SSCi Environmental, Construction and Engineering Services

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Property owners sometimes ask: "Why do I have to continue to pay for sampling of monitoring wells on my property and how long do I have to keep these wells?"

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Risk-Based Corrective, Action, Remediation and Closure

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Temporary monitoring wells to converting into permanent wells

The answer:

Your site was likely part of an environmental remediation action that included Monitored Natural Attenuation (MNA). Sites become contaminated and may require remediation. Remediation can be costly and disruptive to business activities. Additionally, many types of remediation generate considerable quantities of waste that must be disposed of. However, one type of remediation, monitored natural attenuation (MNA), is less costly, doesn't disrupt business, and generates little to no waste. Each time your environmental consultant samples the wells, a report is sent to the appropriate regulatory agency.

What is MNA?

MNA employs naturally occurring biological, chemical and physical processes to break down certain contaminants in soil and groundwater. The processes that contribute to natural attenuation included dilution, dispersion, adsorption, absorption, volatilization, natural degradation and biodegradation.
Some advantages of employing MNA as a remedial option include low cost compared to active remediation, and minimal waste generation; the method can be used as either the sole remedial method or it can be used in conjunction with other technologies.

MNA, however, is not appropriate for sites that require remediation in a short period of time. Sites, where non-aqueous phase liquids (NAPL) are present, may not be suitable for MNA until the NAPL has been removed. If groundwater plume control is required, MNA will not suffice as the sole remedial option.

How to decide on MNA:

Prior to deciding on MNA as a remedial option, a thorough site evaluation must be completed. Subsurface geology, hydrogeology and contaminant distribution must be understood when evaluating MNA as a remedial option.

According to the U.S. Environmental Protection Agency (EPA), several criteria must be evaluated before MNA is considered as a potential remedial technology. Those criteria may include:

1. Historical groundwater and/or soil chemistry data may be used to demonstrate a clear and meaningful trend of decreasing contaminant mass and/or concentration has been observed over time at appropriate monitoring locations.
2. Hydrogeologic and geochemical modeling data can be used to demonstrate indirectly the type(s) of natural attenuation processes active at the site and the rate at which such processes will reduce contaminant concentrations to target levels.
3. Data from field or bench studies using media from the affected site may be used to directly demonstrate the occurrence of a particular natural attenuation process at the site.

Contaminants effectively treated using MNA include petroleum products and chlorinated products. Other compounds have limited potential for remediation through MNA. Chlorinated compounds generally degrade slower than petroleum hydrocarbons. Other compounds, such as metals, are not effectively treated using MNA as the sole remedial option.

If MNA is chosen for site remediation, monitoring of the affected media must be conducted until target concentrations of the contaminants and their daughter products have been achieved. Because MNA is generally a slow process, site monitoring will be required for a long period of time, depending on the concentration and type of compound.

When will my site be closed and the wells removed?

Once contaminants degrade to the concentration agreed to in the remediation environmental plan, your environmental consultant will request closure by the regulating agency as part of reporting that no further sampling is required the wells will be required to be removed and a final closure report must be filed.

In summary:

MNA is an effective remedial option at some sites either as a stand-alone technology or in conjunction with another technology. Petroleum and chlorinated hydrocarbon sites are generally suitable for remediation using MNA. However, MNA is not appropriate for some sites. Sites that require relatively quick remediation, sites where the source has not been removed, sites with NAPL and sites with compounds not amenable to MNA should evaluate other remedial technologies rather than relying on MNA.

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