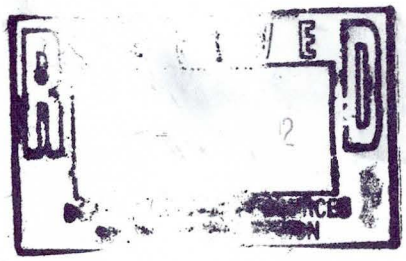
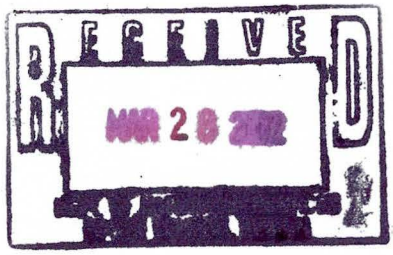
03-57-002801
02-57-001682
Reedsburg Cleaners

VIERBICHER ASSOCIATES, INC.





Mar 28 2002

March 27, 2002

Mr. Randy Maas
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Re: HRC® Technology
Reedsburg Cleaners
349 E. Main Street, Reedsburg
BRRTS # 03-57-002801
02-57-001682

Dear Mr. Maas:

I have enclosed some additional literature on the HRC® technology that was developed by Regenesis Bioremediation Products. The enclosed book cites case studies from many sites that HRC® has been applied.

Regarding the proposed remediation schedule shown in the RAOR, Mr. Butz said that he will not initiate any remedial activities until he gets investigation costs back from the Dry Cleaning Fund.

If you have any questions, please feel free to give me a call at (608) 233-5800.

Sincerely,
VIERBICHER ASSOCIATES, INC.

Joel L. Janssen
Hydrogeologist

Enclosure

▼ 400 VIKING DRIVE
P.O. BOX 379
REEDSBURG, WI 53959
(608) 524-6468
Fax (608) 524-8218

▼ 6200 MINERAL POINT RD.
MADISON, WI 53705-4504
(608) 233-5800
Fax (608) 233-4131

▼ 1521 METRO DRIVE, SUITE 205
P.O. BOX 650
SCHOFIELD, WI 54476-0650
(715) 359-2003
Fax (715) 359-4753

▼ P.O. BOX 542
PRAIRIE DU CHIEN, WI 53821
(608) 326-1051
Fax (608) 326-1052

▼ www.vierbicher.com

Plume Treatment

HRC is injected directly into the plume area through multiple push-points or boreholes. Once in place the HRC stimulates the rapid degradation of target contaminants in the subsurface.

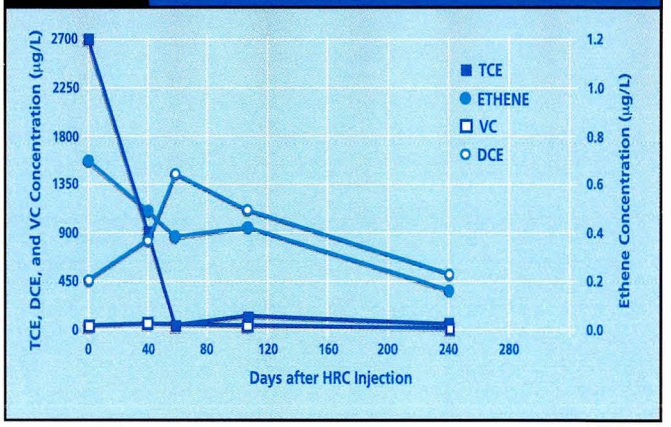
Benefits:

- Low cost treatment
- Simple to apply with minimal disruption
- No safety concerns as with oxidizing chemicals
- No operations and maintenance

Case History:

HRC was selected as the technology to treat a TCE plume within a sandy aquifer at a military base in Florida. A total of a 6000 pounds of HRC was injected into the core of a plume within 25 push-points across a 30' interval. An estimated 4000 sq. ft. area was treated. Results collected over a 240 day period indicated excellent performance with the HRC completely dechlorinating the TCE through to ethene. This project was accomplished for $36,000 in HRC cost and an estimated $3,000 in push-point subcontractor costs.

Figure 1: CHANGE IN TCE, DCE, VC & ETHENE
Upon HRC Application in Florida



Plume Cut-Off

HRC is injected directly across the migrating plume in push-points or boreholes. Once in place, the HRC stimulates the rapid degradation of the migrating target compounds, effectively cutting-off the plume in the form of a permeable reactive barrier.

Benefits:

- Effectively contains plume
- No wells or trenching required
- Low cost treatment
- No safety concerns as with oxidizing chemicals
- No operations and maintenance

Case History:

At a former manufacturing facility in Ohio, DCE and vinyl chloride (VC) groundwater contaminants in a bedrock aquifer were migrating off-site generating considerable potential liability. A line of open-rock HRC filled borings were installed to cut-off the plume. Results of the application were excellent with >99% reduction in DCE and >99% reduction in VC. This application was performed at a fraction of the cost of competing technologies such as the construction of iron walls or inefficient pump and treat systems.

