HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

14 December 2021
File No. 134371-005

New York State Department of Environmental Conservation
Division of Environmental Remediation, 11th Floor
625 Broadway
Albany, New York 12223

Attention: Scott Deyette

Subject: Groundwater Monitoring Well and Piezometer Decommissioning Report
Owego Former MGP Site
Owego, New York

Dear Mr. Deyette:

On behalf of our client, New York State Electric & Gas Corporation (NYSEG), Haley & Aldrich of New York (Haley & Aldrich) has prepared this Groundwater Monitoring Well and Piezometer Decommissioning Report to document the field activities at the Owego Former Manufactured Gas Plant (MGP) Site (the "site") located in Owego, New York (Figure 1). Monitoring well and piezometer decommissioning was performed in accordance with New York State Department of Environmental Conservation (NYSDEC)'s C-43: Groundwater Monitoring Well Decommissioning Policy. Select monitoring wells and piezometers were decommissioned as approved in a NYSDEC letter dated 10 July 2019 and a NYSDEC email dated 4 October 2021.

On 11 October 2021, Haley & Aldrich contracted with Parratt-Wolff, Inc. of East Syracuse, New York to decommission three (3) on-site piezometers (PZ-1, PZ-3, and PZ-15), four (4) off-site piezometers (PZ-6, PZ-7, PZ-10, and PZ-11), one on-site monitoring well (MW-2) and three (3) off-site monitoring wells (MW-1, MW-7, and MW-11). Monitoring well and piezometer locations are shown on Figure 2.

Piezometer PZ-12, formerly present along Main Street, could not be located during decommissioning activities. Haley & Aldrich field staff used swing ties, shovels, and a metal detector to find PZ-12, but were unable to locate any remnants of the piezometer. This piezometer may have been destroyed during recent street paving activities.

Consistent with NYSDEC guidance and policy, the well and piezometer decommissioning included grouting the well casings in-place with a mixture of Type 1 Portland cement, powdered bentonite, and water. The grout mixture was placed into the wells using a tremie pipe to deliver the grout from the bottom of the well to the top of the riser. After the wells had been grouted, the well risers were cut approximately three to five feet below grade, and the casing and associated well materials (concrete aprons and protective steel casing/road boxes) were removed from the ground.

After the well and piezometer materials had been removed, the disturbed area was restored to match the surrounding ground surface. Locations with pervious surrounding conditions were backfilled with bagged topsoil and grass seed, and locations on impervious surfaces were restored with asphalt patch or concrete. Monitoring well and piezometer construction information is summarized in Table 1 and decommissioning reports are provided as an attachment.

Please do not hesitate to call Doug Allen (603.391.3320) if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Santa E. Mckenna, P. G.
Assistant Project Manager

Douglas C. Allen, P.G
Associate

Enclosures: Table 1: Decommissioned Monitoring Well and Piezometer Summary
Figure 1: Project Locus
Figure 2: Site Plan
Attachment 1: Well Decommissioning Reports

