



STATE OF
COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Schwartzwalder - Technical Revision 29 - Revised

1 message

Elizabeth Busby <ebusby@alexcoenv.com>

Tue, Nov 26, 2019 at 4:02 PM

To: Amy Eschberger <amy.eschberger@state.co.us>

Cc: "Cunningham - DNR, Michael" <michaela.cunningham@state.co.us>, Billy Ray <bray@alexcoenv.com>, "CLL - Eric Williams (Eric@ColoradoLegacy.Land)" <Eric@coloradolegacy.land>, "CLL - Paul Newman (Paul@ColoradoLegacy.Land)" <Paul@coloradolegacy.land>, CLL- Jim Harrington <Jim@coloradolegacy.land>

Dear Ms. Eschberger,

Thank you for reviewing and providing comments on Technical Revision #29 to the Schwartzwalder Mine Permit No. M-1977-300. In response to Adequacy Review No. 1, we have updated Technical Revision #29 to include the request map. Figure 3 in Technical Revision #29 is an updated groundwater monitoring locations map for the site.

A hard copy of this deliverable has been sent via FedEx to your office (Tracking No. 7770-9353-4937). If you have any questions regarding this deliverable you may contact me by phone or email, Liz Busby

Elizabeth Busby, PE

Project Manager / Environmental Engineer

<mailto:ebusby@alexcoenv.com> Please note the new mailing address and email address

Alexco Water & Environment Inc.

131 E. Lincoln Ave, Suite 200

Fort Collins, CO 80524

C. 303-941-6689 | T. 970-632-2240

www.alexcoenv.com<<http://www.alexcoenv.com>> | ebusby@alexcoenv.com<mailto:ebusby@alexcoenv.com>

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P Please consider the environment before printing this e-mail.



2019-11-26_Schwartzwalder_MLR_Permit_TR-29.pdf
4232K

November 26, 2019

Ms. Amy Eschberger
Division of Reclamation, Mining, and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203

Subject: Technical Revision #29: Monitoring Well Removal
Mine Land Reclamation Permit M-1977-300, Former Schwartzwalder Mine, Golden, Colorado

Dear Ms. Eschberger:

Colorado Legacy Land, LLC (CLL) is currently executing a soil excavation project in support of the ongoing environmental remediation and reclamation work at the Former Schwartzwalder Mine site in Golden, Colorado.

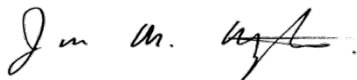
Five monitoring wells in the current quarterly monitoring network (four shallow alluvial monitoring wells, and one deep bedrock monitoring well) are within the boundaries of the excavation areas (Figure 1). Four of these monitoring wells were installed in the alluvial material and are recommended for removal and disposal in the Minnesota Adit onsite. Table 1 summarizes the well location, construction information, lithology, and justification for removal. Detailed soil boring logs and monitoring well construction reports are included in Attachment A.

Shallow alluvial monitoring wells MW-1, MW-2, MW-3A, and MW-9 are recommended for removal to ensure that the surrounding contaminated alluvial soils are appropriately excavated and disposed of in the Minnesota Adit. Excavation around these wells is anticipated to extend to bedrock, therefore these alluvial wells will not yield representative data once the surrounding alluvium has been removed. The groundwater monitoring network (Figure 2 and Figure 3) provides sufficient delineation of upgradient, downgradient, and cross-gradient monitoring locations. Well removal shall be documented with a Well Abandonment Report, Form GWS-09 (Attachment B) and filed with the State of Colorado, Office of the State Engineer within 60 days of removal.

Monitoring well 18 (MW-18) is a deep bedrock monitoring well, originally installed to 235 feet deep near the Illinois Fault zone. This well provides pertinent groundwater monitoring data and will be protected during excavation work. If needed the PVC well casing can be shortened to the match new ground surface, and licensed land surveyors will mark the new top of casing location (easting, northing, elevation).

If you have any questions regarding this technical revision, please don't hesitate to contact me.

Sincerely,



Jim Harrington, Managing Director

COLORADO LEGACY LAND

Jim@ColoradoLegacy.Land

cc: Paul Newman – CLL, Managing Director, paul@coloradolegacy.land
Eric Williams – CLL, Managing Director, eric@coloradolegacy.land
Billy Ray – Alexco Water & Environment Inc, Project Manager, bray@alexcoenv.com

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TABLE 1. GROUNDWATER SAMPLE LOCATIONS IN ALLUVIAL EXCAVATION AREA										
Location ID / Sample ID	Installation Date	Easting ¹	Northing ¹	Ground Surface Elevation	Total Depth	Well Construction Details	Screened Interval	Lithology Summary	Field Notes	Recommendation
		(ft)	(ft)	(ft amsl)	(ft bgs)		(ft bgs)	(ft bgs)		
MW-1	11/12/1981	3,061,101.65	1,733,408.89	6,590.40	25.5	2.5-inch, Sch 40 PVC, 1/8-in slot.	17.0-22.0	(0-3) Fill material. (3-23) Brown sand to silty sand, with gravel. (23-25.5) Bedrock.	Well near old concrete containment structure.	Remove alluvial well to ensure all contaminated alluvial soils are excavated and disposed of in the Minnesota Adit. These alluvial wells will not yield representative data once the surrounding alluvium / fill material has been disturbed / removed. The current groundwater monitoring network (Figure 2) provides sufficient delineation with upgradient, downgradient, and cross-gradient monitoring locations.
MW-2	11/21/1981	3,061,335.76	1,733,253.84	6,581.30	15.4	2.5-inch, Sch 40 PVC, 1/8-in slot.	8.4-13.4	(0-3.5) Fill material with cobbles. (3.5-21) Brown sand to silty sand, with gravel and cobbles. (21-23.5) Bedrock.	Usually dry.	
MW-3A	6/19/1989	3,061,527.53	1,733,004.02	6,576.40	14.0	4-inch, Sch 40 PVC, 0.03-in slot.	8.5-13.5	(0-15) Alluvium gravels with fine brown dirt (fill in parking lot).	Usually dry.	
MW-9	11/12/2010	3,061,955.86	1,732,775.50	6,573.18	19.2	6-inch PVC, 0.5-in slot.	9.0-19.0	(0-10) Fill material. (10-16) Mixed sand and gravel, pebbles to cobbles. (16-19.2) Bedrock.	Tied in with near-by sumps.	Remove MW-9. This well is no longer sampled because it is tied in with the sump system. Remove alluvial well to ensure all contaminated alluvial soils are excavated and disposed of in the Minnesota Adit. These alluvial wells will not yield representative data once the surrounding alluvium / fill material has been disturbed / removed. The current groundwater monitoring network (Figure 2) provides sufficient delineation with upgradient, downgradient, and cross-gradient monitoring locations.
MW-18	10/11/2012	3,061,365.47	1,732,989.78	6,574.83	239.9	2.375-inch Sch 80 PVC, 0.02-in slot.	215.0-235.0	(0-15) Fill material / colluvium. (15-239.9) Bedrock	Sample Alias = L6.	Retain monitoring well. MW-18 is the only deep bedrock well in the Ralston Creek Valley near the Illinois Fault. If needed, remove the well casing will be shortened so that MW-18 is level with the surrounding ground surface.

