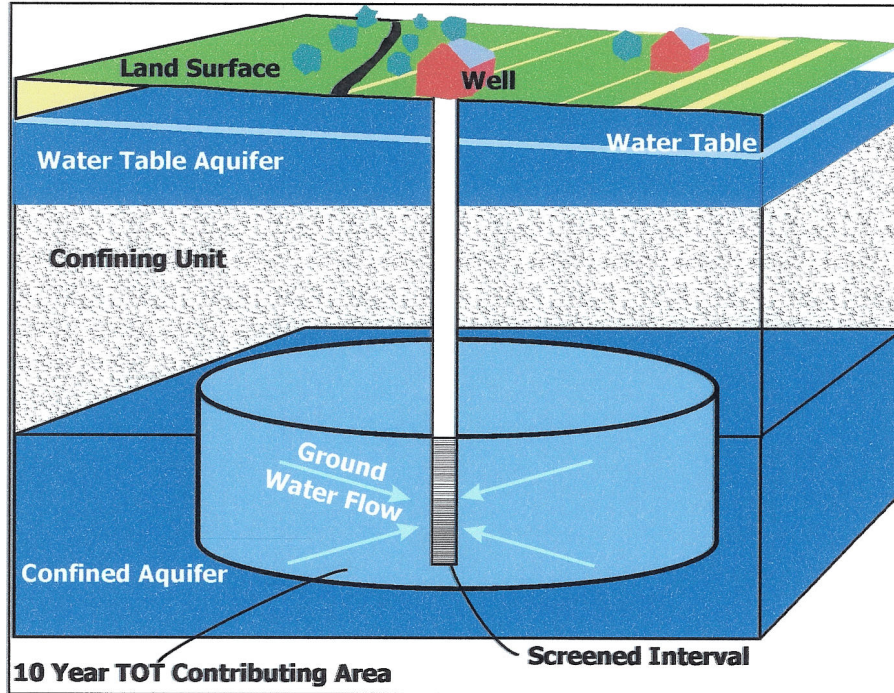


# SOURCE WATER ASSESSMENT

FOR ISE America, Inc.

CECIL COUNTY, MD



Prepared By  
Water Management Administration  
Water Supply Program  
November 2005



*Robert L. Ehrlich*  
Governor

*Kend P. Philbrick*  
Secretary

*Michael S. Steele*  
Lt. Governor

# TABLE OF CONTENTS

<b>SUMMARY</b> .....	ii
<b>INTRODUCTION</b> .....	1
<b>WELL INFORMATION</b> .....	1
Table 1. ISE Well Information .....	1
<b>HYDROGEOLOGY</b> .....	2
<b>SOURCE WATER ASSESSMENT AREA DELINEATION</b> .....	2
<b>POTENTIAL SOURCES OF CONTAMINATION</b> .....	3
<b>WATER QUALITY DATA</b> .....	3
Table 2. Summary of Water Quality Samples for ISE’s Water Supply .....	4
Inorganic Compounds(IOC’s).....	4
Volatile Organic Compounds (VOCs) .....	4
Synthetic Organic Compounds (SOCs).....	4
Radionuclides .....	4
Microbiological Contaminants .....	4
<b>SUSCEPTIBILITY ANALYSIS</b> .....	5
Inorganic Compounds (IOC’s) .....	5
Volatile Organic Compounds (VOC’s) .....	5
Synthetic Organic Compounds (SOC’s) .....	5
Radionuclides .....	5
Microbiological Contaminants .....	6
Table 3. Susceptibility Summary for ISE’s Water Supply .....	6
<b>MANAGEMENT OF THE WHPA</b> .....	6
Contaminant Source Inventory/Well Inspection .....	6
Cooperative Efforts with Other Agencies .....	7
Monitoring.....	7
Changes in Use.....	7
<b>REFERENCES</b> .....	7
<b>FIGURES</b> .....	8
Figure 1. Location Map	
Figure 2. Wellhead Protection Area	
<b>APPENDIX</b> .....	9
Well Completion Reports	

## SUMMARY

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for ISE America, Inc. (ISE). The required components of this report as described in Maryland's Source Water Assessment Plan (SWAP) are: 1) delineation of an area that contributes water to the source, 2) identification of potential sources of contamination, and 3) determination of the susceptibility of the water supply to contamination. Recommendations for protecting the drinking water supply conclude this report.

The source of ISE's water supply is a confined aquifer, known as the Magothy aquifer. The system currently uses three wells to obtain its drinking water. The Source Water Assessment Area was delineated by the Water Supply Program using U.S. EPA approved methods specifically designed for each source.

Potential sources of contamination within the assessment area were identified based on site visits, database reviews and land use maps. Well information and water quality data were also reviewed. Figures showing land uses and potential contaminant sources within the Source Water Assessment Area and an aerial photograph of the well locations are enclosed at the end of the report.

