



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett  
County Executive

Robert G. Hoyt  
Director

March 27, 2009

Ms. Martha Hynson, Chief  
Landfill Operations Division  
Maryland Department of the Environment  
1800 Washington Boulevard, Suite 605  
Baltimore, Maryland 21230-1719

Dear Ms. Hynson:

Please find enclosed the Groundwater and Surface Water Monitoring (G&SWM) Plan for the Gude Landfill as requested in your letter to me dated January 28, 2009. This monitoring plan was developed in accordance with Maryland Department of the Environment (MDE) guidelines provided in your letter and with the requirements set forth in the Code of Maryland Regulations (COMAR) 26.04.07.08B(17) and 26.04.07.09F. The Montgomery County Department of Environmental Protection (DEP) will continue to perform the existing Gude Landfill groundwater and surface monitoring program until such time as we receive final approval of the enclosed G&SWM Plan or unless otherwise directed by your office. Once DEP receives MDE approval of the G&SWM Plan, DEP will adopt the approved Plan for the monitoring of the Gude Landfill and in the development of future reports.

Montgomery County DEP appreciates the assistance and advice provided by your office in the development of the G&SWM Plan, the Landfill Gas Monitoring Plan and in our on-going effort to develop a remediation plan for the Gude Landfill. DEP is developing a cooperative working relationship with the Community near the Gude Landfill that will enable us to efficiently respond to their concerns and communicate the monitoring results and reports from these monitoring plans. As discussed, we will involve the community in the development of the landfill remediation plan. It is our goal to be responsive to both MDE and the community as we investigate and address the impacts of the Gude Landfill in this area of the County.

Please do not hesitate to contact me if you have any comments or questions on the enclosed G&SWM Plan. I can be contacted at 240-777-7733 or at [dave.lake@montgomerycountymd.gov](mailto:dave.lake@montgomerycountymd.gov).

Sincerely,

David W. Lake, Manager  
Water and Wastewater Policy Group

Enclosure  
cc: Andrew Grenzer, MDE (w/encl.)  
Robert Hoyt, DEP  
Nasser Kamazani, DEP  
Peter Karasik, DSWS  
Stephen Lezinski, DSWS (w/encl.)

# **GUDE LANDFILL**

**600 East Gude Drive  
Rockville, Maryland 20850**

## **GROUNDWATER AND SURFACE WATER MONITORING PLAN**

Prepared By:

**Montgomery County  
Department of Environmental Protection  
255 Rockville Pike, Suite 120  
Rockville, Maryland 20850**

Presented To:

**Maryland Department of the Environment  
1800 Washington Blvd. Suite 605  
Baltimore, MD 21230**

**March 2009**

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## **I. INTRODUCTION:**

The Montgomery County Department of Environmental Protection (DEP) received a letter on January 30, 2009 (Attachment A) from the Maryland Department of the Environment (MDE) requiring, among other things, submission of a Groundwater and Surface Water Monitoring ("G&SWM") Plan for the Gude Landfill within 60 days. MDE's letter directed that the G&SWM Plan be prepared in accordance with Code of Maryland Regulations (COMAR) 26.04.07.08B(17) and 26.04.07.09F and guidelines set forth in the letter. This G&SWM Plan is intended to fulfill these requirements.

## **II. BACKGROUND:**

The Gude Landfill is located on the north side of Gude Drive and extends toward Southlawn Lane, northeast of the City of Rockville in Montgomery County. The site encompasses approximately 160 acres, of which approximately 100 acres were used for the disposal of municipal waste and incinerator residues. The Gude Landfill accepted municipal solid waste from 1964 until it closed on June 1, 1982. It operated prior to the promulgation of the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR Part 258) governing landfill design and closure in 1991.

Montgomery County, in accordance with the closure requirements identified by the Maryland Department of Health and Mental Hygiene (MDHMH) in 1984, implemented a comprehensive water quality monitoring program at the Gude Landfill. DEP has conducted this monitoring program for the past twenty five years. Sampling and analysis have been conducted semi-annually and have included laboratory analysis for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Pesticides, Heavy Metals, and other water quality indicators. To monitor the quality of groundwater and surface water, DEP has been collecting samples at a total of 25 monitoring sites, which include 20 observation wells and 5 stream locations (as approved by MDHMH in 1984). Locations of these monitoring sites can be found on the attached aerial photo marked Gude Well and Stream Monitoring Locations in Attachment B.

## **III. PURPOSE:**

The main purposes of this Ground and Surface Water Monitoring Plan are to:

- Establish a strategy for continuing to monitor and evaluate the potential risks that may be associated with the Gude Landfill discharges;

- Standardize and formalize a communication link between Montgomery County and MDE concerning the water quality around Gude Landfill; and,
- Modify the existing groundwater and surface water monitoring program (approved by MDHMH) in accordance with MDE's current standards, guidelines, and requirements contained in "Attachment A."

#### **IV. MONITORING PROGRAM:**

The current monitoring program will be modified in accordance with the MDE's identified guidelines. The G&SWM Plan includes the components listed below.

##### **A. MONITORING LOCATIONS:**

Montgomery County will continue to monitor water quality around Gude Landfill through the following groundwater well and stream monitoring locations:

##### **1. GROUNDWATER MONITORING:**

Twenty observation wells along the perimeter of the landfill will serve to monitor the potential contaminants entering the groundwater from subsurface leachate migration. The locations of these monitoring wells are indicated in "Attachment B." (Specific information on the construction of each well is included in the Well completion reports in Attachment B).

##### **2. SURFACE WATER MONITORING:**

Montgomery County will continue to monitor off-site surface water quality near the perimeter of the Gude Landfill at the five locations indicated in Attachment B.

##### **B. MONITORING FREQUENCY:**

Montgomery County will conduct groundwater and surface water sampling and other field measurements on a semiannual basis. The semiannual frequency will provide sufficient data and information to track the water quality in the vicinity of the landfill and to observe any changes in the physical and chemical qualities of groundwater and surface water around the landfill.

##### **C. SAMPLING EVENTS AND MEASUREMENTS**

Montgomery County will conduct semiannual sampling and measurements at Gude Landfill during the following periods: 1) between January through March; and, 2) July through September of each year.

D. SAMPLING MEASUREMENT PROTOCOLS

All monitoring wells and stream locations will be sampled twice annually at the intervals specified above. Procedures and protocols for field measurements and sampling for laboratory analysis of water quality parameters for groundwater and surface water samples are presented in Attachment C. Outlined therein are the procedures for collecting samples from ground and surface waters, making water-level measurements in wells, and for the onsite testing of water quality parameters. All collected samples will be delivered to a State certified independent laboratory for analysis.

E. MONITORING PARAMETERS

A list of targeted parameters (Volatile Organic Compounds (VOCs), elements and other indicators) for field measurements and laboratory analysis recommended by MDE for analysis is presented in Attachment D. The targeted parameters correspond to Tables 1 and 2 included in Attachment A.

In addition to collecting samples for laboratory analysis for those parameters/constituents listed on the attached Table, the sampling will also incorporate evaluation and testing for key parameters recommended for on-site measurements. On site testing will include:

- Water-level measurements
- Temperature
- pH
- dissolved oxygen
- specific conductance

F. DATA ANALYSIS:

Recorded information and analytical results received from the certified independent laboratory or from field personnel will receive prompt technical evaluation by a qualified groundwater scientist or professional in DEP. Data analysis and evaluation will emphasize historical trends in the data and also contain statistical analysis methods in evaluating groundwater monitoring data.

This technical evaluation will include the addition of the latest reading to a graph of past measurements. The graphs will then be evaluated for the development of trends. Priority attention and follow-up actions as described in Attachment D are warranted when data indicate anomalies (i.e., any significant changes in the values of parameters) in either the field or the laboratory results. Data and trend analysis will also include:

- Tabulation of cumulative mean and standard deviation for each constituent from each sampling point to determine how the latest analytical value compares to the standard deviations from the long-term mean for the particular sampling point.
- Comparison of all constituents analyzed with applicable EPA's Maximum Contaminant Levels (MCLs) to determine whether any constituent exceeds the MCL.
- Any anomaly indicated by these evaluations will be investigated to determine its cause. Upon detection of the exceedance of an MCL, Action Level or health standard for the first time, the monitoring point(s) in which the standard was exceeded will be immediately resampled and analyzed to verify the initial detection. This resampling will occur as soon as possible, and no later than 30 days following notification to the County of the exceedance of the standard by the analytical laboratory performing the analysis of the sample.
- In the event that obtained analytical results from samples collected from any sources associated with the landfill or surrounding properties exceed the recommended water quality standards including the MCL, Action Level, or other health standards for the first time, the County will notify MDE in writing within 24 hours of receipt of the analytical data detecting this occurrence.
- Upon detection of the exceedance of an MCL or other water quality standards at the monitoring point(s) in which the standard was exceeded for the first time, resampling will occur within thirty (30) days to verify the initial detection. This resampling will be conducted as soon as possible, and no later than thirty (30) days following notification to the County of the exceedance of the standard by the analytical laboratory performing the analysis of the sample which indicated the exceedance.

The process of data analysis and technical evaluation of water quality will be coordinated and communicated among personnel conducting field analyses of key parameters, qualified laboratory personnel carrying out laboratory analysis, and the qualified groundwater scientist or professional evaluating the overall monitoring results.

#### G. REPORTING

Within ninety (90) days of the close of every first and third calendar quarters (between April through June and October through December), a semiannual report on water quality containing a summary and interpretative discussion of all analyses of the chemical quality of groundwater from all of the monitoring wells

and surface water monitoring points will be submitted to MDE. The evaluation will provide emphasis on historical trends of the data. The report will also include:

- An analysis and comparison of all constituents analyzed with MCLs to determine whether any constituent exceeds the MCL.
- A complete copy of the raw laboratory data along with related analysis and findings in each semiannual report.
- A summary of all data for each well, presented in time series format. The data for each well will be presented on a chart so that the water quality data for each parameter for each well can be observed simultaneously.
- All analytical results including values below Practical Quantitation Limits (PQL), or Reliable Detection Limit (RDL) will be reported.
- A copy of the most current topographic map indicating the location of all monitoring wells and surface water monitoring stations.
- A map depicting the current groundwater contour map and the current water table elevation of all monitoring wells.

# **ATTACHMENT A**

**MDE Letter**



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**  
1800 Washington Boulevard, Suite 605 • Baltimore MD 21230-1719  
410-537-3000 • 1-800-633-6101

Martin O'Malley  
Governor

Anthony G. Brown  
Lieutenant Governor

JAN 30 2009  
Environmental  
Protection

Shari T. Wilson  
Secretary

Robert M. Summers, Ph.D.  
Deputy Secretary

January 28, 2009

CERTIFIED MAIL

Return Receipt Requested

Mr. David Lake, Manager  
Water and Wastewater Policy Group  
Department of Environmental Protection  
255 Rockville Pike, Suite 120  
Rockville MD 20850

Dear Mr. Lake:

The Maryland Department of the Environment (the "Department") has reviewed the water quality monitoring results which you recently forwarded to us for the Gude Landfill for the period between April 2001 and March 2008. The analytical data indicates that Gude Landfill is having an adverse effect on the surface and groundwater on the site and suggests that the impact may extend beyond the property boundary of the landfill. Montgomery County is directed to monitor and evaluate the potential risks associated with the documented contamination.

The Department requires that you submit a Groundwater and Surface Water Monitoring ("G&SWM") Plan for the Gude Landfill within 60 days of receipt of this letter. The Plan shall be prepared in accordance with COMAR 26.04.07.08B(17), 26.04.07.09F and guidelines established by the Department.

The Plan must contain statements that the following will take place:

1. A semiannual report on water quality containing summary and interpretative discussion of all analyses of the chemical quality of groundwater from all of the monitoring wells and surface water monitoring points specified in the approved G&SWM Plan will be submitted to the Department. The discussion should emphasize historical trends in the data. Also, the report must include statistical analysis methods in evaluating groundwater monitoring data;
2. The semiannual report on water quality will be submitted to the Department within ninety days of the close of every first and third calendar quarters unless an alternative schedule is specified in the approved G&SWM Plan;

3. Sampling will occur during the period between January through March and July through September of each year unless an alternative schedule is approved by the Department;
4. A qualified groundwater scientist will sample or will oversee qualified environmental technicians who sample the wells twice annually at the intervals specified in the approved G&SWM Plan;
5. The parameters to be measured and their Practical Quantitation Limits (PQL) are as listed in Tables I and II (enclosed). The Department may approve an alternative list of parameters or an alternative PQL for any parameter;
6. The sampling, sample handling, analyses and reporting of analytical parameters shall be performed in accordance with the approved G&SWM Plan;
7. A qualified independent laboratory certified for water quality analysis by the Department or which is otherwise acceptable to the Department shall perform the analyses;
8. A qualified groundwater scientist or professional shall evaluate the results and advise the County of any changes in water quality or any exceedance of the State and federal Maximum Contaminant Level (MCL), Action Level or other health standard;
9. A complete copy of the laboratory data, and the qualified groundwater scientist or professional's interpretive findings shall be included in each semiannual report on water quality referenced;
10. If analytical results from samples collected from any sources associated with the landfill or surrounding properties exceed MCL, Action Level, or other health standard for the first time, the County must notify the Department in writing within 24 hours of receipt of the analytical data detecting this occurrence. Thereafter, if there are any significant increases above the MCL, Action Level, or other health standard, the Department must be notified in writing within 24 hours of receipt of the analytical data detecting this occurrence;
11. Upon detection of the exceedance of an MCL, Action Level or other health standard for the first time, the monitoring point(s) in which the standard was exceeded must be immediately resampled to verify the initial detection. This resampling must occur as soon as possible, and no later than 30 days following notification of the County of the exceedance of the standard by the analytical laboratory performing the analysis of the sample which indicated the exceedance;
12. All data for each well must be summarized and presented in time series format. The data for each well must be presented on a chart so that the water quality data for each parameter for each well can be observed simultaneously;

Mr. David Lake, Manager  
Page Three

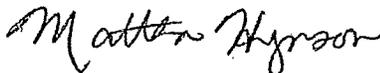
13. All "J" values must be reported. "J" values are analytical results that are below the PQL but can be estimated.
14. A copy of the most current topographic map generated by a survey performed will be included in each semiannual report on water quality and shall depict the location of all monitoring wells, piezometers, surface water monitoring stations and gas monitoring points in existence at the time of the survey.
15. A copy of a current groundwater contour map depicting the location of all monitoring wells from which groundwater data is collected will be included in each semiannual report on water quality. Multiple aquifers shall be depicted on separate groundwater contour maps; and
16. Well completion reports for the monitoring wells will be included in the Plan.

