto:wjd1@nrc.gov)

[www.tdec.com](http://www.tdec.com)

TDEC is a HUBZone Small Business and an ISO 9001:2008 Certified Company

**From:** Ramsey, Kevin  
**Sent:** 3 Nov 2014 08:57:50 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release ML14287A248 Has Been Replicated

The paper mill is still running.

---

**From:** Davis, Donna  
**Sent:** Thursday, October 30, 2014 12:42 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release ML14287A248 Has Been Replicated

[View ADAMS P8 Properties ML14287A248](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services Submittal of Semi-annual Effluent Monitoring Report for January-June 1991.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Donna Davis

NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 5 Nov 2014 08:32:24 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release Has Been Replicated

Somebody was busy yesterday.

---

**From:** Davis, Donna  
**Sent:** Tuesday, November 04, 2014 12:50 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release Has Been Replicated  
[View ADAMS P8 Properties ML14307B023](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for June 1983.\)](#)  
[View ADAMS P8 Properties ML14307B025](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services Redacted Stack Concentrations for April 1983.\)](#)  
[View ADAMS P8 Properties ML14307B021](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for August 1983.\)](#)  
[View ADAMS P8 Properties ML14308A024](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for February 1982.\)](#)  
[View ADAMS P8 Properties ML14307B026](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for March 1983.\)](#)  
[View ADAMS P8 Properties ML14308A022](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services, Inc., Redacted Stack Concentrations for October 1981.\)](#)  
[View ADAMS P8 Properties ML14308A020](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services, Inc., Sampling for Total Fluoride in Scrubber Stacks.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,  
Donna Davis  
NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 5 Nov 2014 08:25:11 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** FW: Immediate Release Has Been Replicated

A few more bite the dust.

---

**From:** Davis, Donna  
**Sent:** Tuesday, November 04, 2014 2:53 PM  
**To:** Ramsey, Kevin  
**Subject:** Immediate Release Has Been Replicated  
[View ADAMS P8 Properties ML14308A025](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for June 1982.\)](#)  
[View ADAMS P8 Properties ML14308A023](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for January 1982.\)](#)  
[View ADAMS P8 Properties ML14307B020](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for September 1983.\)](#)  
[View ADAMS P8 Properties ML14307B024](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for May 1983.\)](#)  
[View ADAMS P8 Properties ML14308A021](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services, Inc., Redacted Stack Concentrations for September 1981.\)](#)  
[View ADAMS P8 Properties ML14307B022](#)  
[Open ADAMS P8 Document \(Nuclear Fuel Services - Redacted Stack Concentrations for July 1983.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,  
Donna Davis  
NRC Document Processing Center



**From:** Ramsey, Kevin  
**Sent:** 2 Oct 2014 08:11:20 -0400  
**To:** Johnson, Robert;Blamey, Alan;Erlanger, Craig;Bailey, Marissa;Moore,  
Scott;Haney, Catherine  
**Cc:** Diaz, Marilyn;Park, James;Brock, Terry;Stancil, Charles;Hickey, James;Hartland,  
David  
**Subject:** FW: Comment from member of the public re: NFS meeting  
**Attachments:** Comment from member of the public re: NFS meeting

See attached. Park Overall was upset after the public meeting. She called OGC to complain.

**From:** Burnell, Scott  
**Sent:** 8 Sep 2015 09:14:09 -0600  
**To:** Brock, Terry  
**Subject:** Comment regarding today's announcement

Linda Seeley from the San Onofre area disapproves of the decision. She asked me to pass that along.

**From:** Ramsey, Kevin  
**Sent:** 21 Aug 2014 11:47:32 -0400  
**To:** Brock, Terry  
**Subject:** Archive Records for NFS Cancer Study Pilot  
**Attachments:** Archive Records for NFS Cancer Study Pilot.docx

Here's the final list of records we pulled from the boxes. I had no notes for 2 boxes, but you put a sticky note on them so I assume there were effluent records. I plan to start pulling the 6-month effluent reports and go from there.

## Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
431-01-1210	27	Assume no effluent records (Reviewed by Terry)	
431-01-1210	28	Aerial Radiological Measuring Survey (ARMS) Support Summary	07/03/1969
		Independent Measurement Program Report, July – October 1969	07/10/1970
		Note to File re: Management Meeting on July 30, 1970	08/05/1970
		Amendment Request to Change Location of Surface Water Samples	05/07/1969
		Note to File re: Compliance Inspection Report dated 02/07/1969	02/14/1969
		Compliance Inspection Report	02/06/1969
		Report of Uranium Losses, BPID and Inventory for NFS as of 12/31/1968	02/28/1969
431-01-1210	29	Detailed Description of Waste Management Program	10/4/71
431-01-1210	30	Memo transmitting first two reports of Independent Measurement Program	03/02/1970
		Enclosure 1 - Independent Measurement Program Report, July 1968 – March 1969	Undated
		Enclosure 2 - Independent Measurement Program Report, April – June 1969	Undated
		Letter responding to Senator Sasser re: Possible Discharge from NFS	07/26/1978
		Independent Measurement Program Report, July – October 1969	July 1970
431-01-1210	31	Compliance Inspection Report for NFS	5/5/69
		Compliance Inspection Report for NFS	3/3/70
		Draft Environmental Information Report for NFS	6/30/75
431-01-1210	32	Inspection Report 70-143/71-01	7/22/71
		Response to NRC Comments on Environmental Information Report Supporting Application for License Renewal	11/1/76
		Environmental Impact Appraisal of NFS	January 1978
431-01-1210	33	Process Flow Sheets and Summary of Waste Water Discharges	05/12/1976
		Tennessee Report of Monitoring Data for NFS	08/30/1976
		NFS Effluent Monitoring Report July – December 1975	02/26/1976



Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
=====	=====	=====	=====
431-01-1277	2	No effluent records	
431-01-1277	3	No effluent records	
=====	=====	=====	=====
431-03-0116	1	Revised Pages for Environmental Information report for NFS	11/3/76
		Responses to NRC Comments on Environmental Information Report for NFS	1/17/77
		Effluent Monitoring Report, July – December 1976	2/9/77
431-03-0116	2	Effluent Monitoring Report, July – December 1979	2/26/80
		Evaluation of Remedial Actions and Alternatives for Soil Contamination North of Site	6/6/80
		Withholding of Inspection Report 70-143/80-01 including Union Carbide Report "Analysis of Ventilation Scrubbers and Gaseous Effluent Measurement Systems"	7/9/80
		Letter Releasing Land Adjacent to Clinchfield Railroad for Unrestricted Use	9/18/80
		Report that U-234 Concentration in Scrubber Stack of Building 233 Exceeded Limit	10/30/80
		Report of Coorective Actions on Main Process Stacks and Daily Air Concentrations	12/9/80
		Evaluation of Stacks at NFS	1/30/81
		Stack Release Data and Evaluation of Potential Offsite Exposure	3/2/81
		Stack Concentrations for May 1981	6/12/81
		Stack Concentrations for June 1981	7/15/81
		Gross Alpha Analysis of Environmental Air Samplers for June 1981	7/21/81
		Gross Alpha Analysis of Environmental Air Samplers for July 1981	8/12/81
		Stack Concentrations for July 1981	8/13/81
		Gross Alpha Analysis of Environmental Air Samplers for August 1981	9/15/81
		Sampling for Total Fluoride in Scrubber Stacks	9/29/81
		Stack Concentrations for September 1981	10/14/81
		Gross Alpha Analysis of Environmental Air Samplers for September 1981	10/14/81

Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
		Gross Alpha Analysis of Environmental Air Samplers for October 1981	11/11/81
		Stack Concentrations for October 1981	11/13/81
		Gross Alpha Analysis of Environmental Air Samplers for November 1981	12/15/81
		Meteorological Assessment of NFS	1/15/82
		Gross Alpha Analysis of Environmental Air Samplers for December 1981	1/25/82
		Stack Concentrations for January 1982	2/15/82
		Stack Concentrations for February 1982	3/15/82
		Stack Concentrations for June 1982	7/16/82
		Stack Concentrations for July 1982	8/13/82
		Effluent Monitoring Report, January – June 1982	8/16/82
		Stack Concentrations for October 1982	11/17/82
		Stack Concentrations for November 1982	12/14/82
		Effluent Monitoring Report, July – December 1982	2/24/82
		Stack Concentrations for February 1983	3/15/83
		Stack Concentrations for March 1983	4/14/83
		Stack Concentrations for April 1983	5/13/83
		Stack Concentrations for May 1983	6/14/83
		Stack Concentrations for June 1983	7/13/83
		Stack Concentrations for July 1983	8/11/83
		Stack Concentrations for August 1983	9/13/83
		Stack Concentrations for September 1983	10/12/83
		Stack Concentrations for October 1983	11/15/83
		Concentrations Released from Main Stack	4/24/84
		Groundwater Monitoring Report	8/17/84
431-03-0116	3	Groundwater Monitoring Report	10/29/84
		Groundwater Monitoring Report	11/20/84
		Effluent Monitoring Report, July – December 1984	2/28/85
		Groundwater Monitoring - 1984 Annual Summary	4/1/85
		Groundwater Monitoring Report	4/9/85
		Groundwater Monitoring Report	4/19/85
		Groundwater Monitoring Report	6/7/85
		Groundwater Monitoring Report	8/9/85
		Groundwater Monitoring Report	8/29/85



Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
		Effluent Monitoring Report, January – June 1985	8/29/85
		Groundwater Monitoring Report	10/1/85
		NRC/Tennessee/NFS Triple Split Results for NFS Onsite Sewer	12/13/85
		NFS Stack Effluent Study	1/22/86
		Effluent Monitoring Report, July – December 1985	2/28/86
		Evaluation of Possible Under-reporting of Stack Effluent	3/4/86
		Groundwater Monitoring Report	3/6/86
		Groundwater Monitoring Report (enclosure only)	3/31/86
		Groundwater Monitoring - 1985 Annual Summary	4/2/86
		Groundwater Monitoring Report	7/8/86
		Groundwater Monitoring Report	8/4/86
		Effluent Monitoring Report, January – June 1986	8/29/86
		Groundwater Monitoring Report	9/29/86
		Groundwater Monitoring Report	12/16/86
		Groundwater Monitoring Report	1/16/87
		Effluent Monitoring Report, July – December 1986	2/27/87
		TN report of Sludge Samples from Erwin Sewage Treatment Plant Between March 1986 and January 1987	3/20/87
		Groundwater Monitoring Report	3/17/87
		Revised Effluent Monitoring Report, July – December 1986	3/24/87
		Groundwater Monitoring - 1986 Annual Summary	4/2/87
		TN letter re: Decreasing Activity in Erwin Sludge	4/2/87
		Groundwater Monitoring Report	4/16/87
		Groundwater Monitoring Report	4/29/87
		Groundwater Monitoring Report	6/3/87
		Groundwater Monitoring Report	8/10/87
		Effluent Monitoring Report, January – June 1987	8/28/87
		Groundwater Monitoring Report	11/9/87
431-03-0116	4	Effluent Monitoring Report, July – December 1988	3/1/89
		Effluent Monitoring Report, January – June 1990	8/31/90
431-03-0116	5	NPDES Monitoring Report for August 1991	10/10/1991
		Effluent Monitoring Report, July – December 1991	2/28/1992

## Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
		NPDES Monitoring Report for Feb 1992	3/13/1992
		NPDES Monitoring Report for May 1992	6/12/1992
		Response to NPDES Violation, Description of Discharge to Storm Water Drainage Ditch	8/20/1992
		NPDES Monitoring Report for August 1992	10/8/1992
		NPDES Monitoring Report for September 1992	10/15/1992
		NPDES Monitoring Report for October 1992	11/15/1993
		NPDES Monitoring Report for November 1992	12/15/1992
		NPDES Monitoring Report for December 1992	1/15/1993
		NPDES Monitoring Report for January 1993	2/15/1993
		NPDES Monitoring Report for February 1993	3/15/1993
		NPDES Monitoring Report for March 1993	4/15/1993
		NPDES Monitoring Report for April 1993	5/15/1993
		NPDES Monitoring Report for May 1993	6/15/1993
		Effluent Monitoring Report, July – December 1992	3/1/1993
		EA and FONSI for amendment to authorize processing of material containing HEU and thorium carbide	7/27/1993
		EA and FONSI for Research and Development Laboratory Project	7/28/1993
		Effluent Monitoring Report, January – June 1993	8/27/1993
		NPDES Monitoring Report for August 1993	9/15/1993
		Storm Water Monitoring Report, 10/1/92 – 9/30/93	10/29/1993
		Quarterly RFI Progress Report for HSWA permit	10/18/1993
		Quarterly RFI Progress Report for HSWA permit	1/14/1994
		Quarterly RFI Progress Report for HSWA permit	4/14/1994
		NPDES Monitoring Report for January 1994	2/15/1994
		NPDES Monitoring Report for February 1994	3/15/1994
		NPDES Monitoring Report for March 1994	4/15/1994
		NPDES Monitoring Report for April 1994	5/13/1994
		NPDES Monitoring Report for May 1994	6/15/1994
431-03-0116	6	Effluent Monitoring Report, January – June 1995	8/29/95
		Effluent Monitoring Report, July – December 1995	2/29/96
		Effluent Monitoring Report, January – June 1996	8/22/96
		Effluent Monitoring Report, January – June 1997	8/29/97



Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
		Effluent Monitoring Report, July – December 1997	2/27/98
		Effluent Monitoring Report, January – June 1998	8/28/98
431-03-0116	7	Additional Information on Effluents for First Six Months of 1998	9/28/98
		KAST Fuel Manufacturing Process – Revised response to NRC Questions	10/1/98
431-03-0116	8	No effluent records	
431-03-0116	9	Effluent Monitoring Report, January – June 1979	8/31/79
		Inspection Report 70-143/80-18, Environmental Protection and Emergency Response	9/15/80
		Report of Stack Monitoring - November 1982	12/14/83
431-03-0116	10	Report of Stack Monitoring – December 1982	1/17/83
		Report of Stack Monitoring – January 1983	2/11/83
		Report of Stack Monitoring – February 1983	3/15/83
		Report of Stack Monitoring – March 1983	4/14/83
		Report of Stack Monitoring – April 1983	5/13/83
		Report of Stack Monitoring – June 1983	7/13/83
		Report of Stack Monitoring – July 1983	8/11/83
		Effluent Monitoring Report, January – June 1983	8/31/83
		Inspection Report 70-143/85-07, Counting Room Quality Control, Waste Management, and Environmental Monitoring	3/25/85
		Assessment of Dose to Persons from Sewage Sludge from Erwin Publicly Owned Treatment Works (POTW)	undated
		Inspection Report 70-143/96-05, Augmented Inspection Team (AIT) investigation of Incinerator Fire in 300 Complex on April 2, 1996	undated (May 1996)
431-03-0116	12	Environmental Impact Appraisal for NFS	Jan 1978
		Letter from NFS transmitting Environmental Report	7/27/1984
431-03-0116	13	Assume no effluent records (reviewed by Terry)	

Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
431-03-0116	14	Update to Section 13, Part II of License SNM-124	8/15/89
431-03-0116	15	Hydrogeologic Characterization Study of NFS, Volume 1, Technical Overview	March 1989
431-03-0116	16	Finding of No Significant Impact and Notice of Opportunity for a Hearing re: Renewal of License SNM-124, Nuclear Fuel Services, Erwin, TN	8/13/91
431-03-0116	17	Confirmatory Sampling Work Plan for Solid Waste Management Units (SWMU) 8 and 11 at NFS	2/9/93
		RCRA Facility Investigation Phase II Sampling and Analysis Work Plan for SWMU 2, 4, and 6 at NFS	2/11/93
		RCRA Facility Investigation Work Plan for NFS	5/26/93
		RCRA Facility Investigation Sampling and Analysis Work Plan for SWMU 1 and AOC 5 at NFS	5/26/93
		RCRA Facility Investigation Sampling and Analysis Work Plan for SWMU 1 and AOC 5 at NFS	9/14/93
		Confirmatory Sampling Report for SWMU 8 and 11 at NFS	11/30/93
431-03-0116	18	No effluent records.	
431-03-0116	19	Revised Table 13.1 in Part II of License SNM-124	7/9/95
431-03-0116	20	No effluent records	
431-03-0116	21	Update to Chapter 13 (Environmental Safety) in Part II of License SNM-124	6/10/96
		Environmental Report for Renewal of License SNM-124	December 1996
431-03-0116	22	No effluent records	
431-03-0116	23	Draft Environmental Assessment for Renewal of SNM-124	June 1998
431-03-0116	24	Environmental Assessment for Renewal of SNM-124	July 1998



Documents Identified in Archive Boxes for Nuclear Fuel Services (Docket 07000143)

Accession No.	Box No.	Subject	Date
431-03-0116	26	No effluent records	
431-03-0116	27	No effluent records	
=====	=====	=====	=====
431-03-0186	1	Letter to Senator Sasser re: Response to Constituent Concerns	11/4/92
431-03-0186	2	Letter submitting plan for remediating Pond 4 including estimate of worker and public dose and potential groundwater impact	2/8/1995
431-03-0186	3	No effluent records Note: North Site Characterization Report, 11/20/97, Accession 9711240097, (very thick, didn't copy)	
431-03-0186	4	No effluent records	

**From:** Ramsey, Kevin  
**Sent:** 3 Nov 2014 08:43:19 -0500  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** Accidental releases at NFS

With the current difficulty releasing detailed inspection reports, I believe this may be the best way to provide you information concerning significant, accidental releases at NFS. Fuel facilities are addressed in Section 2.2 and you may want to read through it just to understand how we organize different processes.

Note: NFS is a fuel fabrication facility making uranium fuel (Section 2.2.5), but you will want to start with discussion of conversion facilities (Section 2.2.3). That is because the primary concern at a conversion facility is the release of UF<sub>6</sub> and the most significant NFS accidents are discussed in Section 2.2.3 because they involved the release of UF<sub>6</sub>.

[View ADAMS P8 Properties ML062020791](#)

[Open ADAMS P8 Document \(NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees, Final Report."\)](#)



**From:** Chapman, Gregory  
**Sent:** 23 May 2012 13:25:42 -0400  
**To:** Brock, Terry  
**Subject:** NAS study

Hi Terry,

Finally got some feedback from the help you requested of me last week. 1<sup>st</sup>, I never did hear back from Gina...apparently similar to your efforts based on what you had mentioned. I'd guess you should assume no comments from R2. Also, Cathy Haney is definitely on board with respect to inclusion of NFS in the NAS study so it has NMSS management support.

**Greg Chapman** PE, CHP  
301-492-3106  
U.S. Nuclear Regulatory Commission  
NMSS-FCSS-UEB

**From:** Ramsey, Kevin  
**Sent:** 27 Oct 2014 09:03:23 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** More NFS stuff

See ML number below.

---

**From:** DeWolfe, Wendy

**Sent:** Monday, October 27, 2014 8:15 AM

**To:** Ramsey, Kevin

**Subject:** Immediate Release ML14297A284 Has Been Replicated

[View ADAMS P8 Properties ML14297A284](#)

[Open ADAMS P8 Package \(Redacted Memo Transmitting First Two Reports of Independent Measurements Program for Nuclear Fuel Services.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center

**From:** Ramsey, Kevin  
**Sent:** 20 Oct 2014 11:18:36 -0400  
**To:** jheimberg@nas.edu;Kosti, Ourania (OKosti@nas.edu);Brock, Terry  
**Subject:** More NFS records  
**Attachments:** Notification of DPC Completion of Processing for ML14260A302, Notification of DPC Completion of Processing for ML14260A301, Notification of DPC Completion of Processing for ML14260A299,ML14260A300

See ADAMS numbers attached.

**From:** DeWolfe, Wendy  
**Sent:** 17 Oct 2014 09:33:09 -0400  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14260A302

[View ADAMS P8 Properties ML14260A302](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services, Submittal of Biannual Effluent Monitoring Report for July-Decemeber 1999.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center



**From:** DeWolfe, Wendy  
**Sent:** 17 Oct 2014 09:32:31 -0400  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14260A301

[View ADAMS P8 Properties ML14260A301](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Bi-Annual Effluent Monitoring Report for July-December 1990.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center

**From:** DeWolfe, Wendy  
**Sent:** 17 Oct 2014 09:12:08 -0400  
**To:** Ramsey, Kevin  
**Subject:** Notification of DPC Completion of Processing for ML14260A299,ML14260A300

[View ADAMS P8 Properties ML14260A299](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report January - June 1989.\)](#)

[View ADAMS P8 Properties ML14260A300](#)

[Open ADAMS P8 Document \(Nuclear Fuel Services - Biannual Effluent Monitoring Report July - December 1989.\)](#)

If you have any questions or require additional information, you may contact the ADAMS Customer Support Center by sending an e-mail to ADAMS IM.

Thanks,

Wendy

NRC Document Processing Center

**From:** Kosti, Ourania  
**Sent:** 19 May 2011 20:14:16 -0400  
**To:** Brock, Terry  
**Subject:** May 20th\_version of agenda  
**Attachments:** Atlanta\_agenda\_public\_May\_20.pdf

Terry,

Attached is the current version of the agenda, please share with your colleagues. It will be made public tomorrow.

Please let me know of any confirmed changes to the presenters and I will make sure they are announced the day of the meeting.

