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DEPARTMENT OF ENVIRONMENTAL QUALITY  
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DAN WYANT  
DIRECTOR

VIA E-MAIL

TO: Members of the Michigan Legislature

FROM: Dan Wyant, Director

DATE: January 22, 2015

SUBJECT: Orphan Well Fund Annual Report

In accordance with Section 324.61607 of Part 616, Orphan Well Fund, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, attached is the Department of Environmental Quality's (DEQ) Orphan Well Fund Annual Report for fiscal year 2013-2014.

If you need further information, please contact Harold R. Fitch, Chief, Office of Oil, Gas, and Minerals, at 517-284-6823; or you may contact me at 517-284-6700.

Attachment

cc/att: Ellen Jeffries, Director, Senate Fiscal Agency  
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# **Orphan Well Fund Annual Report (Fiscal Year 2013-2014)**



**Michigan Department of Environmental Quality  
Office of Oil, Gas, and Minerals**

Pursuant to Part 616, Orphan Well Fund,  
of the Natural Resources and Environmental Protection Act,  
1994 PA 451, as Amended

For more information on the Orphan Well Program, please contact:

Michigan Department of Environmental Quality  
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**ORPHAN WELL FUND ANNUAL REPORT  
FISCAL YEAR 2013-2014**

Part 616, Orphan Well Fund, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), created a funding source and method for carrying out plugging, response activity, or site restoration at abandoned or improperly closed oil or gas wells for which no owner or operator is known, for which all owners or operators are insolvent, or at which the Supervisor determines there exists an imminent threat to public health and safety. Section 324.61607 requires an annual report be submitted to the Legislature detailing expenditures from the Orphan Well Fund for the preceding fiscal year (FY).

During FY 2013-2014, total expenditures were as follows:

Plugging, Response Activity, and Site Restoration	\$587,808
Remedial Investigation, Remediation	\$333,176
Program Costs (i.e., Wages, CSS&M, Travel)	\$246,029
Central Administrative Costs	\$80,957
Emergency Contingency	\$0
<b>TOTAL COST FOR FY 2013-2014</b>	<u><u>\$1,247,970</u></u>

The attached table titled “Orphan Well Expenditures for Fiscal Year 2013-2014” shows total expenditures for plugging costs, response activity, remedial investigation, and site restoration, as well as a breakdown of these costs by well or project and total administrative costs.

The Annual Report for FY 2013-2014 represents the 19th year that funds were expended from the Orphan Well Fund. Nine wells were plugged, three tank batteries were dismantled and restored, the ground water remediation system (installed during FY 2012) continued, and a total of three Category III sites were investigated for contaminants.

Plugging costs ranged from approximately \$20,000 to \$79,000 with an average cost of \$46,500. Site restoration averaged \$14,000 per location.

As referenced in the last reporting, environmental remediation contracts were indeed completed. This allowed for the beginning of what is expected to become the primary focus of the program in coming years. Eight vendors were qualified to competitively bid on future projects.

Three projects were selected for intense investigation under the new contract portion of the program. Case summaries at the end of this report describe some of the techniques used for these Category III projects.

The total cost for plugging, remediation, response activity, and site restoration for all projects was \$920,984.

The return to the Orphan Well Fund of \$28,230 resulting from the sale of well tubing, casing, equipment, and bond recovery marks an increase from recent years also.

The Michigan Department of Environmental Quality (MDEQ), Office of Oil, Gas, and Minerals' (OOGM) staff of the Orphan Well Program also completed the renewal and requalification for vendors specific to the "Well Plugging Services" portion of the program. Current contracts expired at the end of 2014. The procurement process will be finalized with a new contract period beginning in early 2015. Three vendors have been approved for the term of this contract to competitively bid on future projects.

## DESCRIPTION OF TABLE COLUMN HEADINGS

**COUNTY:** Name of the county where the well is located.

**PERMIT NUMBER:** The number is issued in a chronological order sequence. The first drilling permit (Permit Number 1) was issued in 1927. Permits are currently issued pursuant to Part 615, Supervisor of Wells, of the NREPA. By the end of FY 2013-2014, a total of **61,020** permits had been issued.

**YEAR:** The calendar year in which the drilling permit was issued.

**COMPANY:** The last person or organization that owned the well.

**WELL NAME AND NUMBER:** The name and number assigned by the permittee. The name and number are intended to allow easy identification and differentiation in the oil field of the various wells owned by a company. TB means tank battery.

**CATEGORY:**

**CATEGORY IA** wells are abandoned oil and gas wells that are leaking significant volumes of gas or that, as a result of leaking oil or brine, are contaminating the groundwater used for public consumption.