In addition, the Department requires the County determine the nature and extent of contamination in groundwater and surface water and submit a remedial action plan within 90 days of receipt of this letter. The Department would be willing to review a draft of the nature and extent investigation proposal should the County want our comments.

The Department is aware of the pending plans to relocate a County school bus depot on top of the Gude Landfill. Any planned alteration or construction at a solid waste acceptance facility must be submitted to the Department for approval under §9-204 of the Annotated Code of Maryland. Montgomery County has already been notified to submit any plans to construct a bus depot on the Gude Landfill to the Department for review and approval.

If there are any questions regarding this matter, please contact Mr. Andrew Grenzer, Project Manager, at (410) 537-3318.

Sincerely,



Martha Hynson, Chief  
Landfill Operations Division

MH:ATG:sm

Enclosure

cc: Mr. Peter Karasik, P.E.  
Mr. Horacio Tablada  
Mr. Brian Coblentz

**TABLE I**  
**MONITORING PARAMETERS**

<i>VOLATILE ORGANIC COMPOUNDS</i>	PQL (ppb)
Acetone	5.0
Acrylonitrile	5.0
Benzene	1.0
Bromochloromethane	1.0
Bromodichloromethane	1.0
Bromoform	1.0
Bromomethane	1.0
2-Butanone	5.0
Carbon disulfide	1.0
Carbon tetrachloride	1.0
Chlorobenzene	1.0
Chloroethane	1.0
Chloroform	1.0
Chloromethane	1.0
Dibromochloromethane	1.0
1,2-Dibromo-3-chloropropane	1.0
1,2 - Dibromoethane (EDB)	1.0
Dibromomethane	1.0
1,2 - Dichlorobenzene	1.0
1,4 - Dichlorobenzene	1.0
Trans-1,4-dichloro-2-butene	5.0
1,1-Dichloroethane	1.0
1,2-Dichloroethane	1.0
1,1-Dichloroethene	1.0
Cis-1,2-Dichloroethene	1.0
Trans-1,2-Dichloroethene	1.0
Methylene chloride	1.0
1,2-Dichloropropane	1.0
Trans-1,3-Dichloropropene	1.0
Cis-1,3-Dichloropropene	1.0
Ethylbenzene	1.0
2-Hexanone	5.0
Iodomethane	1.0
4-Methyl-2-pentanone	5.0
Methyl Tertiary Butyl Ether	2.0
Styrene	1.0
1,1,1,2-Tetrachloroethane	1.0
1,1,2,2-Tetrachloroethane	1.0

**TABLE I (Cont'd)**  
**MONITORING PARAMETERS**

<i>VOLATILE ORGANIC COMPOUNDS</i>	PQL (ppb)
Tetrachloroethene	1.0
Toluene	1.0
1,1,1-Trichloroethane	1.0
1,1,2-Trichloroethane	1.0
Trichloroethene	1.0
Trichlorofluoromethane	1.0
1,2,3-Trichloropropane	1.0
Vinyl acetate	1.0
Vinyl chloride	1.0
Xylene	1.0

**TABLE II**  
**MONITORING PARAMETERS**

<i>ELEMENTS AND INDICATOR PARAMETERS</i>	PQL (ppm)
Total Antimony	0.0020
Total Arsenic	0.0020
Total Barium	0.0100
Total Beryllium	0.0020
Total Cadmium	0.0040
Total Chromium	0.0100
Total Calcium	0.08
Total Cobalt	0.0100
Total Copper	0.0100
Total Iron	0.0050
Total Lead	0.0020
Total Nickel	0.0110
Total Magnesium	0.004
Total Manganese	0.0100
Total Mercury	0.0002
Total Potassium	0.39
Total Selenium	0.035
Total Silver	0.0100
Total Sodium	0.2
Total Thallium	0.0020
Total Vanadium	0.0100
Total Zinc	0.0100
PH	0.1 (SU)
Alkalinity	1
Hardness	0.5
Chloride	0.39
Specific conductance	1
Nitrate	0.06
Chemical oxygen demand	10
Turbidity	0.11 (NTU)
Ammonia	1
Sulfate	0.38
Total dissolved solids	10

# **ATTACHMENT B**

## **Monitoring Locations AND Well Completion Reports**

<b>List of Monitoring Wells</b>	
<b>Montgomery County Designation</b>	<b>State of Maryland Identification Number</b>
OB01	MO-88-0058
OB02	MO-88-0059
OB02A	MO-88-0060
OB03	MO-88-0061
OB03A	MO-88-0062
OB04	MO-88-0063
OB04A	MO-88-0064
OB06	MO-88-0065
OB07	MO-88-0066
OB07A	MO-88-0067
OB08	MO-88-0068
OB08A	MO-88-0069
OB10	MO-88-0070
OB11	MO-88-0071
OB11A	MO-88-0072
OB12	MO-88-0073
<b>15 or OB015</b>	<b>Not available</b>
<b>25 or OB025</b>	<b>Not available</b>
<b>102 or OB102</b>	<b>Not available</b>
<b>105 or OB105</b>	<b>Not available</b>

**Note:** Well completion reports for four of the twenty monitoring wells at Gude Landfill could not be located. In the attached maps, these four wells are labeled:

- 105 or OB105
- 102 or OB102
- 015 or OB105
- 025 or OB025

The County will continue utilizing these wells for groundwater monitoring purposes until or unless MDE directs DEP to abandon these wells. A review of DEP files has provided the following information related to these wells:

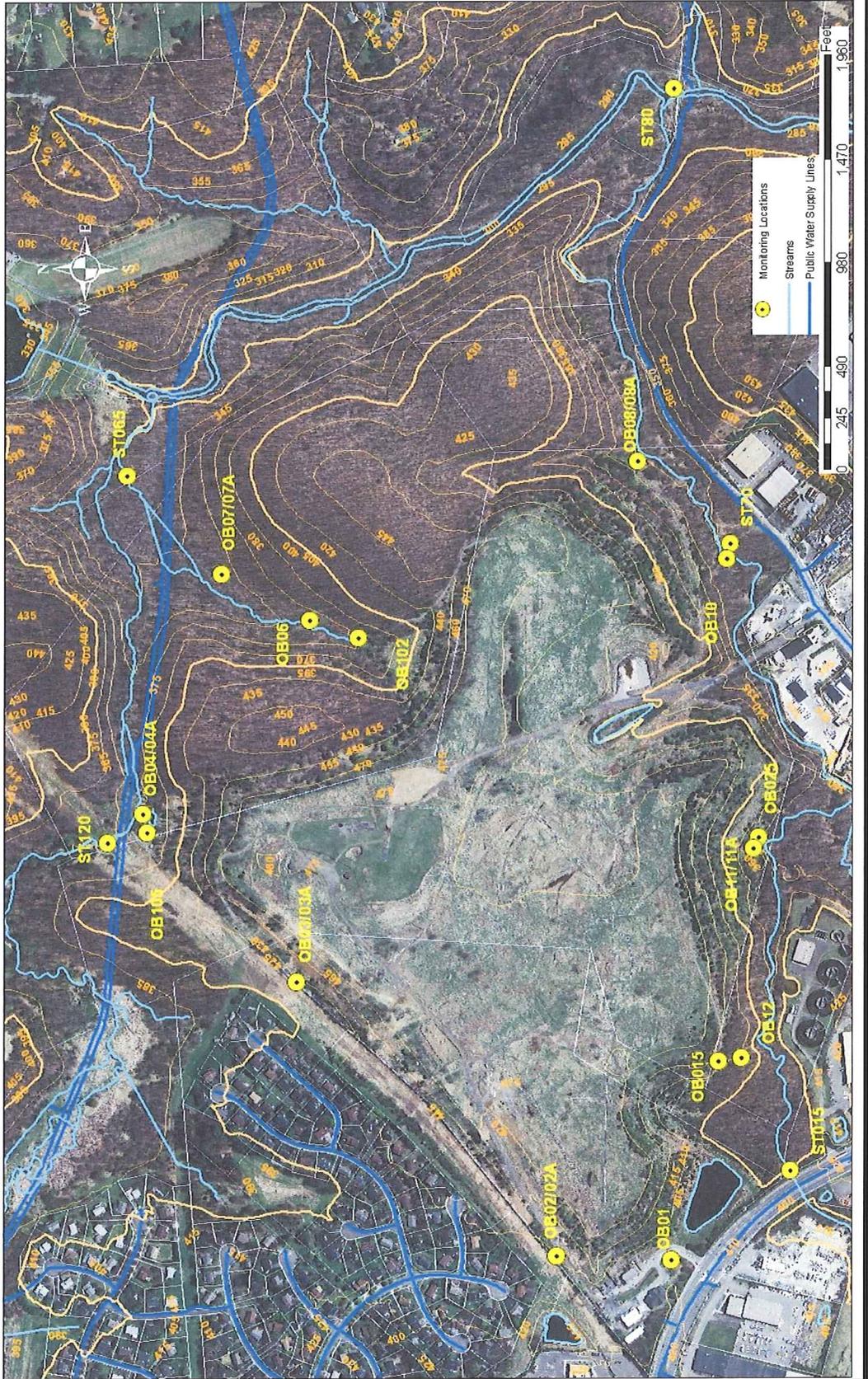
<b>Observation Wells With No Well Completion Reports At Gude Landfill</b>		
<b>Observation Well</b>	<b>Well Diameter - Inch</b>	<b>Depth of Well - Feet</b>
OB015	4	27.5
OB025	4	15
OB102	4	24.5
OB105	4	13

# Gude Well and Stream Location

● Wells  
— Streams



# Groundwater and Surface Water Monitoring Locations Gude Landfill



EMERGENCY/TEMP NO. IF ANY

B 1 2933 SEQUENCE NO. (OEP USE ONLY) (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type

OEP PERMIT NUMBER MO-888-0058 fill in this form completely

OWNER INFORMATION Date Received 033088 MONTGOMERY COUNTY MD 101 MONROE STREET ROCKVILLE MD 20850

LOCATION OF WELL MONTGOMERY COUNTY ROCKVILLE NEAREST TOWN 1 MI MILES FROM TOWN

DRILLER INFORMATION Stanley L. Cohen 354 ATEC Associates Inc 8918 Herrmann Dr. Columbia MD 21045 Stanley L. Cohen 3/24/88

DIRECTION OF WELL FROM TOWN (CIRCLE BOX) NE NEAR WHAT ROAD Gude Drive ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) DISTANCE FROM ROAD 1428 ENTER FT or MI

WELL INFORMATION APPROX. PUMPING RATE (GAL. PER MIN.) NONE AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

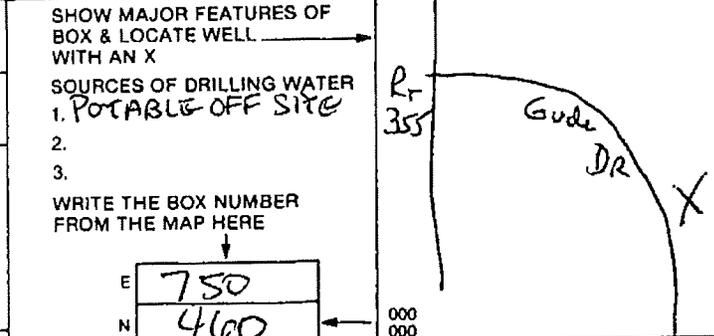
USE FOR WATER (CIRCLE APPROPRIATE BOX) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY) FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT) PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL) TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL Montgomery County 8804069003 COUNTY NAME COUNTY NO. OEP SIGNATURE DATE ISSUED 04113888 RL Stephens EXP. DATE 07590000

APPROXIMATE DEPTH OF WELL 160 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST

METHOD OF DRILLING (circle one) BORED (or Augered) JETTED Jetted & DRIVEN AIR-ROTARY AIR-PERCussion ROTARY (Hydraulic Rotary) CABLE REVERSE-ROTARY DRIVE-POINT other



REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX) THIS WELL WILL NOT REPLACE AN EXISTING WELL THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY THIS WELL WILL DEEPEM AN EXISTING WELL PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY) APPROP. PERMIT NUMBER GAP FORCE INITIALS IN BOX WRITE PERMIT No. MO-888-0058

SPECIAL CONDITIONS

**C1** **5272** SEQUENCE NO. (DENV USE ONLY) **STATE OF MARYLAND WELL COMPLETION REPORT** THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) **FILL IN THIS FORM COMPLETELY PLEASE PRINT OR TYPE** COUNTY NUMBER

DATE Received **AUG 31 1988** DATE WELL COMPLETED **042688** Depth of Well **77** PERMIT NO. FROM "PERMIT TO DRILL WELL" **MD-88-0058**

OWNER **MONTGOMERY Co MD** STREET OR RFD **101 MONROE ST** first name **ROCKVILLE MD** TOWN **20850** SUBDIVISION SECTION LOT

**WELL LOG**  
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
RK	0	30	<input checked="" type="checkbox"/>
	30	77	<input type="checkbox"/>

**GROUTING RECORD**  
WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**

TYPE OF GROUTING MATERIAL  
CEMENT **CM** BENTONITE CLAY **BC**

NO. OF BAGS **21** NO. OF POUNDS **105**

GALLONS OF WATER **105**

DEPTH OF GROUT SEAL (to nearest foot)  
from **0** ft. to **30** ft.  
(enter 0 if from surface)

**CASING RECORD**

casing types insert appropriate code below

**ST CO** STEEL CONCRETE  
**PL OT** PLASTIC OTHER

MAIN Nominal diameter Total depth  
CASING top (main casing of main casing  
TYPE (nearest inch) (nearest foot)

**PL 2 35**

**OTHER CASING (if used)**  
diameter depth (feet)  
inch from to

screen type or open hole **SCREEN RECORD**  
insert appropriate code below

**ST BR HO** STEEL BRASS OPEN HOLE  
**PL OT** PLASTIC OTHER

**C2**

DEPTH (nearest ft.)

