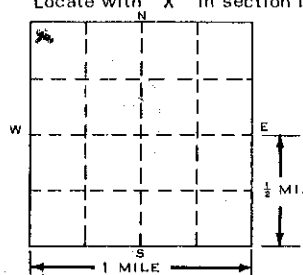
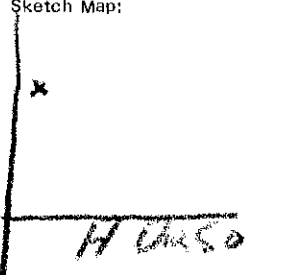


**WATER WELL RECORD**  
 ACT 294 PA 1965

MICHIGAN DEPARTMENT  
 OF  
 PUBLIC HEALTH

<b>1 LOCATION OF WELL</b>		<i>Frederonia</i>	
County <i>Cal.</i>	Township Name <i>Frederonia</i>	Fraction <i>NW 1/4 NW 1/4 NW 1/4</i>	Section Number <i>6</i>
Distance And Direction from Road Intersections <i>1/2 mi. W of A.D. So - East side of</i>		Town Number <i>3 N/S.</i>	Range Number <i>6 E/W.</i>
Street address & City of Well Location <i>12 mi 11950</i>		3 OWNER OF WELL: <i>N B Hughes</i> Address <i>Rte. 1 Cassco 11950 - 12th Rd</i>	
Locate with "X" in section below 		Sketch Map: 	
2 FORMATION		4 WELL DEPTH: (completed) <i>70'</i> ft.	Date of Completion <i>3/21/72</i>
		5 <input checked="" type="checkbox"/> Cable tool <input type="checkbox"/> Rotary <input type="checkbox"/> Driven <input type="checkbox"/> Dug <input type="checkbox"/> Hollow rod <input type="checkbox"/> Jetted <input type="checkbox"/> Bored <input type="checkbox"/>	
		6 USE: <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Public Supply <input type="checkbox"/> Industry <input type="checkbox"/> Irrigation <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Commercial <input type="checkbox"/> Test Well <input type="checkbox"/>	
7 CASING: Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/>		Height: Above/Below Surface <i>1</i> ft.	
		<i>4</i> in. to <i>5 1/2</i> ft. Depth	Weight <i>1100</i> lbs./ft.
		<i>4</i> in. to _____ ft. Depth	Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sand Gravel		8 SCREEN: Type: <i>Name</i> Dia.: _____ Slot/Gauze _____ Length _____ Set between _____ ft. and _____ ft. Fittings: _____	
Brown Rock		9 STATIC WATER LEVEL <i>25</i> ft. below land surface	
Water Bearing Rock		10 PUMPING LEVEL below land surface _____ ft. after _____ hrs. pumping _____ g.p.m. <i>25</i> ft. after <i>1</i> hrs. pumping <i>30</i> g.p.m.	
		11 WATER QUALITY in Parts Per Million: Iron (Fe) _____ Chlorides (Cl) _____ Hardness <i>Not Available</i> Other _____	
		12 WELL HEAD COMPLETION: <input type="checkbox"/> In Approved Pit <input checked="" type="checkbox"/> Pitless Adapter <input type="checkbox"/> 12" Above Grade	
		13 Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Depth: From _____ ft. to _____ ft.	
		14 Nearest Source of possible contamination <i>40</i> feet <i>E</i> Direction <i>Septic Tank</i> Type _____ Well disinfected upon completion <input type="checkbox"/> Yes <input type="checkbox"/> No	
		15 PUMP: <input type="checkbox"/> Not installed Manufacturer's Name <i>Deere</i> Model Number <i>DSL-1 P</i> HP <i>3/4</i> Volts <i>230</i> Length of Drop Pipe <i>31</i> ft. capacity _____ G.P.M. Type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Jet <input type="checkbox"/> Reciprocating	
16 Remarks, elevation, source of data, etc.  ADDED INFO. BY DRILLER, ITEM NO _____ CORRECTED BY _____ ADDITION BY _____		17 WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. <i>Russell</i> <i>0395</i> REGISTERED BUSINESS NAME _____ REGISTRATION NO. _____ Address <i>18050 Cassco</i> Signed <i>Russell</i> Date <i>3/23/72</i> AUTHORIZED REPRESENTATIVE	