Also, as we discussed, tomorrow I will have from you the:

- fuel cycle presentation
- name, number of the person will be calling in

Best,  
Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

## **Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 1**

**Third Committee Meeting: May 23-24, 2011**

**Atlanta, Georgia**

**Renaissance Concourse Atlanta Airport Hotel**

**One Hartsfield Centre Parkway, Atlanta, Georgia, 30354**

**Phone: 1-404-209-9999**

**Monday, May 23, 2011**

### **DATA GATHERING SESSION: OPEN TO THE PUBLIC, Concourse D**

- 8:30 am      **Call to order and welcome**  
*John Burris, committee chair*
- 8:40 am      **Uranium Recovery Regulations and Operations**  
*Elise Striz, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission*
- 9:00 am      **Questions and discussion**
- 9:20 am      **Fuel Cycle Facilities**  
*Dennis Damon and John Pelchat, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission*
- 9:40 am      **Questions and discussion**
- 9:50 am      **ATSDR's approach to site assessment and epidemiologic considerations for multisite studies**  
*Steve Dearwent, Epidemiologist, Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services, Centers for Disease Control and Prevention*
- 10:10 am     **Questions and Discussion**
- 10:20 am     **BREAK**
- 10:35 am     **Dose reconstruction in the epidemiologic study of the possible effect of ionizing radiation deriving from the operation of Spanish nuclear power plants and fuel cycle facilities**  
*Lucila Ramos, Deputy Director for Environmental Radiation Protection, Nuclear Safety Council (CSN), Spain*



May 20 version

- 10:55 am      **Questions and Discussion**
- 11:05 am      **Exposure to ionizing radiations arising from the operation of nuclear installations and its possible relationship with cancer mortality in Spain**  
*Gonzalo López Abente, National Center for Epidemiology. Carlos III Institute of Health, Spain*
- 11:25 am      **Questions and Discussion**
- 11:35 am      **General Discussion**
- 11:50 am      **Adjourn morning data gathering session**

**DATA GATHERING SESSION: OPEN TO THE PUBLIC, Concourse D**

- 1:00 pm      **Cancer risks near nuclear facilities: the importance of research design and explicit study hypotheses**  
*Steve Wing, Associate Professor, Department of Epidemiology, University of North Carolina-Chapel Hill*
- 1:20 pm      **Questions and discussion**
- 1:30 pm      **Challenges for the historical dose reconstruction of US nuclear power plants (round table discussion)**  
*John Till, President, Risk Assessment Corporation*
- 1:50 pm      **Questions and discussion**
- 2:00 pm      **Modeling for Environmental Radiation Dose Reconstruction**  
*Bruce Napier, Staff Scientist, Energy and Environment Division, Pacific Northwest National Laboratory*
- 2:20 pm      **Questions and discussion**
- 2:30 pm      **Designing large scale case-control studies**  
*Dana Flanders, Professor, Department of Environmental Health Epidemiology, Rollins School of Public Health, Emory University*
- 2:50 pm      **Questions and discussion**
- 3:00 pm      **BREAK**
- 3:15 pm      **Overview of the National Program of Cancer Registries (NPCR)**  
*Christie Ehemann, Chief, Cancer Surveillance Branch, Centers for Disease Control and Prevention*

- 3:35 pm      **Questions and discussion**
- 3:45 pm      **Overview of the Surveillance, Epidemiology and End Results (SEER) registry**  
*Kevin Ward, Georgia Center for Cancer Statistics, Rollins School of Public Health, Emory University (on behalf of: Brenda Edwards, Associate Director, Surveillance Research Program, National Cancer Institute)*
- 4:05 pm      **Questions and discussion**
- 4:15 pm      **The Georgia Cancer Registry – A State’s Perspective**  
*Kevin Ward, Georgia Center for Cancer Statistics, Rollins School of Public Health, Emory University*
- 4:35 pm      **Questions and discussion**
- 4:45 pm      **General Discussion**
- 5:00 pm      **Opportunity for public comments**  
(signup sheet provided in the room)
- 5:30 pm      **Adjourn data-gathering session open to the public**

**DATA GATHERING SESSION: OPEN TO THE PUBLIC, Concourse D**

- 7:30 pm      **Opportunity for public comments**
- Opening remarks  
*John Burriss, committee chair;*
  - Public comments (signup sheet provided in the room)
- 9:00 pm      **Adjourn data-gathering session open to the public**

**From:** Kosti, Ourania  
**Sent:** 30 Jun 2011 13:31:07 -0400  
**To:** Brock, Terry  
**Subject:** lunch at the Beckman Center

Terry,

Quick note to say that we will be providing lunch to you and your NRC colleagues that are coming to the meeting at the Beckman Center, Thursday July 21. I trust that it will be more satisfying than the lunch in Atlanta as it will be at the Center's cafeteria. Also, we invite the San Onofre employees that are attending the meeting to have lunch at the Beckman Center. It would be very helpful if you could give us a feel on how many are attending from the USNRC and plant.

Cheers,  
Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Ramsey, Kevin  
**Sent:** 29 Jun 2015 14:48:35 -0400  
**To:** Brock, Terry  
**Subject:** Left copy of concurrence page on your chair - eom



**From:** Crowley, Kevin  
**Sent:** 16 Mar 2011 12:54:54 -0400  
**To:** Brock, Terry  
**Subject:** Judt left white flint

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; [kcrowley@nas.edu](mailto:kcrowley@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 2 Feb 2012 09:53:20 -0500  
**To:** Brock, Terry  
**Subject:** information digest received

Thank you very much. Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Kosti, Ourania  
**Sent:** 14 Mar 2011 11:35:13 -0400  
**To:** Brock, Terry  
**Subject:** RE: cancer risk study; meeting dates

I will do so!  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 14, 2011 11:35 AM  
**To:** Kosti, Ourania  
**Subject:** RE: cancer risk study; meeting dates

Ok. Please let me know about next months meeting as soon as you can.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, March 14, 2011 11:32 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin; Shaffer, Vered  
**Subject:** RE: cancer risk study; meeting dates

Terry,  
Please give us a bit more time and we will come back to you with the general presentation topics as well as a list of specific questions that the committee would like to get educated on.

Thank you-  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, March 14, 2011 11:25 AM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin; Shaffer, Vered  
**Subject:** RE: cancer risk study; meeting dates

For planning purposes do you know what presentations you'll need from NRC staff at the meetings. I'll need to coordinate travel for the specific content experts.

Thanks,  
Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, March 14, 2011 11:11 AM  
**To:** Brock, Terry  
**Cc:** Crowley, Kevin  
**Subject:** cancer risk study; meeting dates

Hello Terry,  
Please see table below for the schedule of the committee meetings.

	<b>location</b>	<b>dates</b>
Meeting #2	Chicago	April 18-19, 2011
Meeting #3	Atlanta	May 23-24, 2011
Meeting #4	Los Angeles	July 20-21, 2011
Meeting #5	NAS facility TBD (CA, DC or MA)	August 29-30, 2011
Meeting #6 (optional)	TBD	TBD

We will plan on having a nuclear facility tour the day before or after the meeting. I will let you know of those dates when I know more.

Hope all is well!  
Rania

Ourania (Rania) Kostis, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu



**From:** Greenleaf, Toni  
**Sent:** 5 Feb 2013 10:54:08 -0500  
**To:** Brock, Terry  
**Subject:** RE: Cancer Risk Phase 2 Pilot Planning proposal

I will send you the information shortly.

Toni Greenleaf  
Nuclear and Radiation Studies Board  
202/334-3066  
Fax: 202/334-3077

-----Original Message-----

From: Brock, Terry [<mailto:Terry.Brock@nrc.gov>]  
Sent: Tuesday, February 05, 2013 10:54 AM  
To: Greenleaf, Toni  
Subject: RE: Cancer Risk Phase 2 Pilot Planning proposal

Got it Toni. Will you let me know when Rania has her baby? Thanks, Thanks, Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

-----Original Message-----

From: Greenleaf, Toni [<mailto:TGreenle@nas.edu>]  
Sent: Monday, February 04, 2013 6:55 PM  
To: Dempsey, Heather  
Cc: Brock, Terry; Kosti, Ourania  
Subject: Cancer Risk Phase 2 Pilot Planning proposal

Ms. Dempsey,

Per Terry Brock's instructions I am attaching the proposal that Terry has been talking to Ourania Kosti about for Phase 2 of the Cancer Risk Project: Pilot Planning.

Please do let us know if you have any questions.

A hard copy of this will be mailed to you as well.

Toni Greenleaf  
Financial Associate  
Nuclear and Radiation Studies Board  
The National Academies  
500 5th Street, NW K683  
Washington, DC 20001  
202 334 3066

**From:** Kosti, Ourania  
**Sent:** 17 Mar 2011 15:39:39 -0400  
**To:** Brock, Terry  
**Subject:** RE: ATSDR Public Health Assessment Paradigm

Thank you Terry,  
I did go to these sites this morning and I see how their efforts are related to what our committee has been asked to do.  
Thank you for sharing –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 17, 2011 3:34 PM  
**To:** Kosti, Ourania  
**Cc:** Crowley, Kevin  
**Subject:** ATSDR Public Health Assessment Paradigm

Rania,

As discussed yesterday. Below are two links to the CDC-ATSDR on their public health assessment process. Their systematic approach to evaluating sites and the use of exposure/dose investigations to inform whether or not to perform an epidemiological study may be useful to the committee.

Overview [http://www.atsdr.cdc.gov/hac/pha/pha\\_foreword.asp](http://www.atsdr.cdc.gov/hac/pha/pha_foreword.asp)

Guidance <http://www.atsdr.cdc.gov/HAC/phamannual/index.html>

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 6 Jun 2011 14:34:18 -0400  
**To:** Brock, Terry  
**Subject:** RE: Atlanta slides and San Onofre tour

Terry,

The presentations are up. I apologize in advance, there are some issues with our web pages (not communicating), but the link below will take you there.

<http://dels.nas.edu/Past-Events/Analysis-Cancer-Risks-Populations/DELS-NRSB-10-02/5279>

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, May 31, 2011 10:36 AM  
**To:** Kosti, Ourania  
**Subject:** Atlanta slides and San Onofre tour

Hi Rania,

2 questions:

- 1) Do you know when the Atlanta meeting slides will be posted on the study website? We received some requests for slides and would like to point them to the site.
- 2) I wanted to confirm that the committee would prefer to tour the San Onofre nuclear power plant on Wednesday, July 19<sup>th</sup>?

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Crowley, Kevin  
**Sent:** 25 May 2011 20:51:36 -0400  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** Re: Atlanta meeting recap.

Hi Terry:

I'll try to join in on Friday if I can break free.

Kevin

---

Kevin D. Crowley, PhD  
NRSB/National Academies  
202-334-3066; kcrowley@nas.edu

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 25, 2011 02:59 PM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Cc:** Shaffer, Vered <Vered.Shaffer@nrc.gov>  
**Subject:** RE: Atlanta meeting recap.

Friday at 2 works for me. I'll call you since I'll probably be in a conference room when I make the call and don't know the number.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 25, 2011 2:57 PM  
**To:** Brock, Terry; Crowley, Kevin  
**Cc:** Shaffer, Vered  
**Subject:** RE: Atlanta meeting recap.

Hello Terry,

We thought it was a good meeting and the closed session was indeed very productive. I can tell you that whole day tomorrow and half day Friday both Kevin and I will be at our bi-annual NRSB Board meeting, therefore will not be available to talk. I am available Friday 2pm onwards to discuss if this works for you; I will need to confirm with Kevin if he is available also. You may remember that Kevin will be out of the office next week.