Notes:

¹ Coordinate System: NAD 1983, CORS96 State Plane Colorado Central, FIPS 0502 Feet US

amsl = above mean sea level

bgs = below ground surface

ft = feet

ID = Identifier

in = inch

MW = monitoring well

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FIGURE 1

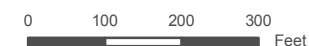
RECLAMATION PROJECT
EXTENTS AND MONITORING
WELL LOCATION MAP

MAY 2018



- Ground Water Monitoring Well
- Pumpback Sump
- Potential Excavation to Original Ground Surface
- Total Horizontal Extent of Excavation Area
- Road
- Watercourse

1:3,000 when printed on 8x11 inch paper

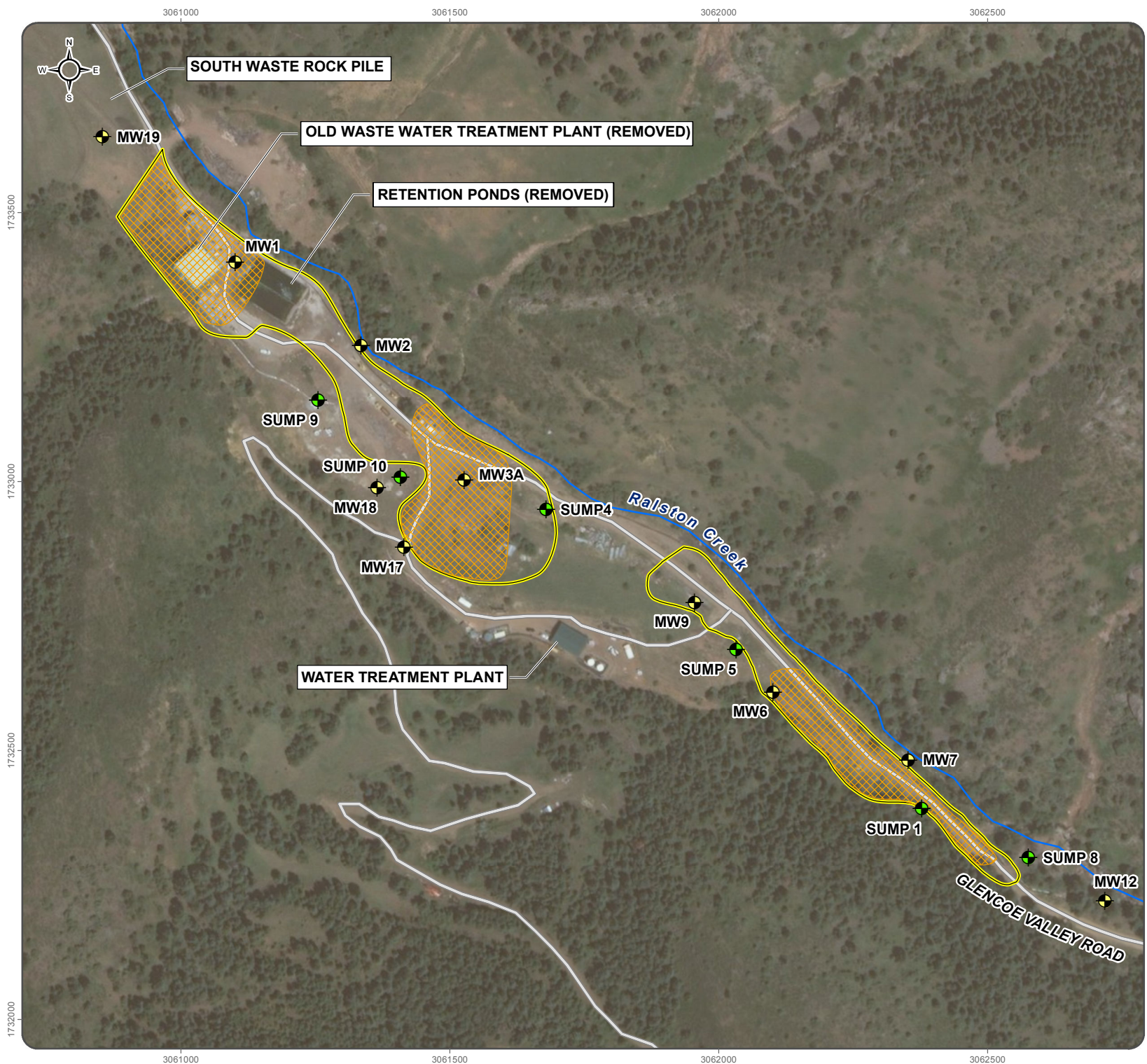


Satellite imagery obtained from ArcGIS on
services.arcgis.com on May 2018

Datum: NAD 1983 (CORS96) StatePlane Colorado Central FIPS
0502 (US Feet)

