

All's Well That Ends a Well

With apologies to William Shakespeare, but not all wells end well.

We are referring of course to *monitoring* wells. A monitoring well is usually a water well installed not to get drinking water, but underground water for contaminant sampling. A monitoring well is often identified by a metal cover plate, some-times equipped with a lock. It says "Monitoring Well" (as you might assume) with the admonishment "do not fill".



Typically what happens during the course of the well's existence, is that the data from the water analysis is used to evaluate levels of contamination, both nature and extent. In some cases active remediation - such as "pump and treat" - is used to control the contaminants. Then depending on which country / state / city you are in, regulations decide that you are done with the work. Sampling stops, reports are filed, and everyone goes about their merry way.

Except for two things. Monitoring wells like this need to be taken out of service - or "abandoned" after a certain period of time. In Massachusetts for example, 310 CMR 46 says "Abandoned Well means productive or non productive well, use of which has been permanently discontinued or has been out of service at least three years..."

There is also the liability for additional contamination. A damaged monitoring well provides a perfect conduit for contamination (oil, gasoline) to go from surface to aquifer. Then you are right back where you started.

Proper abandonment involves removing the cover and upper well, pulling out the casing (if possible) filling the well with a suitable sealing agent - such as concrete - and filing a report with the appropriate agency.

One thing that we offer to clients for well closure projects is a report that provides all the details needed for your records, and a project cost that is surprisingly low. The reason this can be done is we have invested heavily in "appifying" our operations, with custom software for various projects' aspects. So instead of taking days or weeks to create a final report, pages like the one below come right off an iPhone in seconds.

Monitoring Well Decommissioning Report

Site: [Redacted] Address: [Redacted] A-EHS 360 Canterbury Road
Brooklyn, CT 06234
Project Start: 8/17/2015 City: [Redacted] State: MA USA office@ehs.com (202) 569-8027
Staff: Mark Rollins, CIH, CSP www.A-EHS.com

Well Information 206

Date Closed	Notes	Monitoring well	Depth (ft.)	Right of Way?	Old Well No.	Date Installed	Well End...
			31.0	No		3/25/1999	Bedrock

Well TSTW Type Wells Test Groundwater (ft.) Well Latitude / Longitude
27 Measured

Well Specifications

A) Top Conductor Dia. (in.) 6	F) Seal BC Bentonite Chips / Pellets
B) Outer Casing STL Steel	G) Filter Pack SD Sand
C) Borehole Dia. (in.) 4	H) Screen SST Stainless Steel
D) Backfill BG Bentonite Grout	I) Sump N/A
E) Well Casing SST Stainless Steel	

Well During Abandonment

A) Surface Completion Quikrete #1006	D) Total Depth of Abandonment Materials (ft.) 31
B) Depth to Casing ft. 1	Manufacturer / Supplier of Abandonment Mat'l
C) Abandonment Mat'l CT Concrete	Quikrete 1124 Portland cement w/ CETCO Super Gel X added
How Added TR Tremie	Total Length of Pipe Removed (ft.) 6

Screening

Equipment	PID	Manufacturer	RAE	Model
Reading (ppm) 0.36000	0.20000			3000
Notes well hole	debris pile			

Final Well Conditions

Concrete Pad Removed? N/A	Disposition of Waste Materials & Notes Debris screened and disposed of as non-hazardous PID calibrated with isobutylene, TGA response 1:1. Note: "Well During Abandonment B) Depth to Casing ft." is depth of "road box" and not actual well casing depth or removal. Length of well piping/casing removed was 6 feet. Total length of "road box," piping/casing removed was about 7 feet.
Protective Posts Removed? N/A	
Outer Casing Removed? Yes	
Flush Mount Removed? Yes	

App Corner - SloPro

As you might guess, I'm a firm believer that with the proper Apps and accessories, one can perform essentially any EHS function with their smartphone.

One tool for accident or failure analysis is a high speed camera. You can get these for \$500, or get an App for \$5 that renders video - if you hardware supports it - up to 1,000 FPS. This way if something happens in the blink of an eye, you wont miss it.