The susceptibility analysis for ISE's water supply is based on a review of the water quality data, potential sources of contamination, aquifer characteristics, and well integrity. It was determined the ISE's water supply is not susceptible to contamination by inorganic compounds, volatile organic compounds, synthetic organic compounds, or microbiological contaminants.

## INTRODUCTION

The Water Supply Program has conducted a source water assessment for the ISE, Inc. (ISE) water supply in Cecil County (Figure 1). The ISE water supply is considered a nontransient noncommunity (NTNC) water system, which is defined as a public water system that regularly serves at least 25 of the same individuals over six months per year. The facility owns and operates its water supply system. The primary use for the water is to water chickens and clean the chicken houses. The water supply system also supplies water to population of approximately 42 employees.

## WELL INFORMATION

ISE is served water by three wells. Information about the wells was obtained from the Water Supply Program's database, site visits, well completion reports, sanitary survey inspection reports and published reports. A review of well data and sanitary surveys of ISE's water system indicates that the wells were constructed by jetting and driving the casings. The completion reports indicate that no grout was used in their construction. Maryland well regulations require that the top five feet of any driven well be grouted. Based on review of the information, the wells in use by ISE are therefore not in compliance with Maryland's well construction regulations. CE880930 replaces a 1982 well that was abandoned and sealed. Well information is shown in Table 1 below.

SOURCE ID	SOURCE NAME	PERMIT NO	TOTAL DEPTH (ft)	CASING DEPTH (ft)	YEAR DRILLED
01	ISE 1	CE880930	363	348	1990
02	ISE 2	CE810477	374	359	1982
03	ISE 3	CE810478	362	352	1982

**Table 1. ISE Well Information.**

ISE has a Water Appropriation Permit that allows it to use an annual average of 4,900 gallons per day (gpd) and an average of 6,000 gpd during the month of maximum use. Most of the water is used for watering chickens. It is estimated that the 42 employees at the farm use an annual average of about 850 gpd and an average of 1,200 gpd during the month of maximum use.

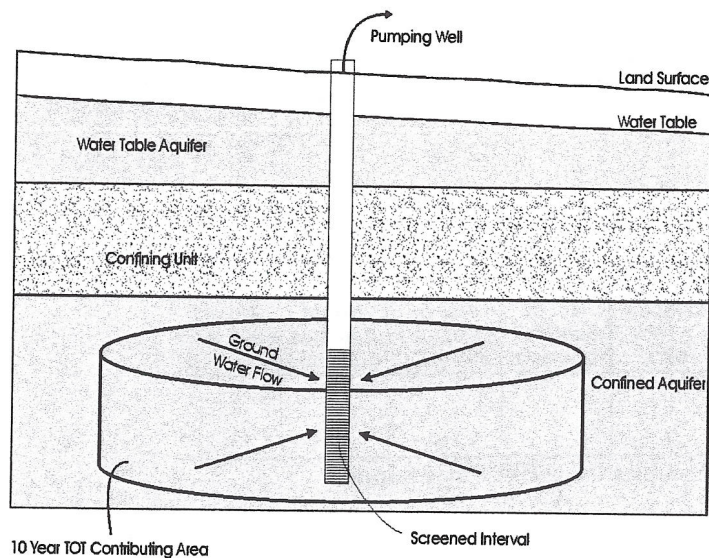
## **HYDROGEOLOGY**

The ISE area lies in the Coastal Plain Physiographic Province. Their water supply is withdrawn from the Magothy aquifer, a confined aquifer. This region is underlain by unconsolidated gravel, sand, silt and clay. The strata, such as those that are composed primarily of sand and gravel, yield substantial quantities of water to wells and are termed aquifers. Confining beds are usually composed primarily of silt and clay. In areas like the Atlantic Coastal Plain, where alternating layers of sand and clay occur, water becomes stored at great depths by over and underlying impermeable layers. The hydrostatic pressure of the water in these layers is greater than atmospheric pressure. In a well drilled to these layers the high hydrostatic pressure forces water in the well above the top of the sand layer. Such a well is known as an artesian well and the strata that the well is completed in is known as a confined or an artesian aquifer. The clays that confine the aquifer also protect the aquifer from contamination from surface sources.

