Data Call for CLWR SEIS

Radiological Impacts from Normal Operations

1. Provide Watts Bar and Sequoyah Offsite Dose Calculation Manuals.

   Received

2. Provide Annual Radiological Environmental Operating Report for 2010 (or latest year) for both Watts Bar and Sequoyah. Include current status and past or planned corrective actions associated with tritium in the groundwater inside the owner controlled area and any predictions of tritium in groundwater outside the owner controlled area.

   Received

3. Provide Annual Radiological Effluent Release Report for 2010 (or latest year) for both Watts Bar and Sequoyah.

   Received

4. Provide average Tennessee River volumetric flow rates (m^3/s) for both Watts Bar and Sequoyah at the discharge points.

   Provided in the 2010 Annual Effluent Report in Question 3

5. Provide estimated population growth from 2010 to 2020 for 50-mile region.

   The only population information TVA has is what's presented in the Watts Bar Nuclear Plant (WBN) Unit 2 Supplemental Environmental Impact Statement (SEIS). This data should be updated by the DOE contractor using 2010 census information.

6. Provide average worker dose for 2010 (or latest year). If possible, provide this dose broken down by radionuclide. Provide the maximum worker dose in 2010 (or latest year). Please provide the basis for these calculations.

   Source: Annual REIRs Report

	Number	TEDE
No measurable exp.	**1860**	**0.000**
Meas. - 0.100	**666**	**22.364**
0.100 - 0.250	**113**	**16.990**
0.250 - 0.500	**43**	**14.289**
0.500 - 0.750	**6**	**3.313**
0.750 - 1.000	**0**	**0.000**
1.000 - 2.000	**0**	**0.000**
2.000 - 3.000	**0**	**0.000**

3.000 - 4.000	**0**	**0.000**
4.000 - 5.000	**0**	**0.000**
5.000 - 6.000	**0**	**0.000**
6.000 - 7.000	**0**	**0.000**
7.000 - 8.000	**0**	**0.000**
8.000 - 9.000	**0**	**0.000**
9.000 - 10.00	**0**	**0.000**
10.00 - 11.00	**0**	**0.000**
11.00 - 12.00	**0**	**0.000**
> 12.00	**0**	**0.000**
Number with Measurable:	**828**	
Total Monitored:	**2688**	
Total Collective TEDE (rem):		**56.956**
Total CDE:		**0.000**
Total CEDE:		**0.064**

Average Exposure – All – 56956 mrem/2688 workers = 21.2 mrem/worker

Average Exposure – Measurable to 100 mrem = 22364 mrem/666 workers = 33.6 mrem/worker

Average Exposure – 100 mrem to 250 mrem = 16990 mrem/113 workers = 150. 4 mrem/worker

Average Exposure – 250 mrem to 500 mrem = 14289 mrem/43 workers = 332.3 mrem/worker

Average Exposure – 500 mrem to 750 mrem = 3313 mrem/6 workers = 552.2 mrem/worker

Highest dose individual – 647 mrem

Exposure is a result of the following nuclides:
Co-58 - 35%
Co-60 - 24%
Nb-95 - 14%
Cr-51 - 12%
Be-7 - 4%
Zr-95 - 4%
Mn-54 - 2%
Cs-134 -2%
Cs-137 - 2%

Other – 1%
(Basis – RCS Waste stream, 10 CFR Part 61 analysis, dated 1/11/2010)

2010 REIR Exposure Summary (Reference File: C:\REIR\2010TVAForm5-2010-NPF-90.dat License No: NPF-90, Licensee Name: Watts Bar Nuclear Plant, Associated Licenses: CPPR-92)

	Number	TEDE
No measurable exp	4830	0.000
Meas.- 0.100	114	3.634
0.100 - 0.250	15	2.559
0.250 - 0.500	0	0.000
0.500 - 0.750	0	0.000
0.750 - 1.000	0	0.000
1.000 - 2.000	0	0.000
2.000 - 3.000	0	0.000
3.000 - 4.000	0	0.000
4.000 - 5.000	0	0.000
5.000 - 6.000	0	0.000
6.000 - 7.000	0	0.000
7.000 - 8.000	0	0.000
8.000 - 9.000	0	0.000
9.000 - 10.00	0	0.000
10.00 - 11.00	0	0.000
11.00 - 12.00	0	0.000
> 12.00	0	0.000
Number with Measurable:	129	
Total Monitored:	4959	
Total Collective TEDE (rem):		6.193
Total CDE:		0.000
Total CEDE:		0.000

Average Exposure – All – 6193 mrem/4959 workers = 1.25 mrem/worker

Average Exposure – Measurable to 100 mrem = 3634 mrem/114 workers = 31.9 mrem/worker

Average Exposure – 100 mrem to 250 mrem = 2559 mrem/15 workers = 170.6 mrem/worker

Highest dose individual – 247 mrem (Source: HIS-20 Current Site Occupational Dose Report By Employee)

Exposure is a result of the following nuclides:

Co-60 - 66%
Co-58 - 10%
Mn-54 - 10%
Nb-95 - 10%
Other – 4%
(Basis – RCS Waste stream, 10 CFR Part 61 analysis, dated 03/30/2011, Microshield calculation)

7. Provide current badged population at Watts Bar and Sequoyah.

   WBN - 783

   SQN - 839

8. Table C-9 of CLWR FEIS contains source term for radionuclides released other than Tritium. Please verify that these are still appropriate or provide new source terms if necessary. Include carbon-14 atmospheric and liquid releases and supply methodology for estimating doses to the offsite MEI and populations.

   Received.

   See Annual Radiological Effluent Release Report for the typical isotopes released and carbon 14 released.

   See WBN ODCM for methodology for estimating doses to the maximally exposed individual and population.

9. Is the proposed increase in reactor coolant water concentrations of tritium expected to impact the groundwater tritium. If so, what are the pathways and possible mitigation actions. If not, why not?

   No, the 2011 site re-characterization identified no new source terms. The tritium in the plume is from legacy leaks that have been repaired.

10. Is the proposed increase in reactor coolant water concentrations of tritium expected to increase concentrations of tritium in the secondary coolant water systems? If so, what are the pathways and mitigation actions (e.g., limits on primary-to-secondary leak rates)?

    Due to the tritium source term being greater in the RCS, there is expected to be an increase in the secondary coolant by diffusion through the steam generator tubes.

    The steam generator blowdown is sampled and any tritium concentration is permitted and used in determining total curies of tritium released and impact to doses.

    Limit on primary-to-secondary leak rate is 5 gpd.

<u>Accidents and Malevolent Events</u>

11. For accident scenarios related to TPBAR use in the reactor core, confirm that the accident scenarios and frequencies presented in the 1999 CLWR EIS remain valid.

    The accident scenarios and frequencies presented in the 1999 CLWR EIS related to TPBAR use in the reactor core remain valid. However, there are analyses in progress to support the Tritium Program which may change that.

12. For the Tritiated Water Storage Tank, please provide the following information:

    a. Radiological (including tritium) inventory/material-at-risk

       WBN has a content limit for its outside tanks that require the sum of the ECL ratios to be less than 6700 ECL.

       Based on tritium being the only nuclide in the 500,000 gallon tank, this would provide a maximum tritium concentration of 88 uCi/ml to be stored in the tank.

       This limit is based on if the tank were accidently instantaneously discharged to the river, EPA limits downstream at the closest drinking water intake would not be exceeded. In the case of the tank this would be based on the EPA limit of 20,000 piCi/liter not being exceeded downstream if the entire contents were discharged to the river.

       However, I would not expect the concentration to exceed 20 uCi/ml in the 500,000 gallon tank.

    b. Potential accident scenarios and frequencies

       There are no potential accident scenarios for the tank. It will have 100% containment and the outside piping will be located in a covered trench with a sump monitor.

    c. For each potential accident, the fraction of the material-at-risk that could be released to the environment

       See answers above.

13. Has the NRC asked TVA to perform any actions related to the events at Fukushima? If so, what is the outcome of these actions?

    To date the NRC has only required a Response to NRC Bulletin 2011-01, "Mitigating Strategies"

    TVA's response to NRC Bulletin 2011-01 is on SharePoint

14. Do the tritium production activities introduce new chemical (non-radiological) hazards to the facilities or change any of the existing chemical hazards? If so, please explain the new hazards or changes to existing hazards as well as any mitigation strategies.

No new chemical hazards are introduced from tritium production activities.

Transportation

15. Identify the location of: (1) TPBAR fabrication, (Vendor: WesDyne; Columbia, SC), (2) TPBAR assembly (Westinghouse fuel fabrication facility Columbia, SC), and (3) low-level waste disposal (Nevada Test Site). If different for Watts Bar and Sequoyah, then provide both sets of locations.

NOTE: SQN DOES NOT USE TPBARs IN THEIR REACTOR

16. Provide data on numbers of shipments per year (average) for the following table.

NOTE: NOT BASED ON YEAR INTERVALS, BUT 18 MONTH CYCLES

	No Action at WBN 1 (544 TPBARs)	No Action at SQN 1 (544 TPBARs)	No Action at SQN 2 (544 TPBARs)	2500 TPBARs at WBN	2500 TPBARs at WBN	1250 TPBARs at WBN	1250 TPBARs at SQN
TPBARs from fabricator to assembler	Fabricator is same as assembler	Fabricator is same as assembler	Fabricator is same as assembler	Fabricator is same as assembler	Fabricator is same as assembler	Fabricator is same as assembler	Fabricator is same as assembler
TPBARs from assembler to nuclear station	3-5	3-5	3-5	11-15	11-15	11-15	11-15
TPBARs from nuclear station to TEF	2-4	2-4	2-4	9-14	9-14	5-8	5-8
Irradiated hardware (LLW) from nuclear station to disposal facility	1	1	1	2-4	2-4	2-3	2-3

17. The 1999 CLWR EIS analyzed 1) truck casks on a truck, 2) truck cask on a rail car, and 3) rail cask on a rail car. We understand that the current shipment mode is by truck. Is there any reason to analyze any of the rail scenarios? If so, describe the possible shipment modes.

    DOE is responsible for shipping TPBARs; and the mode of shipment is their choice. While there is an existing rail line that runs along Hwy 68 to the site, the line has not been used or maintained for over 30 years and is likely unusable without significant upgrading.

18. Table E-2 of the 1999 CLWR EIS provides the source terms of irradiated hardware, TPBARs, and TPBAR crud. Are these values representative of currently understood values? If different, provide an updated version of Table E-2.

    Yes, these are still the best source to use for these values.

19. Provide measured typical dose rates from irradiated TPBAR casks and LLW packages. If shipment causes changes in the dose rates, provide shipment and receipt values. Because the 1999 CLWR EIS assumed regulatory limits, we would prefer regulatory measurements, that is, at 2 meters from the side of the truck. Other measurement locations can be accommodated.

    Documents received and on SharePoint.

20. The 1999 CLWR EIS assumed 0 and 2 pre-failed TPBARS per shipment. Given the history of burnable absorber rods, please confirm that the current SEIS should use 0 pre-failed TPBARs, and provide the most recent summary of the performance history for burnable absorber rods that provides the basis for the elimination from the analysis of 2 pre-failed TPBARs.

21. The 1999 CLWR EIS assumed 2 failed TPBARs in normal operation. Given the history of burnable absorber rods, please confirm that the current SEIS should assume no failed TPBARs in normal operation, and provide the most recent summary of the performance history for burnable absorber rods that provides the basis for the elimination from analysis of the 2 TPBAR failures during normal operation of the nuclear facilities.