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Overview\Excavation_Area_20180528.mxd





COLORADO LEGACY LAND
SCHWARTZWALDER MINE

FIGURE 2
**GROUNDWATER MONITORING
LOCATIONS**

JULY 2019



- GW Monitoring Well
- Pumpback Sump
- Existing Mine Feature Footprint
- Proposed Mine Feature Footprint
- Waste Rock Dump
- Retention Pond
- Watercourse

Note: MW8, MW9, MW10, MW11, and MW16 are not currently sampled

1:6,800 when printed on 8x11 inch paper
0 100 200 300 400 500 Feet



Satellite imagery obtained from ArcGIS on services.arcgis.com on July 2019

Datum: NAD 1983 (CORS96) StatePlane Colorado Central FIPS 0502 (US Feet)

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FIGURE 3

PROPOSED GROUNDWATER
MONITORING LOCATIONS

NOVEMBER 2019



- GW Monitoring Well
- Pumpback Sump
- Existing Mine Feature Footprint
- Proposed Mine Feature Footprint
- Waste Rock Dump
- Retention Pond
- Watercourse

Note: MW-1, MW-2, MW-3 and MW-9 were removed during the alluvial soil excavation. MW-8, MW-10, MW-11, and MW-16 are not currently sampled.

1:6,800 when printed on 8x11 inch paper

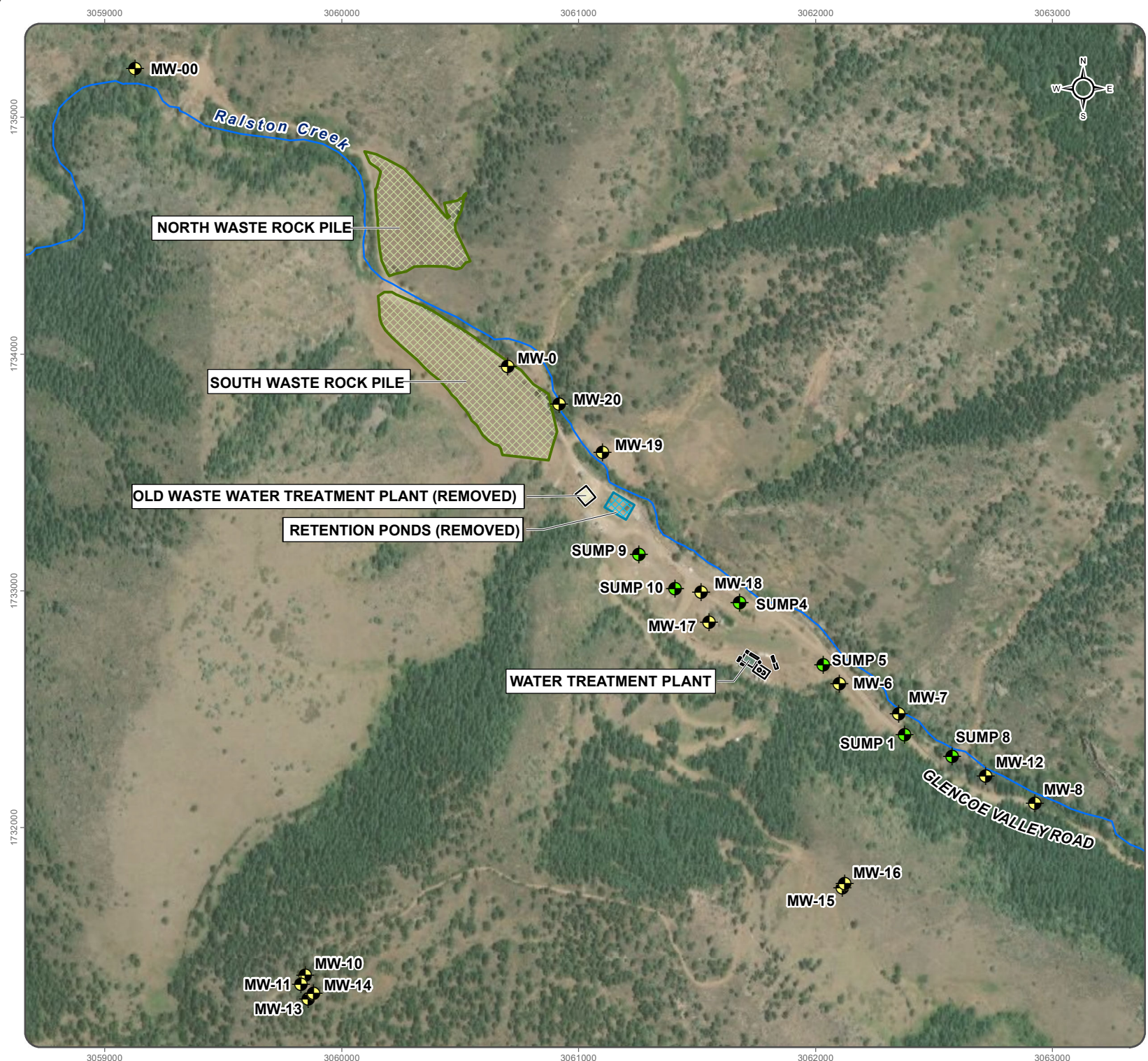


Satellite imagery obtained from ArcGIS on services.arcgisonline.com on November 2019

Datum: NAD 1983 (CORS96) StatePlane Colorado Central FIPS 0502 (US Feet)