The 1986 Geologic Map of Cecil County describes the Magothy Formation as "Black, dark gray, and white lignitic sand and clay, cross stratified in places. Flattened and carbonized logs are present locally, chiefly near base. Thickness is about 35 feet." The Magothy aquifer is one of the most productive water-bearing units in Cecil County

## **SOURCE WATER ASSESSMENT AREA DELINEATION**

For ground water systems, a Wellhead Protection Area (WHPA) is considered to be the source water assessment area for the system. The source water assessment area for a non-transient water system with an average appropriation amount of less than 10,000 gpd and drawing from a confined coastal plain aquifer is defined by a 600-foot radius circle around the well (MD SWAP, 1999). A fixed radius of 600 ft was calculated assuming a minimum aquifer thickness of 20 ft, a porosity of 0.25 and a average daily water use of 10,000 gpd. ISE has a water appropriation and use permit (CE1999G008) which allows them to withdraw an annual average of 4,900 gpd. ISE's water system serves 42 employees and their water use is estimated to be about 850 gpd, or about 17% of the appropriation. The delineated WHPA (Figure 2) represents the aquifer zone of transport in the subsurface as illustrated below. The circles for each well were merged to produce on larger WHPA with an area of 42.86 acres.



*Conceptual illustration of a zone of transport for a confined aquifer*

## POTENTIAL SOURCES OF CONTAMINATION

In confined aquifer settings, sources of contamination at the land surface are generally not a threat unless there is a pathway for direct injection into the deeper aquifer such as unused wells or along well casing that are not intact or not properly grouted. Wells that are not being used or maintained will eventually corrode and provide a pathway for contaminants present in the shallow aquifers at higher-pressure heads to migrate to the deeper aquifers.

Potential sources of contamination identified at the land surface have the potential to impact the shallow water table aquifer. Based on the MDE databases and a field survey, only one potential point source of contamination, ISE's septic system, was identified in the ISE WHPA. Most of the WHPA is agricultural land (crop production and chicken processing) with a potential for contamination of the surficial aquifer with nitrate and pesticides and microbiological contaminants. Also, egg wash water from the plant is discharged to a farm pond and later used for crop irrigation. It is recommended that the wells be grouted in accordance with Maryland regulations to ensure that ISE's water supply should be well protected from ground water contamination.

## WATER QUALITY DATA

Water Quality data was reviewed from the Water Supply Program's database and system files for Safe Drinking Water Act contaminants. The State's SWAP defines a threshold for reporting water quality data as 50% of the Maximum Contaminant Level (MCL). If a monitoring result is at or greater than 50% of a MCL, this assessment will describe the sources of such a contaminant and, if possible, locate the specific sources which may be the cause of the elevated contaminant level. All data reported is usually from the finished (treated) water unless otherwise noted, however, ISE does not treat their water supply.

A review of the monitoring data since 1993 for ISE's water supply indicates that it meets the current drinking water standards. The water quality sampling results are summarized in Table 3.

PLANT NO	Nitrate		SOCs		VOCs		IOCs (except nitrate)	
	No. of Samples Collected	No. of samples > 50% MCL	No. of Samples Collected	No. of samples > 50% MCL	No. of Samples Collected	No. of samples > 50% MCL	No. of Samples Collected	No. of samples > 50% MCL
01	22	0	2	0	3	0	6	0

Table 2. Summary of Water Quality Samples for ISE's Water Supply.

### Inorganic Compounds (IOCs)

No IOCs above 50% of the MCL were detected in ISE's water supply.

### Volatile Organic Compounds (VOCs)

No VOCs above 50% of the MCL have been detected in ISE's water supply.

### Synthetic Organic Compounds (SOCs)

No SOCs above 50% of the MCL have been detected in ISE's

### Radionuclides

Nontransient noncommunity systems are currently not regulated for radionuclides. No sampling data for radionuclides was available for review for this water supply.

### Microbiological Contaminants

All nontransient noncommunity systems are required to conduct quarterly routine bacteriological sampling for their water supply as required by the Safe Drinking Water Act, which measures total coliform bacteria. Since ISE's water supply does not use any treatment, the data provides an indication of the quality of raw water directly from the wells. Total coliform bacteria are not pathogenic, but are used as an indicator organism for other disease-causing microorganisms. A major breach of the system such as due to flooding a well, Cracking a well casing by vehicle impact, rupturing a water line or allowing insects or animals in a storage vessel could cause a positive total coliform result in the distribution system, and would require follow-up total and fecal coliform analysis. No coliform bacteria have been detected in 40 raw water samples that have been taken since 1996.

## SUSCEPTIBILITY ANALYSIS

The wells serving ISE's water supply pump water from a confined aquifer. Confined aquifers are naturally well protected from activity on the land surface due to the confining layers that provide a barrier for water movement from the surface into the aquifer below. A properly constructed well with the casing extended to the confining layer above the aquifer and with sufficient grout should be well protected from contamination at the land surface. Wells that are not being used or maintained will eventually corrode and provide a pathway for contaminants present in the shallow aquifers at higher-pressure heads to migrate to the deeper aquifers. The direct injection into the aquifers from point sources within the source water assessment area like underground injection wells or improperly abandoned wells could cause a potential contamination threat to the supply. The lack of grout around ISE's wells also presents the opportunity for surficial contaminants to migrate down the exterior of the casing. The water quality data indicates that if this is happening, contaminants are not reaching the confined aquifer. The information that was used to conduct the susceptibility analysis is as follows: (1) available water quality data (2) presence of potential contaminant sources in the WHPA (3) aquifer characteristics (4) well integrity and (5) the likelihood of change to the natural conditions. The susceptibility of ISE's water supply to the various contaminant groups is shown in Table 3, located at the end of this section.