<b>PL</b>	<b>35</b>	<b>75</b>
-----------	-----------	-----------

EACH SCREEN

SLOT SIZE 1 **010** 2 3

DIAMETER OF SCREEN **2** (NEAREST INCH)

CIRCLE APPROPRIATE LETTER  
**A** A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
**E** ELECTRIC LOG OBTAINED  
**P** TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. **354**  
DRILLERS SIGNATURE  
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GRAVEL PACK from **33** to **77**  
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX **68**

**OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)**

T (E.R.O.S.) WQ  
70 72 74 75 76  
TELESCOPE CASING LOG INDICATOR OTHER DATA

**C3**

**PUMPING TEST**

HOURS PUMPED (nearest hour) **8**

PUMPING RATE (gal. per min. to nearest gal.) **2**

METHOD USED TO MEASURE PUMPING RATE **METER**

WATER LEVEL (distance from land surface)  
BEFORE PUMPING **17**  
WHEN PUMPING **17**

TYPE OF PUMP USED (for test)  
**C** centrifugal **R** rotary **O** other (describe below)  
**J** jet **S** submersible

**PUMP INSTALLED**

DRILLER WILL INSTALL PUMP YES **NO** (CIRCLE) (YES or NO)  
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: **29**

CAPACITY: GALLONS PER MINUTE (to nearest gallon) **31 35**

PUMP HORSE POWER **37 41**

PUMP COLUMN LENGTH (nearest ft.) **43 47**

CASING HEIGHT (circle appropriate box and enter casing height)  
**+** above } LAND SURFACE (nearest foot)  
**-** below } **3**

**LOCATION OF WELL ON LOT**  
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

SEE ATTACHMENT MW #1

**B 1** 2934 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER 40-88-0059 fill in this form completely

Date Received 033089 OWNER INFORMATION  
 Montgomery County MD  
 101 Monroe Street  
 Rockville MD 20850

**B 3** LOCATION OF WELL  
 Montgomery  
 Rockville  
 MILES FROM TOWN (enter 0 if in town) 1 MI

DRILLER INFORMATION  
 Stanley L. Cohen  
 ATEC Associates, Inc.  
 8918 Herrmann Drive Columbia, MD 21045  
 Stanley L. Cohen 3/24/88

**B 4** Gude Drive  
 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
 DISTANCE FROM ROAD 2270 FT

**B 2** WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
 Montgomery County 8804069003  
 OEP SIGNATURE RL Aymer  
 DATE ISSUED 041388  
 NORTH GRID 464000 EAST GRID 0760000

APPROXIMATE DEPTH OF WELL 150 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH

METHOD OF DRILLING (circle one)  
 BORED (or Augered) JETTED Jetted & DRIVEN  
 AIR-ROTary AIR-PERCussion ROTARY (Hydraulic Rotary)  
 CABLE REVERSE-ROTary Drive-POINT

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
 SOURCES OF DRILLING WATER  
 1. POTABLE OFF SITE  
 WRITE THE BOX NUMBER FROM THE MAP HERE  
 E 760  
 N 460

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEM AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION  
 N

Not to be filled in by driller (OEP USE ONLY)  
 APPROX. PERMIT NUMBER GAP  
 FORCE 45 WRITE INITIALS IN BOX PERMIT No. 40-88-0059

SPECIAL CONDITIONS 5D2

C1 5274 SEQUENCE NO. (DENY USE ONLY)  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND  
 WELL COMPLETION REPORT  
 FILL IN THIS FORM COMPLETELY  
 PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.  
 COUNTY NUMBER

DATE Received AUG 31 1988 DATE WELL COMPLETED 05 20 88 Depth of Well 121 (TO NEAREST FOOT) PERMIT NO. MO-88-0059

OWNER Montgomery County Md last name 101 MONROE ST first name TOWN Rockville Md 20 SUBDIVISION SECTION LOT

WELL LOG  
 Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
Red clay + saprock	0	21	
ROCK	21	121	✓

GROUTING RECORD  
 WELL HAS BEEN GROUTED (Circle Appropriate Box) Y N  
 TYPE OF GROUTING MATERIAL  
 CEMENT CM BENTONITE CLAY BC  
 NO. OF BAGS 16 NO. OF POUNDS 552  
 GALLONS OF WATER 80  
 DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 70 ft.

CASING RECORD  
 casing types insert appropriate code below  
 ST CO STEEL CONCRETE  
 PL OT PLASTIC OTHER

MAIN CASING TYPE PL  
 Nominal diameter top (main casing) (nearest inch) 2  
 Total depth of main casing (nearest foot) 71

OTHER CASING (if used) diameter depth (feet) inch from to

SCREEN RECORD  
 screen type or open hole insert appropriate code below  
 ST BR HO STEEL BRASS OPEN HOLE  
 PL OT PLASTIC OTHER

NO SCREEN  
 DEPTH (nearest ft.)  
 SLOT SIZE 1 N/A 2 3  
 DIAMETER OF SCREEN (NEAREST INCH) 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

DRILLERS IDENT. NO. 354  
 DRILLERS SIGNATURE  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

PUMPING TEST  
 HOURS PUMPED (nearest hour) 8  
 PUMPING RATE (gal. per min. to nearest gal.) 2  
 METHOD USED TO MEASURE PUMPING RATE METER  
 WATER LEVEL (distance from land surface) BEFORE PUMPING 16 WHEN PUMPING 19  
 TYPE OF PUMP USED (for test) C centrifugal R rotary O other (describe below) J jet S submersible

PUMP INSTALLED  
 DRILLER WILL INSTALL PUMP YES NO  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon) PUMP HORSE POWER PUMP COLUMN LENGTH (nearest ft.) CASING HEIGHT (circle appropriate box and enter casing height) LAND SURFACE (nearest foot)

LOCATION OF WELL ON LOT  
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

CIRCLE APPROPRIATE LETTER A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
 E ELECTRIC LOG OBTAINED  
 P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 354  
 DRILLERS SIGNATURE  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

TELESCOPE CASING LOG INDICATOR OTHER DATA

SEE ATTACHMENT mw-2

**B 1** 2935 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL OEP PERMIT NUMBER MO-88-0060  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) please print or type fill in this form completely

**Date Received** 033088  
**OWNER INFORMATION**  
Montgomery County MD  
101 Monroe Street  
Rockville MD 20850

**B 3** LOCATION OF WELL  
Montgomery COUNTY  
 SUBDIVISION \_\_\_\_\_  
 SECTION \_\_\_\_\_ LOT \_\_\_\_\_  
Rockville NEAREST TOWN  
 MILES FROM TOWN (enter 0 if in town) 1 MI

**DRILLER INFORMATION**  
Stanley L. Cohen License No. 354  
ATEC Associates, Inc.  
8918 Herrmann Drive Columbia, MD 21045  
Stanley L. Cohen 3/24/88

**B 4** DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
  
 NEAR WHAT ROAD Gude Drive  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
 DISTANCE FROM ROAD 2280 FT  
 ENTER FT or MI FT

**B 2** WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

**USE FOR WATER** (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
Montgomery County 8804069003  
 COUNTY NAME COUNTY NO.  
 OEP SIGNATURE DATE ISSUED 041388  
 STATE HEALTH INSPECTOR RL Sykes  
 NORTH GRID 464000 EAST GRID 0760000  
 CO SIGNATURE EXP. DATE

APPROXIMATE DEPTH OF WELL 100 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH

**METHOD OF DRILLING** (circle one)  
 BORED (or Augered)  JETTED  Jetted & DRIVEN  
 AIR-ROTARY  AIR-PERCussion  ROTARY (Hydraulic Rotary)  
 CABLE  REVERSE-ROTARY  DRIVE-POINT  
 other \_\_\_\_\_

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
 SOURCES OF DRILLING WATER  
 1. POTABLE OFF SITE  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 WRITE THE BOX NUMBER FROM THE MAP HERE  
 E 760  
 N 460  
 000 000

**REPLACEMENT OR DEEPEMED WELLS** (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEM AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) \_\_\_\_\_

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION  
  
 DISTANCE FROM WELL TO NEAREST ROAD JUNCTION \_\_\_\_\_

Not to be filled in by driller (OEP USE ONLY)  
 APPROP. PERMIT NUMBER \_\_\_\_\_ GAP \_\_\_\_\_  
 FORCE US WRITE INITIALS IN BOX PERMIT NO. MO-88-0060

SPECIAL CONDITIONS \_\_\_\_\_

**C1** **5273** SEQUENCE NO. (DENV USE ONLY) **STATE OF MARYLAND WELL COMPLETION REPORT** THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) COUNTY NUMBER  
 DATE Received **AUG 31 1988** DATE WELL COMPLETED **051388** Depth of Well **76** (TO NEAREST FOOT) PERMIT NO. **MO-88-0060**

OWNER **Montgomery Co MD** STREET OR RFD **101 MONROE ST** TOWN **Rockville MD 20850**  
 SUBDIVISION SECTION LOT

**WELL LOG**  
 Not required for driven wells  
 STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING  
 DESCRIPTION (Use additional sheets if needed) FEET FROM TO Check if water bearing  
 0 26.5 ✓  
 26.5 77  
 RK

**GROUTING RECORD**  
 WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**  
 TYPE OF GROUTING MATERIAL  
 CEMENT **CM** BENTONITE CLAY **BC**  
 NO. OF BAGS **16** NO. OF POUNDS  
 GALLONS OF WATER **80**  
 DEPTH OF GROUT SEAL (to nearest foot)  
 from **0** ft. to **34** ft.  
 (enter 0 if from surface)

**CASING RECORD**  
 casing types insert appropriate code below  
**ST** **CO** STEEL CONCRETE  
**PL** **OT** PLASTIC OTHER  
 MAIN Nominal diameter Total depth  
 CASING top (main) casing of main casing  
 TYPE (nearest inch) (nearest foot)  
**PL** **2** **37**

**OTHER CASING (if used)**  
 diameter depth (feet)  
 inch from to

**SCREEN RECORD**  
 screen type or open hole insert appropriate code below  
**ST** **BR** **HO** STEEL BRASS OPEN HOLE  
**PL** **OT** PLASTIC OTHER

**C2**  
 DEPTH (nearest ft.)  
 1 **PL** **37** **77**  
 2  
 3  
 SLOT SIZE **40**  
 DIAMETER OF SCREEN **2** (NEAREST INCH)  
 from **35** to **77**

**C3**  
**PUMPING TEST**  
 HOURS PUMPED (nearest hour) **16**  
 PUMPING RATE (gal. per min. to nearest gal.) **2**  
 METHOD USED TO MEASURE PUMPING RATE **METER**  
 WATER LEVEL (distance from land surface)  
 BEFORE PUMPING **16**  
 WHEN PUMPING **20**  
 TYPE OF PUMP USED (for test)  
**A** air **P** piston **T** turbine  
**C** centrifugal **R** rotary **O** other (describe below)  
**J** jet **S** submersible

**PUMP INSTALLED**  
 DRILLER WILL INSTALL PUMP YES **NO**  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon) **31** **35**  
 PUMP HORSE POWER **37** **41**  
 PUMP COLUMN LENGTH (nearest ft.) **43** **47**  
 CASING HEIGHT (circle appropriate box and enter casing height)  
**+** above } LAND SURFACE **3** (nearest foot)  
**-** below }

**A** CIRCLE APPROPRIATE LETTER A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
**E** ELECTRIC LOG OBTAINED  
**P** TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. **354**  
 DRILLERS SIGNATURE  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68  
 OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)  
 T (E.R.O.S.) **70** **72** **74** **75** **76**  
 W Q  
 TELESCOPE CASING LOG INDICATOR OTHER DATA

**LOCATION OF WELL ON LOT**  
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)  
 SEE ATTACHMENT  
 mw - 2A

EMERGENCY/TEMP NO. IF ANY

**B 1** 2936 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER MO-888-0067

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

**OWNER INFORMATION**

Date Received 03/30/88

Montgomery County MD  
 15 Last Name 34 Owner First Name

101 Monroe Street  
 36 Street or RFD 55

Rockville MD 20850  
 57 Town 70 State 72 Zip 76

**B 3** LOCATION OF WELL

Montgomery  
 8 COUNTY 21

Rockville  
 23 SUBDIVISION 42

SECTION     LOT      
 44 46 48 50

Rockville  
 52 NEAREST TOWN 71

MILES FROM TOWN (enter 0 if in town) 1 MI  
 73 76 77 78

**DRILLER INFORMATION**

Stanley L. Cohen 354  
 Driller's Name 77 License No. 80

APEC Associates, Inc.  
 Firm Name

8918 Herrmann Drive Columbia, MD 21045  
 Address

Stanley L. Cohen 3/4/88  
 Signature Date

**B 4**

Gude Drive  
 11 NEAR WHAT ROAD 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

N  S  E  W

NW  NE  SW  SE

34 930 37  
 DISTANCE FROM ROAD

ENTER FT or MI FT  
 38 39

**B 2** WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 8 12

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE  
 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)

D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)

F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)

I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)

P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)

T TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

Montgomery County 8804069003  
 COUNTY NAME COUNTY NO.

OEP SIGNATURE RL Sykes STATE HEALTH INSERT S  41

DATE ISSUED 04/13/88

CO SIGNATURE RL Sykes EXP. DATE

NORTH GRID 464000 EAST GRID 0759000  
 43 55 57 63

APPROXIMATE DEPTH OF WELL 150 FEET  
 24 28

APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) JETTED Jetted & DRIVEN

30 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)

37 CABLE REVERSE-ROTary DRIVE-POINT

other \_\_\_\_\_

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL

Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

39  S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY

D THIS WELL WILL DEEPEM AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE)     52

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER     G A P      
 54 63

FORCE 75 WRITE INITIALS IN BOX PERMIT NO. MO-888-0067  
 67 68 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER

- POTABLE OFF SITE
- 
- 

WRITE THE BOX NUMBER FROM THE MAP HERE

750  
460

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

A 755

Gude Dr

N ↑

501

**C1** 5275 SEQUENCE NO. (DENV USE ONLY) **STATE OF MARYLAND WELL COMPLETION REPORT** THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) FILL IN THIS FORM COMPLETELY PLEASE PRINT OR TYPE COUNTY NUMBER

DATE Received 03 10 89 DATE WELL COMPLETED 04 30 89 Depth of Well 154 PERMIT NO. FROM "PERMIT TO DRILL WELL" MO-88-0061

OWNER MONTGOMERY Co Md STREET OR RFD 101 MONROE ST first name ROCKVILLE TOWN Md last name 20850 SUBDIVISION SECTION LOT

**WELL LOG**  
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
Red clay SAPRO LITE	0	54	<input checked="" type="checkbox"/>
ROCK	54	154	<input checked="" type="checkbox"/>

**GROUTING RECORD**  
WELL HAS BEEN GROUTED (Circle Appropriate Box)  Y  N

TYPE OF GROUTING MATERIAL  
CEMENT  CM BENTONITE CLAY  BC

NO. OF BAGS 24 NO. OF POUNDS 20

GALLONS OF WATER 20

DEPTH OF GROUT SEAL (to nearest foot)  
from 0 ft. to 102 ft.