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D:\Project\AIP\Projects\Schwartzwalder\Map\02-Water_Quality\02-Groundwater\GWD_Location_Letter_20191119.mxd
(Last edited by: mduchame, 11/19/2019 5:45 PM)



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Attachment A: Monitoring Well Construction Logs and Soil Boring Diagrams

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ELEVATION	DEPTH	GRAPHIC LOG	SOIL CLASSIFICATION	SAMPLES	STANDARD PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DESCRIPTION OF SOILS
			SP				Fill - coarse angular cobbles with some coarse gravel. Little sand and fines, except top 6". Loose
			SP		36		Bottom of fill at 3'
5			SP				Brown coarse gravel with cobbles and coarse to medium sand, little fines
							Boulder at 4'6" to 7'6"
					39		
10							Boulder at 11'6" to 13'
			SP/SM		67		Fine to coarse sand gravelly and silty. Dense
15							Boulder at 14' to 15'
							Increased gravel content
			SM		27/6"		Fine to coarse silty sand with some gravel. Dense
20							
					50/4"		Weathered bedrock from 23' to 23'6"
			Bedrock		50/1"		Bedrock - sound, competent amphibolite
25							Boring completed at 25'6" on 11-12-81
							2 1/2" PVC casing installed to 24'
							Ground water at 7' on the completion of boring
30							

LOG OF BORING

WELL CONSTRUCTION AND TEST REPORT
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER

For Office Use only

1. WELL PERMIT NUMBER 163755 M.W.-1

OWNER NAME(S) Cotter Corporation
Mailing Address 12596 West Bayaud Avenue, #350
City, St. Zip Lakewood, Colorado 80228
Phone (303) 980-12923. WELL LOCATION AS DRILLED: NW 1/4 SE 1/4, Sec. 25 Twp. 1 S, Range 71 W
DISTANCES FROM SEC. LINES:
2165 ft. from South Sec. line. and 1773 ft. from East Sec. line. OR
(north or south) (east or west)
SUBDIVISION: LOT BLOCK FILING(UNIT)
STREET ADDRESS AT WELL LOCATION:4. GROUND SURFACE ELEVATION 6590.4 ft. DRILLING METHOD Auger
DATE COMPLETED 11-12-81 TOTAL DEPTH 25.5 ft. DEPTH COMPLETED 25.5 ft.

5. GEOLOGIC LOG:

Depth	Description of Material (Type, Size, Color, Water Location)
0' - 3'	Fill - cs. angular cobbles with fine cs. gravels
3' - 13'	Brown cs. gravel with cobbles and cs. to med. sand
13' - 17'	Fine to cs. sand gravelly and silty
17' - 23'	Fine to cs. silty sand with some gravel
23' - 25.5'	Bedrock, competent amphibolite
25.5 T.D.	

6. HOLE DIAM. (in.) From (ft) To (ft)
4" 0 25.5

7. PLAIN CASING

OD (in)	Kind	Wall Size	From(ft)	To(ft)
2-1/2"	PVC	Sch 40	+2.5	17.0
2-1/2"	PVC	Sch 40	22.0	24.0

PERF. CASING: Screen Slot Size: 1/8"
2-1/2" PVC Sch 40 17.0 22

8. FILTER PACK:

Material Silica Sand
Size 8-12 Mesh
Interval 15' - 24'

9. PACKER PLACEMENT:

Type
Depth

10. GROUTING RECORD:

Material	Amount	Density	Interval	Placement
Neat Cement			0' - 1.5'	Manually

11. DISINFECTION: Type Amt. Used

12. WELL TEST DATA: ☐ Check box if Test Data is submitted on Supplemental Form.

TESTING METHOD

Static Level ft. Date/Time measured Production Rate gpm.
Pumping level ft. Date/Time measured Test length (hrs.)
Remarks

13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]

CONTRACTOR Cotter Corporation Phone (303) 980-1292 Lic. No. M
Mailing Address 12596 West Bayaud Avenue, #350 - Lakewood CO 80228Name/Title (Please type or print)
Thomas C. Lepry
Mine Geologist

Signature

Date

11-16-92

MONITORING WELL INSTALLATION SHEET

1030-001

CLIENT: COTTER CORPORATION

METER NO. P- MW-1

DRILLING CONTRACTOR: Custom Auger Drilling

LOCATION: Schwartzwalder Mine

FIELD ENGINEER: Vladimir Straskraba and
Paul Gerhath

DATE OF INSTALLATION: 11-12-81

DRILLING SYSTEM: Auger

DEPTH: 25.5'

DRILLING TOOLS: Auger - 4"

METER TYPE: Open Well

PIPE MATERIAL: PVC O.D. Sch. 40 D. 2 1/2"

ELEVATION OF THE PIPE TOP: 6592.9

LENGTH OF SECTIONS: 20'

JOINING METHOD: PVC-cement

LOCATION OF THE TIP: -

PERFORATION TYPE: drilled

ELEVATION OF THE GROUND SURFACE: 6590.4

SIZE OF SLOTS: 1/8" NO. OF SLOTS: 24/ft.

WATER LEVEL AT COMPLETION:

PERFORATED AREA:

DEPTH (FT.):

ELEVATION (FT.):

NON PERFORATED PIPES: FROM: + 2.5 TO: 17.0'
22.0 24.0'

CONTENTS OF THE HOLE: Clean water for

PERFORATED PIPES: FROM: 17.0 TO: 22.0'

Notes

GRAVEL PACK: FROM: 15 TO: 24.0'

SECTION STEEL CASING:

O. D.:

FROM:

TO:

TYPE AND DEPTH OF SEALING: Bentonite pellets
at top

GEO-HYDRO Consulting, Inc.