    (Addresses items #20 and #21)
    Received document, WesDyne NDP-01-0357.

    TPBAR Failure Predictions based on commercial Burnable Absorber Experience.

    We should use 0 failed TPBARs. There have never been any TPBARS failed or any Burnable poison assemblies breached.

22. The 1999 CLWR EIS considered both elastomeric and metallic cask seals. State which type of seal is most consistent with the current cask seals with respect to accident releases.

    Currently Metallic cask seals are used.

23. Confirm the following information on TPBAR operations from the 1999 CLWR EIS:

24 TPBARs per fuel assembly; 189 TPBARs per consolidated assembly; 1 consolidated assembly per shipment; 136 of 193 and 140 of 193 fuel assemblies with TPBARS at WBN and SQN, respectively.

Item	Response
24 TPBARs per fuel assembly	The environmental impact of TPBAR irradiation at WBN, SQN, and BLN was evaluated for TPBAR loadings of 1,000 and 3,400 TPBARs in 18 month cycles. The 3,400 TPBAR case clearly assumes 24 TPBARs per fuel assembly. It is not clear if 24 TPBARs per fuel assembly were assumed for the 1,000 TPBAR case.
189 TPBARs per consolidated assembly	In the EIS the consolidation container was assumed to hold as many as 289 TPBARs. I believe that the 189 figure is a typo and that the word container rather than assembly should be used.
1 consolidated assembly per shipment	The EIS indicates that one TPBAR consolidation container would be transported on a truck shipment and that two TPBAR consolidation containers would be transported on a rail shipment.
136 of 193 fuel assemblies with TPBARs at WBN 140 of 193 fuel assemblies with TPBARS at SQN	The maximum number of fuel assemblies with TPBARs for each plant was used to calculate the maximum impact on the storage of spent fuel assemblies and the need for ISFSI casks that each hold 24 assemblies. The calculations did not provide for the use of secondary source assemblies which would be needed for these core designs. The maximum numbers of fuel assemblies with TPBARs are also mentioned in Appendix A, section A.4, on the impact of tritium production on the fuel cycle. Note that the environmental impacts for WBN, SQN, and BLN were evaluated assuming both 1,000 and 3,400 TPBARs were irradiated each cycle.

Waste Management

24. For the most recent year that data is available, provide the following for both the Watts Bar and Sequoyah sites: Note: for a, b, and d cubic meters is not generally the measure used for quantifying the amounts. Hazardous and mixed wastes under RCRA are generally reported in kilograms (KG) and TVA measures non-hazardous wastes such as municipal solid waste (MSW) in Standard tons. The data reported below, therefore, are in the weights identified above. Also, the data reflects the amounts actually shipped to the Treatment, Storage or Disposal Facility (TSDF) or the landfill in the year shown.

    a. Quantity of hazardous waste (cubic meters) generated

For calendar year 2010 SQN shipped 1661 KG

For calendar year 2010 WBN shipped 4109 KG

b. Quantity of non-hazardous waste (cubic meters) generated

For calendar year 2010 SQN shipped 935 Standard Tons of MSW

For calendar year 2010 WBN shipped 1882 Standard Tons of SW

c. Quantity of low-level waste (cubic meters) generated

Using data supplied by TVA's Corporate Radwaste Program the totals below include Class A&B/C, DAW, and Scrap Metal.

For calendar year 2010 SQN shipped 290.35 cubic meters of LLW

For calendar year 2010 WBN shipped 173.17 Cubic Meters of LLW

d. Quantity of mixed waste (cubic meters) generated

Neither SQN nor WBN shipped any mixed waste in Calendar year 2010.

25. Describe the spent fuel storage at both reactor sites, including:

a. Quantity of spent fuel currently stored on-site

WBN: 807 stored currently

SQN: 1848 stored currently

b. Quantity of spent fuel generated annually

I am assuming that a 0 TPBAR answer is desired. In the 1999 EIS a typical reload batch size of 80 feed assemblies was assumed for SQN and WBN. A feed batch size of 80 assemblies remains typical for SQN. With CIPS, a feed batch size of 84 assemblies is typical for WBN. To obtain the annual number of assemblies discharged we need to multiply the typical reload batch size by the number of units and divide by 1.5. Using these numbers, 107 fuel assemblies are discharged each year at SQN 112 fuel assemblies are discharged each year at WBN.

c. Capacity of spent fuel storage facilities

WBN: 1386 total spent fuel pool locations

SQN: 2089 total spent fuel pool locations

d. Plans/status for any dry cask storage (independent spent fuel storage installation)

WBN: In the planning stage

SQN: Currently utilizing dry cask storage. (6 Dry cask Storage Campaigns)

26. The 1999 CLWR stated that no additional hazardous, non-hazardous, or mixed waste would result from TPBAR irradiation. Is that statement still true? If not, please explain any changes.

This is still true.

27. The 1999 CLWR stated that approximately 0.43 cubic meters/year (15 cubic feet/year) of low-level waste would result from TPBAR irradiation. Is that statement still true? If not, please explain any changes.

15 cubic feet/year is conservative so statement is still true.

28. Where does TVA currently dispose of low-level waste? Is disposal at that site expected to continue for the foreseeable future? If not, explain.

TVA transports their low level, Class A, waste to Energy Solutions. Energy Solutions ships it to Clyde, Utah where it is disposed of. Class B and C waste is shipped to SQN where it is stored in their waste vault.

29. Approximately how many additional spent fuel assemblies per reactor cycle would be generated for the following quantities of TPBAR irradiation:

a. 544 TPBARs 0

b. 1,250 TPBARs 4

c. 2,500 TPBARs 41

Increasing the number of TPBARs to be irradiated each cycle to 1,696 requires 92 or 93 feed and novel fuel management practices, but current fuel management constraints can be maintained. Increases beyond 1,696 TPBARs per cycle will require changes in fuel management constraints. Equilibrium cycle designs that irradiate up to 2,304 TPBARs using 96 feed assemblies have been designed and evaluated by both Westinghouse and AREVA. These designs load a significant number of TPBARs in fuel at baffle locations. The TPBARs irradiated in fuel at baffle locations exhibit significantly reduced tritium generation. To my knowledge, no design evaluations have been performed for equilibrium cycle designs that would load as many as 2,500 TPBARs. I reviewed earlier studies and performed a scoping calculation to provide the response for 2,500 TPBARs.

<u>Data specific to Tritiated Water Storage Tank</u>

30. Provide map showing proposed locations of tank at both Watts Bar and Sequoyah and piping schematic to Tennessee River

Partial answer provided in BigTankCEC document.

See Project description for Watts Bar on SharePoint. The location will be the green field option west of U-1 Primary Water Storage TK and U-1 Refueling Water Storage TK

It is undetermined where a tank would be located at SQN.

31. If 2 reactors at one site are used for tritium production, would more than one tank be required or would reactors use (share) just one tank?

    Reactors would share one tank.

32. Describe construction of tank— land disturbed, size and appearance of tank (including height and volume); depth of foundation; length of pipe run to river; duration of construction, peak construction workforce, materials required (steel, concrete, water, etc), wastes generated during construction, how it would be tied into the existing system, any permitting requirements expected during construction (e.g., stormwater runoff permits) etc.

    Construction period is March – August 2012 at WBN.

    We haven't thought about where at SQN and don't plan to (takes detailed surveys of underground interferences, etc., to say with confidence where). Can't you say somewhere inside site boundary, close (within a couple hundred yards of containment)?

    It would hook into existing systems, no separate piping run to river. We can provide at WBN.

    See project description on SharePoint.

    The tank will be approximately 45' by 45' with an outer open tank 30' high by 55' in diameter to be used as containment.

    Design and construction of the tank will take approximately 9 months.

    Peak construction force will be less than 100.

    The tank will be constructed of stainless steel with a concrete foundation approximately 2 feet thick.

    The tank will tie into the existing liquid radwaste system and not require another discharge to the river.

33. Describe operation of tank— annual electricity used (MWh/yr), operational workforce, number of radiological workers, average and maximum worker dose, maximum annual tritium releases; wastes generated, describe effluent release procedures (criteria for discharge, maximum release quantity, maximum flow rate, duration of normal release, etc); describe

features (design, construction, operation) that will minimize/prevent any unintentional releases of tank contents;

Partial answer provided in BigTankCEC document.

The tank will not require additional operational workforce.

All releases are bounded by those postulated in this SEIS.

It is postulated release volumes will increase by about a factor of 10 from approximately 10,000 gallons per release to approximately 100,000 gallons per release. The number of releases will decease in a similar manner by a factor of 10 from approximately 120 releases per year to approximately 12.

Release duration will similarly increase by approximately a factor of 10.

The tank will have an outer tank to contain any leaks. The piping will be in a concret trence or vault with leak detection.

34. Provide any relevant documentation related to construction and operation of the tank system

Partial answer provided in BigTankCEC document.

Received.

35. Provide the estimated air emissions from constructing and operating the tank. Are any generators or emission-producing pumps associated with tank construction or operation?

Partial answer provided in BigTankCEC document.

It is not anticipated there will be any emission-producing pumps or electrical generators used for construction

36. Are there any concerns about tritium permeation through the tank or systems? If so, explain and estimate the amount of tritium permeation annually.

Partial answer provided in BigTankCEC document.

The tank will be at atmospheric pressure with a membrane bladder separating the liquid from atmosphere. There are no concerns about tritium permeation from the tank.

Climate and Air Quality

37. Has the probability of a tornado strike been recalculated since the original EIS? Did the severe storm outbreak of April 27, 2011, initiate any changes in severe storm frequency assumptions?

The most recent calculations of WBN tornado frequency were performed for the Unit 2 FSAR during 2010. Refer to the FSAR Section 2.3.1.3.

The analysis of the April 27, 2011 event is not complete and National Weather Service databases are inconsistent. Therefore, it would be premature to update the tornado frequency calculations. However, the WBN tornado history can be updated based on the PRELIMINARY information to reflect occurrences since 2009 (See attached update).

Within 30 miles, the number of tornadoes increased from 38 to 49 and the number of tornadoes F3/EF3 or greater increased from 12 to 14. This would roughly translate to an increase in tornado frequency of 1.3 times (new probability = 9.6×10^{-4} with recurrence interval of 1041 years). For F3/EF3 or greater the frequency increases 1.2 times (new probability = 4.5×10^{-4} with recurrence interval of 2222 years).

For Sequoyah Nuclear Plant (SQN), see *Sequoyah Nuclear Plant Units 1 and 2 License Renewal Final Supplemental EIS* (SQN FSEIS), sections 3.16.1.3, p. 3-133 and 3.16.2 for an update.

38. With regard to existing sources of non-radiological air emissions, have there been. any significant changes since the 1999 EIS? This includes sources such as boilers, generators, vehicles, paint shops, etc. If so, explain.

    WBN holds a Conditional Major Operating Permit from the Tennessee Department of Environment and Conservation (Permit # 448529) that covers the following sources:

    - #2 fuel oil storage tanks
    - Cooling towers 1&2
    - Two auxiliary boilers
    - Sand blasting and surface coating operations
    - Lubricating oil systems for Units 1&2
    - Six emergency diesel generators and one diesel fire pump.

    WBN also holds Tennessee Department of Environment and Conservation (TDEC) permit #957606P for a 2647 hp internal combustion diesel generator.

