

Missouri Department of Natural Resources

Division of Environmental Quality
Wellhead Protection Section



Eliminating an Unnecessary Risk



Abandoned Wells and Cisterns

10 CSR 23-3.110 Plugging of Wells

Any well which is to be abandoned must be plugged in accordance with these rules. If a well has been determined to present a threat to the groundwater, the division may order that the well be permanently plugged. If a well is in such a state of disrepair that continued use for purposes of obtaining groundwater is impractical and which has not been in use for a period of two (2) years or more, the division may order that the well be permanently plugged.

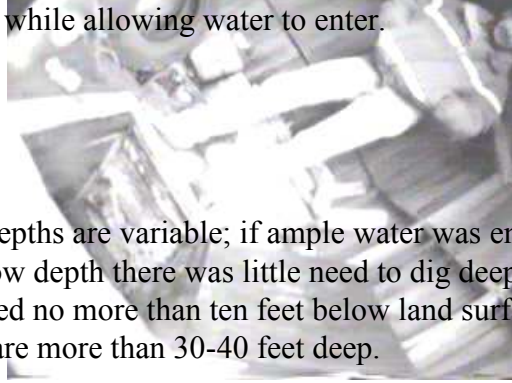
Wells abandoned by landowners after August 28, 1991, shall be plugged or cause to be plugged, in accordance with this rule. Landowners may plug their own wells located on property they own or lease, if the wells were intended for use only in single-family houses which are their permanent residences or were intended for use only for farming purposes on their farms, and where the waters that were produced were not intended for use by the public or in any residence other than their own.

HAND DUG WELLS AND CISTERNS

The early wells and cisterns constructed in Missouri bear little resemblance to their modern counterparts. These early wells were dug and constructed by hand with pick and shovel.



Most hand dug wells are from three to six feet in diameter unlike modern wells, they do not contain casing. Brick or field stones were used to line the well, holding the materials in place while allowing water to enter.



Their depths are variable; if ample water was encountered at a shallow depth there was little need to dig deeper. Some bottomed no more than ten feet below land surface, while others are more than 30-40 feet deep.

Though they were dug to produce groundwater many did not. Instead of abandoning a hole that took weeks to dig and trying again elsewhere, many were finished to use as cisterns.



Unlike wells, cisterns do not produce water but simply store it.

Locally, dug wells which produced groundwater are referred to as “living wells”.



Cisterns are often called “wells” even though they are only a storage structure.



Nearly every northern and western Missouri farmstead had one or more wells or cisterns.



As a result, many of the wells and cisterns that were so important a few decades ago are no longer used or needed. In fact, they are no longer an asset but a serious liability.



Abandoned large-diameter dug wells and cisterns are a very real and deadly threat to the residents of rural Missouri.



When properly maintained dug wells and cisterns present little risk, but when abandoned they become potential traps, and are an unnecessary risk to human life.

Dug wells commonly are three to six feet in diameter, often larger at the bottom than at the top, and may be from ten feet to 40 feet deep. They typically produce less than three gallons of water per minute, but because of their large volume, can store several thousand gallons of water.



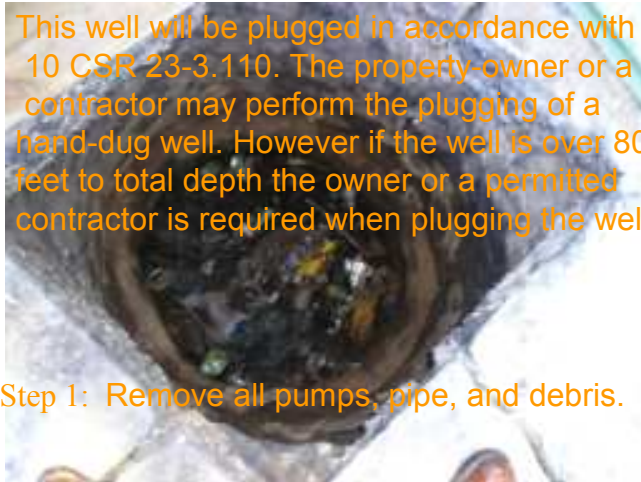
Dug wells and cisterns still in service should have a sturdy cover, preferably made of reinforced concrete. The covers should be securely fastened, or be heavy enough to keep curious children from removing them.



Plugging the well or cistern:

This well will be plugged in accordance with 10 CSR 23-3.110. The property-owner or a contractor may perform the plugging of a hand-dug well. However if the well is over 80 feet to total depth the owner or a permitted contractor is required when plugging the well.

Step 1: Remove all pumps, pipe, and debris.



Step 2a: If the well contains water add the appropriate amount of chlorine. As the fill material is poured into the well, it is disinfected as it comes in contact with the chlorinated water.



Step 2b: If there is no water in the well chlorine must be added to water in a sprayer. As the material is poured into the well the fill is sprayed and becomes disinfected as it comes into contact with the chlorinated water.

Push in top three feet (3') of well lining.
Lining may be composed of rock, brick, or tile.



Fill the well to within three feet of the surface
with clean fill material such as gravel, sand,
or varied size agricultural lime.



Submit abandonment registration record to the division.

Bored Wells

Bored wells are constructed with an auger, scoop, drag-line, or some similar machine.

They are the modern equivalent of the old, hand-dug wells.

These wells are relatively large-diameter, usually two to four feet, and may be 20-80 feet deep, and total depth is usually at the top of bedrock.

Older bored wells are commonly lined with sections of clay or tin pipe; newer bored wells are usually lined with concrete pipe.

If properly constructed and covered, they can provide a satisfactory water supply and present no special hazard.



Abandoned, they are as dangerous as dug wells and cisterns, and should be plugged.

Bored wells can be plugged using the same methods as those described for dug wells and cisterns.

Dig around the casing and remove the top three feet (3') of casing. The remaining hole must be at least two feet (2') in diameter larger than the casing.

Disinfect fill material. If there is water in the well, you must add chlorine bleach (5.25 to 6%) to the water bringing it to a concentration of at least one hundred (100) PPM. As the fill material is poured into the well, it is disinfected as it comes in contact with the chlorinated water.

In agricultural or yard settings, the plug must terminate at least two feet (2') below the finished surface grade and the remaining hole filled with soil. In other settings, the remaining hole may be filled with clean fill if the well site is to be paved.

Submit registration report form to the division.













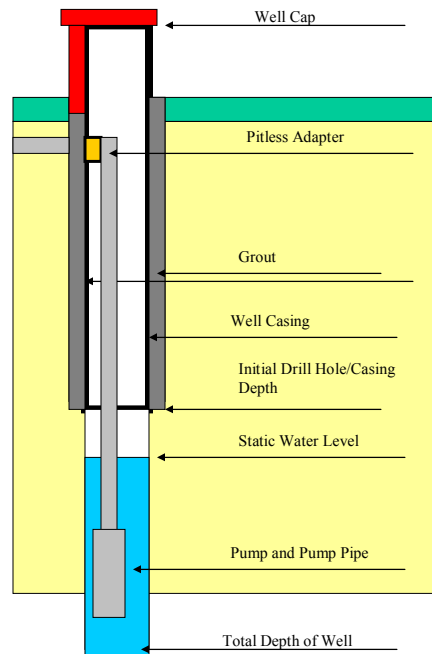




Drilled Wells

Well Plugging

If a well has been determined to present a threat to the groundwater, the Division of Environmental Quality may order the well be permanently plugged. If a well is in such a state of disrepair that continued use for purposes of obtaining ground water is impractical and which has not been in use for a period of two years or more, the division may order that the well be permanently plugged





A site Inspection is usually conducted after Pump and any debris is removed from the well. Well is inspected to determine casing depth, Static water level, and total depth of well. These 3 facts must be determined to plug the well properly.