c: NYSEG; Attn: Tracy Blazicek

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TABLE

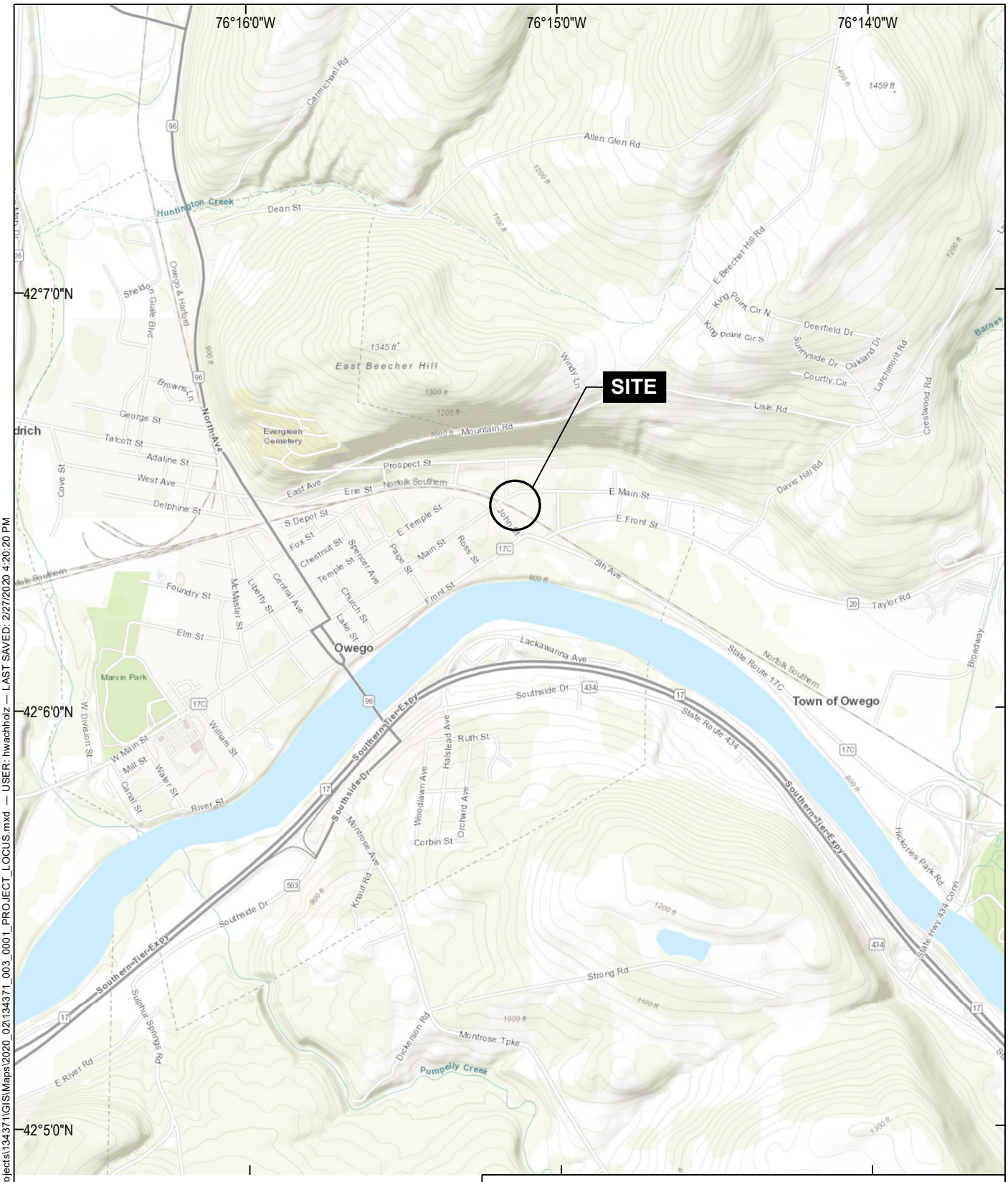
TABLE I
DECOMMISSIONED MONITORING WELL AND PIEZOMETER SUMMARY
OWEGO FORMER MGP SITE
OWEGO, NEW YORK

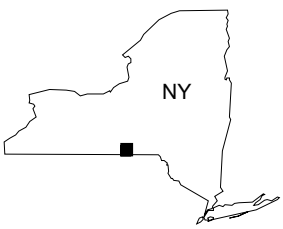
Well ID	Location	Diameter (inches)	Depth to Water (feet bgs)	Well Depth (feet bgs)	Groute/Bentonite Volume (gallons, approx.)
MW-1	East Main Street	2	16.1	23.4	12
MW-2	On-site	2	Dry	8.8	5
MW-7	John Street	2	21.6	27.3	15
MW-11	On-site	2	20.6	31.7	8
PZ-1	On-site	1	22.0	26.3	2
PZ-3	On-site	1	22.4	27.4	2
PZ-6	John Street	1	22.8	27.8	2.5
PZ-7	John Street	1	22.9	27.7	2
PZ-10	Front Street	1	19.6	29.6	3
PZ-11	Main Street (backyard)	1	26.0	29.3	2
PZ-12	Main Street			Could not locate	
PZ-15	On-site	1	23.4	42.7	2

Notes and Abbreviations:

1. Depths and volumes are approximate.
2. feet bgs - feet below ground surface.
3. Depth to water measured 10/11/2021.

FIGURES





MAP SOURCE: ESRI
SITE COORDINATES: 42°06'29"N, 76°15'09"W

HALEY ALDRICH

OWEGO FORMER MGP SITE
NEW YORK STATE ELECTRIC & GAS
OWEGO, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
DECEMBER 2021

FIGURE 1

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\134371\GIS\Maps\2020_02\134371_003_0001_PROJECT_LOCUS.mxd — USER: hwachholz — LAST SAVED: 2/27/2020 4:20:20 PM