**WATER WELL AND PUMP RECORD**

01 93 99

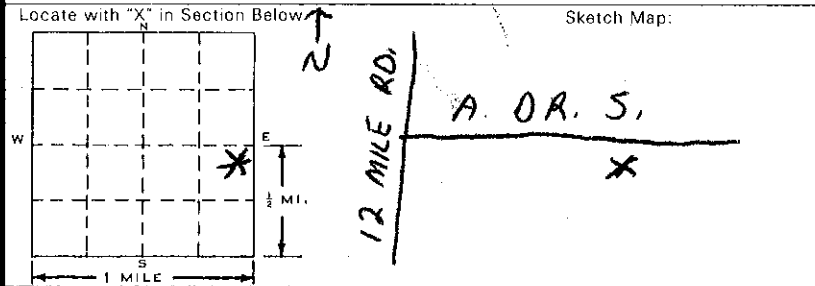
**PERMIT NUMBER**

**1 LOCATION OF WELL**

County <b>CALHOUN</b>	Township Name <b>FREDONIA</b>	Fraction <b>NE 1/4 NE 1/4 SE 1/4</b>	Section Number <b>6</b>	Town Number <b>3 N</b>	Range Number <b>6 E</b>
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Distance And Direction From Road Intersection  
**7/10 MILE EAST OF 12 MILE RD. ON THE SOUTH SIDE OF A DR. S.**

Street Address & City of Well Location



**3 OWNER OF WELL:** **JEFFERY SCHOOK**  
Address: **1141 ARMS #3 MARSHALL, MI. 49068**  
Address Same As Well Location?  Yes  No

**4 WELL DEPTH:** **120** FT. Date Completed: **11-29-93**  
 New Well  Replacement Well

**5**  Cable tool  Rotary  Driven  Dug  
 Hollow rod  Auger  Jetted

**6 USE:**  Domestic  Type I Public  Type III Public  
 Irrigation  Type IIa Public  Heat pump  
 Test Well  Type IIb Public

**7 CASING:** Diameter:  Steel  Threaded  Plastic  Welded  
Height: **9** Above Below Surface **9** ft.  
Weight: **3** lbs/ft  
Ground Drill Hole Diameter: **8** in. to **93** ft. depth  Yes  No  
**PACKER**

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
<b>0-52 GRAVEL + BOULDERS</b>	<b>52</b>	<b>52</b>
<b>52-72 SOFT CLAY + SAND</b>	<b>20</b>	<b>72</b>
<b>72-93 SOFT BROKEN ROCK</b>	<b>21</b>	<b>93</b>
<b>93-120 WATER BEARING SANDROCK</b>	<b>27</b>	<b>120</b>

**8 SCREEN:**  Not installed  
Type \_\_\_\_\_ Diameter \_\_\_\_\_  
Slot/Gauze \_\_\_\_\_ Length \_\_\_\_\_  
Set between \_\_\_\_\_ ft. and \_\_\_\_\_ ft.  
FITTINGS:  K-Packer  Lead Packer  Bremer Check  
 Blank above screen \_\_\_\_\_ ft. Other \_\_\_\_\_

**9 STATIC WATER LEVEL:** **17** ft. below land surface  Flow

**10 PUMPING LEVEL:** below land surface **30 G.P.M. FROM 30'**  
\_\_\_\_\_ hrs. pumping at \_\_\_\_\_ G.P.M.  
\_\_\_\_\_ ft. after \_\_\_\_\_ hrs. pumping at \_\_\_\_\_ G.P.M.

**11 WELL HEAD COMPLETION:**  Pitless adapter  12" above grade  
 Basement offset  Approved pit

**12 WELL GROUTED?**  No  Yes From **0** to **93** ft.  
 Neat cement  Bentonite  Other \_\_\_\_\_  
No. of bags of cement: **9** Additives \_\_\_\_\_

**13 Nearest source of possible contamination:** Type **SEPTIC** Distance **50+** ft. Direction **NW**  
Well disinfected upon completion?  Yes  No  
Was old well plugged?  Yes  No

**14 PUMP:**  Not Installed  Pump Installation Only  
Manufacturer's name: **MC DONALD**  
Model number: **21050K3** HP **1/2** Volts **230**  
Length of Drop Pipe: **30** ft. capacity **10** G.P.M.  
TYPE:  Submersible  Jet  
PRESSURE TANK: Manufacturer's name: **PERMA-AIR**  
Model number: **PAD-20** Capacity: **5.0** Gallons