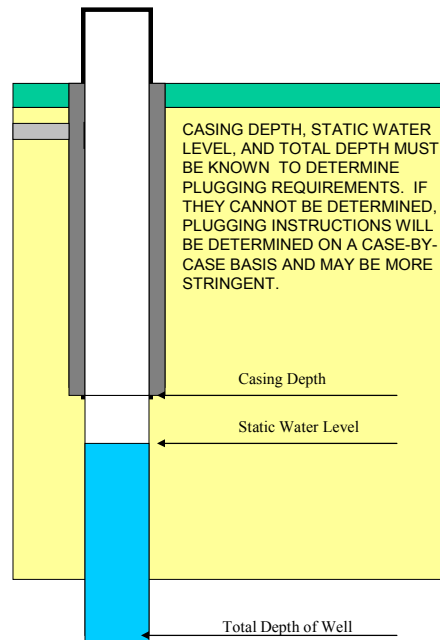


Plugging the Well

Step 1:

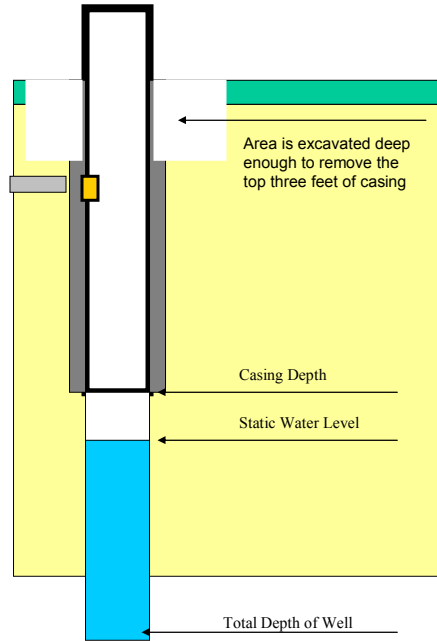
Remove all pump pipes and debris from the well. Any liner must be removed or perforated.

After the pump and any other debris has been removed from the well take an initial measurement. Be sure to note the casing depth, static water level and the total depth of the well.



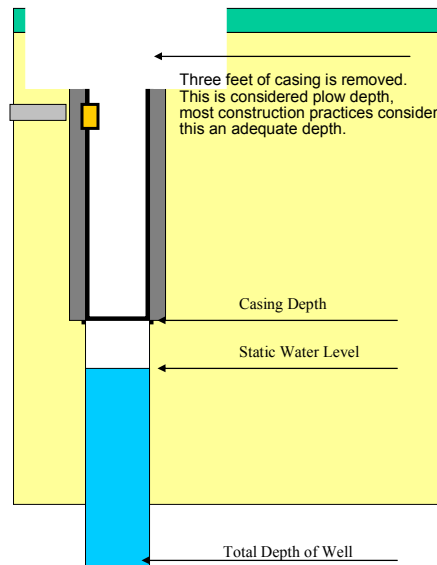
Step 2:

Dig around the casing deep enough to remove the top three feet (3') of casing. The remaining hole must be at least two feet (2') in diameter larger than the existing casing.



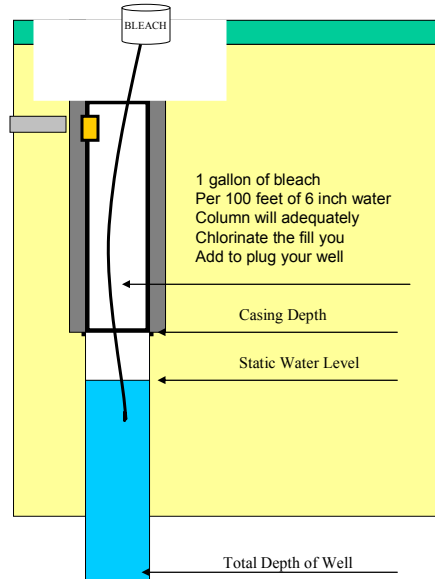
Step 3:

Cut and remove the top three feet of Casing.



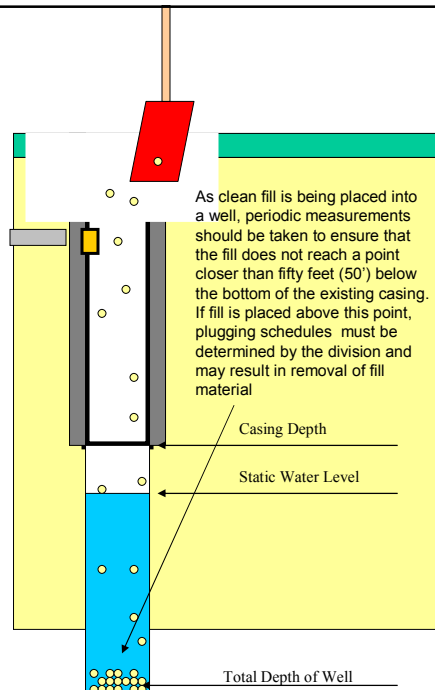
Step 4:

Disinfect fill material. If there is water in the well, you must add chlorine to the water bringing it to a concentration of at least one hundred (100) ppm. As the fill material is poured into the well, it is disinfected as it comes in contact with the chlorinated water. If there is no water in the well to be plugged, disinfect any fill material used before it is placed into the well. This can be accomplished by using a sprayer.



Step 5:

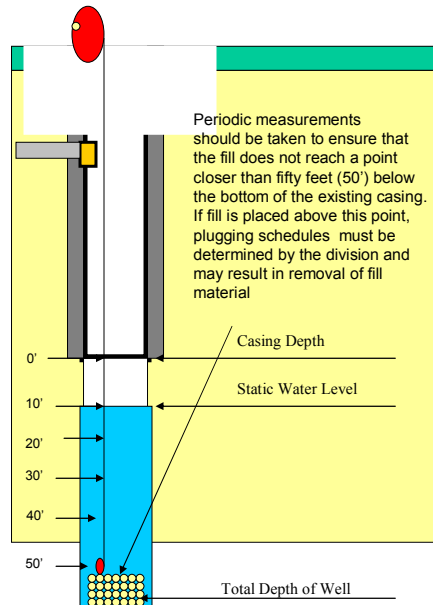
Fill the well from total depth of the well to fifty feet (50') below the bottom of the casing with clean fill such as gravel, sand, varied sized agricultural lime or other approved fill material.



Step 6:



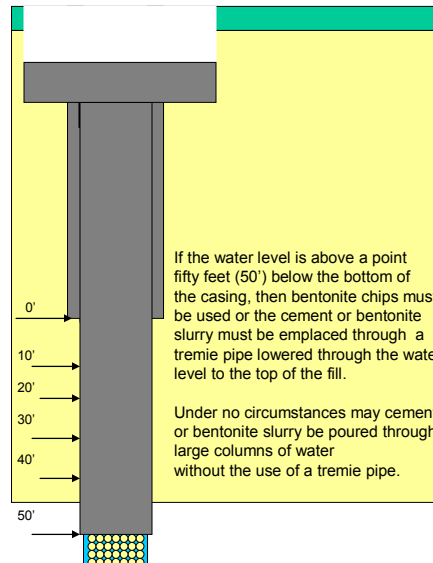
As clean fill is being placed into the well, periodic measurements should be taken to ensure that the fill material does not reach a point closer than fifty feet (50') below the bottom of the existing casing. If fill is placed above this point, plugging schedules must be determined by the Division and may result in removal of fill material.



Step 7:



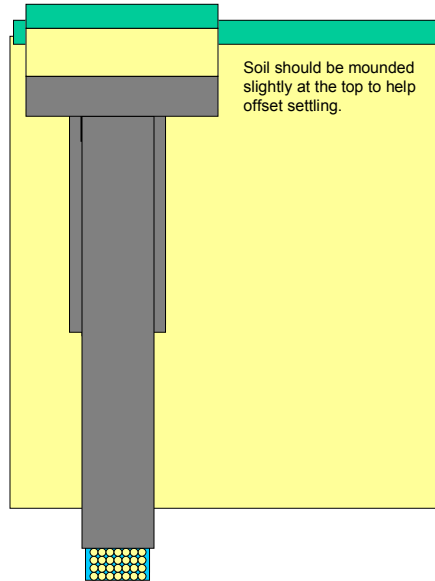
Place neat cement or bentonite from a point fifty feet (50') below the bottom of the casing to two feet (2') from the surface making sure the grout extends into the excavated area at least one foot (1').



Step 8:



In an agricultural or yard setting the plug must terminate two feet (2') below the finished surface grade and the remaining hole filled with soil. In other settings, the remaining hole may be filled with clean fill if the well site is to be paved.



Common Questions

If a well is located in a well house and it has a concrete floor. If the owner wishes to fill the well to floor level. A variance from the division is required to use cement to fill the remaining hole at the level of the concrete floor.

For those wells which casing depth, water level and total depth are not known and cannot be determined, plugging instructions will be determined on a case by case basis by the division and may be more stringent. Usually this will consist of the well being plugged by filling the well via tremie or pressure grouting from total depth to 2' from the surface.