LEGEND

MONITORING WELL

PIEZOMETER

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

N

0 80 160

SCALE IN FEET

HALEY ALDRICH

OWEGO FORMER MGP SITE
NEW YORK STATE ELECTRIC & GAS
OWEGO, NEW YORK

SITE PLAN

SCALE: AS SHOWN
DECEMBER 2021

FIGURE 2

ATTACHMENT 1

Well Decommissioning Reports

WELL DECOMMISSIONING REPORT

Well No. MW-1

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	MW-1
Well Diameter	2 in.
Decommissioning Technique	grouting in place
Depth to Groundwater	16.05
Total Depth of Well	23.35

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	376 lbs.*	16 lbs.*	32*	12

Explanation of Well Decommissioning Techniques:

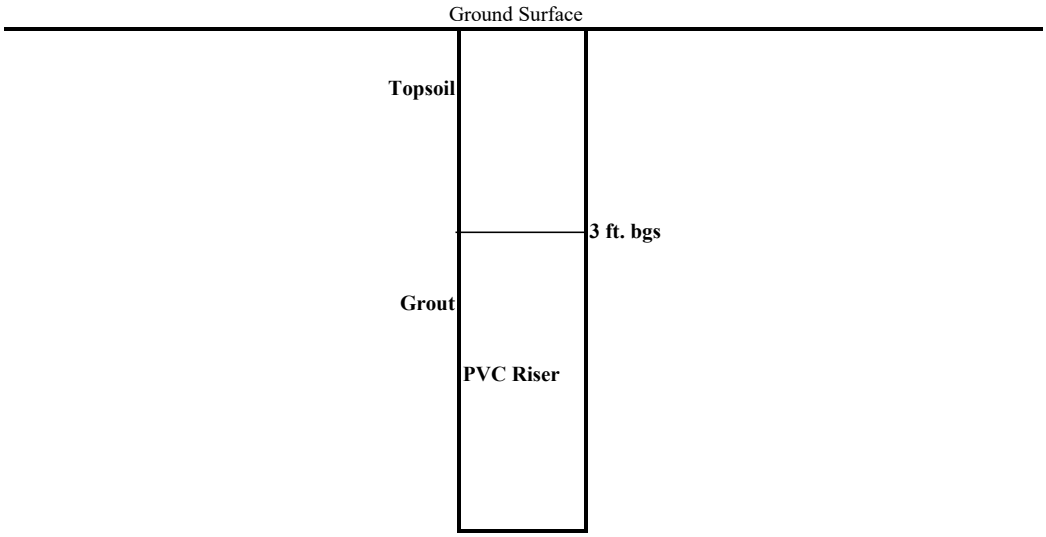
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: Remove steel casing & flush out. Remove riser 3 ft. bgs.

12 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. MW-2

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	MW-2
Well Diameter	2 in.
Decommissioning Technique	grouting in place
Depth to Groundwater	dry
Total Depth of Well	8.80

	Cement (Lbs. - Bags*)	**Additive (Lbs. - Gals.)**	**Water (Gals.)**	**Final Quantity (Gals.)**
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	376 lbs.*	16 lbs.*	32*	5

Explanation of Well Decommissioning Techniques:

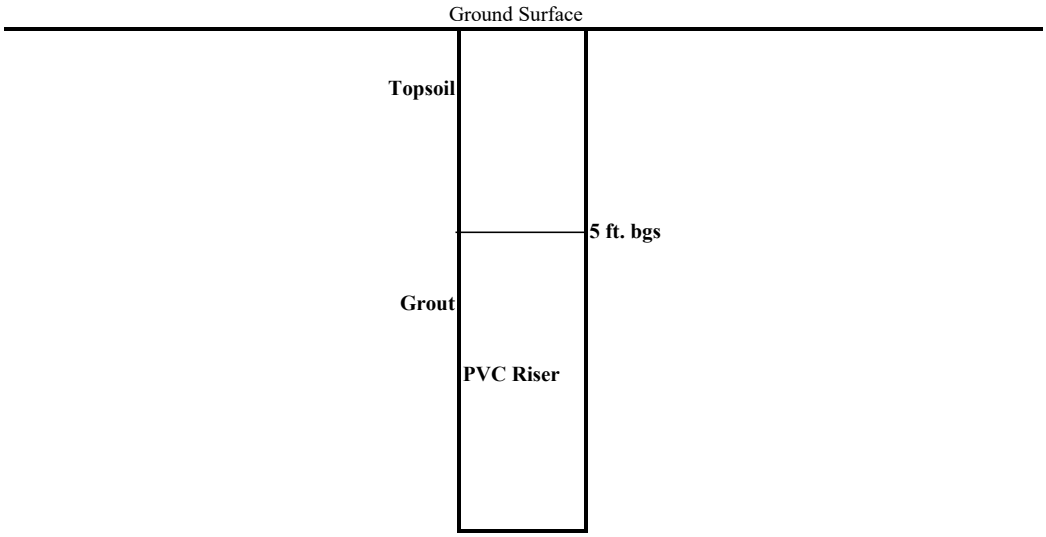
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: Well compromised, PVC riser loose, soil caved.