**CASING RECORD**

casing types Insert appropriate code below

ST  CO  
STEEL CONCRETE

PL  OT  
PLASTIC OTHER

MAIN CASING TYPE  PL Nominal diameter top (main) casing (nearest inch) 2 Total depth of main casing (nearest foot) 104

**OTHER CASING (if used)**  
diameter inch depth (feet) from to

**SCREEN RECORD**  
screen type or open hole insert appropriate code below

ST  BR  HO  
STEEL BRASS OPEN HOLE

PL  OT  
PLASTIC OTHER

**C2**

DEPTH (nearest ft.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

SLOT SIZE 100

DIAMETER OF SCREEN 2 (NEAREST INCH)

CIRCLE APPROPRIATE LETTER WHEN THIS WELL WAS COMPLETED

A A WELL WAS ABANDONED AND SEALED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 354

DRILLERS SIGNATURE [Signature]

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GRAVEL PACK from 0 to 0

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX

**OEP USE ONLY**  
(NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.)  70  72

WQ  74  75  76

TELESCOPE CASING LOG INDICATOR OTHER DATA

**C3**

**PUMPING TEST**

HOURS PUMPED (nearest hour) 5

PUMPING RATE (gal. per min. to nearest gal.) 6

METHOD USED TO MEASURE PUMPING RATE METER

WATER LEVEL (distance from land surface)

BEFORE PUMPING 24

WHEN PUMPING 26

TYPE OF PUMP USED (for test)

C centrifugal  R rotary  O other (describe below)

J jet  S submersible

**PUMP INSTALLED**

DRILLER WILL INSTALL PUMP (CIRCLE) YES  NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE:

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height)

+ above } LAND SURFACE (nearest foot)

- below }

**LOCATION OF WELL ON LOT**

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

SEE ATTACHMENT

MW 3

**B 1** 2937 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL OEP PERMIT NUMBER MD-888-0062

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) please print or type fill in this form completely

**Date Received** 03/30/88

**OWNER INFORMATION**

Montgomery County MD  
 101 Monroe Street  
 Rockville MD 20850

**B 3** LOCATION OF WELL

Montgomery County  
 Rockville  
 1 MI  
 MILES FROM TOWN (enter 0 if in town)

**DRILLER INFORMATION**

Stanley L. Cohen  
 ATEC Associates, Inc.  
 8918 Herrmann Drive Columbia, MD 21045  
 Stanley L. Cohen 3/24/88

**B 4** DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

Gude Drive  
 940 FT  
 DISTANCE FROM ROAD

**B 2** WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

**USE FOR WATER** (CIRCLE APPROPRIATE BOX)

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

**NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL**

Montgomery County 8804069003  
 COUNTY NAME COUNTY NO.  
 OEP SIGNATURE DATE ISSUED 09/13/88  
 STATE HEALTH INSERT S EXP. DATE

APPROXIMATE DEPTH OF WELL 00 FEET  
 APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER  
 1. PORTABLE OFF SITE  
 2.  
 3.

WRITE THE BOX NUMBER FROM THE MAP HERE

750  
 400

**METHOD OF DRILLING** (circle one)

BORED (or Augered) JETTED Jetted & DRIVEN  
 AIR-ROtary AIR-PERcussion ROTARY (Hydraulic Rotary)  
 CABLE REVERSE-ROtary Drive-POINT

**REPLACEMENT OR DEEPEMED WELLS** (CIRCLE APPROPRIATE BOX)

THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEM AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)

APPROX. PERMIT NUMBER GAP  
 FORCE INITIALS IN BOX PERMIT No. MD-888-0062

SPECIAL CONDITIONS

**C1** 5276 SEQUENCE NO. (DENV USE ONLY)  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

**STATE OF MARYLAND WELL COMPLETION REPORT**  
 FILL IN THIS FORM COMPLETELY PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

DATE Received 02/10/89 DATE WELL COMPLETED 07/08/88 Depth of Well 97 PERMIT NO. FROM "PERMIT TO DRILL WELL" M0-88-0002

OWNER Montgomery County MD last name 101 Monroe St first name Roccville md TOWN 20850

SUBDIVISION SECTION LOT

**WELL LOG**  
 Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
Red clay SAD ROUTE	0	47	<input checked="" type="checkbox"/>
ROCK	47	97	<input checked="" type="checkbox"/>

**GROUTING RECORD**  
 WELL HAS BEEN GROUTED (Circle Appropriate Box)  Y  N

TYPE OF GRouting MATERIAL  
 CEMENT  CM BENTONITE CLAY  BC  
 NO. OF BAGS 23 NO. OF POUNDS \_\_\_\_\_  
 GALLONS OF WATER 115  
 DEPTH OF GROUT SEAL (to nearest foot)  
 from 0 ft. to 40 ft.  
 (enter 0 if from surface)

**CASING RECORD**  
 casing types insert appropriate code below  
 ST  CO  
 STEEL CONCRETE  
 PL  OT  
 PLASTIC OTHER

MAIN CASING Nominal diameter Total depth  
 TYPE top (main) casing of main casing  
 (nearest inch) (nearest foot)  
 PL  2  50

**OTHER CASING (if used)**  
 diameter depth (feet)  
 inch from to

**SCREEN RECORD**  
 screen type or open hole insert appropriate code below  
 ST  BR  HO  
 STEEL BRASS OPEN HOLE  
 PL  OT  
 PLASTIC OTHER

**C2**

EACH SCREEN	DEPTH (nearest ft.)		
	1	2	3
1	<input checked="" type="checkbox"/> PL	<input type="checkbox"/> 50	<input type="checkbox"/> 97
2			
3			

SLOT SIZE 10 2 3  
 DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 50 to 97  
 IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

**OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)**  
 T (E.R.O.S.) WQ  
 70  72  74  75  76  
 TELESCOPE CASING LOG INDICATOR OTHER DATA

**C3**

**PUMPING TEST**  
 HOURS PUMPED (nearest hour) 6  
 PUMPING RATE (gal. per min. to nearest gal.) 5  
 METHOD USED TO MEASURE PUMPING RATE METER  
 WATER LEVEL (distance from land surface)  
 BEFORE PUMPING 29  
 WHEN PUMPING 28  
 TYPE OF PUMP USED (for test)  
 A air  P piston  T turbine  
 C centrifugal  R rotary  O other (describe below)  
 J jet  S submersible

**PUMP INSTALLED**

DRILLER WILL INSTALL PUMP  YES  NO  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP INSTALLED  29  
 PLACE (A,C,J,P,R,S,T,O) IN BOX-SEE ABOVE:  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon)  31  35  
 PUMP HORSE POWER  37  41  
 PUMP COLUMN LENGTH (nearest ft.)  43  47  
 CASING HEIGHT (circle appropriate box and enter casing height)  
 + above } LAND SURFACE (nearest foot)  
 - below }  3

CIRCLE APPROPRIATE LETTER  
 A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
 E ELECTRIC LOG OBTAINED  
 P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH GOMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 354  
 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)  
See Attachment 4/25  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

**LOCATION OF WELL ON LOT**  
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

see attachment  
 MW-3A

B 1 **2938** SEQUENCE NO. (OEP USE ONLY)

STATE OF MARYLAND  
APPLICATION FOR PERMIT TO DRILL WELL  
please print or type

OEP PERMIT NUMBER **70-88-0063**  
fill in this form completely

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

Date Received **033088**

**Montgomery County MD**  
15 Last Name 13 Owner 34 First Name

**101 Monroe Street**  
36 Street or RFD 55

**Rockville MD 20850**  
57 Town 70 State 72 Zip 76

DRILLER INFORMATION

**Stanley L. Cohen** 354  
Driller's Name 77 License No. 80

**AIEC Associates, Inc.**  
Firm Name

**8918 Herrmann Drive Columbia, MD 21045**  
Address

*Stanley L. Cohen* 3/24/88  
Signature Date

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) **None**

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **None**

USE FOR WATER (CIRCLE APPROPRIATE BOX)

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)

FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)

INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)

PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)

TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL **150** FEET

APPROXIMATE DIAMETER OF WELL **2** INCH

METHOD OF DRILLING (circle one)

BORED (or Augered)  JETTED  Jetted &  DRIVEN

AIR-ROTARY  AIR-PERCussion  ROTARY (Hydraulic Rotary)

CABLE  REVERSE-ROTARY  Drive-POINT

other \_\_\_\_\_

REPLACEMENT OR DEEPEINED WELLS (CIRCLE APPROPRIATE BOX)

THIS WELL WILL NOT REPLACE AN EXISTING WELL

THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY

THIS WELL WILL DEEPEIN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE) \_\_\_\_\_

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER \_\_\_\_\_

FORCE **CS** WRITE INITIALS IN BOX PERMIT No. **70-88-0063**

SPECIAL CONDITIONS

B 3 LOCATION OF WELL

**Montgomery** COUNTY

23 SUBDIVISION \_\_\_\_\_

SECTION \_\_\_\_\_ LOT \_\_\_\_\_

**Rockville** 52 NEAREST TOWN

MILES FROM TOWN (enter 0 if in town) **1 MI**

B 4 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

**Gude Drive** NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

**1580** DISTANCE FROM ROAD ENTER FT or MI **71**

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

**Montgomery County 8804062003**  
COUNTY NAME COUNTY NO.

OEP SIGNATURE \_\_\_\_\_ STATE HEALTH INSERT S \_\_\_\_\_

DATE ISSUED **041388** CO SIGNATURE **El Sushen** EXP. DATE \_\_\_\_\_

NORTH GRID **464000** EAST GRID **0760000**

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER

1. **POTABLE OFF SITE**

2. \_\_\_\_\_

3. \_\_\_\_\_

WRITE THE BOX NUMBER FROM THE MAP HERE

**760**  
**460**

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

N

**403**

5277

SEQUENCE NO. (DENY USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-8 ON ALL CARDS)

COUNTY NUMBER

DATE RECEIVED AUG 5 1988

DATE WELL COMPLETED 072280

DEPTH OF WELL 136 (TO NEAREST FOOT)

PERMIT NO. MO-88-0063

OWNER MONTGOMERY Co Md, STREET OR RFD 101 MONROE ST, TOWN ROCKVILLE MD 20850

WELL LOG

Not required for driven wells. STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

Table with columns: DESCRIPTION, FEET (FROM, TO), Check if water bearing. Rows: Red clay SAPROLITE (0-30), decomposed RK (30-36), ROCK (36-136)

GROUTING RECORD

WELL HAS BEEN GROUTED (Y/N), TYPE OF GROUTING MATERIAL CEMENT CM, BENTONITE CLAY BC, NO. OF BAGS 24, NO. OF POUNDS 120

CASING RECORD: MAIN CASING TYPE PL, Nominal diameter 2, Total depth 86

OTHER CASING (if used) diameter inch, depth (feet) from to

SCREEN RECORD: screen type or open hole, insert appropriate code below

DEPTH (nearest ft.) grid with handwritten values: 8, 11, 136, 21, 23, 24, 26, 30, 32, 36, 38, 39, 41, 45, 47, 51

SLOT SIZE 1.010, DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 84 to 136, IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

PUMPING TEST

HOURS PUMPED 11, PUMPING RATE 2, MEASURE PUMPING RATE METER, WATER LEVEL 4, WHEN PUMPING 9, TYPE OF PUMP USED Centrifugal

PUMP INSTALLED

DRILLER WILL INSTALL PUMP (YES/NO), TYPE OF PUMP INSTALLED, CAPACITY: GALLONS PER MINUTE, PUMP HORSE POWER, PUMP COLUMN LENGTH, CASING HEIGHT, LAND SURFACE

LOCATION OF WELL ON LOT, SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS

CIRCLE APPROPRIATE LETTER: A A WELL WAS ABANDONED AND SEALED, E ELECTRIC LOG OBTAINED, P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION"

DRILLERS IDENT. NO., DRILLERS SIGNATURE, SITE SUPERVISOR

TELESCOPE CASING, LOG INDICATOR, OTHER DATA

SEE ATTACHMENT MW-4

EMERGENCY/TEMP NO. IF ANY

<b>B 1</b>	<b>2939</b>	SEQUENCE NO. (OEP USE ONLY)	STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL <i>please print or type</i>	OEP PERMIT NUMBER <b>MO-888-01064</b> <i>fill in this form completely</i>
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**OWNER INFORMATION**

Date Received: **03/30/88**

**Montgomery County MD**  
 15 Last Name 13 Owner 34 First Name

**101 Monroe Street**  
 36 Street or RFD 55

**Rockville MD 20850**  
 57 Town 70 State 72 Zip 76

**LOCATION OF WELL**

**Montgomery**  
 8 COUNTY 21

23 SUBDIVISION \_\_\_\_\_ 42

SECTION \_\_\_\_\_ LOT \_\_\_\_\_  
 44 46 48 50

**Rockville**  
 52 NEAREST TOWN 71

MILES FROM TOWN (enter 0 if in town) **1 MI**  
 73 76 77 78

**DRILLER INFORMATION**

**Stanley L. Cohen** **354**  
 77 License No. 80

**AIEC Associates, Inc.**  
 Firm Name

**8918 Herrmann Drive Columbia MD 21045**  
 8918 Street 21045 City State Zip

*Stanley L. Cohen* **3/24/88**  
 Signature Date

**B 4**

**Gude Drive**  
 11 NEAR WHAT ROAD 30

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

34 **500** 37  
 DISTANCE FROM ROAD  
 ENTER FT or MI 38 39

**WELL INFORMATION**

APPROX. PUMPING RATE (GAL. PER MIN.) **NONE**  
 8 12

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **NONE**  
 14 20

**USE FOR WATER (CIRCLE APPROPRIATE BOX)**

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)

FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)

INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)

PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)

TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

**Montgomery County 8809069003**  
 COUNTY NAME COUNTY NO.

OEP SIGNATURE **R. Szymen** STATE HEALTH INSERT S 41

DATE ISSUED **04/3/88**

CO SIGNATURE \_\_\_\_\_ EXP. DATE \_\_\_\_\_

NORTH GRID **464000** EAST GRID **0760000**  
 43 48 55 57 63

APPROXIMATE DEPTH OF WELL **100** FEET  
 24 28

APPROXIMATE DIAMETER OF WELL **2** INCH  
 NEAREST INCH

**METHOD OF DRILLING (circle one)**

BORED (or Augered)  JETTÉD  Jettéd & DRIVEN

AIR-ROtary  AIR-PERcussion  ROTARY (Hydraulic Rotary)

CABLE  REVERSE-ROtary  Drive-POINT

other \_\_\_\_\_

**REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)**

THIS WELL WILL NOT REPLACE AN EXISTING WELL

THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY

THIS WELL WILL DEEPEM AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) \_\_\_\_\_ 52

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER \_\_\_\_\_ 54 63

FORCE  WRITE INITIALS IN BOX PERMIT NO. **MO-888-01064**  
 67 68 70 71 72 73 74 75 76 77 78 79

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER

- POTABLE OFF SITE
- 
- 

WRITE THE BOX NUMBER FROM THE MAP HERE

**760**  
**460**

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

N ↑

**453**

C1 **5271** SEQUENCE NO. (DENV USE ONLY) **STATE OF MARYLAND WELL COMPLETION REPORT** THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) FILL IN THIS FORM COMPLETELY PLEASE PRINT OR TYPE COUNTY NUMBER

DATE RECEIVED **AUG 01 1981** DATE WELL COMPLETED **07 29 81** Depth of Well **33** FROM "PERMIT TO DRILL WELL" **MO-88-0064**

OWNER **Montgomery Co Md** STREET OR RFD **101 MORRIS ST** first name TOWN **ROCKVILLE MD 20850** SUBDIVISION SECTION LOT

**WELL LOG**  
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
Fill - concrete soil some wood	0	3	
tan, grey, dk grey sandy silt w/ rk + quartz	3	33	✓
ROCK - grey blk	33	83	✓

**GROUTING RECORD**  
WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**

TYPE OF GROUTING MATERIAL  
CEMENT **CM** BENTONITE CLAY **BC**

NO. OF BAGS **20** NO. OF POUNDS **1850**

GALLONS OF WATER **150**

DEPTH OF GROUT SEAL (to nearest foot)  
from **0** ft. to **30** ft.

**CASING RECORD**

casing types insert appropriate code below

**ST** **CO** **PL** **OT**  
STEEL CONCRETE PLASTIC OTHER

MAIN CASING TYPE **PL** Nominal diameter top (main) casing (nearest inch) **2** Total depth of main casing (nearest foot) **33**

**OTHER CASING (if used)**  
diameter inch depth (feet) from to

**SCREEN RECORD**  
screen type or open hole insert appropriate code below

**ST** **BR** **HO** **PL** **OT**  
STEEL BRASS OPEN HOLE BRONZE HOLE PLASTIC OTHER

**C2**

DEPTH (nearest ft.)

EACH SCREEN **PL** **33** **83**

SLOT SIZE **40**

DIAMETER OF SCREEN **2** (NEAREST INCH)

GRAVEL PACK from **33** to **83**

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX **68**

**OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)**

TELESCOPE CASING **70** LOG INDICATOR **72** OTHER DATA **74 75 76**

**C3**

**PUMPING TEST**

HOURS PUMPED (nearest hour) **6**

PUMPING RATE (gal. per min. to nearest gal.) **2**

METHOD USED TO MEASURE PUMPING RATE **METER**

WATER LEVEL (distance from land surface)

BEFORE PUMPING **5**

WHEN PUMPING **9**

TYPE OF PUMP USED (for test)

**C** centrifugal **R** rotary **O** other (describe below)

**J** jet **S** submersible

**PUMP INSTALLED**

DRILLER WILL INSTALL PUMP YES **NO**

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: **29**

CAPACITY: GALLONS PER MINUTE (to nearest gallon) **31 35**

PUMP HORSE POWER **37 41**

PUMP COLUMN LENGTH (nearest ft.) **43 47**

CASING HEIGHT (circle appropriate box and enter casing height)

**+** above **-** below

LAND SURFACE **3** (nearest foot)

CIRCLE APPROPRIATE LETTER

**A** A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

**E** ELECTRIC LOG OBTAINED

**P** TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. **354**

DRILLERS SIGNATURE **Barney Cole**

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee) **Don A. Johnson 180**

**LOCATION OF WELL ON LOT**

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

**SEE ATTACHMENT**

**WELL # 4A**

**B 1** SEQUENCE NO. (OEP USE ONLY) **2940**

**STATE OF MARYLAND**  
APPLICATION FOR PERMIT TO DRILL WELL  
please print or type

OEP PERMIT NUMBER **70-88-0065**  
fill in this form completely

**Date Received** **01.31.88**

**OWNER INFORMATION**

**Montgomery County MD**  
15 Last Name Owner First Name 34

**101 Monroe Street**  
36 Street or RFD 55

**Rockville MD 20850**  
57 Town 70 State 72 Zip 76

**DRILLER INFORMATION**

**Stanley L. Cohen** **354**  
Driller's Name 77 License No. 80

**ATEC Associates, Inc.**  
Firm Name

**8918 Herrmann Drive Columbia, MD 21045**  
Address

*Stanley L. Cohen* **4/24/88**  
Signature Date

**B 2** **WELL INFORMATION**

APPROX. PUMPING RATE (GAL. PER MIN.) **NONE**

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **NONE**

**USE FOR WATER (CIRCLE APPROPRIATE BOX)**

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)

FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)

INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)

PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)

TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL **100** FEET

APPROXIMATE DIAMETER OF WELL **2** INCH

**METHOD OF DRILLING (circle one)**

BORED (or Augered)  JETTED  Jetted &  DRIVEN

AIR-ROTary  AIR-PERCussion  ROTARY (Hydraulic Rotary)

CABLE  REVERSE-ROTary  DRIVE-POINT

other \_\_\_\_\_

**REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)**

THIS WELL WILL NOT REPLACE AN EXISTING WELL

THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY

THIS WELL WILL DEEPEM AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) \_\_\_\_\_

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER \_\_\_\_\_ GAP \_\_\_\_\_

FORCE **US** WRITE INITIALS IN BOX PERMIT No. **70-88-0065**

SPECIAL CONDITIONS

**B 3** **LOCATION OF WELL**

**Montgomery**  
8 COUNTY 21

23 SUBDIVISION \_\_\_\_\_ 42

SECTION \_\_\_\_\_ LOT \_\_\_\_\_

**Rockville**  
52 NEAREST TOWN 71

MILES FROM TOWN (enter 0 if in town) **1 MI**  
73 76 77 78

**B 4**

**1** DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

**2** NEAR WHAT ROAD **Gude Drive**  
11 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

34 **1570** 37 DISTANCE FROM ROAD  
ENTER FT or MI **FT**

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

**Montgomery County 8804069003**  
COUNTY NAME COUNTY NO.

OEP SIGNATURE \_\_\_\_\_ STATE HEALTH INSERT S \_\_\_\_\_

DATE ISSUED **01.31.88** CO SIGNATURE **RL Stephen** EXP. DATE \_\_\_\_\_

NORTH GRID **074000** EAST GRID **076000**

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER

- POTABLE OFF SITE
- 
- 

WRITE THE BOX NUMBER FROM THE MAP HERE

**760**  
**400**

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

**N**

**452**

EMERGENCY/TEMP NO. IF ANY

B 1 2941 SEQUENCE NO. (OEP USE ONLY)  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

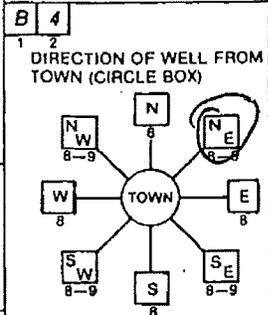
STATE OF MARYLAND  
 APPLICATION FOR PERMIT TO DRILL WELL  
 please print or type

OEP PERMIT NUMBER  
 140-88-0066  
 fill in this form completely

8 Date Received 033088  
 13 OWNER INFORMATION  
 15 Montgomery County MD  
 15 Last Name Owner First Name  
 36 101 Monroe Street  
 36 Street or RFD  
 57 Rockville MD 20850  
 57 Town 70 State 72 Zip 76

B 3 LOCATION OF WELL  
 1 2 Montgomery  
 8 COUNTY 21  
 23 SUBDIVISION  
 SECTION 44 46 LOT 48 50  
 52 NEAREST TOWN Rockville  
 71  
 MILES FROM TOWN (enter 0 if in town) 73 76 77 78

DRILLER INFORMATION  
 Stanley L. Cohen 354  
 77 License No. 80  
 Driller's Name  
 ATEC Associates, Inc.  
 Firm Name  
 8918 Herrmann Drive Columbia MD 21045  
 Address  
 Stanley L. Cohen 3/24/88  
 Signature Date



11 Gude Drive 30  
 NEAR WHAT ROAD  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
  
 34 500 37  
 DISTANCE FROM ROAD  
 ENTER FT or MI 38 39

B 2 WELL INFORMATION  
 1 2 APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 8  
 AVERAGE DAILY QUANTITY NEEDED NONE  
 (GAL. PER DAY) 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, (MONITORING) (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
 Montgomery County 8804069003  
 COUNTY NAME COUNTY NO.  
 OEP SIGNATURE STATE HEALTH INSERT S  
 DATE ISSUED RL Stephen  
 43 48 CO SIGNATURE EXP. DATE  
 NORTH GRID 464000 EAST GRID 0759000  
 50 55 57 63

APPROXIMATE DEPTH OF WELL 100 FEET  
 24 28

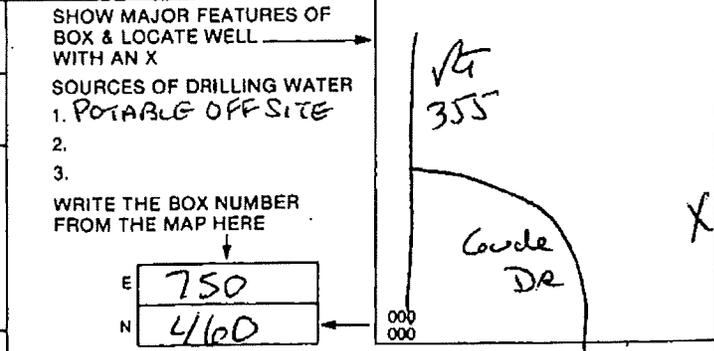
APPROXIMATE DIAMETER OF WELL 2 INCH  
 30 37

METHOD OF DRILLING (circle one)  
 30 BORED (or Augered) JETTED Jetted & DRIVEN  
 37 AIR-ROtary AIR-PERcussion ROTARY Hydraulic Rotary  
 CABLE REVERSE-ROtary Drive-POINT  
 other

REPLACEMENT OR DEEPEINED WELLS (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEIN AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE) 41 52

Not to be filled in by driller (OEP USE ONLY)  
 APPROP. PERMIT NUMBER GAP  
 54 63  
 FORCE 1/3 WRITE INITIALS IN BOX PERMIT No. 140-88-0066  
 67 68 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION  
 N  
 451

**C1** 8225 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND WELL COMPLETION REPORT THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) DATE RECEIVED (OEP USE ONLY) DATE WELL COMPLETED Depth of Well PERMIT NO. FROM "PERMIT TO DRILL WELL"

Feb-10, 1989 080788 81 14-85-0066

OWNER MONTGOMERY CO MD. STREET OR RFD 101 MONROE ST. TOWN ROCKVILLE MD. 20850

WELL LOG Not required for driven wells STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
SEPERATE	0	31	✓
ROCK	31	81	✓

WELL HAS BEEN GROUTED (Circle Appropriate Box)  Y  N

TYPE OF GROUTING MATERIAL CEMENT  CM BENTONITE CLAY  BC

NO. OF BAGS 20 NO. OF POUNDS 100

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot) from 0 to 31

CASING RECORD casing types insert appropriate code below

ST STEEL  CO CONCRETE  PL PLASTIC  OT OTHER

MAIN CASING TYPE  PL Nominal diameter (top/main) casing (nearest inch) 2 Total depth of main casing (nearest foot) 31

OTHER CASING (if used) diameter mch depth (feet) from to

SCREEN RECORD screen type or open hole insert appropriate code below

ST STEEL  BR BRASS  HO OPEN HOLE  PL PLASTIC  OT OTHER

DEPTH (nearest ft.)