Neat cement is a grout, this is a 94lb mix of cement to 6 gallons of water. Concrete is not a grout. Under no circumstances may cement be poured through large columns of water without the use of a tremie pipe (well contains water that is above a point 50 feet below the bottom of the casing or liner). The well must be plugged in one continuous pour.

A landowner may plug his own well as described earlier. He may contract the plugging of a hand dug or bored well less than 80 feet in total depth with any contractor. If the well is drilled or a hand dug/bored well is over 80 feet he must hire a Missouri well installation contractor or a Missouri pump installation contractor to plug the well.

Step 9:



Complete and submit the Abandonment Registration Record

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND LAND SURVEY
STATE BUREAU
ABANDONMENT REGISTRATION RECORD

OFFICE USE ONLY
DATE RECEIVED: _____
REGISTRATION NUMBER: _____
DATE: _____
TIME: _____
REGISTRATION NO.: _____
APPROVED BY: _____
NOTE: _____

INFORMATION SUPPLIED BY WELL OWNER
WELL NUMBER: _____
WELL DEPTH: _____
WELL TYPE: _____
WELL STATUS: _____
WELL LOCATION: _____
WELL OWNER: _____
WELL ADDRESS: _____
WELL CITY: _____
WELL COUNTY: _____
WELL STATE: _____
WELL ZIP: _____
WELL PHONE: _____
WELL FAX: _____
WELL E-MAIL: _____
WELL WEBSITE: _____
WELL COMMENTS: _____

ABANDONMENT INFORMATION
DATE OF ABANDONMENT: _____
REASON FOR ABANDONMENT: _____
METHOD OF ABANDONMENT: _____
WELL IDENTIFICATION: _____
WELL STATUS: _____
WELL TYPE: _____
WELL DEPTH: _____
WELL LOCATION: _____
WELL OWNER: _____
WELL ADDRESS: _____
WELL CITY: _____
WELL COUNTY: _____
WELL STATE: _____
WELL ZIP: _____
WELL PHONE: _____
WELL FAX: _____
WELL E-MAIL: _____
WELL WEBSITE: _____
WELL COMMENTS: _____

Owner plugs well and submits Abandonment Registration Record.

Registration Number is issued.









Determining Materials

- The quantities listed on this chart are estimates. They were estimated for a smooth bore hole. Since most wells do not have a smooth bore hole, it is suggested to add at least 10 percent or a few extra bags to the totals.
- Always keep a good measurement as you add the fill material. Do not go above the stated depths with the fill material.
- If you have 6 inch casing you need to have at least a 50-foot measurement below the casing for a grout plug.
- If fill is allowed to go above this point, contact the Division for directions on how to proceed.

PLUGGING			
Grout Chart for Plugging Wells			
Diameter of Casing:			36
Amount of Casing:			15
Total Depth:			20
Static Water Level:			10
Amount of Grout Material Needed (linear feet):			0
Amount of Grout Material Needed (bags or cubic yards)			
		Bags	Cubic Yrds
Neat Cement:		0	0
Bentonite Pellets			
	1/2Baroid Pellets	0	
	3/8Baroid Pellets	0	
	1/4Baroid Pellets	0	
	Wyo-Bend Tablets	0	
	Volclay 1/2	0	
	Volclay 3/8	0	
	Volclay 1/4	0	
Chips			
	Baroid HolePlug	0	
	Wyo-bend Coarse	0	
	Wyo-bend Medium	0	
	Volclay Coarse	0	
	Volclay Medium	0	
Granular			
	Benseal	0	
	Wyo-bend No.8	0	
	Wyo-bend No.16	0	
Slurry			
	Baroid	0	
	Hi-Yield	0	
	Wyo-bend	0	
	Volclay	0	
Amount of Chlorine (5.25 to 6%) (gallons):		1.070	
Amount of Fill Material(cubic yards):		5.280	
Amount of Fill Material(tons):		6.415	

Tony Braum 417 836 9876

201 Fairgrounds Rd

Kodia, MO 63128

NE Sec 12/50N/23W

38 12°56.8'"/92 45°23.7"

Phelps County

Hand Dug Well (Bored)

Casing Diameter 3 Feet/Cement/15 Feet

Total Depth 20 Feet

Static Water Level 10 Feet

PLUGGING			
Grout Chart for Plugging Wells			
Diameter of Casing:			36
Amount of Casing:			15
Total Depth:			20
Static Water Level:			10
Amount of Grout Material Needed (linear feet):			0

This information is directly from your measurements of the well:

Diameter of Casing is in inches.
Amount of Casing is in feet.
Total Depth is in feet.
Static Water Level is distance in feet from the surface.
Amount of grout/grout plug needed is in feet:

Amount of Grout Material Needed (bags or cubic yards)				
		Bags		Cubic Yrds
Neat Cement:		0		0
Bentonite				
Pellets				
	1/2Baroid Pellets	0		
	3/8Baroid Pellets	0		
	1/4Baroid Pellets	0		
	Wyo-Bend Tablets	0		
	Volclay 1/2	0		
	Volclay 3/8	0		
	Volclay 1/4	0		
Chips				
	Baroid HolePlug	0		
	Wyo-bend Coarse	0		
	Wyo-bend Medium	0		
	Volclay Coarse	0		
	Volclay Medium	0		
Granular				
	Benseal	0		
	Wyo-bend No.8	0		
	Wyo-bend No.16	0		
Slurry				
	Baroid	0		
	Hi-yield	0		
	Wyo-bend	0		
	Volclay	0		
Amount of Chlorine (5.25 to 6%)(gallons):		1.070		
Amount of Fill Material(cubic yards):		5.280		
Amount of Fill Material(tons):		6.415		

Estimates of material are Listed here by type.

If Neat Cement (no sand or gravel added is added) the mix is one 94lb bag to 6 gallons of water.

Bentonite: There are different grades of bentonite, be sure this type is used for sealing, not food grade fill.

Chips are the common type used for plugging wells. The bags are measured at 50lb.


A bentonite slurry is used to plug wells usually with the use of a tremie pipe. 50lb bag mixed with 20-25 gallons of water.

Chlorine is a typical household bleach measured in gallons.

Fill material usually consists of Gravel 1/2inch minus/Ag-Lime/or Sand and can be measure in cubic yards or tons.

Filling out the Abandonment Registration Record


- Considered the most difficult part of the task-----but the job is not done until the paperwork is completed.....

 MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ C.R. NO. _____ CHECK NO. _____ STATE WELL NUMBER _____ REVENUE NO. _____ ENTERED BY: Ph1 Ph2 Ph3 _____ APPROVED BY: _____ ROUTE: _____	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR			
OWNER NAME		TELEPHONE NUMBER WITH AREA CODE	
201 Fairgrounds Rd		417 836 9876	
OWNER ADDRESS	CITY	STATE	ZIP CODE
201 Fairgrounds Rd	Kodia	MO	63128
ADDRESS OF WELL SITE (IF DIFFERENT THAN ABOVE)		CITY	STATE ZIP CODE
SITE NAME	WELL NUMBER	INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER)	DATE
		Tony's Signature	1/15/10
SMALLEST	LARGEST	LOCATION OF WELL	
1/4	1/4 NE 1/4	LAT. 38 °12 '56.8 "	
Sec. 12 Township 50 North 23 Range	<input type="checkbox"/> East <input checked="" type="checkbox"/> West	LONG. 92 °45 '23.7 "	
WELL CERTIFICATION NUMBER (IF APPLICABLE)		VARIANCE NUMBER (IF APPLICABLE)	
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells. CONTRACTOR: _____ FERNET NUMBER: _____ SUBCONTRACTOR: _____ FERNET NUMBER: _____ DATE: _____ SIGNATURE (APPLICANT): _____ FERNET NUMBER: _____ <small>MO 700 100 0000 MISSOURI DEPARTMENT OF NATURAL RESOURCES WELLS PROTECTION SECTION FAX: 636 425 4004, MO MAIL: 700-388418</small>			

Download at:

<http://dnr.mo.gov/forms/index.html>

Near the bottom of the page; 1st form listed under Water Wells.

 MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ C.R. NO. _____ CHECK NO. _____ STATE WELL NUMBER _____ REVENUE NO. _____ ENTERED BY: Ph1 Ph2 Ph3 _____ APPROVED BY: _____ ROUTE: _____	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR			
OWNER NAME		TELEPHONE NUMBER WITH AREA CODE	
Tony Braum		417 836 9876	
OWNER ADDRESS	CITY	STATE	ZIP CODE
201 Fairgrounds Rd	Kodia	MO	63128
ADDRESS OF WELL SITE (IF DIFFERENT THAN ABOVE)		CITY	STATE ZIP CODE
SITE NAME	WELL NUMBER	INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER)	DATE
		Tony's Signature	1/15/10
SMALLEST	LARGEST	LOCATION OF WELL	
1/4	1/4 NE 1/4	LAT. 38 °12 '56.8 "	
Sec. 12 Township 50 North 23 Range	<input type="checkbox"/> East <input checked="" type="checkbox"/> West	LONG. 92 °45 '23.7 "	
WELL CERTIFICATION NUMBER (IF APPLICABLE)		VARIANCE NUMBER (IF APPLICABLE)	

ABANDONMENT INFORMATION			
FORMER USE OF WELL <input checked="" type="checkbox"/> Hand Dug (Bored) <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other _____	ORIGINAL DRILLER (IF KNOWN)	DATE ORIGINALLY DRILLED (IF KNOWN)	STATIC WATER LEVEL 10'
DEPTH OF THE WELL 20'	LENGTH OF CASING 15'	CASING DIAMETER 36"	DRILL HOLE DIAMETER (IF KNOWN)
PUMP REMOVED FROM WELL? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	WAS THE CASING CUT OFF THREE FEET BELOW GROUND SURFACE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Removed	TYPE OF CASING <input type="checkbox"/> Plastic <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other _____	

GROUT INSTALLATION METHOD <input type="checkbox"/> Gravity <input type="checkbox"/> Tremie <input type="checkbox"/> Excavation	GROUT MATERIAL USED Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> <input type="checkbox"/> Hi-Early <input type="checkbox"/> Slurry <input type="checkbox"/> Granular <input type="checkbox"/> Pellets <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other _____	HOW MANY GALLONS OF WATER MIXED PER BAG OF CEMENT OR BENTONITE?	NUMBER OF BAGS OF GROUT USED POUNDS OF GROUT PER BAG
TYPE OF FILL MATERIAL USED <input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Lime <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Other _____	AMOUNT OF FILL MATERIAL USED 6.5 <input type="checkbox"/> Cu. Yds. <input checked="" type="checkbox"/> Tons	DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE 3'	
MULTIPLE WELLS <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	WELL CHLORINATED BEFORE PLUGGING? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	AMOUNT USED FOR THE CHLORINATION <input checked="" type="checkbox"/> Gallons of Chlorine 1 <input type="checkbox"/> Pounds of Chlorine _____ <input type="checkbox"/> Tablets of Chlorine _____	DATE WELL WAS PLUGGED 1/1/10
WAS THE WELL ABANDONED BECAUSE OF HOOKING UP TO A PUBLIC OR RURAL WATER SUPPLY DISTRICT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No IF YES, PROVIDE THE NAME OF THE WATER DISTRICT: _____		REASON WELL WAS PLUGGED No longer used.	
REMARKS			

I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER	SIGNATURE (CONTRACTOR) Owner Signature	PERMIT NUMBER Owner	DATE
SIGNATURE (APPRENTICE)	PERMIT NUMBER			

MO 780-1603 (06-09)

RETURN COMPLETED FORM TO WELLHEAD PROTECTION SECTION, P.O. BOX 250, ROLLA, MO 65402 573-368-2165

Exercises

Exercise 1



Robert Hamburger 573 458 1234
9230 Audrain Road 140
Centralia, MO 65240 39 18'46.9"/92 7'48.2
Audrain County SE/Sec3/52N/11W
Static Water Level: 9 ft
Depth of Well: 17 ft
Casing Diameter: 4 ft

PLUGGING

Grout Chart for Plugging Wells

Diameter of Casing:		48
Amount of Casing:		17
Total Depth:		12
Static Water Level:		9
Amount of Grout Material Needed (linear feet):		4
Amount of Grout Material Needed (bags or cubic yards)		
	Bags	Cubic Yards
Neat Cement:		
Bentonite		0
Pellets		
1/2Baroid Pellets	0	
3/4Baroid Pellets	0	
1/4Baroid Pellets	0	
Wyo-Bond Pellets	0	
Vokley 1/2	0	
Vokley 3/8	0	
Vokley 1/4	0	
Chips		
Baroid Hole-Plug	0	
Wyo-Bond Coarse	0	
Wyo-Bond Medium	0	
Vokley Coarse	0	
Vokley Medium	0	
Gravel		
Benseal	0	
Wyo-bond No. 8	0	
Wyo-bond No. 16	0	
Slurry		
Baroid	0	
Hwy-bond	0	
Wyo-bond	0	
Vokley	0	
Amount of Chlorine (5.25 to 6%) (gallons):		1.522
Amount of Fill Material (cubic yards):		7.979
Amount of Fill Material (tons):		9.634

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO. C.R. NO.		DATE RECEIVED BY	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR		WELL NUMBER		DATE	
OWNER NAME		CITY		STATE	
ADDRESS OF WELL SITE (IF DIFFERENT FROM ABOVE)		CITY		STATE	
SITE NAME		WELL NUMBER		DATE	
SMALLEST LARGEST		LOCATION OF WELL		AREA	
Sec. Township North Range		LAT. LONG.		ELEV. COUNTY	
WELL CERTIFICATION NUMBER (IF APPLICABLE)		VARIANCE NUMBER (IF APPLICABLE)			
PURPOSE OF WELL		DEPTH OF WELL		TYPE OF CASING	
<input type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other		DEPTH OF CASING <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Removed		TYPE OF CASING <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other	
METHOD OF FILL/MATERIAL USED		TYPE OF FILL MATERIAL USED		AMOUNT USED FOR THE OPERATION	
<input type="checkbox"/> Gravel <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Tronox <input type="checkbox"/> H-Early <input type="checkbox"/> Silty <input type="checkbox"/> Granular <input type="checkbox"/> Pellets <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other		<input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Lime <input type="checkbox"/> Sand <input type="checkbox"/> Other		<input type="checkbox"/> Gallons of Chlorine <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.		SIGNATURE (PRIMARY CONTRACTOR)		DATE	
SIGNATURE (CONTRACTOR)		SIGNATURE (CONTRACTOR)		DATE	

COST SQUARE

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO.		DATE RECEIVED BY	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR		WELL NUMBER		DATE	
OWNER NAME <i>Robert KAMRINGER</i>		CITY <i>CENTRALIA</i>		STATE <i>MO</i>	
ADDRESS OF WELL SITE (IF DIFFERENT FROM ABOVE) <i>9230 HUDRAN RD 140</i>		CITY <i>CENTRALIA</i>		STATE <i>MO</i>	
SITE NAME		WELL NUMBER		DATE <i>1/15/10</i>	
SMALLEST LARGEST		LOCATION OF WELL		AREA	
Sec. 3 Township 52 North 11 Range		LAT. 39° 18' 46.2" LONG. 92° 07' 48.2"		ELEV. COUNTY <i>HUDRAN</i>	
PURPOSE OF WELL		DEPTH OF WELL		TYPE OF CASING	
<input checked="" type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other		DEPTH OF CASING <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Removed		TYPE OF CASING <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other <i>200K</i>	
METHOD OF FILL/MATERIAL USED		TYPE OF FILL MATERIAL USED		AMOUNT USED FOR THE OPERATION	
<input type="checkbox"/> Gravel <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Tronox <input type="checkbox"/> H-Early <input type="checkbox"/> Silty <input type="checkbox"/> Granular <input type="checkbox"/> Pellets <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other		<input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Ag-Lime <input type="checkbox"/> Sand <input type="checkbox"/> Other		<input type="checkbox"/> Gallons of Chlorine <i>2</i> <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.		SIGNATURE (PRIMARY CONTRACTOR)		DATE <i>1/15/10</i>	
SIGNATURE (CONTRACTOR)		SIGNATURE (CONTRACTOR)		DATE	

Exercise 2



William Rebate
13689 Ballard Blvd
Hardin, MO 64035
Ray County
Static Water Level: 7ft
Depth of Well: 15ft
Casing Diameter: 8ft