### **Inorganic Compounds (IOCs)**

There are at least three sources of nitrate in the wellhead protection area, however since the wells are screened in a confined aquifer, the supply is **not** susceptible to inorganic compounds.

### **Volatile Organic Compounds (VOCs)**

No VOCs above 50% of the MCL have been detected in ISE's water supply. Based on the above discussion, ISE's water supply is **not** susceptible to VOC contamination.

### **Synthetic Organic Compounds (SOCs)**

No SOC's have been detected in ISE's water supply. Based on the above analysis, ISE's water supply is **not** susceptible to SOC contamination.

### **Radionuclides**

Nontransient noncommunity systems are currently not regulated for radionuclides. No data is currently available to make a determination of the susceptibility of ISE's water supply to radionuclides.



## Microbiological Contaminants

Raw water monitoring for microbiological contaminants is not required of water systems in confined aquifers because they are considered naturally protected from sources of pathogens at the land surface. Routine bacteriological testing for ISE's water supply, which does not have any treatment, revealed no positive total coliform in the water supply.

Based on the above discussion, ISE's water supply is **not** susceptible to microbiological contaminants.

CONTAMINANT TYPE	Are Contaminant Sources present in the WHPA?	Are Contaminants detected in WQ samples at 50% of the MCL	Is Well Integrity a Factor?	Is the Aquifer Vulnerable?	Is the System Susceptible to the Contaminant
Nitrate	YES	NO	NO	NO	NO
Inorganic Compounds (except nitrate)	NO	NO	NO	NO	NO
Volatile Organic Compounds	NO	NO	NO	NO	NO
Synthetic Organic Compounds	YES	NO	NO	NO	NO
Radionuclides (except radon)	NO	NO DATA	NO	NO	CANNOT BE DETERMINED
Microbiological Contaminants	YES	NO	NO	NO	NO

Table 3. Susceptibility Summary for ISE's water supply.

## MANAGEMENT OF THE WHPA

### Contaminant Source Inventory/Well Inspection

- The system owners should review the potential sources of contaminants within the WHPA and update them if necessary, including a consideration of historical uses.
- Periodic inspections and a regular maintenance program for the supply wells will ensure their integrity and protect the aquifer from contamination.
- All three wells are located in a regularly farmed field. Two of the wells have tall pvc pipes next to them so they will be visible when crops are tall. Well 2 does not. A similar marker next to well 2 is recommended. Protective structures are recommended around all three wells.

- The top five feet of each well should be grouted in accordance with Maryland's well construction regulations.

#### **Cooperative Efforts with Other Agencies**

- Work closely with Cecil County Health Department to identify any unused wells in the WHPA and to ensure that they are abandoned and sealed in compliance with the State's well construction standards.

#### **Monitoring**

- Continue to monitor for all Safe Drinking Water Act contaminants as required by MDE.

#### **Changes in Use**

- Any increase in pumpage or addition of new wells to the system may require revision of the WHPA. The system is required to contact the Water Supply Program when an increase pumpage is applied for or when new wells are being considered.

## **REFERENCES**

Higgins, M.W. and L.B. Conant, 1990, The Geology Cecil County, Maryland, Maryland Geological Survey Bulletin 37, 183p.

Ottom, E.G., R.E. Willey, R.A. McGreggor, G. Achmad, S.N. Hiortdahl, and J.M. Gerhart, 1988, Water Resources and Estimated Effects of Ground-Water Development, Cecil County, Maryland, Maryland Geological Survey Bulletin 34, 133p.

Maryland Department of the Environment, Water Supply Program, 1999, Maryland's Source Water Assessment Plan, 36p.

