

## Summary of the Cleanup at Times Beach

---

There are 27 contaminated residential and farming areas in eastern Missouri, of which Times Beach is the largest. At all sites, including Times Beach, the cleanup process selected consists of the removal of contaminated soil to a thermal treatment facility at Times Beach. Removal of contaminated soil has already been accomplished at sites (excluding Times Beach) posing the highest health risks. Removal operations consisted of digging, bagging<sup>1</sup>, and storing the dioxin-contaminated soil in nearby steel-sided storage structures. The Missouri Department of Natural Resources (MDNR) established a monitoring program to inspect these storage areas periodically.

Contaminated soil still remains in place at Times Beach. In 1983, the Environmental Protection Agency (EPA) and MDNR purchased Times Beach and permanently relocated its residents because of: 1) the unavailability of demonstrated technologies to clean up the contaminated soils when the Centers for Disease Control recommended the evaluation of residents' health; and 2) the uncertainty about how long Times Beach residents would have to be temporarily relocated. The title to the land now held by a trustee of the State of Missouri will be transferred to the State once all land has been purchased.

The decision to employ incineration as a remedial technology stipulated in EPA's Record of Decision of September 1988 is based on the Agency's Feasibility Study.<sup>2</sup> In response to the limited knowledge available on incineration (no facilities in the United States were permitted to incinerate dioxin), EPA carried out a research project at Denney Farm in southwest Missouri (see ch. 2). The mobile, rotary kiln incinerator facility used for the test was successful in destroying the dioxin-contaminated liquids and soils taken from 8 of the 48 dioxin-contaminated sites identified in the State. EPA now requires that incineration of dioxin-containing soil at Times Beach be consistent with the engineering and performance parameters and emission levels obtained at Denney Farm (at least 99.9999 percent 2,3,7,8-tetrachlorodibenzo-p-dioxin destruction and removal efficiency (DRE)).

The MDNR has also been an active participant in the cleanup process by providing opportunities for the proponents of alternative dioxin treatment methods to

demonstrate the effectiveness of their techniques. Among the technologies reviewed were bioremediation, reactive dechlorination, shipment of soil out of State (this option was found to cost at least \$22 million more than incineration), and rotary kiln incineration under two scenarios (treatment at a central area or at five different locations). Only incineration was found to be suitable. After evaluating incineration treatment at five different locations, MDNR concluded that such an option would:

1. cost nearly \$40 million more than incineration at a central location,
2. require large open areas for siting the incinerator (a requirement impossible to satisfy at many small dioxin-contaminated sites), and
3. probably expose a larger portion of the population to dioxin.

As a result of these findings, MDNR supported the EPA decision to locate the incinerator at Times Beach, as long as it was a nonpermanent facility used to treat only dioxin-contaminated soil from the State of Missouri.

On July 20, 1990, as a result of a lawsuit filed against it by EPA and the State of Missouri, Syntex Agribusiness Inc. signed a Consent Order with EPA and two State agencies, the Attorney General's Office and the Department of Natural Resources.<sup>4</sup> In the agreement approved by the Court, Syntex Agribusiness Inc. is a responsible party for the Times Beach cleanup because it owned the Verona, Missouri, chemical manufacturing plant from which the dioxin-contaminated oils used at Times Beach originated. Under the signed agreement, Syntex Agribusiness is responsible for paying and carrying out the cleanup (soil excavation, incineration) at Times Beach as well for incineration of the dioxin-contaminated soil from 26 other Eastern Missouri sites. EPA is responsible for overseeing and financing the excavation and transport of soil from these sites, 23 of which are located within a 30-mile-radius of Times Beach. Upon satisfactory treatment, the nonhazardous residues or ash will be buried at the site and covered with topsoil. Although the incinerator is expected to be in operation at the site for 3 to 5 years, 7 to 10 years will be required for the Times Beach site to be considered adequate for public recreational use. Construction of

---

<sup>1</sup>Soils were poured into 1.3 cubic yard double-ply, woven, polypropylene sacks (called "Supersacks") or bags.

<sup>2</sup>U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Superfund Record of Decision: Times Beach, MO*, EPA/ROD/R07-88/015 (Washington, DC: September 1988).

<sup>3</sup>A standard for the thermal treatment of all highly toxic compounds regulated under the Resource Conservation and Recovery Act.

<sup>4</sup>*United States v. Bliss et al.*, Civil Action No. 84-200 C (i), et al. (E.D. Mo.), consent decree entered July 20, 1990.

houses, however, is not practical because Times Beach is located in a floodplain.<sup>5</sup>

Of the \$118 million estimated for the Times Beach cleanup, Syntex Agribusiness is expected to pay about \$100 million and the State of Missouri nearly \$1 million. The remaining \$17 million will be provided by EPA.<sup>6</sup> Before incinerating any dioxin-contaminated soil, however, Syntex will have to apply for an operating permit under the Resource Conservation and Recovery Act to handle the waste and operate the incinerator. The permit will be administered by the State and is expected to: 1) limit operations to 5 years, 2) limit waste to dioxin-contaminated soil, and 3) prohibit the incineration of out-of-State waste. To operate the incinerator, Syntex Agribusiness is also required to obtain two additional permits: an Air Pollution Control permit from the St.

Louis County Health Department for the control of incinerator emissions and a National Pollutant Discharge Elimination System permit from the Department of Natural Resources for the control of wastewater discharges.<sup>7</sup>

At present, Syntex Agribusiness is inviting companies with incineration technology capability (e.g., rotary kiln, circulating bed combustion) to submit contract proposals. Thus far, public opposition to incineration has centered on plans that call for shipping dioxin-contaminated soil from 26 other contaminated areas to Times Beach for incineration. One of the reasons for opposing incineration appears to be that once the incinerator facility is installed, the public fears it will attract further transport of dioxin-contaminated soils to Times Beach.

---

<sup>5</sup>Missouri Department of Natural Resources, "Restoring Times Beach: Questions and Answers About Eastern Missouri Dioxin Cleanup," undated; Linda James, Missouri Department of Natural Resources, personal communication% Dec. 5, 1990 and Sept. 12, 1991.

<sup>6</sup>Ibid.

<sup>7</sup>Missouri Department of Natural Resources, op. cit., footnote 5.