

Metadata for Oil and Gas Well Cuttings Collections of the New York State Geological Survey

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During the growth of the oil and gas industry in the twentieth century, the New York State Geological Survey (NYSGS) collected drill core, drill cuttings, and logs from exploration and production wells. The focus of the work performed in the 2009 Data Preservation program was the collection of drill cuttings, also known as “ditch samples”. The specimens are organized by well, with samples taken most commonly at 10 foot (3.05 meter) intervals. Other sample spacing may be 5 (1.5 m), 50 (15.2 m), or 100 (30.5 m) feet. The wells represented in the drill cuttings collection originally estimated in the proposal at approximately 2000, actually number 1,917. In the course of the work for this data preservation project, hitherto unrecognized duplicate samples were discovered in the collection. Most (>90%) of the samples have been washed and are stored in paper envelopes with a small number housed in archival glass vials. Less than 10% of the samples are raw, *i.e.* unwashed, in field collection bags.

The samples were recovered from wells mostly located in the central and western part of the state. This is a reflection of the bedrock geology of New York State which constrains where oil or gas wells can be drilled. The geology of northern New York is dominated by the Precambrian terrain of the Adirondack Mountains. Eastern New York is comprised of the metamorphic Taconic rocks. Southeastern New York is underlain by medium to high grade metamorphic rocks of the Hudson Highlands and Manhattan Prong. Basement rocks under Long Island are metamorphic as well. Figure 1 shows the locations of the oil and gas well in New York from which the NYSGS has samples.

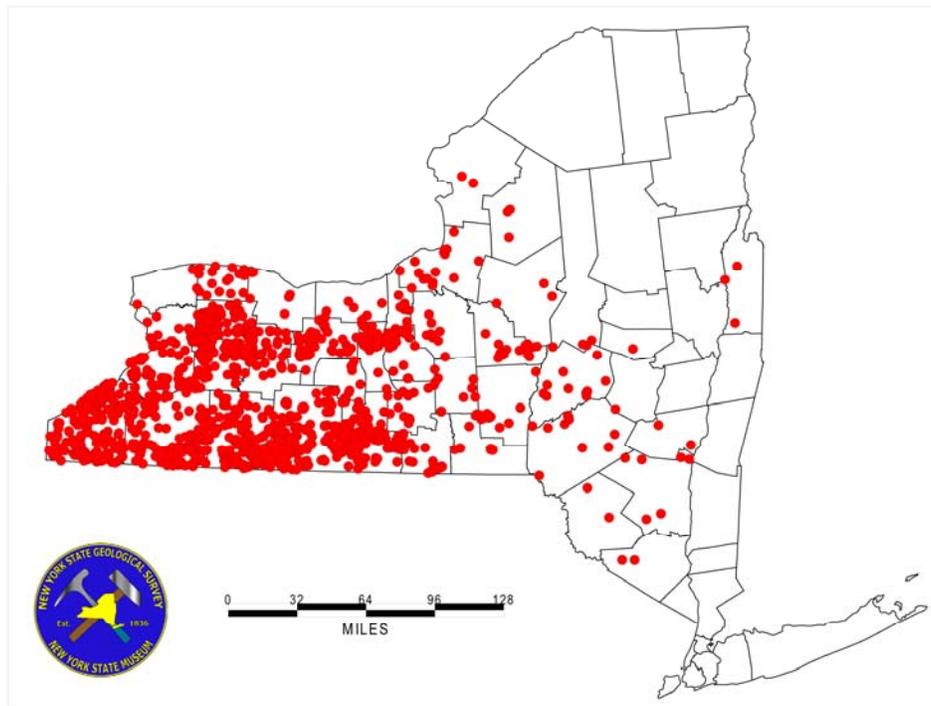


Figure 1. Location (red dots) of oil and gas wells from which the NYSGS has recovered samples. Samples are in the collections of the NYSGS/ New York State Museum.

As part of the national geological and geophysical data preservation program, the NYSGS inventoried the entire collection. Simultaneously, metadata was collected for each well. Data included location (latitude, longitude), API number, interval sampled, and total depth. The metadata was captured in a form compatible with the National Digital Catalog.

This collection is part of the holdings of the NYSGS, the geological research arm of the New York State Museum (NYSM). Collections in the NYSM are held in trust for the people of the State of New York. As such, the drill cuttings collection requires proper curation. An inventory is a primary step in that process. The collection will have immediate use by the customers of the NYSGS. There is very active gas exploration currently underway in central New York in three separate gas plays in the Trenton-Black River, Marcellus and Utica Formations. The NYSGS is the only state agency with complete collections of oil and gas drilling records. Further, no other agency has sub-surface samples such as those held by the NYSGS. There is intensive interest on the part of the gas industry in having access to NYSGS records and samples.

