

# Daramend<sup>®</sup> Reagent Case Study

# Daramend<sup>®</sup> Reagent for Rapid Treatment of Organochlorine Pesticides Below Remedial Objective

#### **Project**

Site: Confidential former agricultural site in Florida COCs: Dieldrin

#### **Summary**

In November 2004, a 2,600-ton in situ pilot-scale technology validation project was conducted using PeroxyChem's Daramend<sup>®</sup> reagent to remove organochlorine pesticides from impacted soils at a former agricultural site in Florida. The treatment area consisted of two treatment plots identified as North and South, each containing a 1-foot layer of soil with elevated concentrations of dieldrin.



Figure 1: In-place application of Daramend Reagent

The remedial goal was met in a 2-3 week period and subsequent field monitoring showed that soil dieldrin concentrations decreased by 67% in that period at a total project cost of approximately \$12.50/yd<sup>3</sup>.

### **Challenge**

Results from the site characterization sampling indicated an average initial soil dieldrin concentration of 45.9 µg/kg in the treatment plots. The remedial objective was to treat the dieldrin to below 15 µg/kg.

#### **Solution**

Two successive Daramend treatments consisting of sequential anoxic and oxic conditions were applied. These conditions were generated through the application of Daramend amendments (0.5 % by weight), which were applied to the soil surface and incorporated to a depth of 1 foot with a tractor-driven deep rotary tiller or disc (**Figure 1**). After amendment incorporation, water was applied to bring the soil moisture content up to 90% of the soil water-holding capacity (**Figure 2**). These steps were repeated for the second treatment cycle. Each cycle consisted of an eight day anoxic phase, followed by a two day oxic phase.



Figure 2: Irrigation to meet optimal soil moisture.





# **Results**

The soil dieldrin decreased from an average of  $45.9 \ \mu g/kg$  to  $15.1 \ \mu g/kg$  in two treatment cycles, which comprises a removal rate of 67% (**Figure 3**). A third treatment cycle was able to reduce the concentration by 85 to 90%.



Figure 3: Rapid, Cost-Efficient and Effective Daramend treatment of dieldrin-impacted soil

### <u>Cost</u>

The remedial objective was reached within a 2-3 week period at a total project cost of approximately \$12.50/yd3.



remediation@peroxychem.com | 1.866.860.4760 | peroxychem.com/remediation

The information contained herein is, to our knowledge, true and accurate. However, we make no warranty or representation, expressed or implied, and nothing contained herein should be construed as permission or recommendation to infringe any patent. All intellectual property rights to this material are retained by PeroxyChem. Daramend is a trademark of PeroxyChem. © 2015 PeroxyChem. All rights reserved. Document 51-01-ESD-15