

**From:** Yawar Faraz  
**Sent:** Monday, December 08, 2008 10:11 AM  
**To:** fowlernet123@hotmail.com  
**Cc:** Thomas Hiltz; Margie Kotzalas; Marissa Bailey; Michael Raddatz; Kevin Ramsey; Timothy Kobetz; Elaine Keegan

Mr. Fowler,

This is in response to your e-mails dated October 22, 2008, and November 3, 2008. Our highlighted responses are embedded within your October 22, 2008 e-mail below.

You noted that our previous correspondence focused on "licensees," but that the fuel cycle also included "certificate holders." The information in our previous responses included information from certificate holders as well as licensees. For example, some of your questions regarding our correspondence relate to statements about the Paducah Gaseous Diffusion Plant, a certificate holder. Wherever we have simply referred to "licensees" in our previous correspondence, please read that more broadly to include the affected certificate holders in the nuclear fuel cycle.

One of your concerns is how the NRC ensures that its licensees and certificate holders are complying with 40 CFR 190. The NRC staff reviews the effluent release reports submitted by its licensees and certificate holders to ensure regulatory requirements are being met. The staff does not sum-up all releases from facilities. The fact that releases of radionuclides contained in 40 CFR 190 from individual facilities have been either negligible or extremely low gives the NRC staff reasonable assurance that the requirements of 40 CFR 190 are being met.

We believe we have been responsive to your concerns. If you have any new concerns please do not hesitate to contact us.

Yawar Faraz  
Sr. Project Manager  
FCSS/NMSS  
U.S. Nuclear Regulatory Commission  
Washington DC 20555  
301-492-3207

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From: [fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)  
To: [yawar.faraz@nrc.gov](mailto:yawar.faraz@nrc.gov)  
CC: [thomas.hiltz@nrc.gov](mailto:thomas.hiltz@nrc.gov); [margie.kotzalas@nrc.gov](mailto:margie.kotzalas@nrc.gov); [michael.raddatz@nrc.gov](mailto:michael.raddatz@nrc.gov); [kevin.ramsey@nrc.gov](mailto:kevin.ramsey@nrc.gov)  
Subject: RE:  
Date: Mon, 3 Nov 2008 19:12:00 -0400

Mr. Faraz,

I look forward to concise answers with documentation. **WHEN WILL I RECEIVE SUCH ANSWERS?**

Am I asking too much when I request documentation?

Sincerely,

Ron Fowler

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From: [fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)  
To: [yawar.faraz@nrc.gov](mailto:yawar.faraz@nrc.gov)  
CC: [thomas.hiltz@nrc.gov](mailto:thomas.hiltz@nrc.gov); [margie.kotzalas@nrc.gov](mailto:margie.kotzalas@nrc.gov); [michael.raddatz@nrc.gov](mailto:michael.raddatz@nrc.gov); [kevin.ramsey@nrc.gov](mailto:kevin.ramsey@nrc.gov)  
Subject: RE:  
Date: Wed, 22 Oct 2008 07:11:10 -0400

Mr. Faraz,

As I wrote in previous correspondence, the NRC chose the years of 1981 to 2005 in their Response to Concerns Regarding Ensuring Compliance with 40 CFR Part 190 mailed to me and dated September 24, 2008. Reading the correspondence you sent to me October 21, 2008 I see where the years of 2003 through 2007 were reviewed. Where are the years of 1981 through 2002?

**NRC RESPONSE:** The years for which the effluent release reports were reviewed represent a reasonable period for addressing the concerns raised. Additionally, the effluent release documents reviewed, the ML Nos. of which were provided to you, are readily available in ADAMS. To request copies of any additional effluent release reports, you may search ADAMS. If you are unable to find them in ADAMS, you can file a request under the Freedom of Information Act (FOIA). The web page <http://www.nrc.gov/reading-rm/foia/foia-privacy.html> explains the FOIA document request process.

You state in your letter:

"For the Paducah and NFS facilities, the total quantities of TRU radionuclides entering the environment were well below the 40 CFR 190 limits. Please note that of the small amounts of TRU radionuclide's released from these two facilities, it was not clear what fraction, if any, can be attributed to the uranium fuel cycle."

- If this is the case why are areas offsite at the Paducah facility found to have TRU present, maps given to the public pointing out these offsite locations, and ditches leaving the Paducah site are found to have TRU contaminants?

