Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

SEP 27 1994

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) - RESPONSE TO NRC'S REQUEST FOR ADDITIONAL INFORMATION RELATED TO THE WATTS BAR ENVIRONMENTAL REVIEW (TAC NOS. M88691 AND M88692)

Enclosed is TVA's response to the subject request. This information is provided to support the staff's environmental review for Watts Bar Nuclear Plant.

If you should have any questions, contact John Vorees at (615)-365-8819.

Sincerely,

Dwight E. Nunn
Vice President
New Plant Completion
Watts Bar Nuclear Plant

Enclosure
cc: See page 2

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PDR ADOCK 05000390
A PDR

Drawings located in Central Files

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SEP 27 1994

cc (Enclosure):

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50-390 TVA WATTS BAR 1

RESPONSE TO NRC'S REQUEST FOR ADDITIONAL INFO RELATED TO THE ENVIRONMENTAL REVIEW. BOOK 1.

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ENCLOSURE 1

Watts Bar Environmental Review
Request for Additional Information

Terrestrial/Aquatic Ecology

1. Provide a map of all transmission lines associated with the Watts Bar Nuclear Plant (WBN).

   TVA's Response

   TVA system maps of the relevant areas and individual line vicinity maps or design drawings are being provided (separate cover).

2. Provide information on the transmission lines associated with WBN, including: line size, and corridor widths and lengths.

3. Provide a breakdown (percentages) of land use within each transmission line corridor.

   TVA's Response 2 & 3

Line	Length	Width*	Land Use Adjacent to ROW
Watts Bar - Volunteer 500-kV	90 mi.	175 ft. (64 mi.) 150 ft. (26 mi.)	43% Agriculture** 42% Forested 13% Urban 0% Ind./Com. 2% Other ***
Watts Bar - Roane 500-kV	39.5 mi.	175 ft. (4.5 mi.) 150 ft. (35 mi.)	35% Agriculture 62% Forested 0% Urban 1% Ind. Com. 2% Other
Bull Run - Sequoyah 500-kV loop to Watts Bar (Watts Bar - Sequoyah 500-kV #1) (Watts Bar - Bull Run 500-kV)	 5.5 mi. 5.5 mi.	300 ft. (2 adjoining lines)	48% Agriculture 50% Forested 0% Urban 1% Ind./Com. 1% Other
Watts Bar - Sequoyah 500-kV #2	40.5 mi.	175 ft.	46% Agriculture 52% Forested 0% Urban 1% Ind./Com. 1% Other
Watts Bar Nuclear - Watts Bar Hydro 161-kV #1	2.0 mi.	No defined width	100% Ind./Com.****
Watts Bar Nuclear - Watts Bar Hydro 161-kV #2	1.5 mi.	No defined width	100% Ind./Com.****

*May be less where Line adjoins existing transmission line.
**Includes cropland and pasture.
***Includes water, barren land, transportation facilities et al.
****Total line length on TVA reservation.

4. Provide a basis for concluding the transmission lines will have an insignificant impact on bird populations.

TVA's Response

This response addresses three sources of operational transmission line impacts on bird populations - habitat changes resulting from transmission line corridor maintenance, effects of electromagnetic fields (EMF), and mortality from collisions with transmission lines. The effects of transmission line maintenance have been studied within the Watts Bar Nuclear (WBN) Plant area (e.g., Kroodema 1982) and elsewhere. No quantitative studies of electromagnetic fields or bird collisions have been conducted within the WBN area. Numerous studies, summarized in NRC (1991), have failed to show significant EMF impacts of bird populations.

Transmission line corridor maintenance is typically performed by mowing or herbicide application on a 3- or 4-year cycle. Both types of maintenance eliminate living vegetation over a few centimeters in height and reduce the food and cover available to the local bird population (NRC 1991). As regrowth of vegetation occurs, the local bird population increases and becomes dominated by species inhabiting shrubs and woodland edges (Kroodema 1982). Although the changes in bird habitats due to cyclic maintenance impact local bird populations, these impacts are not regionally significant because of the staggered maintenance cycles of different transmission lines. Toxic effects of properly applied herbicides on birds have not been identified as significant (NRC 1991).

TVA has no quantitative data describing bird mortality due to collisions with WBN transmission lines. Since the completion of line construction in the 1970s, no incidences of unusual bird strikes (i.e., more than an occasional single bird) have been reported to TVA.

Several reports, summarized in NRC (1991), state that heavier birds of low maneuverability, such as waterfowl and cranes, account for most bird strike mortality. The location of the WBN transmission lines in relation to important waterfowl areas was described in TVA (1977) (copy of pertinent section [page 2-2, Question Number 2.3] submitted under separate cover). As noted in the 1977 report, WBN lines avoid the areas receiving the heaviest waterfowl use. Although populations of migratory and wintering waterfowl have decreased (as is the case throughout the region), their flight patterns have not noticeably changed since 1977. A resident population of Canada geese, which ranges throughout much of the region, has recently become established. Since 1977, increasing numbers of migratory and wintering sandhill cranes have regularly used the lower Hiwassee River and adjacent Tennessee River areas of Chickamauga Reservoir. These cranes rarely range upstream of Candies Creek (river mile 12.5) on the Hiwassee River or upstream of Washington Ferry (river mile 518) on the Tennessee River. Since 1977, the population of great blue herons nesting in the WBN region has also greatly increased and a few heron nesting colonies are close to transmission lines.

Based on the lack of reported bird strike mortality and the population trends of vulnerable species such as waterfowl, cranes and herons, TVA concludes that bird strikes to WBN transmission lines are having an insignificant impact on area bird populations.

Literature Cited

R. L. Kroodema, Bird Community Ecology On Power-line Corridors In East Tennessee, Biol. Conserv. 23:79-94, 1982

Nuclear Regulatory Commission, Generic Environmental Impact Statement For License Renewal of Nuclear Plants, NUREG-1437, Vol. 1, U.S. Nuclear Regulatory Commission, 1991

Tennessee Valley Authority, Environmental Information, Supplement No. 1, Responses To NRC Questions For Operating License State Environmental Review, Watts Bar Nuclear Plant Units 1 and 2, Tennessee Valley Authority, 1977

5. Using the National Heritage program data base, provide a list of Federal and State protected species existing along the transmission line corridors, on the WBN site, and in the section of Tennessee river within the vicinity of the site.

TVA's Response

Submitted under separate cover is a summary of recent records of Federal and Tennessee endangered, threatened, and active candidate species reported from the 10-county area including the WBN Site and associated transmission lines. Because this 10-county area includes much more than the WBN project vicinity, entries in the table indicate whether each species is known to occur on the WBN Site, in the adjacent reach of the Tennessee River, or near one or more of the transmission lines.

6. Clarify whether the spider-lily (*Hymenocallis occidentialis*) actually occurs on the WBN site or along the transmission line corridors.

TVA's Response

Field inspections conducted by a TVA botanist in September 1978 and again in September 1994 have failed to locate any individual or population of spider-lily (*Hymenocallis occidentalis*) on the WBN Site. TVA knows of no locations for the species along any of the WBN transmission line corridors. The species is not currently federally or state listed and is not under consideration for listing by either the U.S. Fish and Wildlife Service, Office of Endangered Species or the Tennessee Department of Environment and Conservation, Ecological Services Division. Because it is not state or federally listed and because it has never been listed by either agency in the past, TVA has no locality information in the TVA Regional Natural Heritage Project data base.

7. Provide your basis for concluding that there are no candidate or protected plant species, other than those previously identified, along the transmission line corridors, or on the WBN site.

TVA's Response

There have been no candidate or protected plant species found on the WBN Site as confirmed by field inspection in September 1994. Upon revisiting a known location for *Panax quinquefolius* (ginseng), found on the WBN Site in 1978, this population could not be found. This locality information was not published because of the threat of the population being harvested due to its high

commercial value. Because the habitat remains unchanged, onsite observations suggest that this population was harvested. This once observed population no longer exists and no other suitable habitat is known to occur.

The WBN transmission line corridors were reviewed and compared to protected plant locality information using data gathered and stored in the TVA Regional Natural Heritage Project data base. Of the thirty-five (35) species identified in the ten county region, only eight were reported within 0.8 kilometer (0.5 mile) of the lines. A total of eleven populations of the following species were considered in this evaluation: Aureolaria patula (False-foxglove), Cimicifuga rubifolia (Bugbane), Diervilla lonicera (Bush honeysuckle), Diervilla sessilifolia var. rivularis (bush honeysuckle), Hydrastis canadenis (Goldenseal), Delphinium exaltatum (Tall larkspur), Solidago ptarmicoides (Goldenrod), and Tomanthera auriculata (Auriculate False foxglove). Of these eight species, only the last three could exist in the open, cleared, full-sun habitats found on transmission line corridor rights-of-way (ROW). The other five occur in forested habitats. The three species in question require natural barrens or prairie habitats, which are extremely uncommon in the ten county area. Sites where the known populations exist represent essentially all of the suitable habitat in the area likely supporting populations of these species. TVA knows of no populations of any of these three species on WBN transmission line corridor ROW.

8. Provide a description of the management program for any listed species found along the transmission line corridors and on the WBN Site.

TVA's Response

TVA has no management programs for listed terrestrial animal or plant species which are specific to the WBN Site or transmission line corridors. As stated in response to question 7, there are no known listed species on WBN ROW.

TVA does, however, have management programs for several listed species in the Tennessee Valley. Bald eagle nest sites and roost areas are protected from disturbance and trees are maintained along shorelines receiving frequent eagle use. Nest platforms for ospreys have been erected on several reservoirs, and disturbance of ospreys nesting on transmission line towers is avoided where possible. Several gray bat caves on TVA property have been protected by construction of fences and gates and their bat populations are regularly monitored. TVA also conducts interpretive programs to raise public appreciation of endangered bats.

9. Provide a description of the maintenance program for the transmission line corridors. This description should include methods and frequencies for vegetation control (herbicides used and mechanical control, and application rates for herbicides). This information should cover any planned changes to the maintenance program.

TVA's Response

The maintenance program for the transmission line corridors of the lines connecting Watts Bar Nuclear Plant to the transmission grid is governed by land use on the corridor, vegetation species mix and growth rates, as well as the actual terrain conditions along the corridors. In 1987, the ROWs were first recleared. Mechanical reclearing was the method used on most of the segments needing reclearing because of vegetation height or density. By 1990,

reclearing was again necessary on the same segments and on a limited amount of additional ROW along the corridors as more vegetation reached a dangerous height or density became a problem for access. Some of the ROW had herbicide treatment in rougher terrain. In 1994/1995 segments may be recleared with the use of the herbicides Accord or Accord/Arsenal mix. These will be applied according to the label as basal treatment or foliage application. Reclearing will depend on seasonal weather conditions, manpower, budget, and vegetation conditions currently being evaluated. Most of the reclearing zones will be mechanically recleared.

The impacts of herbicides proposed have been addressed in a number of environmental reviews including the U.S. Forest Service Vegetation Management EISs for the Southeast. TVA was a partner in those evaluations and EIS preparations and reviews. There are no current plans to change how the ROWs are maintained.

10. Please provide a basis that the conclusions reached in the 1972 FES associated with the potential for increase in localized fogging due to the operation of the natural draft cooling towers remain valid.

TVA's Response

There has been no change in the design or operation plans for the cooling systems at the Watts Bar Nuclear Plant. This is documented in section 3.2.2 of the TVA additional Environmental Information document enclosed with the August 5, 1994, letter to the NRC. Support for the 1972 FES conclusions is provided in NUREG-1437, Volume 1, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," particularly on page 4-24. Watts Bar Units 1 and 2 are specifically included in the statement of scope on page ES-2.

11. Please provide a basis for concluding that the chemical cleaning ponds and the runoff holdup pond do not or will not significantly effect terrestrial wildlife on the WBN site.

TVA's Response

The physical characteristics of the two chemical cleaning ponds and the runoff holding pond are described in the August 1994 Additional Environmental Information report, Section 2.3.2. The ponds are frequently visited by several wildlife species, including white-tailed deer and nonmigratory Canada geese. Canada geese successfully reproduce in the pond area. Fish and other aquatic organisms are also present in the ponds. No bioassays of wildlife species using the ponds have been conducted. Collection and analysis of pollutant levels in individual animals from the vicinity of the ponds would not be meaningful because of the lack of information on the animals' residency in the pond area.

Water quality test results suggest the ponds are not toxic to terrestrial wildlife. Toxicity biomonitoring results for aquatic species, as required by the NPDES permit, are presented for the outfall from the runoff holding pond in Table 4 of the August 1994 report. The most recent of these tests showed no toxicity. Priority pollutants in the two chemical cleaning ponds were analyzed during 1988-1989 and the analysis results are provided under separate cover. None of the concentrations listed in the analysis results exceed lethal doses for wildlife species as published in readily available reports (Hill et al.

1975, Schafer 1972, Schafer et al. 1983, Schafer and Bowles 1985). These reports, however, do not give toxicity levels for all of the pollutants tested.

Literature Cited

E. F. Hill, R. G. Heath, J. W. Spann, et al., Lethal Dietary Toxicities of Environmental Pollutants To Birds, U.S. Fish and Wildlife Service, Spec. Sci. Rep. Wildl., No. 191, 1975

E. W. Schafer, The Acute Oral Toxicity of 369 Pesticidal, Pharmaceutical, and Other Chemicals To Wild Birds, Toxicol. Appl. Pharma, 21:315-330, 1972

E. W. Schafer, Jr., W. A. Bowles, Jr., and J. Hurlbut, The Acute Oral Toxicity, Repellency, and Hazard Potential of 998 Chemicals To One Or More Species of Wild and Domestic Birds, Arch. Environ. Contam. Toxicol, 12:355-382, 1983

E. W. Schafer, Jr., and W. A. Bowles, Jr., Acute Oral Toxicity and Repellency of 933 Chemicals To House and Deer Mice, Arch. Environ. Contam. Toxicol, 14:111-129, 1985

12. Provide a basis for concluding that cooling tower operations will not cause incidental health effects resulting from bio-organisms.

TVA's Response

Reference was made during the September NRC audit to the pathogenic amoeba Naegleria fowleri as a possible health risk from cooling tower operation. A discussion with Dr. Emily Kumans of the Parasitology Division of the Centers for Disease Control in Atlanta revealed that N. Fowleri grows in warm standing or slowly moving water and can cause a very serious but extremely rare disease in humans called primary amoebic meningoencephalitis (PAME). Dr. Kumans noted that it requires large doses of cyst-contaminated water entering the nasal mucosa area for infection to occur. A few cases have been reported in swimmers from Texas and the Carolinas the past few years, but Dr. Kumans is not aware that the disease has ever been caused by aerosol cysts from power plant cooling towers or any other source.

Another possibility of such incidental health effects is related to the bacterium that causes legionellosis, or Legionnaire's Disease. The Electric Power Research Institute (EPRI) has done studies to estimate the concentration of Legionnella in cooling tower drift based on the actual concentrations found in intake cooling water (J. Mattice, pers. comm.). Concentrations were calculated to be several orders of magnitude lower than those necessary to provide levels of exposure known to cause disease. The only time Legionella was ever found to actually be present in aerosols in the vicinity of condensers or cooling tower basins was when they were in the process of being cleaned. Based on that observation, certain precautionary measures such as respirators might be considered prudent for workers involved in such cleaning operations. In any case, there has never been a case of Legionnaire's Disease traced to cooling towers in the United States.