    For SQN, refer to the SQN FSEIS Section 3.16.3.

39. Provide most recent air quality monitoring data at or near the sites. This includes monitoring the concentration of both criteria pollutants regulated by the National Ambient Air Quality Standards (NAAQS) and Greenhouse Gases.

    TVA does not conduct air quality monitoring on or near either WBN or SQN Plants. Such data is collected by the states and EPA as part of the National Ambient Air Quality Monitoring Program. This site: http://www.epa.gov/airexplorer/ provides tools for obtaining monitoring data in the vicinity of the plants.

40. Provide the annual non-radiological criteria pollutant emission totals.

For calendar year 2010 WBN emitted 0.22 tons of sulfur dioxide and 9.39 tons of nitrogen oxides as reported to the state of Tennessee in the required Annual Compliance Status Report. The permits do not require any additional criteria monitoring or reporting.

41. Provide the annual gaseous radioactive emissions (fission gases and Tritium) for the sites during normal operations, in Curies, for the most recent year.

See the Annual Effluent Reports listed in Question 3 for the data requested.

42. Provide the annual atmospheric releases of carbon-14 (C-14) for the most recent year. Will C-14 emissions increase due to tritium production?

See the Annual Effluent Reports listed in Question 3 for the data requested.

43. Provide an estimate of the existing greenhouse gas (GHG) emissions at the sites. If GHG emissions are not known, they can be estimated by the amount of fossil fuel burned by each emission source. How much fossil fuel is burned annually by each non-radiological emission source?

TVA does not monitor or estimate GHG emissions from the nuclear sites.

At WBN there are five combustion emission sources that use diesel fuel on an annual basis. The table below provides the fuel used by each source for the past three calendar years. These data comes from the information used to compile the annual report to the State of Tennessee required under the plant air permits.

WBN Diesel Fuel Use by CY (gallons)

Source	2008	2009	2010
Auxiliary Boilers 1&2 Combined	195437	46980	18461
Diesel Generators 1-5 Combined	76462	85719	43887
2647 hp Diesel Generator	0	0	0
Security Diesel Generator	119	120	119
Diesel Fire Pump	315	439	525

For SQN, refer to the FSEIS. Sections 3.16.1 and 3.16.2

<u>Socioeconomics</u>

44. Provide estimate of current work force at each site:

    a. State the current number of permanent employees at both nuclear plants for both normal power operations and those dedicated to tritium operations; note if number includes subcontractors; also note date of data.

According to the 2011-2015 Business Plans for both plants, the September 2011 target for employees at WBN Unit 1 is 572, and for SQN Units 1&2 the target is 1150. Tritium production at WBN is integrated into the normal operation of the plant and does not require dedicated employees for tritium production only.

b. Resident county of employees, by site.

The workforce for both sites is drawn primarily from the counties where the plant is located (Rhea County for WBN, and Hamilton County for SQN) and from the neighboring counties in the area. (Meigs, Roane, Loudon, Bradley, Marion, Sequatchie, Bledsoe, Cumberland, Knox, Anderson, Polk, McMinn, Monroe, and Morgan (all in Tennessee)

45. Identify any new hires associated with either tritium production (for Watts Bar 2) or Tritiated Water Storage Tank (all sites), as follows

a. By site, number of construction workers (tank) at peak and duration of peak (in months); note if there is a specialized training need for workers.

For tank approximately 100 workers at peak construction. Construction duration is less than 6 months. No known specialized training needed for workers.

For production in Unit-2 no new hires required for tritium production.

b. By site, number of operational workers (new hires, those ops workers in ADDITION to current on-site work force); note number of newly created positions too and note if those newly created positions would likely to be filled from the current ranks or from on-site (or recently laid-off) workers.

No additional workers required for tritium production or tank operation

c. By site, employment (of new workers) overlap in construction and start of operations; if so, in months, how long?

No additional workers required for tritium production or tank operation

d. By site, known special training arrangements with local colleges or the Departments of Labor for new construction or operations workers.

TVA and Chattanooga State Community College have partnered for an associate of science degree radiation protection.

46. Provide the following cost information:

a. By site, cost of tank construction; has vendor been identified (or can a local Hamilton, Meigs, Rhea County vendor be ruled out).

Cost of project is estimated to be approximately $12.5 Million. No local vendors have been identified who could provide the engineering, design and construction of the tank.

b. By site, costs associated with tritium production operations and maintenance, supplemental fuel procurement or fuel enrichment, storage of additional spent fuel, replacement power, capital upgrades or replacements, and fees to the utility.

The estimated 5 year budget for WBN for the above is estimated to be between $22.5 Million and 40 Million per year. The difference in high and low is mainly due to differences in projected number of TPBARs irradiated in a cycle. The high value would be for approximately 1700 TPBARs and the low value would be for 544 TPBARs.

There are no plans for irradiation at Sequoyah at this time, but if TPBARs were irradiated at Sequoyah, it is expected the cost would be approximately the same as for Watts Bar.

c. By site, estimated employee gross wages during construction (new hires only); note wage time period (per hour, per week, etc)

The following are approximate numbers:

LABORERS $14.00 /HR

Operating Engineers $21 /HR

Carpenters $19.00 /HR

Ironworkers $21.00 /HR

Boilermakers $27.00 /HR

Pipefitters $25.00 /HR

Electricians $21.00 /HR

Insulators $21.00 /HR

Painters $18.00 /HR

d. By site, estimated employee gross wages during operations (including maintenance) of new hires only; note wage time period (per hour, per week, etc)

No new hires for tank operation and maintenance

Biological Resources

47. If available, please provide copies of the following two consultation letters from the 1999 CLWR EIS:

    DOI (U.S. Department of the Interior), 1998b, letter from Lee Barclay to Jon Loney (Tennessee Valley Authority), July 10.

    DOI (U.S. Department of the Interior), 1998d, letter from James Lee to Stephen Sohinki (U.S. Department of | Energy), September 29.

    The first letter referenced above (1998b) has been located and provided to the DOE contractor (JAD)

    TVA does not have access to the second letter, we suggest the DOE Administrative Record as a potential source.

Cultural Resources

48. Provide any new cultural resource surveys commissioned for Watts Bar or Sequoyah since 2009.

    Sequoyah NP:

    McKee, Larry
    2009 Phase I Cultural Resources Survey of the Proposed Improvements to the TVA Sequoyah Nuclear Plant, Hamilton County, Tennessee. Prepared by TRC, Nashville, TN.

    McKee, Larry
    2010 Phase I Cultural Resources Survey of the TVA Sequoyah Nuclear Plant, Hamilton County, Tennessee. Prepared by TRC, Nashville, TN.

    Watts Bar NP:

    None

49. Provide any SHPO correspondence or requirements since the original 1999 CLWR EIS was prepared.

    Received one piece of SHPO correspondence for the WBN site since 1999:

    a. Letter from TNSHPO dated 1-24-2007 concurring with TVA's determination that improvements at WBN Unit 2 will not affect historic properties.

    Received 10 pieces of SHPO correspondence for the SQN site since 1999:

    a. Letter from TVA dated 10-7-2009 for draft cultural resources survey report related to proposed plant improvements.

b. Letter from TNSHPO dated 10-23-2009 concurring with the TVA's findings (as stated in the draft survey report for the proposed plant improvements project) that no historic properties will be affected.

c. Cover letter from TVA that accompanied the final cultural resources survey report related to the proposed plant improvements.

d. Letter from TNSHPO dated 11-20-2009 acknowledging receipt of the final report of the cultural resources survey related to the plant improvements project.

e. Letter from TVA dated 4-14-2009 to accompany the notice of intent to prepare a Supplemental EIS related to the proposed SQN plant relicensing.

f. Letter from TVA dated 4-13-2009 that accompanied the draft cultural resources survey report associated with the proposed SQN plant relicensing, and presenting TVA's findings that the project will not affect historic properties.

g. Letter from TNSHPO dated 4-23-2010 concurring with TVA's finding that the SQN plant relicensing may affect historic properties.

h. Letter from TNSHPO dated 5-20-2010 concurring with TVA's finding that the SQN relicensing project will not affect historic properties.

i. Cover letter from TVA dated 6-18-2010 that accompanied the final cultural resources survey report for the proposed SQN plant relicensing.

j. Letter from TNSHPO dated 11-4-2010 concurring with the findings of the Draft EIS for the SQN plant relicensing project that the project will not affect historic properties.

50. Provide any additions to the TVA Tribal consultation distribution list since the original 1999 CLWR EIS was prepared.

Tribal Consultation List for Watts Bar: Cherokee Nation, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians in Oklahoma, The Chickasaw Nation, Muscogee (Creek) Nation of Oklahoma, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Kialegee Tribal Town, Thlopthlocco Tribal Town, Seminole Tribe of Florida, Absentee Shawnee Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, and Shawnee Tribe of Oklahoma.

Tribal Consultation List for Sequoyah: Cherokee Nation, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians in Oklahoma, The Chickasaw Nation, Muscogee (Creek) Nation of Oklahoma, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Kialegee Tribal Town, Thlopthlocco Tribal Town, Seminole Tribe of Florida, Absentee Shawnee Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, and the Shawnee Tribe.

Water Resources

51. For the Tritiated Water Storage Tank, provide copies of existing NPDES permits associated with the applicable discharge locations, plus information (as applicable) on whether there are any expectations that the permits may have to be modified (for this project or any other expected project) and, if so to what extent and for what reason.

A copy of the current WBN NPDES permit is attached. We do not anticipate that the permit will require modification for the tritiated water storage tank.

52. Provide copies of any receiving water modeling efforts (mixing zone development) done in support of the NPDES permits.

For WBN there have been several modeling efforts completed in support of the NPDES Permit. Copies of these reports are attached.

1. Harper, Walter L., "Watts Bar Nuclear Plant, Supplemental Condenser Cooling Water Project, Thermal Plume Modeling", Tennessee Valley Authority, Engineering Laboratory, December 1997. Rec'd

2. Harper, Walter L., and Brennan T. Smith, "July 1999 Verification Study of Thermal Discharge for Watts Bar Nuclear Plant Supplemental Condenser Cooling Water System", Report No. WR99-2-85-143, Tennessee Valley Authority, River System Operations & Environment, November 1999. Rec'd

3. Harper, Walter L., Bo Hadjerioua, Mark Reeves, Gary Hickman, and John Jenkinson, "Hydrodynamics and Water Temperature Modeling At Watts Bar SCCW Discharge Structure", Report No. WR98-1-85-142, Tennessee Valley Authority, Resource Group, Water Management, November 1998. Rec'd

4. Smith, Brennan T, P.N. Hopping, Walter L. Harper, and Meihuei Lee, "Hydrothermal Data For Watts Bar Nuclear Plant SCCW Outfall", Report No. WR2001-4-85-145[1], Tennessee Valley Authority, River System Operations & Environment, River Operations, September 2001. Rec'd

5. Christopher D. Ungate and Kenneth A. Howerton Norris, Tennessee February 1977, Effect Of Watts Bar Nuclear Plant and Watts Bar Steam Plant Discharges On Chickamauga Lake Water Temperatures, WM28-1-85-100. Rec'd

6. Lee, Meihuei, Walter Harper, Pete Ostrowski, Ming Shiao and Neil Sutherland, 1993: Discharge Temperature Limit Evaluation for Watts Bar Nuclear Plant. Norris Engineering Laboratory Report No. WR28-1-85-137. Rec'd

7. Harper, Walter L. Watts Bar Nuclear Plant Supplemental Condenser Cooling Water Project - Thermal Plume Modeling Index No: 444 Title: Watts Bar Nuclear Plant Supplemental Condenser Cooling Water Project EA - August 1998- Thermal Plume Modeling - December 5, 1997.