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

() A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
FOR: () A PERMIT TO INSTALL A PUMP

() REPLACEMENT FOR NO. _____
() OTHER _____
WATER COURT CASE NO. _____

RECEIVED

MAR 04 92

163755

2025

686/42-34884

(1) APPLICANT - mailing address

NAME COTTER CORPORATION
STREET 12596 West Bayaud Avenue, STE 350
CITY Lakewood CO 80228
(State) (Zip)
TELEPHONE NO. (303) 980-1292

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN.

Receipt No. 336089 A

Basin _____ Dist _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

(2) LOCATION OF PROPOSED WELL

County JEFFERSON
NW $\frac{1}{4}$ of the SE $\frac{1}{4}$, Section 25
 Twp. 2 S, Rng. 71 W, 6th P.M.
(N. S.) (E. W.)

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) N/A

Average annual amount of ground water to be appropriated (acre-feet): N/A

Number of acres to be irrigated: N/A

Proposed total depth (feet): 25.5'

Aquifer ground water is to be obtained from:

Surface Alluvium - Ralston Creek

Owner's well designation MW-1

GROUND WATER TO BE USED FOR:

() HOUSEHOLD USE ONLY - no irrigation (0)
 () DOMESTIC (1) () INDUSTRIAL (5)
 () LIVESTOCK (2) () IRRIGATION (6)
 () COMMERCIAL (4) () MUNICIPAL (8)

(X) OTHER (9) Monitoring Well

DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name COTTER CORPORATION
Street 12596 West Bayaud Avenue, STE 350
City Lakewood CO 80228
(State) (Zip)
Telephone No. (303) 980-1292 Lic. No. N/A

APPLICATION APPROVED

PERMIT NUMBER _____

DATE ISSUED _____

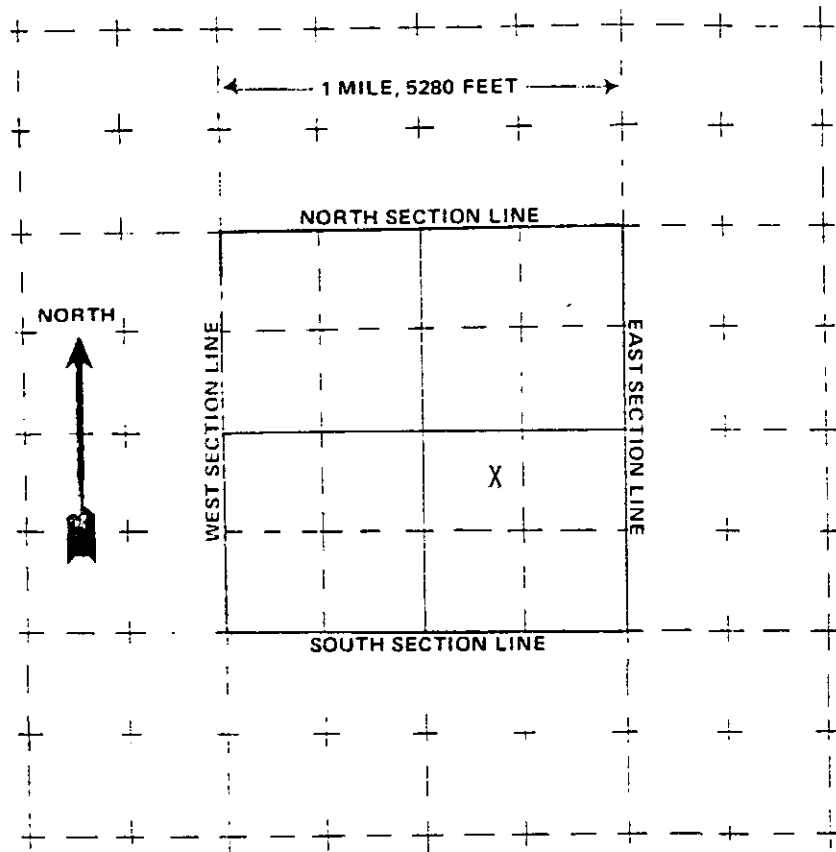
EXPIRATION DATE _____

(STATE ENGINEER)

BY _____

I.D. 1 COUNTY 30 87

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)

An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year.
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

2165 ft. from South sec. line
(north or south)
1773 ft. from East sec. line
(east or west)
LOT N/A BLOCK N/A FILING # N/A
SUBDIVISION N/A

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: N/A

No. of acres N/A . Will this be the only well on this tract? N/A

(8) PROPOSED CASING PROGRAM

Plain Casing

2 1/2 in. from 2.5 ft. to 17.0 ft.

2 1/2 in. from 22.0 ft. to 24.0 ft.

Perforated casing

2 1/2 in. from 17.0 ft. to 22.0 ft.

 in. from ft. to ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

N/A

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): N/A No. of acres: N/A

Legal description:

(11) DETAILED DESCRIPTION of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used. Water Quality Monitoring Well

(12) OTHER WATER RIGHTS used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
Commercial	Drinking/Sanitary	
Permit #64684 - Decree W6915		

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

Jimmy C. Smith Manager of Environmental Affairs
SIGNATURE OF APPLICANT(S)

WELL CONSTRUCTION AND TEST REPORT
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER

For Office Use only

RECEIVED

NOV 20 '92

WATER RESOURCES
STATE ENGINEER
COLO.