5 gallons grout

Removed 5' riser

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. MW-7

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	MW-7
Well Diameter	2 in.
Decommissioning Technique	grout in place
Depth to Groundwater	21.58
Total Depth of Well	27.26

	Cement (Lbs. - Bags*)	**Additive (Lbs. - Gals.)**	**Water (Gals.)**	**Final Quantity (Gals.)**
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	15

Explanation of Well Decommissioning Techniques:

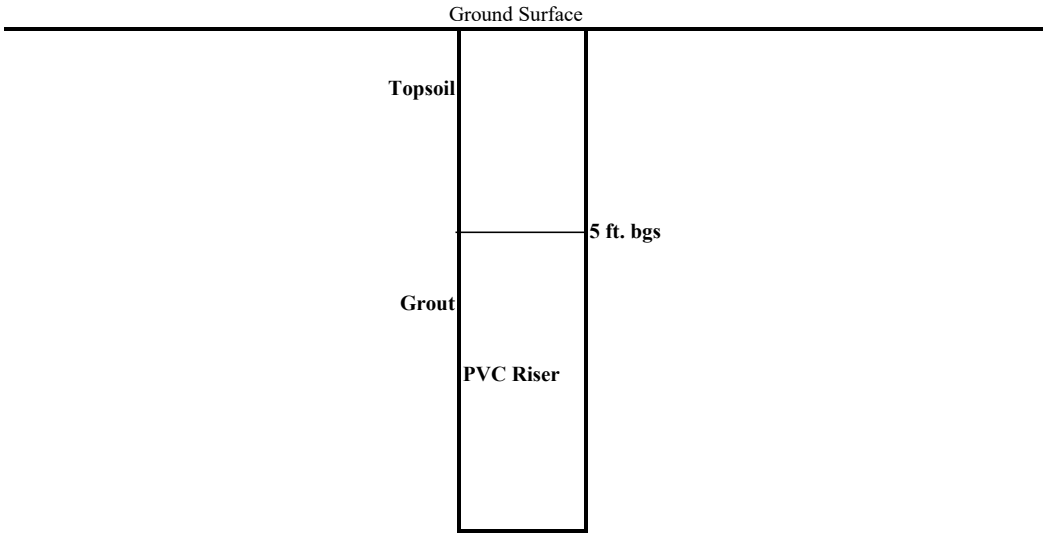
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 9 gallons (1st batch) + 6 gallons (2nd bach) = 15 gallons

Mix batch: 2 bags; 16 gallons of water; 11 scoop of bentonite

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. MW-11

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	MW-11
Well Diameter	2 in.
Decommissioning Technique	grout in place
Depth to Groundwater	20.57
Total Depth of Well	31.70

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	376 lbs.*	16 lbs.*	32*	8

Explanation of Well Decommissioning Techniques:

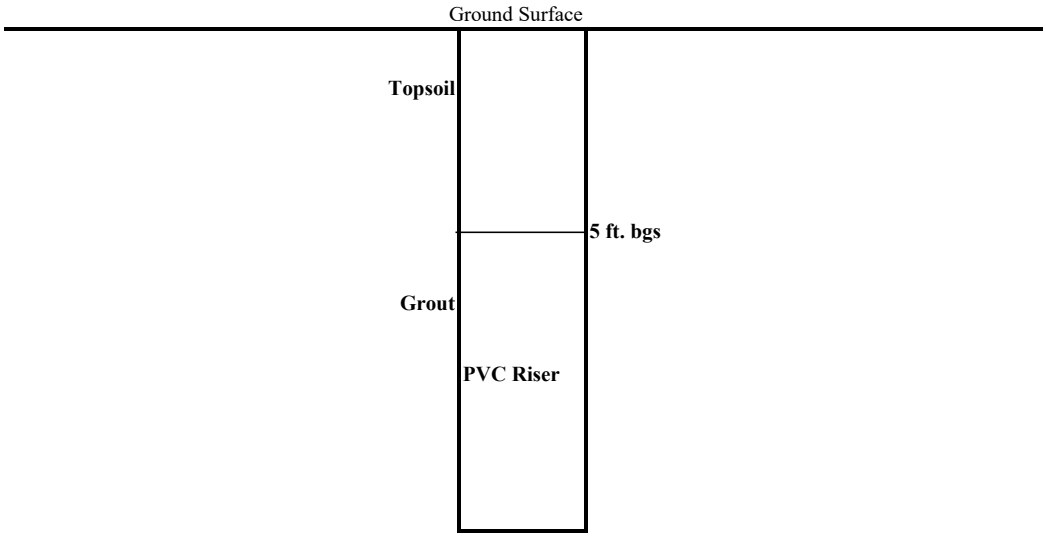
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: Quikrete: 111 bgs.

Bentonite: 111 scoop

32 gallons of water

8 gallons used

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-1

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-01
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	21.98
Total Depth of Well	26.33

	Cement (Lbs. - Bags*)	**Additive (Lbs. - Gals.)**	**Water (Gals.)**	**Final Quantity (Gals.)**
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	376 lbs.*	16 lbs. *	32*	2

Explanation of Well Decommissioning Techniques:

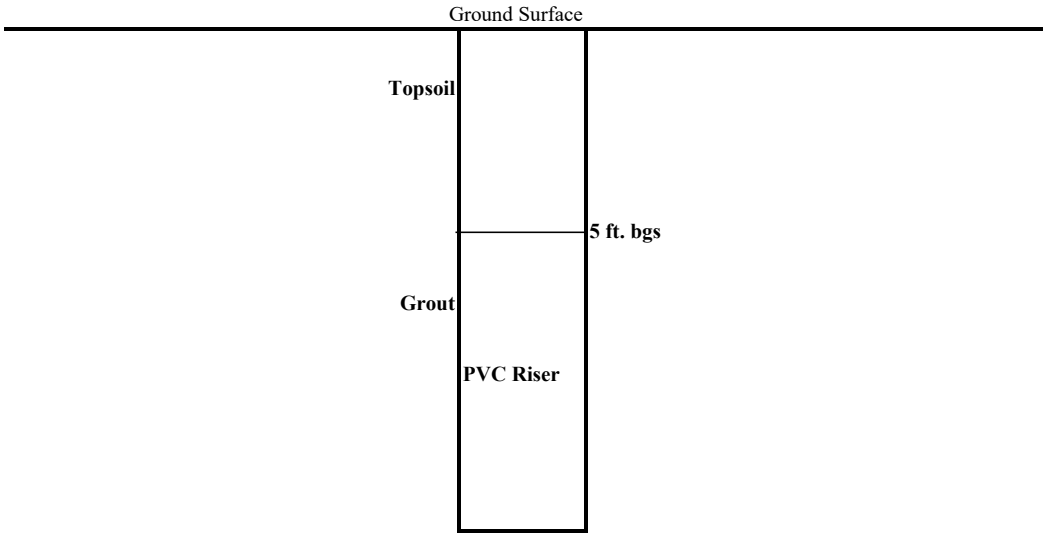
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2 gallons

* - Weight and volume refers to batch mixed for several well/piezometer grouting.

WELL DECOMMISSIONING REPORT

Well No. PZ-3

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-03
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	22.41
Total Depth of Well	27.35

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	376 lbs.*	16 lbs.*	32	2

Explanation of Well Decommissioning Techniques:

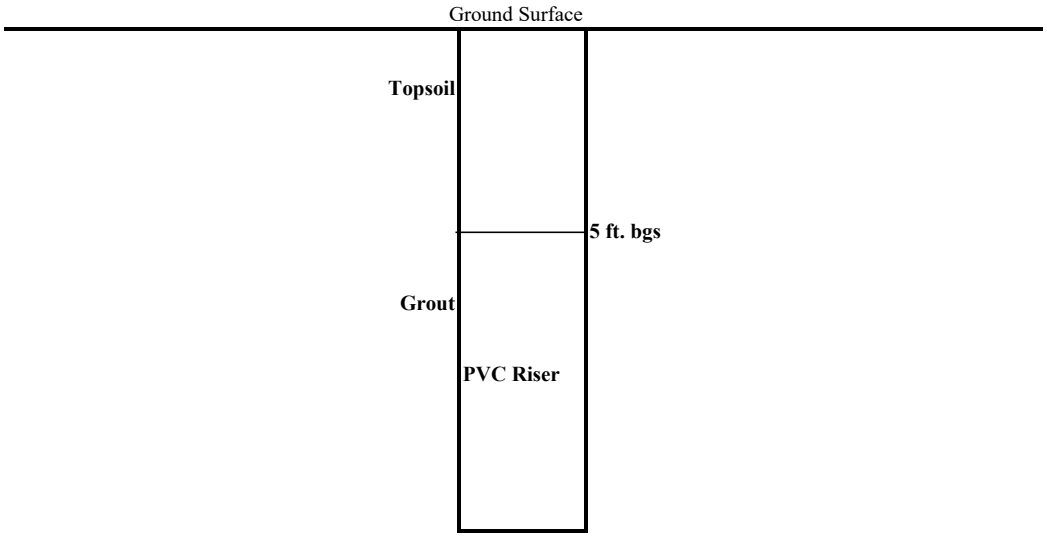
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-6

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-06
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	22.84
Total Depth of Well	27.77

	Cement (Lbs. - Bags*)	**Additive (Lbs. - Gals.)**	**Water (Gals.)**	**Final Quantity (Gals.)**
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	2.5

Explanation of Well Decommissioning Techniques:

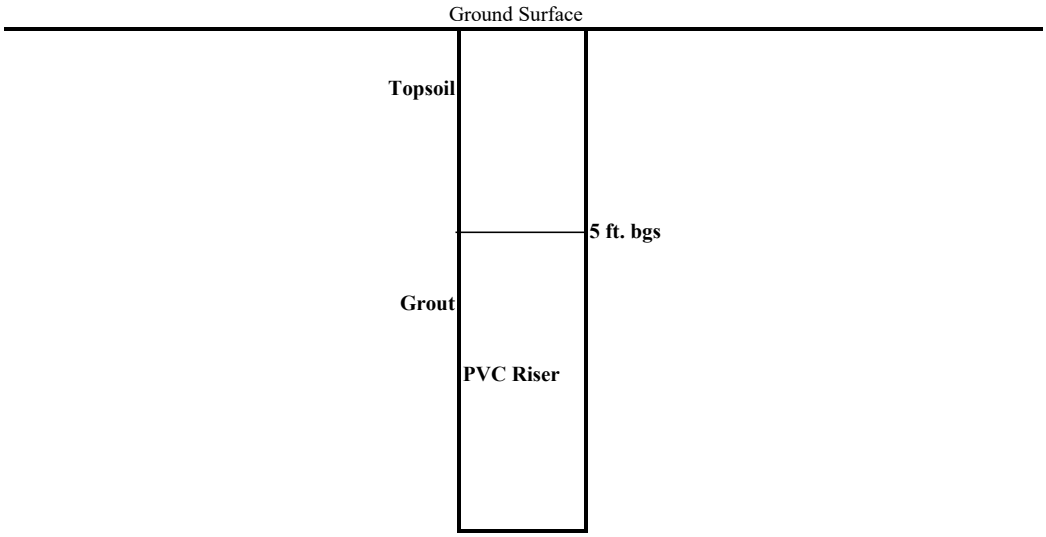
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2.5 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-7

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-07
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	22.89
Total Depth of Well	27.70

	Cement (Lbs. - Bags*)	**Additive (Lbs. - Gals.)**	**Water (Gals.)**	**Final Quantity (Gals.)**
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	2

Explanation of Well Decommissioning Techniques:

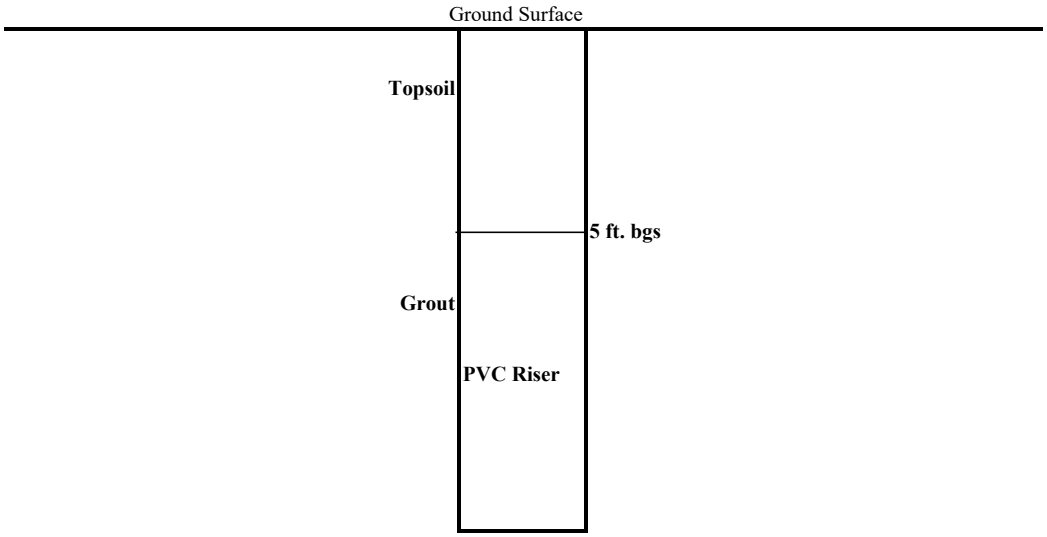
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-10

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-10
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	19.62
Total Depth of Well	29.56

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	3

Explanation of Well Decommissioning Techniques:

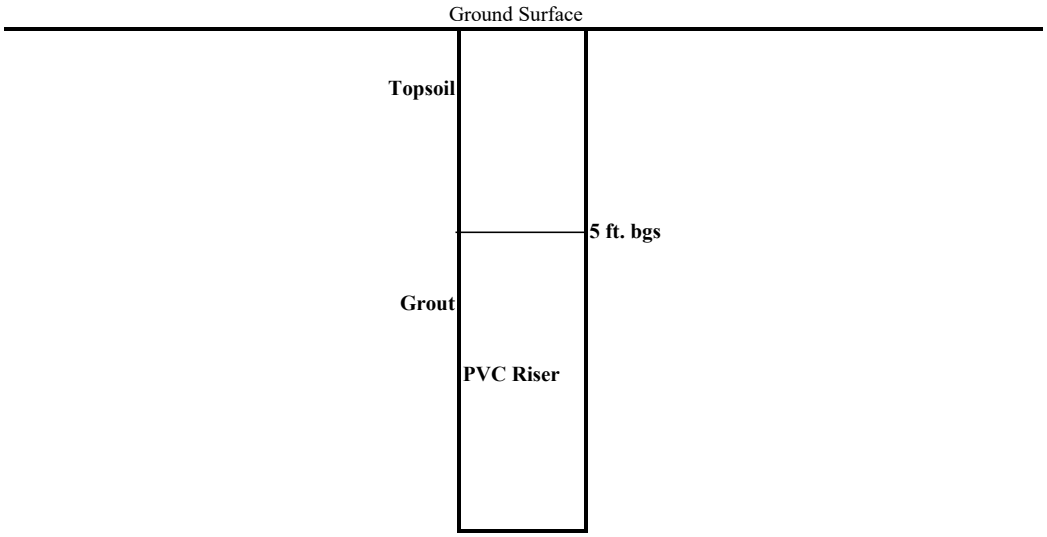
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 3 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-11

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-11
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	26.00
Total Depth of Well	29.27

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	2

Explanation of Well Decommissioning Techniques:

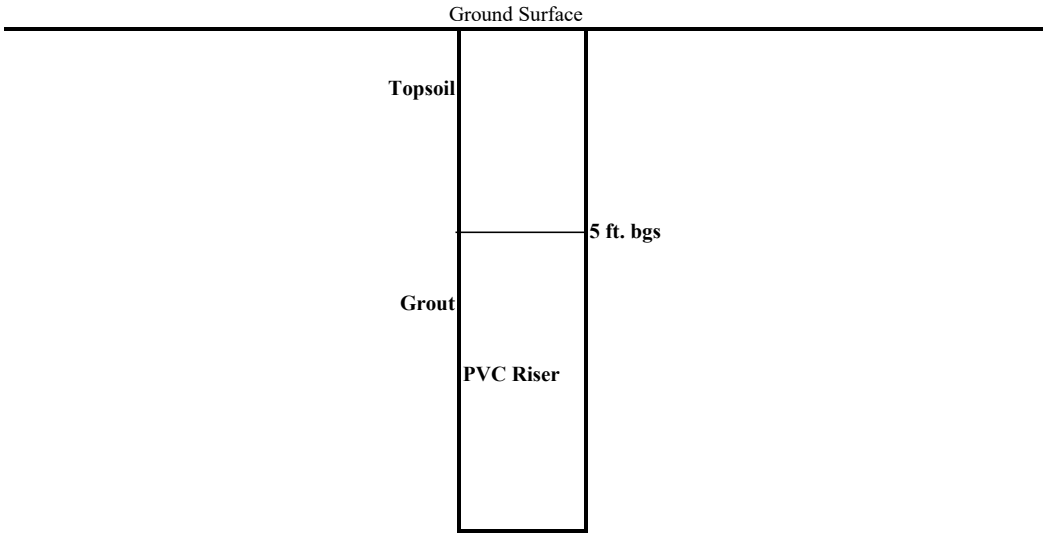
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.

