ClinchRiverESPHFNPEm Resource

From: Fetter, Allen
Sent: Tuesday, April 25, 2017 12:14 PM
To: Mcdowell, Bruce K
Subject: FW: Submission 3 of Information Needs for Environmental Audit
Attachments: Info Needs Submission 3 _HY SE, NRH, UFC.docx

FYI

From: Fetter, Allen
Sent: Wednesday, April 12, 2017 11:56 AM
To: 'Schiele, Raymond Joseph' ; pshastings (pshastings@tva.gov)
Cc: ClinchRiverESPEnvNPEm Resource ; Dozier, Tamsen ; Vokoun, Patricia ; Sutton, Mallecia
Subject: FW: Submission 3 of Information Needs for Environmental Audit

More draft information needs.

From: Dozier, Tamsen
Sent: Tuesday, April 11, 2017 6:01 PM
To: Fetter, Allen <Allen.Fetter@nrc.gov>
Cc: Vokoun, Patricia <Patricia.Vokoun@nrc.gov>
Subject: Submission 3 of Information Needs for Environmental Audit

Ray

Attached are the info needs for hydrology, socioeconomics, non-radiological health and uranium fuel cycle. Please note that we are aware that there are several hydrology information needs (particularly in the groundwater area) that have substantial overlap with what is being discussed during the safety hydrology audit. Our environmental review team members are coordinating heavily with the safety technical reviewers to understand these overlapping items and the environmental discussions will be informed by the discussions and issue resolutions that take place during the safety audits. We can continue to discuss the hydrology items and logistics of the hydrology sessions at the audit should you have questions on any particular items.

Let us know if you have any additional questions.

Tami

Tamsen Dozier
Environmental Project Manager
Office of New Reactors
Nuclear Regulatory Commission
301-415-2272

Hearing Identifier: ClinchRiver_ESP_HF_NonPublic
Email Number: 151

Mail Envelope Properties (Allen.Fetter@nrc.gov20170425121300)

Subject: FW: Submission 3 of Information Needs for Environmental Audit
Sent Date: 4/25/2017 12:13:40 PM
Received Date: 4/25/2017 12:13:00 PM
From: Fetter, Allen

Created By: Allen.Fetter@nrc.gov

Recipients:
"Mcdowell, Bruce K" <Bruce.McDowell@pnnl.gov>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	1562	4/25/2017 12:13:00 PM
Info Needs Submission 3 _HY SE, NRH, UFC.docx	30833	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Info Needs #	Info Needed	SME Name	ER Section
HY-GW-01	Average annual precipitation is given as 50 in./yr, with average annual runoff of 25 to 30 in./yr. Provide information related to and a knowledgeable expert to discuss estimates of the average annual evapotranspiration and groundwater recharge in the vicinity of the CRN Site.	Barnhurst, Dan Meyer, Philip D	2.3.1.2.1.1
HY-GW-02	The estimate of well yields in the region is a very wide range (1 to 2,500 gpm). Provide information related to and a knowledgeable expert to discuss an estimate of well yields in the vicinity of the CRN Site and the basis for that estimate.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-03	The conceptual model of groundwater flow describes 90 percent of subsurface flow occurring in a shallow stormflow zone and less than 2 percent of flow occurring in the deeper aquifer (as shown in Figure 2.3.1-23). Provide a knowledgeable expert to explain how this conceptual model is consistent with the regional well yield estimates of up to 2,500 gpm, whether this conceptual model of groundwater flow is consistent with the well yield estimates for the vicinity of the CRN Site, and the estimated thickness of the stormflow zone across the CRN Site and the basis for this estimate. The ER states that the primary differences between the ORR and CRN Sites are in the stormflow and vadose zones at the CRN Site. The extensive excavation and reworking of unconsolidated and weathered bedrock materials associated with the Clinch River Breeder Reactor Project (CRBRP) site preparation has either significantly modified or obliterated these zones at the CRN Site. Provide a knowledgeable expert to explain how the ORR conceptual model of groundwater flow was revised to reflect the modification or obliteration of the stormflow and vadose zones at the CRN Site.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-04	Provide for staff examination at the audit a figure of the data presented in Figure 2.3.1-24, but broken out by type of test (e.g., slug, packer, pump, and tracer) instead of all lumped together. The ORR data appears to be mainly from the Conasauga Group hydrogeologic units, which do not seem to play a major role in the CRN Site groundwater. Provide a knowledgeable expert to explain how the ORR data from the Conasauga Group are relevant to the CRN Site characterization of the Chickamauga and Knox Groups. Provide for staff examination at the audit a data report,	Barnhurst, Dan Meyer, Philip D	2.3.1