PL 31 81

- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLER'S IDENT. NO. 354

DRILLER'S SIGNATURE

SUPERVISOR (sign of driller or journeyman responsible for sitework if different from permittee)

SLOT SIZE 010

DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK 0 to 0

IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX  F

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

TELESCOPE CASING  LOG INDICATOR  OTHER DATA

PUMPING TEST

HOURS PUMPED (nearest hour) 5

PUMPING RATE (gal. per min. to nearest gal.) 1.3

METHOD USED TO MEASURE PUMPING RATE METRIC

WATER LEVEL (distance from land surface)

BEFORE PUMPING 16

WHEN PUMPING 18

TYPE OF PUMP USED (for test)

C centrifugal  R rotary  O other (describe below)

A air  P piston  T turbine  J jet  S submersible

PUMP INSTALLED YES  Y NO  N

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX)

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O))

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height)

+ above LAND SURFACE

- below 3 (nearest foot)

LOCATION OF WELL ON LOT SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

SEE ATTACHMENT

EMERGENCY/TEMP NO. IF ANY

B 1 SEQUENCE NO. (OEP USE ONLY) 2942 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

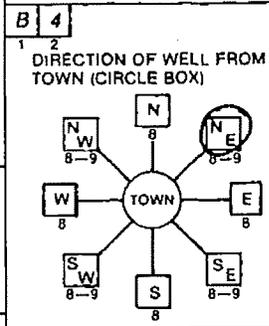
STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type

OEP PERMIT NUMBER MO-888-0067 fill in this form completely

OWNER INFORMATION Date Received 033087 Montgomery County MD 101 Monroe Street Rockville MD 20850

LOCATION OF WELL Montgomery County 23 SUBDIVISION SECTION LOT Rockville MILES FROM TOWN 1 MI

DRILLER INFORMATION Stanley L. Cohen AEC Associates, Inc. 8918 Herrmann Drive Columbia, MD 21045



Gude Drive NEAR WHAT ROAD ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) DISTANCE FROM ROAD 3550 FT

WELL INFORMATION APPROX. PUMPING RATE (GAL. PER MIN.) NONE AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL Montgomery County 8804069003 DATE ISSUED 041388

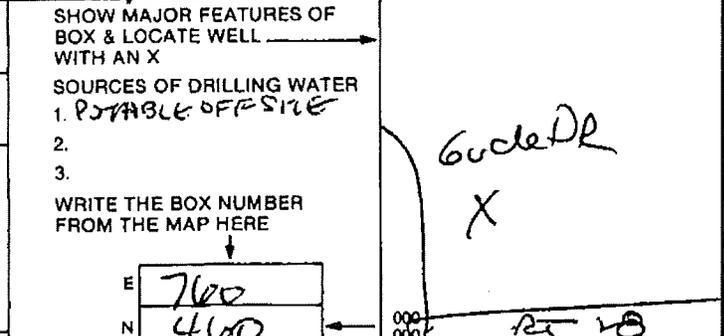
- USE FOR WATER (CIRCLE APPROPRIATE BOX) D HOME, F FARMING, I INDUSTRIAL, P PUBLIC OR PRIVATE WATER COMPANY, T TEST, OBSERVATION, MONITORING

APPROXIMATE DEPTH OF WELL 150 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH

METHOD OF DRILLING (circle one) BORED, JETTED, ROTARY, AIR-ROtary, AIR-Percussion, CABLE, REVerse-ROtary, Drive-POINT

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX) N THIS WELL WILL NOT REPLACE AN EXISTING WELL



Not to be filled in by driller (OEP USE ONLY) APPROX. PERMIT NUMBER GAP FORCE INITIALS IN BOX PERMIT No. MO-888-0067

SPECIAL CONDITIONS 303 ORIGINAL

Date Received (OEP use only) **Feb 10, 1989** DATE WELL COMPLETED **083088** Depth of Well **76** PERMIT NO. FROM "PERMIT TO DRILL WELL" **MD-88-0067**

OWNER **MONTGOMERY CO MD** first name **101 MONROE ST.** TOWN **ROCKVILLE MD 20850**  
 STREET OR RFD SUBDIVISION SECTION LOT

**WELL LOG**  
 Not required for driven wells  
 STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
CLAY + SAPPHIRE	0	26	✓
ROCK	26	76	✓

**GRouting RECORD**  
 WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**  
 TYPE OF GROUTING MATERIAL CEMENT **CM** BENTONITE CLAY **BC**  
 NO. OF BAGS **30** NO. OF POUNDS **180**  
 GALLONS OF WATER **100**  
 DEPTH OF GROUT SEAL (to nearest foot) from **0** ft. to **26** ft. (enter 0 if from surface)

**CASING RECORD**  
 casing types insert appropriate code below  
**ST** STEEL **CO** CONCRETE  
**PL** PLASTIC **OT** OTHER  
 MAIN CASING TYPE **PL** Nominal diameter top/main casing (nearest inch) **2** Total depth of main casing (nearest foot) **76**

**OTHER CASING** (if used) diameter mch \_\_\_\_\_ depth (feet) from \_\_\_\_\_ to \_\_\_\_\_

**SCREEN RECORD**  
 screen type or openhole insert appropriate code below  
**ST** STEEL **BR** BRASS **HO** OPEN HOLE  
**PL** PLASTIC **OT** OTHER

**EACH SCREEN**  
 C 2 (seq. no.)  
 DEPTH (nearest ft.) **PL** **26** **76**  
 SLOT SIZE **010**  
 DIAMETER OF SCREEN **2** (NEAREST INCH)  
 from \_\_\_\_\_ to \_\_\_\_\_

GRAVEL PACK **0** **0**  
 IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX **F**

- CIRCLE APPROPRIATE BOX  
**A** A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
**E** ELECTRIC LOG OBTAINED  
**P** TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT NO. **354**  
 DRILLERS SIGNATURE *[Signature]*  
 (MUST MATCH SIGNATURE ON APPLICATION)  
 SITE SUPERVISOR (sign of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)  
 T (E.R.O.S.) **70** **77** **WQ**  
 TELESCOPE CASING LOG INDICATOR OTHER DATA

**C 3** (seq. no.)  
**PUMPING TEST**  
 HOURS PUMPED (nearest hour) **6**  
 PUMPING RATE (gal. per min. to nearest gal.) **28**  
 METHOD USED TO MEASURE PUMPING RATE **METREX**  
 WATER LEVEL (distance from land surface) BEFORE PUMPING **20** WHEN PUMPING **22**  
 TYPE OF PUMP USED (for test) **C** centrifugal **P** piston **T** turbine **J** jet **R** rotary **O** other (describe below) **S** submersible

**PUMP INSTALLED** YES **Y** NO **N**  
 DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX)  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O))  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon) \_\_\_\_\_  
 PUMP HORSE POWER \_\_\_\_\_  
 PUMP COLUMN LENGTH (nearest ft.) \_\_\_\_\_  
 CASING HEIGHT (circle appropriate box and enter casing height) **+** above **-** below **3** (nearest foot)

LOCATION OF WELL ON LOT SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

**SEE ATTACHMENT**  
**MW-7A**

Date Received (OEP use only) Feb 10, 1989 DATE WELL COMPLETED 082688 Depth of Well 109 PERMIT NO. FROM "PERMIT TO DRILL WELL" MD-88-0068

OWNER MONTGOMERY CO. MD. first name STREET OR RFD 101 MONROE ST. TOWN ROCKVILLE MD 20850

SUBDIVISION SECTION LOT

WELL LOG

Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
SANDWALUTE	0	57	<input checked="" type="checkbox"/>
ROCK	57	109	

GRouting RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box)  YES  NO

TYPE OF GROUTING MATERIAL CEMENT  BENTONITE CLAY

CEMENT  NO. OF BAGS 20 NO. OF POUNDS 100

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 59 ft.

CASING RECORD

MAIN CASING TYPE  PL Nominal diameter (top/main) casing (nearest inch) 2 Total depth of main casing (nearest foot) 59

PUMPING TEST

HOURS PUMPED (nearest hour) 5 1/2

PUMPING RATE (gal. per min. to nearest gal.) 4

METHOD USED TO MEASURE PUMPING RATE WEIR FALL

WATER LEVEL (distance from land surface)

BEFORE PUMPING 30

WHEN PUMPING 33

TYPE OF PUMP USED (for test)

centrifugal  piston  turbine  jet  submersible

OTHER CASING (if used)

diameter (nearest inch) depth (feet) from to

PUMP INSTALLED YES  NO

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX)  YES  NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O))

CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

SCREEN RECORD

screen type or openhole

insert appropriate code below

PL  BR  HO  ST  PL  OT

STEEL BRASS BRONZE OPEN HOLE PLASTIC OTHER

CASING HEIGHT (circle appropriate box and enter casing height)

above  below

LAND SURFACE 3 (nearest foot)

- CIRCLE APPROPRIATE BOX
- A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

DEPTH (nearest ft.)

59 109

SLOT SIZE 010

DIAMETER OF SCREEN 2 (NEAREST INCH)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

GRAVEL PACK 0 0

IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX

DRILLER'S IDENT. NO. 354

DRILLER'S SIGNATURE [Signature]

SITE SUPERVISOR: sign. of driller or journeyman responsible for sitework if different from permittee

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.)

TELESCOPE CASING LOG INDICATOR OTHER DATA

SEE ATTACHMENT

**B 1** 2943 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER MD-818-0068 fill in this form completely

**B 2** OWNER INFORMATION  
 Date Received 033088  
 Montgomery County MD  
 101 Monroe Street  
 Rockville MD 20850

**B 3** LOCATION OF WELL  
 Montgomery  
 Rockville  
 1 MI  
 MILES FROM TOWN (enter 0 if in town)

**B 4** DRILLER INFORMATION  
 Stanley L. Cohen  
 ATEC Associates, Inc.  
 8918 Herrmann Drive Columbia, MD 21045  
 Stanley L. Cohen 3/24/88

**B 4** Gude Drive  
 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
 3525 DISTANCE FROM ROAD  
 ENTER FT or MI 87

**B 2** WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN.) NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) NONE

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
 Montgomery County 8804069003  
 OEP SIGNATURE R. L. Dyphen  
 DATE ISSUED 041388  
 NORTH GRID 464000 EAST GRID 076000

APPROXIMATE DEPTH OF WELL 100 FEET  
 APPROXIMATE DIAMETER OF WELL 2 INCH  
 METHOD OF DRILLING (circle one)  
 BORED (or Augered) JETTED Jetted & DRIVEN  
 AIR-ROtary AIR-PERcussion ROTARY (Hydraulic Rotary)  
 CABLE REVERSE-ROtary DRIVE-POINT

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
 SOURCES OF DRILLING WATER  
 1. POTABLE OFF SITE  
 WRITE THE BOX NUMBER FROM THE MAP HERE  
 E 760  
 N 460  
 Gude DR. X  
 RT 28

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEN AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION  
 N

Not to be filled in by driller (OEP USE ONLY)  
 APPROP. PERMIT NUMBER GAP  
 FORCE 45 WRITE INITIALS IN BOX PERMIT No. MD-818-0068

SPECIAL CONDITIONS

**B 1** 2944 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER MD-88-0069

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) fill in this form completely

**B 3** LOCATION OF WELL

8 COUNTY Montgomery 21  
 23 SUBDIVISION  
 SECTION 44 46 LOT 48 50  
 52 NEAREST TOWN Rockville 71  
 MILES FROM TOWN (enter 0 if in town) 1 73 76 77 78 MI

**DRILLER INFORMATION**

Stanley L. Cohen 354  
 Driller's Name 77 License No. 80  
 ATEC Associates, Inc.  
 Firm Name  
 8918 Herrmann Drive Columbia, MD 21045  
 Address  
 Signature Stanley L. Cohen 3/24/88 Date

**B 2** WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) 0 NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 0 NONE

**USE FOR WATER (CIRCLE APPROPRIATE BOX)**

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 100 28 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST

**METHOD OF DRILLING (circle one)**

BORED (or Augered) JETTED Jetted & DRIVEN  
 AIR-ROTary AIR-PERCussion ROTARY (Hydraulic Rotary)  
 CABLE REVerse-ROTary Drive-POINT  
 other

**REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)**

THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEN AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 52

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER 54 GAP 63  
 FORCE 45 WRITE INITIALS IN BOX PERMIT No. MD-88-0069 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS

**B 3** LOCATION OF WELL

8 COUNTY Montgomery 21  
 23 SUBDIVISION  
 SECTION 44 46 LOT 48 50  
 52 NEAREST TOWN Rockville 71  
 MILES FROM TOWN (enter 0 if in town) 1 73 76 77 78 MI

**B 4** DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

NEAR WHAT ROAD Gude Drive 30  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) WEST 22 EAST SOUTH  
 34 3500 37 DISTANCE FROM ROAD ENTER FT or MI 91 38 39

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

Montgomery County 8804069003  
 COUNTY NAME COUNTY NO.  
 OEP SIGNATURE RL Stephens STATE HEALTH INSERT S 41  
 DATE ISSUED 04/3/88  
 CO SIGNATURE EXP. DATE  
 NORTH GRID 464000 EAST GRID 0760000  
 50 55 57 63

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER  
 1. ROTARY OFF SITE  
 2.  
 3.  
 WRITE THE BOX NUMBER FROM THE MAP HERE

E 700  
 N 400  
 000 000  
 Gude DR  
 X  
 RT 28

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

N

352

C1 8226 SEQUENCE NO. (OEP USE ONLY)  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND  
 WELL COMPLETION REPORT  
 FILL IN THIS FORM COMPLETELY  
 PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.  
 COUNTY NUMBER

Date Received (OEP use only)  
 Feb-10, 1989

DATE WELL COMPLETED  
 100588

Depth of Well  
 145 (TO NEAREST FOOT)

PERMIT NO.  
 FROM "PERMIT TO DRILL WELL"  
 140-88-0069

OWNER MONTGOMERY CO. 140.  
 STREET OR RFD 101 MONROE ST. TOWN ROCKVILLE MD 20850

WELL LOG  
 Not required for driven wells  
 STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
SAPRCK LTR	0	40	✓
ROCK	40	145	✓

WELL HAS BEEN GROUTED (Circle Appropriate Box)  
 Y  N

TYPE OF GROUTING MATERIAL  
 CEMENT  CM BENTONITE CLAY  BC  
 NO. OF BAGS 38 NO. OF POUNDS 100  
 GALLONS OF WATER 140  
 DEPTH OF GROUT SEAL (to nearest foot)  
 from 0 ft. to 90 ft.