Thank you –  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 25, 2011 2:47 PM  
**To:** Kosti, Ourania; Crowley, Kevin  
**Cc:** Shaffer, Vered  
**Subject:** Atlanta meeting recap.

Rania/Kevin,

Good meeting in Atlanta. It was a content rich day, I hope the closed session was productive. Are you available tomorrow afternoon to discuss what was covered in the closed session? How does 2:30 – 3:30 work? I would also like to provide some feedback on what I heard during the meeting, some suggestions for the LA meeting, and confirm ongoing/forthcoming NRC action items to support the committee—e.g., survey of state environmental monitoring programs, NFS tour, San Onofre reactor tour, effluent and dose reports for uranium recovery and other fuel cycle facilities.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

**From:** Kosti, Ourania  
**Sent:** 16 Dec 2014 08:38:51 -0500  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

Yes, no problem.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, December 16, 2014 8:37 AM  
**To:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Hi Rania,

Rebecca has a meeting at 1030. Could you be here at 9:00 for the meeting?

Thx

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, December 15, 2014 11:17 AM  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I confirm the following schedule:

- Monday, December 22, 10 AM: NAS staff pre-briefs the sponsor
- Tuesday, December 23, 1 PM: Committee Chair briefs the sponsor via conference call
- Monday, December 29, 11 AM: Release of report to the public

Rania Kosti

---

**From:** Kosti, Ourania  
**Sent:** Saturday, December 13, 2014 12:37 PM  
**To:** 'Brock, Terry'  
**Cc:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I will provide the final confirmation Monday but I am confident we will provide the briefings in December as shown in the schedule below.

Revised schedule

- Monday, December 22, 10 AM: NAS staff pre-briefs the sponsor
- Tuesday, December 23, 1 PM: Committee Chair briefs the sponsor via conference call

Rania

---

**From:** Kosti, Ourania  
**Sent:** Tuesday, December 09, 2014 4:08 PM  
**To:** 'Brock, Terry'  
**Cc:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I wanted to give you a heads up that I am trying to reschedule the release of the report for later in December but it may not be possible to line up congressional staff for the required pre-release briefings. If that ends up being the case NAS may need to delay the release of the report (and therefore briefings to the sponsor and congressional staff) to January.  
I will let you know as soon as I hear from the NAS.

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]

**Sent:** Monday, December 08, 2014 11:53 AM

**To:** Kosti, Ourania

**Subject:** RE: any word on the 23rd briefing?

Not really. I still need some time to brief my management chain before Dr. Samet briefs Brian. The 23<sup>rd</sup> would be preferable for the Brian Sheron/sponsor brief by Dr. Samet. Could you come on the 22<sup>nd</sup> and brief Rebecca and I? Thanks

---

**From:** Kosti, Ourania [<mailto:OKosti@nas.edu>]

**Sent:** Monday, December 08, 2014 11:50 AM

**To:** Brock, Terry

**Subject:** RE: any word on the 23rd briefing?

Terry:

I am looking into a 1 PM December 22 briefing. So far so good but I will need to provide the final confirmation later today.

Would a 10 AM pre-briefing the same day work?

Rania

---

**From:** Brock, Terry [<mailto:Terry.Brock@nrc.gov>]

**Sent:** Monday, December 08, 2014 11:42 AM

**To:** Kosti, Ourania

**Subject:** any word on the 23rd briefing?

Hi,

Fortunately Brian Sheron is here on the 23<sup>rd</sup> for the NAS briefing. How's the logistics on your side?

Terry

**From:** Kosti, Ourania  
**Sent:** 10 Dec 2014 09:40:06 -0500  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

I will.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, December 10, 2014 9:21 AM  
**To:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Ok, please let me know as soon as you can.

Thanks,

Terry

Terry Brock, Ph.D.

Office of Nuclear Regulatory Research

U.S. Nuclear Regulatory Commission

Washington D.C. 20555

Mail Stop CSB-3A07

phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Tuesday, December 09, 2014 4:08 PM  
**To:** Brock, Terry  
**Cc:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I wanted to give you a heads up that I am trying to reschedule the release of the report for later in December but it may not be possible to line up congressional staff for the required pre-release briefings. If that ends up being the case NAS may need to delay the release of the report (and therefore briefings to the sponsor and congressional staff) to January.

I will let you know as soon as I hear from the NAS.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, December 08, 2014 11:53 AM  
**To:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Not really. I still need some time to brief my management chain before Dr. Samet briefs Brian. The 23<sup>rd</sup> would be preferable for the Brian Sheron/sponsor brief by Dr. Samet. Could you come on the 22<sup>nd</sup> and brief Rebecca and I? Thanks

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, December 08, 2014 11:50 AM  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I am looking into a 1 PM December 22 briefing. So far so good but I will need to provide the final confirmation later today.

Would a 10 AM pre-briefing the same day work?

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, December 08, 2014 11:42 AM



**To:** Kosti, Ourania

**Subject:** any word on the 23rd breifing?

Hi,

Fortunately Brian Sheron is here on the 23<sup>rd</sup> for the NAS briefing. How's the logistics on your side?

Terry

**From:** Kosti, Ourania  
**Sent:** 8 Dec 2014 15:22:45 -0500  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I am still waiting to hear if Jon Samet is available December 23 to brief you and your colleagues. I am available December 22 to brief you.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, December 08, 2014 11:53 AM  
**To:** Kosti, Ourania  
**Subject:** RE: any word on the 23rd briefing?

Not really. I still need some time to brief my management chain before Dr. Samet briefs Brian. The 23<sup>rd</sup> would be preferable for the Brian Sheron/sponsor brief by Dr. Samet. Could you come on the 22<sup>nd</sup> and brief Rebecca and I? Thanks

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Monday, December 08, 2014 11:50 AM  
**To:** Brock, Terry  
**Subject:** RE: any word on the 23rd briefing?

Terry:

I am looking into a 1 PM December 22 briefing. So far so good but I will need to provide the final confirmation later today.

Would a 10 AM pre-briefing the same day work?

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Monday, December 08, 2014 11:42 AM  
**To:** Kosti, Ourania  
**Subject:** any word on the 23rd briefing?

Hi,

Fortunately Brian Sheron is here on the 23<sup>rd</sup> for the NAS briefing. How's the logistics on your side?

Terry

**From:** Crowley, Kevin  
**Sent:** 12 Aug 2010 14:39:36 -0400  
**To:** Brock, Terry  
**Subject:** Proposal text  
**Attachments:** Proposal Description FINAL.doc

Terry:

Attached is the text of our proposal to you. It looks identical to what is in the award except that the last section (estimate of costs) from the attached text was removed.

Kevin

# **THE NATIONAL ACADEMIES**

*Advisers to the Nation on Science, Engineering, and Medicine*

Division on Earth and Life Studies  
Nuclear and Radiation Studies Board

## **Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 1**

### **Summary**

The National Academies will provide an assessment of cancer risks in populations living near U.S. Nuclear Regulatory Commission-licensed nuclear facilities. This assessment will be carried out in two consecutive phases. A Phase 1 scoping study, which is the subject of this proposal, will identify scientifically sound approaches for carrying out the cancer epidemiology study that has been requested by the U.S. Nuclear Regulatory Commission. The Phase 2 epidemiology study will be the subject of a future proposal.

### **Policy Background**

In the late 1980s, the National Cancer Institute (NCI) initiated an epidemiological study of cancer risks in populations near 52 commercial nuclear power plants and 10 Department of Energy nuclear facilities in the United States. The report from this study, entitled *Cancer in Populations Living near Nuclear Facilities* (Jablon et al., 1990<sup>1</sup>), concluded that deaths from cancer were not more frequent in the counties located near nuclear facilities compared to control counties with similar demographic characteristics. The authors of the study concluded "that if nuclear facilities posed a risk to neighboring populations, the risk was too small to be detected by a survey such as this one" (Jablon et al., 1991, p. 1408<sup>2</sup>).

The U.S. Nuclear Regulatory Commission (USNRC) has been using this NCI study as a primary resource for communicating with the public about cancer risks near the commercial nuclear facilities that it regulates. However, this study is now over 20 years old. There have been substantial demographic shifts in populations near some of these facilities, and the facility inventory itself has changed: some facilities have shut down, new facilities have started up, and certain nuclear fuel-cycle facilities that were not included in the original study have become a focus of public interest. The USNRC is now responsible for regulating 104 nuclear power plants at 65 sites and nuclear fuel-cycle facilities at nine sites. Additionally, the USNRC anticipates that several new nuclear power plants could be constructed at new sites in the United States over the next decade.

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<sup>1</sup> Jablon, S., Hrubec, Z., Boice, J.D., Jr., and B.J. Stone. 1990. *Cancer in Populations Living Near Nuclear Facilities*. Bethesda, Maryland: Public Health Service, Department of Health and Human Services, NIH Publication 90-874.

<sup>2</sup> Jablon, S., Hrubec, Z., and J.D. Boice, Jr. 1991. Cancer in populations living near nuclear facilities. *JAMA* 265(11), 1403-1408.



The USNRC has asked the National Academy of Sciences to provide an up-to-date analysis of radiogenic cancer incidence and mortality risk to populations near currently and formerly licensed nuclear facilities as well as a baseline analysis of cancer risks in populations near proposed new facilities. The Commission staff intends to use this updated analysis in future communications with its stakeholders about cancer risks.

### **Technical Background**

The 1990 NCI study was considered to be state-of-the-art at the time it was undertaken. However, even its authors acknowledged its limitations. For example, the 1990 study focused primarily on cancer mortality, because good-quality cancer incidence data were largely unavailable at the time the study was being conducted. Since the study was completed, however, many state and county cancer registries have begun collecting good-quality incidence data. At the national level, the NCI's Surveillance, Epidemiology, and End Results (SEER) Program is an authoritative source of cancer incidence and survival data covering about 26 percent of the U.S. population.

Additionally, the 1990 study used county-level data for its study and control populations. The use of countywide data made it difficult to discern local effects around nuclear facilities, especially in counties with large population centers at distance from those facilities. Modern GIS and data-mining techniques may make it possible to more accurately circumscribe the geographic boundaries of the study populations to smaller areas of interest around the facilities.

The 1990 study also did not attempt to estimate radiation exposures resulting from operation of the facilities to individuals living nearby. However, the study authors noted that such exposures are likely to be "too small to result in detectable harm" (Jablon et al., 1991, p. 1407). Absent reliable information on radiation exposures, it is difficult to provide scientifically supportable explanations for any observed associations between proximity to a nuclear facility and cancer incidence or mortality.

Epidemiological studies of cancer risks near nuclear facilities have been carried out in several countries. Jablon et al. (1991) noted that the 1990 NCI study was motivated by earlier studies that described increases in leukemia and lymphoma among young persons living near certain nuclear installations in the United Kingdom. Other studies in Europe and the United States have yielded mixed results, with some showing statistically significant correlations and others showing no correlations. A recent epidemiological study of childhood cancer in Germany (Kaatsch et al., 2008<sup>3</sup>) found a statistical correlation between a child's risk of contracting cancer before his or her fifth birthday and proximity of that child's residence to the nearest nuclear power plant at the time of diagnosis. However, the study authors were unable to identify risk factors to explain this correlation.

