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## Department of Energy

Washington, DC 20545

OCT 13 1987

Mr. John T. Shields  
A214 National Fertilizer  
Development Center  
Tennessee Valley Authority  
Muscle Shoals, Alabama 35660

Dear Mr. Shields:

As you may know, the Department of Energy (DOE) is evaluating the radiological condition of sites that were utilized under the Manhattan Engineer District and the Atomic Energy Commission (AEC) during the early years of nuclear development to determine whether they need remedial action and whether the Department has authority to perform such action. AEC work at the TVA during the period 1951 through 1955 involved the development of a process to recover uranium from the production of phosphate fertilizer. A laboratory and pilot plant were operated at the site, but very little uranium was produced.

A screening survey conducted in the late 1970's determined that radiation levels at the site are consistent with naturally occurring background levels, and no further surveys were recommended.

This letter, along with the enclosed summary report and supporting information, represents the results of the Department's review to determine if the site contains residual radioactive contamination traceable to the actions conducted on behalf of the AEC. The report is provided to you as the representative of the site owner, for your information. On the basis of the review, the Department has determined that no potential exists for significant amounts of residual radioactive material derived from activities conducted for the AEC to remain at this site. As a result, the site was eliminated from further consideration under the Formerly Utilized Sites Remedial Action Program (FUSRAP). This package was prepared as the final DOE action on the site under FUSRAP.

Documentation supporting the Department's decision will be available for public review at the Department's Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C.

If you have any questions regarding this decision or the availability of the material at the the reading room, please contact Andrew Wallo of my staff at 301-353-5439.

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Sincerely,

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James J. Fiore, Director  
Division of Facility and Site  
Decommissioning Projects  
Office of Nuclear Energy

Enclosures

cc:  
Mr. Aubrey Godwin, Director  
Radiological Health Branch  
Alabama Department of Public Health  
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W. Cottrell, ORNL, w/o enclosures  
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NE-20 RF  
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TENNESSEE VALLEY AUTHORITY  
Muscle Shoals, Alabama

Site Function

From 1951 to 1955, the Tennessee Valley Authority (TVA) performed research and development on uranium recovery under formal agreement with the Atomic Energy Commission (AEC). The work involved extraction of uranium during the production of fertilizer from leached zone phosphate ore (aluminum phosphate) from Florida. The method used for separation was a solvent extraction process developed by Dow Chemical Company of Walnut Creek, California. A laboratory and pilot plant were operated at the fertilizer plant, but little uranium (about 2.5 kilograms of uranium concentrate) was produced, and it contained from 0.3 to 25 percent uranium, with an average of 2 percent by weight. The amount of associated phosphate slag processed to concentrate the uranium was insignificant when compared to the total amount of phosphate slag produced by the fertilizer plant operations. The disposition of the product and the original process laboratory and pilot plant equipment is not known.

Site Description

The portions of this facility used for AEC work were Rooms 20 and 21 of the Research and Engineering Building, the pilot plant area of Building 411, and two laboratories of the National Fertilizer Development Center (Rooms T-283 and L-275/6). Except for Building 411, which has been modified three times, these areas have remained unchanged. Pilot-scale studies of solvent extraction were carried out in a wooden structure inside the pilot plant building, and the wooden structure was later dismantled. The attached figure shows the location of the site in Muscle Shoals.

