

## Quintero, Jessie

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**From:** Sarah Furtak - NOAA Federal <sarah.furtak@noaa.gov>  
**Sent:** Tuesday, December 12, 2017 1:49 PM  
**To:** Grange, Briana; Quintero, Jessie  
**Subject:** [External\_Sender] Discussion questions: SER-2017-18839 (Columbia Fuel Fabrication)  
**Attachments:** Questions regarding SER-2017-18839 dec\_12\_2017.docx

Good Afternoon Briana and Jessie,

Thanks for setting up the call for tomorrow at 2 pm. I am attaching draft questions to guide our discussion.

Looking forward to it!

Sarah

### **Sarah Furtak**

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**From:** Sarah Furtak - NOAA Federal <[sarah.furtak@noaa.gov](mailto:sarah.furtak@noaa.gov)>  
**Date:** Wed, Dec 6, 2017 at 4:46 PM  
**Subject:** Re: Re: SER-2017-18839 (Columbia Fuel Fabrication)  
**To:** "Quintero, Jessie" <[Jessie.Quintero@nrc.gov](mailto:Jessie.Quintero@nrc.gov)>  
**Cc:** "Grange, Briana" <[Briana.Grange@nrc.gov](mailto:Briana.Grange@nrc.gov)>

Greetings Jessie and Briana,

Thanks for checking in with me, Jessie, on SER-2017-18839, and for proposing some dates and times to informally discuss our preliminary thinking, questions about the consultation, and timing on your end and our end. December 13 from 2-3 pm works for me as well as our Atlantic and short nose sturgeon species expert, Andrew Herndon, and my supervisor, Mark Lamb. Andrew and Mark would be interested in joining us. Please feel free to cc them at [andrew.herndon@noaa.gov](mailto:andrew.herndon@noaa.gov) and [mark.lamb@noaa.gov](mailto:mark.lamb@noaa.gov), or just include me, and I will ensure they have the call-in information.

Appreciatively,  
Sarah

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**Questions for NRC regarding SER-2017-18839**

1. Has the Nuclear Regulatory Commission (NRC) ever consulted with National Marine Fisheries Service (NMFS) or with the U.S. Fish and Wildlife Service on this site or on a similar project nationally? Can NRC provide us with pertinent consultation perspectives on this request?
2. Why does NRC only consider ammonia, fluorides, and uranium in the biological evaluation, when there are other discharge limits in the National Pollutant Discharge Elimination System (NPDES) permit (e.g., minimum dissolved oxygen [DO])?
  - a. Why now and why those compounds?
  - b. Why just NPDES parameters?
  - c. Are there aspects of this project that NRC made a ‘no effect’ determination for besides Atlantic sturgeon species and Atlantic sturgeon critical habitat?
3. The biological evaluation states that sturgeon could swim around the effluent plume to avoid chemicals and other pollutants. What is the scientific basis for making such a statement?
  - a. What is the effluent temperature relative to the Congaree River temperature? The ambient temperature in the lagoon and outfall pipe may be hot as compared to the river temperature at the discharge point. Is there a thermal plume? Can the size and the shape of the thermal plume be approximated and graphically depicted over time using isobar concentration figures from actual data?
  - b. Is there a (shortnose) sturgeon spawning area nearby?
  - c. What is the benthic habitat and water depth in the action area?
4. Is water quality in the action area within the Congaree River safe for the Atlantic sturgeon and shortnose sturgeon? Provide the NPDES permit, too, please.

Ammonia -- Based upon calculations of un-ionized ammonia levels with discharge monitoring report (DMR) data for ammonia, pH, and year-round river temperatures (temperatures found in national water quality database <https://www.waterqualitydata.us/portal/>), effluent concentrations of “Nitrogen, ammonia total (as N)” appear to correspond with un-ionized ammonia in concentrations that exceed the 0.05 mg/L level, a level of toxic to fish, (<http://edis.ifas.ufl.edu/pdffiles/FA/FA03100.pdf>); at 2.0 mg/L, fish will die.

a. What are the un-ionized ammonia concentrations in the action area? Is there an un-ionized ammonia concentration plume in the river? Can the size and the shape of the un-ionized ammonia plume be approximated and graphically depicted over time using isobar concentration figures from actual data?