**CATEGORY IB** wells are abandoned oil and gas wells that are leaking oil, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

**CATEGORY IC** wells are abandoned oil and gas wells that are leaking gas or brine, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

**CATEGORY II** wells are abandoned, nonleaking wells.

**CATEGORY III** wells have been plugged; however, site remediation has not yet been completed.

**PLUGGING COSTS:** The cost to plug the well.

**RESPONSE ACTIVITY:** The cost for removing contaminated soils and fluids in the tank and isolating wellheads and flow lines prior to the plugging of the well.

**REMEDIAL INVESTIGATION:** The estimated cost for studies to define any soils or groundwater and associated resources contamination.

**REMEDICATION:** The estimated cost to remediate soil and groundwater. Costs are to be determined after completing the plugging, interim response, and remedial investigation.

**SITE RESTORATION:** The cost for removal of production equipment and flow lines, disposal of fluids, excavation and disposal of contaminated soils, grading of soils, and revegetation of the area. Site restoration occurs after the plugging of the well.

**TOTAL COSTS:** The total costs per well.

**STATE HOUSE:** The Michigan House District where the well is located.

**STATE SENATE:** The Michigan Senate District where the well is located.

## ORPHAN WELL FUND EXPENDITURES FOR FISCAL YEAR 2013-2014

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	CATEGORY	PLUGGING COSTS	RESPONSE ACTIVITY	REMEDIAL INVESTIGATION	REMEDICATION	SITE RESTORATION	TOTAL COSTS	STATE HOUSE	STATE SENATE
Clare	11435 25745	1945 1965	LaVoye, L&M Van Buskirk, R	Various (2 wells – 0 TB)	II	\$109,849	\$0	\$0	\$0	\$9,190	\$119,039	97	35
Shiawassee	55375	2002	Davenport, Coye	Davenport #4-2 (1 well – 0 TB)	II	\$27,450	\$0	\$0	\$0	\$4,370	\$31,820	85	22
Hillsdale	46018	1992	Reservoir Research Corp.	Denning #3-20 BDW (1 well – 0 TB)	II	\$19,692	\$0	\$0	\$0	\$1,961	\$21,653	58	16
Oceana	33493	1980	Adams, Frank Jr.	Lauber #1-6 BDW (1 well – 1 TB)	II	\$77,375	\$0	\$1,758	\$0	\$77,968	\$157,101	100	34
Lenawee	16693	1959	McClenathan, Fred	McClenathan #1 (1 well – 0 TB)	II	\$33,859	\$0	\$0	\$0	\$11,393	\$45,252	57	16
Mason	21377	1959	Miller Brothers	Bedker #2 (1 well – 0 TB)	II	\$51,226	\$0	\$0	\$0	\$16,144	\$67,370	101	34
Eaton/ Calhoun	30539 <sup>1</sup> 42246	1975 1991	R&B Energy Co. LLC	Various (1 well – 2 TBs)	II	\$47,025	\$0	\$0	\$0	\$37,590	\$84,615	62/71	19/24
St. Clair	23428	1961	Wenning & Forsyth	Wenning & Forsyth #1 (1 well – 0 TB)	II	\$51,000	\$0	\$0	\$0	\$11,076	\$62,076	81	25
Gladwin	19368	1955	Lakeland Oil Corp	School Road (Connolly #B-1)	III	\$0	\$0	\$150,741	\$0	\$0	\$150,741	97	36
Lake	12767	1946	MacCallum, Byron	Lake County Farms #1	III	\$0	\$0	\$18,156	\$89,727	\$640	\$108,523	100	35
Midland	2654	1935	Long, Jack Sr./Bauman, M.	Long #1	III	\$0	\$0	\$54,374	\$0	\$0	\$54,374	99	36
Various	--	--	Various Operators	Category III Site Investigations	III	\$0	\$0	\$7,099	\$0	\$0	\$7,099	--	--
**Otsego	29028	1973	Saba Energy of Texas	Leacock & Hubbard Underwood Unit #1 (ongoing remediation project)	III	\$0	\$0	\$0	\$11,321	\$0	\$11,321	105	36
Plugging, Response Activity, and Site Restoration Costs:						\$417,476	\$0	\$232,128	\$101,048	\$170,332	\$920,984		
Orphan Well Program Administrative Costs:											\$326,986		
<b>TOTAL COSTS :</b>											<b>\$1,247,970</b>		

TB = Tank Battery

<sup>1</sup> = Permit Number 30539 removed from original scope of work. Rescheduled for FY 2015.