	if available, with graphical fits of test analysis results for borehole packer, and slug tests for CRN Site data.		
HY-GW-05	Provide a knowledgeable expert to clarify what geologic units on ER Figure 2.3.1-22 are indicated by the use of the term "ORR aquitards".	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-06	ER Section 2.3.1.2.1.3.1 refers to CRBRP wells likely to have been destroyed or removed. Provide a knowledgeable expert to explain what is meant by destroying or removing wells, and to explain whether the destroyed or removed wells could provide preferential pathways for contaminant transport and whether that would be of concern.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-07	Provide a knowledgeable expert to explain the bearing designations used in ER Section 2.3.1.2.1.3.1, and elsewhere (e.g., N25degW 80degSW).	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-08	ER Section 2.3.1.2.1.3.1 refers to fluctuations in groundwater levels of as much as 20 ft. Provide a knowledgeable expert to identify the period of data to which these observed fluctuations correspond.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-09	Provide for examination at the audit available CRBRP documentation: an original copy of the Preliminary Safety Analysis Report (with sharp/readable figures), and any available site investigation reports or construction reports showing photos of the excavation.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-10	Lincolnshire and Blackford formations are both said to be aquitards in Fig. 2.3.1-22. Provide a knowledgeable expert to explain why the pumping test was conducted in units that are aquitards.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-11	The ORR tests resulted in an average effective porosity of 4 percent. Provide a knowledgeable expert to discuss whether the same value of effective porosity was assumed for the CRN Site, and whether the porosity value represents the effective porosity of the rock matrix, or the effective porosity of the rock matrix + fractures. Most of the porosity measurements cited in the ER were from the Conasauga Group. Provide a knowledgeable expert to explain how these measurements are relevant to the CRN Site which appears to consist primarily of the Chickamauga and Knox Groups.	Barnhurst, Dan Meyer, Philip D	2.3.1
HY-GW-12	Table 2.3.1-3 lists Newala as one of the geologic units. This unit does not appear to be in Figure 2.3.1-22 or described in the ER. This unit is discussed in the site safety analysis report (SSAR). Provide a knowledgeable expert to confirm the identification of the Newala unit,	Barnhurst, Dan Meyer, Philip D	2.3.1

	and to describe how the ER was reviewed for consistency with the SSAR.		
HY-GW-13	Provide for staff examination at the audit the results of the survey TVA conducted (completed in June 1973) to locate wells and springs within a two-mile radius of the site (Reference 2.3.2-8). Provide a knowledgeable expert to explain how this survey is adequate to describe current and anticipated future groundwater use within the vicinity of the CRN Site. Provide a knowledgeable expert to discuss the locations (including well depths) and rates of use for present and known future offsite groundwater users within the vicinity of the CRN Site, including individual domestic users.	Barnhurst, Dan Meyer, Philip D	2.3.2
HY-GW-14	ER Section 2.3.2.2.2 cites reference 2.3.2-14 in stating, *Approximately 2/3 of the community public water systems using ground water in Middle and East Tennessee have had at least one source determined under the direct influence of surface water. This means that these sources of groundwater are located close enough to a source of surface water to receive direct surface water recharge and are thus considered at risk from surface water contaminants and pathogens.* Provide a knowledgeable expert to discuss whether TVA considers this issue to be a concern for any groundwater users located in the vicinity of the CRN Site.	Barnhurst, Dan Meyer, Philip D	2.3.2
HY-GW-15	Provide a knowledgeable expert to discuss estimates of excavation dewatering flow rates, and the magnitude/extent of dewatering effects on groundwater levels and on groundwater discharge to springs, streams, ponds, and wetlands.	Barnhurst, Dan Meyer, Philip D	4.2.1
HY-GW-16	Provide a knowledgeable expert to discuss TVA's plans for following the groundwater monitoring guidance of NEI 07-07.	Barnhurst, Dan Meyer, Philip D	6.3 & 6.6
HY-SW-01	Provide information related to and a knowledgeable expert to discuss whether Figure 2.3.1-10 (based on 2004-2013 data) is reflective of the long-term variability of the Watts Bar reservoir elevation, and to discuss a long-term characterization of Clinch River elevation at the CRN Site.	Haque, Mohammad Meyer, Philip D	2.3
HY-SW-02	Provide information related to and a knowledgeable expert to explain how TVA is addressing the floodplain management requirements described in Executive Order 11988, as amended by EO13690.	Haque, Mohammad Meyer, Philip D	2.3