15. Remarks, elevation, source of data, etc.

**16. WATER WELL CONTRACTOR'S CERTIFICATION:**  
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.  
**KATZ WELL DRILLING INC. 13-0393**  
REGISTERED BUSINESS NAME: \_\_\_\_\_ REGISTRATION NO. \_\_\_\_\_  
Address: **1479 E. MICH. AVE. BATTLE CREEK**  
Signed: **Marc McKeague** Date: **11-29-93**  
AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name: **MARC MCKEAGUE** REG. # **13-1605**

RECEIVED  
MICH. DEPT. OF PUBLIC HEALTH  
DEC 20 93  
BUREAU OF ENVIRONMENTAL  
AND OCCUPATIONAL HEALTH

USE A 2ND SHEET IF NEEDED

Authority: Act 368 PA 1978  
Completion: Required  
Penalty: Conviction of a violation of any provision is a misdemeanor.







NOV 06 1987

STATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES  
GEOLOGICAL SURVEY DIVISION  
P.O. BOX 30028, LANSING, MICHIGAN 48909

**RECORD OF WELL DRILLING OR DEEPENING**

USE APPROPRIATE BLOCKS, FOR ITEMS NOT LISTED SUBMIT ATTACHMENTS.

REQUIRED BY AUTHORITY OF:

- ACT 61, P.A. 1939, AS AMENDED. (Submit 2 copies within 30 days of completion.)
- ACT 315, P.A. 1968, AS AMENDED. (Submit 2 copies within 60 days of completion.)

NON-SUBMISSION AND/OR FALSIFICATION OF THIS INFORMATION MAY RESULT IN FINES AND/OR IMPRISONMENT.

PERMIT NO./DEEPENING PERMIT NO. <b>40706</b>	TYPE OF WELL (after completion) <b>Dry Hole</b>
FIELD/FACILITY NAME <b>Exploratory</b>	
WELL NAME & NUMBER <b>Raymond 1-6</b>	
SURFACE LOCATION <b>SW 1/4 of NW 1/4 of SW 1/4 Section 6 T 3S R 6W</b>	
TOWNSHIP <b>Fredonia</b>	COUNTY <b>Calhoun</b>
FOOTAGES: NORTH/SOUTH <b>825 Ft. from N Line and 330ft. from W Line of 1/4 Sec.</b>	
EAST/WEST	
SUBSURFACE LOCATION (if directionally drilled) <b>1/4 of 1/4 of 1/4 Section T R</b>	
TOWNSHIP	COUNTY
FOOTAGES: NORTH/SOUTH	
EAST/WEST	
Ft. from Line and Ft. from Line of 1/4 Sec.	
FEET DRILLED - CABLE TOOLS From <b>1514</b> To <b>1523</b>	
FEET DRILLED - ROTARY TOOLS From <b>0</b> To <b>1514</b>	
ELEVATIONS	
K.B. <b>955.0ft.</b>	R.F. <b>ft.</b>
F.F. <b>ft.</b>	Grd. <b>44.2 ft.</b>

NAME AND ADDRESS OF OWNER  
**Tony Canonie, Sr.  
P. O. Box 548  
South Haven, Michigan 49090**

NAME AND ADDRESS OF DRILLING CONTRACTOR  
**Sibley Drilling Co.  
Walkerville, Michigan 49459**

DATE DRILLING BEGAN **10-8-87**    DATE DRILL COMPLETED **10-19-87**    DATE WELL COMPLETED **10-28-87**

TOTAL DEPTH OF WELL **1523 Log**    FORMATION AT T.D. **Trav Lime**    PROD. FORMATION(S)

DATE OF FIRST INJECTION    INJECTED FORMATION    SOLUTION FORMATION

**CASING, CASING LINERS AND CEMENTING, OPERATING STRINGS**

**PERFORATIONS**

SIZE	WHERE SET	CEMENT	FT. PULLED	DATE	NUMBER HOLES	INTERVAL PERFORATED	OPEN	
							YES	NO
11-3/4	86	80	-					
8-5/8	232	100	-					
5-1/2	1513 1/2	75	1000					

**GROSS PAY INTERVALS**

**ALL OTHER OIL AND GAS SHOWS OBSERVED OR LOGGED**

FORMATION	OIL OR GAS	FROM	TO	FORMATION	OIL OR GAS	DEPTH	WHERE OBSERVED (X)						
							Samp-les	Odor	Pits	Mud Line	Gas Log	Fit Up	