\*\* = Continuation of Ground Water Remediation Project started in FY 2013

**Note:** See Orphan Well Fund Project Summary for details on activities undertaken at the above projects.

## ORPHAN WELL FUND PROJECT SUMMARY

### The following is a brief description of Orphan Well Fund Category II Projects for FY 2013-2014

**Clare County Stray – 2014:** This project in Clare County was comprised of two wells within the Stray Sand formation.

Both wells had been previously used as a domestic gas fuel source. Lost tools/fish encountered in one wellbore caused unexpected costs and schedule delays before the final successful completion of the project.

Both well sites were restored and removed from the Orphan Well List upon completion of this project.

Salvage value received from this project was \$1,175.  
(Reference OOGM Project No. 332019-14)

**Davenport # 4-2 (Permit Number [PN] 55375):** One of the newer wells to enter the Orphan Well Program, this wildcat well drilled in 2002 as a “dry hole” was located in northwest Shiawassee County.

Aside from a minor downhole mechanical packer issue, the plugging and restoration occurred without incident. No production equipment was associated with this well. The location was restored, and the site was removed from the Orphan Well List upon project completion.

Salvage value received from this project was \$2,665.  
(Reference OOGM Project No. 332021-14)

**Denning #3-20 BDW (PN 46018):** An abandoned “brine disposal well” comprised this project in Hillsdale County. The tank battery had been removed several years ago under previous actions against this particular owner/operator.

Plugging and abandonment was unusually smooth and without incident. Site restoration was completed and the site removed from the Orphan Well List. Notification was also given to the United States Environmental Protection Agency (U.S. EPA), Region 5’s Underground Injection Control (UIC) staff with results of the successful project.

Salvage value received from this project was \$3,463.  
(Reference OOGM Project No. 332008-14)

**Lauber #1-6 BDW (PN 33493):** Another abandoned “brine disposal well” comprised this project in Oceana County; however, the tank battery remained and cleanup was extensive.

Plugging and abandonment also proved difficult as several downhole problems were encountered. It was apparent that the previous (now deceased) owner had not followed best industry practices. However, successful abandonment was ultimately achieved, with notification of same given to U.S. EPA, Region 5’s UIC staff.

Subsequent cleaning and removal of seven various size stock tanks, each containing several barrels of waste material, revealed significant impacted soil beneath.

After removing several hundred cubic yards of impacted soil, OOGM technicians performed sampling only to find excessive hydrocarbon contaminants remain.

The site excavation was backfilled, and the site was placed on the Category III list for future environmental remediation action.

Salvage value received from this project was \$0.  
(Reference OOGM Project No. 332015-14)

**McClenathan #1 (PN 16693):** This project in Lenawee County was comprised of a well plugged back within the Sylvania formation and previously used as a domestic gas fuel source.

Years of neglect caused decay of tubulars and inoperative valves. The well was open to the atmosphere, and confined pressure was not an issue. A “hot tap” was not required as is the case on several of these types of wells.

The wellhead was replaced, and well plugging proceeded without incident.

The well site was restored and removed from the Orphan Well List upon completion of this project.

Salvage value received from this project was \$342.  
(Reference OOGM Project No. 332020-14)

**Miller Brothers – Bedker #2 (PN 21377):** Occasionally, a well plugged with techniques of another era will reveal itself with a depression or collapse at surface. Such is the case of this project located in Mason County.

While drilling a new well, an operator notified the Orphan Well Program of this collapse feature discovered nearby. Investigation by OOGM staff identified the spot as that of a previously plugged “dry hole” where surface casing was removed in 1961.

Careful excavation located an apparent mud ring or wellbore center. Care was taken to place the rig and tools directly over this location. The perceived wellbore was entered with a stiff bottom hole assembly while gently circulating mud. Within a few days, the stub of the abandoned casing was entered and the well was replugged back to surface.

The well site was restored and removed from the Orphan Well List upon completion of this project.

Salvage value received from this project was \$0.  
(Reference OOGM Project No. 332018-14)

**R&B Energy Co. LLC – 2014:** Two wells from this insolvent operator were initially scheduled for action, one in Calhoun County and the other in Eaton County.

Both sites had production-related equipment at either a tank battery or other abandoned piping from partially dismantled systems. Equipment was removed from both sites, and each area was restored.

The well in Eaton County was plugged without incident and presented no issues. Salvage from tubing, casing, rods, and other items on this site returned a sizeable amount of revenue back to the Orphan Well Program. The site was restored and removed from the Orphan Well List upon completion.

Severe and frequent rain prompted the postponement of plugging the well in Calhoun County. The well location was such that all drainage from the surrounding farm field collected at the well. Repeated rain and lack of drying conditions caused ingress/egress and restoration cost projections to become unacceptable. The well will be rescheduled for action in FY 2015.

Salvage value received from this project was \$15,426.  
(Reference OOGM Project No. 332007-14)

**Wenning & Forsyth #1 (PN 23428):** This project in St. Clair County was comprised of a well previously used as a domestic gas fuel source by two farm homesteads.