Figure 2: PLUME CUT-OFF

Anaerobic Test		DCE			VC		
Well	Location	Baseline Jul-99	180 Days Jan-00	Percent Reduction	Baseline Jul-99	180 Days Jan-00	Percent Reduction
H-1	20' upgradient	5,700	2,000	65%	450	200	56%
H-2	5' downgradiant	2,600	1,100	58%	1,200	240	72%
H-3	25' downgradiant	590	3	99.6%	210	1	99.5%

Hydrogen Release Compound, HRC®
Chlorinated Contaminant Remediation

HRC®: Low Cost Chlorinated Contaminant Treatment

Hydrogen Release Compound (HRC®) offers a passive, low-cost, approach to rapid remediation of chlorinated solvent impacted sites. HRC is a proprietary, environmentally safe polylactate ester specially formulated for slow release of lactic acid upon hydration. When placed within a contaminated aquifer, HRC stimulates a multi-step process resulting in the degradation of chlorinated solvent compounds such as PCE, TCE, TCA and their derivatives, as well as other chlorinated compounds. ***The use of HRC results in the cost-effective and rapid restoration of property values.***

Advantages of HRC & Its Time Release Feature

1. Low cost:

Since HRC is a passive, *in-situ* approach, the large capital and operations/maintenance (O&M) costs associated with active engineered systems are avoided, such as those associated with pump and treat, air sparging with soil vapor extraction, and continuous injection systems. Treatment with HRC is a fraction of the cost of expensive and inflexible "iron wall" technology.

2. Rapid:

HRC produces a continuous, slow release of hydrogen into the contaminated aquifer. This hydrogen serves as an electron donor increasing rates of contaminant degradation by an order of magnitude or more over that of natural attenuation alone.

3. Degrades PCE and TCE to non-toxic end products:

Because of its consistent slow release of hydrogen, HRC stimulates rapid and complete dechlorination resulting in non-toxic end products such as ethene. HRC has also been proven effective in treating a range of other halogenated compounds, perchlorates, pesticides, nitrate and chromium.

4. Simple and safe to install:

HRC is simply added to the bottom of excavations or applied directly into the aquifer through push-points or borings. HRC is a non-toxic, food-grade compound that is safe to install and is environmentally sound.

5. Cuts off plume migration and eliminates future liability:

HRC can be strategically applied to degrade contaminants around the plume's perimeter to avoid further migration. This effective form of "barrier" technology is applied at a fraction of the cost of iron wall technologies or active pumping or sparging systems.

6. Desorbs and degrades residual DNAPL:

Residual DNAPL which is difficult to locate and treat is desorbed and degraded in place by a combination of HRC's stimulation of biosurfactant activity and its continuous production of highly diffusible hydrogen.

7. Time-release eliminates continuous substrate additions:

By providing a constant hydrogen source, HRC dramatically reduces O&M costs compared to the repeated or continuous injections required when attempting a treatment with solutions of common organic substrates.

8. Optimizes dechlorination activity.

By maintaining a constant low concentration of hydrogen within the contaminated aquifer, HRC can optimize dechlorination activity. Rapid releases of hydrogen associated with common organic substrate applications result in the wasteful and potentially dangerous generation of methane, interfering with dechlorination activity.