39 20'18.3"/93 47'41.6"
SW Sec2/52N/26W

PLUGGING

Grout Chart for Plugging Wells			
Diameter of Casing:			86
Amount of Casing:			15
Total Depth:			15
Static Water Level:			7
Amount of Grout Material Needed (linear feet):			0
Amount of Grout Material Needed (bags or cubic yards)			
		Bags	Cubic Yrds
Neat Cement:			
		0	0
Bentonite			
Pellets			
	1/2Baroid Pellets	0	
	3/8Baroid Pellets	0	
	1/4Baroid Pellets	0	
	Wyo-Bend Tablets	0	
	Voclay 1/2	0	
	Voclay 3/8	0	
	Voclay 1/4	0	
Chips			
	Baroid HolePlug	0	
	Wyo-bend Coarse	0	
	Wyo-bend Medium	0	
	Voclay Coarse	0	
	Voclay Medium	0	
Granular			
	Benseal	0	
	Wyo-bend No.8	0	
	Wyo-bend No.16	0	
Slurry			
	Baroid	0	
	Tri-ysol	0	
	Wyo-bend	0	
	Voclay	0	
Amount of Chlorine (5.25 to 6%) (gallons):		6.089	
Amount of Fill Material (cubic yards):		28.162	
Amount of Fill Material (tons):		34.214	

MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
 WELLSHEAD PROTECTION SECTION
ABANDONMENT REGISTRATION RECORD

OFFICE USE ONLY
 REF. NO. DATE RECEIVED
 OR NO. 10/20/10
 DISTRICT NUMBER RECORDER NO.
 COUNTY DISTRICT COUNTY
 ZIP CITY STATE

INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR

OWNER NAME TELEPHONE NUMBER WORK ADDRESS
 OWNER ADDRESS CITY STATE ZIP CODE
 ADDRESS OF WELL SITE (IF DIFFERENT FROM ABOVE) CITY STATE ZIP CODE
 SITE NAME WELL NUMBER INFORMATION FURNISHED BY OWNER REGARDING WELL DATE
 Smallest Largest LOCATION OF WELL
 Sec. Township North Range East West LAT. ° ' " AREA
 LONG. ° ' " ELEV. COUNTY

WELL IDENTIFICATION NUMBER (IF APPLICABLE) WATERAGE NUMBER (IF APPLICABLE)

ABANDONMENT INFORMATION

FORMER USE OF WELL ORIGINAL DEPTH OF PUMPING TUBING ORIGINALLY DEELED (IF KNOWN) STATE WATER LEVEL (IF KNOWN)

Hand Dug Irrigation Domestic Soil Boring/Geoprobe Multi-Family Monitoring Public Water Supply Heat Pump Mineral Exploratory Test Hole Other

DEPTH OF THE WELL LENGTH OF CASING CASING DIAMETER WELL HEAD COVER OR TYPE OF COVER TYPE OF COVER (IF OTHER THAN CAST IRON) Plastic Concrete Yes No Sheet Other

SPROUT PROTECTOR METHOD SPROUT MATERIAL USED HOW MANY TONS OF MATERIAL USED TO PLUG THE WELL (IF OTHER THAN TABLETS OF CHROMIUM) NUMBER OF BAGS OF SPROUT LIME
 Gravity Neat Cement Bentonite Fly Ash Other Gravel Pebbles Other

TYPE OF SPROUT MATERIAL USED QUANTITY OF SPROUT MATERIAL USED QUANTITY OF FILL MATERIAL FROM THE SURFACE
 Sand Other Cu. Yds. Tons

MULTIPLE LEVELS: Yes No
 WERE THE WELL ABANDONED BECAUSE OF CORROSION TO A PLUGGING OR PLUGGING AFTER SPROUTING? Yes No
 IF YES, PROVIDE THE NAME OF THE WATER DISTRICT: _____
 REASON WELL WAS PLUGGED: _____

TABLETS OF CHROMIUM: Gallons of Chromium Pounds of Chromium Tablets of Chromium

I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.

REGISTRAR (PRIMARY CONTRACTOR) FERRY NUMBER SIGNATURE (CONTRACTOR) FERRY NUMBER DATE
 SIGNATURE (APPLICANT) FERRY NUMBER DATE

MO 707-107-106 (24 HRS) RETURN COMPLETED FORM TO WELLSHEAD PROTECTION SECTION, P.O. BOX 238, ROLLA, MO 65401

MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
 WELLSHEAD PROTECTION SECTION
ABANDONMENT REGISTRATION RECORD

OFFICE USE ONLY
 REF. NO. DATE RECEIVED
 OR NO. 10/20/10
 DISTRICT NUMBER RECORDER NO.
 COUNTY DISTRICT COUNTY
 ZIP CITY STATE

INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR

OWNER NAME TELEPHONE NUMBER WORK ADDRESS
 OWNER ADDRESS CITY STATE ZIP CODE
 ADDRESS OF WELL SITE (IF DIFFERENT FROM ABOVE) CITY STATE ZIP CODE
 SITE NAME WELL NUMBER INFORMATION FURNISHED BY OWNER REGARDING WELL DATE
 Smallest Largest LOCATION OF WELL
 Sec. 2 Township 26 North Range 26 East West LAT. 39° 20' 18.3" AREA
 LONG. 92° 42' 41.6" ELEV. COUNTY 2.01

WELL IDENTIFICATION NUMBER (IF APPLICABLE) WATERAGE NUMBER (IF APPLICABLE)

ABANDONMENT INFORMATION

FORMER USE OF WELL ORIGINAL DEPTH OF PUMPING TUBING ORIGINALLY DEELED (IF KNOWN) STATE WATER LEVEL (IF KNOWN)

Hand Dug Irrigation Domestic Soil Boring/Geoprobe Multi-Family Monitoring Public Water Supply Heat Pump Mineral Exploratory Test Hole Other

DEPTH OF THE WELL LENGTH OF CASING CASING DIAMETER WELL HEAD COVER OR TYPE OF COVER TYPE OF COVER (IF OTHER THAN CAST IRON) Plastic Concrete Yes No Sheet Other

SPROUT PROTECTOR METHOD SPROUT MATERIAL USED HOW MANY TONS OF MATERIAL USED TO PLUG THE WELL (IF OTHER THAN TABLETS OF CHROMIUM) NUMBER OF BAGS OF SPROUT LIME
 Gravity Neat Cement Bentonite Fly Ash Other Gravel Pebbles Other

TYPE OF SPROUT MATERIAL USED QUANTITY OF SPROUT MATERIAL USED QUANTITY OF FILL MATERIAL FROM THE SURFACE
 Sand Other Cu. Yds. Tons

MULTIPLE LEVELS: Yes No
 WERE THE WELL ABANDONED BECAUSE OF CORROSION TO A PLUGGING OR PLUGGING AFTER SPROUTING? Yes No
 IF YES, PROVIDE THE NAME OF THE WATER DISTRICT: _____
 REASON WELL WAS PLUGGED: DANGEROUS SITUATION

TABLETS OF CHROMIUM: Gallons of Chromium Pounds of Chromium Tablets of Chromium

I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.

REGISTRAR (PRIMARY CONTRACTOR) FERRY NUMBER SIGNATURE (CONTRACTOR) FERRY NUMBER DATE
 SIGNATURE (APPLICANT) FERRY NUMBER DATE

MO 707-107-106 (24 HRS) RETURN COMPLETED FORM TO WELLSHEAD PROTECTION SECTION, P.O. BOX 238, ROLLA, MO 65401

Exercise 3



Alex Leavi
260 SR 6
Knox City, MO 63446
Knox County
Static Water Level: 75ft
Depth of Well: 100ft
Casing Diameter: 12in/Depth: 100ft

660-234 6789

40 8'40.1" / 92 0' 32.7"
 SE Sec 28/62N/10W

PLUGGING

Grout Chart for Plugging Wells		Bags	Cubic Yds
Diameter of Casing:		12	
Amount of Casing:		100	
Total Depth:		100	
Static Water Level:		75	
Amount of Grout Material Needed (linear feet):		25	
Amount of Grout Material Needed (bags or cubic yards)			
Neat Cement:		0	0
Serpentine			
Pellets			
	1/2Baroid Pellets	0	
	3/8Baroid Pellets	0	
	1/4Baroid Pellets	0	
	Wyo-Band Tablets	0	
	Voclay 1/2	0	
	Voclay 3/8	0	
	Voclay 1/4	0	
Grips			
	Baroid Hole Plug	0	
	Wyo-bend Course	0	
	Wyo-bend Medium	0	
	Voclay Course	0	
	Voclay Medium	0	
Granular			
	Bensea	0	
	Wyo-bend No.8	0	
	Wyo-bend No.16	0	
Slurry			
	Baroid	0	
	Tri-wal	0	
	Wyo-bend	0	
	Voclay	0	
Amount of Chlorine (5.25 to 6% Gallons):		0.297	
Amount of Fill Material(cubic yards):		2.934	
Amount of Fill Material(tons):		3.564	