CASING RECORD  
 casing types insert appropriate code below  
 ST STEEL  CO CONCRETE  
 PL PLASTIC  OT OTHER

MAIN CASING TYPE  
 PL  
 Nominal diameter (top/main) casing (nearest inch) 2  
 Total depth of main casing (nearest foot) 95

OTHER CASING (if used)  
 diameter inch depth (feet) to

SCREEN RECORD  
 screen type or openhole insert appropriate code below  
 ST STEEL  BR BRASS  HO OPEN HOLE  
 PL PLASTIC  OT OTHER

DEPTH (nearest ft.)  
 PL 95 145

SLOT SIZE 010  
 DIAMETER OF SCREEN 2 (NEAREST INCH)  
 from 0 to 0

GRAVEL PACK 0 0  
 IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX  F

CIRCLE APPROPRIATE BOX  
 A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
 E ELECTRIC LOG OBTAINED  
 P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 254  
 DRILLERS SIGNATURE  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)  
 T. (E.R.O.S.) W O  
 TELESCOPE CASING LOG INDICATOR OTHER DATA

C 3

PUMPING TEST  
 HOURS PUMPED (nearest hour) 6  
 PUMPING RATE (gal. per min. to nearest gal.) 2  
 METHOD USED TO MEASURE PUMPING RATE WATER  
 WATER LEVEL (distance from land surface)  
 BEFORE PUMPING 12  
 WHEN PUMPING 15  
 TYPE OF PUMP USED (for test)  
 C centrifugal  R rotary  O other (describe below)  
 J jet  S submersible

PUMP INSTALLED YES  NO   
 DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX)  Y  N  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O))  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon)  
 PUMP HORSE POWER  
 PUMP COLUMN LENGTH (nearest ft.)  
 CASING HEIGHT (circle appropriate box and enter casing height)  
 + above  
 - below  
 LAND SURFACE 3 (nearest foot)

LOCATION OF WELL ON LOT  
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

SEE ATTACHMENT

<b>B 1</b>	<b>2945</b>	SEQUENCE NO. (OEP USE ONLY)	STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL <i>please print or type</i>	OEP PERMIT NUMBER <b>MD-88-0070</b> <small>fill in this form completely</small>
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**Date Received** **033088**

**OWNER INFORMATION**

**Montgomery County MD**  
15 Last Name      Owner      First Name      34

**101 Monroe Street**  
36      Street or RFD      55

**Rockville MD 20850**  
57      Town      70 State 72      Zip      76

**B 3** LOCATION OF WELL

**Montgomery**  
8 COUNTY      21

23 SUBDIVISION \_\_\_\_\_ 42

SECTION \_\_\_\_\_ LOT \_\_\_\_\_  
44      46      48      50

**Rockville**  
52 NEAREST TOWN      71

MILES FROM TOWN (enter 0 if in town) **1 MI**  
73      76      77      78

**DRILLER INFORMATION**

**Stanley L. Cohen** **354**  
Driller's Name      77 License No. 80

**ATEC Associates, Inc.**  
Firm Name

**8918 Herrmann Drive Columbia, MD 21045**  
Address

*Stanley L. Cohen* **3/24/88**  
Signature      Date

**B 4**

1 2 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)

NEAR WHAT ROAD **Gude Drive**  
11      30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

**3430**  
34      37

DISTANCE FROM ROAD  
ENTER FT or MI      FT  
38      39

**B 2** WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) **NONE**  
8      12

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **NONE**  
14      20

**USE FOR WATER (CIRCLE APPROPRIATE BOX)**

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)

FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)

INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)

PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)

TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

*Montgomery County* **8804069003**  
COUNTY NAME      COUNTY NO.

OEP SIGNATURE \_\_\_\_\_ STATE HEALTH INSERT S \_\_\_\_\_  
DATE ISSUED      41

**091388** *KL Dyer*  
43      48 CO SIGNATURE      EXP. DATE

NORTH GRID **464000** EAST GRID **0760000**  
50      55      57      63

APPROXIMATE DEPTH OF WELL **100** FEET  
24      28

APPROXIMATE DIAMETER OF WELL **2** NEAREST INCH

**METHOD OF DRILLING (circle one)**

BORED (or Augered)      JETTED      Jetted & DRIVEN

**AIR-ROTary**      AIR-PERCussion      **ROTARY** (Hydraulic Rotary)

CABLE      REVerse-ROTary      DRive-POINT

other \_\_\_\_\_

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER  
 1. **POTABLE OFF SITE**  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_

WRITE THE BOX NUMBER FROM THE MAP HERE

**760**  
**460**

**Gude DR**  
**RT 18**

**REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)**

THIS WELL WILL NOT REPLACE AN EXISTING WELL

THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED

THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY

THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) \_\_\_\_\_

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

N  
↑

*Not to be filled in by driller (OEP USE ONLY)*

APPROP. PERMIT NUMBER \_\_\_\_\_  
54      63

FORCE  WRITE INITIALS IN BOX PERMIT NO. **MD-88-0070**  
87      88      70      71      72      73      74      75      76      77      78      79

SPECIAL CONDITIONS

**351**

EMERGENCY/TEMP NO. IF ANY

B 1 **2946** SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER **MD-88-0077**  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) 70 71 *fill in this form completely*

Date Received **033088** OWNER INFORMATION  
**Montgomery County MD**  
 15 Last Name Owner First Name 34  
**101 Monroe Street**  
 36 Street or RFD 55  
**Rockville MD 20850**  
 57 Town 70 State 72 Zip 76

B 3 LOCATION OF WELL  
**Montgomery**  
 8 COUNTY 21  
 23 SUBDIVISION 42  
 SECTION **44** LOT **46**  
 44 46 48 50  
**Rockville**  
 52 NEAREST TOWN 71  
 MILES FROM TOWN (enter 0 if in town) **1** MI  
 73 76 77 78

DRILLER INFORMATION  
**Stanley L. Cohen** 354  
 Driller's Name 77 License No. 80  
**ATEC Associates, Inc.**  
 Firm Name  
**8918 Herrmann Drive Columbia, MD 21045**  
 Address  
*Stanley L. Cohen* 3/24/88  
 Signature Date

B 4  
 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
  
**Gude Drive**  
 11 NEAR WHAT ROAD 30  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
  
**3930**  
 34 37 DISTANCE FROM ROAD ENTER FT or MI **FT**  
 38 39

B 2 WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN.) **NONE**  
 8 12  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **NONE**  
 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
**Montgomery County** 8804069003  
 COUNTY NAME COUNTY NO.  
 OEP SIGNATURE **R. Stephen** STATE HEALTH INSERT S  41  
 DATE ISSUED **04/13/88**  
 43 48 CO SIGNATURE EXP. DATE  
 NORTH GRID **464000** EAST GRID **0760000**  
 50 55 57 63

APPROXIMATE DEPTH OF WELL **150** FEET  
 24 28  
 APPROXIMATE DIAMETER OF WELL **2** INCH  
 NEAREST INCH

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
 SOURCES OF DRILLING WATER  
 1. POTABLE OFF SITE  
 2.  
 3.  
 WRITE THE BOX NUMBER FROM THE MAP HERE  
  
 000 000

METHOD OF DRILLING (circle one)  
 BORED (or Augered) JETTED Jetted & DRIVEN  
 30 AIR-ROTARY AIR-PERCussion **ROTARY** (Hydraulic Rotary)  
 37 CABLE Reverse-ROTary Drive-POINT  
 other \_\_\_\_\_

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEN AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 \_\_\_\_\_ 52

Not to be filled in by driller (OEP USE ONLY)  
 APPROP. PERMIT NUMBER \_\_\_\_\_ GAP \_\_\_\_\_  
 54 63  
 FORCE **US** WRITE INITIALS IN BOX PERMIT No. **MD-88-0077**  
 67 68 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS

ORIGINAL

201

**C 1** **8227** SEQUENCE NO. (OEP USE ONLY) **STATE OF MARYLAND**  
**WELL COMPLETION REPORT**  
 THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.  
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) FILL IN THIS FORM COMPLETELY PLEASE PRINT OR TYPE  
 COUNTY NUMBER

Date Received (OEP use only) **Feb-10, 1989** DATE WELL COMPLETED **10/13/88** Depth of Well **90** PERMIT NO. FROM "PERMIT TO DRILL WELL" **MD-88-01071**  
 (TO NEAREST FOOT)

OWNER **MONTGOMERY CO. MD.** last name first name  
 STREET OR RFD **101 MONROE ST.** TOWN **ROCKVILLE MD 20850**  
 SUBDIVISION SECTION LOT

**WELL LOG**  
 Not required for driven wells  
 STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		Check if water bearing
	FROM	TO	
SAND LITE	0	40	✓
ROCK	40	90	✓

**WELL HAS BEEN GROUTED** (Circle Appropriate Box) **YES (Y)** **NO (N)**  
 TYPE OF GROUTING MATERIAL  
 CEMENT **(CM)** BENTONITE CLAY **(BC)**  
 NO. OF BAGS **20** NO. OF POUNDS **100**  
 GALLONS OF WATER **100**  
 DEPTH OF GROUT SEAL (to nearest foot) from **0** ft. to **40** ft. (enter 0 if from surface)

**CASING RECORD**  
 casing types insert appropriate code below  
**(ST)** STEEL **(CO)** CONCRETE  
**(PL)** PLASTIC **(OT)** OTHER  
 MAIN CASING TYPE Nominal diameter top/main casing (nearest inch) Total depth of main casing (nearest foot)  
**(PL)** **2** **40**

**OTHER CASING (if used)**  
 diameter inch depth (feet) from to

**SCREEN RECORD**  
 screen type or openhole insert appropriate code below  
**(ST)** STEEL **(BR)** BRASS **(HO)** OPEN HOLE  
**(PL)** PLASTIC **(OT)** OTHER

**C 2** DEPTH (nearest ft.)  
 EACH SCREEN  
 1 **(PL)** **40** **90**  
 2  
 3  
 SLOT SIZE **1/16**  
 DIAMETER OF SCREEN **2** (NEAREST INCH)  
 from to

GRAVEL PACK **0** **0**  
 IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX **(F)**

- CIRCLE APPROPRIATE BOX  
**(A)** A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED  
**(E)** ELECTRIC LOG OBTAINED  
**(P)** TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. **354**  
 DRILLERS SIGNATURE *[Signature]*  
 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)  
 SITE SUPERVISOR (sign of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)  
 T (E.R.O.S.) **(WQ)**  
 TELESCOPE CASING LOG INDICATOR OTHER DATA

**C 3** Seq. no. **3**  
**PUMPING TEST**  
 HOURS PUMPED (nearest hour) **6**  
 PUMPING RATE (gal. per min. to nearest gal.) **2**  
 METHOD USED TO MEASURE PUMPING RATE **METER**  
 WATER LEVEL (distance from land surface)  
 BEFORE PUMPING **18**  
 WHEN PUMPING **18**  
 TYPE OF PUMP USED (for test)  
**(C)** centrifugal **(R)** rotary **(O)** other (describe below)  
**(J)** jet **(S)** submersible

**PUMP INSTALLED** YES **(Y)** NO **(N)**  
 DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX)  
 IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE  
 TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: (A, C, J, P, R, S, T, O))  
 CAPACITY: GALLONS PER MINUTE (to nearest gallon)  
 PUMP HORSE POWER  
 PUMP COLUMN LENGTH (nearest ft.)  
 CASING HEIGHT (circle appropriate box and enter casing height)  
**(+)** above LAND SURFACE  
**(-)** below **3** (nearest foot)

LOCATION OF WELL ON LOT  
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)

**SEE ATTACHMENT**

**B 1** 2947 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER MD-88-0072

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) fill in this form completely

**OWNER INFORMATION**

Date Received 033088

15 Last Name Montgomery Owner First Name County MD  
 36 Street or RFD 101 Monroe Street  
 57 Town Rockville 70 State MD Zip 20850

**B 3 LOCATION OF WELL**

8 COUNTY Montgomery 21  
 23 SUBDIVISION \_\_\_\_\_ 42  
 SECTION 44 46 LOT 48 50  
 52 NEAREST TOWN Rockville 71  
 MILES FROM TOWN (enter 0 if in town) 1 73 MI 76 77 78

**DRILLER INFORMATION**

Driller's Name Stanley L. Cohen 3 5 4  
 77 License No. 80  
 Firm Name ATEC Associates, Inc.  
 Address 8918 Herrmann Drive Columbia, MD 21045  
 Signature Stanley L. Cohen Date 3/24/88

**B 4** DIRECTION OF WELL FROM TOWN (CIRCLE BOX) NEAR WHAT ROAD Gude Drive 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) WEST EAST SOUTH

34 3930 37 DISTANCE FROM ROAD ENTER FT or MI FT 38 39

**B 2 WELL INFORMATION**

APPROX. PUMPING RATE (GAL. PER MIN.) 0  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 0

**USE FOR WATER (CIRCLE APPROPRIATE BOX)**

HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL

County Name Montgomery County COUNTY NO. 8804069003  
 OEP SIGNATURE \_\_\_\_\_ STATE HEALTH INSERT S \_\_\_\_\_  
 DATE ISSUED 041388 CO SIGNATURE RL Sykes EXP. DATE \_\_\_\_\_  
 NORTH GRID 464000 EAST GRID 0760000

APPROXIMATE DEPTH OF WELL 100 FEET

APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST

**METHOD OF DRILLING (circle one)**

BORED (or Augered) JETTED Jetted & DRIVEN  
 30 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)  
 37 CABLE REVerse-ROTary DRive-POINT  
 other \_\_\_\_\_

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER  
 1. POSSIBLY OFF SITE  
 2.  
 3.

WRITE THE BOX NUMBER FROM THE MAP HERE

760  
460

Sketch showing location of well in relation to nearby towns and roads and give distance from well to nearest road junction. Includes handwritten 'Gude DR' and 'X'.

**REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)**

THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY  
 THIS WELL WILL DEEPEM AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) \_\_\_\_\_

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER \_\_\_\_\_ GAP \_\_\_\_\_  
 FORCE IS WRITE INITIALS IN BOX PERMIT No. MD-88-0072

SPECIAL CONDITIONS \_\_\_\_\_

B 1 2948 SEQUENCE NO. (OEP USE ONLY) STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please print or type OEP PERMIT NUMBER 10-87-0073 fill in this form completely

8 Date Received 033088 OWNER INFORMATION  
 15 Montgomery County MD  
 36 101 Monroe Street  
 57 Rockville MD 20850

B 3 LOCATION OF WELL  
 8 Montgomery COUNTY  
 23 SUBDIVISION  
 SECTION 44 46 LOT 48 50  
 52 NEAREST TOWN Rockville  
 MILES FROM TOWN (enter 0 if in town) 1 MI

DRILLER INFORMATION  
 77 Stanley L. Cohen License No. 80 354  
 ATEC Associates, Inc.  
 8918 Hermann Drive Columbia, MD 21045  
 Signature: Stanley L. Cohen

B 4 DIRECTION OF WELL FROM TOWN (CIRCLE BOX) NEAR WHAT ROAD Gude Drive  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
 34 3700 37 DISTANCE FROM ROAD ENTER FT or MI FT

B 2 WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN.) 0 NONE  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 0 NONE

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
 Montgomery County 880/089023 COUNTY NAME COUNTY NO.  
 DATE ISSUED 09/13/88 CO SIGNATURE RL Sykes EXP. DATE  
 NORTH GRID 449000 EAST GRID 0760000

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
 HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)  
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)  
 INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)  
 PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)  
 TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 100 FEET  
 APPROXIMATE DIAMETER OF WELL 2 INCH NEAREST INCH

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
 SOURCES OF DRILLING WATER  
 1. POTABLE OFF SITE Gude Dr  
 WRITE THE BOX NUMBER FROM THE MAP HERE  
 E 760 N 460

METHOD OF DRILLING (circle one)  
 BORED (or Augered) JETTED Jetted & DRIVEN  
 30 AIR-ROtary AIR-PERcussion ROTARY (Hydraulic Rotary)  
 37 CABLE REVerse-ROtary DRive-POINT  
 other

REPLACEMENT OR DEEPEINED WELLS (CIRCLE APPROPRIATE BOX)  
 THIS WELL WILL NOT REPLACE AN EXISTING WELL  
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED  
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANOBY  
 THIS WELL WILL DEEPEIN AN EXISTING WELL  
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION  
 N  
 281

Not to be filled in by driller (OEP USE ONLY)  
 APPROP. PERMIT NUMBER GAP  
 FORCE INITIALS PERMIT No. 10-87-0073  
 SPECIAL CONDITIONS

# **ATTACHMENT C**

## **Sampling Measurement Protocols**

## **PROTOCOL FOR FIELD SAMPLING AND MEASUREMENTS**

This field protocol describes procedures for semiannual water-level measurements in wells, collection and sampling of groundwater and surface waters that will be performed or overseen by a qualified groundwater scientist or professional.

### *Record Keeping:*

Because any samples taken from monitoring wells are the subject of state-of-the-art analysis and form the foundation for technical interpretations, it is essential that a careful and complete record of the circumstances of the sampling and sample handling be kept, and that samples are protected from possible tampering. Essential field information includes:

- Source: Project and location of sampling site
- Type: (well, stream, pond, etc) and identification number
- Date and time
- Water temperature
- Name of sampler and witness
- Sampling method: (Pumping, hailer grab sample)
- Amount of water evacuated before sampling: (gallons and method)
- Preservation: (Containers, reagents, icing,. etc)
- Appearance of sample: (Color, turbidity, oil,. etc)
- Significant weather conditions: (Rain, snow, air temperature)

A field book or log will be used to record field measurements and other pertinent information.

### **CHAIN OF CUSTODY RECORDS:**

The following practices which conform to USEPA guidelines will be used for maintaining a legally valid chain of custody record:

- As few people as possible will handle the sample.
- Samples will be taken using uniform standard field sampling techniques insofar as practicable.
- The field sampler will be responsible for the care and custody of the samples collected until they are delivered to the receiving laboratory or turned over to an assigned custodian.
- The field sampler will assure that each container is in his physical possession or in his view at all times or stored in a locked place where no one can tamper with it.

- A sample tag including essential field data will be attached to the sample container at the time the sample is collected, and will contain the following information.
  1. sample number
  2. date and time taken
  3. source of the sample
  4. preservation methods
  5. name or person taking sample, and the name of witness

The tag will be signed, time recorded, and dated by the person sampling. The tags and seals will be filled out in permanent ink in legible handwriting. When transferring the possession of samples, the transferee will sign and record the date and time on a chain of custody record. The chain of custody record will be retained by DEP.

#### **WATER-LEVEL MEASUREMENTS:**

Water-level measurements serve the dual purpose of determining changes of the water table over time at the measured well and determining the slope and configuration of the water table.

Water-level measurements will be taken semiannually and will be performed at each well prior to pumping for sampling and will be made to a precision of 0.1 feet.

Required equipment for water-level measurements will include an electronic water level indicator with a 150-ft tape, a field notebook and supply of recording forms.

#### *Measurement Procedure:*

The probe end of the water level indicator is slowly lowered into the well bore until a signal is heard from the device. The tape is then raised and lowered with increasingly smaller refinement until the point of contact with water is determined. The result is then recorded on the field sheets.

#### **Record Keeping:**

A field notebook will be maintained which identifies project, observer, and for each water-level measurement: date, time, well number, and depth to water. The remarks column is used to note any unusual conditions such as rain, cold weather, high wind, material floating on the water surface etc. that could conceivably affect the water-level or analytical results.

Immediately upon completion of each round of measurements, the data will be transferred to an office record (DEP database) to assure against loss of record.

### **FIELD WATER-QUALITY MEASUREMENTS:**

The objective of a field water-quality measurement program is to provide an indication of the presence of contaminants at sampling wells or problems that may occur with the laboratory analysis in order to alert the qualified groundwater scientist or professional to investigate the source of the suspected contamination and take appropriate corrective actions. Semi-annual sampling of on-site observation wells is generally appropriate to meet this objective. The key parameters recommended for on-site analysis include temperature, pH, dissolved oxygen, and specific conductance.

#### *Well Purging*

To assure that the water samples tested are representative of ground water in the aquifer, it is essential that stagnant water in the well casing be pumped to waste before sampling. It is generally accepted that either three well volumes of water or complete evacuation of the well bore will be sufficient to provide water samples that are representative of the groundwater and not contaminated by contact with the well bore or casing materials.

***The three well volumes is calculated as follow:***

$$3(\text{Well depth} - \text{Depth to water level from ground surface}) \times (\pi r^2)$$

During the purging period the temperature, pH, and specific conductivity will be measured at regular intervals to indicate that the water quality has stabilized prior to sampling for other chemical tests.

#### *Temperature:*

Temperatures will be reported to the 0.1 degree Centigrade for both air and water

#### *pH:*

Measurements will be made of grab samples in a clean Teflon-lined or glass container rinsed with the sample using a dip-type, temperature-compensated, combination electrode and battery-operated pH meter capable of precision of 0.1 pH units over a range of 0-14 pH units with an accuracy of  $\pm 0.05$  pH units.

#### *Dissolved Oxygen:*

Measurements should be made as soon as possible at the well discharge in a clean container with a temperature-compensated, battery-operated dissolved oxygen probe and meter. The equipment

should be capable of measuring dissolved-oxygen concentration over a range of 0.1 to 20 mg/L at temperatures ranging from 0.0 to 45 Centigrade with 0.1 mg/l repeatability and with an accuracy of  $\pm 1\%$ . The minimum scale readability should be 0.05 mg/L of dissolved oxygen.

*Specific Conductance:*

Measurements should be made of grab samples in a clean container rinsed with the sample using a dip-type electrode and battery-operated, temperature-compensated conductance meter capable of measuring over the range of 1 to 10,000 micromhos per centimeter (umhos/cm).

*Record Keeping:*

A field notebook will be maintained indicating for each periodic sampling project:

- well numbers or other identification
- date and time of sampling
- method of collection
- period of pumping/purging
- collector's initials
- calibration data and/or quality-control checks for each parameter
- remarks including weather conditions or unusual circumstances

**SAMPLING PROCEDURE:**

The step-by-step procedures to be followed during sampling and testing events are as follows:

- On the day of sampling, or on the previous day obtain laboratory- prepared containers for samples to be subjected to laboratory chemical analysis.
- Obtain ice and place in cooler chest(s) intended for storage of samples collected for offsite laboratory analyses.
- Check and Calibrate Field instrumentation according to manufacturer's specifications.
- Proceed to first sampling well.
- Measure and record water level.
- Begin purging well water to waste.
- Measure pumping time required to exhaust three well volumes.
- During preliminary pumping make at least four measurements of temperature, pH, and specific conductance at regular intervals.
- Test and record stabilized values of temperature, pH, DO, and specific conductance on control chart form.

- If control limit or warning limit is exceeded, check equipment and resample and retest. Record the retested value. Notify supervisor if warning limit is exceeded on retesting.
- Take samples for chemical analyses in the laboratory-prepared containers.
- Fill container to overflowing, cap tightly and keep on ice.
- When all appropriate containers are filled, move equipment to next well to be sampled.
- When all wells to be sampled that day have been sampled, deliver samples to the off-site laboratory.

Water samples from streams will be tested for temperature, pH, DO, and specific conductance with grab samples using the same methods as for wells.

### **SAMPLING QUALITY CONTROL:**

The first step in assuring quality control is collection of samples representative of ground water in place. As groundwater generally cannot actually be sampled in place, reliance must be placed on samples of water from wells that tap the ground-water body. Changes in pressure and temperature that occur as the water enters the well and is lifted to the surface can cause changes in water quality. The effect is particularly significant on dissolved gas content (for example, CO<sub>2</sub>, H<sub>2</sub>S, methane, and dissolved oxygen) and pH, and also influences certain dissolved constituents whose solubility is highly sensitive to pH and dissolved gas content. These include chiefly bicarbonate, iron, and manganese. Accordingly it is important that samples be taken directly from the well discharge using properly prepared containers filled to overflowing and immediately capped. Samples must then be preserved properly and delivered as promptly as practicable to the analytical laboratory.

An even more critical problem is assuring that the water sampled is fresh ground water, not stagnant water that has been standing in the well casing exposed to air and bacteria since the preceding sampling event. Accordingly, as discussed in the previous section on field protocol, the well should initially be exhausted of three casing volumes of water, and then field testing should confirm water quality stability is reached.

Because many constituents are subject to rapid change over short time intervals, preservation methods including pH control, chemical addition, and refrigeration are employed to:

- retard biological action
- retard hydrolysis of chemical compounds and complexes, and

- reduce volatility of constituents

For samples from the Gude Landfill the most practical approach to preservation is the procedure now employed of taking samples in laboratory prepared containers containing appropriate preservatives recommended in USEPA standard procedures, and storage on ice until same-day delivery to the laboratory.

**LABORATORY QUALITY CONTROL:**

For laboratory quality assurance, the County, through a contract for water analysis, will specify that the contractor utilize a system of internal quality assurance, and that internal quality-assurance results be documented and submitted regularly together with analytical results. The internal quality-assurance system will incorporate:

- Routine, frequent analysis of known standards, and maintenance of laboratory quality-control charts.
- An internal data review procedure.
- Regular documentation of the results of quality-assurance procedures.

The documentation, which will be submitted with each group of sample results, and will include the frequency of analysis of standards and identification of the analysis method and technique as applicable, and notice of any change in methodology

**COUNTY QUALITY ASSURANCE:**

The County will assure accurate results by laboratory contractors through the use of blind samples. A system of submittal of blind samples will be instituted by DEP. The blinds will consist of unidentified replicates of one of the regular monitoring well samples to be chosen at random on each sampling round.

**OTHER QUALITY CONTROL MEASURES:**

In addition to the above the County, as a measure for external quality assurance, will conduct statistical analysis designed to detect anomalies in the analytical results.

**DATA STORAGE AND RETRIEVAL:**

When the results of analysis are received they will be reviewed for acceptable accuracy. When all results are deemed acceptable, DEP will download the data into the County's Database.

# **ATTACHMENT D**

## **Monitoring Parameters**

**NOTE:** *In addition to collecting samples for laboratory analysis for those parameters/constituents listed on the attached Table, the Semi-annual sampling will also incorporate evaluation and testing for some key parameters recommended for on-site measurements.*

*On site testing will include:*

- *Water-level measurements*
- *Temperature*
- *pH*
- *Dissolved oxygen*
- *Specific conductance*

## GUDE LANDFILL MONITORING PARAMETERS

TABLE 1 VOLATILE ORGANIC COMPOUNDS (Ug/l or ppb)	PQL
Acetone	5
Acrylonitrile	5
Benzene	1
Bromochloromethane	1
Bromodichloromethane	1
Bromoform	1
Bromomethane	1
2-Butanone	5
Carbon disulfide	1
Carbon tetrachloride	1
Chlorobenzene	1
Chloroetbane	1
Chloroform	1
Chloromethane	1
Dibromochloromethane	1
1,2-Dibromo-3-chloropropane	1
1,2 - Dibromoethane CEDB)	1
Dibromomethane	1
1,2 - Dichlorobenzene	1
1,4 - Dichlorobenzene	1
Trans-1,4-dichloro-2-butene	5
1,1-Dichloroethane	1
1,2-Dichloroethane	1
1,1-Dichloroethene	1
Cis-1,2-Dichloroethene	1
Trans-1,2-Dichloroethene	1
Methylene chloride	1
1,2-Dichloropropane	1
Trans-1,3-Dichloropronene	1
Cis-1B-Dichloropropene	1
Ethylbenzene	1
2-Hexanone	5
Lodomethane	1
4-Methyl-2-pentanone	5
Methyl Tertiary Butyl Ether	2
Styrene	1
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	1
Tetrachloroethene	1
Toluene	1
1, 1,1-Trichloroethane	1
1,1,2-Trichloroethane	1
Trichloroethene	1
Trichlorofluoromethane	1
1,2,3-Trichloronropane	1
Vinyl acetate	1
Vinyl chloride	1
Xylene	1

TABLE 2 ELEMENTS AND INDICATORS (mg/l or ppm)	PQL
Total Antimony	0.002
Total Arsenic	0.002
Total Barium	0.01
Total Beryllium	0.002
Total Cadmium	0.004
Total Chromium	0.01
Total Calcium	0.08
Total Cobalt	0.01
Total Copper	0.01
Total Iron	0.005
Total Lead	0.002
Total Nickel	0.011
Total Magnesium	0.004
Total Manganese	0.01
Total Mercury	0.0002
Total Potassium	0.039
Total Selenium	0.035
Total Silver	0.01
Total Sodium	0.2
Total Thallium	0.002
Total Vanadium	0.01
Total Zinc	0.01
pH	0.1 (SU)
Alkalinity	1
Hardness	0.5
Chloride	0.039
Specific Conductance	1
Nitrate 0.06	0.06
Chemical oxygen demand 10	10
Turbidity 0.11 (NTU)	0.11(NTU)
Ammonia I	1
Sulfate	0.38
Total Dissolved Solids	10