8. Hopping Paul N., 2004, Proposed Modifications to Water Temperature Effluent

Requirements for Watts Bar Nuclear Plant Outfall 113. WR2004-3-85-149. Rec'd

For SQN: A copy of: Ambient Temperature and Mixing Zone Studies for Sequoyah Nuclear Plant as Required by NPDES Permit No. TN0026450 of September 2005 WR2009-1-45-151 is attached [was submitted to DOE contractor (JAD)]. Rec'd

53. Provide copies of the last 5 years of monitoring data on the applicable NPDES discharges.

The applicable discharge points for both WBN and SQN are Discharge Serial Number (DSN) 001. Monitoring data for each for the last five years is attached in the form of an EXCEL file along with a summary page. Rec'd

54. Provide the latest status/information on groundwater tritium contamination at both Watts Bar and Sequoyah plants (if different than the June 2007 Watts Bar SEIS or the October 2010 Sequoyah Draft SEIS that we already have).

Site re-characterization in 2011 identified no new source terms. The tritium in the plume is from legacy leaks that have been repaired.

There was a ground water tritium assessment done this summer and fall which has not been finalized yet. When the report is finalized it will be provided.

Noise

55. Are there any significant new sources of noise at either Watts Bar or Sequoyah since the 1999 CLWR EIS was prepared? If so, what are they, what are the sound levels, and what hours of the day will they occur?

Following is the noise discussion extracted from the FSEIS for SQN. Noise sources and levels should be similar for WBN. The paragraph summarizes the noise sources and levels in the vicinity of the plants, and should cover the time period between the 1999 CLWR EIS and the FSEIS publication dates. An examination of environmental reviews conducted after publication of the FSEIS's for both plants reveals no additional noise sources at either site.

Noise sources in the vicinity of the SQN site include river and lake traffic, road traffic, dogs barking, insects, power line hum, and plant equipment at SQN: fans, turbine generators, transformers, cooling towers, compressors, emergency diesels, main steam-safety relief valves (MS-SRV), and emergency sirens. The MS-SRVs occasionally produce loud noises and visible steam and are therefore easily noticed by residents in the vicinity. The release of steam and noise would only be expected for a few hours when these valves are used and that use is rare (fewer than five days per year). Under some atmospheric conditions, a light humming may be noticed directly under 500-kV lines, but this noise is rarely heard outside the ROWs. Emergency sirens are deliberately very loud and easily heard in the community. These sirens provide a warning to area residents as part of the local community emergency plans for various emergencies, such as a tornado warning, as well as serving as a warning for an SQN radiological emergency. Emergency sirens would probably remain part of the community even if SQN were shut down in the future. Average noise levels in rural areas are typically about 40 dBA during the day (TVA 2009h). SQN is an industrial facility in which

the average noise levels can approach approximately 65 – 75 dBA or greater on site, although this is not based on actual measurements at SQN (WHO 2001). At the site boundary, the noise levels are consistent with a rural residential area.

Infrastructure

[Note: the 1999 CLWR EIS, the 2007 Watts Bar SEIS, and the 2010 Sequoyah EIS do not have "Infrastructure" sections, so there is less baseline information available for this resource than other resources. As such, the data call related to "Infrastructure" requests more baseline information than other resources.]

56. Potable Water

a. How much potable water is used by Watts Bar and Sequoyah each year?

According to information provided by TVA's Environmental Sustainability Group, the potable water use for WBN and SQN is shown below.

Location / Site	Potable Water Usage (Gallons)		
	FY 2008	FY 2009	FY 2010
Sequoyah Nuclear Plant	23,844,201	35,878,164	36,596,513
Watts Bar Nuclear Plant	17,495,537	33,694,400	52,120,400

b. Is additional potable water required to support tritium production? If so, how much?

There is no additional requirement for potable water specifically to support tritium production.

57. Steam

a. Describe the on-site steam generation system. What is the capacity of the system and what is the current demand?

Watts Bar Unit 1 is a Westinghouse 4 loop Generation II Ice Condenser PWR. The system's flow capacity is 15,370,00 lb/hr (flow at gaurunteed NSSS thermal output of 3475 MWth). The current demand of the system is for 3459MWth.

b. Is additional steam required to support tritium production? If so, how much?

No additional steam is required.

58. Natural Gas

a. What utility provides natural gas and how much natural gas is consumed each year (ft3/yr)?

Watts Bar does not consume natural gas.

b. Is additional natural gas required to support tritium production? If so, how much?

Natural gas is not used to support tritium production.

59. Electrical

a. Describe the on-site electrical distribution system. What is the average electrical energy demand (kW-hours) at Watts Bar and Sequoyah when not generating electricity? What is the source of this electricity? How much net electrical energy (kW-hours) is generated annually by Watts Bar and Sequoyah?

Watts Bar Nuclear's electrical distribution system, in simple terms, has two sources of offsite power. Those power sources deliver electricity to the site when the reactors are not in operation. The energy demand of Watts Bar while it is not in operation ranges from 480 MWh in cold shutdown to 1200 MWh in hot standby. Watts Bar Unit 1's annual electric output varies widely, because in the summers it produces less than in the winter and unit trips happen. It is also not based on yearly estimates, but 18 month cycles, but a rough estimate would be (((1170MWd (avg. summer output) X 548 days (18 months))/1.5)*24 hours/day = 10249200 MWh. (To convert to kWh multiply MWh by 1000).

b. Describe the backup diesel generator system.

Watts Bar's standby diesel generator system consists of 4 self-contained, water cooled, automatic starting, diesel engine driven, stationary electric generators. Three are capable of providing the entire site AC power for a Loss Of Offsite Power scenario, and the fourth provides redundancy in the case of a single failure.

60. Sanitary Sewer

a. Describe the sanitary sewer system for Watts Bar and Sequoyah. What is the capacity of the system and what is the current demand?

Both WBN and SQN are connected to the local municipal sewer systems in their respective locations (WBN to Spring City, Tennessee, and SQN to Soddy-Daisy, Tennessee). Both municipalities have sufficient capacity to handle the effluent from the plants.

b. Would tritium production affect sanitary sewer demand? If so, how much?

We do not expect tritium production to impact the sanitary sewer demand.

61. Industrial Gas

a. What industrial gases are used at Watts Bar and Sequoyah and what is the quantity?

From the 2010 SARA Tier II Reports for each plant and the SQN Risk Management Plan, large volume industrial gases (>10,000 lbs) at SQN and WBN include the following:

- Carbon dioxide used in fire protection systems and for generator purge during outages (approximately 60,000 lbs at both plants)
- Nitrogen used as a cover gas for the cold-leg accumulators, in radwaste and other locations (approximately 21,000 lbs at each plant)
- Refrigerants including R-22, R-12, R-11, R-502 and possibly others (approximately 35,000 lbs at both plants)

Smaller volume gases used at both plants include:

- Hydrogen used for generator cooling (approximately 800-1000 lbs)
- Propane for Met tower backup generator (approximately 4000 lbs)
- Acetylene/oxygen used in welding (no estimate available)
- Various laboratory gases used in analyses and calibrations (no estimate available)

b. Would tritium production change industrial gas use? If so, explain.

Other than small changes in use of gases such as acetylene/oxygen that may be necessary during construction of the storage tank and associated equipment, there is no projected change in the use of industrial gases associated with tritium production.

Cumulative

62. Describe any other reasonably foreseeable radiological projects that could have impacts in the region. At present, these could include irradiation of MOX assemblies at Sequoyah and the development of a small modular reactor at the Clinch River Breeder Reactor.

To answer this question we have assumed:

1. That by "region" the area covered includes east Tennessee around SQN and WBN and would not include North Alabama and the Bellefonte site.

2. That the SEIS contractor would cover any DOE projects occurring on the Oak Ridge Reservation.

For the Clinch River Project: TVA signed a Letter of Intent (LOI) with Generation mPower (a partnership between Babcock & Wilcox Nuclear Energy and Bechtel Power Corporation) in June 2011 that defines the project plans and associated conditions for designing and licensing, as well as certain pre-conditions for constructing, Generation mPower small modular reactors (SMR) at TVA's Clinch River site. The LOI better defines our SMR development efforts but does not commit TVA to constructing a SMR and is not legally binding. TVA's current plans involve completion of environmental studies (which will include a public comment process in the future) and licensing pre-application development work in order to gain greater certainty on both licensing and costs associated with the potential future construction of up to four SMRs. TVA's Integrated Resources Plan identifies SMRs as a potential nuclear option for the future.

Blended Low-Enriched Uranium (BLEU): On May 18, 2011, TVA issued a final environmental assessment (EA) and finding of no significant impact (FONSI) for the additional use of BLEU in reactors at TVA's Browns Ferry (BFN) and Sequoyah (SQN) Nuclear Plants in Limestone County, Alabama, and Hamilton County, Tennessee, respectively. At BFN and SQN, TVA utilizes nuclear fuel that is derived from either commercially available low-enriched uranium (LEU) or from weapons-usable highly enriched uranium (HEU) declared surplus to defense needs of the United States government. The HEU is made suitable for nuclear reactor fuel through a process known as "downblending" to produce blended low-enriched uranium (BLEU). Under an existing agreement, TVA has previously acquired about 33 metric tons of HEU from the U. S. Department of Energy, contracted to have it converted to BLEU, and used it as a partial fuel supply at BFN and SQN since 2005.

Under the currently proposed action, TVA would acquire an additional 28 metric tons of HEU from the DOE for down blending to BLEU and subsequent use as reactor fuel at BFN and SQN through about 2022. The subject EA considers the impacts of this proposed action as well as taking no action. Under both alternatives, TVA would continue to fulfill most of its need for reactor fuel from commercial sources of LEU.

Mixed Oxide Nuclear Fuel (MOX): TVA signed an interagency agreement with the DOE on February 25, 2010, for pre-planning and evaluation activities under which the DOE would reimburse TVA for its costs in investigating the potential use of mixed oxide ("MOX") fuel in TVA's Browns Ferry and Sequoyah nuclear reactors. The MOX fuel is a mixture of plutonium and depleted uranium oxide with the plutonium originating from surplus nuclear weapon material. The DOE is building a plant near Aiken, South Carolina to produce MOX fuel. The DOE is completing a SEIS with TVA as a cooperating agency to evaluate the potential impact of MOX fuel at Sequoyah and Browns Ferry. TVA is in the evaluation phase and has not committed to using MOX fuel. TVA will only go forward with the program if TVA believes it is safe to do so and will result in a benefit to TVA customers. A decision on whether to go from the evaluation to a licensing phase is expected at the end of 2012. A significant regulatory and planning effort must be completed before the first potential delivery of MOX fuel in 2018. (Source: TVA Form 10K Annual Report, Nov. 18, 2011)

Administrative

63. Provide the mailing lists that were used for the 2007 Watts Bar Final SEIS and the 2011 Sequoyah Final SEIS.

The mailing lists for both SEIS's referenced above can be found in the documents publically available on the TVA external website at www.tva.gov, in the Environmental Review Folder under the Environmental Tab on the Home Page.