The inventory was accomplished by physically inspecting each group of samples related to all the wells in the holdings. Data from hand written labels was be transcribed into a database for internal NYSGS use. The metadata will then be entered into Excel format using the templates provided by the USGS. Figure 2 is a sample screen of the data collected during this project.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	P976	title (API N alternateTi	abstract	dataType(/supplemen	coordinate alternateG	onlineResc	browseGre	date (Drilli	dataset(Ref	verticalExt				
2	P976	31-003-00 T Burns 3	Unknown,	Rock Cutti	Collection	-77.97114,42.04208	Location calculated from State P	19351229	20090803	ft,4778,4183				
3	P976	31-003-00 VanCamp	Unknown,	Rock Cutti	Collection	-77.94403,42.04208	Location calculated from State P	19361001	20090803	ft,4773,897				
4	P976	31-003-00 Hillgass	Not Listed,	Rock Cutti	Collection	-77.86255,42.04208			20090811	ft,4825.5,445				
5	P976	31-003-00 Shear F (\$	Unknown,	Rock Cutti	Collection	-77.86347,42.04208	Location calculated from State P	19350825	20090811	ft,4917,103				
6	P976	31-003-00 Wilson (Nf	Storage, A	Rock Cutti	Collection	-77.8408,42.04861		19770525	20090810	ft,4919.5,480				
7	P976	31-003-00 Stout (Clar	Storage, A	Rock Cutti	Collection	-77.84863,42.04504		19770525	20090810	ft,4960,4780				
8	P976	31-003-00 Billings EC	Monitoring	Rock Cutti	Collection	-77.81522,42.0603		19771108	20090810	ft,5008,4920				
9	P976	31-003-00 Forsythe F.	Monitoring	Rock Cutti	Collection	-77.82258,42.06068		19391130	20090810	ft,5035,4960				
10	P976	31-003-00 Clark EC-4	Monitoring	Rock Cutti	Collection	-77.76411,42.09152		19760712	20090810	ft,5052,4341				
11	P976	31-003-00 Barney (Li	Monitoring	Rock Cutti	Collection	-77.80134,42.07873		19761006	20090810	ft,4955,4861				
12	P976	31-003-00 Newton C	Monitoring	Rock Cutti	Collection	-77.77923,42.09028		19760830	20090810	ft,4926,4850				
13	P976	31-003-00 Nye EC-4	Storage, A	Rock Cutti	Collection	-77.80669,42.08182		19760918	20090810	ft,4701,4439				
14	P976	31-003-00 Wilson (Nf	Storage, A	Rock Cutti	Collection	-77.80024,42.08189		19760908	20090810	ft,4702,4638				
15	P976	31-003-00 Crandell E	Not Listed,	Rock Cutti	Collection	-77.77001,42.10265		19400207	20090810	ft,4916,291				
16	P976	31-003-00 Cornelius	Monitoring	Rock Cutti	Collection	-77.76623,42.10252		19711005	20090810	ft,5062.5,418				
17	P976	31-101-00 New York	Storage, A	Rock Cutti	Collection	-77.86748,42.1596		19340502	20090810	ft,4701,136				
18	P976	31-101-00 New York	Monitoring	Rock Cutti	Collection	-77.87376,42.15988		19400422	20090810	ft,4725,1486				
19	P976	31-101-00 Bettinger 1	Dry Wildc	Rock Cutti	Collection	-77.46436,42.15028		19370701	20090810	ft,4190,766				
20	P976	31-101-00 Webber 2	Disposal, /	Rock Cutti	Collection	-77.86693,42.16495		19390406	20090810	ft,4363,685				
21	P976	31-101-00 Warringer	Gas Develo	Rock Cutti	Collection	-77.87793,42.17361		19311001	20090810	ft,4553,150				
22	P976	31-101-00 Wells Jerc	Dry Wildc	Rock Cutti	Collection	-77.69226,42.24815		19470624	20090810	ft,3626,2855				
23	P976	31-101-00 Falzarano	Dry Wildc	Rock Cutti	Collection	-77.8858,42.30117		19470828	20090810	ft,3330,90				
24	P976	31-101-00 Cartwright	Dry Wildc	Rock Cutti	Collection	-77.73646,42.10844		19470703	20090810	ft,4901,4200				
25	P976	31-003-00 Stallknecht	Monitoring	Rock Cutti	Collection	-77.83361,42.04572		19470813	20090804	ft,5310,143				
26	P976	31-003-00 Allegany C	Dry Wildc	Rock Cutti	Collection	-77.96874,42.33986		19470920	20090804	ft,4102,3956				
27	P976	31-101-00 Grist [n15	Dry Hole, /	Rock Cutti	Collection	-77.42484,42.0321		19470717	20090804	ft,2672,12				
28	P976	31-101-00 House 1	Dry Wildc	Rock Cutti	Collection	-77.47609,42.13108		19470927	20090804	ft,4566,90				
29	P976	31-013-00 Donelson	Not Listed,	Rock Cutti	Collection	-79.25456,42.02316			20090804	ft,4150,410				
30	P976	31-101-00 Ames 1	Dry Wildc	Rock Cutti	Collection	-77.72504,42.12119		19471113	20090803	ft,4850,57				
31	P976	31-003-00 Clark Est	Monitoring	Rock Cutti	Collection	-77.79346,42.11682		19470929	20090804	ft,4879.5,114				
32	P976	31-101-00 Eichorn	Dry Wildc	Rock Cutti	Collection	-77.81625,42.46262		19331105	20090804	ft,3324,3225				
33	P976	31-101-00 Porter	Dry Wildc	Rock Cutti	Collection	-77.52429,42.23086		19311217	20090810	ft,4128,2550				
34	P976	31-101-00 Develo	Dry Wildc	Rock Cutti	Collection	-77.20464,42.23055		19320610	20090804	ft,2947,860				

Figure 2. Screen shot of metadata gathered in support of the NYSGS drill cuttings data base.

Metadata related to the NYSGS oil and gas drill cuttings collection are the following:

- American Petroleum Institute (API) number
- Well name (alternate title)
- Status of the well, e.g. monitoring, dry, active, storage, etc.
- Type of material (rock cuttings)
- Location (latitude, longitude)
- Date the well was drilled
- Date the data were recorded
- Total depth of the well
- Total length of the well sampled

All data have been transferred to the National Digital Catalog. The information is also available from the NYSGS Empire State Oil and Gas Information System (ESOGIS) at <http://esogis.nysm.nysed.gov/> .