1. WELL PERMIT NUMBER 163755 M.W.-1

2. OWNER NAME(S) Cotter Corporation
Mailing Address 12596 West Bayaud Avenue, #350
City, St. Zip Lakewood, Colorado 80228
Phone (303) 980-12923. WELL LOCATION AS DRILLED: NW 1/4 SE 1/4, Sec. 25 Twp. 1 S, Range 71 W
DISTANCES FROM SEC. LINES:
2165 ft. from South Sec. line. and 1773 ft. from East Sec. line. OR
(north or south) (east or west)
SUBDIVISION: LOT BLOCK FILING(UNIT)
STREET ADDRESS AT WELL LOCATION:4. GROUND SURFACE ELEVATION 6590.4 ft. DRILLING METHOD Auger
DATE COMPLETED 11-12-81 TOTAL DEPTH 25.5 ft. DEPTH COMPLETED 25.5 ft.5. GEOLOGIC LOG:
Depth Description of Material (Type, Size, Color, Water Location)
0' - 3' Fill - cs. angular cobbles with
sine cs, gravels3' - 13' Brown cs. gravel with cobbles
and cs. to med. sand13' - 17' Fine to cs. sand gravelly and
silty17' - 23' Fine to cs. silty sand with
some gravel

23' - 25.5' Bedrock, competent amphibolite

25.5 T.D.

*Hit water @ 7.0'

REMARKS:

6. HOLE DIAM. (in.) From (ft) To (ft)
4" 0 25.5

7. PLAIN CASING

OD (in)	Kind	Wall Size	From(ft)	To(ft)
2-1/2"	PVC	Sch 40	+2.5	17.0
2-1/2"	PVC	Sch 40	22.0	24.0

PERF. CASING: Screen Slot Size: 1/8"
2-1/2" PVC Sch 40 17.0 22.0

8. FILTER PACK:

Material Silica Sand
Size 8-12 Mesh
Interval 15' - 24'

9. PACKER PLACEMENT:

Type
Depth

10. GROUTING RECORD:

Material	Amount	Density	Interval	Placement
Neat Cement			0' - 1.5'	Manually

11. DISINFECTION: Type Amt. Used

12. WELL TEST DATA: ☐ Check box if Test Data is submitted on Supplemental Form.

TESTING METHOD

Static Level ft. Date/Time measured Production Rate gpm.

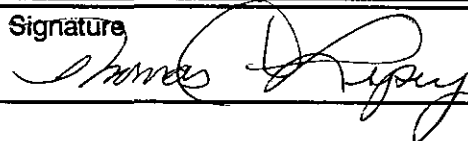
Pumping level ft. Date/Time measured Test length (hrs.)

Remarks

13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]

CONTRACTOR Cotter Corporation Phone (303) 980-1292 Lic. No. N/A
Mailing Address 12596 West Bayaud Avenue, #350 - Lakewood CO 80228Name/Title (Please type or print)
Thomas C. Lepry
Mine Geologist

Signature



Date

11-16-92

INSTRUCTIONS FOR WELL CONSTRUCTION AND TEST REPORT

The report must be typed or printed in **BLACK INK**. All changes on the form must be initialed and dated. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

This form may be reproduced by photocopy methods, or by computer generation with prior approval by the State Engineer.

The original and one copy of this form must be submitted to the State Engineer's Office within 60 days after completing the well or 7 days after the permit expiration date, whichever is earlier. Another copy of the form must be provided to the well owner.

1. Complete the **Well Permit Number** in full.
2. Fill in **Name and Mailing Address of Well Owner** where correspondence should be sent.
3. Complete the blocks for the **actual** location of the well where drilled. If the owner has more than one well serving this property, provide the identification (**Owner's Designation**) for this well. **DO NOT USE THE OWNER SUPPLIED LOCATION** unless a survey has been provided. For wells located in subdivisions the lot, block and subdivision information must also be provided.
4. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Describe the drilling method used to construct the well and the date completed. Indicate the total depth drilled and the actual completed depth of the well.
5. Fully describe the materials encountered in drilling. Do not use formation names unless they are in conjunction with a description of materials.
Examples of descriptive terms include:
 - Grain size**--Boulders, gravel, sand, silt, clay.
 - Hardness**--Loose, soft, tight, hard, very hard.
 - Color**--All materials. Most critical in sedimentary rock.
 - Depth when water is encountered (if it can be determined).
6. Provide the diameters of the drilled bore hole.
7. The outside diameter, kind, wall thickness and interval of casing lengths must be indicated.
8. Indicate the type and size of filter (gravel) pack and the interval where placed.
9. Indicate the type and setting depth for any packers installed.
10. The density of the grout slurry must be reported and may be indicated as pounds per gallon, gallons of water per sack, total gallons of water and number of sacks used, etc. Specify the grout placement method, i.e. tremie pipe or positive displacement. The percentage of additives mixed with the grout should be reported under remarks.
11. Record the type and the amount of disinfection used, how placed and the length of time left in the hole.
12. Report well test data as required by Rule 10.7. Spaces are provided to report all measurements made during the test. The report should show that the test complied with the provisions of the rules. If a test was not performed explain when it will be done. If available, report clock time when measurements were taken.
13. Fill in **Company Name and Address of Contractor** who constructed the well. The report must be signed by the licensed contractor responsible for the construction of the well.

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

LIC

WELL PERMIT NUMBER **163755**

DIV. 1 CNTY. 30 WD 7 DES. BASIN MD

APPLICANT

Lot: Block: Filing: Subdiv:

APPROVED WELL LOCATION

COUNTY JEFFERSON

NW 1/4 SE 1/4 Section 25
Twp 2 S, Range 71 W 6thP.M.

DISTANCES FROM SECTION LINES

2165 Ft. from South Section Line
1773 Ft. from East Section Line

COTTER CORP
12596 W BAYAUD AVE #350
LAKEWOOD, CO 80228

303/980-1292

PERMIT TO CONSTRUCT MONITORING WELL MW-1

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction and Pump Installation Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 17.
- 3) Approved pursuant to CRS 37-92-602(3)(b)(1) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling.
- 4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept locked at all times except during sampling or measuring.
- 5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
- 6) Upon conclusion of the monitoring program the well owner shall plug and abandon this well in accordance with the Water Well Construction and Pump Installation Rules.
- 7) The owner shall mark the well in a conspicuous place with well permit number and name of aquifer as appropriate. He shall take necessary means and precautions to preserve these markings.
- 8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction and Pump Installation Rules.
- 9) A well completion report including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction the report must include an as built drawing showing details; such as depth, casing, perforated zones, and a description of the grouting type and interval.
- 10) This well shall be constructed not more than 200 feet from the location specified on this permit.

