

## ORC TECHNICAL BULLETIN # 1.2.2

Oxygen Release Compound, ORC<sup>®</sup>**Reducing O&M Costs by Monitoring Well Conversion**

Sampling and monitoring costs can be significantly reduced with the use of ORC. There can be savings from reduced short-term operational costs as well as long-term gains from early site closure. On many sites excess monitoring wells have been drilled during the assessment phase. They are not necessary for long-term management. When ORC is placed in these excess wells and active, aerobic remediation is fostered - treatment time will be reduced. Beyond this, conversion of those wells results in less monitoring expense.

If we consider a one acre site with 20 four inch wells, and if 20% of the wells are not contributing any important information but must be monitored quarterly at \$1,000 per well, (assumes an RCRA site) the gross savings is \$16,000 per year. Taking into account the cost of ORC at \$3,000 per year (10 four inch ORC socks per well changed every six months) the net savings is \$13,000 per year. Over a period of years the savings become substantial; twenty years of extra monitoring as described would cost an additional quarter-million dollars. These arguments assume an ORC well is reclassified as a remediation well as opposed to remaining a monitoring well.

In terms of reducing project time the ORC will passively reduce the overall contaminant mass. As a general rule the addition of oxygen accelerates the rate of bioremediation by a factor of at least 10 times relative to anaerobic processes. In the above example, with an accelerated aerobic remediation rate in 4 of the 20 existing ORC wells, the effect is that the site is remediated about 18% faster. In a ten year time frame the project could be closed seven quarters earlier for an additional total savings of \$140,000.

Therefore, the total savings on a ten year basis is \$247,000 which is the sum of 8.25 years of reduced monitoring costs (\$132,000) plus early closure (\$140,000) minus the cost of implementing the program would be (8.25 years X \$3,000 per year = \$25,000). Should monitoring costs be less, say \$500 per event required only twice a year, the savings would still be substantial (about \$60,000). On request, our staff will provide a more detailed, customized analysis for any site.

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