UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 12 2007

The Honorable Bart Gordon
Member, United States House of Representatives
305 West Main Street
Murfreesboro, TN 37133

Dear Congressman Gordon:

Thank you for your May 21, 2007, letter concerning the Middle Point Landfill in Murfreesboro, Rutherford County, Tennessee. In your letter you expressed concern about the potential risks that certain wastes accepted at the landfill may pose to residents, neighboring property owners, workers at the site, customers of the landfill, the Stones River, and the City of Murfreesboro's drinking water and waste water treatment systems.

On Wednesday, May 30, 2007, members of my staff participated in a conference call with members of your staff and officials from the Tennessee Department of Environment and Conservation (TDEC) for the purpose of answering the questions and requests for assistance presented in your letter. Erica Antonson of your staff e-mailed several questions regarding the landfill to my staff and to TDEC officials for discussion during the conference call. In addition to providing the following responses on behalf of the Environmental Protection Agency (EPA), I am also enclosing a more detailed response from TDEC that addresses your specific questions and concerns. I hope you find this information useful.

First, as you may be aware, EPA works closely with TDEC in the implementation of environmental programs across Tennessee and we have full confidence in TDEC's administration of those programs. As the primary agency for implementation and enforcement of many federal environmental programs, TDEC has a long history of well-managed and effectively run programs. With regard to the concerns you have raised, we believe TDEC is taking appropriate steps to address residents' concerns regarding the landfill and we stand ready to assist if needed.

Subtitle D of the Resource Conservation and Recovery Act (RCRA) authorizes EPA to develop national standards for solid waste management and to ensure that states adopt and implement solid waste permit programs that are technically comparable to the federal criteria. EPA fully approved Tennessee's municipal solid waste landfill permitting program on September 16, 1993. The provisions of Subtitle D make TDEC fully responsible for permitting, enforcement and compliance, and oversight of all solid waste management facilities in Tennessee, including the landfill operated by Browning-Ferris Industries (BFI) in Rutherford County. In addition, TDEC is responsible for ensuring that drinking water sources, drinking water treatment facilities, and the waste water treatment plant that receives leachate from the landfill do not pose a threat to the health of local residents, to workers at the treatment facilities, or to the environment. EPA provides oversight to ensure that state programs are in full compliance with federal laws and regulations.

The waste you inquired about at the Middle Point Landfill is waste TDEC officials commonly refer to as Bulk Survey for Release (BSFR) waste. They informed us that the Middle Point Landfill is one of five facilities in Tennessee permitted to receive such waste for disposal. Currently, the BSFR waste comprises approximately one-tenth of one percent (0.1%) of the waste disposed at the Middle Point Landfill. According to Tennessee regulations, BSFR material must have a dose less than one millirem per year to be disposed of in a Class 1 Solid Waste landfill. In comparison, Tennesseans receive an average annual dose of 300 millirems of radiation from naturally occurring sources in the environment.

In the enclosed memorandum, TDEC officials have addressed as many of your questions as they are currently able to answer. BFI, the facility owner, has collected leachate samples to be analyzed for radioactivity and expects sample results to be received by mid-June. The leachate is being tested by an independent lab for radiological parameters required under the Safe Drinking Water Act. There is no indication that the liner and leachate collection system have failed. The City of Murfreesboro water supply is periodically sampled and analyzed for radioactivity with the results being reported to TDEC's Division of Water Supply. We understand sampling results have shown no exceedances of drinking water standards.

TDEC has committed to review the results of the analyses conducted on behalf of the owners and operators of the landfill and, as soon as possible, determine if additional sampling and data are needed. EPA will continue to coordinate with TDEC, review any new data, and assist TDEC as needed to address remaining issues.

One concern raised by your staff during the May 30 conference call was inadequate public outreach regarding the BSFR wastes being allowed into the landfill. TDEC officials stated that they are planning to conduct a public meeting soon to give interested citizens an opportunity to learn more about the Middle Point Landfill.

In closing, we believe TDEC is taking appropriate steps to address residents' concerns regarding the landfill and we stand ready to assist if needed. If you have questions or need additional information from EPA, please contact me or the Region 4 Office of Congressional and Intergovernmental Relations at 404-562-8327.