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
WELLHEAD PROTECTION SECTION
ABANDONMENT
REGISTRATION RECORD**

OFFICE USE ONLY
 REF. NO. _____ DATE RECEIVED _____
 STATE WELL NUMBER _____ PERMIT NO. _____
 COUNTY _____ DISTRICT _____

INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR

OWNER NAME _____ TELEPHONE NUMBER WITH AREA CODE _____
 OWNER ADDRESS _____ CITY _____ STATE _____ ZIP CODE _____
 ADDRESS OF WELL (SEE DIFFERENT EXAMINATION) _____ CITY _____ STATE _____ ZIP CODE _____

SITE NAME _____ WELL NUMBER _____ INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER) _____ DATE _____

SMALLEST _____ LARGEST _____ LOCATION OF WELL _____ AREA _____
 Sec. Township North Range East West LAT. _____ ELEV. _____
 LONG. _____ COUNTY _____

WELL CERTIFICATION NUMBER (IF APPLICABLE) _____ VARIANCE NUMBER (IF APPLICABLE) _____

ABANDONMENT INFORMATION

PURPOSE USE OF WELL: Hand Dug Irrigation Domestic Soil Boring/Geoprobe Multi-Family Monitoring Public Water Supply Heat Pump Mineral Exploratory Test Hole Other _____

DEPTH OF THE WELL _____ LENGTH OF CASING _____ CASING DIAMETER _____ STATIC WATER LEVEL (IF KNOWN) _____

PUMP REMOVED FROM WELL: Yes No Yes No Yes No Yes No

WAS THE CASING CUT OFF THREE FEET BELOW GROUND SURFACE? Yes No

TYPE OF CASING: Plastic Concrete Steel Other _____

GROUT INSTALLATION METHOD: Gravity Tremie Excavation Other _____

GROUT MATERIAL USED: Best Cement Bentonite 1/4 Early Slurry Gravelly Pellets Type 1 Chips Other _____

HOW MANY GALLONS OF WATER WERE USED FOR CEMENT OR BENTONITE? _____

NUMBER OF BAGS OF GROUT USED _____

FOUNDED GROUT PER BAG _____

TYPE OF FILL MATERIAL USED: Gravel Ag-Line Sand Other _____

AMOUNT OF FILL MATERIAL USED: _____ Cu. Yds. _____ Tons

DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE _____

MULTIPLE WELLS: Yes No

WAS THE WELL REMOVED BECAUSE OF SPONGING UP TO A PUBLIC OR PRIVATE WATER SUPPLY DISTRICT? Yes No

IF YES, PROVIDE THE NAME OF THE WATER DISTRICT: _____

WELL DECONTAMINATED BEFORE PLUGGING: Yes No

AMOUNT USED FOR THE DECONTAMINATION: Gallons of Chlorine _____ Pounds of Chlorine _____ Tablets of Chlorine _____

DATE WELL WAS PLUGGED: _____

REASON WELL WAS PLUGGED: _____

REMARKS _____

I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.

SIGNATURE (PRIMARY CONTRACTOR) _____ PERMIT NUMBER _____ SIGNATURE (CONTRACTOR) _____ PERMIT NUMBER _____ DATE _____

SIGNATURE (APPLICANT) _____ PERMIT NUMBER _____

MO 789-1003 (06-06) RETURN COMPLETED FORM TO WELLHEAD PROTECTION SECTION, P.O. BOX 500, ROLLA, MO 65402 875-368-2786

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
WELLHEAD PROTECTION SECTION
ABANDONMENT
REGISTRATION RECORD**

LOST SHARE

OFFICE USE ONLY
 REF. NO. _____ DATE RECEIVED _____
 STATE WELL NUMBER _____ PERMIT NO. _____
 COUNTY _____ DISTRICT _____

INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR

OWNER NAME ALEX LEAVI TELEPHONE NUMBER WITH AREA CODE 660-834-6777
 OWNER ADDRESS 260 S. G CITY KNOX CITY STATE MO ZIP CODE 63446
 ADDRESS OF WELL (SEE DIFFERENT EXAMINATION) _____ CITY _____ STATE _____ ZIP CODE _____

SITE NAME _____ WELL NUMBER _____ INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER) Alex Leavi DATE 12/26/07

SMALLEST _____ LARGEST _____ LOCATION OF WELL _____ AREA _____
 Sec. Township North Range East West LAT. 46° 2' 48.1" ELEV. _____
 LONG. 92° 0' 22.7" COUNTY KNOX

WELL CERTIFICATION NUMBER (IF APPLICABLE) _____ VARIANCE NUMBER (IF APPLICABLE) _____

ABANDONMENT INFORMATION

PURPOSE USE OF WELL: Hand Dug Irrigation Domestic Soil Boring/Geoprobe Multi-Family Monitoring Public Water Supply Heat Pump Mineral Exploratory Test Hole Other _____

DEPTH OF THE WELL 100 LENGTH OF CASING _____ CASING DIAMETER 12" STATIC WATER LEVEL (IF KNOWN) 75'

PUMP REMOVED FROM WELL: Yes No Yes No Yes No Yes No

WAS THE CASING CUT OFF THREE FEET BELOW GROUND SURFACE? Yes No

TYPE OF CASING: Plastic Concrete Steel Other TILE

GROUT INSTALLATION METHOD: Gravity Tremie Excavation Other _____

GROUT MATERIAL USED: Best Cement Bentonite 1/4 Early Slurry Gravelly Pellets Type 1 Chips Other _____

HOW MANY GALLONS OF WATER WERE USED FOR CEMENT OR BENTONITE? _____

NUMBER OF BAGS OF GROUT USED _____

FOUNDED GROUT PER BAG _____

TYPE OF FILL MATERIAL USED: Gravel Ag-Line Sand Other _____

AMOUNT OF FILL MATERIAL USED: 3 1/2 Cu. Yds. 1 Tons

DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE 33'

MULTIPLE WELLS: Yes No

WAS THE WELL REMOVED BECAUSE OF SPONGING UP TO A PUBLIC OR PRIVATE WATER SUPPLY DISTRICT? Yes No

IF YES, PROVIDE THE NAME OF THE WATER DISTRICT: _____

WELL DECONTAMINATED BEFORE PLUGGING: Yes No

AMOUNT USED FOR THE DECONTAMINATION: Gallons of Chlorine 1 Pounds of Chlorine _____ Tablets of Chlorine _____

DATE WELL WAS PLUGGED: 12/17/07

REASON WELL WAS PLUGGED: _____

REMARKS _____

I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.

SIGNATURE (PRIMARY CONTRACTOR) _____ PERMIT NUMBER _____ SIGNATURE (CONTRACTOR) Alex Leavi PERMIT NUMBER _____ DATE 12/26/07

SIGNATURE (APPLICANT) _____ PERMIT NUMBER _____

MO 789-1003 (06-06) RETURN COMPLETED FORM TO WELLHEAD PROTECTION SECTION, P.O. BOX 500, ROLLA, MO 65402 875-368-2786

Exercise 4



Peter Podickles
10439 Cordia Hollow Rd
Richwoods, MO 63071
Washington County
Static Water Level: 60ft
Depth of Well: 290ft
Steel Casing-Diameter: 6in/Depth: 80ft
Drilled in 1958 by Wild Bill Drilling