Based on the above information, we conclude that the dangers of incidental health effects from the operation of the WBN cooling towers are minimal.

13. Provide a basis for concluding that there will not be an increase in aquatic nuisance organisms as a result of plant operation.

TVA's Response

Potential nuisance aquatic organisms that exist in the vicinity of WBN are listed below along with a discussion of the potential for increases due to plant operation.

Aquatic Macrophytes - Several species of introduced aquatic macrophytes exist in Chickamauga Reservoir, primarily Eurasian watermilfoil (*Myriophyllum spicatum*) and spinyleaf naiad (*Najas minor*). Populations of both species have expanded and contracted over the past twenty-five years, primarily in response to flow conditions. *Hydrilla verticellata* appeared briefly in Chickamauga Reservoir during the late eighties, but has not been seen in recent years. Even when macrophyte coverage was at its peak, levels that might be termed nuisances occurred only in relatively shallow overbank areas of the reservoir. Watts Bar Nuclear Plant is located in the riverine tailwater area of Chickamauga where suitable overbank habitat is rare, and macrophytes never approached nuisance levels even during peak density years.

Sequoyah Nuclear Plant (SQN) is located on Chickamauga Reservoir about 45 miles downstream from WBN. It normally operates with an open mode cooling system having a maximum heated water discharge of 2500 cfs. In contrast, cooling tower blowdown from WBN's closed cycle cooling system will be only 85 cfs for two unit operation. Even though the SQN discharge is into an area of better macrophyte habitat than will be the case at WBN, a careful analysis (Scott, 1993) failed to show any correlation between SQN operation and patterns of macrophyte growth in Chickamauga. There does not appear to be any basis for suspecting that WBN operation will effect macrophyte growth in Chickamauga Reservoir.

Blue-Green Algae - Increased temperatures and/or levels of fertility can cause conditions conducive to the development of nuisance "blooms" of blue-green algae in lakes and reservoirs. Preoperational monitoring has shown that virtually all the phytoplankton in the WBN region of Chickamauga Reservoir originates upstream in the forebay of Watts Bar Reservoir and reaches Chickamauga via dam passage. Blue-green algae is rarely the major component of the phytoplankton community in the vicinity of WBN. Phytoplankton growth is limited in the well-mixed riverine habitat of the tailwater area where WBN is located, and phytoplankton populations normally decrease in a downstream direction until more lacustrine conditions appear 25 to 30 miles below WBN. Levels of nutrients and waste heat in the WBN discharge are low and will be undetectable well before lacustrine habitat is encountered.

Operational monitoring at Sequoyah, where much greater amounts of waste heat are discharged into habitat more conducive to phytoplankton growth, showed no significant changes in numbers or dominance patterns of algal groups when compared to preoperational data. There is no basis for concluding that such changes will occur as a result of WBN operation.

Mollusks - The introduced Asiatic clam, *Corbicula fluminea* occurs throughout Chickamauga Reservoir. Certain water users, including WBN, have implemented routine control measures to prevent biofouling by *Corbicula*. Recently, the zebra mussel, *Dreissena polymorpha*, has also been introduced into the Tennessee

River. It has been found in very small numbers in Watts Bar Reservoir and in the lock at Watts Bar Dam upstream of WBN. This mollusk attaches to submerged surfaces in large numbers and represents a more serious biofouling threat than Corbicula to WBN and other water users.

None of the factors associated with the operation of WBN are known to affect populations of Corbicula or Dreissena. No increases in these or other nuisance organisms are expected to result from plant operation.

Reference

E. M. Scott, Jr., The Effects of Aquatic Macrophytes on Fish Populations of Chickamauga Reservoir Coves, 1970-1990, TVA/WM--93/24, Tennessee Valley Authority, Water Management, Norris, TN., 1993. (Already on WBN NRC Docket).

14. Provide the most recent discharge monitoring report (DMR).

TVA's Response

April, May, and June 1994 DMR to be provided under separate cover.

Radiological

15. Provide the location of the low-level radioactive waste site that will be used, quantities of waste to be shipped, and frequency of shipments.

TVA's Response

The Chem-Nuclear disposal facility near Barnwell, South Carolina, is currently used by TVA nuclear facilities for the disposal of low-level radwaste. This facility is scheduled to close on December 31, 1995. Shipments made before that date from Watts Bar would go to the Barnwell facility. The replacement facility for Barnwell will be located in Wake County, North Carolina. Although the original start date for the North Carolina facility was January 1, 1996, the current schedule for that facility calls for it to open sometime after June 1997. This will require Watts Bar to store low-level radwaste onsite for at least 18 months and perhaps longer, depending on when the State of North Carolina completes its review of the license application and issues a license for the new facility. Watts Bar is evaluating the location and cost of an onsite storage location to handle up to three to four years of waste generation.

Based on the volume of low-level radwaste generated by Sequoyah Nuclear Plant, it is expected that the following volumes of waste will be shipped on an annual basis:

Waste Type	Volume Shipped, cu ft	Frequency Shipments/Yr.
Ion-exchange Resin/Filters	580	4 to 6
Dry Active Waste (To offsite processor)	20,000	Less than 20 (See Note 1)
Dry Active Waste (From offsite processor)	1,400	Less than 35 (See Note 2)
Irradiated components	< 100	Less than 1

Note 1: Shipped in 20-foot Sea-vans at 1040 cubic feet each. Shipments could decease by half if 40-foot containers are used.

Note 2: Shipped by the waste processor with other generator's waste in multi-container shipments with a few cubic feet in some of the containers, averaging 41 cubic feet per shipment. If all waste in the shipment was Watts Bar's, the entire annual volume could be shipped in 1 or 2 shipments.

16. Provide additional information on the new mobile waste demineralizer system with respect to the following issues: ultimate disposition of the resin waste, expectations for additional processing, potential for operator exposure from the waste and dose to the public from its transportation.

TVA's Response

Resin waste from the mobile waste demineralizer will be sent to a licensed disposal facility for ultimate disposal. Until the new North Carolina disposal site is opened, this material may be stored onsite at Watts Bar. Current plans are to construct a concrete pad or building at Watts Bar to provide the storage of high-integrity containers inside concrete vaults for resins from the mobile demineralizer. The storage area is planned to be located a short distance from the area where the resin will be packaged.

The mobile demineralizer will be used to remove radioactive ions from water in the plant using ion-exchange resin and other media. The spent resin will be collected in a storage tank in the Radwaste Packaging area. When sufficient volume of resin is collected, the resin will be sluiced to a high integrity container inside an NRC-licensed shipping cask located in the Railroad Bay. The resin will be dewatered inside these containers to meet disposal site criteria. No other processing of the resin is planned.

The mobile demineralizer will be located in the Radwaste Packaging area. Shielding and distance will be used to reduce the potential for radiation exposure to operators and others who might be in the area. Experience with identical equipment at TVA nuclear plants and other nuclear plants has shown that radiation exposure to operators is low and well within that expected from similar plant radwaste management systems. Shipping casks used to transport the resin will be of steel or steel-lead construction to provide shielding during packaging of the material and transport to the disposal facility or storage facility. Dose rates will be within Department of Transportation limits, and calculated doses to the public will be a small percentage of natural background. The annual doses to the public will be smaller than those given in the FES since the volume of waste produced and the number of shipments made will be smaller than anticipated in the FES.

17. Provide an evaluation of the potential for accidents resulting from the use of the demineralizer system and the resin waste.

TVA's Response

Calculation WBNTSR-017 "Offsite Dose Due to the Failure of the Spent Resin Storage Tank" determined the offsite dose was less than 500 mrem (actual calculation numbers: 1.43 mrem LPZ and 2.84 mrem EAB). The calculation bounds any other accident involving spent resins. Also, accidents associated with the transfer of resins in the railroad bay are minimized due to the use of a double

hose system. Prior to removal of a double hose, surveys must be performed to ensure that no radioactive material is advertently spilled during disconnection.

18. Provide additional information on the categorization of de-watered resins, i.e., which of the wet or dry waste streams are they considered within? If dry, are they considered as part of the off-site vendor provided incineration?

TVA's Response

Dewatered resins are considered "wet" waste in the FES in the category of ion exchange resin. The two principal sources of ion-exchange resin are CVCS resin and Rad DI resin (from the mobile demineralizer). The "wet" waste category consists of ion-exchange resins (all of which will be shipped dewatered), sludges, filters, and evaporator concentrates (if generated). Resin incineration is currently not practiced by TVA, although that service has been recently offered to TVA by one of our contractors.

19. Provide an analysis of the shift from burial for dry waste to dry waste incineration, specifically in regards to its effect on the environment, if any, and on the transportation issues, both from Watts Bar Nuclear Plant to the incineration facility and from the incineration facility to the ultimate waste disposal site.

TVA's Response

Based on Sequoyah experience, shifting from onsite compaction of dry waste to offsite incineration results in less volume of low-level waste for disposal. The onsite compaction method originally planned for Watts Bar normally produces a volume reduction factor of 3. Incineration of waste produces a volume reduction factor of about 100 (1000 cubic feet of incinerable waste results in 10 cubic feet of ash for disposal). Non-incinerable waste (such as metals) is sent for offsite super-compaction (at higher compaction pressure) with a volume reduction of 5 to 8. Overall, a volume reduction of about 14 has been obtained for the combined dry waste types at Sequoyah. Therefore, where the onsite compaction would have resulted in about 6666 cubic feet of waste being sent to the disposal facility, the use of offsite incineration and super-compaction would result in about 1400 cubic feet (a factor of 4.8).

The 6666 cubic feet would be shipped directly to the disposal facility (about 450 miles). The unprocessed waste is shipped about 50 miles from Watts Bar to the waste processor in Oak Ridge, Tennessee. There it is processed (incinerated and/or compacted) to about 1400 cubic feet, which is shipped about 450 miles to the disposal facility. The number of shipments in either case is small so as to not result in measurable transportation impacts (increases in traffic accidents). The number of miles traveled is reduced by a factor of 1.8 by the use of offsite processing. This would also reduce the already low level of radiation exposure to the public during the transportation of the waste for disposal. The waste processor incinerates under State of Tennessee regulations and release limitations are specified in their license.

20. Provide a discussion and conceptual design of on-site Low-Level Waste storage areas, including contingency plans if regional compacts are not available as soon as projected. This should include the possibility of off-site compacted and/or incinerated waste being returned to the WBN for storage (expected volumes, radionuclide content and occupational exposure are to be included).

TVA's Response

See Response to Question #15. Based on Sequoyah experience, the following volumes of waste are expected to be generated and stored by WBN on an annual basis:

Waste Type	Volume Generated, cu ft	Volume To Be Stored, cu ft	Number of Containers
Ion-exchange Resin/Filters	580	580	5
Dry Active Waste	20,000	1,400	11
Irradiated components	< 100	< 100	In Fuel pool

If offsite disposal capability is available, resin/filter waste is planned to be shipped directly to the disposal facility not long after sufficient volume has been accumulated in onsite storage tanks. Dry waste will be sent to the offsite waste processor for volume reduction by incineration, super-compaction, and other methods. If onsite storage is required, the current plan is to construct an onsite concrete pad or building near the area of the cooling towers. This storage area is planned to be 50 feet wide and 200 feet long. Sufficient area will be available to store about 4 or more years of resin/filters and volume-reduced dry waste. The area will be fenced with a locking gate and located as near to the Auxiliary Building Railroad Bay as possible.

Although not currently planned by TVA, resin incineration has recently been offered by offsite waste processors for nuclear plant resins. Dewatered resin will be packaged onsite in high-integrity containers which will be placed inside concrete onsite storage containers. The concrete containers will provide shielding and security for the resin containers. Incinerator ash, metal-melt ingots, and super-compacted materials will be accepted back from the waste processor and stored in the metal boxes used by the waste processor for shipment. These boxes can be double-stacked as required to optimize storage space. The area fence will be used to provide additional security for containers and will be used to reduce the potential radiation dose to values at or less than 10 CFR 20 unrestricted area limits. When disposal space becomes available, this material will be transported to the disposal facility for disposal.

For waste processed by an offsite vendor, radionuclide content is expected to be roughly the same as the content of the waste before processing. Based on Sequoyah experience, total annual resin activity will be about 1800 curies and dry waste will contain 5 to 7 curies. Most of the activity will be Co-58, Cr-51, Fe-55, Co-60, Nb-95, Ni-63, Zr-95, Cs-134, Cs-137, and Mn-54.

Occupational radiation doses during storage, monitoring, and retrieval of the waste are expected to be a small percentage of the total occupational dose to site workers who handle and work around radioactive materials each day. Occupational doses will be minimized by the use of shielding, distance, and reduced stay time around the material. The amount of

material in storage will be minimized by onsite waste minimization programs and the use of offsite volume reduction techniques.

21. Provide a technical basis for concluding that the current meteorological data base (1974-1988) used for determining dispersion values included in the August 5, 1994, RAI response is appropriate. The technical basis should include a comparison of the meteorological data base used to calculate the current dispersion values with an updated version of the data base which includes the most recent meteorological data (1988-1993).

TVA's Response

A comparison of the meteorological data base used to calculate the current dispersion values in the WBN FSAR with an updated version of the data base (1974-1993) has been completed. Table 2.3-52 of the FSAR provides a summary of the joint percentage frequencies of wind speed by stability class for the 1974-1988 data base. TVA is providing, under separate cover, a similar table for the 1974-1993 WBN data base. The data bases are quite consistent in the stability class distribution. The joint recoverability percentage has increased from 93.4 to 93.8 percent from the 15-year to 20-year data base.

Table 2.3-13 of the FSAR provides a summary of the joint percentage frequencies of wind speed by wind direction for the 1974-1988 data base. TVA is providing, under separate cover, a similar table for the 1974-1993 WBN data base. Wind direction patterns are very similar between the data bases and overall wind speed frequencies are quite consistent. However, an increase in the frequency of calm winds (values less than 0.6 mi/h) is seen from about 1.6 percent for the 1974-1988 period to about 3 percent for the 1974-1993 period. Consistent with the increase in calms is a decrease in the average wind speed from about 4.2 mi/h for the 1974-1988 period to 4.1 mi/h for the 1974-1993 period.

The WBN data base was examined to determine if the wind speed changes were local to the WBN Site. The Chattanooga National Weather Service (NWS) data shows a decrease in average wind speed from 5.7 mi/h to 5.6 mi/h from the 15-year to 20-year data periods. The Knoxville NWS data also shows a decrease (from 6.5 mi/h to 6.2 mi/h) from the 15-year to 20-year data bases. These changes occurred even though the Chattanooga and Knoxville NWS wind speed measurement heights were raised from about 20 feet to about 30 feet in 1987 and 1986, respectively. Since the wind speed normally increases with height, raising of the measurement heights would have been expected to show an increase in average wind speeds.

In addition, little change in exposure that could have affected the wind speeds has occurred in the vicinity of the WBN meteorological station in recent years. Most of the plant superstructures were completed by the late 1970s. The WBN meteorological data collection methodology and equipment were also examined to determine if they could account for the changes. No evidence was found to account for this trend. Therefore, indications are that the region containing WBN has experienced a trend of lower wind speeds.

Based on this trend and consideration that lower wind speeds typically increase dispersion values, TVA has decided to update the 1974-1988 data base in the FSAR to the 1974-1993 data period. The 20-year period is

judged to be more appropriate to represent dispersion conditions in the vicinity of WBN.