**NRC RESPONSE:** The NRC assumed oversight of uranium enrichment operations conducted by the United States Enrichment Corporation (USEC) at the Paducah facility from the Department of Energy in March 1997. Since that time, the NRC has been cognizant of the extremely small releases of TRU radionuclides to the environment, part of which may be from USEC's uranium enrichment operations. These have been well below the NRC's and EPA's allowable release limits. As such, the staff concludes that uranium enrichment operations conducted by USEC under the NRC's certificate, have not significantly contributed to any environmental contamination involving TRU radionuclides.

- What about contamination tracked from one facility to another after outages and/or repairs. Surely this is entering the general environment after it leaves the area of one facility and is transported to another.

**NRC RESPONSE:** NRC requires its fuel cycle licensees and certificate holders to establish and implement radiation protection programs. NRC routinely conducts inspections to ensure compliance with the requirements of the program. Adherence to the requirements of the radiation protection program ensures that no significant contamination is tracked beyond areas controlled by the NRC licensees and certificate holders.

- I've asked in correspondence to the NRC why heightened awareness is being brought on licensees to monitor for alpha at this time? Has all of the alpha found been categorized to be TRU or other nuclides, **I don't believe so?** Have all facilities implemented the alpha analysis as suggested under guidelines of EPRI and INPO, **again I know they haven't?**

**NRC RESPONSE:** The NRC staff is not aware of any heightened awareness related to its environmental monitoring of alpha radiation at its licensed facilities at this time. NRC licensees and certificate holders are required to monitor for radionuclides that can be released to the environment in significant quantities.

- I've requested the information from cradle to grave proving the directions in 40 CFR 190 were met, in numerous letters to the NRC and I still don't have this information. My questions are simple, if you are in the uranium fuel cycle did you follow the guidance of 40 CFR 190 and if so where is the documentation?

**NRC RESPONSE:** As we had indicated before, the potential for releasing small quantities of some of the radionuclides mentioned in 40 CFR 190 exists at nuclear power reactors and four fuel cycle facilities. For these facilities, the NRC individually reviews the effluent release reports to ensure compliance with established limits. The staff does not sum-up all releases from facilities. Because NRC regulates individual licensees, we ensure that each licensee complies with established effluent release limits. The fact that releases of radionuclides contained in 40 CFR 190 from individual facilities have been either negligible or extremely low gives the NRC staff reasonable assurance that the requirements of 40 CFR 190 are being met.

- If it isn't clear what amount, if any, of TRU can be accredited to releases from Paducah and NFS facilities as you wrote, I believe it is clear in 40 CFR 190 when it says "**TOTAL QUANTITY!**"

**NRC RESPONSE:** The total quantity applies to radioactive materials entering the general environment from the entire uranium fuel cycle. It should be noted that certain processes outside the uranium fuel cycle have and potentially are being conducted at Paducah and NFS in areas not regulated by the NRC which involve radionuclides mentioned in 40 CFR 190. Regardless, effluent reports indicate that releases of such radionuclides from these facilities are extremely low or negligible.

40 CFR 190:

"(b) The total quantity of radioactive materials entering the general environment from the entire uranium fuel cycle, per gigawatt-year of electrical energy produced by the fuel cycle, contains less than 50,000 curies of krypton-85, 5 millicuries of iodine-129, and 0.5 millicuries combined of plutonium-239 and other alpha-emitting transuranic radionuclides with half-lives greater than one year."

In closing you wrote:

"I believe this e-mail along with our letter to you dated September 24, 2008, responds to your concerns." As you can tell by this correspondence, **you haven't responded to my concerns.** Your letter on September 24, 2008 talked of:

- Licensees and not certificate holders but they are lumped together in the uranium fuel cycle.
- Did NOT give **the documentation to substantiate your beliefs.**
- **Talked of gaseous and liquid effluents and their established limits but where is the non-intentional release and were all releases, contamination events, equipment transfers, etc. tested for the type of radionuclide or just activity?**

Sincerely,

Ronald Fowler

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From: [Yawar.Faraz@nrc.gov](mailto:Yawar.Faraz@nrc.gov)

To: [fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)

CC: [Thomas.Hiltz@nrc.gov](mailto:Thomas.Hiltz@nrc.gov); [Margie.Kotzalas@nrc.gov](mailto:Margie.Kotzalas@nrc.gov); [Michael.Raddatz@nrc.gov](mailto:Michael.Raddatz@nrc.gov); [Kevin.Ramsey@nrc.gov](mailto:Kevin.Ramsey@nrc.gov)

Date: Tue, 21 Oct 2008 17:10:39 -0400

Subject: RE: RE:

Mr. Fowler,

This e-mail is in response to the e-mail you sent me on September 29, 2008. In your e-mail you stated that you were concerned about the total quantity of radioactive material entering the general environment from the entire uranium fuel cycle. In particular, you were concerned about the transuranic (TRU) alpha emitting radionuclides.