There are a number of additional difficulties for designing epidemiological studies to assess cancer risks around nuclear facilities. For example:

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<sup>3</sup> Kaatsch, P., Spix, C., Schulze-Rath, R., Schmiedel, S., and M. Blettner. 2008. Leukaemia in young children living in the vicinity of German nuclear power plants. *Int. Jour. Cancer* 122(4), 721-726.



- Such studies generally have low statistical power. This can make it difficult to discern differences in cancer risks between study and control populations.
- Nuclear facilities typically operate for many decades. During that time there can be substantial shifts in the demographic characteristics of nearby populations.
- The gaseous and liquid radioactive releases and direct radiation exposures from nuclear facilities can vary over time. This can affect source terms, exposure pathways, and receptors for offsite radiation doses.
- There may be other factors, such as releases of environmental carcinogens from other types of facilities such as refineries or coal plants, that can confound the identification of risk factors for any observed associations between proximity to a nuclear facility and cancer incidence or mortality.

A careful scoping effort will be needed to develop scientifically sound methodological approaches for carrying out the cancer epidemiology assessment that has been requested by the USNRC. The objective of this Phase 1 study is to advise the study sponsor and the National Academies on methodological approaches for carrying out such an assessment.

### **Statement of Task**

The National Academies will provide an assessment of cancer risks in populations living near U.S. Nuclear Regulatory Commission-licensed nuclear facilities. This assessment will be carried out in two consecutive phases:

A Phase 1 scoping study will identify scientifically sound approaches for carrying out the cancer epidemiology study that has been requested by the U.S. Nuclear Regulatory Commission. It will address the following tasks:

1. Methodological approaches for assessing off-site radiation dose, including consideration of:
  - Pathways, receptors, and source terms
  - Availability, completeness, and quality of information on gaseous and liquid radioactive releases and direct radiation exposure from nuclear facilities
  - Approaches for overcoming potential methodological limitations arising from the variability in radioactive releases over time and other confounding factors
2. Methodological approaches for assessing cancer epidemiology, including consideration of:
  - Demographic characteristics of the study and control populations (e.g., all age groups, including children and nuclear facility workers)
  - Geographic areas to use in the study (e.g., county, zip codes, census tracts, or annular rings around the facility at some nominal distances)
  - Cancer types and endpoints (i.e., incidence, mortality)
  - Availability, completeness, and quality of cancer incidence and mortality data



- Different epidemiological study designs and statistical assessment methods (e.g., ecologic or case-control study designs)
- Approaches for overcoming potential methodological limitations arising from low statistical power, random clustering, changes in population characteristics over time, and other confounding factors

The results of this Phase 1 scoping study will be used to inform the design of the cancer risk assessment, which will be carried out in Phase 2.

### **Preliminary Work Plan**

An expert committee comprised of 21 members, including up to 2 experts from outside of the United States, will be appointed by the president of the National Academy of Sciences, acting in his capacity as chair of the National Research Council, to carry out this Phase 1 study.

The committee will hold 6 meetings to gather information and develop its final report. The committee may elect to break into two subgroups for the purposes of gathering information on the two parts of the task statement. The committee chair and vice chair would lead these two subgroups.

Information for the study will be gathered from several sources, including the scientific and medical literature as well as briefings from several organizations and individuals, including:

- USNRC staff, congressional staff, and other appropriate parties on the study task and work plan, especially with respect to important issues to be addressed and sources of information for the study.
- USNRC staff on the facilities proposed for examination in the Phase 2 assessment.
- NCI staff on the 1990 cancer risk study and lessons to be learned for the design of epidemiology studies.
- Authors of other cancer risk studies for nuclear facilities and lessons to be learned for the design of epidemiology studies.
- Medical specialists, state officials, and NCI staff on cancer mortality and incidence data characteristics, quality, and availability.
- Operators of nuclear facilities on their programs to assess pathways, receptors, and source terms for offsite radiation doses.
- USNRC staff on its regulatory program to ensure that off-site doses from its licensed facilities are in compliance with public dose limits and numerical objectives.

The committee will examine a representative range of USNRC-licensed nuclear facilities to identify potential challenges and limitations for the design of the Phase 2 assessment. The committee may engage unpaid consultants to assist with data collection for this examination. All collected data will be placed into the project's Public Access File unless it is exempt from public release through the Freedom of Information Act (FOIA).<sup>4</sup>

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<sup>4</sup> NOTE: In the event that a requirement arises in the course of the Phase 1 study for committee  
 NAS Proposal No. 10-DELS-223-01                      4                      8/15/2016



The committee will prepare a consensus report with findings and recommendations at the conclusion of its study. The report will be subjected to National Research Council (NRC) review before being released to the study sponsor and the public. Funds have been included in the budget to support the dissemination of the final report to Congress, other federal agencies, nuclear facility operators, state regulatory agencies, and other interested members of the public.

A proposal to the USNRC for the Phase 2 study will be prepared after the Phase 1 study is completed. The study task and workplan will be based on the Phase 1 report and on comments received from the study sponsor and other interested parties about that report's proposed methodologies. Up to 60 days will be provided for comments on the Phase 1 report before the Phase 2 proposal is finalized.

Funds have been budgeted to develop a number of communications tools to keep interested parties informed about this Phase 1 study. These include:

- A dedicated project website supplementing the NRC's Current Projects System to provide additional information of interest to the public about the study and further enable interested parties to submit information for the committee's consideration.
- A listserv to notify interested parties about project milestones such as appointment of the study committee; meeting dates, locations, and agendas; and publication of the final report.
- Webcasts of selected portions of the committee's open sessions, in consultation with the NRC Office of News and Public Information.
- Development of derivative products from the final report for different public audiences. The study staff, in consultation with the study committee and study sponsor, will identify appropriate audiences for these derivative products and confer with the NRC Report Review Committee in the process of developing such products in accordance with institutional guidelines.

### **Federal Advisory Committee Act (FACA)**

The Academy has developed interim policies and procedures to implement Section 15 of the Federal Advisory Committee Act, 5 U.S.C. App. § 15. Section 15 includes certain requirements regarding public access and conflicts of interest that are applicable to agreements under which the Academy, using a committee, provides advice or recommendations to a Federal agency. In accordance with Section 15 of FACA, the Academy shall submit to the government sponsor(s) following delivery of each applicable report a certification that the policies and procedures of the Academy that implement Section 15 of FACA have been substantially complied with in the performance of the contract/grant/cooperative agreement with respect to the applicable report.

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access to any information that is to be withheld from public disclosure under exemptions in FOIA described in title 5 U.S.C. § 552(b), the study staff will promptly contact the National Research Council (NRC) Executive Office (NRCEO) for additional guidance. NRC staff will ascertain as early as possible from the study sponsor the nature of such information and will confer with the NRCEO, the NRC's Office of General Counsel and, as appropriate, the NRC's Institutional Review Board and Office of Security before any of it is distributed to the committee.



### **Public Information About the Project**

In order to afford the public greater knowledge of Academy activities and an opportunity to provide comments on those activities, the Academy may post on its website (<http://www.national-academies.org>) the following information as appropriate under its procedures: (1) notices of meetings open to the public; (2) brief descriptions of projects; (3) committee appointments, if any (including biographies of committee members); (4) report information; and (5) any other pertinent information.

### **Estimate of Costs**

The total estimated cost for Phase 1 of this project (this proposal) is \$1,036,653.

**From:** Kosti, Ourania  
**Sent:** 30 Sep 2011 15:14:42 -0400  
**To:** Brock, Terry  
**Subject:** planning the NFS tour and public meeting

Terry,

We are making progress with our effort to visit the NFS plant and hold a public meeting in Erwin Tennessee. The dates we are looking at are Wednesday 12 and/or Thursday 13 in October. In parallel, we have started requesting institutional permissions and I am planning on emailing John Pelchat for suggestions on meeting space and means to advertise the meeting (for when time comes).

I will be updating you as we conclude on the date and start making the arrangements.

Regards,

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Crowley, Kevin  
**Sent:** 9 Apr 2010 16:30:10 -0400  
**To:** Crowley, Kevin  
**Cc:** Greenleaf, Toni  
**Subject:** NRSB Meeting Agenda  
**Attachments:** NRSB public agenda, April 9, 2010 draft.pdf

Dear Speakers:

Attached for your information is the agenda for the April 26 meeting of the Nuclear and Radiation Studies Board. Please let me know if you wish to make any changes/corrections to your information. My associate, Toni Greenleaf, will be in touch next week with additional information on meeting logistics.

This agenda can be freely circulated. The meeting is open to the public.

Regards,

Kevin

# THE NATIONAL ACADEMIES

*Advisers to the Nation on Science, Engineering, and Medicine*

## NUCLEAR AND RADIATION STUDIES BOARD

Fifteenth Meeting: April 26, 2010  
Keck Center, Room 100  
500 5<sup>th</sup> Street, NW, Washington, DC 20001

April 9, 2010 Draft

### OPEN SESSION

- 12:55 pm      **Call to order and welcome**  
Richard Meserve, NRSB chair
- 1:00 pm      **Strategies for Transforming Tank Waste Cleanup at Department of Energy Sites**  
Steve Schneider, Co-Leader, Tank Waste System Project Team, DOE-EM
- 1:20 pm      Questions and discussion
- 1:30 pm      **FDA Initiative to Reduce Unnecessary Radiation Exposures from Medical Imaging**  
Sean Boyd, Commander, U.S. Public Health Service
- FDA Update on Regulation of Tanning Devices/Sunlamps**  
Sharon Miller, Captain, U.S. Public Health Service
- 2:00 pm      Questions and discussion

### CANCER RISK IN POPULATIONS LIVING NEAR NUCLEAR POWER FACILITIES

- 2:10 pm      **U.S. Nuclear Regulatory Commission Request to the NAS for a Study of Cancer Risk in Populations Living Near Nuclear Power Facilities**  
Brian Sheron, Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission
- 2:40 pm      Questions and discussion
- 2:50 pm      **Congressional Staff Perspectives on the Study Request and Task**  
Michal Freedhoff, Policy Director, Office of Congressman Edward J. Markey, Chairman of the Energy and Environment Subcommittee
- 3:05 pm      Questions and discussion
- 3:15 pm      **Nuclear Industry Perspectives on the Study Request and Task**  
Ralph L. Andersen, Senior Director, Radiation Safety & Environmental Protection, Nuclear Energy Institute
- 3:30 pm      Questions and discussion



- 3:40 pm Break
- 4:00 pm **Perspectives on the Study Task and Approaches**  
Arjun Makhijani, President, Institute for Energy and Environmental Research
- 4:20 pm Questions and discussion
- 4:30 pm **Developing Testable Hypotheses for Cancer Risks near Nuclear Power Facilities**  
Steven Wing, Associate Professor of Epidemiology, University of North Carolina, Gillings School of Global Public Health
- 4:50 pm Questions and discussion
- 5:00 pm **Opportunity for Public Comment**
- 5:45 pm **Adjourn**

**From:** Crowley, Kevin  
**Sent:** 16 Apr 2010 08:55:55 -0400  
**To:** Brock, Terry  
**Subject:** NRSB meeting

Terry:

Got you phone message. We had hoped to webcast the event but it is too expensive (\$15K). We are still checking out other options. I should have some additional info this afternoon and will give you a call. We should catch up in any event.

