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OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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Electricity—Yes!

Docket No. 52-014-COL and 52-015-COL

Tritium—No!

It is with very deep concern for the people of Scottsboro and Jackson County regarding the possibility of the tritium production that I address this issue. Most of the people of Jackson County have heard only one side, "that there will be more jobs created." There are some facts and questions that need to be explored before we can consider producing tritium.

The House of Representatives in Washington, D.C., has restated the law that commercial reactors like Bellefonte cannot be used to produce radioactive tritium for nuclear warheads. (The Senate has to vote on the issue.) The mayors and public officials of Jackson County are not happy with that decision, but it is a blessing in disguise. Bellefonte should be used to produce electricity by means of natural gas; it is much safer for the people of Jackson County. Probably as many if not more jobs would permanently be created. Also, our most precious assets, the people of Scottsboro and Jackson County, especially the children, should be able to face the future without the possibility of harmful exposure to radiation, pollutants, and contaminated water due to unforeseen accidents.

1. Tritium—what is it? It is radioactive and has a half-life of 12.3 years which means it is radioactive for 12.3 years and more.
2. Due to current laws, commercial reactors cannot produce tritium in nuclear warheads.
3. Watts Bar and Bellefonte were not designed to produce tritium. Also, mixed fuel like plutonium plus another fuel has not been used in the commercial reactor before. The half-life of plutonium is 24,000 years. (A bit of information, uranium 235's half life is 700 million years.)
4. The life of a nuclear facility is supposed to be 40 years, but 20 plus years is more like it. Bellefonte has been in existence and dormant for 20 plus years and not operating.
5. Trucks carrying radioactive material would be on the highways throughout the county.
6. We could be subject to terrorism because we have signed treaties with other countries to not produce war material in commercial reactors. Why should the United States government with DOE break an international treaty and help bail out TVA financially?
7. Tritium is extremely dangerous in water and can assimilate into it very easily since it is part of the hydrogen family. Our water supply could be affected with the radioactive tritium. Since our bodies are made up of 70% water, the tritiated water (water with tritium) would enter a cell in our body and as a result a form of cancer would be produced. In fetuses, it could change the DNA causing mutations and producing abnormal babies. Down's Syndrome is an example. It is not a published figure, but people with long-term exposure like working 10 years or more with tritium develop leukemia.
8. People who have been associated with the production of tritium would not live downstream from the plant.
9. Tritium in the water would affect the fish, aquatic life, the waterfowl, the wildlife, and their offspring.

- a. The Savannah River Project had a leak in 1988, and the radioactive tritium got into the Augusta, Georgia, water supply and the radioactive tritium traveled 124 miles downstream to Savannah, Georgia, and killed all the fish in the fish hatcheries.
  - b. Deerfield River Valley Project (Western Massachusetts) for 31 years had been a dumping ground for low-level radioactive waste. During the 1960s and early 1970s, Yankee R.O.E. had problems with fuel rods and dumped large amounts of tritium into the river. During the time of operation, the estimated concentrations of tritium were 1000 times greater than outside the valley. The citizens would fish, swim, and go boating in the river unaware that the river was radioactive. The increase in disease was noted in the 1980s and throughout the 1990s like Down's Syndrome and chromosomally-damaged children. There was a 50% increase in five different cancers, a 40% increase in heart disease, and a 100% increase in infectious disease leading to mortality, plus an increase in miscarriages and mental retardation. Do we want this?
  - c. Brookhaven National Lab, Long Island, New York—The plant was shut down January 16, 1977, because of a leak of radioactive tritium into the ground water. Test results showed levels of radioactive groundwater that are 11 times the U.S. Environmental Protection Agency's safe drinking water standard. The plant is still shut down, and I do not know if the leak has been found.
10. The Tennessee River and the water supply would need to be monitored for radioactive tritium, and who would do it?
  11. Nuclear or radioactive waste would have to be hauled away and to where? If not and if it stays on location, it can get into the ground water.
  12. The steel rods filled with lithium would be filled at the Savannah River project and would be transported to Bellefonte plant approximately 302 miles, and then when the radioactive tritium was produced in them, the rods would have to be transported back to the Savannah River project.
  13. Bellefonte has an area of approximately two plus square miles (approximately 1500 acres) while the Savannah River project has an area of 100 square miles. (Yes, 100 square miles.)
  14. The DOE (Department of Energy) and TVA's track record for completion of projects is not that great.
    - a. Even though the TVA has done some wonderful things for the Tennessee Valley, they have not completed Bellefonte, and we still have the milfoil problem. TVA has been given yearly 70 to 77 million dollars for their non-power projects by the government (courtesy of us tax payers).
    - b. DOE has been cited for neglect in safety factors concerning nuclear warheads, and the Nuclear Regulatory Commission (NRC) has for the next several months taken over the inspection, regulation, and safety at Oak Ridge, Tennessee, rather than have DOE regulate its own nuclear safety program. Also DOE has been extremely hard on employees who have exposed flaws and safety at nuclear weapons plants and labs. The list goes on.

15. Tritium production would have a negative impact on Scottsboro and Jackson County. No one wants to be near a radioactive-producing plant—especially this day when there is a choice of jobs and location.
16. With Bellefonte producing only electricity by means of gas will have a very positive and permanent effect on the economy. Let's strive for better job availability without introducing the hazardous uncertainties mentioned above. We have so many positive attributes to offer such as our school system being tenth in the state. This means so much to parents of school-age children. Our economy is doing well, and we have a wonderful environment in which to live. We have the most beautiful unspoiled county in the state of Alabama. Where else can one go boating, fishing, climbing, hiking, canoeing, golfing, caving, etc., and enjoy the beautiful mountains and lakes?

#### COMMENTS AND OPTIONS:

1. TVA closed Bellefonte in 1988 because they said there wasn't the demand for electricity. Someone didn't do their homework very well, because they should have realized that before they started the project.
2. If it is too expensive to produce electricity, then they should cut their losses and get out.
3. Use Bellefonte as a water treatment plant or a pumping station since we are sending water to other towns.
4. Turn Bellefonte into a nuclear-type museum and restore the historical buildings in Bellefonte and make the remaining acreage into a wildlife preserve.
5. Sell the real estate in 5-, 10-, 20-acre (or more) lots or mini farms, and turn the building into a club house with swimming, tennis, etc.

6. *Make into an industrial Park or High Tech Park.*

Having worked with radioactive material doing research at a leading medical school, I needed to learn more about tritium. I only felt it was fair to share with the people of Jackson County the knowledge and facts I have learned about tritium.

Let's keep Scottsboro and Jackson County beautiful and non-radioactive.

Liz Bennett

*June 10, 1998*

*This article was written for publication June 14, 1998.*

## References

1. Atomic Physics by Larkin Kerwin
2. Concerning Chemistry by Gene D. Schaumberg
3. The Internet regarding tritium
4. Discussions with people who have worked in a tritium plant in Livermore, CA
5. Talked to a physicist who helped design a tritium plant
6. Heard a lecture by Stephen M. Sohinki, Director of Commercial Light Water Tritium Project office
7. Heard a lecture by Dr. Arjun Makhijani, Ph.D. in physics and head of the Institute of Energy and Environmental Research, and Consultant to DOE—Takoma Park, MD
8. Heard a lecture by Stephen Smith of the Tennessee Valley Energy and Reform—Knoxville, TN
9. *Associated Press, Washington Post, Washington times, U.S. Today, and Huntsville Times.*