**STIMULATION BY ACID OR FRACTURING**

**WATER FILL UP (F.U.) OR LOST CIRCULATION (L.C.) (X)**

DATE	INTERVAL TREATED	MATERIALS AND AMOUNT USED	FORMATION	F.U. L.C.	DEPTH	AMOUNT
			Traverse Lime	X	1515	1150'/62 hrs
			Traverse Lime	X	1520	800'/2 hrs

**MECHANICAL LOGS, LIST EACH TYPE RUN**

**DEPTH CORRECTION**

**DEVIATION SURVEY**

**PLUGGED BACK**

BRAND	(X)	LOG TYPES	LOGGED INTERVALS	DEPTH	CORRECTION	RUN AT	DEGREES	YES	NO	DEPTH
Schlumberger		None		1514	-	-	-			
Browell										

**PRODUCTION TEST DATA**

Oil - Bbls/day	GRAVITY - °API	COND - Bbls/day	GAS - MCF/day	WATER - Bbls/day	H <sub>2</sub> S - Grains/100 cu. ft.	B.H.P. AND DEPTH
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I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

DATE **10-30-87**    NAME AND TITLE (PRINT) **Tony Canonie, Sr.**    SIGNATURE *Tony Canonie*

THIS REPORT COMPLETELY CUMPLETS THE PERMITS RECORD, CASING RECORD AND DRILL STEM TEST INFORMATION ON REVERSE SIDE

## SAMPLE DESCRIPTION

Canonie #1-6 Raymond  
 Fredonia Twp,  
 Calhoun County, Mi.

K. B. Elev. = 955'

0000-0045	Glacial Drift
0045-0125	Marshall
0125-1150	Coldwater Shale
1150-1155	Coldwater Redrock
1155 (-200)	Base Coldwater Redrock
1155-1168	Bedford
1168 (-213)	Antrim
1168-1410	Shale, black.
1410-1425	Shale, grey-greyish green and lime, grey, shaly.
1425-1440	Shale black-dark brown. Bleeding gas.
1440-1444	Lime, light brown-greyish brown, vvx, pyritic. Trace of white chert and white calcite.
1444-1456	Shale, dark brown and medium brown.
1456-1459	As above with a trace of grey shale.
1459-1469	Shale, light grey, limy. Minor pyrite and calcite
1469 (-514)	Traverse Formation
1469-1471	Lime, greyish brown, vvx-dense, and shaly lime.
1471-1476	As above and lime, tan, clean. Abundant shale, dark grey, limy.
1476-1492	Lime, light brown, dense, and lime light grey, soft. Trace of pyrite.
1492-1511	As above and lime, light tan, dense.
1511-1513	Shale, black, pyritic.
1513 (-558)	Traverse Lime
1513-1513.5	Chert, white and dolomite, tan-white, xlyn, porous, with possible oil stain.
1513.5-1514	Dolomite, tan-white, xlyn-vvx. Minor chert. (fill up 1150' saltwater/62 hours. Oil odor.)
1514-1516.5	As above, with increase in white chert to 20%. (Fill up 350' saltwater/2.5 hours.)
1516.5-1521	As above, but better porosity. (Fill up 800' saltwater/2 hours). Good odor. Rainbow.
1521-1523	As above with good porosity as indicated by fast drilling time. Maximum fill up was 1150'.
1523 (-568)	Total Depth.

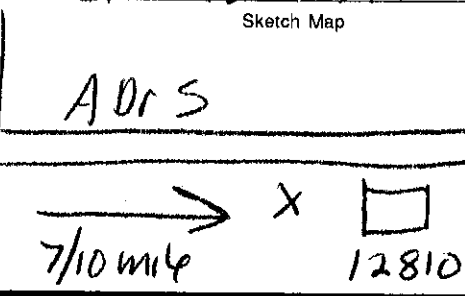
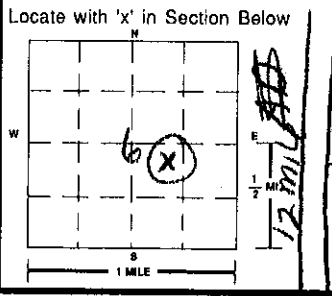
MICHIGAN DEPARTMENT OF PUBLIC HEALTH  
**WATER WELL AND PUMP RECORD**

TAX NO:

PERMIT NO:  
005-189

1. LOCATION OF WELL  
 County Calhoun Township Name Fredonia Fraction NE 1/4 NW 1/4 SE 1/4 Section No. 6 Town No. 35 Range No. 6W

Distance and Direction from Road Intersection  
A Dr S, south side just west of 12810 A Dr S  
 Street Address & City of Well Location west of 12810 A Dr S



3. OWNER OF WELL Clair Hatmaker  
 Address 14083 A Dr S, Marshall MI 49068  
 Address Same as Well Location  Yes  No

4. WELL DEPTH: 102 ft. Date Completed 1/16/95  
 New Well  Replacement Well

5.  Cable Tool  Rotary  Driven  Dug  
 Hollow Rod  Auger/Bored  Jetted

6. USE:  Household  Type I Public  Type III Public  
 Irrigation  Type IIa Public  Heat Pump  
 Test Well  Type IIb Public

7. CASING:  Steel  Threaded  Plastic  Welded  
 Other  
 Diameter: 5 in. to 73 ft. depth  
 BORE HOLE: 7 7/8 in. to 73 ft. depth  
4 3/4 in. to 102 ft. depth  
 Height: Above/Below Surface: 0 ft.  
 Weight: 3 lbs./ft.  
 Drive Shoe  Shale Packer

8. SCREEN:  Not Installed  Gravel-Packed  
 Type \_\_\_\_\_ Diameter \_\_\_\_\_  
 Slot/Gauze \_\_\_\_\_ Length: \_\_\_\_\_  
 Set Between \_\_\_\_\_ ft. and \_\_\_\_\_ ft.  
 FITTINGS:  K-Packer  Bremer Check  
 Blank Above Screen \_\_\_\_\_ ft. Other \_\_\_\_\_

9. STATIC WATER LEVEL:  
21 ft. Below Land Surface  Flowing

10. PUMPING LEVEL: Below Land Surface  
30 ft. After 1 hrs. Pumping at 30 G.P.M.  
 Plunger  Bailer  Air  Test Pump

11. WELL HEAD COMPLETION:  
 Pitless Adapter  12" Above Grade  
 Basement Offset  Well House

12. WELL GROUTED?  No  Yes From 0 to 73 ft.  
 Neat Cement  Bentonite  Other \_\_\_\_\_  
 No. of Bags 4 Additives \_\_\_\_\_

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:  
 Type septic Distance 50 miles Direction S  
 Type \_\_\_\_\_ Distance \_\_\_\_\_ ft. Direction \_\_\_\_\_

14. PUMP:  Not Installed  Pump Installation Only  
 Manufacturer's Name MCDONALD  
 Model Number 21050K2 HP 1/2 Volts 230  
 Length of Drop Pipe 30 ft. Capacity 10 G.P.M.  
 TYPE:  Submersible  Jet  Other \_\_\_\_\_  
 PRESSURE TANK:  
 Manufacturer's Name PERMA-AIR  
 Model Number PAD-20 Capacity 5.0 Gallons 20

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
<u>0-4 SAND + CLAY</u>	<u>4</u>	<u>4</u>
<u>4-28 SAND</u>	<u>24</u>	<u>28</u>
<u>28-50 SOFT BROWN CLAY + SAND</u>	<u>22</u>	<u>50</u>
<u>50-53 GRAVEL, STONES, CLAY</u>	<u>3</u>	<u>53</u>
<u>53-73 SOFT BROKEN ROCK</u>	<u>20</u>	<u>73</u>
<u>73-102 WATER BEARING SANDROCK</u>	<u>29</u>	<u>102</u>

15. ABANDONED WELL PLUGGED?  Yes  No  
 Casing Diameter \_\_\_\_\_ in. Depth \_\_\_\_\_ ft.  
 PLUGGING MATERIAL:  Neat Cement  Bentonite Slurry  
 Cement/Bentonite Slurry  Concrete Grout  Bentonite Chips  
 No. of Bags \_\_\_\_\_ Casing Removed?  Yes  No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:  
 Employee  Subcontractor  
 Name MARC MCKEAGUE

14. WATER WELL CONTRACTOR'S CERTIFICATION:  
 This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.  
KATZ WELL DRILLING INC. REG. #13-1598  
 REGISTERED BUSINESS NAME REGISTRATION NO.  
 Address 147 E. MICH. AVE. BATTLE CREEK  
 Signed Marc Mckeague Date 1-16-95  
 AUTHORIZED REPRESENTATIVE