Sincerely,

J. I. Palmer, Jr.
Regional Administrator

Enclosure: Memorandum from Chuck Head to Otis Johnson dated June 4, 2007

cc: Paul Sloan, TDEC
Chuck Head, TDEC

DEPARTMENT OF ENVIRONMENT & CONSERVATION

Date: June 4, 2007

To: Otis Johnson
EPA Region 4

From: Chuck Head Chuck Head
TN Department of Environment and Conservation

Subject: Response to Questions from Rep. Bart Gordon
Disposal of Bulk Survey for Release Materials –
BFI Middle Point Landfill – Murfreesboro, TN

Please find below our response to the questions posed by Rep, Gordon to the U.S. Environmental Protection Agency. We appreciate the opportunity to provide you with this information. If you have questions or concerns, please give me a call at 615 532-0998 or contact me via e-mail @ chuck.head@state.tn.us

Introduction

The news reports on this subject have not accurately portrayed the issues. Bulk Storage for Release (BSFR) material is not constituted primarily of the shielding used at nuclear reactors or from Department of Energy or Department of Defense weapons projects, nuclear weapon materials or internal components of nuclear electric utility power plants. It is primarily construction debris, soils, debris and similar materials from decommissioning projects at U. S. Nuclear Regulatory Commission or Agreement State licensed and regulated commercial facilities. These materials have very low levels of incidental radioactive material. In recent news stories these BSFR materials have been characterized as 'low-level radioactive waste". It is a misrepresentation to refer to BSFR material as "low level radioactive waste" because it does not meet the definition of low-level radioactive waste and using this terminology unnecessarily alarms the public. It should be noted that in other states BSFR material and similar materials have been exempted from further regulatory controls, assumed to not be radioactive, and disposed in landfills.

Additionally, BSFR material undergoes a multi-tiered evaluation under Tennessee regulations and only BSFR material that has an equivalent dose of 1 millirem/year is approved for disposal in Class I Solid Waste Landfills. In Tennessee, each year residents receive an average annual dose of 300 millirems of radiation from naturally occurring sources in the environment. Federal & state drinking water regulations have set a dose limit of 4 millirems/year as the safe drinking water standard, meaning that the total dose from all pathways for BSFR material disposal is ¼ of the federal and state safe drinking water standard.

1. Is the Bulk Survey for Release (BSFR) material disposed at BFI Middle Point Landfill a threat to water quality in the Stones River?

   NO. There are two ways that BSFR material could impact the Stones River; (1) the physical transport of the material into the river and (2) ground water containing radionuclides flowing into the river

   Physical transport of the waste material is prevented. Upon arrival at the landfill the waste is immediately covered with other waste, and all waste is covered again at the end of the workday with soil or tarps. The cover systems are maintained to keep the disposed waste material in place. This makes it highly unlikely that any material can leave the landfill via the air or surface transport.

   Ground water can be impacted by leachate from the landfill. Rainfall, which infiltrates the landfill and comes into contact with the waste, is directed into the leachate collection system along with any liquids present in the landfill. At Middle Point a portion of the leachate is directed to the Murfreesboro wastewater plant and the remainder is transported to an offsite commercial wastewater treatment plant for treatment.

   There are indications of increasing concentrations of barium in the ground water at monitor well MW-2. The contaminant levels are still below the Maximum Contaminant Level (MCL) for drinking water. A ground water assessment is underway to determine if the increasing barium concentrations are from naturally occurring sources or due to leachate from the landfill. Since MW-2 is near the river, water quality could eventually be impacted. Leachate will be tested for radioactivity in order to assess the potential impact to the river.

2. Is the leachate sent to the Murfreesboro Wastewater Treatment Plant (WWTP) a threat to the workers at the WWTP? Has the leachate been tested for radiation levels? What are the plans for testing the leachate and who will do the testing?

   Normal actions taken to protect workers from the health effects of exposure to leachate are fully protective of workers from any potential exposure to the radioactive constituents of BSFR materials. Our Division of Radiological Health (DRH) has for many years sampled the sludge, influent, and effluent at certain other wastewater treatment plants which receive radioactivity in wastewater from licensed users in accordance with applicable state and federal regulations. Data is on file which demonstrates the absence of any radiological hazard from any man-made radionuclides as are typical of BSFR materials. Federally sponsored studies support this conclusion.