For WBN, the mailing list is found in Section 5.1 on page 109 of the FSEIS.

For SQN, the mailing list is found in Section 7.0 on page 7-1 of the FSEIS.

Bonus Questions:

1. *Provide the stack height for the CLWR releases for both Watts Bar and Sequoyah.*
   For Stack height for release at WBN the minimum building cross section area is used to determine air concentrations. The value is 1630 m2 with a building shape factor of 0.5.

   At SQN the minimum building cross section area is used to determine air concentrations and the value is 1800 m2 with a building shape factor of 0.5.

   The stack heights used in the 1999 EIS are still applicable

2. *Provide the location of the maximally exposed individual for 2010 (sector and distance) for atmospheric releases from both Watts Bar and Sequoyah for the stack locations provided in #1. If this information is not available, please provide the distance to the boundary for each of the sixteen sectors for the release locations in #1 for Sequoyah. Please verify that the sectors and distances listed on page 135 of the Watts Bar ODCM are appropriate for the release location listed in #1.*

   The sector and distance of the maximally exposed individual for 2010 are located in both WBN and SQN Annual Effluent Radiological Report provided in question 3.

   The sectors and distances listed on page 135 of the WBN ODCM are correct but the x/Q and D/Q values used in dose calculations should be taken from Table 7.3 on page 143 of the WBN ODCM because they have been adjusted by the site specific Terrain Adjustment Factors.

   Additional information was provided for WBN and is on SharePoint.

3. *Table C-9 and C-10 of CLWR FEIS contains source term for radionuclides released other than Tritium as a result of the CLWR process. Please verify that these are still appropriate or provide new source terms if necessary. Include carbon-14 atmospheric and liquid releases. (this is expansion of previously asked info)*

   Contained in the Annual Effluent Radiological Report in Question 3. The source term listed in table C9 and C10 appears to still be appropriate.

4. *Meteorological joint frequency distributions for 2010 or latest year for both Watts Bar and Sequoyah in text format with explanation of all fields within file. If yearly format is not available, please provide the text version of JFDs provided in the 2010 Effluent Reports for both Watts Bar and Sequoyah. Please note information within OCDM manuals is not in text format so not readily usable and also it is available by quarter.*

The Joint Frequency Distributions for 2010 are contained in the WBN and SQN Annual Effluent Radiological Report in Question 3.

Information provided in tabular form and on SharePoint.

Supplement to the Bonus Questions received 12/19/11 and filed on SharePoint.

Additional Questions added 2/25/2012:

S-1. Please provide gaseous tritium release data for Watts Bar and Sequoyah for 2002 (the year before tritium rods went into Watts Bar) through 2009.

TVA provided info and is on SharePoint site.

S-2. We're revising the transportation analysis to eliminate most of the scaling and doing RADTRAN runs and hopefully will have access to the other model we needed, WEB-TRAGIS, in the next few days. We'd like to have the dimensions of the shipping cask for the TPBARS (length, diameter, etc.) and the dimensions for the cask in which the irradiated hardware (LLW) is being shipped, if you have them. Thanks.

TN-RAM Cask (waste shipping cask):

The cask is 129.38 inches long and 51.25 inches in diameter. The empty Cask with lid weighs 63,700 pounds (maximum payload 9,500 pounds).
The maximum gross weight of the loaded package is 80,000 pounds including a maximum payload of 9,500 pounds and impact limiters.

NAC LWT Cask (TPBAR shipping cask):

The weight of the cask body is approximately 43,412 pounds.
The overall length of the cask body is 199.8 inches, and the maximum outside diameter is 44.24 inches at the neutron shield expansion tank.

S-3. A question came up for the draft Tritium SEIS for additional fuel assemblies.

The draft says "***1,250 TPBARS in WBN/SQN only generate 4 additional spent fuel assemblies while 2,500 TPBARS generate 41 spent fuel assemblies per fuel cycle"***

I thought there were 4 extra fuel assemblies in C11. Is what is in the draft SESI above correct?

Current scoping studies suggest that irradiating 1,250 TPBARs per cycle would require between 8 and 12 additional fuel assemblies per cycle. The part of the SEIS statement that

addresses the additional fuel assemblies required to support the irradiation of 1,250 TPBARs per cycle should be revised.

Recent scoping studies have indicated that 12 or 13 additional fuel assemblies would needed to support the irradiation of 1,696 TPBARS per cycle. No recent scoping studies have been performed to evaluate loading 2,000 or more TPBARs per cycle. My recollection of the scoping studies that were performed to support the initial SQN and WBN tritium licensing submittal is consistent with the large number of excess feed assemblies required to support 2,500 TPBARs per cycle as indicated in the SEIS statement.

New worker dose information received via email, as included below.

From: McGuire, Jeffrey J [mailto:jjmcguir@tva.gov]
Sent: Thursday, June 14, 2012 9:15 AM
To: Steve Sohinki
Subject: Worker average dose

Steve

Per our conversation; I suggest we measure worker dose for the Tritium SEIS by dividing the population of workers who received a dose exposure in the calendar year into the total site dose for that calendar year. This will cause less confusion than using the total TLD badged population because the majority of the badged population never receive a dose. This would be more representative of the effectiveness of radiological controls at each plant.

See the tables below for this information:

Jeff McGuire

AVERAGE WORKER DOSE at WBN
2005 thru 2010

Year	Total Exposure Person-Rem	Total # of workers who received an exposure	Average exposure per worker who received an exposure mRem	Maximum individual dose rem
2005	142.053	1237	115	0.971
2006	318.91	2037	157	1.289
2007	4.336	127	34	0.249

2008	70.498	886	80	0.580
2009	63.852	856	75	0.470
2010	6.194	130	48	0.247

AVERAGE WORKER DOSE at SQN
2005 thru 2010

Year	Total Exposure Person-Rem	Total # of workers who received an exposure	Average exposure per worker who received an exposure mRem	Maximum individual dose rem
2005	95.134	1126	84	0.778
2006	241.546	1751	138	0.938
2007	123.499	1197	103	1.174
2008	83.686	959	87	0.854
2009	166.711	1414	118	1.425
2010	57.146	837	68	0.647

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number	**Tracking Number** *(NEPA Administration Use Only)*
1		26050

Form Preparer	Project Initiator/Manager	Business Unit
John Brellenthin	Jeffrey McGuire	NGD&C - Nuclear Generation Development

Project Title	Hydrologic Unit Code
WBN Tritium Tank Construction Trailers	06010201-240

Description of Proposed Action *(Include Anticipated Dates of Implementation)* ☒ Continued on Page 3 *(if more than one line)*

For Proposed Action See Attachments and References

Initiating TVA Facility or Office	TVA Business Units Involved in Project
Watts Bar Nuclear Plant	NPG - Nuclear Engineering

Location *(City, County, State)*

For Project Location see Attachments and References

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

Is there evidence that the proposed action---	No	Yes	Information Source
1. Is major in scope?	X		Brellenthin J. 03/08/2012
2. Is part of a larger project proposal involving other TVA actions or other federal agencies?		X	For comments see attachments
*3. Involves non-routine mitigation to avoid adverse impacts?	X		Brellenthin J. 03/08/2012
4. Is opposed by another federal, state, or local government agency?	X		Brellenthin J. 03/08/2012
*5. Has environmental effects which are controversial?	X		Brellenthin J. 03/08/2012
*6. Is one of many actions that will affect the same resources?	X		Brellenthin J. 03/08/2012
7. Involves more than minor amount of land?	X		Brellenthin J. 03/08/2012

* If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action---	No	Yes	Per-mit	Commit-ment	Information Source for Insignificience
1. Potentially affect endangered, threatened, or special status species?	X		No	No	For comments see attachments
2. Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?	X		No	No	For comments see attachments
3. Potentially take prime or unique farmland out of production?	X		No	No	Brellenthin J. 03/08/2012
4. Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	Brellenthin J. 03/08/2012
5. Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	Brellenthin J. 03/08/2012
6. Potentially affect wetlands, water flow, or stream channels?	X		No	No	Brellenthin J. 03/08/2012
7. Potentially affect the 100-year floodplain?	X		No	No	For comments see attachments
8. Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?	X		No	No	Brellenthin J. 03/08/2012
9. Contribute to the spread of exotic or invasive species?	X		No	No	Brellenthin J. 03/08/2012
10. Potentially affect migratory bird populations?	X		No	No	Brellenthin J. 03/08/2012
11. Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	X		No	No	Brellenthin J. 03/08/2012
12. Potentially affect surface water?	X		No	No	Brellenthin J. 03/08/2012
13. Potentially affect drinking water supply?	X		No	No	Brellenthin J. 03/08/2012
14. Potentially affect groundwater?	X		No	No	Brellenthin J. 03/08/2012
15. Potentially affect unique or important terrestrial habitat?	X		No	No	Brellenthin J. 03/08/2012
16. Potentially affect unique or important aquatic habitat?	X		No	No	Brellenthin J. 03/08/2012

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)---	No	Yes	Per-mit	Commit-ment	Information Source for Insignificience
1. Release air pollutants?		X	No	No	For comments see attachments
2. Generate water pollutants?	X		No	No	Brellenthin J. 03/08/2012
3. Generate wastewater streams?	X		No	No	Brellenthin J. 03/08/2012
4. Cause soil erosion?		X	No	No	For comments see attachments
5. Discharge dredged or fill materials?	X		No	No	Brellenthin J. 03/08/2012
6. Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	Brellenthin J. 03/08/2012
7. Generate or release hazardous waste (RCRA)?	X		No	No	Brellenthin J. 03/08/2012
8. Generate or release universal or special waste, or used oil?	X		No	No	Brellenthin J. 03/08/2012
9. Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	Brellenthin J. 03/08/2012
10. Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	Brellenthin J. 03/08/2012
11. Involve disturbance of pre-existing contamination?	X		No	No	Brellenthin J. 03/08/2012
12. Generate noise levels with off-site impacts?	X		No	No	Brellenthin J. 03/08/2012
13. Generate odor with off-site impacts?	X		No	No	Brellenthin J. 03/08/2012
14. Produce light which causes disturbance?	X		No	No	Brellenthin J. 03/08/2012
15. Release of radioactive materials?	X		No	No	Brellenthin J. 03/08/2012
16. Involve underground or above-ground storage tanks or bulk storage?	X		No	No	Brellenthin J. 03/08/2012
17. Involve materials that require special handling?	X		No	No	Brellenthin J. 03/08/2012

Part 4. Social and Economic Effects

Would the proposed action---	No	Yes	Commit-ment	Information Source for Insignificience
1. Potentially cause public health effects?	X		No	Brellenthin J. 03/08/2012
2. Increase the potential for accidents affecting the public?	X		No	Brellenthin J. 03/08/2012
3. Cause the displacement or relocation of businesses, residences, cemeteries, or farms?	X		No	Brellenthin J. 03/08/2012
4. Contrast with existing land use, or potentially affect resources described as unique or significant in a federal, state, or local plan?	X		No	Brellenthin J. 03/08/2012
5. Disproportionately affect minority or low-income populations?	X		No	Brellenthin J. 03/08/2012
6. Involve genetically engineered organisms or materials?	X		No	Brellenthin J. 03/08/2012
7. Produce visual contrast or visual discord?	X		No	Brellenthin J. 03/08/2012
8. Potentially interfere with recreational or educational uses?	X		No	Brellenthin J. 03/08/2012
9. Potentially interfere with river or other navigation?	X		No	Brellenthin J. 03/08/2012
10. Potentially generate highway or railroad traffic problems?	X		No	Brellenthin J. 03/08/2012

Part 5. Other Environmental Compliance/Reporting Issues

Would the proposed action---	No	Yes	Commit-ment	Information Source for Insignificience
1. Release or otherwise use substances on the Toxic Release Inventory list?	X		No	Brellenthin J. 03/08/2012
2. Involve a structure taller than 200 feet above ground level?	X		No	Brellenthin J. 03/08/2012
3. Involve site-specific chemical traffic control?		X	No	For comments see attachments
4. Require a site-specific emergency notification process?		X	No	For comments see attachments
5. Cause a modification to equipment with an environmental permit?	X		No	Brellenthin J. 03/08/2012
6. Potentially impact operation of the river system or require special water elevations or flow conditions??	X		No	Brellenthin J. 03/08/2012
7. Involve construction of a new building or renovation of existing building (i.e., major changes to lighting, HVAC, and/or structural elements of building of 2000 sq. ft or more) on which TVA will pay/pays the utilities??	X		No	Brellenthin J. 03/08/2012

Description of Proposed Action *(Include Anticipated Dates of Implementation)*	☐ Continued from Page 1

Parts 1 through 4: If "yes" is checked, describe in the discussion section following this form why the effect is insignificant. Attach any conditions or commitments which will ensure insignificant impacts. Use of non-routine commitments to avoid significance is an indication that consultation with NEPA Administration is needed.