314 890 1267
38 8'22.7"/90 52'11.4"
SE Sec 1/39N/1E

PLUGGING

Grout Chart for Plugging Wells			
Diameter of Casing:			6
Amount of Casing:			80
Total Depth:			290
Static Water Level:			60
Amount of Grout Material Needed (linear feet):			130
Amount of Grout Material Needed (bags or cubic yards)			
		Bags	Cubic Yrds
Neat Cement		20	0.952/0.96
Bentonite			
Zenite			
1/2Barod Pellets		35	
3/8Barod Pellets		57	
1/4Barod Pellets		26	
Wyo-Bend Tablets		39	
Voiclay 1/2		39	
Voiclay 3/8		49	
Voiclay 1/4		42	
Chips			
Baroid HolePlug		37	
Wyo-Bend Coarse		31	
Wyo-Bend Medium		22	
Voiclay Coarse		34	
Voiclay Medium		35	
Granular			
Benseal		32	
Wyo-Bend No.8		31	
Wyo-Bend No.16		31	
Slurry			
Baroid		8	
Hi-yield		6	
Wyo-Bend		6	
Voiclay		7	
Amount of Chlorine (5.25 to 6% Gallons):			0.884
Amount of Fill Material(cubic yards):			1.173
Amount of Fill Material(tons):			1.426

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELL-HEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD				OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ STATE WELL NUMBER _____ COUNTY NO. _____ DISTRICT _____ COUNTY _____			
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR							
OWNER NAME _____ TELEPHONE NUMBER WITH AREA CODE _____				CITY _____ STATE _____ ZIP CODE _____			
ADDRESS OF WELL (SEE DIFFERENT EXAMINATION)				CITY _____ STATE _____ ZIP CODE _____			
SITE NAME _____ WELL NUMBER _____		INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER) _____ DATE _____				LOCATION OF WELL	
SMALLEST _____ LARGEST _____		LAT. _____		AREA _____		ELEV. _____	
Sec. _____ Township _____ North _____ Range _____		EAST _____ WEST _____		LONG. _____		COUNTY _____	
WELL CERTIFICATION NUMBER (IF APPLICABLE) _____				VARIANCE NUMBER (IF APPLICABLE) _____			
ABANDONMENT INFORMATION							
PURPOSE OF WELL		DEPTH OF THE WELL		LENGTH OF CASING		CASING DIAMETER	
<input type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other _____		<input type="checkbox"/> Gravity <input type="checkbox"/> H-E-Entry <input type="checkbox"/> Shury <input type="checkbox"/> Gravelly <input type="checkbox"/> Pellets <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other _____	
GROUT INSTALLATION METHOD		GROUT MATERIAL USED		HOW MANY GALLONS OF WATER WERE USED FOR CEMENT OR BENTONITE?		NUMBER OF BAGS OF GROUT USED	
<input type="checkbox"/> Gravity <input type="checkbox"/> Tremie <input type="checkbox"/> Excavation <input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Line <input type="checkbox"/> Sand <input type="checkbox"/> Other _____		<input type="checkbox"/> Neat Cement <input type="checkbox"/> H-E-Entry <input type="checkbox"/> Shury <input type="checkbox"/> Gravelly <input type="checkbox"/> Pellets <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Gallons of Chlorine <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
TYPE OF FILL MATERIAL USED				AMOUNT OF FILL MATERIAL USED		DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE	
<input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Line <input type="checkbox"/> Sand <input type="checkbox"/> Other _____				<input type="checkbox"/> Cu. Yds. <input type="checkbox"/> Tons		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
MULTIPLE WELLS				WELL DECONTAMINATED BEFORE PLUGGING?		DATE WELL WAS PLUGGED	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Gallons of Chlorine <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
REMARKS							
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.							
SIGNATURE, PRIMARY CONTRACTOR _____		PERMIT NUMBER _____		SIGNATURE, CONTRACTOR _____		PERMIT NUMBER _____	
SIGNATURE, APPROVING _____		PERMIT NUMBER _____		SIGNATURE, CONTRACTOR _____		PERMIT NUMBER _____	
DATE _____							

COST SAMPLE

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELL-HEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD				OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ STATE WELL NUMBER _____ COUNTY NO. _____ DISTRICT _____ COUNTY _____			
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR							
OWNER NAME <u>PETER PODOLSKIS</u> TELEPHONE NUMBER WITH AREA CODE <u>314 898-1267</u>				CITY <u>ST. LOUIS</u> STATE <u>MO</u> ZIP CODE <u>63071</u>			
ADDRESS OF WELL (SEE DIFFERENT EXAMINATION) <u>1159 Curtis Hollow Rd</u>				CITY <u>Richmond</u> STATE <u>MO</u> ZIP CODE <u>63071</u>			
SITE NAME _____ WELL NUMBER _____		INFORMATION VERIFIED BY OWNER SIGNATURE (WELL OWNER) _____ DATE _____				LOCATION OF WELL	
SMALLEST _____ LARGEST _____		LAT. <u>38° 52' 11.2"</u>		AREA _____		ELEV. _____	
Sec. <u>1</u> Township <u>37</u> North <u>1</u> Range <u>1</u>		EAST _____ WEST _____		LONG. <u>90° 52' 11.2"</u>		COUNTY <u>WASHINGTON</u>	
WELL CERTIFICATION NUMBER (IF APPLICABLE) _____				VARIANCE NUMBER (IF APPLICABLE) _____			
ABANDONMENT INFORMATION							
PURPOSE OF WELL		DEPTH OF THE WELL		LENGTH OF CASING		CASING DIAMETER	
<input checked="" type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other _____		<input type="checkbox"/> Gravity <input type="checkbox"/> H-E-Entry <input type="checkbox"/> Shury <input type="checkbox"/> Gravelly <input type="checkbox"/> Pellets <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other _____	
GROUT INSTALLATION METHOD		GROUT MATERIAL USED		HOW MANY GALLONS OF WATER WERE USED FOR CEMENT OR BENTONITE?		NUMBER OF BAGS OF GROUT USED	
<input checked="" type="checkbox"/> Gravity <input type="checkbox"/> Tremie <input type="checkbox"/> Excavation <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Ag-Line <input type="checkbox"/> Sand <input type="checkbox"/> Other _____		<input type="checkbox"/> Neat Cement <input type="checkbox"/> H-E-Entry <input type="checkbox"/> Shury <input type="checkbox"/> Gravelly <input type="checkbox"/> Pellets <input type="checkbox"/> Type 1 <input type="checkbox"/> Chips <input type="checkbox"/> Other _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Gallons of Chlorine <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
TYPE OF FILL MATERIAL USED				AMOUNT OF FILL MATERIAL USED		DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE	
<input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Ag-Line <input type="checkbox"/> Sand <input type="checkbox"/> Other _____				<input type="checkbox"/> Cu. Yds. <input type="checkbox"/> Tons		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
MULTIPLE WELLS				WELL DECONTAMINATED BEFORE PLUGGING?		DATE WELL WAS PLUGGED	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Gallons of Chlorine <input type="checkbox"/> Pounds of Chlorine <input type="checkbox"/> Tablets of Chlorine	
REMARKS <u>NO LONGER USED, DRAILED NEW WELL</u>							
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.							
SIGNATURE, PRIMARY CONTRACTOR _____		PERMIT NUMBER _____		SIGNATURE, CONTRACTOR _____		PERMIT NUMBER _____	
SIGNATURE, APPROVING _____		PERMIT NUMBER _____		SIGNATURE, CONTRACTOR _____		PERMIT NUMBER _____	
DATE <u>11/9/10</u>							

Exercise 5



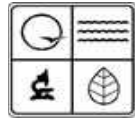
Mick Gilliam 417 833 4719
6923 CR 1940
(Well Location: 5816 SR 17)
Peace Valley, MO 65788 36 50'37.3"/91 47'13.7"
Howell County NE Sec 14/25N/8W
Static Water Level: 55 ft
Depth of Well: 150ft
Casing Depth: ? Steel
Drilled in October of 1969 by ?