A preliminary analysis of the impact of using the 1974-1993 meteorological data base on short-term (accident) and long-term (routine) dispersion values in sections 2.3.4 and 2.3.5, respectively, of the FSAR has been performed. Identical methodology and measurement heights to that described in the FSAR were used in this analysis with one exception. For the short-term calculations, the assignment of wind directions under calm conditions has been revised to be consistent with Regulatory Guide 1.145, section 1.1. Previously, the wind direction recorded during the calm condition was used in the calculation. In this analysis, however, the distribution of wind directions for noncalm wind speed less than 3.5 mi/hr was used to assign wind directions.

This change in methodology, coupled with the updated data base, caused the short-term dispersion values in this preliminary analysis to stay essentially the same or to decrease slightly. This indicates that the accident dose estimates currently in the FSAR are slightly conservative compared to what would result with the updated data base. Therefore, conclusions from the current FSAR analyses are still valid.

For the long-term dispersion values, use of the updated data base resulted in an increase in the dispersion values calculated. The average increase for the 16 sectors was about 13 percent, while the increase of the highest sector was about 6 percent. The increase in dispersion values will result in a similar increase in routine dose estimates. However, based on this preliminary analysis, the increase is not significant enough to alter conclusions in the current FSAR analysis. Dispersion values and dose estimates in Chapter 11 of the FSAR and in the WBN Offsite Dose Calculation Manual will be revised to reflect the updated data base.

22. Provide assurance that the dispersion values in FSAR Chapter 11 are calculated using Regulatory Guide 1.111 methodology. Compare FSAR Chapter 11 dispersion values to those in the 1978 FES and explain any changes identified.

<u>TVA's Response</u>

The FSAR Chapter 11 dispersion values are discussed in section 11.3.9 "Atmospheric Dilution," and are included in Table 11.3-10. These values agree with those in the WBN Offsite Dose Calculation Manual (ODCM), Revision 3, in Table 7.3 and both use the same methodology. This methodology is consistent with Regulatory Guide 1.111 as discussed in Section 7.9 of the ODCM.

The following table compares site boundary dispersion values for routine releases from the current FSAR Chapter 11 (with 15 years of meteorological data), from the original FSAR (with 2 years of data), and from the 1978 NRC FES (with 2 years of data).

Comparison of χ/Q Values for the WBN FSAR and FES

FSAR	(15-yr)	FSAR	(2-yr)	FES	(2-yr)	RELEASE
χ/Q (s/m^3)	Sector	χ/Q (s/m^3)	Sector	χ/Q (s/m^3)	Sector	
1.03×10^{-5}	SE	5.2×10^{-6}	SE	2.7×10^{-5}	SSE	Turbine
NA		1.1×10^{-6}	NNE	7.8×10^{-6}	SSE	Reactor
NA		2.4×10^{-6}	NNE	2.0×10^{-5}	SSE	Auxiliary
NA		NA		5.0×10^{-5}	SSE	Waste Gas Decay Tank

The NRC FES analysis is discussed in section 2.4.4 of the FES and the dispersion values listed in Table 5.3 of the FES. TVA provided the two-year data base and the NRC calculated the dispersion values. Section 2.4.4 discussion indicates that the temperature difference between 91 and 10 meters was used for stability class determination and that winds at the 10-meter level were used to adjust the wind speed at the release height. It also indicates that a split-level approach was used. No indication is provided on whether terrain adjustment factors were used.

The FSAR 2-year analysis assumed that Turbine Building releases were ground level and that Reactor and Auxiliary Building releases were split as described in Regulatory Guide 1.111. For the ground level portion of the split releases, 46- and 10-meter temperatures and 10-meter winds were used. For the elevated portion, 91- and 10-meter temperatures and 46-meter winds were used. The 46-meter wind speeds were interpolated between the 91- and 10-meter levels. No terrain adjustment factors were applied.

The FSAR 15-year analysis assumed all releases were entrained in the building wake, therefore, were treated as ground level. It assumed the releases were continuous. The temperature difference between 46 and 10 meters was used for stability class determination and 10-meter winds were used. Terrain adjustment factors were applied.

The change in the FSAR methodology from the 2-year to 15-year analysis would be expected to increase the calculated dispersion values. This is due to the addition of terrain adjustment factors and the switch to all ground-level releases, resulting in lower wind speeds being used. The decision to treat all releases as ground level was based on Regulatory Guide 1.111 criteria that releases below the height of adjacent buildings be treated as ground level. This is the case for all releases at WBN. The FSAR values in the preceding table show that the expected trend was the case. For the ground-level release case, the value for the 2-year analysis increased from 5.2×10^{-6} to 1.03×10^{-5} for the 15-year analysis.

The relationship between the FSAR dispersion values and the NRC FES value is not known because the specific methodology used to calculate the FES values is not stated.

Socioeconomic

23. Update the population "rose" surrounding the Watts Bar plant and provide a gridded population table. The data should be available in the FSAR, but will have to be imposed on an area map. Provide any population data available since the 1990 Census of Population in the form of special censuses or estimates for cities and counties in the general vicinity of the plant. This would include any settlement within the population "rose" in the FSAR, but also includes any other communities having significant numbers of commuters to the plant site.

    TVA's Response

    The population "rose" data is available in Section 2.1.3 of the FSAR. The population data since 1990 is being provided under separate cover.

24. The numbers having to do with various forms of tax payments and tax - equivalent payments require further clarification. It is not clear how this has changed since the 1978 FES. Provide additional recent information on the tax base in order to determine the significance of these payments.

    TVA's Response

    Information provided under separate cover

25. Provide information on the impact of the construction work force on the surrounding communities' services and infrastructure. Provide information on the impact operations employment may mean to these communities in the face of declining construction employment. The emphasis should be on the housing market and the local communities' ability to pay off any accumulated bonded indebtedness for schools, water systems, etc. with a smaller post-construction population.

    TVA's Response

    The information on the impact of the construction work force on the surrounding communities' services and infrastructure is being provided under separate cover (WBNP Construction and Operation Employee Survey Results and Mitigation Summary, July 30, 1982, and April 30, 1984).

    Phasing out of construction of Unit 1 is unlikely to have a significant effect on any aspect of community life for the communities housing Watts Bar Nuclear Plant construction workers. Typical aspects of community life that are considered include the housing market, bonded indebtedness, property tax base, property tax rate, school systems, and social structure. There are two basic reasons for this.

    First and most important is the diffusion of the construction employees among over 50 communities within a fifty to sixty mile radius of the site. In 1990, the population of this labor shed was over 1,000,000 people with a labor force of about 550,000. Employment is projected to drop from about 4,900 in December 1992 to about 1,800 in the summer of 1995, a loss of 3,100 jobs. While some outmigration will occur from the communities in the immediate vicinity of the plant, the dynamics of a large regional labor force and the extended period over which the layoffs

will occur makes it likely that those who prefer to remain in their current location will be able to find new jobs.

Further, the reality of the labor shed consideration is that construction employees have an acceptable commuting range of about 50 miles. Therefore, the employees on the edge of the Watts Bar commuting range would have another 50 miles to go in the opposite direction from Watts Bar on a job search. Assuming that the distribution of population and labor force for the second 50 miles is the same as the first 50 miles, there would be a population of about 4,000,000 and a labor force of 2,200,000 in the whole 100-mile radius area.

Second, the revenue impact due to outmigration will be limited primarily to sales taxes. Property tax revenue will be unaffected because the houses and apartments will remain on the tax rolls and owners will continue to pay property tax. Outmigration from the areas in the immediate vicinity of the plant may temporarily depress the local housing market. Currently, according to local real estate brokers, the housing market is a "sellers market" with houses moving off the market at about 95 percent of the asking price and within the initial term of the sales agreement. Employment in mid-1994 was about 4000, down from 4900 in December 1992. The strength of the housing market suggests that any depression of the housing market likely would be shallow and brief so that there would not be any erosion to the property tax base by reducing assessed values.

Other revenues potentially affected by outmigration would be associated with utilities---electricity, water, and sewer. The diffuse settlement pattern of the employees makes it unlikely that any one utility system would experience a significant reduction in revenue. The pattern also makes it unlikely that any utility has made an expansion solely to accommodate plant construction workers.

26. Provide data on the impacts of plant operations on recreation and recreation facilities. This may be related to the various water quality and fisheries issues covered in some of the review documents requested in question 33.

<u>TVA's Response</u>

Recreation use immediately below Watts Bar consists primarily of moderate levels of bank and boat fishing. Fishing berms have been developed on both the right and left banks below the dam and receive substantial use. In addition, a TVA boat ramp on the left bank below the dam (approximate river mile 528.71) provides convenient access for tailwater boat fishing. The recreation use patterns below Watts Bar Dam are similar to those which occur below TVA's other mainstream dams.

Watts Bar tailwater recreation facilities and most associated recreational activities occur well upstream of the plant site and TVA expects that plant operation would have no impacts on recreation.

27. Provide a 50-mile site map with 50 mile circle (50 mile radius) around WBN site.

TVA's Response

Previously provided under separate cover.

28. Provide 1980 and 1990 census population information for towns and counties receiving Watts Bar impact funds or listed as residencies of construction workers in the 1984 workers survey.

29. Provide 1992 estimated populations for the counties in the seven-county impact area.

TVA's Response 28 & 29

To be provided under separate cover.

30. Provide Tennessee Association of Business financial statements for the counties and cities receiving impact funds or listed as residencies of construction workers in the 1984 workers survey.

TVA's Response

To be provided under separate cover.

31. Provide the most recent copy of the Tennessee Economic Outlook.

TVA's Response

To be provided under separate cover.

32. Provide data from State auditor report(s) showing total revenues for cities receiving Watts Bar impact funds or listed as residencies of construction workers in the 1984 workers survey.

TVA's Response

Information provided under separate cover.

33. Provide the following documents:

    a. Economic Update- An Overview of Economic Forecast for the Region and Nation 1994.

    b. Economic forecast Summary-1994

    c. Economic Outlook- Economic Development TVA-1994

    d. TVA River Neighbors-Information for Tennessee River System Users, TVA Resource Group, January 1994

    e. TVA Reservoir, System operation and planning review

    f. Fiscal Year 1995 Business Plan, TVA Resource Group

    g. Quality Manual and 100-Day Plan, TVA, Rev 0, 3/4/94 or latest revision

TVA's Response

Items a, b, d, e, f, and g to be provided under separate cover. Item c has not been released to date.

34. Provide text of Tennessee regulations governing phase-out of impact payments for WBN.

TVA's Response

To be provided under separate cover.

35. Only to the extent data is available, provide the following information (using the 1990 census) for the counties, and cities receiving Watts Bar impact funds or listed as residencies of construction workers in the 1984 workers survey:

a. Ethnic breakdown of population

b. Median household income

c. Percent poverty households or persons

d. Distribution of income

TVA's Response

To be provided under separate cover.

SUPPLEMENTAL INFORMATION TO QUESTION 4

WBN - TAC NOS. M88691 & M88692

Question Number 2.3:

Where proposed transmission lines cross important waterfowl areas, provide a description of these areas and estimates of local flight patterns and duration of seasonal migrations.

TVA's Response

Three notable water areas are crossed by the proposed transmission line routes. One of these, immediately upstream from the Sequoyah Nuclear Plant site on Chickamauga Reservoir has extremely low use by waterfowl.

A second crossing occurs in a waterfowl area immediately downstream from Watts Bar Nuclear Plant site. The area is a tailwater region with a relatively narrow flood plain bordered by wooded ridges. It is occasionally used in Fall by small flocks of resting waterfowl due to its proximity to Yellow Creek and Washington Ferry Wildlife Management Areas. Predominant flight patterns consist of routes between the river and Yellow Creek Wildlife Management Area, between Yellow Creek Wildlife Management Area, and Washington Ferry Wildlife Management Area, and along the river between the plant site and Washington Ferry Wildlife Management Area. Yellow and Sewee Creeks provide good wood duck breeding habitat resulting in some spring and summer use in the general area. Migrant and wintering waterfowl, however, greatly outnumber resident breeding populations in Fall, Winter, and early Spring.

The Hiwassee River crossing occurs in a narrow portion of the river with limited waterfowl habitat. Broad, shallow embayments upstream and downstream (Rogers, Candies, North and South Mouse Creeks) do, however, provide suitable habitat for resident, migratory and wintering waterfowl, and shorebirds. Topographically, the area can be characterized as ridge and valley with the valley floors in agricultural uses (row crop or pasture) and ridges forested. Rogers and Candies Creek Wildlife Management Areas are located in the upper regions of the respective valleys occupying a partially wooded flood plain with floodable croplands managed specifically to attract migratory and wintering waterfowl. Waterfowl use occurs on a year-round basis with highest concentration during Fall, Winter, and early Spring months. In general, summer flight patterns are unknown, although Candies Creek may be used by roosting-staging wood ducks in late Summer. Migratory and wintering waterfowl tend to follow waterways coming upstream from the Blythe Ferry-Hiwassee Island complex at the mouth of the Hiwassee River, entering Candies and Rogers Creek embayments from the riverside and similarly for North and South Mouse Creek embayments farther upstream. Return flights are essentially the reverse with significant interchange between various embayments adjoining but on opposite sides of the main river and especially between Rogers and Candies Creek Wildlife Management Areas.

Question Number 2.4:

Provide an analysis of potential impacts to birds including migratory waterfowl from onsite vertical barriers such as cooling towers.