Fluorides -- Effluent concentrations DMR data for fluorides appear NLAA for sturgeon based upon available, limited toxicology data (for Siberian sturgeon).

b. What are the fluoride concentrations in the action area? Is there a fluoride concentration plume in the river? Can the size and the shape of the fluoride plume be approximated and graphically depicted over time using isobar concentration figures from actual data?

Uranium — According to NRC (Jessie Quintero) on 12/6/2017, fish samples have shown no uranium and sediment samples measure <2 pCi/g.

c. What are the uranium concentrations in the action area? Is there a uranium concentration plume in the river? Can the size and the shape of the uranium plume be approximated and graphically depicted over time using isobar concentration figures from actual data?

d. Were the readings Jessie mentioned taken in the action area?

e. In those readings, were fish an appropriate size for bioaccumulation extrapolation to sturgeon? What fish species were studied? Where?

f. We have recent data on uranium concentrations in liquid effluent (e.g., ppm, uCi, pCi/L). How do these units compare/convert – if at all -- to the 1 rad/day DOE guideline that NRC uses to assess effects to aquatic biota (i.e., with 1 rad/day being the level at which DOE expects no negative population-level effects)?

g. Why does NRC use a guideline of 1 rad/day to assess impacts to sturgeon when 1 rad/day correlates with significant histological effects on the gonads of small tropical fish? We need to be able to compare units to make determinations.

DO — Effluent concentrations DMR data for DO appear NLAA for sturgeon (generally, DO concentrations below 4.5 mg/L are cause for worry and 6.0 mg/L or greater are good).

h. Are the DMR data monthly averages? If so, what weekly DO data (required by the NPDES permit) do you have for the outfall?

E. coli -- Water quality in the Congaree River segment at the outfall 001 is impaired for *E. coli*.

- i. Is this likely to adversely affect sturgeon?
5. Is the outfall pipe (001) submerged, or going through open air? If in the water column, where? Can we get a map of the outfall (action area)?
  6. According to NRC's 10/2/2017 response to NMFS's 9/22/2017 questions, the effluent flow (0.161 cubic feet per second [cfs]) is <0.001 % of the river flow (8,652 cfs). NRC's biological evaluation states that "...eggs and larvae, if present, are not as mobile; however, the area and duration of exposure would be limited because the volume of liquid effluent discharged from CFFF represents a very small percentage of the overall flow of the river." How do monthly (or seasonal) variations in discharge flow and river flow change the concentrations of pollutants and potential toxicity to sturgeon (e.g., spawning and life history)? [Collect historical flow data and estimate concentrations based on DMR data matched to flow]
  7. What other contaminants might be affecting the marine environment (and ultimately threatened and endangered species)? Is this a Superfund site? RCRA correction action site?
    - a. It appears there is legacy groundwater contamination by nitrates, fluorides, and volatile organic compounds (and a remediation system), according to the 2014 Tetra Tech environmental report. Can groundwater contamination from the facility be affecting the marine environment and our species?

*[Westinghouse Nuclear Fuel Fabrication Facility borders a Superfund site on the east. The Superfund site, SCRDI Bluff Road, "includes an area where storage, recycling and disposal operations took place until 1982. EPA placed the site on the Superfund program's National Priorities List (NPL) in 1983 because of contaminated groundwater and soil resulting from operations at the site."*

*(<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0403212#bkground>) Westinghouse does not appear to be a RCRA corrective action site (<https://www.epa.gov/cleanups/cleanups-my-community>).]*
  8. The facility appears to be covered by a stormwater general permit (SCR003391).
    - a. Is this permit different than the NPDES Permit? If so, what and where are the outfalls?
    - b. What are the monitoring requirements?
    - c. Can stormwater discharges (including nonpoint source discharges) affect sturgeon?