APPROVED:
FML

Hal D. Simpson

State Engineer

Frederick M. Fox

By

Receipt No. 0336089A

DATE ISSUED APR 20 1992

EXPIRATION DATE APR 20 1994

PROJECT: SCHWARTZWALDER MINEBORING NO. YW-2 (BH-3)LOCATION: GOLDEN, COLORADOCOORDINATES N. _____ E. _____ ELEV. 6,581.3PAGE 1 OF 1

ELEVATION DEPTH	GRAPHIC LOG	SOIL CLASSIFICATION	SAMPLES	STANDARD PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DESCRIPTION OF SOILS
		SP				Fill - coarse angular amphibolite cobbles, some coarse gravel, little to no fines, loose
		gw		44		Boulder at 2'6" to 3'6". Bottom of fill at 3'6"
5		gw				Coarse gravel with cobbles and coarse sand
						Boulder at 5' to 6'6"
						Boulders and cobbles with little fines
10		gw				Coarse gravel with cobbles and coarse to medium sand
		gm		66		Coarse gravel with increased silt and sand. Dense
15						Increased gravel
				50/3 1/2"		Increased sand
20		Bedrock				Weathered bedrock from 21' to 21'6"
						Sound, competent amphibolite
25						Boring completed at 22'6" on 11-12-81
						2 1/2" PVC casing installed to 13'5"
						Ground water at 7' on the completion of boring

LOG OF BORING

(5)

CLIENT: Cotter Corporation

ITER NO. P-

DRILLING CONTRACTOR: Custom Auger Drilling

UN: Schwartzwalder Mine

FIELD ENGINEER: Vladimir Straskraba

F INSTALLATION: 11 - 12 - 81

DRILLING SYSTEM: Auger

DEPTH:

DRILLING TOOLS: Auger - 4"

ETER TYPE: Open well

PIPE MATERIAL: PVC O.D. Sch. 40 I.D. 2 1/2"

OF THE PIPE TOP: 6584.3

LENGTH OF SECTIONS: 20'

CONCLUSION OF THE TIP:

JOINING METHOD: PVC-cement

TION OF THE GROUND SURFACE: 6581.3

PERFORATION TYPE: drilled

SIZE OF SLOTS: 1/8" & 1/4" NO. OF SLOTS: 24/ft.

LEVEL AT COMPLETION: 10.0'
DEPTH (FT):

PERFORATED AREA:

ELEVATION (FT.):

NON PERFORATED PIPES: FROM: $\frac{+3}{13.4}$ TO: $\frac{8.4'}{15.4'}$

NG OF THE HOLE: 10 minutes with clean
water

PERFORATED PIPES: FROM: 8.4 TO: 13.4'

GRAVEL PACK: FROM: 5 TO: 20'

CTION STEEL CASING:


TYPE AND DEPTH OF SEALING:

O. D.:

2' of Bentonite pellets @ 5'

FROM:

TO:

FORM NO. GWS-31 11/90	WELL CONSTRUCTION AND TEST REPORT STATE OF COLORADO, OFFICE OF THE STATE ENGINEER	For Office Use only																																																																																															
1. WELL PERMIT NUMBER <u>163756</u> M.W.-2																																																																																																	
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4. GROUND SURFACE ELEVATION <u>6581.3</u> ft. DRILLING METHOD <u>Auger</u> DATE COMPLETED <u>11/12/81</u> TOTAL DEPTH <u>22.5</u> ft. DEPTH COMPLETED <u>22.5</u> ft.																																																																																																	
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Name/Title (Please type or print) <u>Thomas C. Lepry</u> <u>Mine Geologist</u>	Signature 	Date <u>11-16-81</u>																																																																																															

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

() A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
FOR: () A PERMIT TO INSTALL A PUMP

() REPLACEMENT FOR NO.
() OTHER _____

WATER COURT CASE NO.

RECEIVED

APR 04 '92

STATE SOURCE
COLO

CELO

(1) APPLICANT - mailing address

NAME COTTER CORPORATION
STREET 12596 West Bayaud Avenue, STE 350
CITY Lakewood CO 80228
(State) (Zip)
TELEPHONE NO. (303) 980-1292

(2) LOCATION OF PROPOSED WELL

County JEFFERSON
NW $\frac{1}{4}$ of the SE $\frac{1}{4}$, Section 25
Twp. 2 S, Rng. 71 W, 6th P.M.
(N.S.) (E.W.)

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) N/A

Average annual amount of ground water
to be appropriated (acre-feet): N/A

Number of acres to be irrigated: N/A

Proposed total depth (feet): 22.5'

Aquifer ground water is to be obtained from:
Surface Alluvium - Ralston Creek

Owner's well designation MW-2

GROUND WATER TO BE USED FOR:

() HOUSEHOLD USE ONLY - no irrigation (0)
 () DOMESTIC (1) () INDUSTRIAL (5)
 () LIVESTOCK (2) () IRRIGATION (6)
 () COMMERCIAL (4) () MUNICIPAL (8)
 (x) OTHER (9) Monitoring Well

DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name COTTER CORPORATION
Street 12596 West Bayaud Avenue, STE 350
City Lakewood CO 80228
(State) (Zip)
Telephone No. (303) 980-1292 Lic. No. N/A