## FIGURES

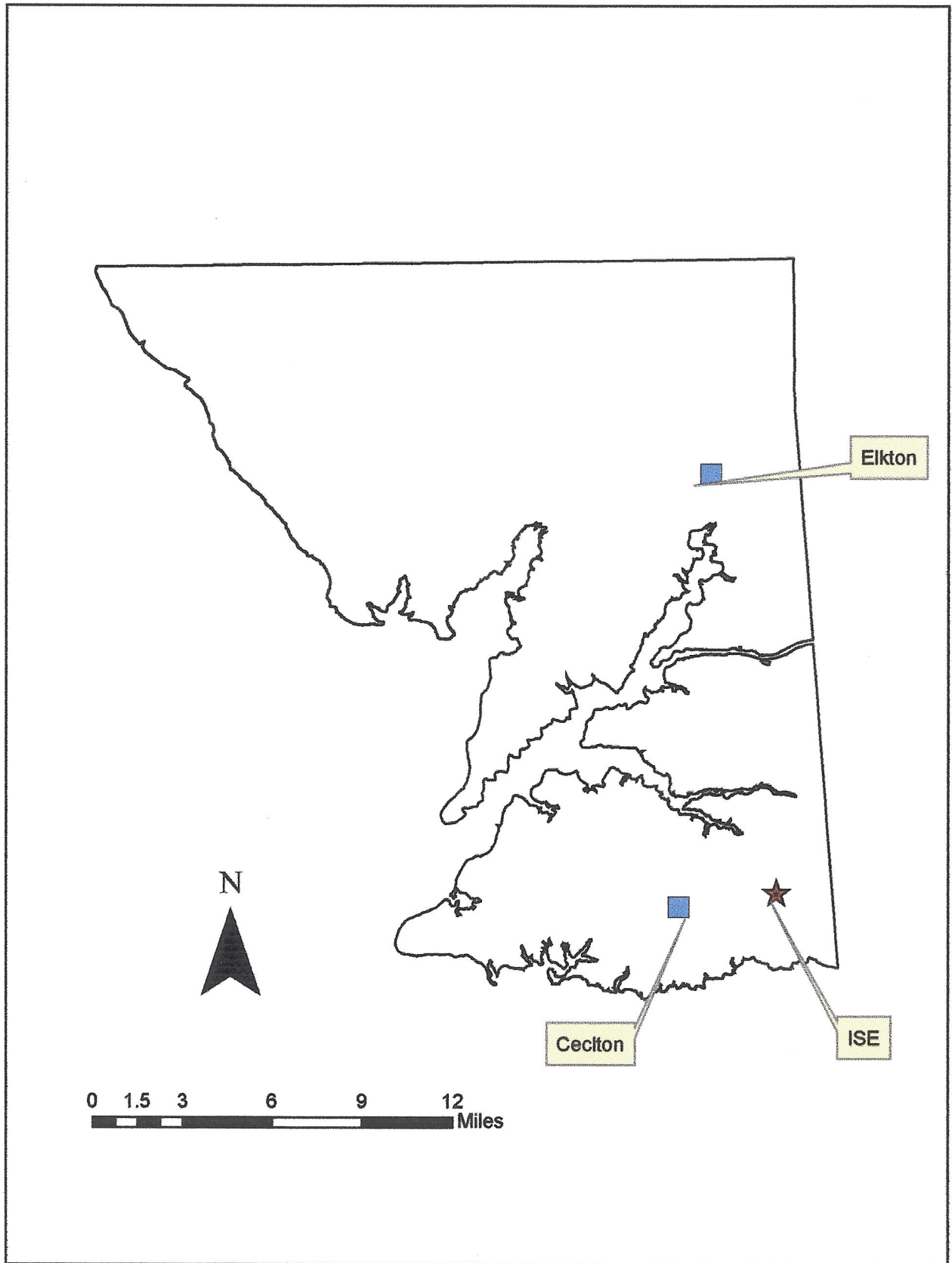


Figure 1. Location Map

## **APPENDIX**

DATE RECEIVED **10/27/82**  
 8 (WRA USE ONLY) 13  
**OWNER INFORMATION**  
**A. J. DeCoster Co**  
 LAST NAME OWNER FIRST NAME  
**Massley, Md.**  
 TOWN STATE ZIP

**B 3** LOCATION OF WELL **B-1217**  
 COUNTY **Cecil**  
 SUBDIVISION  
 SECTION **40** LOT **48**  
 NEAREST TOWN **Cecilton**  
 MILES FROM TOWN (enter 0 if in town) **3**

**B 1** CONTINUED **DRILLER INFORMATION**  
**Donald S. Newnam 138**  
 DRILLER'S NAME LICENSE NO. 80  
**Donald S. Newnam 10/25/82**  
 SIGNATURE DATE

**B 4** DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
  
 NEAR WHAT ROAD **MD 282**  
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) **WEST**  
 DISTANCE FROM ROAD (CIRCLE APPROPRIATE BOX) **0.5**

**B 2** WELL INFORMATION  
 APPROX. PUMPING RATE (GAL. PER MIN) **50**  
 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) **10000**