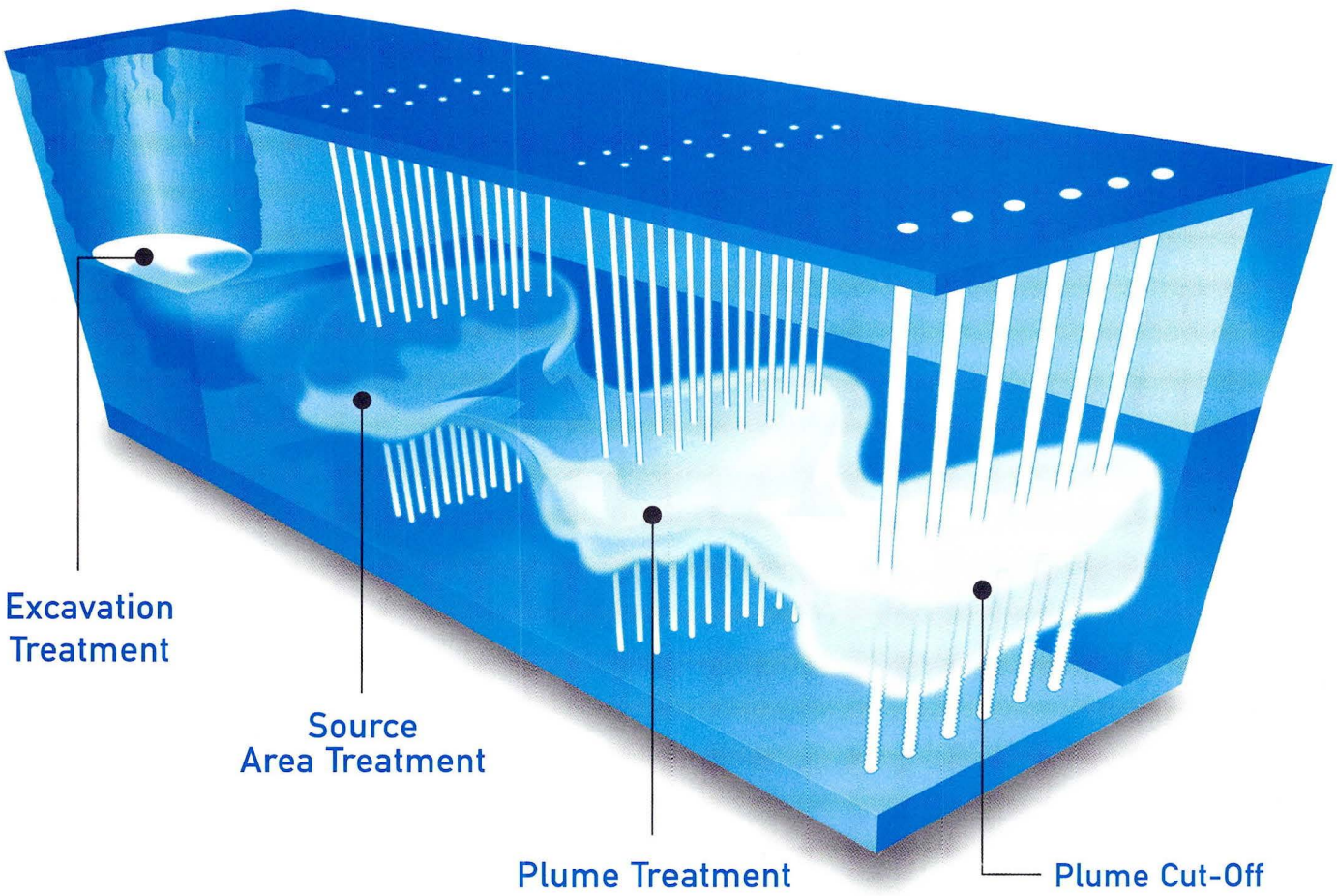
Simple and Inexpensive to Apply

HRC is manufactured as a viscous liquid that is pumped into the contaminated aquifer via direct-push equipment or augered boreholes. HRC can also be placed directly into open excavations prior to backfilling.

Treats a Range of Contaminants

HRC is widely applied for the cost-effective treatment of chlorinated solvent contaminants such as PCE, TCE, TCA, carbon tetrachloride and their derivatives. HRC has also been shown to effectively treat chlorinated pesticides, PCP, perchlorate, nitrate and chromium.

HRC Applications are Flexible and Can Be Designed to Meet a Variety of Objectives:



HRC offers a cost-effective, *in situ* method of treating chlorinated compounds. The material is applied very inexpensively using push-point or borehole delivery methods, and once in place a single HRC application continues to treat the contaminant plume for a year's time. It is this low cost of application and the elimination of operation and maintenance costs that gives HRC technology its dramatic cost advantage over other treatment options.

Plume Treatment

Figure 5 displays a cost comparison of HRC to other viable options for treating four typical plume scenarios assuming a TCE contaminant concentration of 10 ppm.

Figure 5: PLUME-WIDE REMEDIATION COST COMPARISON TECHNOLOGY COST COMPARISON ($)*

	Smaller Site (50' x 75')		Larger Site (200' x 200')	
	Shallow Aquifer (20' bgs)	Deeper Aquifer (50' bgs)	Shallow Aquifer (20' bgs)	Deeper Aquifer (50' bgs)
HRC Treatment	130,000	134,000	316,000	324,000
Pump and Treat	595,000	633,000	778,000	876,000
Air Sparging w/SVE	334,000	358,000	639,000	760,000
Chemical Oxidation	320,000	343,00	1,495,000	1,636,000

** Comparison costs were generated by an independent environmental consulting firm and include costs through project completion, e.g. sampling, monitoring, reporting, etc. All costs are reported in today's dollars. A net present value analysis would make HRC treatment appear considerably more favorable.*

Plume Cut-Off

Figure 6 displays a cost comparison of HRC to other viable options for cutting-off a migrating plume under four typical plume scenarios assuming a TCE contaminant concentration of 10 ppm.

Figure 6: PLUME CUT-OFF BARRIER TECHNOLOGY COST COMPARISON ($)*

	Smaller Plume (50' wide)		Larger Plume (200' wide)	
	Shallow Aquifer (20' bgs)	Deeper Aquifer (50' bgs)	Shallow Aquifer (20' bgs)	Deeper Aquifer (50' bgs)
HRC Treatment	145,000	145,500	175,000	176,000
Iron Wall Permeable Barrier	336,914	394,514	632,586	776,586
Pump and Treat	578,945	615,265	685,893	757,443
Air Sparging w/SVE	350,825	356,525	641,767	675,017

** Comparison costs were generated by an independent environmental consulting firm and include all project costs for operating a plume cut-off for a five year period. All costs are reported in today's dollars. A net present value analysis would make HRC treatment appear considerably more favorable.*

HRC is a sensible, cost-effective solution for treating chlorinated contaminants in groundwater and for restoring property values.

REGENESIS

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