TVA'S RESPONSE TO QUESTION 5

WBN - TAC NOS. M88691 & M88692

FEDERAL AND TENNESSEE ENDANGERED, THREATENED, AND ACTIVE CANDIDATE SPECIES WHICH MIGHT OCCUR ON OR NEAR THE WATTS BAR NUCLEAR PLANT SITE OR ASSOCIATED TRANSMISSION LINES

COMMON NAME	SCIENTIFIC NAME	MOST RECENT KNOWN RECORD	LISTING STATUS* FED	TN	IN IMPACT AREA#
Gastropods					
Onyx rocksnail	Leptoxis praerosa	1972	C2		NO
Varicose rocksnail	Lithasia verrucosa	1976	C2		NO
Bivalves					
Alabama lampmussel	Lampsilis virescens	1974	END	END	NO
Dromedary pearlymussel	Dromus dromos	1983	END	END	YES-1
Orange-foot pimpleback	Plethobasus cooperianus	1978	END	END	NO
Pink mucket	Lampsilis abrupta (=orbiculata)	1992	END	END	YES-1
Pyramid pigtoe	Pleurobema rubrum (=pyrimidatum)	1988	C2		YES-1
Rough pigtoe	Pleurobema plenum	1985	END	END	YES-1
Tennessee clubshell	Pleurobema oviforme	1990	C2		YES-1
Arthropods					
Alleghany snaketail dragonfly	Ophiogomphus incurvatus alleghaniensis	1976	C2		NO
Chickamauga crayfish	Cambarus extraneus	1986	C2		NO
Cherokee clubtail dragonfly	Gomphus consanguis	1982	C2		NO
Norton's cave beetle	Pseudanophthalmus nortoni	1967	C2		NO
Payne's cave beetle	Pseudanophthalmus paynei	1967	C2		NO
Tiny cave beetle	Pseudanophthalmus pusillus	1966	C2		NO
Timber ridge cave beetle	Pseudanophthalmus wallacei	1981	C2		NO
Fish					
Amber darter	Percina antesella	1993	END	END	NO
Blue shiner	Cyprinella caerulea	1993	THR	(P-END)	NO
Blue sucker	Cycleptus elongatus	1982	C2	THR	YES-1
Coldwater darter	Etheostoma ditrema	1977	C2	THR	NO
Conasauga logperch	Percina jenkinsi	1993	END	END	NO
Duskytail darter	Etheostoma percnurum	1993	END	THR (P-END)	NO
Frecklebelly madtom	Noturus munitus	1970	C2	THR	NO
Lined chub	Notropis lineapunctatus	1968	C2	NMGT	NO
Longhead darter	Percina macrocephala	1993	C2	THR	NO
Smoky madtom	Noturus baileyi	1994	END	END	NO
Snail darter	Percina tenasi	1991	THR	THR	YES-1,2
Spotfin chub	Cyprinella monacha	1993	THR	END	NO
Trispot darter	Etheostoma trisella	1983	C2	THR	NO
Yellowfin madtom	Noturus flavipinnis	1994	THR	END	NO
Amphibians					
Eastern hellbender	Cryptobranchus a. alleganiensis	1990	C2	NMGT	YES-2
Tennessee cave salamander	Gyrinophilus palleucus	1992	C2	THR	NO
Junaluska salamander	Eurycea junaluska	1976	C2		NO
Reptiles					
Northern pine snake	Pituophis m. melanoleucus	1959	C2	THR	NO

FEDERAL AND TENNESSEE ENDANGERED, THREATENED, AND ACTIVE CANDIDATE SPECIES WHICH MIGHT OCCUR ON OR NEAR THE WATTS BAR NUCLEAR PLANT SITE OR ASSOCIATED TRANSMISSION LINES

COMMON NAME	SCIENTIFIC NAME	MOST RECENT KNOWN RECORD	LISTING STATUS* FED	TN	IN IMPACT AREA#
Birds					
Bachman's sparrow	Aimophila aestivalis	1977	C2	END	NO
Bald eagle	Haliaeetus leucocephalus	1994	END	END	YES-1,2
Cooper's hawk	Accipiter cooperii	1991		THR (P-NMGT)	YES-2
Grasshopper sparrow	Ammodramus savannarum	1993		THR (P-NMGT)	YES-2
Osprey	Pandion haliaetus	1994		END (P-THR)	YES-1,2
Red-cockaded woodpecker	Picoides borealis	1984	END	END	NO
Sharp-shinned Hawk	Accipiter striatus	1991		THR (P-NMGT)	YES-2
Mammals					
Eastern big-eared bat	Plecotus rafinesquii	1979	C2	NMGT	NO
Eastern small-footed bat	Myotis leibii	1960	C2	NMGT	NO
Eastern woodrat	Neotoma floridana	1980	C2	NMGT	NO
Gray bat	Myotis grisescens	1994	END	END	YES-1,2
Indiana myotis	Myotis sodalis	1986	END	END	NO
Red wolf	Canis rufus	1994	END	(P-END)	NO
River otter	Lutra canadensis	1993		THR	NO
Plants					
Auriculate false foxglove	Tomanthera auriculata	1985	C2	END	YES-2
Bitter-cress	Cardamine flagellifera	1968		THR	NO
Blue-eyed mary	Collinsia verna	1946		END	NO
Bugbane	Cimicifuga rubifolia	1994	C2	THR	YES-2
Bush honeysuckle	Diervilla lonicera	1984		THR	YES-2
Bush honeysuckle	Diervilla sessilifolia var. rivularis	1976		THR	YES-2
Canada lily	Lilium canadense	1981		THR	NO
Climbing fumatory	Adlumia fungosa	1986		THR	NO
Compass plant	Silphium laciniatum	1974		THR	NO
Dwarf filmy-fern	Trichomanes petersii	1975		END	NO
False foxglove	Aureolaria patula	1990	C2	THR	YES-2
False-sunflower	Tetragonotheca helianthoides	1968		END	NO
Fraser sedge	Cymophyllus fraseri	1974		THR	NO
Ginseng	Panax quinquefolius	1981		THR	NO
Goldenrod	Solidago ptarmicoides	1981		END	YES-2
Goldenseal	Hydrastis canadensis	1981		THR	YES-2
Lance-leaf trillium	Trillium lancifolium	1973		END	NO
Largeleaf pondweed	Potamogeton amplifolius	1980		THR	NO
Longleaf stitchwort	Stellaria longifolia	1955		END	NO
Meehan mint	Meehania cordata	1990		THR	NO
Michigan lily	Lilium michiganense	1961		THR	NO
Monkey-face orchid	Platanthera integrilabia	1984	C2	END	NO
Mountain skullcap	Scutellaria montana	1994	END	END	NO
Pigmy-pipes	Monotropsis odorata	1971	C2	THR	NO
Pondweed	Potamogeton tennesseensis	1980		THR	NO
Rock skullcap	Scutellaria saxatilis	1985		THR	NO
Roundleaf bitter-cress	Cardamine rotundifolia	1984		THR	NO
Roundleaf fameflower	Talinum teretifolium	1974		THR	NO
Sedge	Carex misera	1946		THR	NO
Small's stonecrop	Diamorpha smallii	1976		END	NO

FEDERAL AND TENNESSEE ENDANGERED, THREATENED, AND ACTIVE CANDIDATE SPECIES WHICH MIGHT OCCUR ON OR NEAR THE WATTS BAR NUCLEAR PLANT SITE OR ASSOCIATED TRANSMISSION LINES

COMMON NAME	SCIENTIFIC NAME	MOST RECENT KNOWN RECORD	LISTING STATUS* FED	LISTING STATUS* TN	IN IMPACT AREA#
Southern nodding trillium	*Trillium rugelii*	1969		END	NO
Tall larkspur	*Delphinium exaltatum*	1983	C2	END	YES-2
Turkey-beard	*Xerophyllum asphodeloides*	1966		THR	NO
White heath aster	*Aster ericoides*	1965		THR	NO
Witch-alder	*Fothergilla major*	1983		THR	NO

*END - endangered; THR - threatened; NMGT - in need of management; C2 - category 2 candidate for federal listing; P - proposed status

#YES-1 - in or along main stem of Tennessee River near WBN site; YES-2 - within 0.5 mile of WBN transmission line; YES-3 - on WBN site

TVA'S RESPONSE TO QUESTION 11

WBN - TAC NOS. M88691 & M88692

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item I of Form I)*: TN0020168

Metal Cleani
Waste

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 107

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*	7.2	42					1	mg/L	lbs/day			
b. Chemical Oxygen Demand *(COD)*	16	93					1	mg/L	lbs/day			
c. Total Organic Carbon *(TOC)*	4.2	25					1	mg/L	lbs/day			
d. Total Suspended Solids *(TSS)*	1	5.8	12.94		3.89		32	mg/L	lbs/day			
e. Ammonia *(as N)*	0.03	0.18					1	mg/L	lbs/day			
f. Flow	VALUE 0.7		VALUE 3.55		VALUE 1.83		18	MGD	lbs/day	VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 8.2	MAXIMUM 8.4	MINIMUM 7.07	MAXIMUM 9.7			34	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<0.1	<0.58					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.58					8	mg/L	lbs/day			
c. Color	X		10						1	PCU				
d. Fecal Coliform	X		*(3)											
e. Fluoride (16984-48-8)	X		0.2	1.2					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		0.01	0.06					1	mg/L	lbs/day			

[illegible]INUE ON REVERSE

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.39	2.3					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<29	8.2		<5.2		35	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.07	0.41					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		320	1,870					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.2	<1.2					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<0.58					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.58					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		<50.	<0.29					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		30.	0.18					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		90.	0.53					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.0	<0.006					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		10.	0.06	0.69		<0.14		31	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		5.8	34					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		170.	0.99					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		<5.	<0.03					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	<0.29					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		<5.	<0.03					1	ug/L	lbs/day			

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TN0020168	107

CONTINUED FROM PAGE 3 OF FORM 2-C

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PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.006					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.006					1	ug/L	lbs/day			
3M. Beryllium, Total, 7440-41-7)	X			<1.0	<0.006					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.2	0.001					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.006					1	ug/L	lbs/day			
6M. Copper, Total (7550-50-8)	X			<10.	<0.06	0.03		<0.02		31	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			<1.0	<0.006	0.29		<0.11		22	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.001					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			3.0	0.02					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.006					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.06					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.29					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			<10.	<0.06					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.12					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5.0	<0.03					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1[illegible]01 6)				DESCRIBE RESULTS											

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TEST INO REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.58					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.58					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.06					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			* (2)											
5V. Bromoform (75-25-2)	X			<10.	<0.06					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<0.06					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<0.06					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.06					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10.	<0.06					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10.	<0.06					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.06					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10.	<0.06					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			* (2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.06					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.06					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.06					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10.	<0.06					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			* (2)											
19V. Ethylbenzene (100-41-4)	X			<10.	<0.06					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10.	<0.06					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10.	<0.06					1	ug/L	lbs/day			

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OUTFALL NUMBER: 107

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1. POLLUTANTS AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10.	<0.06					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10.	<0.06					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10.	<0.06					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10.	<0.06					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<0.06					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.06					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.06					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.06					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10.	<0.06					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10.	<0.06					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.	<0.03					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.	<0.03					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.	<0.03					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<0.18					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20.	<0.12					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.	<0.03					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.18					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			* (2)											
9A. Pentachlorophenol (87-86-5)	X			<30.	<0.18					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.	<0.03					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<0.12					1	ug/L	lbs/day			

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.	<0.03					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.	<0.03					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.	<0.03					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.29					1	ug/L	lbs/day			
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.	<0.06					1	ug/L	lbs/day			
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<0.06					1	ug/L	lbs/day			
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<0.06					1	ug/L	lbs/day			
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.	<0.03					1	ug/L	lbs/day			
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.	<0.03					1	ug/L	lbs/day			
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.	<0.03					1	ug/L	lbs/day			
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.	<0.03					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.	<0.03					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.	<0.03					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.	<0.03					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.06					1	ug/L	lbs/day			
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10.	<0.06					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.	<0.03					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.	<0.03					1	ug/L	lbs/day			

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.	<0.03					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<0.15					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.	<0.03					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.	<0.03					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.	<0.03					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.	<0.03					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.	<0.03					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.06					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	X			* (2)											
31B. Fluoranthene (206-44-0)	X			<5.	<0.03					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.	<0.03					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.	<0.03					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.	<0.03					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.	<0.03					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.	<0.03					1	ug/L	lbs/day			
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	X			<10.	<0.06					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.	<0.03					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.	<0.03					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.	<0.03					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			* (2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.	<0.03					1	ug/L	lbs/day			

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INT. (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.	<0.03					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.	<0.03					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.	<0.03					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.	<0.03					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

* Footnotes:

1. Long term data are for the period October 1984 through October 1988.
2. Did not analyze
3. Not available

Low Volume Waste Treatment Pond

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item I of Form 1)*: TN0020168

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 103

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*	3.8	22					1	mg/L	lbs/day			
b. Chemical Oxygen Demand *(COD)*	21.	123					1	mg/L	lbs/day			
c. Total Organic Carbon *(TOC)*	3.7	22					1	mg/L	lbs/day			
d. Total Suspended Solids *(TSS)*	10	59	87		10.8		593	mg/L	lbs/day			
e. Ammonia *(as N)*	0.02	0.12					1	mg/L	lbs/day			
f. Flow	VALUE 0.704		VALUE 82		VALUE 0.59		1049	MGD		VALUE		
g. Temperature *(winter)*	VALUE 14.2		VALUE		VALUE		7	°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.4	MAXIMUM 6.8	MINIMUM	MAXIMUM			8	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	<12					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.58					8	mg/L	lbs/day			
c. Color	X		10						1	PCU				
d. Fecal Coliform	X		<16						8	N/100ml				
e. Fluoride (16984-48-8)	X		1.3	7.6					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		0.61	3.6					1	mg/L	lbs/day			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		1.5	8.8					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<29	19.6		<5.5		465	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.15	0.88					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		130	764					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02						1	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1						8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.59					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		140.	0.82					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		30.	0.18					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<0.29					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	0.01					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		300.	1.8					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		7.0	41.					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<0.12					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		21.	0.12					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	<0.29					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		<5.	<0.03					1	ug/L	lbs/day			

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EPA I.D. NUMBER (copy from Item 1 of [illegible] 1)	OUTFALL NUMBER
TN0020168	103

CONTINUED FROM PAGE 3 OF FORM 2-C

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PART C. If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			1.0	0.01					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.01					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.	<0.01					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.4	0.002					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.01					1	ug/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			5.0	0.03					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.001					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			2.0	0.01					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			1.0	0.01					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.06					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.29					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			10.	0.06					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.12					4	mg/L	lbs/day			
15M. Phenols, Total	X			<65.	<0.38					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. Testing Required	b. Believed Present	c. Believed Absent	3. EFFLUENT a. MAXIMUM DAILY VALUE (if available) Concentration	(b) Mass	b. MAXIMUM 30 DAY VALUE (if available) Concentration	(b) Mass	c. LONG TERM AVRG. VALUE (if available) Concentration	(b) Mass	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (a) CONCENTRATION	(b) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.58					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.58					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.06					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10	<0.06					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10	<0.06					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10	<0.06					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.06					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10	<0.06					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10	<0.06					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.06					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10	<0.06					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.06					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.06					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.06					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10	<0.06					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10	<0.06					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10	<0.06					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10	<0.06					1	ug/L	lbs/day			

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EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: 103

Form Approved OM[illegible] 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X			43	0.25					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10	<0.06					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10	<0.06					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10	<0.06					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10	<0.06					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.06					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.06					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.06					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10	<0.06					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10	<0.06					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30	<0.18					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20	<0.12					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<0.03					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.18					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30	<0.18					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5	<0.03					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20	<0.12					1	ug/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.03					1	ug/L	lbs/day			
5B. Benzo (a) Anthracene (56-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
6B. Benzo (a) Pyrene (50-32-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10	<0.06					1	ug/L	lbs/day			
8B. Benzo (ghi) Perylene (191-24-2)	X			<10.	<0.06					1	ug/L	lbs/day			
9B. Benzo (k) Fluoranthene (207-08-9)	X			<10.	<0.06					1	ug/L	lbs/day			
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X			<5.0	<0.03					1	ug/L	lbs/day			
12B. Bis (2-Chloro-isopropyl) Ether (39638-32-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.06					1	ug/L	lbs/day			
19B. Dibenzo (a,h) Anthracene (53-70-3)	X			<10	<0.06					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<0.03					1	ug/L	lbs/day			

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EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: 103

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<0.15					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	<0.01					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.03					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<0.03					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<0.03					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<5.0	<0.03					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64[illegible])	X			<5.0	<0.03					1	ug/L	lbs/day			

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<0.03					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.0	<0.03					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	103

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION — PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)	X					<0.1		<0.004		23	ug/L				
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

*Footnotes:

(1) Long term data are for the period October 1984 through October 1988.

(2) Did not analyze.

TVA'S RESPONSE TO QUESTION 14

WBN - TAC NOS. M88691 & M88692

#14

TVA

Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

June 28, 1994

Division of Water Pollution Control
Tennessee Department of Environment & Conservation
Compliance Review Section
6th Floor, L & C Annex
401 Church Street
Nashville, Tennessee 37243-1534

Dear Sir:

WATTS BAR NUCLEAR PLANT (WBN) - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NUMBER TN0020168 - [DISCHARGE MONITORING] REPORTS FOR APRIL, MAY, JUNE 1994

Enclosed is a complimentary copy of WBN's second quarter submittal for the April, May, and June 1994 discharge monitoring reports. The electronic submittal for this quarter has been mailed separately.

If you should have any questions or need additional information, please contact Ann Z. McGregor at (615) 365-8011 at Watts Bar.

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

V. J. Shanks

V. J. Shanks
Environmental Manager

Enclosure
cc (Enclosure):
Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
Suite 550
540 McCallie Avenue
Chattanooga, Tennessee 37402

Mailed Certified + Return Receipt 7/29/94 - JT

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	101
PERMIT NUMBER	DISCHARGE NO.

DIFFUSER DISCHARGE

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	94	04	30

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	33.420	40.890		*********	*********	*********		0	30/ 30	RECORDR
50050 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********	18.100		0	30/ 30	RECORDR
00010 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		CONT	RECORDR
PH	SAMPLE MEASUREMNT	*********	*********		7.6	*********	7.9		0	5/ 30	GRAB
00400 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	13.125	19.050		0	4/ 30	GRAB
00530 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	< 5.000	< 5.000		0	4/ 30	GRAB
00556 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.062		0	84/ 30	M-GRAB
50060 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.100	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT		TELEPHONE		DATE		
WILLIAM J. MUSELER							
SITE VICE PRESIDENT		SIGN. OF PRINCIPAL EXEC.	615	365-8116	94	05	27
TYPED OR PRINTED		OFFICER OR AGENT	A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER	DISCHARGE NO.
TN0020168	102

YARD HOLDING POND

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	94	04	30

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	*NO FLOW*									
50050 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	GRAB
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00010 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		1/1	INSTANT
PH	SAMPLE MEASUREMNT	*********	*********			*********					
00400 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		6.000	NONE	9.000	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********						
00530 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********						
00556 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
50060 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.1	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
WILLIAM J. MUSELER
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE A/C	NUMBER	DATE YEAR	MO	DAY
615	365-8116	94	05	27

COMMENT AND EXPLANATION OF ANY VIOLATION
LIMITATIONS AND MONITORING REQUIREMENTS ARE APPLICABLE ONLY DURING PERIODS OF DIRECT DISCHARGE TO THE TENNESSEE RIVER.

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	103
PERMIT NUMBER	DISCHARGE NO.

LOW VOL. WASTE TRMNT POND

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	94	04	30

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
SUSP SOLID	SAMPLE MEASUREMNT	25.470	108.400		*********	11.104	28.300		0	19/ 30	GRAB
00530 1 0 0 103	PERMIT REQUIREMNT	250.000	834.000	LBS/DA	NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	< 15.410	< 68.260		*********	< 6.573	12.100		0	18/ 30	GRAB
00556 1 0 0 103	PERMIT REQUIREMNT	125.000	167.000	LBS/DA	NONE	15.000	20.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	.360	1.640		*********	*********	*********		0	20/ 30	PUMPLOG
50050 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	PUMPLOG
PH	SAMPLE MEASUREMNT	*********	*********		7.4	*********	8.9		0	23/ 30	GRAB
00400 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		3/7	GRAB
ALUMINUM	SAMPLE MEASUREMNT	*********	*********		*********	*********	*				
01105 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	10.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
WILLIAM J. MUSELER SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT	615 A/C	365-8116 NUMBER	94 YEAR	05 MO	27 DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
IN THE EVENT THE TURBINE BUILDING SUMP IS DISCHARGED DIRECTLY TO THE YARD HOLDING POND, THE SUMP EFFLUENT SHALL BE SUBJECT TO THE LIMITATIONS FOR PH, TSS, AND O&G AND MONITORED 5/WEEK UNDER DSN 103. * ONLY APPLICABLE WHEN EFFLUENT FROM THE ALUM SLUDGE PONDS IS DISCHARGED TO POINT OTHER THAN THE LOW VOLUME WASTE TREATMENT POND. ANALYTICAL RESULTS INCLUDE THE 4/[illegible] RESIN SLUICE WATER RELEASE TO THE YARD HOLDING POND.

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168				107		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
FROM 94	04	01	TO	94	04	30

METAL CLEANING WASTE POND

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	*NO FLOW*									
50050 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/BAT	CALC
PH	SAMPLE MEASUREMNT	*********	*********			*********					
00400 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		6.000	NONE	9.000	PH UNIT		1/1	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00530 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	30.000	MG/L		1/1	8HRCOMP
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00556 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	15.000	MG/L		1/1	GRAB
PHOSPHORUS	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00665 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
COPPER	SAMPLE MEASUREMNT	*********	*********		*********	*********					
01042 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
IRON	SAMPLE MEASUREMNT	*********	*********		*********	*********					
01045 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
WILLIAM J. MUSELER
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE A/C	NUMBER	DATE YEAR	MO	DAY
615	365-8116	94	05	27

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME AND ADDRESS (INCLUDE FACILITY NAME AND LOCATION IF DIFFERENT)

NAME TENNESSEE VALLEY AUTHORITY

ADDRESS PO BOX 2000

SPRING CITY, TN 37381

FACILITY WATTS BAR NUCLEAR PLANT

LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER	DISCHARGE NO.
TN0020168	111

COMBD SEWAGE TREATMENT PL

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	94	04	30

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
BOD	SAMPLE MEASUREMNT	*********	*********		*********	10.625	15.500		0	4/ 30	GRAB
00310 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	45.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	.040	.090		*********	*********	*********		0	30/ 30	RECORDR
50050 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	3.500	5.000		0	4/ 30	GRAB
00530 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	45.000	MG/L		1/7	GRAB
SETT SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********	< .100		0	21/ 30	GRAB
00545 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	ML/L		2/7	GRAB
FECAL COLI	SAMPLE MEASUREMNT	*********	*********		*********	< 7.250	14.000		0	4/ 30	GRAB
31616 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	200.000	1000.000	N/100 M		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.400		0	21/ 30	GRAB
50060 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	2.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
WILLIAM J. MUSELER SITE VICE PRESIDENT	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615	365-8116	94	05	27
TYPED OR PRINTED			A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION

SEE ATTACHED NOTICE OF NONCOMPLIANCE.

NOTICE OF NONCOMPLIANCE WITH EFFLUENT LIMITATIONS
NPDES PERMIT TN0020168
WATTS BAR NUCLEAR PLANT

APRIL 1994

Discharge Serial Number (DSN) 111: Treated Sanitary Wastewater

Description of the Noncompliance:

On April 18, 1994 at 10:15 a.m., an unanticipated bypass of untreated wastewater was discovered in a graveled area northeast of the reactor building. Untreated wastewater from a ruptured pressure sewer line flowed over the surface of the graveled area for approximately 60 feet into a nearby storm drain to the yard holding pond which drains to the Diffuser Discharge. Due to the small volume bypassed and the large dilution afforded by the yard holding pond NO effluent limitations for the Diffuser Discharge (DSN 101) were exceeded.

Cause and Period of the Noncompliance:

The period of noncompliance began sometime between the evening of 4/17/94 and the time of discovery on Monday 4/18/94 at 10:15 a.m. The rest rooms and lift stations were immediately locked out and the bypass to the yard holding pond ended upon excavation of the sewer line by 1:00 p.m. on 4/18/94. The untreated wastewater remaining in the excavated pit was pumped to a nearby sewer collection system manhole. The noncompliance was caused by a rupture of the steel sewer line servicing the turbine building lift station due to a spot corrosion . The sewer line repair was completed and the rest room facilities were returned to service by 5:00 a.m. the following morning of 4/19/94.

Steps Taken To Reduce, Eliminate, and Prevent Recurrence of the Noncompliance:

Corrective actions taken included pumping the untreated wastewater remaining in the excavated pit to a nearby sewer collection system manhole and welding the ruptured sewer line. As part of the ongoing WBN Infiltration/Inflow Corrective Action Program, we will be evaluating the feasibility of removing this section of sewer line from service after completion of Unit 1 Construction.

PERMITTEE NAME AND ADDRESS (INCLUDE
FACILITY NAME AND LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	112
PERMIT NUMBER	DISCHARGE NO.

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	94	04	30

RUNOFF HOLDING POND

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	QUANTITY OR LOADING UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	QUALITY OR CONCENTRATION UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	.350	.650		*********	*********	*********		0	4/ 30	GRAB
50050 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/7	INSTANT
DIS OXYGEN	SAMPLE MEASUREMNT	*********	*********		9.100	*********	*********		0	4/ 30	GRAB
00300 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		5.000	NONE	NONE	MG/L		1/7	GRAB
PH	SAMPLE MEASUREMNT	*********	*********		7.3	*********	8.4		0	4/ 30	GRAB
00400 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.5	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	< 11.125	22.000		0	4/ 30	GRAB
00530 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
AMMONIA	SAMPLE MEASUREMNT	*********	*********		*********	.283	.390		0	4/ 30	GRAB
00610 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	5.000	12.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	< .100	< .100		0	4/ 30	GRAB
50060 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	.011	.019	MG/L		1/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
WILLIAM J. MUSELER SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	A/C	NUMBER	YEAR	MO	DAY
			615	365-8116	94	05	27

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	101
PERMIT NUMBER	DISCHARGE NO.

DIFFUSER DISCHARGE

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	35.730	71.530		*********	*********	*********		0	31/ 31	RECORDR
50050 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********	21.000		0	31/ 31	*RECORDR
00010 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		CONT	RECORDR
PH	SAMPLE MEASUREMNT	*********	*********		7.2	*********	8.2		0	7/ 31	GRAB
00400 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	9.564	12.370		0	5/ 31	GRAB
00530 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	< 6.220	9.000		0	5/ 31	GRAB
00556 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.100		0	96/ 31	M-GRAB
50060 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.100	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALICE SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615 A/C	365-8116 NUMBER	94 YEAR	06 MO	28 DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
*TEMPERATURE MEASUREMENTS FOR 5/24-31/94 WERE GRABS DURING INSTRUMENT CALIBRATION.

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER	DISCHARGE NO.
TN0020168	102

YARD HOLD POND/EMER OVFLW

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	*NO FLOW*									
50050 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	GRAB
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00010 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		1/1	INSTANT
PH	SAMPLE MEASUREMNT	*********	*********			*********					
00400 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		6.000	NONE	9.000	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********						
00530 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********						
00556 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
50060 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.1	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
JOHN A. SCALICE
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE A/C	NUMBER	DATE YEAR	MO	DAY
615	365-8116	94	06	28

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME AND LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	103
PERMIT NUMBER	DISCHARGE NO.

LOW VOL. WASTE TRMNT POND

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
SUSP SOLID	SAMPLE MEASUREMNT	159.040	187.030		*********	12.015	12.240		0	2/ 31	GRAB
00530 1 0 0 103	PERMIT REQUIREMNT	250.000	834.000	LBS/DA	NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	< 73.390	< 79.320		*********	< 5.650	6.300		0	2/ 31	GRAB
00556 1 0 0 103	PERMIT REQUIREMNT	125.000	167.000	LBS/DA	NONE	15.000	20.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	1.420	1.900		*********	*********	*********		0	7/ 31	PUMPLOG
50050 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	PUMPLOG
PH	SAMPLE MEASUREMNT	*********	*********		7.8	*********	8.4		0	4/ 31	GRAB
00400 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		3/7	GRAB
ALUMINUM	SAMPLE MEASUREMNT	*********	*********		*********	*********	*				
01105 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	10.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALICE SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	V. J. Thomas SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615 A/C	365-8116 NUMBER	94 YEAR	06 MO	28 DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
IN THE EVENT THE TURBINE BUILDING SUMP IS DISCHARGED DIRECTLY TO THE YARD HOLDING POND, THE SUMP EFFLUENT SHALL BE SUBJECT TO THE LIMITATIONS FOR PH, TSS, AND OIL & GREASE AND MONITORED 5/WEEK UNDER DSN 103.
*ONLY APPLICABLE WHEN EFFLUENT FROM THE ALUM SLUDGE PONDS IS DISCHARGED TO POINT OTHER THAN THE LOW VOLUME WASTE TREATMENT POND.

PERMITTEE NAM[illegible] DRESS (INCLUDE
FACILITY NAM[illegible] TION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUT[illegible] DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHAR[illegible] ITORING REPORT (DMR)

TN0020168				107		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

METAL CLEANING WASTE POND

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	*NO FLOW*									
50050 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/BAT	CALC
PH	SAMPLE MEASUREMNT	*********	*********			*********					
00400 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		6.000	NONE	9.000	PH UNIT		1/1	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00530 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	30.000	MG/L		1/1	8HRCOMP
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00556 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	15.000	MG/L		1/1	GRAB
PHOSPHORUS	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00665 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
COPPER	SAMPLE MEASUREMNT	*********	*********		*********	*********					
01042 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
IRON	SAMPLE MEASUREMNT	*********	*********		*********	*********					
01045 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALICE SITE VICE PRESIDENT	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	V. J. Shanton	615	365-8116	94	06	28
TYPED OR PRINTED		SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT	A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME TION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHAR ITORING REPORT (DMR)

TN0020168	111
PERMIT NUMBER	DISCHARGE NO.

COMBD SEWAGE TREATMENT PL

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
BOD	SAMPLE MEASUREMNT	*********	*********		*********	6.500	8.000		0	4/ 31	GRAB
00310 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE	LBS/DA	NONE	30.000	45.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	.030	.040		*********	*********	*********		0	31/ 31	RECORDR
50050 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	< 2.000	3.000		0	4/ 31	GRAB
00530 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	45.000	MG/L		1/7	GRAB
SETT SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********	< .100		0	22/ 31	GRAB
00545 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	ML/L		2/7	GRAB
FECAL COLI	SAMPLE MEASUREMNT	*********	*********		*********	26.000	33.000		0	4/ 31	GRAB
31616 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	200.000	1000.000	N/100 M		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.500		0	22/ 31	GRAB
50060 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	2.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
JOHN A. SCALICE
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE A/C	NUMBER	DATE YEAR	MO	DAY
615	365-8116	94	06	28

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME/ADDRESS (INCLUDE
FACILITY NAME ION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	112
PERMIT NUMBER	DISCHARGE NO.

RUNOFF HOLDING POND

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	05	01	TO	94	05	31

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	.170	.310		*********	*********	*********		0	6/31	GRAB
50050 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/7	INSTANT
DIS OXYGEN	SAMPLE MEASUREMNT	*********	*********		10.400	*********	*********		0	4/ 31	GRAB
00300 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		5.000	NONE	NONE	MG/L		1/7	GRAB
PH	SAMPLE MEASUREMNT	*********	*********		9.2	*********	9.9		*2	6/31	GRAB
00400 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.5	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	30.750	49.000		0	4/ 31	GRAB
00530 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
AMMONIA	SAMPLE MEASUREMNT	*********	*********		*********	.515	.970		0	4/ 31	GRAB
00610 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	5.000	12.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	< .100	< .100		0	4/ 31	GRAB
50060 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	.011	.019	MG/L		1/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALICE SITE VICE PRESIDENT	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615	365-8116	94	06	28
TYPED OR PRINTED			A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
* SEE ATTACHED NOTICE OF NONCOMPLIANCE.