Other than reactors, there are four fuel cycle facilities regulated by the NRC, namely the Paducah Gaseous Diffusion Plant in Paducah Kentucky, the NFS facility in Erwin Tennessee, Portsmouth Gaseous Diffusion Plant in Piketon Ohio, and BWXT in Lynchburg Virginia that have processes that have the potential of releasing very small quantities of TRU radionuclides. For these facilities, I reviewed pertinent documents that provide quantities of radioactivity by radionuclide released to the environment over the past several years. Based on my review, I determined that there were no TRU radionuclides released to the environment from the Portsmouth and BWXT facilities over the past several years. For the Paducah and NFS facilities, the total quantities of TRU radionuclides entering the environment were well below the 40 CFR 190 limits. Please note that of the small amounts of TRU radionuclides released from these two facilities, it was not clear what fraction, if any, can be attributed to the uranium fuel cycle.

The pertinent documents I reviewed, most of which are publically available in the NRC's ADAMS public document system (<http://www.nrc.gov/reading-rm/adams.html>), are as follows:

Paducah:

ML081070229 – Paducah Gaseous Diffusion Plant, Application for Renewal of Certificate of Compliance, GDP-1

NFS:

ML081410186 – Environmental Assessment, June 22, 2005

ML042600037 – Effluent Report for 1<sup>st</sup> half 2004

ML051150075 – Effluent Report for 2<sup>nd</sup> half 2004

ML051150066 – Amended Effluent Report for 2<sup>nd</sup> half 2004

ML060860092 – Effluent Report for 1<sup>st</sup> half 2005

ML060590265 – Effluent Report for 2<sup>nd</sup> half 2005

ML080510464 – Effluent Report for 1<sup>st</sup> half 2006

ML070590627 – Effluent Report for 2<sup>nd</sup> half 2006

ML072670156 – Effluent Report for 1<sup>st</sup> half 2007

ML081500695 – Effluent Report for 2<sup>nd</sup> half 2007

Portsmouth :

ML081070220 – Portsmouth Gaseous Diffusion Plant, Application for Renewal of Certificate of Compliance, GDP-2

BWXT:

ML040970395 - Effluent Report for 2<sup>nd</sup> half 2003  
ML042520034 - Effluent Report for 1<sup>st</sup> half 2004  
ML050670441 - Effluent Report for 2<sup>nd</sup> half 2004  
ML052500444 - Effluent Report for 1<sup>st</sup> half 2005  
ML060930343 - Effluent Report for 2<sup>nd</sup> half 2005  
ML062490403 - Effluent Report for 1<sup>st</sup> half 2006  
ML070650465 - Effluent Report for 2<sup>nd</sup> half 2006  
ML072470573 - Effluent Report for 1<sup>st</sup> half 2007  
ML080640659 - Effluent Report for 2<sup>nd</sup> half 2007

I believe this e-mail along with our letter to you dated September 24, 2008, responds to your concerns.

Sincerely,

Yawar Faraz  
Sr. Project Manager  
Division of Fuel Cycle Safety and Safeguards  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington DC 20555  
301-492-3207

**From:** Ron Fowler [mailto:fowlernet123@hotmail.com]  
**Sent:** Tuesday, October 21, 2008 10:21 AM  
**To:** Yawar Faraz  
**Subject:** RE:

Mr. Faraz,

It's been a few weeks and I haven't heard from you regarding my concerns. Should I anticipate an answer this week?

Ron Fowler

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From: [Yawar.Faraz@nrc.gov](mailto:Yawar.Faraz@nrc.gov)  
To: [fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)  
CC: [Thomas.Hiltz@nrc.gov](mailto:Thomas.Hiltz@nrc.gov)

Date: Fri, 3 Oct 2008 09:32:50 -0400  
Subject: RE: RE:

Mr. Fowler,

I have been very busy during the past couple of weeks. Nevertheless, I was able to find some time and have done some research regarding your concerns especially on any releases of TRU radionuclides from fuel cycle facilities. I will be on travel next week. I hope to get back to you via e-mail the following week.

