

Case Study: Hydrocarbon Contamination Remediation in Jennings, LA



Background:

X4 Environmental Inc. was approached by Laguna Construction, Inc. to assist with a pit closure project in Jennings, LA, which was subject to oversight by the EPA Region 6. The site required remediation of hydrocarbon contamination, and X4 Environmental Inc. was invited to apply its chemical solution, X4JH2000, in accordance with EPA guidelines.

A treatment trailer was mobilized to the site, and 32 drums of X4JH2000 were shipped for use in the project. Upon arrival, X4 Environmental Products was greeted by representatives from the EPA, Bureau of Reclamation, Army Corps of Engineers, Louisiana Department of Environmental Quality (DEQ), and the U.S. Coast Guard. A short interpretive presentation was conducted to familiarize the stakeholders with the process, followed by a Q&A session to address any concerns before proceeding with the treatment.

Solution:

1. **Onsite Sampling and Preparation:** X4 Environmental Products began by performing grid sampling to establish a baseline Total Petroleum Hydrocarbon (TPH) level in the contaminated media. This initial sampling would serve as a reference point for future evaluations, with additional samples to be collected 24 and 48 hours post-treatment to assess progress.
2. **Chemical Application Process:** The contaminated media was treated using X4JH2000, a synergistic chemical solution designed to break down hydrocarbons. A 60-barrel water truck was used to mix X4JH2000 with water at a 1:10 ratio, creating a chemical solution for application. A suction hose connected the truck to a 2-inch water transfer pump, which then fed into a spray apparatus to distribute the solution over the contaminated soil.
3. **Mixing and Agitation:** Using an extended reach excavator, the operator began stirring the contaminated media to allow the chemical solution to mix effectively with the soil. As the excavator mixed the soil and solution, a slurry was formed.

However, during the application process, it became evident that the volume of contaminated media had been miscalculated by over 30%. Initially, the treatment was calculated for 1,200 cubic yards of contaminated material, but the actual amount was closer to 1,700 cubic yards. This presented a challenge, as the amount of X4JH2000 calculated for 1,200 cubic yards was insufficient for the actual volume.

4. **Adjustments and Additional Application:** In response to the miscalculation, X4 Environmental Products adapted by adding additional water to wet the soil further, assisting the excavator in breaking up the material and agitating the hydrocarbons more effectively. The remaining X4JH2000 was applied to ensure the full volume of the contaminated media was treated. The soil was mixed for approximately 5 to 6 hours to ensure thorough integration of the chemical and proper remediation of the contamination.
5. **Initial Results:** After the application process was completed, a sample was taken immediately to assess the impact on the contamination levels. The analysis showed a significant 50% reduction in TPH levels, along with a noticeable change in the color of the soil and a reduction in the strong hydrocarbon odor that had been prevalent prior to the treatment.

Results:

- **Initial TPH Reduction:** After the treatment process, a 50% reduction in TPH was observed immediately, along with a visible change in the soil's color and the reduction of hydrocarbon odors.
- **24-Hour Results:** At the 24-hour sampling point, the TPH levels had decreased by an impressive 93%, indicating significant progress in the remediation process.
- **48-Hour Results:** By the 48-hour mark, soil samples showed a contamination level of less than 1% TPH, far surpassing the goal of 10,000 ppm (1% TPH). The target contamination level was achieved in under 48 hours, demonstrating the effectiveness and rapid action of X4JH2000.

Conclusion:

The remediation process in Jennings, LA, successfully met and exceeded the goals set by both the EPA and the site stakeholders. Starting with a TPH level of 56,000 ppm, X4JH2000 facilitated a rapid and significant reduction in contamination levels:

- **50% reduction** immediately after treatment
- **93% reduction** at the 24-hour mark
- **Less than 1% TPH** after 48 hours, achieving the target goal

This case highlights the effectiveness of X4JH2000 in rapidly reducing hydrocarbon contamination, even when faced with challenges like miscalculation of contaminated media volume. The site was restored to a safe, compliant state in less than 48 hours, demonstrating both the speed and efficiency of X4 Environmental Inc.'s remediation solutions.