NOTICE OF NONCOMPLIANCE WITH EFFLUENT LIMITATIONS
NPDES PERMIT TN0020168
WATTS BAR NUCLEAR PLANT

MAY 1994

Discharge Serial No. 112: Runoff Holding Pond

Description of the Noncompliance:

Grab samples collected at 10:15 a.m. on 5/25/94 and at 8:55 a.m. on 5/26/94 from the Runoff Holding Pond discharge (DSN 112) for pH were 9.9 and 9.7 S.U., respectively, exceeding the daily maximum permit limitation of 9.5 S.U. All other parameters monitored for this discharge were within permit limitations.

Cause and Period of the Noncompliance:

Examination of the runoff pond water revealed excessive algal growth. A May 12, 1994 phytoplankton sample from this pond contained 59 million algal cells per liter. The noncompliance is believed to have been caused by a naturally occurring increase in pH due to the photosynthetic activity of excessive algal growth in the pond. Samples collected from the influent ditch to the Runoff Pond on May 26 and 27, 1994 for pH were 7.5 and 7.4 S.U, respectively. The discharge from the combined sewage treatment plant to the runoff pond remained well within permit limitations and pH samples of the effluent for the month of May were at or below 7.2 S.U. No other sources could be identified as having contributed to the noncompliance. The period of the pH noncompliance began on 5/25/94 and ended on 5/27/94 at 7:30 a.m. when the pH of the pond discharge was measured at 9.2 S.U..

Steps Taken To Reduce, Eliminate, and Prevent Recurrence of the Noncompliance:

The Runoff Holding Pond has been stocked with white amur (grass carp) to help control algal growth. Additional 24-hour pH monitoring of the pond and its influent was performed on June 3-10, 1994 in order to characterize the extent of the problem caused by photosynthetic activity.

Since the cause of the noncompliance is attributed to a natural environmental phenomenon, no other steps have been taken to reduce, eliminate, or prevent the recurrence of the noncompliance.

PERMITTEE NAME [illegible]DRESS (INCLUDE
FACILITY NAME [illegible]ION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTI[illegible] DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARG[illegible]TORING REPORT (DMR)

TN0020168				101		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
FROM 94	06	01	TO	94	06	30

DIFFUSER DISCHARGE

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	43.670	71.740		*********	*********	*********		0	30/ 30	RECORDR
50050 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********	26.100		0	30/ 30	GRAB
00010 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		CONT	RECORDR
PH	SAMPLE MEASUREMNT	*********	*********		7.8	*********	8.1		0	5/ 30	GRAB
00400 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	9.360	10.400		0	5/ 30	GRAB
00530 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	< 5.000	< 5.000		0	4/ 30	GRAB
00556 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.050		0	92/ 30	M-GRAB
50060 1 0 0 101	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.100	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALISE SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615	365-8116	94	07	28
			A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
TEMPERATURE MEASUREMENTS FOR 6/1-7/94 WERE GRABS DURING INSTRUMENT CALIBRATION AND FLOW MEASUREMENTS FOR 6/5-15/94 WERE FROM INTAKE PUMP LOGS DUE TO ELECTRICAL CABLE CONSTRUCTION.
SEE ATTAC[illegible] NOTICE OF NONCOMPLIANCE.

NOTICE OF NONCOMPLIANCE WITH EFFLUENT LIMITATIONS
NPDES PERMIT TN0020168
WATTS BAR NUCLEAR PLANT

JUNE 1994

Discharge Serial No. 101: Diffuser Discharge

Description of the Noncompliance:

During cool down from Unit 1 Hot Functional Testing at 7:51 a.m. on June 7, 1994, the 54 inch manhole in the diffuser discharge/cooling tower blowdown system was discovered overflowing onto the ground and flowing overland for approximately 200 feet into the intake channel. This discharge was through an unpermitted outfall during a period of river flow of less than 3,500 cubic feet per second. This event was precipitated by high cooling tower blowdown flow with the diffusers closed in conjunction with a high water level of 706.2 feet in the Yard Holding Pond. A sample collected from the Diffuser Discharge on the afternoon of 6/7/94 was within permit effluent limitations.

Cause and Period of the Noncompliance:

The period of noncompliance began sometime between 5:00 a.m. and 7:51 a.m. on 6/7/94 and ended at 9:00 a.m. soon after the diffusers were opened at 8:42 a.m. on 6/7/94. The noncompliance was caused by the failure of the 54 inch cooling tower blowdown line manhole to allow operation of up to 44,000 gpm flow with up to an elevation of 707.0 feet in the yard holding pond without an overflow. Calculations using test data obtained from the 1991 and 1993 flow calibration studies have determined that the height of this manhole will have to be raised to an elevation of at least 718.58 feet.

Steps Taken To Reduce, Eliminate, and Prevent Recurrence of the Noncompliance:

The immediate action taken to stop the overflow was to request Watts Bar Hydro to increase in river flow to allow opening of the diffuser discharge valves and to reduce flow in the cooling tower blowdown line. Design changes and construction plans have been initiated to flanged the 54 inch manhole and install at least a four foot tall standpipe for venting. A Standing Order has been issued to maintain cooling tower blowdown flow below 37,000 gpm when the diffuser discharge valves are closed until the raising of the top elevation of the manhole can be completed.

PERMITTEE NAME/ADDRESS (INCLUDE
FACILITY N)CATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISC MONITORING REPORT (DMR)

TN0020168				102		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
FROM 94	06	01	TO	94	06	30

YARD HOLD POND/EMER OVFLW

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	*NO FLOW*									
50050 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	GRAB
TEMPERATUR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
00010 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	35.000	C		1/1	INSTANT
PH	SAMPLE MEASUREMNT	*********	*********			*********					
00400 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		6.000	NONE	9.000	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********						
00530 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********						
00556 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	15.000	20.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********					
50060 1 0 0 102	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	.1	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
JOHN A. SCALISE
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE		DATE		
615	365-8116	94	07	28
A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NA' DDRESS (INCLUDE
FACILITY NA ATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLU DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHA NITORING REPORT (DMR)

TN0020168				103		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
FROM 94	06	01	TO	94	06	30

LOW VOL. WASTE TRMNT POND

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
SUSP SOLID	SAMPLE MEASUREMNT	61.510	101.670		*********	7.853	10.360		0	3/ 30	GRAB
00530 1 0 0 103	PERMIT REQUIREMNT	250.000	834.000	LBS/DA	NONE	30.000	100.000	MG/L		1/7	GRAB
OIL&GREASE	SAMPLE MEASUREMNT	< 37.850	< 50.250		*********	< 5.040	5.120		0	3/ 30	GRAB
00556 1 0 0 103	PERMIT REQUIREMNT	125.000	167.000	LBS/DA	NONE	15.000	20.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	.820	1.180		*********	*********	*********		0	7/ 30	PUMPLOG
50050 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/1	PUMPLOG
PH	SAMPLE MEASUREMNT	*********	*********		7.0	*********	8.5		0	7/ 30	GRAB
00400 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		3/7	GRAB
ALUMINUM	SAMPLE MEASUREMNT	*********	*********		*********	*********	*				
01105 1 0 0 103	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	10.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										
	SAMPLE MEASUREMNT										
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALISE SITE VICE PRESIDENT TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT	615 A/C	365-8116 NUMBER	94 YEAR	07 MO	28 DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
IN THE EVENT THE TURBINE BUILDING SUMP IS DISCHARGED DIRECTLY TO THE YARD HOLDING POND, THE SUMP EFFLUENT SHALL BE SUBJECT TO THE LIMITATIONS FOR PH, TSS, AN G AND MONITORED 5/WEEK UNDER DSN 103.
*ONLY ABLE WHEN EFFLUENT FROM THE ALUM SLUDGE PONDS IS DISCHARGE OINT OTHER THAN THE LOW VOLUME WASTE TREATMENT POND.

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME LOCATION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

TN0020168	107
PERMIT NUMBER	DISCHARGE NO.

METAL CLEANING WASTE POND

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	06	01	TO	94	06	30

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	3.280	3.280		*********	*********	*********		0	1/ 30	CALC
50050 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/BAT	CALC
PH	SAMPLE MEASUREMNT	*********	*********		8.0	*********	8.0		0	1/ 30	GRAB
00400 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.0	PH UNIT		1/1	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********	1.840		0	1/ 30	COMP
00530 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	30.000	MG/L		1/1	8HRCOMP
OIL&GREASE	SAMPLE MEASUREMNT	*********	*********		*********	*********	< 5.000		0	1/ 30	GRAB
00556 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	15.000	MG/L		1/1	GRAB
PHOSPHORUS	SAMPLE MEASUREMNT	*********	*********		*********	*********	*				
00665 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
COPPER	SAMPLE MEASUREMNT	*********	*********		*********	*********	.020		0	1/ 30	COMP
01042 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP
IRON	SAMPLE MEASUREMNT	*********	*********		*********	*********	.148		0	1/ 30	COMP
01045 1 0 0 107	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	MG/L		1/1	8HRCOMP

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
JOHN A. SCALISE
SITE VICE PRESIDENT
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT

SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT

TELEPHONE A/C	NUMBER	DATE YEAR	MO	DAY
615	365-8116	94	07	28

COMMENT AND EXPLANATION OF ANY VIOLATION
*LIMITATIONS AND MONITORING REQUIREMENTS FOR PHOSPHORUS APPLY ONLY IF PHOSPHORUS BEARING CLEANING SOLUTIONS ARE USED.

PERMITTEE NAME/ADDRESS (INCLUDE
FACILITY NAME [illegible] TION IF DIFFERENT)
NAME TENN[illegible]E VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARG[illegible]ITORING REPORT (DMR)

TN0020168	111
PERMIT NUMBER	DISCHARGE NO.

COMBD SEWAGE TREATMENT PL

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	06	01	TO	94	06	30

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
BOD	SAMPLE MEASUREMNT	*********	*********		*********	6.000	9.000		0	5/ 30	GRAB
00310 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	45.000	MG/L		1/7	GRAB
FLOW	SAMPLE MEASUREMNT	.030	.060		*********	*********	*********		0	30/ 30	RECORDR
50050 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			CONT	RECORDR
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	< 2.200	4.000		0	5/ 30	GRAB
00530 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	45.000	MG/L		1/7	GRAB
SETT SOLID	SAMPLE MEASUREMNT	*********	*********		*********	*********	< .100		0	22/ 30	GRAB
00545 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	1.000	ML/L		2/7	GRAB
FECAL COLI	SAMPLE MEASUREMNT	*********	*********		*********	52.400	66.000		0	5/ 30	GRAB
31616 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	200.000	1000.000	N/100 M		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	*********	.400		0	22/ 30	GRAB
50060 1 0 0 111	PERMIT REQUIREMNT	NONE	NONE		NONE	NONE	2.000	MG/L		5/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT		TELEPHONE		DATE		
JOHN A. SCALISE						
SITE VICE PRESIDENT		SIGN OF PRINCIPAL EXEC. OFFICER OR AGENT	615	365-8116	94	07	28
TYPED OR PRINTED			A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION

PERMITTEE NAME ADDRESS (INCLUDE
FACILITY NAME TION IF DIFFERENT)
NAME TENNESSEE VALLEY AUTHORITY
ADDRESS PO BOX 2000
SPRING CITY, TN 37381
FACILITY WATTS BAR NUCLEAR PLANT
LOCATION

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHAR ITORING REPORT (DMR)

TN0020168				112		
PERMIT NUMBER				DISCHARGE NO.		
MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
FROM 94	06	01	TO	94	06	30

RUNOFF HOLDING POND

PARAMETER		QUANTITY OR LOADING AVERAGE	MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX	FREQ.OF ANALSIS	SAMPLE TYPE
FLOW	SAMPLE MEASUREMNT	.220	.340		*********	*********	*********		0	5/ 30	GRAB
50050 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE	MGD	NONE	NONE	NONE			1/7	INSTANT
DIS OXYGEN	SAMPLE MEASUREMNT	*********	*********		7.400	*********	*********		0	5/ 30	GRAB
00300 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		5.000	NONE	NONE	MG/L		1/7	GRAB
PH	SAMPLE MEASUREMNT	*********	*********		8.1	*********	9.9		*2	7/30	GRAB
00400 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		6.0	NONE	9.5	PH UNIT		1/7	GRAB
SUSP SOLID	SAMPLE MEASUREMNT	*********	*********		*********	40.429	85.000		1	7/ 30	GRAB
00530 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	30.000	100.000	MG/L		1/7	GRAB
AMMONIA	SAMPLE MEASUREMNT	*********	*********		*********	.372	.650		0	5/ 30	GRAB
00610 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	5.000	12.000	MG/L		1/7	GRAB
RESD CHLOR	SAMPLE MEASUREMNT	*********	*********		*********	< .100	< .100		0	5/ 30	GRAB
50060 1 0 0 112	PERMIT REQUIREMNT	NONE	NONE		NONE	.011	.019	MG/L		1/7	GRAB
	SAMPLE MEASUREMNT									/	
	PERMIT REQUIREMNT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
JOHN A. SCALISE SITE VICE PRESIDENT	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT	SIGN. OF PRINCIPAL EXEC. OFFICER OR AGENT	615	365-8116	94	07	28
TYPED OR PRINTED			A/C	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATION
* SEE ATTACHED NOTICE OF NONCOMPLIANCE.

NOTICE OF NONCOMPLIANCE WITH EFFLUENT LIMITATIONS
NPDES PERMIT TN0020168
WATTS BAR NUCLEAR PLANT

JUNE 1994

Discharge Serial No. 112: Runoff Holding Pond

Description of the Noncompliance:

Grab samples collected at 9:15 a.m. on 6/1/94 and at 8:05 a.m. on 6/2/94 from the Runoff Holding Pond discharge (DSN 112) for pH were 9.9 S.U. for both days, exceeding the daily maximum permit limitation of 9.5 S.U. The monthly average for total suspended solids of 40.429 mg/l exceeded the 30.0 mg/l limitation for the month of June. All other parameters monitored for this discharge were within permit limitations.

Cause and Period of the Noncompliance:

Examination of the runoff pond water revealed excessive algal growth. The noncompliance for pH is believed to have been caused by a naturally occurring increase in pH due to the photosynthetic activity of excessive algal growth in the pond. The total suspended solids for all samples except for one sample collected after a rainfall event ranged from 28 to 34 mg/l and is attributable to the excessive algal growth in the pond. Samples collected from the influent ditch to the Runoff Pond on June 1 and 2, 1994 for pH were 7.4 S.U for both days. The discharge from the combined sewage treatment plant to the runoff pond remained well within permit limitations and effluent pH measurements for the month of June were within the range of 7.1 to 7.4 S.U. No other sources could be identified as having contributed to the noncompliance. The period of pH noncompliance began on 6/1/94 and ended on 6/3/94 at 9:05 a.m. when the pH of the pond discharge was measured at 8.4 S.U. The monthly average total suspended solids noncompliance was for the month of June.

Steps Taken To Reduce, Eliminate, and Prevent Recurrence of the Noncompliance:

The Runoff Holding Pond has been stocked with white amur (grass carp) to help control algal growth and additional 24-hour pH monitoring of the pond and its influent was performed on June 3-10 which showed a pH influent ranging from 7.1 to 7.4 S.U. and a pond pH of 8.7 to 9.9 S.U. Diurnal pH swings in the pond ranged from 0.5 to 1.0 SU. Investigations are planned as part of the WBN Erosion Control Program to further identify drainage areas to the runoff pond that are in need of best management practices to control erosion.

WATTS BAR NUCLEAR PLANT
GROUNDWATER MONITORING PROGRAM
WELL NO. 1 - 1994 DATA

Date	pH (Std. Units)	Na (mg/L)	P (mg/L)	B (mg/L)	NH_3-N (mg/L)
01/03/94	7.1	2300	0.03	0.28	0.42
01/12/94	7.7	2300	0.01	0.31	0.56
01/21/94*	-	-	-	-	-
01/26/94	7.2	2100	0.01	0.31	0.41
02/02/94	7.2	310	0.01	0.27	0.28
02/09/94	8.0	2000	0.01	0.32	0.39
02/16/94	7.4	2000	0.01	0.32	0.51
02/22/94	7.3	1800	<0.01	0.36	0.22
03/01/94	7.2	2000	0.01	0.31	0.51
03/09/94	7.7	1900	0.01	<0.50	0.22
03/15/94	7.3	2100	<0.01	0.27	1.27
03/22/94	7.7	340	0.01	0.13	0.77
03/30/94	7.3	1900	0.01	0.34	0.43
04/05/94	7.6	1900	0.03	0.33	0.50
04/12/94	7.6	2200	0.02	0.34	0.47
04/20/94	7.2	1600	0.02	0.32	0.57
04/20/94	7.2	1700	0.03	0.31	0.53
04/26/94	7.3	1800	0.01	0.33	0.37
05/03/94	7.5	2100	0.01	0.32	0.76
05/11/94	7.3	4000	0.01	0.32	0.77
05/17/94	7.5	2000	0.22	0.28	0.50
05/25/94	7.5	2000	0.02	0.26	0.39
06/01/94	7.8	2000	0.01	0.25	0.44
06/08/94	7.7	2100	0.02	0.25	0.49
06/15/94	7.6	2100	0.01	0.26	0.43
06/22/94	7.6	1800	0.01	0.24	0.30
06/29/94	7.7	2100	0.02	0.20	0.49

*Well frozen all week; unable to collect sample.

2435m

TVA'S RESPONSE TO QUESTION 21

WBN - TAC NOS. M88691 & M88692

TABLE 2.3-52

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY STABILITY CLASS

WATTS BAR NUCLEAR PLANT
JAN 1, 74 - DEC 31, 88

WIND SPEED (MPH)	STABILITY CLASS A	B	C	D	E	F	G
CALM	0.001	0.000	0.000	0.037	0.360	0.672	0.537
0.6- 1.4	0.009	0.007	0.011	1.260	5.882	7.405	4.530
1.5- 3.4	0.262	0.425	0.986	9.020	10.746	6.263	2.505
3.5- 5.4	0.747	0.984	2.160	9.962	5.116	0.676	0.072
5.5- 7.4	1.006	0.969	1.651	7.170	2.573	0.138	0.004
7.5-12.4	1.618	1.040	1.609	7.816	1.832	0.040	0.001
12.5-18.4	0.244	0.133	0.216	0.866	0.314	0.002	0.000
18.5-24.4	0.011	0.010	0.011	0.054	0.037	0.000	0.000
>=24.5	0.000	0.000	0.000	0.002	0.000	0.000	0.000
TOTAL	3.898	3.568	6.644	36.187	26.859	15.194	7.649

63

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	125417
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	122869
TOTAL HOURS OF OBSERVATIONS	131496
JOINT RECOVERABILITY PERCENTAGE	93.4

METEOROLOGICAL FACILITY LOCATED 0.8 KM SSW OF WATTS BAR NUCLEAR PLANT
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 6-OCT-89

WBNP-63
TABLE 2.3-13

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED

BY WIND DIRECTION DISREGARDING STABILITY CLASS

WATTS BAR NUCLEAR PLANT
JAN 1, 74 - DEC 31, 88

WIND DIRECTION	CALM	0.6-1.4	1.5-3.4	WIND SPEED(MPH) 3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	TOTAL
N	0.067	0.683	1.401	1.693	1.432	1.586	0.076	0.000	0.000	6.938
NNE	0.065	0.588	1.432	2.102	1.996	2.189	0.120	0.000	0.000	8.492
NE	0.081	0.690	1.815	1.663	1.079	0.747	0.011	0.001	0.000	6.088
ENE	0.131	1.066	3.004	1.354	0.487	0.176	0.003	0.000	0.000	6.221
E	0.087	0.995	1.687	0.660	0.172	0.054	0.002	0.000	0.000	3.658
ESE	0.030	0.405	0.537	0.205	0.034	0.015	0.001	0.000	0.000	1.227
SE	0.047	0.595	0.851	0.340	0.081	0.058	0.018	0.000	0.000	1.990
SSE	0.083	0.890	1.670	0.627	0.196	0.170	0.043	0.004	0.000	3.681
S	0.114	0.995	2.551	1.848	0.893	0.778	0.213	0.026	0.001	7.419
SSW	0.140	1.079	3.265	3.970	3.067	3.351	0.716	0.064	0.000	15.652
SW	0.116	1.240	2.363	1.471	0.807	0.556	0.092	0.005	0.001	6.650
WSW	0.127	1.730	2.208	0.694	0.394	0.363	0.105	0.005	0.000	5.626
W	0.130	2.012	2.003	0.678	0.586	0.701	0.110	0.010	0.002	6.232
WNW	0.119	2.059	1.613	0.633	0.563	0.805	0.092	0.006	0.000	5.890
NW	0.158	2.581	2.308	0.783	0.738	1.082	0.116	0.002	0.000	7.768
NNW	0.097	1.445	1.572	1.016	0.944	1.309	0.083	0.001	0.000	6.468
SUBTOTAL	1.593	19.055	30.279	19.737	13.471	13.939	1.799	0.124	0.004	100.000

63

TOTAL HOURS OF VALID WIND OBSERVATIONS 126806
TOTAL HOURS OF OBSERVATIONS 131496
RECOVERABILITY PERCENTAGE 96.4

METEOROLOGICAL FACILITY LOCATED 0.8 KM SSW OF WATTS BAR NUCLEAR PLANT
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 6-OCT-89

MEAN WIND SPEED = 4.21

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

L2

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY STABILITY CLASS

WATTS BAR NUCLEAR PLANT

JAN 1, 74 - DEC 31, 93

WIND SPEED (MPH)	STABILITY CLASS A	B	C	D	E	F	G
CALM	0.001	0.000	0.000	0.108	0.748	1.262	0.881
0.6- 1.4	0.008	0.006	0.015	1.450	6.208	7.599	4.524
1.5- 3.4	0.350	0.519	1.027	9.430	10.476	5.690	2.278
3.5- 5.4	0.925	1.072	2.097	9.829	4.924	0.609	0.068
5.5- 7.4	1.102	0.944	1.494	7.016	2.414	0.119	0.004
7.5-12.4	1.563	0.982	1.460	7.464	1.656	0.035	0.001
12.5-18.4	0.210	0.123	0.184	0.751	0.280	0.001	0.000
18.5-24.4	0.008	0.007	0.009	0.042	0.028	0.000	0.000
>=24.5	0.000	0.000	0.000	0.001	0.000	0.000	0.000
TOTAL	4.166	3.654	6.286	36.091	26.733	15.315	7.755

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 167789
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 164406
TOTAL HOURS OF OBSERVATIONS 175320
JOINT RECOVERABILITY PERCENTAGE 93.8

METEOROLOGICAL FACILITY: WATTS BAR NUCLEAR PLANT
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 16-SEP-94

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED

BY WIND DIRECTION DISREGARDING STABILITY CLASS

WATTS BAR NUCLEAR PLANT

JAN 1, 74 - DEC 31, 93

WIND DIRECTION	WIND SPEED(MPH) CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	TOTAL
N	0.125	0.707	1.399	1.677	1.445	1.578	0.074	0.000	0.000	7.004
NNE	0.124	0.615	1.470	2.043	1.956	2.127	0.112	0.000	0.000	8.446
NE	0.160	0.728	1.957	1.783	1.051	0.695	0.011	0.001	0.000	6.386
ENE	0.242	1.112	2.944	1.296	0.425	0.150	0.002	0.000	0.000	6.170
E	0.151	0.992	1.540	0.583	0.138	0.045	0.002	0.000	0.000	3.451
ESE	0.059	0.438	0.546	0.192	0.028	0.013	0.001	0.000	0.000	1.277
SE	0.086	0.609	0.834	0.319	0.076	0.048	0.014	0.000	0.000	1.985
SSE	0.145	0.892	1.540	0.598	0.176	0.141	0.037	0.003	0.000	3.532
S	0.222	1.106	2.621	1.844	0.869	0.732	0.204	0.021	0.001	7.620
SSW	0.281	1.209	3.504	4.017	3.001	3.115	0.611	0.048	0.000	15.786
SW	0.237	1.479	2.506	1.516	0.756	0.470	0.072	0.004	0.001	7.040
WSW	0.239	1.888	2.135	0.666	0.372	0.317	0.082	0.004	0.000	5.702
W	0.235	2.104	1.843	0.646	0.546	0.653	0.090	0.008	0.002	6.127
WNW	0.212	2.052	1.505	0.637	0.597	0.821	0.086	0.005	0.000	5.915
NW	0.266	2.455	2.016	0.765	0.722	1.026	0.102	0.002	0.000	7.354
NNW	0.168	1.354	1.463	0.975	0.921	1.242	0.082	0.001	0.000	6.205
SUBTOTAL	2.951	19.738	29.823	19.554	13.081	13.172	1.583	0.095	0.003	100.000

TOTAL HOURS OF VALID WIND OBSERVATIONS	169102
TOTAL HOURS OF OBSERVATIONS	175320
RECOVERABILITY PERCENTAGE	96.5
TOTAL HOURS CALM	4990

METEOROLOGICAL FACILITY: WATTS BAR NUCLEAR PLANT
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 16-SEP-94

MEAN WIND SPEED = 4.07

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

TVA'S RESPONSE TO QUESTION 24

WBN - TAC NOS. M88691 & M88692

Tennessee Valley Authority

Tax -Equivalent Payments and The State of Tennesse's
Methodology for Allocating its TVA Payment

The Tennessee Valley Authority (TVA) is directed by Section 13 of the TVA Act to pay 5 percent of its gross proceed from the sale of power (less sales to government agencies) to states and counties where its power operations are carried on. The states' payments are determined by a formula based 50 percent on the ratio of book value of TVA power property and reservoir properties allocated to power located within each state to TVA's total power properties, and 50 percent based on the ratio of power sales in each state to TVA total power sales (less sales to federal agencies). The payments to counties replace the two year average former ad valorem taxes on the property at the time of TVA's acquisition. All nine states share a portion of their payment with local governments. The procedures for allocating these TVA monies differ from state to state. Since counties located in Tennessee are the only ones currently impacted by TVA major construction activities (Watts Bar Nuclear project), our focus will be on Tennessee's methodology for allocating its payment.

The State of Tennessee allocates its tax equivalent payments received from the TVA in accordance with Chapter 9 "Payments in Lieu of Taxes," Sections 67-9-101-67-9-103 (attached).

The state retains out of its TVA payment a specified base amount of $55 million plus 48.5 percent of the TVA payment that exceeds the base amount. Out of the state's portion of the 48.5 percent increase, it is required by statute to pay annually to counties ($3.8 million) and to cities ($358 thousand). These payments represent the base amount that the cities and counties were receiving in fiscal year (FY) 1977, when the state's procedure for allocating the TVA payments to local entities was modified. These funds are deposited in the state's general fund. The state then allocates an additional 48.5 percent (of the payment amount in excess of the base amount) to every incorporated city and to 95 counties. However, before the allocation to the cities and counties is made, the Tennessee Advisory Commission on Intergovernmental Relations is paid about $107 thousand. The redistribution to the cities is based on a population ratio, while the counties' allocation is based on population (42.8 percent), total acres in a county (42.8 percent), and the number of TVA-owned acres in a county (14.4 percent). The state also currently pays an allocated share of the remaining 3 percent of the payment amount in excess of the base amount to cities and counties impacted by TVA major construction activities. During FY 1993, 8 designated counties and 34 cities within these counties that are located within the Watts Bar geographic area shared in a portion this money. The payments are allocated to the impact entities on a population ratio. Also, out of the 3 percent impact funds, the County Technical Advisory Service receives a 10 percent share. Since the maximum amount each county, plus the incorporated cities within the county, can receive is 10 percent of the total impact funds, the remaining share is allocated ratably to all cities and counties. The State of Tennessee makes quarterly payments of TVA tax-equivalent payments to all cities and counties in the state.

In response to your inquiry concerning the changes in the methodology, since the 1978 FES, used in determing the amount of monies received by the entities that are impacted by TVA major construction activities, the procedure has basically remained unchanged since the Code was amended and became effective July 1, 1978. The base used in determining the amount of impact monies the counties receive are directly related to the State of Tennessee's tax equivalent payment received from TVA during the state's FY, and the population ratio of the TVA construction employees residing within the county to the total population of the county. Since currently only 8 impact counties are affected, the population ratio is not a determining factor in the calculation. Each county receives the maximum 10 percent, but must share with the incorporated cities based on a population ratio. However, prior to the cancellation of the Phipps Bend, Hartsville, and Yellow Creek projects, when the number of counties exceeded 10 (16 were designated

TVA'S RESPONSE TO QUESTION 25

WBN - TAC NOS. M88691 & M88692

Entity		FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
TROUSDALE	d	$98,800	$123,058	$67,077	$68,791	$51,593 e	$34,395	$17,198	$0	$0	$0
Hartsville		$43,049	$53,619	$29,227	$29,973	$22,480	$14,987	$7,493	$0	$0	$0
WILSON		$15,149	$20,056	$22,570	$23,146	$17,360 e	$11,573	$5,787	$0	$0	$0
Lebanon	d	$3,317	$4,530	$5,098	$5,228	$3,921	$2,614	$1,307	$0	$0	$0
Mount Juliet		$816	$1,080	$1,350	$1,385	$1,039	$692	$346	$0	$0	$0
Watertown		$351	$465	$523	$537	$403	$268	$134	$0	$0	$0
CTAS		$0	$0	$0	$0	$152,292	$273,675	$268,128	$276,669	$286,558	$285,419
Reallocated		$0	$0	$0	$0	$0	$66,331	$164,456	$276,669	$286,558	$285,419
Total		$1,418,480	$1,781,629	$1,896,131	$2,073,442	$2,316,545	$2,736,754	$2,681,279	$2,766,687	$2,865,581	$2,854,190

a. Mitigation payments to entities impacted by Watts Bar construction activities.
b. Mitigation payments to Hardin County are due to construction activities at Yellow Creek project located in Tishomingo County, Mississippi.
c. Mitigation payments to entities impacted by Phipps Bend construction activities.
d. Mitigation payments to entities impacted by Hartsville construction activities.
e. First year of the three year phase out of the mitigation payments due to the cancellation of Hartsville and Phipps Bend nuclear projects.