An ☐ EA or ☐ EIS will be prepared.

Based upon my review of environmental impacts, the discussions attached, and/or consultations with NEPA Administration, I have determined that the above action does not have a significant impact on the quality of the human environment and that no extraordinary circumstances exist. Therefore, this proposal qualifies for a categorical exclusion under Section 5.2. 1 *of TVA NEPA Procedures.*

Project Initiator/Manager Jeffrey McGuire		Date 03/09/2012
TVA Organization UNKN	E-mail jjmcguir@tva.gov	Telephone

Site Environmental Compliance Reviewer

Signature

Final Review/Closure

John Brellenthin 03/22/2012

Signature

Other Review Signatures *(as required by your organization)*

Ruth M Horton	03/22/2012		
Signature		*Signature*	
Jerri L Phillips	03/20/2012		
Signature		*Signature*	
John Brellenthin	03/22/2012		
Signature		*Signature*	

Attachments/References

Description of Proposed Action

Temporarily place 2 - 8' X 40' construction trailers on the site designated for the WBN Tritium Tank to support construction activities. Trailers will be removed when construction is completed (approximately November 2012)

Project Location

The trailers will be located in the same area of the site where the tritium tank is scheduled to be constructed on open ground west of the

Unit-1 Primary Water and Refueling Water Storage Tanks within the plant's existing protected area. The only utility that will service the trailers is electricity, and the connection will be from above ground. No water or sewer will be required. See attached location map.

CEC General Comment Listing

1. A location map for the two trailers is attached.
   By: John Brellenthin 03/08/2012
   Files: Kiewit construction trailers location.pdf 03/08/2012 540,632 Bytes

CEC Comment Listing

Part 1 Comments

2. This is part of the project to construct a tritium storage tank at WBN. Construction of the storage tank has been covered under CEC 24680, a copy of which is attached for reference purposes.
   By: John Brellenthin 03/08/2012
   Files: CEC 24680 WBN Tritium Tank.pdf 03/08/2012 92,255 Bytes

Part 2 Comments

1. Reference the assessment completed in CEC 24680 attached to this CEC.
   By: John Brellenthin 03/08/2012
2. Reference the assessment completed in CEC 24680 attached to this CEC.
   By: John Brellenthin 03/08/2012
7. We have no objection to the proposed project because there would be no work within the 100-year floodplain which would be consistent with Executive Order 11988.
   By: Roger A. Milstead 03/13/2012
7. Per an e-mail comment from the NPG Hydrology and Groundwater Program Associate Manager, the trailers will be in the PMP drainage path and therefore must be elevated on piers with no skirting or materials stored underneath. During their placement onsite, a monthly inspection will be required to ensure compliance with the PMF requirements. The e-mail is attached.
   By: John Brellenthin 03/21/2012
   Files: PMF Review CEC 26050.pdf 03/21/2012 55,246 Bytes
7. The proposed trailers are to be located in an area where temporary approval was obtained for locating trailers for U1C10 and then for U2 (CEC's 23832 and 23762).
   By: John Brellenthin 03/12/2012

Part 3 Comments

1. Some minor emissions of air pollutants may occur associated with the equipment necessary to deliver and locate the trailers (primarily trucks)
   By: John Brellenthin 03/12/2012
4. Utilities for the trailers will be installed above ground. Some minor grading may be required to provide a level surface for the trailers, but any land disturbance will be less than one acre. However, An application for coverage under the construction stormwater general permit will be submitted and appropriately maintained if more than 1 acre of land is disturbed at any given time (taking into account applicable disturbed areas not associated with this project), and BMP's will be employed to control runoff from any cleared areas. Any excess soil will be disposed of in the site spoil pile after clearance by Rad Protection.
   By: John Brellenthin 03/12/2012

Part 5 Comments

3. Any chemicals used in the placement of the trailers or used during the operation of the trailers will be reviewed and approved under the site CTC program.
   By: John Brellenthin 03/08/2012
4. Contact Shift Manager at 365-8213 for all chemical and oil spills associated with trailer placement or operation as required under the site Spill Plan. Reference is ECM-8, the site Spill Prevention, Control and Countermeasures (SPCC) Plan.
   By: John Brellenthin 03/12/2012

FACILITY #	GROUP
FH1	CONSTRUCTION MGMT
FH2	U2 LICENSING
DP3	CARPENTERS
DP4	LABORERS
DP5	CONST. REFURB
DP6	CIVIL FEs & SUPTs
DP7	CONST. REFURB
DP8	MILLWRIGHTS
DP9	ISI GROUP
DP10	MECH. PLANNING
DP11	ELCT. ENG & SUPT
DP12	MECHANICAL
TC13	RESTROOM
TC14	BECHTEL TRAINING
TC15	TRAINING CLASSROOM
TC16	TRAINING CONFERENCE
TC17	IN-PROCESSING
DP18	ELECTRICAL CRAFT
FH19	BECHTEL SAFETY
IDB20	ENG MULTI-PLEX
IDB21	ENGINEERING
IDB22	CREW ENGINEERING
IDB23	POWER / TELECOM DIST.
IDB24	ENGINEERING
IDB25	ENGINEERING
IDB26	ENGINEERING
IDB27	PROCUREMENT
IDB28	RESTROOM
IDB29	ENGINEERING
IDB30	ENGINEERING
IDB31	POWER / TELECOM DIST.
NP32	POWER / TELECOM DIST.
CCV33	ELECTRICAL CRAFT
CCV34	PIPEFITTERS
CCV35	PIPEFITTERS
VP36	WELDING / AP SERVICES
VP37	IVEY COOPER

FACILITY #	GROUP
DP38	RESTORE CRAFT
DP39	CRDR
DP40	CRDR PLANNERS / CRAFT
DP41	U2 MATL STAGING
DP42	WORK ORDER LIBRARY
CCV43	WELDING / U2 EPS
CCV44	BEAM BLDG / U2 TOOL ROOM
CCV45	FAB SHOP-Admin PM
FH46	NRC
FH47	WESTINGHOUSE
VP48A	Planned for U2 Closure
VP48B	FAB SHOP ALPHA
YD49A	FAB SHOP ALPHA LUNCH
YD49B	PAINT SHOP
YD50A	PAINT SHOP LUNCH
YD50B	U2 RECEIVING
YD51A	U2 RECEIVING LUNCH
YD51B	TEAMSTERS
YD51C	STEPHENS TRAINING
YD52	

FACILITY #	GROUP
IDG53	QC
CT54	IRAZ
IDB55	PROJECT CONTROLS
IDB56	H.R / F.M.A
IDG57	P.C.L
IDG58	CONST REFURB
NP59	MECH PLANNING
NP60	CONST REFURB

Two Kiewit construction trailers in green box

04-30-10
REV. 4

Final for AR; August 20, 2012

From: Brellenthin, John B
To: Horton, Ruth M;
Subject: FW: Review CEC 26050
Date: Wednesday, March 21, 2012 1:37:10 PM

John B. (Jack) Brellenthin
Environmental Specialist
423-751-3693 - Office
423-593-8643 - Cell
jbbrellenthin@tva.gov

-----Original Message-----
From: Daniel, Benjamin Paul
Sent: Monday, March 19, 2012 9:44 AM
To: Brellenthin, John B
Cc: McGuire, Jeffrey J; Whaley, Mark Ernest
Subject: RE: Review CEC 26050

The trailers will be in the PMP drainage path, but as long as they are elevated on piers with no skirting or materials stored underneath, it should be okay. You would need to coordinate with Mark Whaley in order for them to be inspected monthly.

Alternatively, if you could place the trailers south of the proposed area and west of the primary water tank (the blue box in the attached picture), you could simply place them there without adversely affecting PMP drainage. You wouldn't need to elevate them on piers, keep the skirting off, have them inspected, etc.

Let me know if you need anything else.

Thanks,

Benjamin P. Daniel
Hydrology and Groundwater Program Associate Manager
TVA Nuclear Power Group
1101 Market Street, LP 4G-C
Chattanooga, TN 37402
Office:(423)751-7136

-----Original Message-----
From: Brellenthin, John B
Sent: Monday, March 19, 2012 7:46 AM

To: Daniel, Benjamin Paul
Cc: McGuire, Jeffrey J
Subject: FW: Review CEC 26050

Is there any chance you could provide some input on this in the next couple of days? The Project is close to needing to place the trailers and closing the CEC is a necessary step in the process. Please let me know if this is going to be a problem. Thanks again for the assistance.

John B. (Jack) Brellenthin
Environmental Specialist
423-751-3693 - Office
423-593-8643 - Cell
jbbrellenthin@tva.gov

-----Original Message-----
From: Brellenthin, John B
Sent: Tuesday, March 13, 2012 10:27 AM
To: Daniel, Benjamin Paul
Cc: McGuire, Jeffrey J; Horton, Ruth M
Subject: FW: Review CEC 26050

As indicated below I am working on a NEPA review for placement of two temporary trailers to support the tritium tank construction project at WBN. Attached is a drawing showing the proposed location for the trailers. I understand that you are the person that looks at these for PMF issues, and I was hoping that you could take a look at the proposed locations and let me know if there are any issues that the Project folks need to address with regard to placement of these trailers.

The trailers will be removed after the tank construction is completed - approximately November 2012.

Please let me know if you need any additional information - and thanks for the help on this.

John B. (Jack) Brellenthin
Environmental Specialist
423-751-3693 - Office
423-593-8643 - Cell
jbbrellenthin@tva.gov

-----Original Message-----
From: Milstead, Roger A
Sent: Tuesday, March 13, 2012 8:42 AM

To: Brellenthin, John B
Cc: Daniel, Benjamin Paul
Subject: RE: Review CEC 26050

Jack, I just answered the request in ENTRAC indicating that the project would not involve work within the 100-year floodplain. For PMP site drainage review you will need to contact Ben Daniel.

