

## NEWS

For Immediate Release

CLIENT: Inversand Company

### **New Pilot Test Study Confirms GreensandPlus™ Outperforms Competitive Media in Removing Iron and Manganese From The Dennis, MA Water Supply**

*Improves Efficiencies, Reduces Costs for Longer Media Life  
plus Longer Run Times Between Backwashes*

Clayton, NJ – GreensandPlus, a high-performance water filtration media distributed by Inversand Company, has significantly outperformed the other proprietary media in pilot testing as well as increased the efficiency and lowered the operational costs of removing iron and manganese from the water supply for Dennis, MA.

#### **Case History – In Brief**

During April and May of 2007, Earth Tech Inc.– Concord, MA conducted a pilot study examining the effectiveness of potential treatment options for iron and manganese removal at several of the Dennis Water District's groundwater supplies.

Two separate treatment technologies were evaluated on each well during the study; a multimedia pressure filter with Inversand's GreensandPlus media (GreensandPlus system) and a pressure filter with Layne Christensen's LayneOx media (LayneOx system). The primary piloting objective was to demonstrate stable system performance while meeting drinking water treatment objectives for select parameters including iron and manganese. Here is a summary of the operational and analytical results obtained from the pilot study.

Once optimized, both pilot systems were able to produce their respective water quality treatment objectives by consistently producing finished water with levels less than the SMCLs of 0.3 mg/L of iron (Fe) and 0.05 mg/L of manganese (Mn). However, the GreensandPlus system was able to consistently produced water with better quality over that produced by the LayneOx system.

During the extended filter runs the GreensandPlus system produced approximately 15% more water than the LayneOx system during the extended run at Well No. 20 and the GreensandPlus system produced approximately 34% more water than the LayneOx system during the extended run at Well No. 8. Using the pilot data to estimate filter run times of 96 hours for the GreensandPlus system and 48 hours for the LayneOx system, we calculated the process efficiencies. The GreensandPlus system is 0.37% more efficient than the LayneOx system. This translates to a savings of 10.8 million gallons per year in backwash supply water (assumes operation at 4 mgd non-stop for two facilities).

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**New Pilot Test Study Confirms GreensandPlus (cont'd)**

In addition to water quality and process efficiency, we examined cost components. The GreensandPlus media can be utilized by several manufacturers of pressure filter systems which allows for more competitive bid prices. The LayneOx media is proprietary and can only be used with the pressure filter system manufactured by Layne Christensen Co. While the higher hydraulic loading rate provided by the LayneOx system allows for a slightly smaller building footprint, the difference in footprint is relatively small and does not significantly impact the overall capital cost of the facility. Additionally the capital cost for the LayneOx system is more than that for the GreensandPlus system.

The following decision matrix presents the factors involved in the selection process. Each factor was rated as 1 = Poor or 2 = Good. The factors were weighted as shown. The Relative Score is the Sum of the Factor Ratings times the Factor Weight. The decision matrix shows that the GreensandPlus system is slightly more favorable than the LayneOx system. We have weighted the factors according to the level of importance we feel should be placed on each.

**TABLE ES-1  
DECISION MATRIX**

1 = Poor, 2 = Good

<b>Factor</b>	<b>Factor Weight</b>	<b>GreensandPlus System</b>	<b>LayneOx System</b>
Filtered water meets drinking water standards	10%	2	2
System excels in removing Fe & Mn	10%	2	1
Volume of water treated between backwashes	10%	2	1
Volume of water produced annually	10%	2	1
Higher hydraulic loading rate (smaller footprint)	10%	1	2
Ease of operation and training of staff	10%	2	2
Competitive bidding environment	10%	2	1
Facility capital costs (process & building)	15%	2	2
Operation and maintenance costs	15%	2	2
<b>Relative Score</b>	<b>100%</b>	<b>1.9</b>	<b>1.6</b>

After consideration of all of the factors above, we recommend that the District utilize the GreensandPlus system as the primary treatment process for the removal of iron and manganese at the proposed water treatment facilities.

**About Inversand Company**

Inversand Company, based in Clayton, New Jersey, with mining and production facilities in Sewell, New Jersey, has been producing filter media for water treatment since 1925. Manganese greensand is made from glauconite, a mineral formed millions of years ago in coastal areas. Inversand Company's glauconite mine located in Sewell, New Jersey, has been the location of numerous significant prehistoric fossil discoveries.

**New Pilot Test Study Confirms GreensandPlus (cont'd)**

For more information, please contact Ms. Vivian Augustine at 856-881-2345. Fax: 856-881-6859. Email: [vaugustine@inversand.com](mailto:vaugustine@inversand.com), [www.inversand.com](http://www.inversand.com). To learn how you can join our stocking distributors—that serves the Point-of-Use/Point-of-Entry market-- in industrial, commercial and government water facilities, please contact us today.



**Caption:**

New pilot test study for Dennis, Massachusetts groundwater treatment confirms that GreensandPlus™ outperforms competitive media removing iron and manganese. Also, GreensandPlus improved the overall water processing efficiencies, reduced costs for longer media life while achieving longer run times between backwashes, available from Inversand Company, Clayton, New Jersey USA.

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**Electronic File Available Upon Request:  
FOR PRESS INFORMATION ONLY, PLEASE CONTACT:**

**Canon & Shea**

Barbara Aguilar Tel: 212.564.8822 Fax: 212.629.4335 Email: [barbara@canonshea.com](mailto:barbara@canonshea.com)