IN SITU GROUNDWATER RECIRCULATION MOBILE SUBSURFACE INJECTIONS

INNOVATIVE REMEDIAL SOLUTIONS, INC

Soluble amendments combined with groundwater recirculation is the most effective delivery method on the market. This in situ delivery method is very effective using...

- AEROBIC/ANAEROBIC BIOAMENDMENTS
- ANAEROBIC SUBSTRATES
- DILUTE HYDROGEN PEROXIDE
- ACTIVATED PERSULFATE
- SURFACTANTS

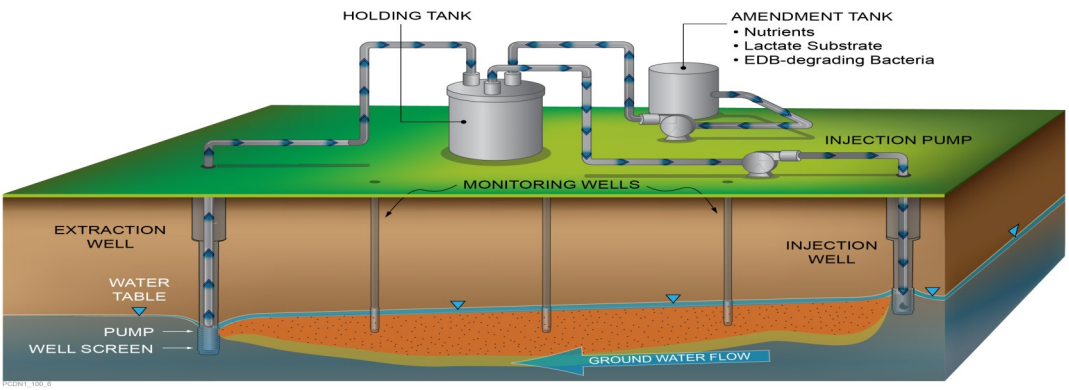
Obtain contact and get results in a reasonable time frame!

The remediation industry known for a long time that successful in situ remediation (chemical, biological, surfactant flushing, etc.) is directly related to the ability to obtain contact/distribution of amendments throughout an impacted smear/saturated zone.

The Problem: Without proper contact/distribution you will fail to reach remedial goals. Direct push and slug injection delivery methods rarely achieve the necessary volumetric goal to obtain proper contact/distribution in the target saturated zone. Successful contact is achieved via large volume injections that are comparable to the actual pore volume of a treatment zone. When your site treatment zone has a pore volume of 300,000 gal you can't inject 250 gal on 10-ft centers and then rely on natural advective flow for contact/distribution.

The Solution: Without installing a fixed system, injecting a pore volume becomes expensive on a time/labor basis. Since time/labor has its limits, utilizing groundwater extraction in conjunction with pressurized injection wells induces temporary artificial groundwater gradients that are orders of magnitude higher that natural advective forces. These enhanced gradients in conjunction with a high injection volume achieves the best contact/distribution with a mobile/manual injection approach. The Engineers at IRS have the experience designing the infrastructure, selecting amendments, and designing the delivery/field approach that will produce more rapid, measurable contact/distribution of your remedial amendments unlike the other in situ injection methods on the market.

The Process: IRS's approach is to **conduct temporary (5-10 day) groundwater recirculation events to** achieve a higher injection volume that yields the highest degree of contact/distribution in the subsurface and the best remedial results for your client. This process also allows you to add the correct mass of amendments to the target treatment zone. Compatible products are all highly soluble and can be applied rapidly in a variety of subsurface soil types. IRS can use our experience to apply these products for you.



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Groundwater Recirculation vs. Direct Injection

It isn't difficult to defend the statement that groundwater recirculation is a far superior and effective method for delivery for a variety of soluble remedial amendments to the saturated subsurface. Direct injection methods generally can't achieve large volume injections and have less control over where the flow/amendments migrate in the saturated zone.. If you can't install a fixed system, then manual recirculation events conducted by IRS will provide the remediation results you need. Contact us for more information!

IRS is Florida *born and raised*… and based at strategic locations across the State to serve you.

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