Yawar Faraz  
Sr. Project Manager  
FCSS/NMSS  
U.S. Nuclear Regulatory Commission  
Washington DC 20555  
301-492-3207

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**From:** Ron Fowler [fowlernet123@hotmail.com]  
**Sent:** Friday, October 03, 2008 6:51 AM  
**To:** Yawar Faraz  
**Subject:** RE:

Mr. Faraz,

Today is the ending of a complete business week since the first email to you and I haven't heard from you regarding my email (see below). I've been working on this issue for quite a long time and I would appreciate an answer of some sort.  
I look forward to hearing from you. Please contact me via phone if you want.

Ron Fowler  
803-271-4120

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From: [fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)  
To: [yawar.faraz@nrc.gov](mailto:yawar.faraz@nrc.gov)  
Subject:  
Date: Mon, 29 Sep 2008 12:30:11 -0400

Mr. Faraz,

I received a letter in response to my concerns dated September 24, 2008 from the NRC and have been directed to contact you if I have any questions. The response does not answer my concerns. There is reference in the next to the last paragraph of the letter dated September 24, 2008 discussing effluent reports "from 1981 to 2005, and the available effluent reports for 2006" released from operating nuclear power plants. My concerns are for the entire uranium fuel cycle. Since the NRC chose the years of 1981 to 2005 and available 2006 reports from power plants did they go to the rest of the **uranium fuel cycle and add those effluents and releases of any nature planned or not into the total for those years as is stated in 40 CFR 190.**

**Definitions from 40 CFR:**

"(b) *Uranium fuel cycle* means the operations of milling of uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity by a light-water-cooled nuclear power plant using uranium fuel, and reprocessing of spent uranium fuel, to the extent that these directly support the production of electrical power for public use utilizing nuclear energy, but excludes mining operations, operations at waste disposal sites, transportation of any radioactive material in support of these operations, and the reuse of recovered non-uranium special nuclear and by-product materials from the cycle."

"(b) The total quantity of radioactive materials entering the general environment from the entire uranium fuel cycle, per gigawatt-year of electrical energy produced by the fuel cycle, contains less than 50,000 curies of krypton-85, 5 millicuries of iodine-129, and 0.5 millicuries combined of plutonium-239 and other alpha-emitting transuranic radionuclides with half-lives greater than one year."

**NOTE: I have never said just effluents and just power plants in my concern but a total quantity of radioactive materials entering the general environment from the entire uranium fuel cycle.**

#####

In the 3rd paragraph from the top of the September 24, 2008 letter it discusses enforcement actions when licensees are determined to be out of compliance. All of the plants in the entire uranium fuel cycle are NOT licensed by the NRC but some operate under **Certificate** (see 10 CFR 76.1, section copied below). Why are they being ignored?

## § 76.1 Purpose.

"(a) This part establishes requirements that will govern the operation of those portions of the Portsmouth and Paducah Gaseous Diffusion Plants located in Piketon, Ohio, and Paducah, Kentucky, respectively, that are leased by the United States Enrichment Corporation. These requirements are promulgated to protect the public health and safety from radiological hazards and provide for the common defense and security. This part also establishes the certification process that will be used to ensure compliance with the established requirements."

#####

In the September 24, 2008 letter from the NRC there is discussion of weak betas and alphas released from operating nuclear power plants. I'm concerned over the transuranic alpha emissions that are of extreme health concern. Can I have the tabulation of results coming from the entire uranium fuel cycle for the years the NRC chose to review (1981 to 2005 and 2006) in their letter to me dated September 24, 2008 from all aspects of release in the **entire uranium fuel cycle? This is my concern.**

Sincerely,

Ronald Fowler  
140 Wingspan Way  
Chapin, SC 29036  
803-271-4120

[fowlernet123@hotmail.com](mailto:fowlernet123@hotmail.com)

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## E-mail Properties

### Mail Envelope Properties ()

Subject:

Sent Date: 12/8/2008 9:45:34 AM

Received Date: 12/8/2008 10:10:00 AM

From: Yawar Faraz

Created By: Yawar.Faraz@nrc.gov

### Recipients:

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Tracking Status: None

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### Post Office:

Files	Size	Date & Time
MESSAGE	34456	12/8/2008

### Options

Expiration Date:

Priority: oImportanceNormal

ReplyRequested: False

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Recipients received: