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 FACIL:50-438 Bellefonte Nuclear Plant, Unit 1, Tennessee Valley Au 05000438  
 50-439 Bellefonte Nuclear Plant, Unit 2, Tennessee Valley Au 05000439  
 AUTH.NAME AUTHOR AFFILIATION  
 SCHMIERBACH,M. Tennessee Valley Authority  
 RECIP.NAME RECIPIENT AFFILIATION  
 HORN,C. Alabama, State of

SUBJECT: Informs of decision to defer const at plant indefinitely.  
 Two hundred persons retained for maint.

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TENNESSEE VALLEY AUTHORITY

KNOXVILLE, TENNESSEE 37902

SEP 07 1988

Mr. Charles Horn, Chief  
Water Division  
Alabama Department of Environmental  
Management  
1751 Federal Drive  
Montgomery, Alabama 36130

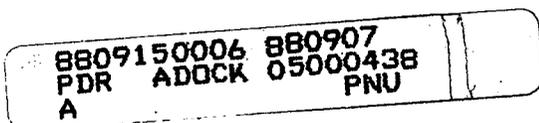
Attention: Ms. Treena G. Piznar

Dear Mr. Horn:

BELLEFONTE NUCLEAR PLANT (BLN) - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. AL0024635 - PROPOSED CHANGES

This is in followup to the July 21 teleconference between Madonna E. Martin and F. A. (Drew) Miller, Tennessee Valley Authority (TVA) and Treena G. Piznar, Alabama Department of Environmental Management (ADEM) regarding proposed changes to the NPDES permit for BLN. TVA has decided to defer construction at BLN indefinitely. A work force of only 200 persons will be maintained to perform essential maintenance and environmental activities. In accordance with Parts I B.7. and II D. of the NPDES permit, the changes outlined in Enclosure 1 are requested. We would like to implement these changes starting October 1.

In accordance with the April 19 letter from Ralph H. Brooks to Ms. Piznar, an engineering report for the modification of the sump collection ponds is to be submitted to you by October 17. Since construction of BLN has been deferred, funding for the modifications to the ponds is currently not identified in the budget for fiscal year 1989. We request that the wastewater generated during the time that construction is deferred be permitted to go to the desilting basin instead of the sump collection pond. The desilting basin was described in the engineering report submitted to Ms. Piznar January 22, 1988. A comparison of the design basis for the desilting basin with ADEM's engineering requirements for impoundments is given in Enclosure 2. If this alternate flow path is allowed, the use of the north sump collection pond (south sump pond was taken out of service in December 1987) would be discontinued and the engineering report for the modifications would not be submitted until construction resumes.



*Pool  
1/4*

Mr. Charles Horn

SEP 07 1988

Five wastewater sources have been identified since submittal of the last permit application. A description of these is given in Enclosure 3. These are minor sources and should not affect the effluent limitations or monitoring requirements specified in the existing permit.

If your staff has any questions regarding these proposed changes, please have them call Abraham H. Loudermilk at (615) 632-6714 in Knoxville, Tennessee.

Sincerely,

  
M. Paul Schmierbach, Manager  
Environmental Quality

Enclosures

cc (Enclosures):

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

ENCLOSURE 1  
PROPOSED CHANGES TO NPDES PERMIT FOR BELLEFONTE NUCLEAR PLANT

The Tennessee Valley Authority has decided to defer construction of Bellefonte Nuclear Plant (BLN) indefinitely. In accordance with Parts I B. 7. and II. D. of the NPDES permit the following changes are proposed until construction resumes.

1. Discharge Serial Number (DSN) 001, Construction sewage treatment plant--The buildings served by this system will be closed and the potable water system will be shut off. The sewage treatment plant will be taken out of service and will not have a discharge. The permit page for this discharge should be kept. A report of system out of service and no discharge should be made with the DMR. (See Attachment 1 for a proposed reporting page to be used to reduce paper work.)
2. DSN 001A, Phosphate waste treatment pond--The permit page for this discharge should be kept and a report of system out of service; no discharge made using Attachment 1.
3. DSN 001B, Chemical treatment pond--No change.
4. DSN 002, Construction holding pond--There will not be any active construction which will contribute sediment to this pond; therefore, the permit should be modified to eliminate effluent limitations and monitoring requirements for this discharge. The pond should remain as is.
5. DSN 002A and B, Construction concrete uses holding ponds--The concrete batch plant is to be dismantled and sold. The holding ponds are to be backfilled and revegetated. The permit should be modified to eliminate these discharge points.
6. DSN 003, Diffuser discharge--No change. Monitoring requirements for this DSN will continue to be met by sampling those discharges that make up the diffuser discharge.
7. DSN 003A, Makeup demineralizer regeneration wastes--The permit page for this discharge should be kept and a report of system out of service; no discharge made using Attachment 1.
8. DSN 003B, Operational sewage treatment plant--The site population will be reduced to about 200 persons. These people will be housed in those buildings served by this treatment plant. This system has a design capacity of 36,000 gallons per day (gpd) and the inflow to the system is expected to be 5,000 gpd (200 person at 25 gpd per person) or less. The monitoring frequency for flow and pH should be reduced to once per two weeks to correspond to the sampling frequency for total suspended solids and biochemical oxygen demand.

9. DSN 003C, Cooling tower desilting basin--It is proposed to use this pond in place of repairing the sump collection pond. See Enclosure 2. If the use of the desilting basin is permitted as proposed, then the effluent limitations and monitoring requirements for the sump collection ponds should apply to the desilting basin.
10. DSN 003D, Cooling tower blowdown--No change.
11. DSN 003E, Liquid radwaste and 003F, Condensate demineralizer regeneration waste--The permit page for these discharges should be kept and a report of system out of service, no discharge made using attachment 1.
12. DSN 003G, Sump collection ponds--A commitment was made in an April 19 letter to ADEM to upgrade the sump collection ponds by installing a liner. A proposal is being made to use the desilting basin in place of repairing the sump collection pond at this time. See Enclosure 2. An engineering report for upgrading the sump collection pond to meet ADEM requirements will be submitted when construction at BLN resumes. If use of the desilting basin is permitted, then the permit page for DSN 003G should be kept and a report of system out of service, no discharge made using Attachment 1.
13. DSN 004, East culvert impoundment--There will not be any active construction which will contribute sediment to this pond; therefore, the permit should be modified to eliminate effluent limitations and monitoring requirements for this discharge. The pond should remain as is.
14. DSN 005, Plant intake trash sluice--The essential raw cooling water (ERCW) system is out of service. The permit page for this discharge should be kept and a report of system out of service; no discharge made using Attachment 1.
15. DSN 006, Plant intake--There are three raw water intake systems: ERCW, raw service water (RSW), and construction fire protection. The ERCW system is out of service and the RSW and construction fire protection systems are in service. The intent of the permit was that the monitoring requirements for DSN 006 be applicable only to the ERCW system. The permit should be modified to clarify this. The permit page for this discharge should be kept and a report of system out of service; no discharge made using Attachment 1.

ATTACHMENT 1 OF ENCLOSURE 1

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
DISCHARGE MONITORING REPORT  
Tennessee Valley Authority  
BELLEFONTE NUCLEAR PLANT  
Hollywood, Alabama 35752

MONTH \_\_\_\_\_

NPDES # AL0024635

DSN 001	Construction Sewage Treatment Plant	System was out of service; no discharge during the month.
DSN 001A	Phosphate Waste Treatment Pond	System was out of service; no discharge during the month.
DSN 003A	Makeup Demineralizer Regeneration wastes	System was out of service; no discharge during the month.
DSN 003E	Liquid Rad Waste	System was out of service; no discharge during the month.
DSN 003F	Condensate Demineralizer Regeneration Wastes	System was out of service; no discharge during the month.
DSN 003G	Sump Collection Ponds	System was out of service; no discharge during the month.
DSN 005	Plant Intake Sluice to the Tennessee River	System was out of service; no discharge during the month.
DSN 006	Plant Intake	System was out of service; no discharge during the month.

ENCLOSURE 2  
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
ENGINEERING REQUIREMENTS FOR IMPOUNDMENTS  
BELLEFONTE NUCLEAR PLANT  
COOLING TOWER DESILTING BASIN

A commitment was made to upgrade the sump collection ponds by installing a liner. Both ponds have in the past developed leaks which resulted in a discharge to groundwater. Currently the south pond is out of service and is not to be returned to service until it is upgraded. An engineering report is due to the Alabama Department of Environmental Management (ADEM) by October 17. Since construction of BLN has been deferred, funding for the modifications to the ponds is currently not identified in the budget for fiscal year 1989. The Tennessee Valley Authority is requesting that the wastewater generated during the time that construction is deferred be permitted to go to the desilting basin instead of the sump collection pond. If this alternate flow path is allowed, the use of the north sump collection pond would be discontinued and the engineering report for the modifications would not be submitted until construction resumes. The desilting basin was described in an engineering report submitted to ADEM January 22, 1988. The following is a comparison of the design of the cooling tower desilting basin with the ADEM's engineering requirements for impoundments.

REQUIREMENT - Crest Elevation above 100 year Flood Elevation.

PROVIDED - 100 year Flood Elevation is 601, the desilting pond top of the dike elevation is 618.

REQUIREMENT - Areas prone to sinkhole development should be avoided.

PROVIDED - The desilting pond is located in an area onsite that should not be prone to sinkhole development, as noted by TVA's pond evaluation submitted to ADEM on January 22.

REQUIREMENT - Three feet freeboard should be provided.

PROVIDED - One foot of freeboard is provided.

REQUIREMENT - Dike width should be engineered to be compatible with side slopes, height, and soil type.

PROVIDED - The dikes were engineered for stability.

REQUIREMENT - Riprap should be provided for protection of compacted clay liner.

PROVIDED - Riprap is provided for protection of dikes' interior.

- REQUIREMENT - Measures to prevent cracking and loss of integrity of earthen liners should be provided.
- PROVIDED - Riprap will minimize cracking and loss of integrity of the compacted clay liner. Approximately 1 foot of water is maintained in the bottom of the desilting pond at all times.
- REQUIREMENT - Dike slopes should be no steeper than 3:1.
- PROVIDED - The desilting ponds conform with this requirement.
- REQUIREMENT - Impoundment bottom should be above the high high groundwater level.
- PROVIDED - The high high groundwater level in the area of the desilting pond is at elevation 610. The bottom of the pond is elevation 609.
- REQUIREMENT - Minimum compacted clay liner thickness is two feet.
- PROVIDED - The compacted clay is 1.5 feet.
- REQUIREMENT - Compacted clay liners should have 95-percent Proctor Density and a Constant Head Permeability less than or equal to 10 cm/sec.
- PROVIDED - Density or permeability data is not available.
- REQUIREMENT - Earthen dikes should have some type of cover to prevent erosion.
- PROVIDED - Crushed stone and grass have been placed on the exposed outer dikes.
- REQUIREMENT - Runoff should be excluded from the pond unless runoff volume is specifically considered in the pond's design.
- PROVIDED - Surface runoff is directed away from the desilting pond.
- REQUIREMENT - Influent flow should be controllable and measurable.
- PROVIDED - Influent to the desilting pond will be that normally routed to the sump collection pond. Influent will consist of low volume wastes from various sumps and building floor drains. These influents are controlled through operation of pumps and manual flushing operations. Some leakage from the fire protection system may also go to the desilting basin.
- REQUIREMENT - Where leak detection, collection and removal systems are required, underdrain systems are recommended in lieu of wells.
- PROVIDED - Leak detection, collection or removal systems are not provided due to the relatively inert material handled (i.e. inert silt).

REQUIREMENT - Synthetic liner guidelines for installation.

PROVIDED - A synthetic liner is not utilized for the desilting basin.

REQUIREMENT - Hazardous waste regulations should be considered in design and construction of ponds.

PROVIDED - The desilting basin is not intended for the collection or storage of hazardous wastes.

REQUIREMENT - Ponds in noncontrolled access areas should be fenced.

PROVIDED - The desilting pond is located on the Bellefonte Nuclear Plant site which is a controlled access area.

ENCLOSURE 3  
WASTEWATER SOURCES IDENTIFIED SINCE SUBMITTAL  
OF SEPTEMBER 2, 1986, NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM (NPDES) PERMIT RENEWAL APPLICATION  
AUGUST 1988

The following wastewater sources have been identified since submittal of the NPDES permit renewal application dated September 2, 1986. These are minor sources and should not affect the effluent limitations or monitoring requirements specified in the existing permit.

1. Current and planned surveillance testing operation of the diesel fire pumps is conducted weekly by taking pump suction from the unit 1 cooling tower basin and discharging through the yard drainage pond to the construction holding pond (DSN 002). Makeup to the basin is with the raw service water which is chlorinated when intake river temperature is greater than 62 degrees F. Table 1 shows the typical total residual chlorine (TRC) concentrations in the cooling tower basin. The estimated flow during testing of these fire pumps is 300,000 gallons per week (2500 gallons per minute per pump X 30 minutes per test X 4 pumps X 1 test per week). The estimated volume of the yard pond is 13 million gallons. As the result of aeration during testing of the pumps, mixing in the yard pond and chlorine decay in the yard pond, there should be no detectable (less than 0.05 milligrams per liter) TRC in the yard pond discharge.
2. The paint shop located in the office and service building maintenance area contains a paint spray booth that uses a water curtain to reduce air emissions. If placed into service, the wastewater generated will need to be disposed of periodically. The actual quantity and frequency of disposal cannot be predicted. The wastewater will be sampled to determine if it should be classified as a hazardous waste. If it is not hazardous, then it will be released to the turbine building sump, which in turn goes to the sump collection pond (or to desilting basin if proposed rerouting described in Enclosure 2 is allowed). If hazardous, it will be handled accordingly.
3. Two washing machines are currently operated twice per day to clean coveralls, rags, and mops. A nonphosphate detergent (Tide) is used in the washers. The wash water is released to the turbine building floor drain system, which drains to the turbine building sump, then to the sump collection ponds. The use of these machines will probably decrease since construction has been deferred.
4. The containment area around the diesel fuel storage tanks is valved such that rain water that accumulates in the containment area can be released to the yard drainage system, which in turn goes to the yard pond. The water will be inspected prior to release, and will not be released if there is evidence of contamination.

A crushed stone drainage blanket is to be constructed under the concrete containment area. The purpose of this underdrain system is to divert groundwater from beneath the concrete containment area to the yard drainage system. This drainage should be of groundwater quality.

5. A cooling tower is being installed on the hot shop and decontamination building roof. This unit will supply evaporative cooling to the system chillers and control air compressors in the nonessential areas of the control building. This function had been performed using the essential raw cooling water system. The cooling tower will use recirculated potable water and will employ a continuous blowdown of approximately 5 gallons per minute. The unit is scheduled to be flushed once per month generating an estimated 1000 gallons. The blowdown and flush water will be routed to the auxiliary building sump (passive sump) which in turn goes to the sump collection pond (or desilting basin if proposed rerouting is permitted). Any chemical treatment of the potable water recirculated through the cooling system that might be required has not been determined at this time.

TABLE 1 OF ENCLOSURE 3  
 TYPICAL TOTAL RESIDUAL CHLORINE CONCENTRATION IN THE COOLING TOWER BASIN  
 BELLEFONTE NUCLEAR PLANT<sup>1</sup>.

		<u>Total Residual Chlorine (mg/L)</u>				
<u>DATE 1988</u>	<u>TIME</u>	<u>Cooling Tower Basin</u>				
		<u>INLET</u>	<u>FLUME</u>	<u>WEIR</u>		
JULY	5	0830	< 0.05	< 0.05	< 0.05	
	6	0745	0.07	< 0.05	< 0.05	
	7	0800	0.09	< 0.05	< 0.05	
	8	0800	< 0.05	< 0.05	< 0.05	
	11	0800	< 0.05	< 0.05	< 0.05	
	12	0745	< 0.05	< 0.05	< 0.05	
	13	0830	< 0.05	< 0.05	< 0.05	
	14	0815	< 0.05	< 0.05	< 0.05	
	15	0830	< 0.05	< 0.05	< 0.05	
	18	0830	< 0.05	< 0.05	< 0.05	
	19	0745	< 0.05	< 0.05	< 0.05	
	20	0730	< 0.05	< 0.05	< 0.05	
	21	0745	3.16	2.18	2.55	
	22	0745	1.68	1.53	1.70	
	25	0800	3.40	2.68	2.80	
	26	0800	3.52	2.76	3.13	
	27	0745	2.76	2.73	2.58	
	28	0745	3.47	3.25	3.29	
	29	0745	3.96	3.73	3.80	
	AUGUST	1	0830	0.83	0.79	0.80
		2	0800	0.52	0.44	0.43
		3	0815	0.88	0.82	0.94
		4	0800	0.97	0.71	0.78
		5	0815	0.18	0.12	0.09
		8	0930	< 0.05	< 0.05	< 0.05
9		0815	< 0.05	< 0.05	< 0.05	
10		0800	< 0.05	< 0.05	< 0.05	
11		0745	< 0.05	< 0.05	< 0.05	
12		0745	< 0.05	< 0.05	< 0.05	
15		0800	< 0.05	< 0.05	< 0.05	
16		0745	< 0.05	< 0.05	< 0.05	
17		0830	< 0.05	< 0.05	< 0.05	
18		0800	< 0.05	< 0.05	< 0.05	
19		0815	< 0.05	< 0.05	< 0.05	
22		0800	< 0.05	< 0.05	< 0.05	
23		0800	< 0.05	< 0.05	< 0.05	
24		0700	< 0.05	< 0.05	< 0.05	
25		0745	< 0.05	< 0.05	< 0.05	
26		0745	5.70	5.33	7.46	

1. Samples are collected from the basin of the tower. Discharge of this water does not occur except during testing of the fire protection system.