Years of neglect made dismantling and entry to valves challenging. However, plugging proceeded without incident or unexpected issue. There were no tanks or production facilities associated with this gas well.

This site was restored and removed from the Orphan Well List upon completion of this project.

Salvage value received from this project was \$2,006.  
(Reference OOGM Project No. 332022-14)

#### **The following is a brief description of Orphan Well Fund Category III Projects for FY 2013-2014**

**School Road (Connolly #B-1) Project:**

A residential well for a home on School Road in Gladwin County was impacted with substantial concentrations of hydrocarbons.

The water well was approximately 300 feet deep in a semi-confined bedrock aquifer. Due to the health risk associated with the level of contamination present in the water supply, the water well was plugged utilizing State funds.

During the water well plugging activities, a substantial amount of free product was removed from the well casing and the well pump was covered in oil.

The home is located in an area with a number of previously unplugged and abandoned oil wells. The nearest abandoned well, the Connolly #B-1 (PN 19368), was plugged recently using Orphan Well Funds and remains on the Category III list and was thought to likely be the source for the crude oil in the residential water well for the home on School Road.

In order to verify the source for the oil, a groundwater investigation was conducted, centered around the impacted residential water well. The OOGM installed three bedrock monitoring wells within the impacted portion of the aquifer. The goal of the project was to determine groundwater flow direction and determine the characteristics of the hydrocarbon plume.

The final report is currently being prepared. It is likely that a Phase II groundwater investigation may be necessary to fully delineate the plume.

*(Reference OOGM Project No. 332024-14)*

**Lake County Farms Remediation Project:**

The Lake County Farms #1 (PN 12767) well was drilled to the Dundee Formation and is located in Lake County. Determined to be a dry hole, the well was subsequently plugged in late January 1947.

In 1996 the OOGM Orphan Well Program replugged the well after notification by the landowner of oil and gas leaking to the surface. Upon completing the task, the site was placed upon the Category III Orphan Well List for future investigation/action.

The OOGM conducted a remedial investigation in 2013 to determine the extent of contamination. A total of 10 borings were advanced. Analytical results of soil indicated hydrocarbon contamination in subsurface to depths of 11 feet. Groundwater was not encountered in any of the borings that were drilled to 12 feet below surface.

In September 2014 the OOGM conducted excavation activities to remediate the site. A total of 1,140 cubic yards (1,265 tons) of hydrocarbon impacted soil was removed from around the well. The OOGM collected confirmation samples to confirm the extent of extraction. All contaminated soil waste was manifested and transported to a landfill for disposal.

The excavation was backfilled and compacted to original grade, and surrounding land and access was restored to landowner preference.

The site was removed from the Category III list upon completion of actions.

*(Reference OOGM Project No. 332025-14)*

**Long #1 (also known as Bauman – Long) Project:**

The Long #1 (PN 2654) well is located in Porter Township, Midland County. The well was drilled in 1935 to the Dundee formation, later deepened for brine disposal and plugged in 1990. According to historical accounts, several releases of brine were documented (flowing and migrating radially away from the wellhead into surface soils) during the active existence of the well.

In 2013 the OOGM conducted a site remedial investigation to evaluate the extent of chloride contamination in soil and groundwater. Activities included installation of soil borings and sampling of: soil, groundwater, surface water, and the residential water well. In addition, one permanent monitor well was installed.

After evaluating the data, the OOGM elected to conduct an exploratory boring at the residence of 2776 Pine River Road, attempting to find potable water and a potential water bearing zone for water well replacement.

In August 2014 a roto-sonic drill rig was utilized to install the exploratory boring. The scope of work included: collecting continuous soil samples and vertical aquifer groundwater samples, and potentially installing a new residential water well, pending the vertical aquifer sampling results.

The boring was advanced to a total depth of 254 feet into the Jurassic Red Beds. A total of 4 vertical aquifer samples were collected for volatile organic compounds (VOCs), chloride, sodium, and other drinking water quality parameters.

Vertical aquifer sampling results indicated chloride, sodium, and iron well above the drinking water criteria in Part 201, Environmental Remediation, of the NREPA. Based upon this data, and conversations with Midland County Health Department officials, it was determined that the boring be plugged and abandoned.

The attempt to locate a potable water bearing zone was unsuccessful. No further action is planned at this site in the near future. The area was restored to the landowner's preference at the conclusion of activities.

*(Reference OOGM Project No. 332023-14)*

#### **Various Category III investigations Project:**

Continuing with practices, as in past years, Orphan Well Funds were utilized to conduct subsurface investigations at three past Orphan Well sites in 2014. These sites, located in Muskegon, Montcalm, and Allegan Counties, respectively, were analyzed for elevated levels of hydrocarbons.

