

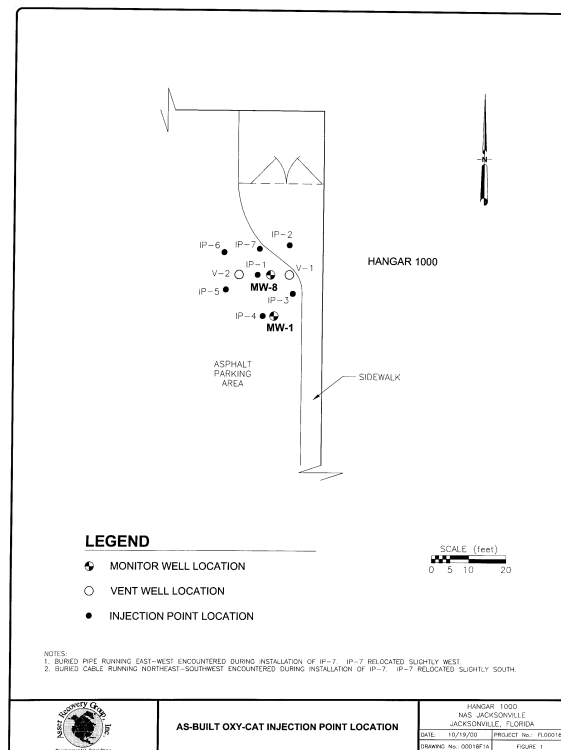
# Abstract for a DNAPL Remediation Project Utilizing Oxy-Cat<sup>SM</sup> Hangar 1000, Naval Air Station (NAS) Jacksonville Jacksonville, Florida

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Asset Recovery Group, Inc. (ARG) is a registered environmental engineering and geological firm for the State of Florida. Oxy-Cat<sup>SM</sup> is a patented (U.S. Patent # 5,967,230 & # 6,206,098) insitu chemical oxidation process that utilizes Fentons chemistry for the creation of hydroxyl free radicals in the subsurface. Under a subcontract agreement with a prime contractor, ARG was contracted to perform the Oxy-Cat<sup>SM</sup> remediation technology on a site located on the Jacksonville Naval Air Station facility in a location known as Hangar 1000.

## Groundwater Treatment Application

Seven Oxy-Cat<sup>SM</sup> injection points have been specified in the vicinity of monitor well MW-8. The location of the proposed injection points can be seen in **Figure 1**.



Following installation, a sufficient amount of an aqueous solution of hydrogen peroxide and catalyst was injected into each injection point. An injection flow rate consistent with litho logy for the site location was utilized. Two vent points were provided to prevent gas generated during the reaction from migrating away from the treatment zone. A soil vacuum extraction (SVE) blower was connected to the vent points to provide a sink, and recovered gas was treated with activated carbon.

## Sampling & Analysis Plan

Prior to injections, personnel collected samples from monitor well MW-8 and MW-1 and were analyzed in the field for levels of hydrogen peroxide, chloride, pH, carbon dioxide, and iron. Additionally, a base line sampling event was conducted by personnel of the Prime Contractor and sent to the laboratory for analysis. All sampling and analyses was performed by the Prime Contractor. Post remediation sampling was completed and verified by third party personnel.

## Results of Oxy-Cat<sup>SM</sup> Injection

	1,1,Dichloroethylene	1,1 Dichloroethane	Cis 1,2 Dichloroethylene	1,1,1 Trichlorethane	Trichloroethylene	Tetrachlorthylene
<b>MW-8</b>	<b>Source Well</b>					
8/8/00	1500	BDL	4410	4440.	2200.	77.4
10/25/00	12.3	16.9	82.3	.39	29.7	2.0
<b>MW-1</b>						
8/8/00	2.8	BDL	9.1	14.9	26.5	.63
10/25/00	BDL	.34	.9	4.1	2.8	BDL

## Conclusion

The Oxy-Cat<sup>SM</sup> injection, implemented on the above referenced site, was sampled by third party verification and concluded that the Oxy-Cat<sup>SM</sup> process was successful in reducing constituents of concern by greater than 98% with one injection event. A subsequent Oxy-Cat<sup>SM</sup> injection was performed in December 2000, with the third and final injection completed in May 2001. This sampling event was completed the last week of May 2001. Results of this sampling event are expected to allow the site to enter into a post remediation monitoring plan towards a "No Further Action" designation.

Oxy-Cat<sup>SM</sup> is the first insitu chemical oxidation technology approved by the Florida Department of Environmental Protection. Additionally, Asset Recovery Group, Inc. was the first engineering/consulting firm to have a state wide variance granted by the Under Ground Injection Control section of the Florida Department of Environmental Protection for use of an insitu chemical oxidation technology. Asset Recovery Group, Inc. has performed insitu chemical oxidation on more hazardous waste sites in Florida than all other insitu chemical oxidation vendors that utilize Fenton's chemistry combined. Oxy-Cat<sup>SM</sup> has been approved by the following agencies:

- Florida Department of Environmental Protection (FDEP)
- Texas Natural Resource Conservation Commission (TNRCC)
- United States Environmental Protection Agency (USEPA)
- Army Corps of Engineers (USACE)
- Department of the Navy (USN)
- Army Environmental Center (AEC)
- Air Force Center for Environmental Excellence (AFCEE)
- Department of Energy (DOE)