



## ***BIOMIN, INC.***

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Makers of OilSorb™ and Other State-of-the-Art Filtration Media

### Technical Advisory #30

#### ***High Flow Groundwater Treatment of Crude Oil***

In April of 2003, an engineering consulting company called Clear Creek Systems, Inc. with an urgent 5,000 gallon per minute problem.

A California city was installing a stormdrain in an area of very shallow groundwater. Sections of the new pipeline ran adjacent to crude oil pipelines installed over sixty years ago. These pipelines had leaked over the years, though preliminary testing before the project had indicated low levels of hydrocarbons. As such, the engineers thought carbon would be an efficient way to remove the oil in the groundwater that was brought up in dewatering operations.

When construction activities began, the contractors encountered much higher levels of crude oil in the groundwater than expected. Within 48 hours the carbon media that had been brought to the site was saturated and oil was present in the discharge from the site. This forced the contractor to undertake a costly shutdown.

The consulting engineer called Clear Creek Systems, Inc. (CCS) about the possibility of providing oil/water separators for up to 5,000 gallons per minute (gpm) within one week. CCS met with the engineers to evaluate the project and the problems they were encountering. We determined that Oil/Water Separation alone was an insufficient solution to the problem. Given the high levels of emulsified crude oil present in the groundwater, we recommended that the client utilize Biomin's OILSORB Media. OILSORB is a modified Organoclay media that is much more cost effective in removing heavy oils and greases than carbon media. It can hold up

to 60% of its weight by volume while carbon is in the 5% range for oil. This would allow the treatment system to deal with the higher than expected levels of crude oil.

The next major challenge was getting such a high flow system up and running on a tight timeline while overcoming many site specific challenges. The site involved a linear trench that would extend over a mile as construction progressed. The area of construction also had to accommodate local traffic. This meant that the only area to put the equipment was on a narrow railroad easement that had height restrictions due to electrical wires. CCS was called upon to install two systems over a half mile apart that could treat 1,800 gpm and 600 gpm respectively. The systems had to be designed for continuous operation as a shutdown with uncured concrete in the trench could be disastrous to the project. CCS worked closely with the subcontractors already onsite to get the system installed in days, not weeks. There was not enough equipment and media in California available to meet the site requirements so we utilized our resources across the county. Equipment requirements included ! thirty 72 cubic foot media vessels with hoses and fittings, over 100,000 pounds of OILSORB media, and five high flow sediment filters to protect the media beds. CCS also reviewed the entire dewatering system that was currently in place to make sure that the new treatment system was integrated with the equipment already in place.

The new system was a major success in meeting the project's critical two goals: keeping the dewatering discharge within permitted limits; and operating in a reliable manner that prevented shutdowns of the treatment system and construction activities. The initial load of OILSORB lasted the duration of the project—over two months.

George Alther, President of Biomin Inc. will provide workshops on organoclays at the 2007 [International Activated Carbon Conference](#) in Pittsburgh, PA October 14-21, 2007.

Please visit <http://biomininc.com> for additional technical information.

To order OILSORB contact Biomin at [Biomin@aol.com](mailto:Biomin@aol.com)

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