Entity	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
MCMINN a	$97,067	$123,022	$129,689	$141,817	$158,444	$187,185	$183,391	$189,013	$198,153	$195,472
Athens	$28,157	$35,698	$37,633	$41,152	$45,977	$54,317	$53,216	$55,028	$56,534	$58,577
Calhoun	$1,368	$1,733	$1,827	$1,998	$2,232	$2,637	$2,594	$2,663	$2,581	$2,540
Englewood	$4,265	$5,405	$5,698	$6,231	$6,962	$8,224	$8,058	$8,305	$7,532	$7,414
Etowah	$9,218	$11,683	$12,316	$13,468	$15,047	$17,776	$17,416	$17,950	$17,836	$17,556
Niota	$1,773	$2,324	$2,449	$2,679	$2,993	$3,536	$3,464	$3,710	$3,923	$3,861
MACON d	$51,696	$57,659	$45,749	$46,918	$35,189	$23,459 a	$11,730	$0	$0	$0
Lafayette	$12,539	$13,985	$11,096	$11,380	$8,535	$5,690	$2,845	$0	$0	$0
Red Boiling Spg	$3,862	$4,308	$3,418	$3,505	$2,629	$1,753	$876	$0	$0	$0
MEIGS a	$122,254	$155,020	$163,421	$178,703	$199,654	$231,548	$226,854	$234,080	$245,042	$244,068
Decatur	$19,594	$24,846	$26,192	$28,641	$32,000	$42,128	$41,274	$42,589	$41,516	$41,352
MONROE a	$107,560	$134,511	$141,801	$155,061	$173,241	$204,666	$200,518	$206,905	$217,765	$217,243
Madisonville	$10,883	$13,610	$14,348	$15,690	$17,529	$20,709	$20,289	$20,936	$21,626	$21,432
Sweetwater	$18,810	$24,887	$26,236	$28,689	$32,053	$37,867	$37,099	$38,281	$36,122	$35,798
Tellico Plains	$2,616	$4,382	$4,620	$5,051	$5,644	$6,668	$6,533	$6,741	$6,125	$6,070
Vonore	$1,979	$2,475	$2,609	$2,853	$3,187	$3,765	$3,689	$3,806	$4,920	$4,876
RHEA a	$101,984	$128,015	$134,952	$149,629	$167,172	$197,496	$191,870	$195,848	$206,067	$206,010
Dayton	$25,518	$33,843	$35,677	$35,415	$39,567	$46,744	$47,661	$51,631	$50,137	$49,478
Graysville	$5,807	$7,289	$7,685	$8,520	$9,519	$11,246	$10,926	$11,152	$11,741	$11,577
Spring City	$8,538	$10,718	$11,299	$13,781	$15,396	$18,189	$17,671	$18,037	$18,614	$18,354
ROANE a	$97,487	$123,275	$130,103	$141,825	$158,453	$186,982	$182,864	$188,689	$199,218	$198,848
Harriman	$16,715	$21,137	$22,308	$24,965	$27,892	$32,913	$32,668	$33,709	$30,030	$29,974
Kingston	$8,940	$11,799	$12,453	$13,575	$15,166	$17,897	$17,503	$18,060	$19,202	$19,166
Oak Ridge	$4,755	$6,013	$6,346	$6,918	$7,729	$9,120	$8,919	$9,204	$10,575	$10,556
Oliver Springs	$2,164	$2,737	$2,888	$3,148	$3,518	$4,464	$4,365	$4,504	$4,130	$4,122
Rockwood	$11,787	$14,905	$15,516	$16,914	$18,897	$22,299	$21,808	$22,502	$23,403	$22,753
SMITH d	$51,500	$50,022	$96,907	$99,383	$74,537 e	$49,692	$24,846	$0	$0	$0
Carthage	$9,214	$8,949	$17,337	$17,780	$13,335	$8,890	$4,445	$0	$0	$0
Gordonville	$3,079	$2,991	$5,794	$5,942	$4,457	$2,971	$1,486	$0	$0	$0
South Carthage	$3,462	$3,363	$6,516	$6,681	$5,011	$3,340	$1,670	$0	$0	$0
SULLIVAN c	$6,164	$9,494	$7,068	$7,249	$5,437 e	$3,624	$1,812	$0	$0	$0
Bluff City	$48	$74	$55	$56	$42	$28	$14	$0	$0	$0
Bristol	$1,027	$1,582	$1,178	$1,208	$906	$604	$302	$0	$0	$0
Kingsport	$1,314	$2,024	$1,507	$1,545	$1,159	$773	$386	$0	$0	$0
SUMNER d	$24,953	$27,789	$28,589	$29,319	$21,989 e	$14,660	$7,330	$0	$0	$0
Gallatin	$5,000	$5,568	$5,729	$5,875	$4,406	$2,938	$1,469	$0	$0	$0
Goodlettsville	$565	$629	$647	$664	$498	$332	$166	$0	$0	$0
Hendersonville	$7,797	$8,683	$8,932	$9,161	$6,871	$4,580	$2,290	$0	$0	$0
Millersville	$412	$520	$535	$549	$412	$274	$137	$0	$0	$0
MitchelMille	$61	$68	$70	$71	$54	$36	$18	$0	$0	$0
Portland	$1,172	$1,305	$1,343	$1,377	$1,033	$689	$344	$0	$0	$0
Westmoreland	$510	$568	$585	$599	$449	$300	$150	$0	$0	$0
White House	$317	$353	$364	$373	$280	$186	$94	$0	$0	$0

TENNESSEE VALLEY AUTHORITY
Impact Payments
To Designated Entities
Fiscal Years' 1984–1993

Entity		FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
BRADLEY	a	$55,263	$67,950	$116,672	$147,075	$164,318	$191,678	$185,207	$190,894	$201,486	$200,685
Charleston		$619	$760	$1,306	$1,646	$1,839	$2,145	$2,081	$2,145	$1,785	$1,778
Cleveland		$21,805	$26,811	$46,505	$58,623	$65,497	$79,853	$80,839	$83,630	$83,287	$82,956
HAMILTON	a	$65,920	$91,048	$105,938	$115,845	$129,461	$152,945	$149,444	$154,204	$164,835	$164,058
Chattanooga		$38,885	$53,706	$62,489	$68,333	$76,294	$90,134	$88,070	$90,876	$88,016	$87,601
Collegedale		$1,055	$1,458	$1,696	$1,855	$2,074	$2,450	$2,394	$2,470	$2,914	$2,900
East Ridge		$4,865	$6,720	$7,818	$8,550	$9,558	$11,292	$11,033	$11,385	$12,181	$12,123
Lakesite		$149	$206	$240	$262	$293	$346	$338	$349	$473	$471
Lookout Mt		$432	$597	$694	$759	$849	$1,003	$980	$1,011	$1,097	$1,092
Red Bank		$3,008	$4,154	$4,834	$5,286	$5,909	$6,981	$6,821	$7,038	$7,113	$7,076
Ridgeside		$96	$132	$153	$168	$188	$222	$217	$224	$231	$230
Signal Mountain		$1,333	$1,841	$2,142	$2,342	$2,619	$3,094	$3,741	$3,860	$4,061	$4,256
Soddy–Daisy		$1,948	$2,691	$3,131	$3,424	$3,828	$4,522	$4,419	$4,559	$4,757	$4,735
Walden		$296	$409	$476	$521	$582	$687	$672	$693	$879	$875
HARDIN	b	$9,787	$0	$0	$0	$0	$0	$0	$0	$0	$0
Milledgeville		$39	$0	$0	$0	$0	$0	$0	$0	$0	$0
Saltillo		$191	$0	$0	$0	$0	$0	$0	$0	$0	$0
Savannah		$3,071	$0	$0	$0	$0	$0	$0	$0	$0	$0
HAWKINS	c	$24,925	$35,360	$25,651	$26,307	$19,730 e	$13,153	$6,577	$0	$0	$0
Bulls Gap		$468	$664	$481	$494	$370	$247	$123	$0	$0	$0
Church Hill		$2,355	$3,341	$2,424	$2,486	$1,864	$1,243	$621	$0	$0	$0
Kingsport		$763	$1,083	$786	$806	$604	$403	$201	$0	$0	$0
Mount Carmel		$2,174	$3,084	$2,278	$2,336	$1,752	$1,168	$584	$0	$0	$0
Rogersville		$2,488	$3,530	$2,561	$2,626	$1,970	$1,313	$657	$0	$0	$0
Surgoinsville		$875	$1,241	$914	$937	$703	$469	$234	$0	$0	$0
LOUDON	a	$87,218	$126,160	$138,141	$150,582	$168,066	$198,553	$194,010	$200,190	$210,540	$208,420
Greenback		$1,668	$2,412	$2,641	$3,533	$3,944	$4,659	$4,552	$4,698	$4,372	$4,328
Lenoir City		$17,439	$24,050	$26,333	$28,705	$32,038	$37,850	$37,392	$38,582	$41,407	$40,990
Loudon		$12,383	$17,912	$20,044	$21,849	$24,622	$29,088	$28,728	$29,643	$27,120	$28,594
Philadelphia		$1,549	$2,240	$2,453	$2,674	$2,984	$3,526	$3,445	$3,555	$3,119	$3,087

§ 67-2402; Acts 1981, ch. 22, § 1; T.C.A., § 67-24-102; Acts 1987, ch. 186, § 1.]

Section to Section References. This section is referred to in § 9-6-301.

Collateral References. Self-dealing by developer of condominium project as affecting contracts or leases with condominium association. 73 A.L.R.3d 613.

67-9-103. Distribution of payments. — (a) Upon receipt of any payments in lieu of taxes by the Tennessee valley authority, the comptroller of the treasury shall be notified.

(b) The comptroller shall determine, in accordance with the provisions of this part, the payments to local governments and shall direct the commissioner of finance and administration to make such payments. [Acts 1947, ch. 31, § 3; C. Supp. 1950, § 1540.4 (Williams, § 1811.34); impl. am. Acts 1959, ch. 9, § 3; impl. am. Acts 1961, ch. 97, § 3; 1977, ch. 181, § 1; 1981, ch. 22, § 2; T.C.A. (orig. ed.), §§ 67-2403, 67-24-103.]

(C) Ten percent (10%) of the available amount shall be paid to each county containing land owned by the Tennessee valley authority in accordance with the percentage that Tennessee valley authority owned land in that county bears to all Tennessee valley authority owned land in Tennessee; and

(D) Thirty percent (30%) of the available amount shall be paid to incorporated municipalities in accordance with the percentage that the population of that municipality bears to the population of all incorporated municipalities in Tennessee.

(2) Each local government shall receive in such payments an amount not less than the amount of such funds received by such local government from the state during the fiscal year preceding July 1, 1978, as a portion of the Tennessee valley authority payment in lieu of taxes to the state.

(b)(1) The comptroller of the treasury shall allocate the funds apportioned by § 67-9-101(a)(3) among the counties and municipalities, lying wholly or in part, within the impacted local governing areas designated by the Tennessee valley authority; provided, that the total amount allocated, pursuant to this subsection, to any county and the municipalities within such county shall not exceed ten percent (10%) of the total impact funds apportioned by § 67-9-101(a)(3), and provided further, that the weighted population formula presently being used for allocation among counties and municipalities of those funds apportioned by § 67-9-101(a)(3), shall be continued. If, in any fiscal year, there are no impacted areas, the funds apportioned by § 67-9-101(a)(3), shall be distributed in the same manner as the funds in subsection (a).

(2) Such payments to impacted areas shall be made during the period of construction activity and, based on the last year of entitlement according to § 67-9-101(a)(3), for a period of three (3) full fiscal years after completion or cessation of such construction activity. Provided, however, that such payments shall be phased out over the three-year period by decreasing the payment made in the last year of activity by an additional twenty-five percent (25%) each year, being seventy-five percent (75%) during the first year after the last year of entitlement, fifty percent (50%) during the second year after the last year of entitlement, and twenty-five percent (25%) during the third year after the last year of entitlement. Any remaining funds apportioned by § 67-9-101(a)(3) in any fiscal year, not to exceed ten percent (10%) of the total of such impact funds, shall be allocated by the comptroller of the treasury to the University of Tennessee for use in operating the county technical assistance service in its institute for public service. Such funds shall be used for studies and research in county government, publications, education, consultative and field services to counties in problems relating to fiscal administration, accounting, tax assessment and collection, economic development, environmental concerns, conservation, improvements and public works, and in any and all matters relating to county governments. If, in any fiscal year, the total amount of funds allocated is less than the total amount of funds available, any remaining funds shall be distributed in the same manner as the funds in subsection (a). [Acts 1947, ch. 31, § 2; C. Supp. 1950, § 1540.3 (Williams, § 1811.33); Acts 1972, ch. 758, § 1; 1977, ch. 181, § 1; T.C.A. (orig. ed.)

CHAPTER 9

PAYMENTS IN LIEU OF TAXES

SECTION.

PART 1—TENNESSEE VALLEY AUTHORITY

67-9-101. Basis of apportionment.
67-9-102. Proration of payments to counties and municipalities — Eligibility of impacted areas — Phasing out of payments.
67-9-103. Distribution of payments.

PART 1—TENNESSEE VALLEY AUTHORITY

(TENNESSEE STATE REVENUE SHARING ACT)

67-9-101. Basis of apportionment. — (a) Any increase in the payments received by the state from the Tennessee valley authority in lieu of taxes under section thirteen (13) of the act of congress creating the authority, as amended, above the payments received in the fiscal year 1977-1978 shall be apportioned between the state and local governments in the following manner:

(1) Forty-eight and one-half percent (48.5%) shall be paid to or retained by the state of Tennessee;

(2) Forty-eight and one-half percent (48.5%) shall be paid to the counties and municipalities of Tennessee as hereinafter provided; and

(3) Three percent (3%) shall be paid to impacted local governing areas which are experiencing Tennessee valley authority construction activity on facilities to produce electric power. Such impacted areas shall be designated by the Tennessee valley authority. Such payments to impacted areas shall be made during the period of construction activity and for one (1) full fiscal year after completion of such activity.

(b) The state's share of such funds shall not be less than the amount of such funds received by it during the fiscal year preceding July 1, 1978. [Acts 1947, ch. 31, § 1; mod. C. Supp. 1950, § 1540.2 (Williams, § 1811.32); Acts 1977, ch. 181, § 1; T.C.A. (orig. ed.), §§ 67-2401, 67-24-101.]

Compiler's Notes. House Joint Resolution 440 of the 94th General Assembly provided that this part shall be known and may be cited as the "Tennessee State Revenue Sharing Act."

The act creating the Tennessee valley authority, referred to in this section, is found in ch. 32, 48 Stat. 58 (1933) (codified at 16 U.S.C. §§ 831 — 831dd).

Cross-References. Peace officers for Tennessee valley authority, § 38-3-120.

Section to Section References. This chapter is referred to in § 4-31-105.

This section is referred to in §§ 9-6-301, 67-9-102.

Comparative Legislation. Payments in lieu of taxes:

Ala. Code § 40-28-1 et seq.
Ga. O.C.G.A. § 48-14-1 et seq.
Miss. Code Ann. § 27-37-1 et seq.
N.C. Gen. Stat. § 105.458 et seq.
Va. Code § 58.1-3400 et seq.

Cited: Oak Ridge City Schools v. Anderson County, 677 S.W.2d 468 (Tenn. Ct. App. 1984).

67-9-102. Proration of payments to counties and municipalities — Eligibility of impacted areas — Phasing out of payments. — (a)(1) Payments provided in § 67-9-101(a)(2) shall be made in accordance with the following formula:

(A) Thirty percent (30%) of the available amount shall be paid to counties in accordance with the percentage that the population of each county bears to the total state population;

(B) Thirty percent (30%) of the available amount shall be paid to counties in accordance with the percentage that the total acreage of each county bears to the total acreage of the state;

eligible impacted in FY 1984), the ratio of the number of TVA employees to the population of the county was an important factor. For example, Meigs County, whose population was 7,431 in 1984 with 254 TVA construction employees residing in the county, received a 10 percent share; whereas Hamilton county, with 1,048 TVA construction employees and a population of 287,740, received only an 8 percent share.