PLUGGING

Grout Chart for Plugging Wells		
Diameter of Casing:		6
Amount of Casing:		
Total Depth:		150
Static Water Level:		55
Amount of Grout Material Needed (linear feet):		150
Amount of Grout Material Needed (bags or cubic yards)		
Neat Cement:	23	1.10028
Bentonite		
Pellets		
1/2Baroid Pellets	40	
3/8Baroid Pellets	42	
1/4Baroid Pellets	42	
Wyo-bond Tablets	44	
Volclay 1/2	45	
Volclay 3/8	46	
Volclay 1/4	48	
Craps		
Baroid Hole-Plug	43	
Wyo-bond Coarse	36	
Wyo-bond Medium	37	
Volclay Coarse	40	
Volclay Medium	41	
Granular		
Benseal	37	
Wyo-bond No. 8	36	
Wyo-bond No. 16	36	
Slurry		
Baroid	9	
Ht. yield	7	
Wyo-bond	9	
Volclay	8	
Amount of Chlorine (5.25 to 6%)(gallons):		0.282
Amount of Fill Material(cubic yards):		0.000
Amount of Fill Material(tons):		0.000

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ FILE NO. _____ CHECKED _____ STATE WELL NUMBER _____ STATE _____ SECTION _____ PERM. NO. _____ COUNTY _____ PERM. NO. _____ PERM. NO. _____ PERM. NO. _____	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR			
OWNER NAME _____ TELEPHONE NUMBER WITH AREA CODE _____		CITY _____ STATE _____ ZIP CODE _____	
ADDRESS OF WELL SITE OF DIFFERENT THAN ABOVE _____		CITY _____ STATE _____ ZIP CODE _____	
WELL NAME _____ WELL NUMBER _____ INFORMATION VERIFIED BY OWNER (SIGNATURE WELL OWNER) _____ DATE _____		LOCATION OF WELL LAT. _____ ° _____ ' _____ " _____ LONG. _____ ° _____ ' _____ " _____ AREA _____ ELEV. _____ COUNTY _____	
SMALLEST 1/4 _____ LARGEST 1/4 _____ Range _____ East _____ West _____		WELL CERTIFICATION NUMBER IF APPLICABLE _____ PERMANCE NUMBER IF APPLICABLE _____	
ABANDONMENT INFORMATION			
FORMER USE OF WELL <input type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other _____		DEPTH OF THE WELL _____ LENGTH OF CASING _____ CASING DIAMETER _____ WELL HOLE DIAMETER (IF KNOWN) _____	
GROUP INSTALLATION METHOD <input type="checkbox"/> Gravity <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Tremie <input type="checkbox"/> Hi-Early <input type="checkbox"/> Slurry <input type="checkbox"/> Groutable <input type="checkbox"/> Pollate <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input type="checkbox"/> Chops <input type="checkbox"/> Other _____		PUMP REMOVED FROM WELL? <input type="checkbox"/> Yes <input type="checkbox"/> No DATE THE CASING CUT OFF (USE FREE BELOW-GROUND SERVICE) <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Other _____	
TYPE OF FILL MATERIAL USED <input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Lime <input type="checkbox"/> Sand <input type="checkbox"/> Other _____		AMOUNT OF FILL MATERIAL USED _____ DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE _____	
MULTIPLE WELLS <input type="checkbox"/> Yes <input type="checkbox"/> No		WELL DEPTH TO BE PLUGGED _____ DATE WELL WAS PLUGGED _____	
WAS THE WELL ABANDONED IN ACCORDANCE WITH 16 CSR 101.010 TO A PUBLIC OR MUNICIPAL WATER SUPPLY DISTRICT? <input type="checkbox"/> Yes <input type="checkbox"/> No		MATERIAL USED FOR THE OPERATION <input type="checkbox"/> Gallons of Chlorine _____ <input type="checkbox"/> Pounds of Chlorine _____ <input type="checkbox"/> Tablets of Chlorine _____	
REMARKS _____		REMARKS _____	
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.			
SIGNATURE (OWNER/CONTRACTOR) _____ PERMIT NUMBER _____		SIGNATURE CONTRACTOR _____ PERMIT NUMBER _____ DATE _____	
SIGNATURE (APPLICANT) _____ PERMIT NUMBER _____		SIGNATURE CONTRACTOR _____ PERMIT NUMBER _____ DATE _____	
MO 161-140-2208 RETURN COMPLETED FORM TO WELLHEAD PROTECTION SECTION, P.O. BOX 666, ROLLA, MO 65402 573-204258			

MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM WELLHEAD PROTECTION SECTION ABANDONMENT REGISTRATION RECORD		OFFICE USE ONLY REF. NO. _____ DATE RECEIVED _____ FILE NO. _____ CHECKED _____ STATE WELL NUMBER _____ STATE _____ SECTION _____ PERM. NO. _____ COUNTY _____ PERM. NO. _____ PERM. NO. _____ PERM. NO. _____	
INFORMATION SUPPLIED BY WELL OR PUMP INSTALLATION CONTRACTOR			
OWNER NAME <u>MARK GILLIAM</u> TELEPHONE NUMBER WITH AREA CODE <u>417.833.4214</u>		CITY <u>PERCE VALLEY MO</u> STATE <u>MO</u> ZIP CODE <u>65788</u>	
ADDRESS OF WELL SITE OF DIFFERENT THAN ABOVE <u>6923 CR RD</u>		CITY <u>PERCE VALLEY MO</u> STATE <u>MO</u> ZIP CODE <u>65788</u>	
WELL NAME <u>SR 17</u> WELL NUMBER _____ INFORMATION VERIFIED BY OWNER (SIGNATURE WELL OWNER) _____ DATE <u>11/15/19</u>		LOCATION OF WELL LAT. <u>36° 50' 37.3"</u> LONG. <u>91° 49' 13.7"</u> AREA _____ ELEV. _____ COUNTY <u>HOWELL</u>	
SMALLEST 1/4 <u>NE 1/4</u> LARGEST 1/4 <u>8</u> Range _____ East _____ West _____		WELL CERTIFICATION NUMBER IF APPLICABLE _____ PERMANCE NUMBER IF APPLICABLE _____	
ABANDONMENT INFORMATION			
FORMER USE OF WELL <input type="checkbox"/> Hand Dug <input type="checkbox"/> Irrigation <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Soil Boring/Geoprobe <input type="checkbox"/> Multi-Family <input type="checkbox"/> Monitoring <input type="checkbox"/> Public Water Supply <input type="checkbox"/> Heat Pump <input type="checkbox"/> Mineral Exploratory Test Hole <input type="checkbox"/> Other _____		DEPTH OF THE WELL <u>10/6'</u> LENGTH OF CASING <u>6'</u> CASING DIAMETER _____ WELL HOLE DIAMETER (IF KNOWN) _____	
GROUP INSTALLATION METHOD <input checked="" type="checkbox"/> Gravity <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Tremie <input type="checkbox"/> Hi-Early <input type="checkbox"/> Slurry <input type="checkbox"/> Groutable <input type="checkbox"/> Pollate <input type="checkbox"/> Excavation <input type="checkbox"/> Type 1 <input checked="" type="checkbox"/> Other _____		PUMP REMOVED FROM WELL? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No DATE THE CASING CUT OFF (USE FREE BELOW-GROUND SERVICE) <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Other _____	
TYPE OF FILL MATERIAL USED <input type="checkbox"/> Gravel <input type="checkbox"/> Ag-Lime <input type="checkbox"/> Sand <input type="checkbox"/> Other _____		AMOUNT OF FILL MATERIAL USED _____ DEPTH TO TOP OF FILL MATERIAL FROM THE SURFACE _____	
MULTIPLE WELLS <input type="checkbox"/> Yes <input type="checkbox"/> No		WELL DEPTH TO BE PLUGGED _____ DATE WELL WAS PLUGGED _____	
WAS THE WELL ABANDONED IN ACCORDANCE WITH 16 CSR 101.010 TO A PUBLIC OR MUNICIPAL WATER SUPPLY DISTRICT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		MATERIAL USED FOR THE OPERATION <input checked="" type="checkbox"/> Gallons of Chlorine <u>2</u> <input type="checkbox"/> Pounds of Chlorine _____ <input type="checkbox"/> Tablets of Chlorine _____	
REMARKS <u>PLUGGED FULL LENGTH CASING DEPTH UNKNOWN</u>		REMARKS <u>NOT USED</u>	
I hereby certify that the well herein described was plugged in accordance with the Department of Natural Resources requirements for the plugging of wells.			
SIGNATURE (OWNER/CONTRACTOR) _____ PERMIT NUMBER _____		SIGNATURE CONTRACTOR <u>_____</u> PERMIT NUMBER <u>_____</u> DATE <u>11/19/19</u>	
SIGNATURE (APPLICANT) _____ PERMIT NUMBER _____		SIGNATURE CONTRACTOR _____ PERMIT NUMBER _____ DATE _____	
MO 161-140-2208 RETURN COMPLETED FORM TO WELLHEAD PROTECTION SECTION, P.O. BOX 666, ROLLA, MO 65402 573-204258			



Missouri
Department of
Natural Resources

Division of Environmental Quality

Wellhead Protection Section

Thank You

If you have any questions in the future please
feel free to contact our office at
(573) 368-2165