Roger A. Milstead, P.E.
Program Manager, Flood Risk
River Operations
(865) 632-6115
ramilstead@tva.gov

-----Original Message-----
From: jbbrellenthin@tva.gov [mailto:jbbrellenthin@tva.gov]
Sent: Monday, March 12, 2012 10:20 AM
To: Milstead, Roger A
Subject: Review CEC 26050

You have been selected as a reviewer for a Categorical Exclusion Checklist. Please click on the link below to review the CEC information on the ENTRAC system. If you have any questions about the ENTRAC system, please contact Loretta McNamee at 632-6455.
http://knxpweb1.knx.tva.gov:9141/login.asp?NEPAID=26050

The following information was provided by the checklist preparer:
Roger, could you look at the location proposed for these in regard to the 100 yr. floodplan and PMF for Part 2 Q 7, it's close to locations you have reviewed for other CEC's but I'd like to make sure.

The following short code has been provided for work on this project:
0096180

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number	**Tracking Number** *(NEPA Administration Use Only)*
1		26309

Form Preparer	Project Initiator/Manager	Business Unit
John Brellenthin	Jeffrey McGuire	NPG - Nuclear Engineering

Project Title	Hydrologic Unit Code
Excavated Material Disposal - WBN Tritium Tank	06010201-240

Description of Proposed Action *(Include Anticipated Dates of Implementation)* ☒ Continued on Page 3 *(if more than one line)*

For Proposed Action See Attachments and References

Initiating TVA Facility or Office	TVA Business Units Involved in Project
Watts Bar Nuclear Plant	NPG - Nuclear Engineering

Location *(City, County, State)*

For Project Location see Attachments and References

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

Is there evidence that the proposed action---	No	Yes	Information Source
1. Is major in scope?	X		Brellenthin J. 04/20/2012
2. Is part of a larger project proposal involving other TVA actions or other federal agencies?		X	For comments see attachments
*3. Involves non-routine mitigation to avoid adverse impacts?	X		Brellenthin J. 04/20/2012
4. Is opposed by another federal, state, or local government agency?	X		Brellenthin J. 04/20/2012
*5. Has environmental effects which are controversial?	X		Brellenthin J. 04/20/2012
*6. Is one of many actions that will affect the same resources?	X		Brellenthin J. 04/20/2012
7. Involves more than minor amount of land?	X		Brellenthin J. 04/20/2012

* If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action---	No	Yes	Per-mit	Commit-ment	Information Source for Insignificience
1. Potentially affect endangered, threatened, or special status species?	X		No	No	Brellenthin J. 04/20/2012
2. Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?	X		No	No	Brellenthin J. 04/20/2012
3. Potentially take prime or unique farmland out of production?	X		No	No	Brellenthin J. 04/20/2012
4. Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	Brellenthin J. 04/20/2012
5. Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	Brellenthin J. 04/20/2012
6. Potentially affect wetlands, water flow, or stream channels?	X		No	No	For comments see attachments
7. Potentially affect the 100-year floodplain?	X		No	No	For comments see attachments
8. Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?	X		No	No	Brellenthin J. 04/20/2012
9. Contribute to the spread of exotic or invasive species?	X		No	No	Brellenthin J. 04/20/2012
10. Potentially affect migratory bird populations?	X		No	No	Brellenthin J. 04/20/2012
11. Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	X		No	No	Brellenthin J. 04/20/2012
12. Potentially affect surface water?	X		No	No	For comments see attachments
13. Potentially affect drinking water supply?	X		No	No	Brellenthin J. 04/20/2012
14. Potentially affect groundwater?	X		No	No	Brellenthin J. 04/20/2012
15. Potentially affect unique or important terrestrial habitat?	X		No	No	Brellenthin J. 04/20/2012
16. Potentially affect unique or important aquatic habitat?	X		No	No	Brellenthin J. 04/20/2012

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)---	No	Yes	Per-mit	Commit-ment	Information Source for Insignificience
1. Release air pollutants?		X	No	No	For comments see attachments
2. Generate water pollutants?	X		No	No	For comments see attachments
3. Generate wastewater streams?	X		No	No	Brellenthin J. 04/20/2012
4. Cause soil erosion?	X		No	No	For comments see attachments
5. Discharge dredged or fill materials?	X		No	No	Brellenthin J. 04/20/2012
6. Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	For comments see attachments
7. Generate or release hazardous waste (RCRA)?	X		No	No	Brellenthin J. 04/20/2012
8. Generate or release universal or special waste, or used oil?	X		No	No	Brellenthin J. 04/20/2012
9. Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	Brellenthin J. 04/20/2012
10. Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	Brellenthin J. 04/20/2012
11. Involve disturbance of pre-existing contamination?	X		No	No	Brellenthin J. 04/20/2012
12. Generate noise levels with off-site impacts?	X		No	No	Brellenthin J. 04/20/2012
13. Generate odor with off-site impacts?	X		No	No	Brellenthin J. 04/20/2012
14. Produce light which causes disturbance?	X		No	No	Brellenthin J. 04/20/2012
15. Release of radioactive materials?	X		No	No	Brellenthin J. 04/20/2012
16. Involve underground or above-ground storage tanks or bulk storage?	X		No	No	Brellenthin J. 04/20/2012
17. Involve materials that require special handling?	X		No	No	Brellenthin J. 04/20/2012

Part 4. Social and Economic Effects

Would the proposed action---	No	Yes	Commit-ment	Information Source for Insignificience
1. Potentially cause public health effects?	X		No	Brellenthin J. 04/20/2012
2. Increase the potential for accidents affecting the public?	X		No	Brellenthin J. 04/20/2012
3. Cause the displacement or relocation of businesses, residences, cemeteries, or farms?	X		No	Brellenthin J. 04/20/2012
4. Contrast with existing land use, or potentially affect resources described as unique or significant in a federal, state, or local plan?	X		No	Brellenthin J. 04/20/2012
5. Disproportionately affect minority or low-income populations?	X		No	Brellenthin J. 04/20/2012
6. Involve genetically engineered organisms or materials?	X		No	Brellenthin J. 04/20/2012
7. Produce visual contrast or visual discord?	X		No	Brellenthin J. 04/20/2012
8. Potentially interfere with recreational or educational uses?	X		No	Brellenthin J. 04/20/2012
9. Potentially interfere with river or other navigation?	X		No	Brellenthin J. 04/20/2012
10. Potentially generate highway or railroad traffic problems?	X		No	Brellenthin J. 04/20/2012

Part 5. Other Environmental Compliance/Reporting Issues

Would the proposed action---	No	Yes	Commit-ment	Information Source for Insignificience
1. Release or otherwise use substances on the Toxic Release Inventory list?	X		No	Brellenthin J. 04/20/2012
2. Involve a structure taller than 200 feet above ground level?	X		No	Brellenthin J. 04/20/2012
3. Involve site-specific chemical traffic control?		X	No	For comments see attachments
4. Require a site-specific emergency notification process?		X	No	For comments see attachments
5. Cause a modification to equipment with an environmental permit?	X		No	Brellenthin J. 04/24/2012
6. Potentially impact operation of the river system or require special water elevations or flow conditions??	X		No	Brellenthin J. 04/20/2012
7. Involve construction of a new building or renovation of existing building (i.e., major changes to lighting, HVAC, and/or structural elements of building of 2000 sq. ft or more) on which TVA will pay/pays the utilities??	X		No	Brellenthin J. 04/20/2012

Description of Proposed Action *(Include Anticipated Dates of Implementation)*	☐ Continued from Page 1

Parts 1 through 4: If "yes" is checked, describe in the discussion section following this form why the effect is insignificant. Attach any conditions or commitments which will ensure insignificant impacts. Use of non-routine commitments to avoid significance is an indication that consultation with NEPA Administration is needed.

An ☐ EA or ☐ EIS will be prepared.

Based upon my review of environmental impacts, the discussions attached, and/or consultations with NEPA Administration, I have determined that the above action does not have a significant impact on the quality of the human environment and that no extraordinary circumstances exist. Therefore, this proposal qualifies for a categorical exclusion under Section 5.2. 1 *of TVA NEPA Procedures.*

Project Initiator/Manager Jeffrey McGuire		Date 04/23/2012
TVA Organization UNKN	E-mail jjmcguir@tva.gov	Telephone

Site Environmental Compliance Reviewer

Signature

Final Review/Closure

John Brellenthin 04/24/2012

Signature

Other Review Signatures *(as required by your organization)*

Jerri L Phillips	04/23/2012		
Signature		*Signature*	
Ruth M Horton	04/23/2012		
Signature		*Signature*	
John Brellenthin	04/23/2012		
Signature		*Signature*	

Attachments/References

Description of Proposed Action

To support tank construction, the project will hydro excavate approximately 300-400 yards of soil for disposal in WBN's existing spoils pile. Soil removed via hydro-excavation techniques shall be transported via a tanker-type closed truck and placed in one or more trenchs in the spoils pile to allow for the water to dry/absorb into the ground and prevent runoff from the area. The approximately 200 yards of soil removed from the trench(s) at the spoils pile area will be replaced on the spoils pile. Trench configuration and soil replacement in the disposal area will be per ECM-4 and Env Staff direction. The proposed work will also include removal of existing concrete at the tank construction site. Work will begin once this CEC is reviewed and closed.

Project Location

Project is located on the WBN reservation. The tritium tank will be located within the protected area as described in CEC 24680. The spoils pile area is also on the WBN reservation and is described in CEC 8656.

CEC General Comment Listing

1. This CEC supplements information covered in CEC 24680 to address excavation and disposal of soil and concrete required to support the tritium tank construction. A copy of CEC 24680 is attached for reference use. WBN's existing designated spoils pile area will be used for disposal of all excavated soil, and the concrete will be disposed of in a properly permitted landfill.The existing spoils pile area was addressed via CEC 8656, a copy of which is attached. CEC 8656 covers management of the soil disposal area.
   By: John Brellenthin 04/23/2012
   Files: WBN Spoils Pile CEC.pdf 04/20/2012 89,047 Bytes
   CEC 24680 WBN Tritium Tank.pdf 04/20/2012 92,255 Bytes

CEC Comment Listing

Part 1 Comments

2. The project is part of the Tritium Tank construction project covered under CEC 24680. This tritium tank is connected to DOEs Final Supplemental Environmental Impact Statement (FSEIS) for the Production of Tritium in Commercial Light Water Reactor.
   By: John Brellenthin 04/20/2012

Part 2 Comments

6. All the excavation associated with this project will occur on previously disturbed areas within the existing site drainage. The disposal area is existing, and has been used previously for similar projects. BMP"s will be employed at both the tank and disposal sites to control runoff.
   By: John Brellenthin 04/20/2012
7. The tank construction area has been previously assessed under CEC 24680 and the disposal area under CEC 8656.
   By: John Brellenthin 04/20/2012
12. While the Project does not expect to disturb more than one acre, an application for coverage under the construction stormwater general permit will be submitted and appropriately maintained if more than 1 acre of land is disturbed at any given time (taking into account applicable disturbed areas not associated with this project).
   By: John Brellenthin 04/23/2012

Part 3 Comments

1. Some minor temporary emissions can be expected resulting from use of excavators, and other construction equipment, as well as fugitive dust from soil disturbance, however, use of hydro-excavation techniques should minimize such emissions. Emissions should be within the levels generally experienced already on the site and no special equipment should be necessary for the project.
   By: John Brellenthin 04/23/2012
2. While the Project does not expect to disturb more than one acre, an application for coverage under the construction stormwater general permit will be submitted and appropriately maintained if more than 1 acre of land is disturbed at any given time (taking into account applicable disturbed areas not associated with this project).
   By: John Brellenthin 04/23/2012
4. The hydroexcavated material will be collected for disposal in the designated onsite spoil disposal area. The material will be placed in a trench in the area under the direction of the site environmental scientist and monitoried and maintained in

accordance with ECM-4.
By: John Brellenthin 04/20/2012

6. The excavated soil will be disposed in the existing designated spoil disposal area and managed in accordance with ECM-4 and the instructions provided by the site environmental scientist. Concrete excavated from the tank site will be disposed of in a landfill permitted to accept such construction related debris.
By: John Brellenthin 04/20/2012

Part 5 Comments

3. All chemicals brought on to the site by the contractors for this project will require prior approval under the site Chemical Traffic control program.
By: John Brellenthin 04/20/2012
4. Reference is ECM-8, the site Spill Prevention, Control and Countermeasures (SPCC) Plan. Reporting of spills should be made to the Shift Manager at the plant.
By: John Brellenthin 04/20/2012

Joanne Stover

From: David Crowl <dcrowl@moellerinc.com>
Sent: Friday, June 08, 2012 8:22 AM
To: Joanne Stover
Cc: Rose, Jay; Steve Sohinki; John Shipman
Subject: FW: WBN and SQN Site Maps for Tritium DSEIS

Joanne, please add this e-mail and the figures from the link to the data call. They replace the figures in Chapter 2, the sources of which were DOE 1999a for WBN fig and TVA 2011c for SEQ fig. Changing the figure sources to TVA 2012 did NOT affect your callout letters as both are called previous to the figs.