Led by the OOGM hydrogeologist and in cooperation with geologists from the MDEQ, Remediation and Redevelopment Division (RRD), soil and groundwater samples were obtained with State-owned equipment and analyzed at the State of Michigan laboratory.

Soil borings were advanced near the well, or suspected areas where contamination was thought to remain after the initial plugging/site restoration phase has been completed.

These cursory investigations are becoming even more valuable to the Orphan Well Program with the initiation of the expanded environmental services capabilities as a tool for future design specifications. The OOGM will continue to work with the RRD in the coming year to gather data as efficiently and cost effectively as possible in order to prepare scope of work and design criteria for future large-scale remediation projects.

*(Reference OOGM Project No. 332006-13)*

#### **Otsego County – Leacock & Hubbard & Underwood Unit #1 Remediation Project:**

OOGM continued remediation of the Leacock *et al.* #2-21 Category III Orphan Well site. Remediation of elevated levels of 1, 2, 4 - Trimethylbenzene (TMB), 1, 3, 5 – TMB, and Xylenes started in the summer of 2012 and will continue until contamination levels fall below residential drinking water criteria (as per Part 201 “Generic Unrestricted Cleanup Criteria”).

The air sparge/soil vapor extraction remediation system was operational until March 2014, when the soil vapor extraction (SVE) portion of the remediation system was shut-in due to mechanical problems. The OOGM met on-site with specialists in June 2014 to evaluate mechanical issues and to discuss contracting them to complete system repairs and assume operation and maintenance (O&M) of the current on-site system.

A vendor was contracted in August 2014, on an as-needed basis, to repair the SVE and complete O&M at the site. Repair and startup for the SVE started in the fourth quarter of 2014.

Routine sampling of soil and water continues on a quarterly basis. The sampling, to date, has allowed OOGM staff to observe limited concentration reductions in indicator compounds for the site. Monitoring will continue in 2015 to further define and establish trends in the contaminant plume and determine system effectiveness.

This site will remain on the Category III list until the successful completion of operations.  
*(Reference OOGM Project No. 332005-12)*

# 2015 Orphan Well List



Michigan Department of Environmental Quality  
Office of Oil, Gas, and Minerals

Pursuant to Part 616, Orphan Well Fund,  
of the Natural Resources and Environmental Protection Act,  
1994 PA 451, as Amended

For more information on the Orphan Well Program, please contact:

Michigan Department of Environmental Quality  
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## 2015 ORPHAN WELL LIST

The Orphan Well List (List), prepared by the Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals (OOGM), is a compiled listing of oil or gas wells scheduled to be plugged and those at which interim response, remedial investigation, remediation, or site restoration should be performed with money from the Orphan Well Fund. The List is arranged in order of priority using the score assessment determined for each well or project. Estimated costs are given for the total cost of each well or project and the cost of each phase of the project (plugging costs, interim responses, etc.). The List also shows the State House and State Senate District in which each well is located. The criteria used to calculate the score and a brief description of column headings are identified below.

The List is divided into three categories of wells: **Category I** wells are known to be leaking oil, gas, and/or brine; **Category II** wells are not known to be leaking, but may have had past leaks or spills, have been incompletely plugged by the operator, or have surface equipment or facilities remaining; and **Category III** wells have been properly plugged but still have remediation needs.

**Category I** wells are subdivided into three subcategories based on their potential risk to public health, safety, and the environment. The wells are listed in a descending order of priority within each subcategory.

**Category IA** wells are abandoned oil and gas wells that are leaking significant volumes of gas or that, as a result of leaking oil or brine, are contaminating the groundwater used for public consumption.

**Category IB** wells are abandoned oil and gas wells that are leaking oil, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

**Category IC** wells are abandoned oil and gas wells that are leaking gas or brine, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

**Category II** wells are abandoned, nonleaking wells. These wells may also have been incompletely plugged by the operator or have surface equipment or facilities remaining. Category II wells are then grouped and prioritized by project.

**Category III** wells have been plugged; however, site remediation has not yet been completed.

Abandoned oil and gas wells that qualify for plugging under Part 616, Orphan Well Fund, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, must be scored prior to being added to the List. All wells are scored (prioritized) utilizing a well assessment program. The well assessment program was developed by the OOGM. This system factors in: presence and type of contaminants in soils or groundwater from spills, potential for future contamination, sensitivity of drinking water supplies, degree to which groundwater is protected by geology, age of the well, presence of hydrogen sulfide gas, potential for public exposure to contaminants, and the environmental sensitivity of the area.

