



***Chesapeake Baker 1-19 and State 1-36 Spills***  
*Reduction of chloride levels and total soluble salts inside dykes*

The area inside the dykes at both well sites had been contaminated with multiple barrels of salt water that was tested at approximately 71,000 ppm.

## Basis of Treatment

Byo-Soil (SB-1) is a 100% natural patented, propriety humified soil extract which contains a pharmaceutical-grade humate molecule and nine essential soil microbes and essential enzymes. The product performance is accelerated with Byo-Gon biostimulant. The high cation exchange capacity of the humified soil extract molecules in Byo-Soil (SB-1) attaches the salt ions to the carbon chain through a chelation bonding process. The microbes and enzymes ensure the breakdown of the Na-Cl bond and catalyze the permanent, ionic bond to the organic molecule. Microbes and enzymes break portions of the organic chain with resulting ionic bonds becoming encapsulated within the organic structure. Byo-Gon biostimulant speeds up the rate and efficiency of the biological portion of the process. This product does NOT reposition salt, it eliminates it in a much quicker and more cost effective manner than other remediation options.

## Treatment

The patches of soil were then treated with NanoBind on January 26<sup>th</sup>, 2007. The day was well below freezing and snow was still present on the ground, which is not the ideal situation for this product to be effective, however, after allowing the product time to work samples were taken from the worst spots of the spills and tested on February 16<sup>th</sup>, 2007. The chloride levels and total soluble salt levels (ppm) of each were tested are listed below;

<u>SAMPLE</u>	<u>CHLORIDES</u>	<u>T. SOLUBLE SALT</u>
<b>Baker</b>	<b>1,015</b>	<b>3,025</b>
<b>State</b>	<b>6,100</b>	<b>15,000</b>

Shortly after the test another application of the SB-I was done at the soil patch on March 7, 2007 in much better weather conditions. Samples were again drawn from the area that endured the blunt of the spill on April 27, 2007.

<u>SAMPLE</u>	<u>CHLORIDES</u>	<u>T. SOLUBLE SALT</u>
<b>Baker</b>	<b>56</b>	<b>2,900</b>
<b>State</b>	<b>20</b>	<b>1,170</b>



## Results:

<u>SAMPLE</u>	CHLORIDES <u>Start</u>	CHLORIDES <u>Finish</u>	T.S. SALTS <u>Start</u>	T.S. SALTS <u>Finish</u>
Baker	71,000	56	unknown	2,900
State	Approx. 71,000	20	unknown	1,170

As you can see from the above data, the chloride contribution from the liquid was not only neutralized, but was reduced under the initial soil base-line value. And although we do not know the TSS starting levels, the Baker was reduced 5% and the State was reduced 92% just in the short time between samples, and both were reduced to acceptable levels. Through other studies we have done, had we waited for ideal weather conditions a 2<sup>nd</sup> application would more than likely, not have been necessary.

Vegetation (unfortunately weeds) is already growing in both locations.