Kevin

**From:** Crowley, Kevin  
**Sent:** 8 Apr 2010 18:33:03 -0400  
**To:** Brock, Terry  
**Subject:** NRSB Meeting

Terry:

Brian's presentation to the NRSB is scheduled for April 26 from 2:10 pm -- 2:40 pm with an additional 10 minutes for Q&A. Here is what I propose to put on the agenda. Please let me know if it is ok.

Nuclear Regulatory Commission Request to the NAS for a Study of Cancer Risk in Populations Living Near Nuclear Power Facilities  
Brian Sheron, Director, Office of Nuclear Regulatory Research, Nuclear Regulatory Commission

Thanks,

Kevin

**From:** Kosti, Ourania  
**Sent:** 6 Oct 2011 11:30:25 -0400  
**To:** Brock, Terry  
**Subject:** RE: congressional staff at upcoming meeting

No. Kevin, will invite tomorrow or early next week.

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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, October 06, 2011 11:29 AM  
**To:** Kosti, Ourania  
**Subject:** congressional staff at upcoming meeting

Do you know who's coming?

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Kosti, Ourania  
**Sent:** 21 Mar 2011 14:08:25 -0400  
**To:** Shaffer, Vered  
**Cc:** Brock, Terry  
**Subject:** RE: Compiled effluence reports for reactors until 1993

Thank you for sharing these with us Vered. I will review and my come back to you for clarifications.  
Regards,  
Rania

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**From:** Shaffer, Vered [mailto:Vered.Shaffer@nrc.gov]  
**Sent:** Monday, March 21, 2011 2:02 PM  
**To:** Kosti, Ourania  
**Cc:** Brock, Terry  
**Subject:** Compiled effluence reports for reactors until 1993

Hi Rania,

I've attached the NUREG/CR-2907, the 1993 annual report on Radioactive Materials Released from Nuclear Power Plants. Terry and I mentioned this report last week as a good resource.

Also two more recent reports can be found online here:

[http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU\\_ADAMS^pbntad01&LogonID=169148331cfda562f7d05e7412863d6b&id=103620135](http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=169148331cfda562f7d05e7412863d6b&id=103620135)

[http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU\\_ADAMS^pbntad01&LogonID=dc05656c5133c2cde4d0aa66bdb72ec7&id=103620169](http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=dc05656c5133c2cde4d0aa66bdb72ec7&id=103620169)

I've found these to be quite informative.

Vered

**From:** Kosti, Ourania  
**Sent:** 24 Mar 2011 15:00:03 -0400  
**To:** Shaffer, Vered  
**Cc:** Brock, Terry  
**Subject:** RE: Compiled effluence reports for reactors until 1993

Vered,

This is very helpful, thank you. Let me take a closer look and I may contact you again. Thank you for your patience, this is a learning process for me!

Best,  
Rania

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**From:** Shaffer, Vered [mailto:Vered.Shaffer@nrc.gov]  
**Sent:** Thursday, March 24, 2011 2:52 PM  
**To:** Kosti, Ourania  
**Cc:** Brock, Terry  
**Subject:** RE: Compiled effluence reports for reactors until 1993

Hi Rania,

Let me hopefully try to clarify and give you some more places to find information.

1972-1993 – summarized by NRC for all **REACTOR** facilities (fuel cycle and uranium recovery data is not captured in this report)

2007-2008 – summarized by NRC for all **REACTOR** facilities (fuel cycle and uranium recovery data is not captured in these reports)

Keep in mind that decommissioned sites will no longer show up in some of these reports listed above. Also, we had plants in operation prior to 1972. These reports will have to be found either in ADAMS or through project managers.

Also check out this site. It has all the individual effluence reports for all operating reactor plants from 2005 – 2009:

<http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>

I'm attaching an excel spreadsheet of the current reactor fleet. On it, it will show when they started operating but also the docket number. I've also attached the docket number for fuel cycle facilities. The docket number will actually be the most useful way in trying to locate files in ADAMS. I would search under the docket number for Dresden for example under the year you are looking for and "effluence" in the search title.

I hope this helps,  
Vered

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**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 24, 2011 11:13 AM  
**To:** Shaffer, Vered  
**Cc:** Brock, Terry  
**Subject:** RE: Compiled effluence reports for reactors until 1993

I see. So, please let me know if what I write below regarding the releases data is correct at the best of your knowledge;

1972-1993 – summarized by NRC for all facilities

1994-2006 – Adams for individual facilities

Facility start up - 2000 – reports are scanned and can be requested from the project manager for individual facilities

2007-summarized by NRC for all facilities

2008-summarized by NRC for all facilities

2001-2007: available at electronic form for individual facilities

Also, I would appreciate your help with how to search for reports through Adams. I apologize in advance if we went through that before, I want to make sure I inform the committee about the sources accurately. Let's say I want to find the effluent releases from Dresden for 1994. What is the efficient way to perform this search?

Thank you again for your help with this –  
Rania

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**From:** Shaffer, Vered [mailto:Vered.Shaffer@nrc.gov]  
**Sent:** Thursday, March 24, 2011 8:51 AM  
**To:** Kosti, Ourania  
**Cc:** Brock, Terry  
**Subject:** RE: Compiled effluence reports for reactors until 1993

Good morning Rania,

Sorry, but the NRC did not compile the data into reports between the years of 1993 and 2006. All the individual effluent reports are publically available for each facility and could be accessed through ADAMS.

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**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, March 23, 2011 10:30 AM  
**To:** Shaffer, Vered  
**Subject:** RE: Compiled effluence reports for reactors until 1993

Hi Vered,

Where would the data for 1993-2006 and after 2007 be? I see this link in the report

<http://www.nrc.gov/about-nrc/radiation.html>.

but it is not a direct one. Can you please send me the direct link to share with the committee?  
I appreciate it -  
Rania

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**From:** Shaffer, Vered [mailto:Vered.Shaffer@nrc.gov]  
**Sent:** Monday, March 21, 2011 2:02 PM

**To:** Kosti, Ourania  
**Cc:** Brock, Terry  
**Subject:** Compiled effluence reports for reactors until 1993

Hi Rania,

I've attached the NUREG/CR-2907, the 1993 annual report on Radioactive Materials Released from Nuclear Power Plants. Terry and I mentioned this report last week as a good resource.

Also two more recent reports can be found online here:

[http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU\\_ADAMS^pbntad01&LogonID=169148331cfda562f7d05e7412863d6b&id=103620135](http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=169148331cfda562f7d05e7412863d6b&id=103620135)

[http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU\\_ADAMS^pbntad01&LogonID=dc05656c5133c2cde4d0aa66bdb72ec7&id=103620169](http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=dc05656c5133c2cde4d0aa66bdb72ec7&id=103620169)

I've found these to be quite informative.

Vered



**From:** Ramsey, Kevin  
**Sent:** 26 Aug 2015 10:50:29 -0400  
**To:** Burnell, Scott; Brock, Terry  
**Subject:** RE: Comm plan

RII asked who would give the bad news to the Erwin Citizens Awareness Network (ECAN). Rebecca Tadesse says the draft communication plan lists NFS, but not ECAN. Most of the public meetings at NFS are led by RII because they are usually inspection-related. However, RII doesn't want the lead for this one. Rebecca plans to schedule a conference call to discuss the plan. Maybe we can sort out who calls ECAN at that time.

**From:** Burnell, Scott  
**Sent:** Wednesday, August 26, 2015 10:44 AM  
**To:** Ramsey, Kevin; Brock, Terry  
**Subject:** Comm plan

Hi Kevin;

Terry and I have put a basic comm plan together and we'll be putting out a press release, so the various communities mentioned for the pilot study will be informed that way. Let me know if you need anything else. Thanks.

Scott

**From:** Burnell, Scott  
**Sent:** 4 Sep 2015 13:09:54 -0600  
**To:** Sheehan, Neil; Nimitz, Ronald  
**Cc:** Brock, Terry  
**Subject:** Re: Coalition Against Millstone e-mail address

Gotsch is fine, then. Thanks.

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**From:** Sheehan, Neil  
**Sent:** Friday, September 4, 2015 1:05 PM  
**To:** Burnell, Scott; Nimitz, Ronald  
**Cc:** Brock, Terry  
**Subject:** RE: Coalition Against Millstone e-mail address  
She's not associated with GRAMMES. And in fact, we haven't heard from her for a while. Paula Gotsch is a GRAMMES leader.

**From:** Burnell, Scott  
**Sent:** Friday, September 04, 2015 12:26 PM  
**To:** Nimitz, Ronald  
**Cc:** Sheehan, Neil ; Brock, Terry  
**Subject:** Re: Coalition Against Millstone e-mail address  
I was thinking of Edith Gbur near Oyster Creek.

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**From:** Nimitz, Ronald  
**Sent:** Friday, September 4, 2015 10:50 AM  
**To:** Burnell, Scott  
**Cc:** Sheehan, Neil; Brock, Terry  
**Subject:** RE: Coalition Against Millstone e-mail address  
Scott...  
Neil does have an e-mail for a Ms. Gotsch .  
is that who you are looking for..??

**From:** Nimitz, Ronald  
**Sent:** Friday, September 04, 2015 10:14 AM  
**To:** Burnell, Scott  
**Cc:** Sheehan, Neil; Brock, Terry  
**Subject:** FW: Coalition Against Millstone e-mail address  
Scott..  
I am having difficulty getting E-mail for the Grammys..  
We have a list serve here with mailing addresses but with folks out of office etc. I cannot find E-mails for the interested external stakeholders and they are not on list serve for the Oyster Creek distribution list. .  
I check on WEB but cannot find contact for them..  
However, Neil gave me the interested group contact at Millstone. Below  
ron

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**From:** Sheehan, Neil  
**Sent:** Friday, September 04, 2015 9:30 AM  
**To:** Nimitz, Ronald  
**Subject:** Coalition Against Millstone e-mail address

Ron,

Here's the e-mail address for Nancy Burton, of the Coalition Against Millstone:

(b)(6)

Neil

**From:** Kosti, Ourania  
**Sent:** 26 Mar 2015 11:28:37 -0400  
**To:** Brock, Terry  
**Subject:** RE: move meeting to 9 AM or 930 AM tomorrow?

The direct line should work fine—I will let you know if something changes.  
Thanks,  
Rania

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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 26, 2015 11:28 AM  
**To:** Kosti, Ourania  
**Subject:** RE: move meeting to 9 AM or 930 AM tomorrow?

Upon further thought . . . I'll have to reset the bridge line time. Rebecca's direct line it is. Let me know if something changes and I'll secure a new bridge.