Thanks,
-D

David Crowl
Senior Technical Editor and Writer
Dade Moeller
4100 W. Flamingo Road, Ste. 2200 | Las Vegas, NV 89103
Direct: (702) 368-1540, extension 3503 | Fax: (702) 368-1537

From: Rose, Jay [mailto:Jay.Rose@tetratech.com]
Sent: Friday, June 08, 2012 7:48 AM
To: David Crowl; John Shipman
Subject: FW: WBN and SQN Site Maps for Tritium DSEIS

Maps from tva

From: Horton, Ruth M [mailto:rmhorton@tva.gov]
Sent: Friday, June 08, 2012 10:45 AM
To: Steve Sohinki; Rose, Jay
Cc: Henry, Amy Burke
Subject: WBN and SQN Site Maps for Tritium DSEIS

I've uploaded maps of the Watts Bar and Sequoyah Nuclear Plant Sites to the JAD Sharepoint at the following link. The folder includes a jpeg and a pdf file for each map. Please let us know if these maps meet your needs.

WBN-SQN Maps

Ruth M. Horton
Project Manager
TVA Generation Group
Environmental Nuclear Generation and Construction
400 W. Summit Hill Dr.
WT 11D-K
Knoxville, TN 37902
Phone: 865/632-3719
Fax: 865/632-3451

Legend

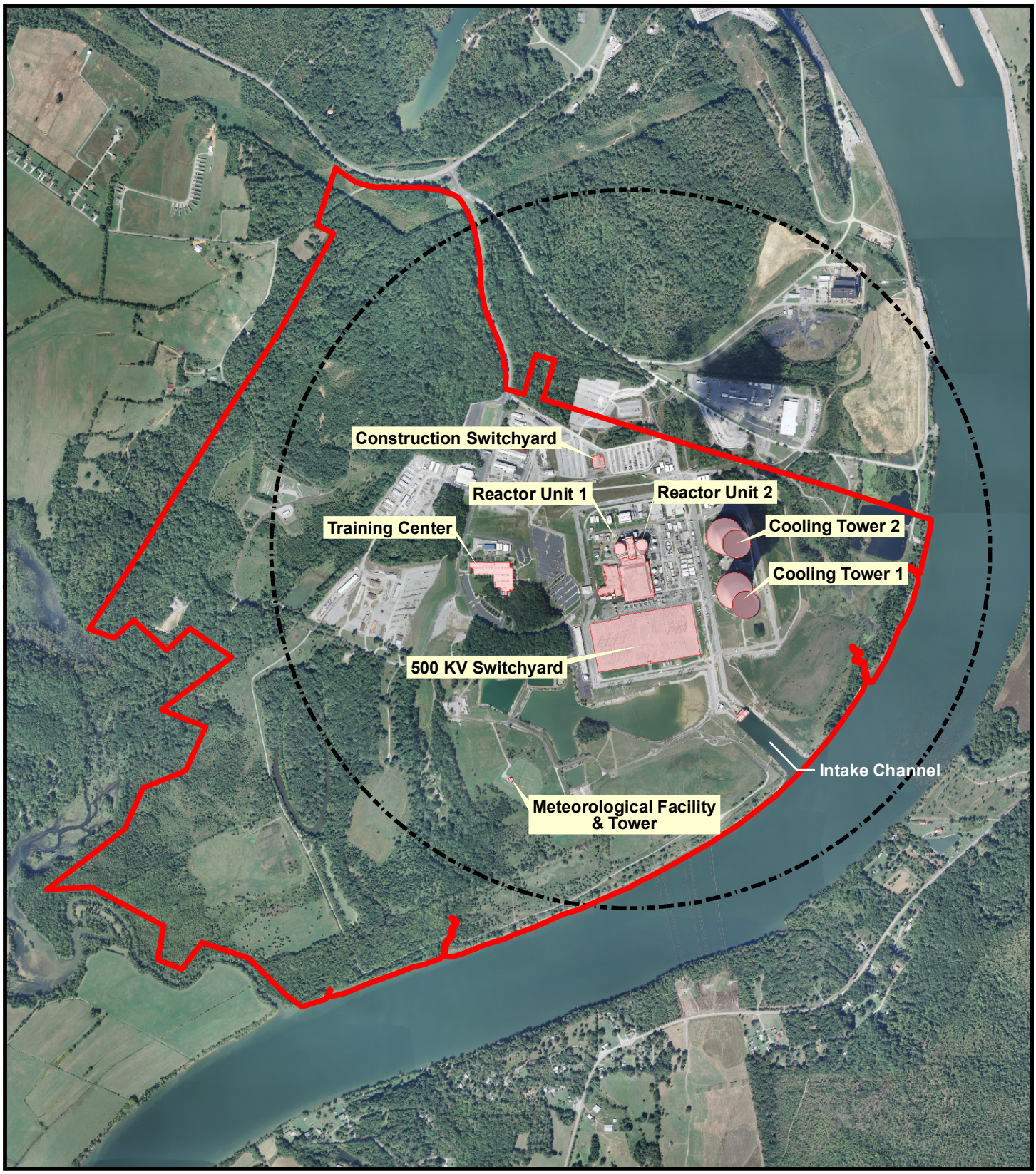
- Plant Boundary
- Site Feature
- Exclusion Area Boundary

Imagery date: September 2011
Map created: June 08, 2012

N
W E
S

0 500 1,000 1,500
Feet

Tennessee Valley Authority
TVA Realty, GIS & Land Records



Imagery date: September 2011
Map created: June 08, 2012

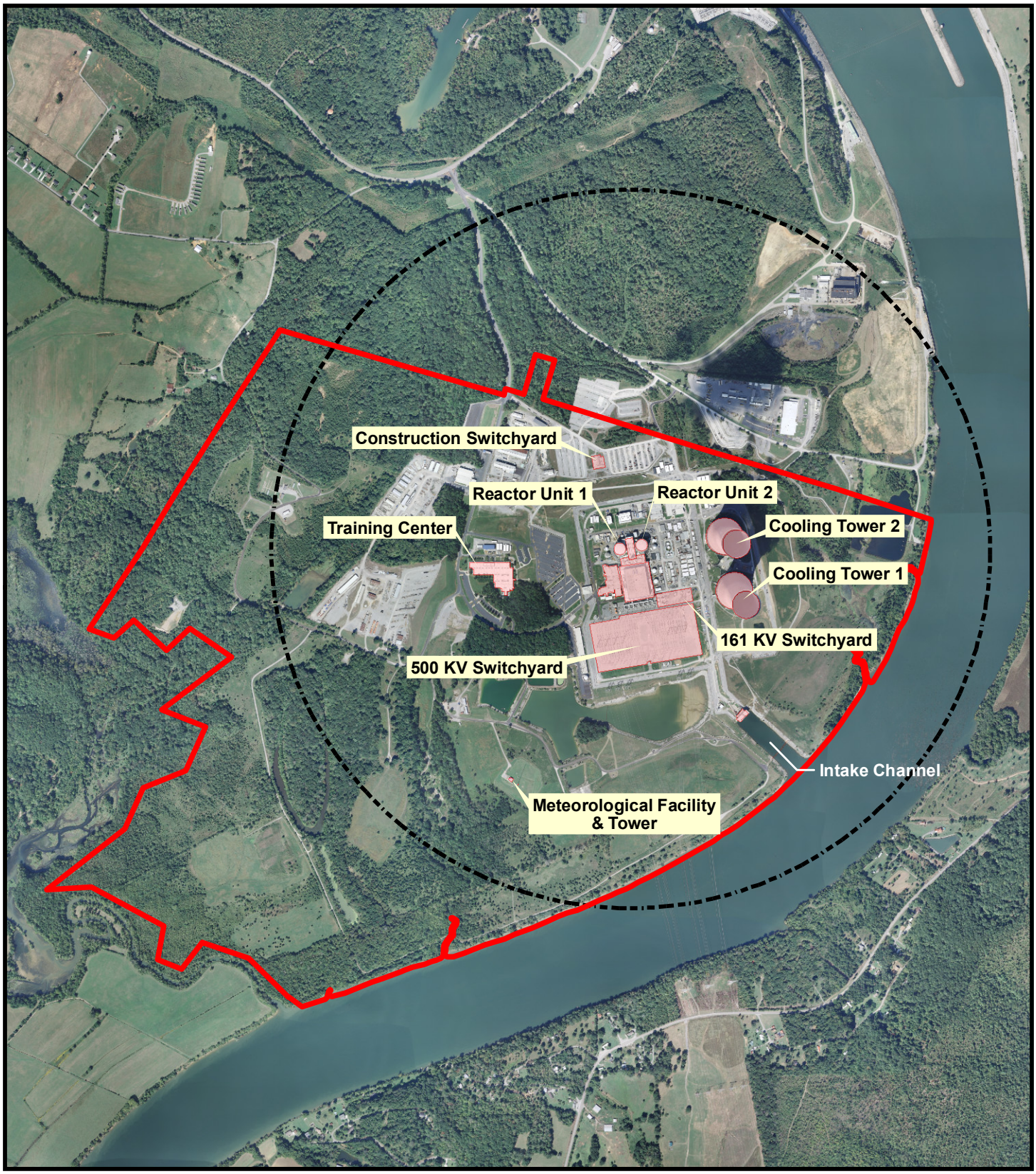
Legend

- Plant Boundary
- Site Feature
- Exclusion Area Boundary (1200 Meters)

N
W E
S

0 500 1,000 1,500
Feet

Tennessee Valley Authority
TVA Realty, GIS & Land Records



Imagery date: September 2011
Map created: June 19, 2012

Legend

- Plant Boundary
- Site Feature
- Exclusion Area Boundary (1200 Meters)

N
W E
S

0 500 1,000 1,500
Feet

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