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NCBC GULFPORT
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ENGINEERING TESTS FACT SHEET TESTING TO SUPPORT DIOXIN CLEANUP
RECOMMENDATIONS NCBC GULFPORT MS
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NCBC GULFPORT

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Engineering Tests

***Testing to Support Dioxin Cleanup
Recommendation***

NCBC Gulfport, Mississippi

Five Tests Performed

- 1. Excavation Test:**
Determined the best way to dig up dioxin-contaminated soil.
- 2. Free Water Removal Test:**
Determined how much water was lost from mud after it was excavated.
- 3. Mixing and Spreading Test:** Confirmed the best way to evenly mix dioxin-containing soil with the right amount of cement. The resulting mixture is called the "**Material Blend**."
- 4. Compaction Strength Test:** Evaluated the strength of the Material Blend. These Compaction Strength Tests are necessary to demonstrate that the Material Blend would be capable of supporting weight comparable to an interstate highway.
- 5. Leachability Test:** Evaluated the ability of the cap to hold dioxin in place.

How Was the Health and Safety of the Community Protected During the Testing?

The work site was divided into two areas: a "study area" and a "clean area." The excavated soil was placed in lined bins located in the study area. The trucks remained in the clean area. When the bins were full, they were moved from the study area onto a truck located in the clean area. This ensured that only clean trucks moved through the city streets.

Sediment recovery traps (called "SRTs") were installed where water flows from the site. SRTs were successfully used to stop dioxin that was found in the ditches of the Seabee Center from flowing off of the base. An additional SRT was added to stop dioxin movement from the contaminated area outside of the base.

Excavation Tests

These tests determined the best way to remove dioxin-containing soil from contaminated areas. A total of approximately 55 truckloads of soil will be moved from a swamp north of 28th Street to the Former Herbicide Storage Area (Site 8A) on the Seabee Center.

Findings and Accomplishments

- Determined best way to remove contaminated soil from areas on and off of the base.
- Difficult muddy conditions affected test.
- Soil and sediment was moved to Site 8A.

Free Water Removal Test

This test determined how much water was lost from sediment after it was excavated. The water that is released from the mud was stored on base in a 6,000-gallon tank and tested for dioxin. It was found to be clean, and was disposed to the county's water treatment facility.

Findings and Accomplishments

- Determined how much water was lost from the sediment after excavation.
- Water was found to be clean and was properly disposed.
- Found that dewatering is not necessary.

Mixing and Spreading Test

This test confirms the best way to evenly mix dioxin-containing soil with the right amount of cement. The resulting mixture is referred to as the "**Material Blend.**" The ideal methods for spreading the material was also explored.

Findings and Accomplishments

- Confirmed the best way to evenly mix dioxin-containing soil with the right amount of cement.
- A mix of between 5 -10% cement and soils was found to be the best both with respect to ultimate strength and ease of mixing and spreading.

Compaction Strength Test

This test evaluates the strength of the Material Blend. These Compaction Strength Tests are necessary to demonstrate that the Material Blend will be capable of supporting anything that might be stored or driven on top of the cap.

Findings and Accomplishments

- Confirmed the best way to evenly mix dioxin-containing soil with the right amount of cement.
- A mix of between 5 -10% cement and soils was found to be the best both with respect to ultimate strength and ease of mixing and spreading.

Leachability Test

This test was performed to ensure that dioxin will be held in place by the cap. Samples were collected at the base of the compacted Material Blend to confirm that dioxin would stay in place. The laboratory tests are designed to mimic natural conditions, such as local rainfall.

Findings and Accomplishments

- Performed to ensure that dioxin will be held in place by the cap.
- Samples were collected at the base of the compacted "material blend" and sent to a laboratory.
- Lab techniques were selected to simulate natural conditions.