   The leachate has not been tested for radionuclides by the State, however, in March, the Division of Radiological Health initiated a process that would implement improvements in the BSFR program to make it even more protective of human health and the environment. One of the proposed improvements would require the analysis for radiological constituents of any leachate to be released to a wastewater treatment plant in order to assure compliance with the sewer disposal limits of State Regulations for Protection Against Radiation (SRPAR).

   Because the leachate has not been monitored for radioactivity, the specific radionuclide levels in the leachate are not available. However, BFI/Allied Waste collected leachate samples to be analyzed for radioactivity and expects sample results to be received in mid-June. The leachate is being tested by an independent laboratory for radiological parameters

required under the Safe Drinking Water Act. Results should be available in a couple of weeks.

3. How much BSFR material has been disposed of at BFI Middle Point?

   BSFR materials constitute only slightly greater than 0.1 % of the total wastes disposed at the BFI Middle Point landfill. From 1999 through May 2007, 11,146.7 tons of BSFR material was disposed at BFI Middle Point Landfill. For that same period, 9,362,738.7 tons of solid waste was disposed at the BFI Middle Point landfill. This is only 2 % of the total amount of BSFR material that is allowed to be disposed of at the BFI Middle Point Landfill. Given the amount of BSFR material actually disposed, the annual projected dose is approximately 0.02 millirem/year.

   Records prior to 1999 are not readily available for review, but TDEC will provide this data at a later date.

4. Does the BSFR material present a threat to Rutherford County residents due to radiation levels?

   No. The BSFR program does not pose a threat to anyone. The criteria for accepting waste under the BSFR program is extremely protective of human health and the environment. BSFR material is limited to no more than 5% of the total amount of solid waste a landfill is permitted to accept and it cannot contribute more than 1 millirem per year to any member of the public. To put that in perspective, the public is exposed to approximately 300 millirems/year from naturally occurring background radiation. Another example which illustrates the level of protection offered by the 1 millirem/year dose is a comparison with allowable limits set by both EPA and the state for drinking water. Under both federal and state rules the allowable limit for radiation dose from drinking water is a dose of 4 millirems/year while the maximum dose from BSFR material being disposed in the BFI Middle Point landfill is 1 millirem/year.

   There are many conservative assumptions used in determining allowable concentration limits for disposal of this material into approved Class I Solid Waste Landfills. For example, the model used to calculate the dose and acceptable disposal limits assumes that a farmer buys the landfill property, builds a house on top of the wastes disposed there, resides there, drills a well, and uses the water to drink, bathe, and irrigate crops. While in reality there will be a soil cover placed over the site, the model assumes no cover, that is, the model assumes direct contact with the wastes. The model also assumes the farmer has livestock which eats the grass and drinks the water. The resident farmer consumes the crops, livestock, and milk from the cows.

   In determining the projected radiation dose from the groundwater pathway, no credit is taken for the protective action of the geomembrane liner or for the protective action of subsurface soil below the state-required liners. This is part of the landfill design to prevent landfill leachate from entering the groundwater.

All these factors constitute conservative assumptions which would lead to the actual dose to any individual being far less than the projected dose of 1 millirem per year.

5. Does the BSFR material present a threat to BFI Landfill workers or landfill customers due to radiation levels?

   No. Again, the BSFR program does not pose a threat to anyone. The BSFR material disposed of at BFI Middle Point Landfill has no external radiation exposure hazard associated with it, nor would any individual exposed to dust at an occupational level be subjected to any hazard from inhalation/ingestion. The allowable limits for disposal are below those for which the U. S. Department of Transportation would consider the shipment to be radioactive for purposes of manifesting, labeling, or placarding the transporting vehicle.

   There are radiation detectors at the Middle Point landfill. They are very sensitive and in working order. We know this because trucks carrying residential and hospital waste set-off these detectors on a regular basis. Most often this occurs when a resident who has received a nuclear medicine procedure and gone home with some residual radioactive material from the test in their body, and some of that radioactive material finds its way to the landfill in the form of personal hygienic wastes. Occasionally, the waste may come from a similar source arising from hospital disposals. In contrast, trucks carrying BSFR materials have never activated the radiation detectors at the Middle Point landfill.

6. Does the BSFR material present a threat to the City of Murfreesboro water supply due to radiation levels?

   No. As discussed, there is no indication that the liner and leachate collection system for the landfill have failed. The City of Murfreesboro water supply is sampled and analyzed for radioactivity. Reports of the analysis are reported to the Division of Water Supply.