Terry

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**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 26, 2015 11:20 AM  
**To:** Brock, Terry  
**Subject:** RE: move meeting to 9 AM or 930 AM tomorrow?

Terry:

We had set a bridge line for this as I was supposed to be at a meeting but now I think Kevin and I will be together. That said we will call the number you sent below.

Rania

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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 26, 2015 11:19 AM  
**To:** Kosti, Ourania  
**Subject:** RE: move meeting to 9 AM or 930 AM tomorrow?

Thanks . Do you want to call us at 301-251-7490?

Terry

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**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, March 26, 2015 11:18 AM  
**To:** Brock, Terry  
**Subject:** RE: move meeting to 9 AM or 930 AM tomorrow?

Terry:

9:30 AM works.

Thank you,

Rania

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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, March 26, 2015 9:40 AM  
**To:** Kosti, Ourania  
**Subject:** move meeting to 9 AM or 930 AM tomorrow?

Hi,

Is this possible? Rebecca has a funeral to attend later in the morning.

Thx,

Terry



**From:** Kosti, Ourania  
**Sent:** 1 Jul 2011 09:50:24 -0400  
**To:** Brock, Terry  
**Subject:** RE: Mike Russell from SONGS will be calling you

Thanks!

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**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, July 01, 2011 9:50 AM  
**To:** Kosti, Ourania  
**Subject:** Mike Russell from SONGS will be calling you

Hi,

He'll want the social security numbers for the tour participants.

Terry

**From:** Kosti, Ourania  
**Sent:** 4 Mar 2011 13:35:13 -0500  
**To:** Brock, Terry  
**Subject:** RE: meet with the Spanish at 2:30 Pm at Two White Flint

I will!  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, March 04, 2011 1:34 PM  
**To:** Kosti, Ourania  
**Subject:** RE: meet with the Spanish at 2:30 Pm at Two White Flint

Ok, feel free to shoot me a text at (b)(6) if you can't make it since I'll be down at NCRP for the morning session and my meeting. Tell Kevin we certainly would like you to hear what we hear.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Friday, March 04, 2011 1:19 PM  
**To:** Brock, Terry  
**Subject:** RE: meet with the Spanish at 2:30 Pm at Two White Flint

That sounds great and I appreciate the picture!!  
As we discussed, I will confirm with Kevin that he is comfortable with me attending and will come back to you on Monday if not earlier.  
If I do attend, most likely I will not go to NCRP conference that day.

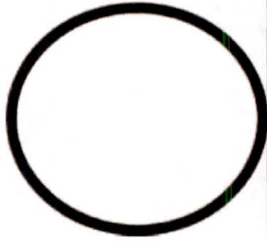
Thank you-  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, March 04, 2011 1:08 PM  
**To:** Kosti, Ourania  
**Subject:** meet with the Spanish at 2:30 Pm at Two White Flint

Hi Rania,

The meeting with the Spanish on their cancer study is set for 2:30 PM on Monday. We are meeting at the Two White Flint North (TWFN) building on the White Flint campus. TWFN is the angled building adjacent to the tall white building near the White Flint metro stop. TWFN has its own security desk that you should go to and I'll meet you there around 2:25. I'll get you set-up with security. After the meeting we can call Kevin. How does that sound?



Terry

**From:** Kosti, Ourania  
**Sent:** 24 Aug 2011 10:51:58 -0400  
**To:** Brock, Terry  
**Subject:** RE: hurricane heading towards the east coast; cancer risk meeting in DC

Yes, right? Ts ts ts.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, August 24, 2011 10:49 AM  
**To:** Kosti, Ourania  
**Subject:** RE: hurricane heading towards the east coast; cancer risk meeting in DC

Ok, thanks for the heads up. Earthquakes, hurricanes, what's next?

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, August 24, 2011 10:41 AM  
**To:** Brock, Terry  
**Subject:** hurricane heading towards the east coast; cancer risk meeting in DC

Dear Terry Brock,

If you have been watching the weather you know that hurricane Irene may be heading towards the East coast this weekend. If that happens we expect that the airlines will cancel flights to/from DC and our committee members will not be able to travel for the August 29 meeting. We will be keeping an eye on the weather and make a decision by Friday about whether to go forward with next week's committee meeting. I trust that you will forward this message to your colleagues that are scheduled to present.

Thank you –

Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu



**From:** Kosti, Ourania  
**Sent:** 11 Aug 2011 09:26:39 -0400  
**To:** Pelchat, John;Brock, Terry  
**Subject:** RE: hotels in Erwin

John,

Thank you very much for your recommendations, I will take a look. We are thinking of flying to Asheville, NC and drive to Erwin. Any thought against that? Apparently it is a 1 hour drive (?).  
Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
Nuclear and Radiation Studies Board  
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500 Fifth Street, NW  
Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

---

**From:** Pelchat, John [mailto:John.Pelchat@nrc.gov]  
**Sent:** Thursday, August 11, 2011 9:24 AM  
**To:** Brock, Terry; Kosti, Ourania  
**Subject:** RE: hotels in Erwin

Good morning. There are very few good choices in Erwin itself. I recommend the Carnegie Hotel (and no, I don't own a portion of the property). It is very nice and they do offer a federal per diem rate. I seriously doubt you will be disappointed in the room or the hotel. The single possible "drawback" is that there is no free breakfast, but considering the quality I usually see at other properties, I don't think that is any great loss.

You can learn more and make reservations at <http://www.carnegiehotel.com>

There is also a nice Doubletree if you are a member of the Hilton program. If you are one of those folks that must stay at a Marriott, a Residence Inn is also available but it is located on the wrong side of Johnson City.

Take care . . .

John

John Pelchat

"No discovery was ever made  
without a bold guess"

Sir Issac Newton

---

**From:** Brock, Terry  
**Sent:** Thursday, August 11, 2011 9:14 AM  
**To:** Pelchat, John  
**Subject:** FW: hotels in Erwin

Hi John,

A little help for Rania below. E-mail us both the info.

Thanks,  
Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, August 11, 2011 8:53 AM  
**To:** Brock, Terry  
**Subject:** hotels in Erwin

Terry,  
Can you please bring me in contact with your RII colleagues; I need some direction with the recommended hotels. I remember them mentioning Doubletree as a second option and cannot remember the first and other.

Thanks-  
Rania

Ourania (Rania) Kosti, Ph.D.  
Program Officer  
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Washington, DC 20001  
phone: 202 334 3066  
fax: 202 334 3077  
email: okosti@nas.edu

**From:** Burnell, Scott  
**Sent:** 10 Sep 2015 14:58:30 -0400  
**To:** Rugani, Lauren  
**Subject:** RE: FW: NRC correction statement

Looks good from here, thanks Lauren.

**From:** Rugani, Lauren [mailto:LRugani@nas.edu]  
**Sent:** Thursday, September 10, 2015 2:57 PM  
**To:** Burnell, Scott  
**Subject:** [External\_Sender] FW: NRC correction statement

Scott,

Just wanted to share that we are sending this note to our listserv and a few other interested parties this afternoon to help quell some of the confusion and consternation that resulted from some of the early press coverage. Thanks again for reaching out to the reporters.

Best,

Lauren

Lauren Rugani · 202-334-3593 · [lrugani@nas.edu](mailto:lrugani@nas.edu)

*The National Academies of*  
**SCIENCES · ENGINEERING · MEDICINE**

Date: Sept. 10, 2015

**Correction regarding NRC cancellation of NAS study on cancer risks**

The Nuclear Regulatory Commission (NRC) announced Tuesday that it has decided to stop work on the National Academy of Sciences (NAS) study on cancer risks in populations living near U.S. nuclear facilities. The NRC cited the long duration and high cost of the NAS pilot study, and the long duration of a subsequent nationwide study, as reasons to end the study.

Several media outlets have reported incorrectly that NAS estimated the pilot study would take 8 to 10 years to complete at a cost of \$8 million.

In fact, the NAS estimated that it would take 39 months at a cost of \$8 million to complete the pilot study of 7 nuclear facilities, which was intended to inform the feasibility, schedule, and cost of a nationwide study. NAS did not provide time or cost estimates for a nationwide study. The NRC made its own estimate that it may take 8 to 10 years to complete both the pilot and subsequent nationwide studies, and offered no additional cost estimate.

**From:** Kosti, Ourania  
**Sent:** 27 Feb 2015 10:46:55 -0500  
**To:** Brock, Terry  
**Subject:** RE: Follow-up

Terry:

Actually I do have a question about your (1)—I spoke to fast that we are on the same page. You mention 3 sites. On the phone we discussed eliminating the decommissioned sites which would leave us with 5 sites. What are the other two you are eliminating?

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, February 27, 2015 10:00 AM  
**To:** Kosti, Ourania  
**Subject:** Follow-up

Hi Rania,

It was nice to talk to you today. I thought I would follow-up our call with an e-mail just to make sure we're on the same page. The two pieces of information that would be very helpful in our decision making:

- 1) How long would the pilot study take to complete if we reduced the scope to just three sites and only did the case control study design? What's your best estimate on budget for this approach?
- 2) How many sites do we need for the case-control study design to have enough statistical power to generalize the risk estimate results?

Thanks,

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487



**From:** Kosti, Ourania  
**Sent:** 26 Aug 2011 09:45:16 -0400  
**To:** Brock, Terry  
**Subject:** RE: flights startig to be cancelled

Hello Terry,

We decided to wait till 12-1 pm to hear the latest on the direction of the hurricane and then send the official cancellation (if needed) email to committee, speakers and public. We are not optimistic the meeting will happen.

We will send calendars to the committee members and try to reschedule according to committee's availability.

More in a few hours!  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, August 26, 2011 8:28 AM  
**To:** Kosti, Ourania  
**Subject:** flights startig to be cancelled

Looking bleak >> <http://finance.yahoo.com/news/Airlines-begin-canceling-apf-1763891330.html?x=0&.v=2>

**From:** Kosti, Ourania  
**Sent:** 26 Aug 2011 08:29:37 -0400  
**To:** Brock, Terry  
**Subject:** RE: flights startig to be cancelled

Yeap...I am pretty sure we will cancel. We have a 9 am conference call with the Chair. Will email you with the news.  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Friday, August 26, 2011 8:28 AM  
**To:** Kosti, Ourania  
**Subject:** flights startig to be cancelled

Looking bleak >> <http://finance.yahoo.com/news/Airlines-begin-canceling-apf-1763891330.html?x=0&.v=2>

**From:** Kosti, Ourania  
**Sent:** 5 May 2011 09:43:31 -0400  
**To:** Brock, Terry  
**Subject:** RE: title of U.S.NRC presentations

Me too!! I have the same excitement as going to a conference! Our committee and staff should learn a lot from the invited experts.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 05, 2011 9:42 AM  
**To:** Kosti, Ourania  
**Subject:** RE: title of U.S.NRC presentations

Should be a good meeting. Looking forward to it!

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Thursday, May 05, 2011 9:38 AM  
**To:** Brock, Terry  
**Subject:** RE: title of U.S.NRC presentations

I will come back to you shortly with the answer. There will surely be an opportunity for the public to make comments. Since the agenda is growing so much I am not sure if the public comments session will be immediately after the data gathering sessions or in the evening as it was in Chicago.

Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Thursday, May 05, 2011 9:36 AM  
**To:** Kosti, Ourania  
**Subject:** RE: title of U.S.NRC presentations

Will there be a public evening session in Atlanta?  
Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 04, 2011 3:32 PM  
**To:** Brock, Terry  
**Subject:** RE: title of U.S.NRC presentations

Yes, please do make reservations.  
And thanks for the note.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 04, 2011 3:31 PM  
**To:** Kosti, Ourania  
**Subject:** RE: title of U.S.NRC presentations

Ok to make reservations?

Typically any presentations we do in public are publically available.

Terry

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 04, 2011 3:29 PM  
**To:** Brock, Terry  
**Subject:** RE: title of U.S.NRC presentations

We have reserved meeting and lodging space at the Renaissance Concourse Atlanta Airport Hotel. We have not finalized the conference rooms yet.

<http://www.marriott.com/hotels/travel/atlsa-renaissance-concourse-atlanta-airport-hotel/>

(Unless you tell me otherwise, I take it that the presentations can be posted.)

Thanks!  
Rania

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Wednesday, May 04, 2011 3:21 PM  
**To:** Kosti, Ourania  
**Subject:** RE: title of U.S.NRC presentations

Ok, I'll get those for you.

Have you picked a meeting place yet?

---

**From:** Kosti, Ourania [mailto:OKosti@nas.edu]  
**Sent:** Wednesday, May 04, 2011 3:07 PM  
**To:** Brock, Terry  
**Subject:** title of U.S.NRC presentations

Terry,

Please send me the title of the presentations and the names and affiliations of the presenters as soon as you can.

Please inform the presenters that the session will be webcasted. Also, I would like to ask for permission to post the presentations on our website.

Thank you –  
Rania

Ourania (Rania) Kosti, Ph.D.  
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Nuclear and Radiation Studies Board  
The National Academies  
500 Fifth Street, NW  
Washington, DC 20001



phone: 202 334 3066  
fax: 202 334 3077  
email: [okosti@nas.edu](mailto:okosti@nas.edu)

**From:** Burnell, Scott  
**Sent:** 2 Dec 2014 14:33:35 -0500  
**To:** Brock, Terry  
**Cc:** McIntyre, David  
**Subject:** RE: NAS study of cancer risks near US nuclear facilities

Terry;

Anything you'd like me to send along besides the obvious "We expect to hear from the NAS soon on the results of the planning stage" stuff?

Scott

---

**From:** Hiruo, Elaine [mailto:elaine.hiruo@platts.com]  
**Sent:** Tuesday, December 02, 2014 1:02 PM  
**To:** McIntyre, David; Burnell, Scott  
**Cc:** Hiruo, Elaine  
**Subject:** NAS study of cancer risks near US nuclear facilities

Hi, David and Scott. I am unsure of who might be covering the ongoing NAS study of cancer risks near US nuclear facilities so I am sending this to both of you.

The last I saw the academy's work is in the Phase 2 Pilot Planning stage and that NRC would likely decide whether to proceed to the phase 2 pilot about 6 months after it receives a study and budget proposal from NAS. At this point, any information on when you might receive that information?

Has it received any information thus far that contradicts the conclusions in the 1990 National Cancer Institute report on the issue?

And what will the agency weigh, or consider, when deciding whether to proceed with the phase 2 work?

If it proceeds with phase 2, how long is that work estimated to take?

I am working on this for a NuclearFuel story, which has a Thursday deadline.

Thank you.

Elaine

Elaine Hiruo

Managing Editor, NuclearFuel



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**From:** Burnell, Scott  
**Sent:** 29 Dec 2014 16:37:11 -0500  
**To:** 'KCrowley@nas.edu'; Brock, Terry  
**Cc:** 'OKosti@nas.edu'; 'LRugani@nas.edu'; 'JWalsh@nas.edu'  
**Subject:** Re: NAS phase 2, pilot planning study

Hi Kevin;

Thanks for that. I've yet to hear any complaints from the senior folks, and if I do I'll pass along your note. We should be able to handle any questions.

Scott

Sent from an NRC Blackberry

Scott Burnell

(b)(6)

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Monday, December 29, 2014 04:32 PM  
**To:** Burnell, Scott; Brock, Terry  
**Cc:** Kosti, Ourania ; Rugani, Lauren ; Walsh, Jennifer ; Crowley, Kevin  
**Subject:** RE: NAS phase 2, pilot planning study

Terry and Scott:

I am terribly sorry about the early release of the cancer risk phase 2 report. We did not intend to release the report until January 5.

I hope that this early release does not cause problems for your agency. If we need to apologize to anyone else in your agency or elsewhere please let me know. (I have already sent a note to the project listserv announcing the early release and apologizing for the error.)

Regards,

Kevin

---

**From:** Burnell, Scott [mailto:Scott.Burnell@nrc.gov]  
**Sent:** Monday, December 29, 2014 2:03 PM  
**To:** Rugani, Lauren  
**Cc:** Crowley, Kevin; Kosti, Ourania; Brock, Terry  
**Subject:** RE: NAS phase 2, pilot planning study

Thanks Lauren!

---

**From:** Rugani, Lauren [mailto:LRugani@nas.edu]  
**Sent:** Monday, December 29, 2014 2:03 PM  
**To:** Burnell, Scott  
**Cc:** Crowley, Kevin; Kosti, Ourania  
**Subject:** Re: NAS phase 2, pilot planning study

Hi Scott,

You are correct. Rania and I are both out of the office today but I'm trying to figure out what happened. Will keep you posted on plan of action

Thanks,

Lauren

Sent from my iPhone

On Dec 29, 2014, at 12:58 PM, Burnell, Scott <[Scott.Burnell@nrc.gov](mailto:Scott.Burnell@nrc.gov)> wrote:

Good afternoon all;

I'm fairly certain I remember you all saying the report would go out on the 5<sup>th</sup>. Where was I mistaken? Thanks.

Scott

---

**From:** Hiruo, Elaine [<mailto:elaine.hiruo@platts.com>]

**Sent:** Monday, December 29, 2014 1:18 PM

**To:** Burnell, Scott

**Cc:** Hiruo, Elaine

**Subject:** NAS phase 2, pilot planning study

Hi, Scott. Is there any reaction from NRC on the phase 2 pilot planning study that NAS issued today on the assessment NRC has asked it to do on cancer risks in populations living near nuclear facilities?

Staff will review this study and issue a recommendation to the commission on how it thinks the agency should proceed, is that correct? And is there a timeline for when staff will have to give the commission feedback on this?

Earlier you have said this study will include NAS estimates on the cost and time needed to implement this pilot study. I have not found those estimates yet in the report. Would you please point me in the proper direction on that?

Thanks.

Hope you had a wonderful holiday.

Elaine

**Elaine Hiruo**

Managing Editor, NuclearFuel

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**From:** Crowley, Kevin  
**Sent:** 31 Aug 2010 14:50:32 -0400  
**To:** Burnell, Scott;Brock, Terry  
**Subject:** RE: NAS or NA?

Yes. We will change our website. It will go live tomorrow morning.

---

**From:** Burnell, Scott [mailto:Scott.Burnell@nrc.gov]  
**Sent:** Tuesday, August 31, 2010 2:50 PM  
**To:** Brock, Terry; Crowley, Kevin  
**Subject:** Re: NAS or NA?

OK, so we'll go with "National Academy of Sciences" and NAS, yes?

Sent from an NRC Blackberry  
Scott Burnell

(b)(6)

---

**From:** Brock, Terry  
**To:** Burnell, Scott  
**Sent:** Tue Aug 31 14:48:06 2010  
**Subject:** FW: NAS or NA?

NAS please?

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Crowley, Kevin [mailto:KCrowley@nas.edu]  
**Sent:** Tuesday, August 31, 2010 2:46 PM  
**To:** Brock, Terry  
**Subject:** RE: NAS or NA?

That is not a problem. We can change to NAS.

---

**From:** Brock, Terry [mailto:Terry.Brock@nrc.gov]  
**Sent:** Tuesday, August 31, 2010 2:47 PM  
**To:** Crowley, Kevin  
**Cc:** Burnell, Scott  
**Subject:** NAS or NA?

Kevin,

Your forthcoming press release uses National Academies instead of NAS. Both of us have been using NAS since the April press release. Is it too late to continue using NAS to reduce potential confusion? The project is technically under NAS right?

Terry

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 31, 2010 1:43 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer study-NAS call for nominations

National Academies is straight from their press release language. \*shrug\*

---

**From:** Brock, Terry  
**Sent:** Tuesday, August 31, 2010 1:43 PM  
**To:** Burnell, Scott  
**Subject:** RE: Cancer study-NAS call for nominations

One last thing. Let's use National Academy of Sciences (NAS) instead of NA. OK?

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
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phone: 301-251-7487

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 31, 2010 1:04 PM  
**To:** Brock, Terry  
**Subject:** RE: Cancer study-NAS call for nominations

Thanks!

---

**From:** Brock, Terry  
**Sent:** Tuesday, August 31, 2010 1:04 PM  
**To:** Burnell, Scott; Bush-Goddard, Stephanie  
**Subject:** RE: Cancer study-NAS call for nominations

Yes

Terry Brock, Ph.D.  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555  
Mail Stop CSB-3A07  
phone: 301-251-7487

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 31, 2010 12:34 PM  
**To:** Brock, Terry; Bush-Goddard, Stephanie  
**Subject:** RE: Cancer study-NAS call for nominations

Can I take this as Brian's approval?

---

**From:** Sheron, Brian  
**Sent:** Tuesday, August 31, 2010 11:45 AM  
**To:** Brock, Terry  
**Cc:** Lyons, James; Gibson, Kathy; Valentin, Andrea; Bush-Goddard, Stephanie; Burnell, Scott  
**Subject:** RE: Cancer study-NAS call for nominations

Thanks for the update.

---

**From:** Brock, Terry  
**Sent:** Tuesday, August 31, 2010 10:18 AM  
**To:** Sheron, Brian  
**Cc:** Lyons, James; Gibson, Kathy; Valentin, Andrea; Bush-Goddard, Stephanie; Burnell, Scott  
**Subject:** Cancer study-NAS call for nominations  
**Importance:** High

Brian,

The NAS will be soliciting cancer study committee members starting tomorrow for the entire month of September. Attached is the press release that our OPA is planning to release tomorrow (coordinated with NAS). The plan is for a month long solicitation and then another one to two months to select the candidates. The first meeting will take place in January depending on how long the committee selection takes and the number of contentions they have to address for whoever they select.

Thanks,  
Terry

Terry Brock, Ph.D.  
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phone: 301-251-7487

---

**From:** Burnell, Scott  
**Sent:** Tuesday, August 31, 2010 7:49 AM

**To:** Brock, Terry; Bush-Goddard, Stephanie  
**Subject:** NAS call for noms  
**Importance:** High

Terry, Stephanie;

I need a quick concurrence on this so we can try and issue our release together withNAS.  
Thanks.

Scott