The score values are only applicable within their respective category. All Category I wells have priority over Category II wells. However, special considerations such as assessment of risk and available technology to successfully resolve a situation, the inability to obtain access to the location, or the need to obtain auxiliary permits may necessitate temporarily bypassing a well with a higher score in favor of a well with a lower score.

**CATEGORY I WELLS**

**CATEGORY IA WELLS** are leaking significant volumes of gas or that, as a result of leaking oil or brine, are contaminating the groundwater used for public consumption.

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	SCORE	PLUGGING COSTS	INTERIM RESPONSE	REMEDIAL INVEST.	REMEDIA-TION	SITE RESTORATION	TOTAL COSTS	STATE HOUSE	STATE SENATE
<b>TOTAL ESTIMATED COSTS:</b>													
<b>TOTAL WELLS: 0</b>													

**CATEGORY IB WELLS** are leaking oil, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	SCORE	PLUGGING COSTS	INTERIM RESPONSE	REMEDIAL INVEST.	REMEDIA-TION	SITE RESTORATION	TOTAL COSTS	STATE HOUSE	STATE SENATE
Muskegon	653	1929	Damm, Carl & Dollie	C.P. Damm #4	24	>\$750,000	\$15,000	T.B.D.	T.B.D.	T.B.D	>\$765,000	92	34
Midland	2076	1934	Turner, Fred	Eugene St. John B #2	19	>\$300,000	\$0	T.B.D.	T.B.D.	T.B.D	>\$300,000	99	36
<b>TOTAL ESTIMATED COSTS:</b>						>\$1,050,000	\$15,000	T.B.D.	T.B.D.	T.B.D	>\$1,065,000		
<b>TOTAL WELLS: 2</b>													

**CATEGORY IC WELLS** are leaking gas or brine, resulting in contamination of soils, surface water resources, or the groundwater where water wells used for public consumption are not yet contaminated.

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	SCORE	PLUGGING COSTS	INTERIM RESPONSE	REMEDIAL INVEST.	REMEDIA-TION	SITE RESTORATION	TOTAL COSTS	STATE HOUSE	STATE SENATE
<b>TOTAL ESTIMATED COSTS:</b>													
<b>TOTAL WELLS: 0</b>													

## CATEGORY II WELLS - PRIORITIZED

CATEGORY II WELLS are not known to be leaking. Projects are delineated by the alternately shaded and nonshaded groups.