   Given that the BSFR material contains radioactivity at extremely low levels even if the BSFR material did enter surface water and get into the drinking water supply, the maximum radiation dose a person could receive (allowing for no dilution of material into the ground water) would be 1 millirem/year or less which is ¼ of the safe drinking water limit (4 millirems/year) for public water supplies.

7. Is there a release of leachate from the BFI Landfill into the local ground water?

   There is no indication of an on-going release of leachate. About two years ago, a broken force main spilled leachate near well MW 2. The force main was upgraded and replaced. Ground water monitoring points in the area potentially affected are monitored four times per year. As discussed above, this same well is contaminated with barium and is under assessment.

   Eight monitor wells and two springs are used as monitoring points for the groundwater monitoring system. This monitoring system is used to detect and keep track of any leachate being released from the landfill into groundwater in soils and in bedrock. This detection system is monitored by the facility and data is reviewed by TDEC. Samples are collected and analyzed two times per year for compliance monitoring of the facility.

8. Is there testing for radioactive constituents in the raw water entering the Murfreesboro Water Treatment Plant? Is there testing for radioactive constituents in the finished water? Please explain the testing, results, frequency and reasons for testing.

Tennessee's drinking water program requires all new sources being developed for a water supply to be tested to ensure that the treatment being proposed is adequate for the source. This was done at the time the City of Murfreesboro was developing plans to use the East Fork of the Stones River (1966). The state has not had any reason to request additional sampling of the Murfreesboro Water System due to the BFI Middle Point Landfill. All finished water radionuclide sampling results have shown the water distributed to local citizens at or below the detection limit for radionuclides. Given the data we received from required sampling under the TN Safe Drinking Water Act, the sampling completed by the City of Murfreesboro and the type and nature of the low activity BSFR material disposed at the BFI Middle Point Landfill, the TN Department of Environment and Conservation does not believe the BSFR material disposed at the BFI Middle Point Landfill presents a threat to the City of Murfreesboro water supply.

The City of Murfreesboro, on its own initiative, began monitoring the raw water at the Walter Hill Dam for a number of contaminants in 1992. Results for Gross Alpha, Gross Beta, Radium 226, and Radium 228 have not shown any level of concern. The highest level of Gross Beta found during this period of time was 4.7 pCi/L, well below the trigger level of 50 pCi/L which requires additional monitoring for radioactivity.

Prior to 2002 the Murfreesboro Water System was required to test the drinking water for Gross Alpha and Radium 226 every 4 years. Sample analysis for Radium 228 was not required unless Radium 226 exceeded 3.0 pCi/L. They were also not required to test for Gross Beta particle activity. Upon revision of the radionuclide requirement, they were required to sample and test for Gross Alpha, Radium 226 and Radium 228. If the Gross Alpha activity had been greater than 15 pCi/L (picocuries per liter) the system would have been required to test for Uranium. In the sample results from the 2003 finished water sampling event for Gross Alpha activity, Radium 226 and Radium 228 were all below the detection limit. In 2005, Murfreesboro sampled the finished water for Gross Beta activity and Gross Alpha activity. The results for the Gross Beta activity were very low and did not warrant any further testing. The Gross Alpha particle results were again below detection level. If there was contamination in the raw water or water supply from any of the particles or emitters listed below, it would be detected in the gross alpha and gross beta analysis.

Sampling Protocol for Drinking Water Supplies – Radioactivity

Radionuclide Source	Detection Level	MCL
Alpha Particles		
Gross Alpha	3 pCi/L	15 pCi/L (includes Radium 226 but not Radon or Uranium)
Radium 226	1 pCi/L	5 pCi/L
Radium 228	1 pCi/L	5 pCi/L
Beta Particles		
Gross Beta	4 pCi/L	4 millirem/year (total Gross Beta)
Generally radium 226 and 228 are removed during lime water softening process at water treatment plant		

More detail can be reviewed on the EPA website http://www.epa.gov/radiation/understand/index.html . This discusses alpha and beta particles and radiation. This website discusses radionuclides: http://www.epa.gov/safewater/radionuclides/basicinformation.html .

The City of Murfreesboro has elected to sample the raw water behind the Walter Hill dam ahead of its regular scheduled raw water-sampling event.