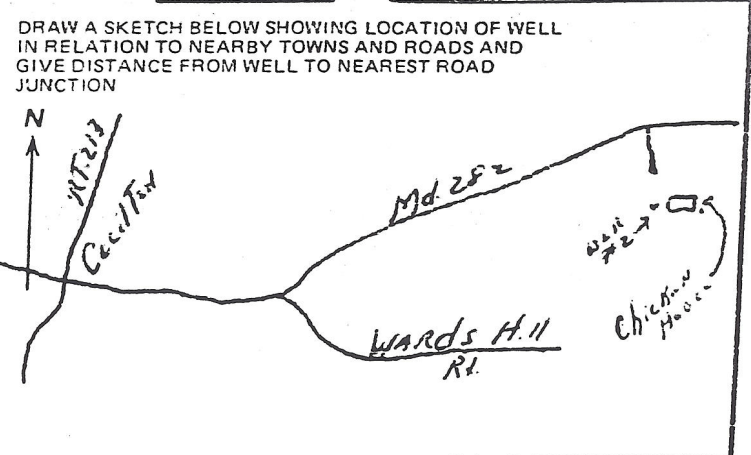
SHOW LOCATION OF WELL WITH AN "X" IN THIS BOX  
  
 WRITE THE BOX NUMBER FROM THE MAP HERE  

E	1130
N	570

**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 **350** FEET  
 APPROXIMATE DIAMETER OF WELL **4** NEAREST INCH

**Method of Drilling** (circle one)  
 BORED (OR AUGERED)  JETTED  JETTED & DRIVEN  
 AIR ROTARY  AIR-PERCUSSION  ROTARY (HYDRAULIC)  
 CABLE  REVERSE ROTARY  DRIVE-POINT ROTARY  
 other **DRIVEN**



**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) \_\_\_\_\_

**B 4** NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
 COUNTY NAME **Cecil** COUNTY NO. \_\_\_\_\_  
 EHA SIGNATURE \_\_\_\_\_ STATE HEALTH CIRCLE BOX **S**

**Not to be filled in by driller** (WRA USE ONLY)  
 APPROP. PERMIT NUMBER \_\_\_\_\_  
 FORCE INITIALS IN BOX **ES**  
 WRITE INITIALS **CE-81-0477**  
 DATE **10/28/82**  
 NORTH GRID **575** EAST GRID **1137** ELEV. (FT.) \_\_\_\_\_

**B 5** SPECIAL CONDITIONS (WRA USE ONLY)

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 **B-4217**

DATE RECEIVED  
(DEP use only)

DATE WELL COMPLETED

Depth of Well  
**374**

PERMIT NO.  
FROM "PERMIT TO DRILL WELL"  
**C-81-0177**

**DEC 2 1982**

OWNER **A.J. DeCoster Co.**

TOWN **Massey, Md.**

STREET OR RFD \_\_\_\_\_ 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	
0/35 yellow-white-clay-sand			
gravel			
35/105 gray clay-blk-white sand			
105/175 gray clay-sand			
175/335 gray clay			
335/340 fine white-gray sand			
340/374 coarse gray-white sand			

WELL HAS BEEN GROUTED  YES  NO  
(Circle Appropriate Box)  
TYPE OF GROUTING MATERIAL  
CEMENT  CM BENTONITE CLAY  BC  
NO. OF BAGS \_\_\_\_\_ NO. OF POUNDS \_\_\_\_\_  
GALLONS OF WATER \_\_\_\_\_  
DEPTH OF GROUT SEAL (to nearest foot)  
from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
from \_\_\_\_\_ ft. if from surface

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

MAIN CASING TYPE  
Nominal diameter top/main casing (nearest inch) **4**  
Total depth of main casing (nearest foot) **302**

OTHER CASING (if used)  
diameter (nearest inch) **2 1/2** depth (feet) from \_\_\_\_\_ to **359**

SCREEN RECORD  
insert appropriate code below  
STEEL  ST BRASS BRONZE  BR  HO OPEN HOLE  
PLASTIC  PL OTHER  OT

DEPTH (nearest ft.)  
**359** **374**

SLOT SIZE **15**  
DIAMETER OF SCREEN **3** (NEAREST INCH)

GRAVEL PACK \_\_\_\_\_  
IF WELL DRILLED WAS FLOWING WELL CIRCLE BOX  F

TELESCOPE CASING  LOG INDICATOR

PUMPING TEST  
HOURS PUMPED (nearest hour) **10**

PUMPING RATE (gal. per min. to nearest gal.) **50**  
METHOD USED TO MEASURE PUMPING RATE **bucket**

WATER LEVEL (distance from land surface)  
BEFORE PUMPING **75**  
WHEN PUMPING **250**

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 (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.) \_\_\_\_\_

CASING HEIGHT (circle appropriate box and enter casing height)  
 + above LAND SURFACE  
 - below \_\_\_\_\_ (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 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. **130**

DRILLERS SIGNATURE **Donald S. Thomas**  
(MUST MATCH SIGNATURE ON APPLICATION)