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	CAT II WELL SCORE	CAT II PROJ. SCORE	PLUGGING COSTS	INTERIM RESPONSE	REMEDIAL INVEST.	REMEDIA-TION	SITE RESTORATION	TOTAL COSTS	STATE HOUSE	STATE SENATE	
Clare	4870	1938	Lucas, George	Wood #1	24	24	\$45,000	\$0	\$0	T.B.D.	\$15,000	\$60,000	97	35	
Calhoun	30539	1975	R&B Energy Co. LLC	Barnes & Ashley Unit 1	18	19	\$40,000	\$0	\$0	T.B.D.	\$25,000	\$65,000	62	19	
Montcalm	2714	1935	Collin, Clifford Jr.	Fee #1	18	18	\$70,000	\$0	\$0	T.B.D.	\$40,000	\$110,000	70	33	
Lenawee	58718		Morris Bren, LLC	Ham #1-7	17	16	\$35,000	\$0	\$0	T.B.D.	\$5,000	\$40,000	57	16	
Lenawee	57936	2006	Morris Bren, LLC	Wellhauser #1-36	14	16	\$35,000	\$0	\$0	T.B.D.	\$30,000	\$65,000	57	16	
Saginaw	1983	1934	Crabon Oil Co.	Berg #1	14	13	\$5,000	\$0	\$0	T.B.D.	\$5,000	\$10,000	94	32	
Saginaw	N/A	1926	Bacon, S.M.	Judd, George #1	15	13	\$5,000	\$0	\$0	T.B.D.	\$5,000	\$10,000	94	32	
Saginaw	20906	1958	Sayers, Foster	Reis #1	11	13	\$5,000	\$0	\$0	T.B.D.	\$5,000	\$10,000	94	32	
Manistee	N/A	N/A	Manistee Gas LLC	Brown CPF	13	13	*PC	\$0	\$0	T.B.D.	\$125,000	\$125,000	101	35	
Mason	1040	1930	Diamond MI	Diamond #2	12	12	\$40,000	\$0	\$0	T.B.D.	\$5,000	\$45,000	101	34	
Eaton	29925	1974	Midway-Terrel Operating Co.	Zentmyer-Cupp #1	11	11	*PC	\$0	\$0	T.B.D.	\$10,000	\$10,000	71	24	
Otsego	44355	1991	Duff Oil Company	Forterra #1-15	11	11	*PC	\$0	\$0	T.B.D.	\$20,000	\$20,000	105	36	
Wexford	N/A	<1931	Unknown	Cummer Diggins Location	7	11	\$5,000	\$0	\$0	T.B.D.	\$2,500	\$7,500	102	35	
Sanilac	966	1930	K-Bar Oil & Gas	Kolodziej #1	11	11	\$2,500	\$0	\$0	T.B.D.	\$5,000	\$7,500	83	25	
Tuscola	64	1928	Murphy Oil Co.	Adam Gottler #1	11	11	\$2,500	\$0	\$0	T.B.D.	\$5,000	\$7,500	84	31	
St. Clair	506	1929	Patterson, BP Trustee	Routley #1	13	11	\$5,000	\$0	\$0	T.B.D.	\$5,000	\$10,000	83	25	
Bay	1016	1930	Eureka Oil Corp	Lambert-Cloverleaf #1	11	11	\$5,000	\$0	\$0	T.B.D.	\$2,500	\$7,500	98	31	
Isabella	471	1929	McCandless, J.	Bufford #1	11	11	*PC	\$0	\$0	T.B.D.	\$5,000	\$5,000	99	33	
Ogemaw	4333	1937	R.E. Gallagher	Vincent, Ellis #1	11	10	\$55,000	\$0	\$0	T.B.D.	\$8,000	\$63,000	103	35	
Ogemaw	31207	1976	States Petroleum	Sheppard & Marquieta #1	9	10	\$65,000	\$0	\$0	T.B.D.	\$2,000	\$67,000	103	35	
Presque Isle	40971	1988	Richland Exploration	Compton #1-14B	8	10	\$50,000	\$0	\$0	T.B.D.	\$4,000	\$54,000	106	36	
Presque Isle	40923	1988	Richland Exploration	Kimball #1-11	11	10	\$50,000	\$0	\$0	T.B.D.	\$7,000	\$57,000	106	36	
Manistee	39990	1986	Alumni Petroleum and Resource Management Corp.	Marshall Enterprises #1-23C	9	9	*PC	\$0	\$0	T.B.D.	\$10,000	\$10,000	101	35	
Jackson	40643	1987	Stackable Drilling Corp.	Phillips #10-30A	7	7	*PC	\$0	\$0	T.B.D.	\$2,500	\$2,500	65	19	
Estimated Costs Remaining:							\$520,000	\$0	\$0	T.B.D.	\$348,500	\$868,500			
Current Number of Category II Orphan Wells:							24								