WELL DECOMMISSIONING REPORT

Well No. PZ-15

PROJECT	Well Decommissioning	**H&A FILE NO.**	0134371-004
LOCATION	Owego, New York	**PROJECT MGR.**	D. Allen
CLIENT	New York State Electric & Gas	**FIELD REP.**	R. Lydell
CONTRACTOR	Parratt-Wolff	**REMOVAL DATE**	10/11/2021

Well Designation	PZ-15
Well Diameter	1 in.
Decommissioning Technique	grout in place
Depth to Groundwater	23.40
Total Depth of Well	42.70

	Cement (Lbs. - Bags*)	Additive (Lbs. - Gals.)	Water (Gals.)	Final Quantity (Gals.)
Type	1/11	Benseal		
Manufacturer	Quikrete	Halliburton		
Quantity	188 lbs.*	8 lbs.*	16*	2

Explanation of Well Decommissioning Techniques:

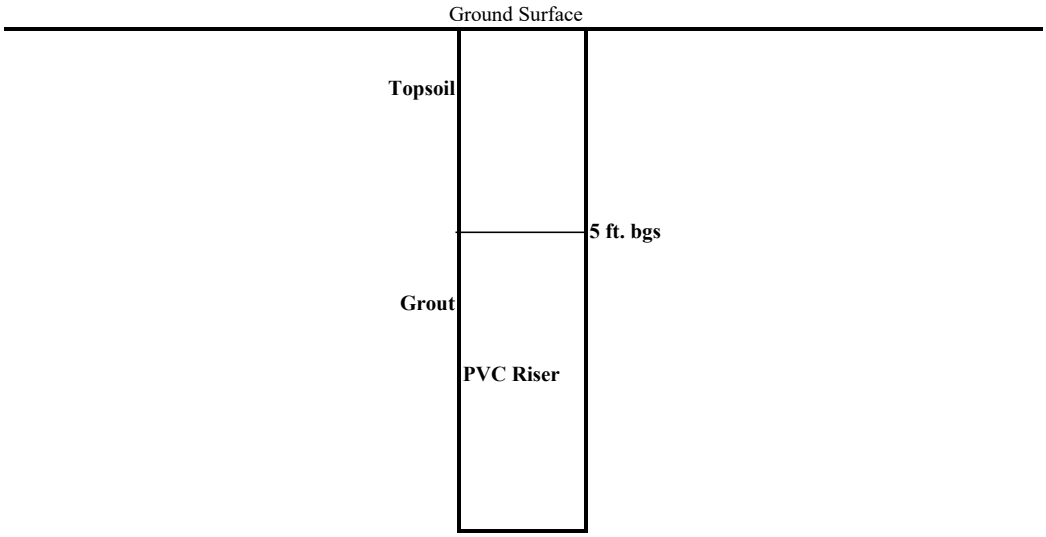
A. Shallow Wells:

These wells may either be removed by pulling the casing out of the ground, or plugged in-place using bentonite grout. If the well is plugged in-place, the casing must be plugged above the screen using a bentonite/cement grout (see grout placement guidelines), and the casing should be cut-off a minimum of 2 feet below the ground surface. If the well is pulled, care should be taken to compact the soils to avoid significant ground subsidence.

B. Deep Wells: Deep wells must be plugged using bentonite/cement grout, which will fill the casing and annular space (see grout placement guidelines). The casing must be terminated 2 feet below the ground surface.

***1 Bag = 94 Lbs.**

Sketch:



COMMENTS: 2 gallons

* - Weight and volume refers to grout batch mixed for several wells/piezometers.