HY-SW-03	Provide information related to and a knowledgeable expert to discuss statistical characterization of the direction and magnitude of Clinch River flow at the CRN discharge location based on long-term data.	Haque, Mohammad Meyer, Philip D	2.3
HY-SW-04	Provide, for staff examination at the audit, a copy of the hydrothermal task force report.	Haque, Mohammad Meyer, Philip D	2.3.1
HY-SW-05	Provide for staff examination at the audit a non-redacted copy of reference 2.3.2-1, Regional Surface Water Use Study.	Haque, Mohammad Meyer, Philip D	2.3.2
HY-SW-06	Provide a knowledgeable expert to: - describe the Tennessee Department of Environment and Conservation (TDEC) state water registration requirements mentioned in ER Section 2.3.2.1.2, - discuss any issues or concerns that may arise that would challenge the reasonable assurance that water from the Clinch River arm of the Watts Bar reservoir would be available for the proposed plant, and - discuss TVA's plan to manage severe drought conditions and explain what triggers drought management plan implementation.	Haque, Mohammad Meyer, Philip D	2.3.2
HY-SW-07	Provide information related to and a knowledgeable expert to discuss use rates for recreation and navigation. Provide information on navigation regulations/requirements/restrictions.	Haque, Mohammad Meyer, Philip D	2.3.2
HY-SW-08	ER Table 2.3.3-16 (Sheet 1 or 3) provides a maximum dissolved oxygen value of 359 mg/L. Provide a knowledgeable expert to confirm whether this is an error and to provide a correct value.	Haque, Mohammad Meyer, Philip D	2.3.3
HY-SW-09	The ER states that no dredging during building will be required, but underwater excavation would be required. Provide information related to and a knowledgeable expert to explain the difference between these activities, whether there will be any spoils produced as a result of the underwater excavation, the estimated volume of any excavated materials (if spoils would be produced), and the estimated duration of in-water construction. Provide information related to and a knowledgeable expert to discuss the potential for non-rad and rad contaminants in the excavated sediments, TDEC sediment monitoring requirements, required actions if contamination is detected, anticipated control measures to minimize sediment disturbance/water-quality degradation, and the disposal of any spoils.	Haque, Mohammad Meyer, Philip D	4.2.1

HY-SW-10	Provide information related to and a knowledgeable expert to discuss estimates of water use during building for concrete batch plant use and for potable/sanitary water use, and to compare plant construction water use to City of Oak Ridge water supply capacity and current/future demands on that supply.	Haque, Mohammad Meyer, Philip D	4.2.2
HY-SW-11	Whiteoak Dam is listed in Table 4.7-1. Provide a knowledgeable expert to discuss whether there is any potential cumulative impact with building or operating the plant in the event of an uncontrolled release from Whiteoak Dam (e.g., flooding that washes water and contaminated sediments into the Clinch River).	Haque, Mohammad Meyer, Philip D	4.7
HY-SW-12	Provide information related to and a knowledgeable expert to discuss the following with respect to water use. - Plant water-use impacts will be local to the CRN Site; thus, evaluating plant water use with respect to water use over the entire Tennessee River watershed is less important than evaluating it with respect to uses in the vicinity of the CRN Site. Provide a knowledgeable expert to discuss potential local impacts. - Consumptive use is of equal or greater importance to impacts than withdrawals. Provide a knowledgeable expert to describe consumptive water use in the vicinity of the site. The stated transition from once-through cooling to closed-cycle cooling for thermoelectric power generation will increase consumptive demand in the region. Provide a knowledgeable expert to discuss whether this is reflected in the future consumptive-use estimates. - Projected changes in water use are provided to 2030 based on 2000 data. Provide a knowledgeable expert to discuss longer-term projections in water use based on more recent data, if available. - Flow conditions are variable; thus, impacts will also be variable. Provide a knowledgeable expert to discuss the effects of low-flow conditions on water-use impacts.	Haque, Mohammad Meyer, Philip D	5.2.2
HY-SW-13	ER Section 5.2.2 states, "the characteristics and constituents of the plant discharge still are proposed to be managed within the water quality criteria specified in the plant National Pollutant Discharge Elimination System (NPDES) permit." Provide a knowledgeable expert to explain whether this is an assertion, a commitment, or the result of an analysis.	Haque, Mohammad Meyer, Philip D	5.2.2