\*PC = Plugging Complete

## CATEGORY III WELLS

## CATEGORY III WELLS – Sites still require remedial work.

COUNTY	PERMIT NUMBER	YEAR	COMPANY	WELL NAME & NUMBER	SCORE	ACTUAL PLUGGING	ACTUAL INTERIM RESPONSE	ACTUAL SITE RESTOR.	TOTAL COSTS TO DATE	ESTIMATED REMEDIAL INVEST.	ESTIMATED REMED.	ESTIMATED FUTURE COSTS	SALVAGE (Income)	STATE HOUSE	STATE SENATE
Allegan	15891	1950	Michigan Pipe Co.	Maude Mesick #1	17	\$27,580	\$0	\$19,374	\$46,953	\$10,000	\$50,000	\$60,000	\$0	80	26
Calhoun	N/A	1970	James Kelly dba Kelly Oil Co.	Miller CTB	13	\$141,282	\$0	\$5,671	\$146,953	\$1,500	\$80,000	\$81,500	\$0	62	19
Calhoun	35732	1982	Kulka & Schmidt	McCloud #1-23	*PC	-	\$0	\$0	\$0	\$0	\$1,000	\$1,000	\$0	62	19
Genesee	28458	1971	Richter, Ervin	Elliot-Sammons Unit #1	*PC	-	\$0	\$0	\$0	\$10,000	\$50,000	\$60,000	\$0	48	26
Gladwin	18112	1953	Lakeland Oil Corp.	Kobetich #L-2	25	\$50,420	\$0	\$10,400	\$60,820	\$10,000	\$75,000	\$85,000	\$0	97	36
Gladwin	19368	1955	Lakeland Oil Corp.	Connolly #B-1	Active Project	\$50,420	\$0	\$10,400	\$211,561	\$100,000	\$200,000	\$300,000	\$0	97	36
Kent	6056	1939	Bauman, M.H.	Burgess #1	20	\$29,500	\$0	\$5,300	\$34,800	\$5,000	\$75,000	\$80,000	\$0	74	28
Kent	21542	1959	Fenske, Howard	Blair #1	20	\$45,813 <sup>1</sup>	\$0	\$5,259 <sup>1</sup>	\$51,072 <sup>1</sup>	\$10,000	\$50,000	\$60,000	\$0	74	28
Manistee	30540	1975	Whitney Oil & Gas Corp.	Hadaway #2-2A	*PC	-	-	-	\$0	\$10,000	\$20,000	\$30,000	\$0	101	35
Missaukee	21979	1959	McBain Venture Inc.	Kuipers, Wilbert #2	*PC	-	-	-	\$0	\$25,000	\$75,000	\$100,000	\$0	103	35
Montcalm	11919	1945	Kill Drilling Co.	Douglas #1	16	\$40,316	\$0	\$40,268	\$80,584	\$10,000	\$75,000	\$85,000	\$0	70	33
Montcalm	10816	1944	Stewart, Fred	Charnley - Witherall # 1	44	\$39,000	\$0	\$25,900	\$64,900	\$1,500	\$7,000	\$8,500	\$0	70	33
Montcalm	10922	1944	Stewart, Fred	Paris #1	17	\$44,224 <sup>1</sup>	\$0	\$7,437 <sup>1</sup>	\$51,661 <sup>1</sup>	\$10,000	\$75,000	\$85,000	\$0	70	33
Montcalm	27876	1969	Stewart, James	Graham, H. #1	43	\$33,206	\$0	\$9,190	\$42,396	\$50,000	\$150,000	\$200,000	\$0	70	33
Montcalm	28170	1970	Stewart, James	Marzig #1	16	\$44,224 <sup>1</sup>	\$0	\$7,437 <sup>1</sup>	\$51,661 <sup>1</sup>	\$5,000	\$50,000	\$55,000	\$0	70	33
Muskegon	92	1928	Continental Motors Corp.	Continental #1	47	\$56,161	\$4,570	\$6,424	\$67,155	\$50,000	\$200,000	\$250,000	\$0	92	34
Muskegon	85	1928	Muskegon Oil Corp.	H. Heinz #3	38	\$46,086	\$5,111	\$2,746	\$53,943	\$10,000	\$35,000	\$45,000	\$0	92	34
Muskegon	114	1928	W. J. Simon	Reeths #1-D	37	\$69,458	\$11,551	\$5,715	\$86,724	\$20,000	\$50,000	\$70,000	\$0	92	34
Muskegon	17673	1952	McCallister, Bernard	Beroza #1	19	\$31,041 <sup>1</sup>	\$0	\$19,575 <sup>1</sup>	\$50,616 <sup>1</sup>	\$5,000	\$50,000	\$55,000	\$0	91	34
Muskegon	10425	1943	McCallister, Bernard	Neubeck #1	19	\$31,041 <sup>1</sup>	\$0	\$19,575 <sup>1</sup>	\$50,616 <sup>1</sup>	\$10,000	\$50,000	\$60,000	\$0	91	34
Muskegon	33024	1979	McCallister, Bernard	Harmsen #1	23	\$47,800 <sup>1</sup>	\$0	\$8,862 <sup>1</sup>	\$56,662 <sup>1</sup>	\$10,000	\$75,000	\$85,000	\$0	92	34
Muskegon	12248	1946	McCallister, Bernard	Zelinka #3	*PC	-	\$0	\$19,575 <sup>1</sup>	\$19,575 <sup>1</sup>	\$10,000	\$75,000	\$85,000	\$0	91	34
Oceana	31691	1977	Simmons, J.	Vander Zanden #2	15	\$45,246	\$0	\$5,882	\$51,128	\$5,000	\$50,000	\$55,000	\$0	100	34
Oceana	33493	1980	Adams, Frank Jr.	Lauber #1-6 BDW	14	\$78,523	\$0	\$80,160	\$158,683	\$100,000	\$200,000	\$300,000	\$0	100	34
Otsego	29028	1973	Saba Energy of TX	Leacock, Hubbard Underwood Unit #1	Active Project	-	\$0	\$45,127	\$102,760	\$10,000	\$60,000	\$70,000	\$0	105	36
Ottawa	20899	1958	J & T Distributing	Kneibel #1	19	\$21,000	\$0	\$5,700	\$26,700	\$5,000	\$50,000	\$55,000	\$0	88	30
Ottawa	20219	1956	J & T Distributing	Reed #1	19	\$21,000	\$0	\$5,700	\$26,700	\$5,000	\$50,000	\$55,000	\$0	88	30
Ottawa	7051	1939	J & T Distributing	Sims #1	19	\$21,000	\$0	\$5,700	\$26,700	\$5,000	\$50,000	\$55,000	\$0	88	30
Estimated Costs Remaining:										\$503,000	\$2,028,000	\$2,531,000			
Total Category III Sites Remaining: 28															

\*PC = Plugging Complete

<sup>1</sup> = average cost