

## Unique In Situ Soil Remediation to Treat Oil and Produced Water Contamination vs Conventional Remediation

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### Summary

Proprietary spray on treatment addresses both old and new oil field spills. Produced water and oil can be difficult to treat after it has imbibed into the soil. Typical actions include digging, trucking, and landfilling soil contaminations.

A better way has been developed and proven for several years. Remediating the soil in place cleans up the problem instead of just moving it to a landfill. Emissions are greatly reduced because truck loads of contaminated soil are not being hauled away. Future contamination from slowly leaking landfill liners is eliminated.

Costs for in situ treatment are a fraction of other options. Therefore, the benefit to companies includes the option to remediate additional sites for equivalent budget of one site.

### Results, Observations, Conclusions

Third party lab tests confirm both oil and produced water treated soil contamination improves over 80% in about 2.5 months. Costs typically come in about 15% of conventional budgeting. Emissions are reduced by about 90%.

### Novel/Additive Information

This novel solution uses any environmental company's Tier II analysis and simply tweaks site specific information to offer fit-for-purpose treatment design.

There is no foreign bacteria added. There is no residue remaining. This treatment is unique and not only benefits the operators but also benefits the environment.

### Acknowledgements

Thank you to Crosswind Chemical for participating in treatment formulation information.