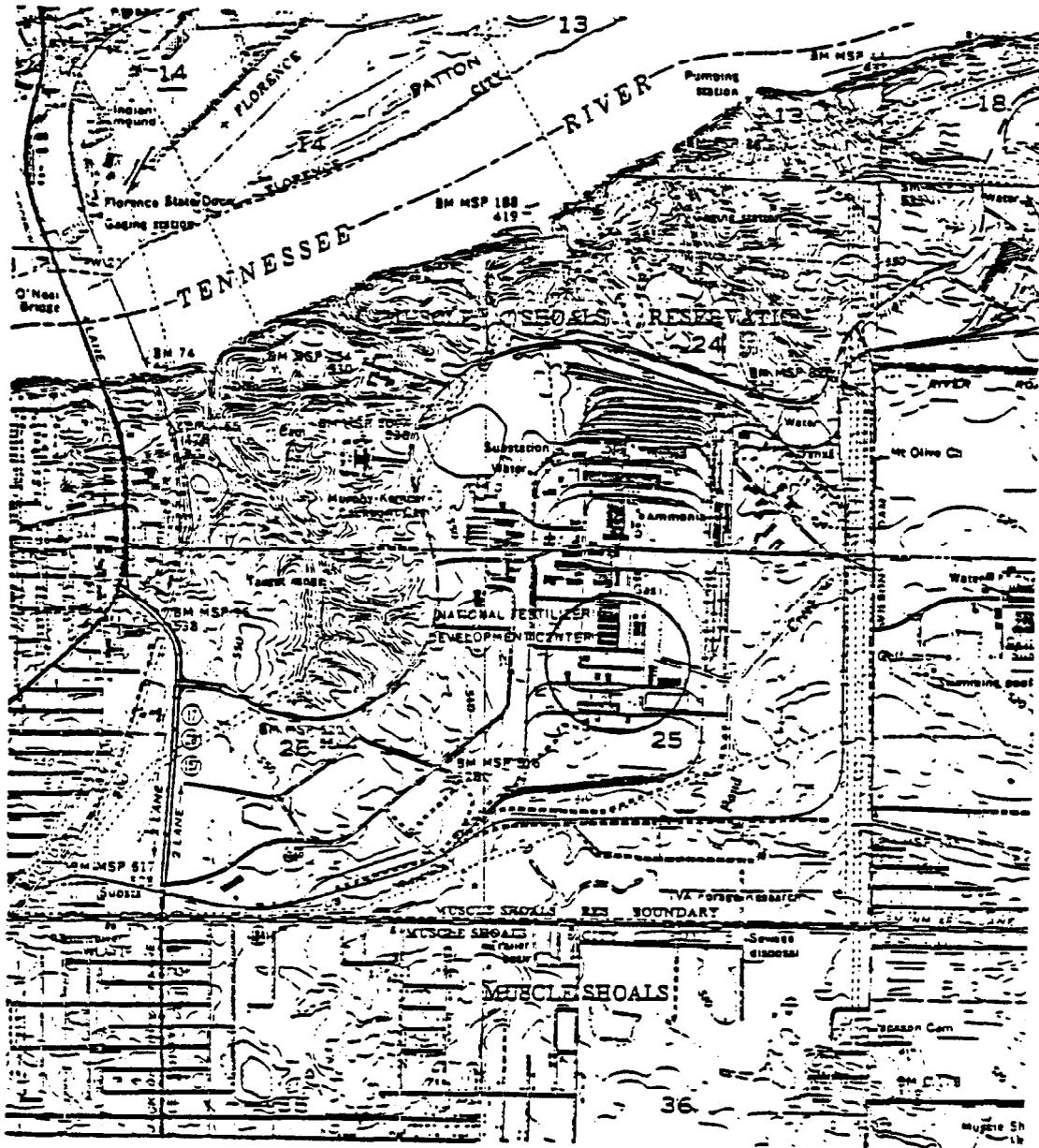
Owner History

The laboratories and pilot plant were owned and operated by TVA, and the facility remains the property of TVA.

Radiological History and Status

Department of Energy (DOE) Oak Ridge Operations Office and Oak Ridge National Laboratory (ORNL) personnel visited the site and conducted a screening survey on November 3, 1977. Measurements made during the survey indicated that radiation levels were consistent with normal background for the area. ORNL concluded that no further radiological measurements were necessary.

Based on a review of historical records and radiological survey results, DOE determined that no DOE remedial action is warranted at the TVA site. The site has been eliminated from consideration for inclusion in the Formerly Utilized Sites Remedial Action Program. The final elimination report was completed in fiscal year 1987.



Location of Tennessee Valley Authority Site in Muscle Shoals, Alabama