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

*Handwritten signature: Charles H...*

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

OB-81-04782  
fill in this form completely

SEQUENCE NO. (OEP USE ONLY)  
NOV 5 1987  
DATE RECEIVED 1 0 27 8 2  
OWNER INFORMATION  
A. J. Decoster, Jr. Owner  
Mossley Md State

LOCATION OF WELL B-4217  
COUNTY Cecil  
SUBDIVISION  
SECTION 23 LOT 42  
NEAREST TOWN Cecilton  
MILES FROM TOWN 3

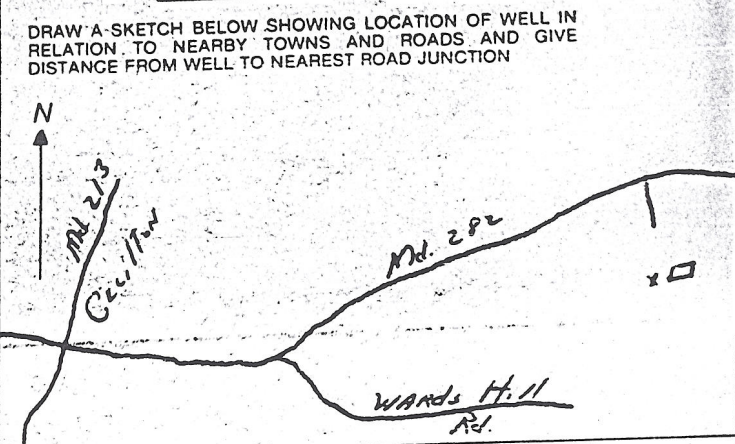
DRILLER INFORMATION  
Donald S. Newman  
Shore Well Drillers  
Cecilton, Md  
10/25/82

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
NEAR WHAT ROAD Md. 282  
DISTANCE FROM ROAD 0.5

WELL INFORMATION  
APPROX. PUMPING RATE (GAL. PER MIN.) 50  
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 16000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
SOURCES OF DRILLING WATER  
1. Town - Cecilton  
WRITE THE BOX NUMBER FROM THE MAP HERE  
E 1130  
N 570

USE FOR WATER (CIRCLE APPROPRIATE BOX)  
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)



APPROXIMATE DEPTH OF WELL 350 FEET  
APPROXIMATE DIAMETER OF WELL 4 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 DRIVEN

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

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
Cecil COUNTY NAME  
Charles E. Surgen STATE HEALTH SIGNATURE  
DATE ISSUED 11 0 4 8 2  
NORTH GRID 575 EAST GRID 1137 EXPIRES 0 5 0 4 8 2

Not to be filled in by driller (OEP USE ONLY)  
APPROX. PERMIT NUMBER GAP  
FORCE 13 WRITE INITIALS IN BOX PERMIT No. CE-81-0478

SPECIAL CONDITIONS 8-63



2999

SEQUENCE NO. (OEP USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

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

COUNTY NUMBER B-4217

PERMIT NO.

FROM "PERMIT TO DRILL WELL" CE-81-0478

THIS NUMBER IS TO BE PUNCHED HOLES 3-8 ON ALL CARDS

Date Received (OEP use only)

AUG 19 1988

DATE WELL COMPLETED

08/31/88

Depth of Well

362

(TO NEAREST FOOT)

OWNER A. J. DeCoster Co.

last name

first name

TOWN Massey, Maryland

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 FROM TO Check if water bearing

yellow clay-sand gravel 0 25
gray-blk clay-sand 25 240
gray clay 240 320
gray sand-clay 320 338
Coarse gray-white sand 338 362

WELL HAS BEEN GROUTED (Circle Appropriate Box) YES Y NO N

TYPE OF GROUTING MATERIAL CEMENT CM BENTONITE CLAY BC

NO. OF BAGS NO. OF ANNUAR SPACE
GALLONS OF WATER
DEPTH OF GROUT SEAL (to nearest foot) from top to bottom

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

MAIN CASING TYPE Nominal diameter Total depth of main casing

OTHER CASING (if used) diameter depth from to

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

DEPTH (nearest ft.) SLOTTED SCREEN

SLOT SIZE DIAMETER OF SCREEN (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER) TELESCOPE CASING LOG INDICATOR OTHER DATA

PUMPING TEST HOURS PUMPED 12 PUMPING RATE 100 METHOD USED TO MEASURE PUMPING RATE bucket WATER LEVEL BEFORE PUMPING WHEN PUMPING TYPE OF PUMP USED

PUMP INSTALLED DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

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 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. 138

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

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

Handwritten note: Check Hous.