HY-SW-14	Provide information related to and a knowledgeable expert to discuss whether any maintenance dredging for the intake or discharge will be required during operation, the required permitting for such dredging, and the location where dredged spoils would be disposed.	Haque, Mohammad Meyer, Philip D	5.3.1
HY-SW-15	Provide for staff examination at the audit any discharge thermal effects modeling report(s) (hydrodynamic model, CORMIX, CE-QUAL-W2).	Haque, Mohammad Meyer, Philip D	5.3.2
HY-SW-16	(Alternatives) Provide a knowledgeable expert to discuss the water-related aspects of the alternative sites, including such issues as: - Water resources affected by transmission line and pipeline construction, intake and discharge construction, and operational dredging. - Site-specific hydrogeological differences, differences in recharge, and site-specific groundwater discharge areas. - Local surface-water and groundwater users, including individual domestic users. - Past, present, and reasonably foreseeable future projects at each site potentially contributing to cumulative water-use and water-quality impacts. - Site-specific recreational and navigational water use. - Any specific water-related regulations/restrictions related to the Wheeler National Wildlife Refuge.	Haque, Mohammad Barnhurst, Dan Meyer, Philip D	9.3.5
HY-SW-17	ER Sections 4.7.3 and 5.11.3 state that climate change effects on site hydrology may result in induction of groundwater flow beneath the Clinch River. Provide a knowledgeable expert to explain how the identified climate change effects are anticipated to change groundwater flow sufficiently to result in flow beneath the river. Provide for staff examination at the audit any report(s) or other documentation of TVA's evaluation of future climate change within the Tennessee River Valley and the potential effects of future climate change on TVA operations.	Haque, Mohammad Barnhurst, Dan Meyer, Philip D	4.7.3 & 5.3.11
NR-01	Provide a knowledge expert and supporting documentation to discuss quantities of nonradiological waste that would be generated by the proposed project.	Mussatti, Dan Aston, Lara M	3.6
NR-02	Provide a knowledgeable expert and supporting documentation to discuss existing TVA procedures for offsite waste disposal. Also, provide a copy of the TVA Waste Minimization Plan.	Mussatti, Dan Aston, Lara M	2.2; 2.5.2; 7.2; 3.6.3.3; 5.9; 5.11; 6.4

NR-03	Provide a knowledgeable expert and supporting documentation to discuss existing TVA worker safety procedures (i.e., Environmental Safety and Health [ES&H] plan) for protecting workers during construction and operation (ex. for digging around live underground transmission lines).	Mussatti, Dan Aston, Lara M	5.10
SE-01	Provide a knowledgeable expert able to discuss and clarify supplemental information to the ER, presented in TVA correspondence CL-16-190, dated Dec 15, 2016. Specifically, clarify onsite workforce estimates with respect to the potential for operations staff, outage staff, and construction staff all being employed simultaneously. This information is needed to estimate the peak onsite workforce expected.	Mussatti, Dan Anderson, David M	5.8
SE-02	Provide updated quantitative information describing the tax equivalent payments as a proportion of county revenues for the affected counties. Provide updated characterization of expected local expenditures for construction and operations activities to provide context for local versus nonlocal purchases of products and services. Describe the expected sales and use tax impacts of the local-area and Tennessee-based project expenditures.	Mussatti, Dan Anderson, David M	4.4.3, 5.4.3
UFC-01	Make available a knowledgeable expert to discuss the basis for scaling Table S-3 of 10 CFR 51.51 by 0.98 for the surrogate SMR plant. The basis is given in Section 5.7.1 where it provides two MWe powers for the Table S-3 reference plant. It states, "As provided in Table 3.1-2, Item 16.6, the maximum net power output of the SMRs at the CRN Site is 800 MWe. Table 3.1-2, Item 16.4, provides a station capacity factor of 98 percent resulting in an effective net power output 784 MWe. The ratio of the effective net power output value for the SMRs described by the PPE (784 MWe) to the net electrical output for the 1000 MWe reference plant (800 MWe) provides a scaling factor of 0.98 to convert reference plant values to project-specific values at the CRN Site."	Hickey, Eva Smith, Michael Alan	5.7