3 1 0380 SEQUENCE NO. (DP USE ONLY)  
2 3 6  
(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

STATE PERMIT NUMBER  
CE-88-0930  
70 fill in this form completely 79

Date Received (APA) 11/22/89  
OWNER INFORMATION  
15 Last Name 8 SEABOARD 13 Owner 34 FARMS  
36 CecilTON-WARWICK RD 55 Street or RFD  
57 CecilTON 70 State 72 Md. 21913 Zip 76

LOCATION OF WELL C4217-Repl.  
1 2  
8 COUNTY Cecil 21  
23 SUBDIVISION  
SECTION 44 LOT 48 50  
52 NEAREST TOWN CecilTON 71  
MILES FROM TOWN (enter 0 if in town) 3 73 76 77 78 MI

DRILLER INFORMATION  
Donald S. Newman 138  
Driller's Name 77 License No. 08  
Shore Well Drillers Inc.  
Firm Name  
CecilTON, Md. 21913  
Address  
Donald S. Newman 11/20/89  
Signature Date

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)  
NORTH N  
WEST W  
EAST E  
SOUTH S  
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)  
Md. 282  
NEAR WHAT ROAD 30  
34 0.5 37 DISTANCE FROM ROAD  
ENTER FT or MI Mi 38 39

WELL INFORMATION  
APPROX. PUMPING RATE (GAL. PER MIN.) 30  
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 3000  
14 20

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL  
Cecil  
COUNTY NAME COUNTY NO.  
STATE SIGNATURE INSERT S  
DATE ISSUED Charles E. Smyser 6/5/90  
43 48 CO SIGNATURE EXP. DATE  
NORTH GRID 573000 EAST GRID 1130000  
50 55 57 63

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)

APPROXIMATE DEPTH OF WELL 300 FEET  
24 28

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X  
SOURCES OF DRILLING WATER  
1. Town - CecilTON  
2.  
3.  
WRITE THE BOX NUMBER FROM THE MAP HERE  
E 1130  
N 570  
000 000

APPROXIMATE DIAMETER OF WELL 4 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 DEEPEINED 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 DEEPEIN AN EXISTING WELL  
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE) 41 52

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  
Md. 282  
Well → X  
Check → Holes

Not to be filled in by driller (OEP USE ONLY)  
APPROP. PERMIT NUMBER CE99GAP008  
54 63  
FORCE CS WRITE INITIALS IN BOX PERMIT No. CE-88-0930  
67 68 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS

C1 **7289** 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 **Seaboard Farms C4217**

ST/CO USE ONLY  
 DATE Received **JAN 30 1990**  
 DATE WELL COMPLETED **011990**

Depth of Well **363**  
 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL"  
**CE-88-0930**

OWNER **Seaboard Farms** last name first name  
 STREET OR RFD **Cecilton-Warwick Rd.** TOWN **Cecilton, Maryland**  
 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	
top soil	0	1	
yellow clay-sand-gravel	1	25	
green-gray-blk sand-clay	25	175	
gray clay	175	338	
coarse white-yellow sand	338	363	✓

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

**CASING RECORD**  
 casing types insert appropriate code below  
**ST CO** STEEL CONCRETE  
**PL OT** PLASTIC OTHER  
 MAIN CASING TYPE Nominal diameter top (main) casing (nearest inch) Total depth of main casing (nearest foot)  
**S T** **4** **339**  
 60 61 63 64 66 70

**OTHER CASING (if used)**  
 diameter depth (feet)  
 inch from to  
**S T** **2** **327** **348**

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

**C2**  
 DEPTH (nearest ft.)  
 EACH SCREEN  
 1 **S T** **348** **363**  
 8 9 11 15 17 21  
 2 [ ] [ ] [ ] [ ] [ ] [ ]  
 23 24 26 30 32 36  
 3 [ ] [ ] [ ] [ ] [ ] [ ]  
 38 39 41 45 47 51  
 SLOT SIZE 1 **15** 2 3  
 DIAMETER OF SCREEN **2** (NEAREST INCH)  
 56 60

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 26.04.04 "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. **138**  
**Donald S. Newman**

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

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.) **W Q**  
 70 [ ] 72 [ ] 74 75 76  
**TELESCOPE CASING** **LOG INDICATOR** **OTHER DATA**

**C3**  
**PUMPING TEST**  
 HOURS PUMPED (nearest hour) **4**  
 8 9  
 PUMPING RATE (gal. per min. to nearest gal.) **60**  
 11 15  
 METHOD USED TO MEASURE PUMPING RATE **bucket**  
 WATER LEVEL (distance from land surface) BEFORE PUMPING **75**  
 17 20  
 WHEN PUMPING **140**  
 22 25  
 TYPE OF PUMP USED (for test)  
**A** air **P** piston **T** turbine  
 27 27 27  
**C** centrifugal **R** rotary **O** other (describe below)  
 27 27 27  
**J** jet **S** submersible  
 27 27

**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 } **1**  
 49 50 51

**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)