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 336089B

Basin _____ Dist. _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

APPLICATION APPROVED

PERMIT NUMBER _____

DATE ISSUED _____

EXPIRATION DATE _____

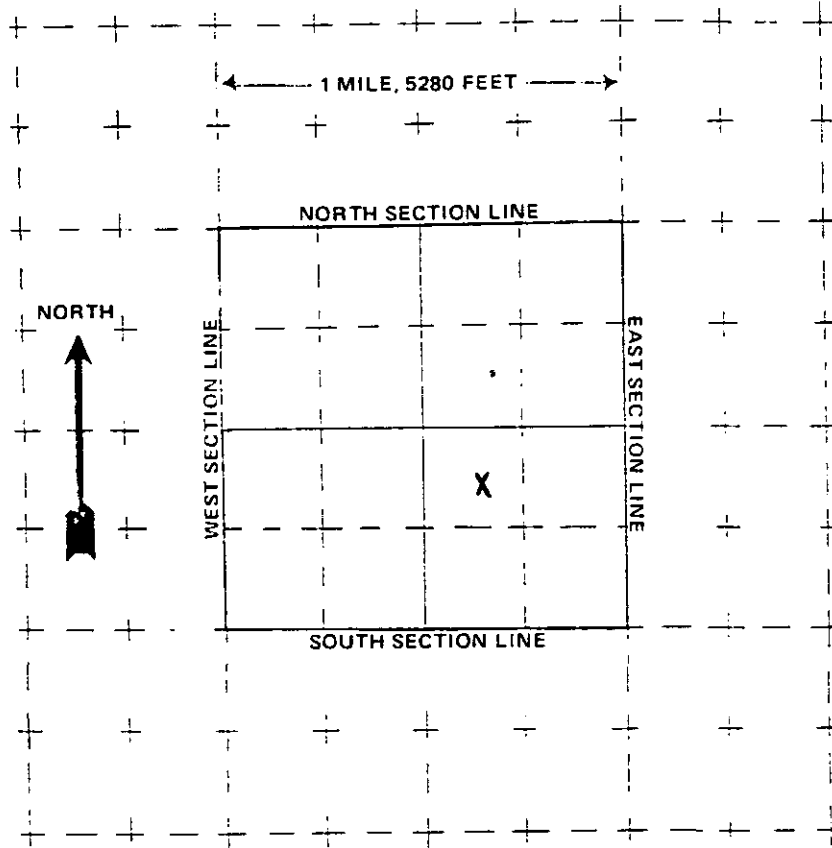
(STATE ENGINEER)

BY _____

I.D. 1 COUNTY 30 01

03-04-92 CL-36089 cheque 240.00

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)

An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year.
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

1982 ft. from South sec. line
(north or south)
1531 ft. from East sec. line
(east or west)
LOT N/A BLOCK N/A FILING # N/A
SUBDIVISION N/A

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: N/A

No. of acres N/A . Will this be the only well on this tract? N/A

(8) PROPOSED CASING PROGRAM

Plain Casing

2½ in. from 3.0 ft. to 8.4 ft.

2½ in. from 13.4 ft. to 15.4 ft.

Perforated casing

2½ in. from 8.4 ft. to 13.4 ft.

 in. from ft. to ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

N/A

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): N/A No. of acres: N/A

Legal description:

(11) DETAIL DESCRIPTION of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used
Water Quality Monitoring Well

(12) OTHER WATER RIGHTS used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
Commercial	Drinking/Sanitary	
Permit #64684 - Decree W6915		

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

Jonathan C. Smith Manager of Environmental Affairs
SIGNATURE OF APPLICANT(S)

WELL CONSTRUCTION AND TEST REPORT
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER

For Office Use only

RECEIVED

NOV 20 '92

WATER RESOURCES
STATE ENGINEER
COLD

1. WELL PERMIT NUMBER 163756 M.W. -2

2. OWNER NAME(S) Cotter Corporation
Mailing Address 12596 West Bayaud Avenue, #350
City, St. Zip Lakewood, Colorado 80228
Phone (303) 980-1292

3. WELL LOCATION AS DRILLED: NW 1/4 SE 1/4, Sec. 25 Twp. 2 S, Range 71 W
DISTANCES FROM SEC. LINES:
1982 ft. from South Sec. line. and 1531 ft. from East Sec. line. OR
(north or south) (east or west)
SUBDIVISION: LOT BLOCK FILING(UNIT)
STREET ADDRESS AT WELL LOCATION:

4. GROUND SURFACE ELEVATION 6581.3 ft. DRILLING METHOD Auger
DATE COMPLETED 11/12/81 TOTAL DEPTH 22.5 ft. DEPTH COMPLETED 22.5 ft.

5. GEOLOGIC LOG:

Depth	Description of Material (Type, Size, Color, Water Location)
0' - 3.5'	Fill - Cs. Cobbles, some cs. gravels
5' - 12.0'	Boulders, cs. Gravel with cobbles and cs. to med. sand
12.0' - 21'	Same as above with increased gravel and sand
21' - 22.5'	Bedrock, sound competent amphibolite
22.5'	T.D.

*Hit water @ 7.0'

6. HOLE DIAM. (in.)	From (ft)	To (ft)
4"	0	22.5

7. PLAIN CASING				
OD (in)	Kind	Wall Size	From (ft)	To (ft)
2-1/2"	PVC	Sch 40	+3.0	8.4
2-1/2"	PVC	Sch 40	13.4	15.4
PERF. CASING: Screen Slot Size:			1/8"	
2-1/2"	PVC	Sch 40	8.4	13.4

8. FILTER PACK:	9. PACKER PLACEMENT:
Material <u>Silica Sand</u>	Type <u></u>
Size <u>8-12 Mesh</u>	Depth <u></u>
Interval <u>5' - 20'</u>	

10. GROUTING RECORD:				
Material	Amount	Density	Interval	Placement
Neat Cement			0' - 1.0'	Manually

11. DISINFECTION: Type Amt. Used

12. WELL TEST DATA: ☐ Check box if Test Data is submitted on Supplemental Form.

TESTING METHOD

Static Level ft. Date/Time measured , Production Rate gpm.

Pumping level ft. Date/Time measured , Test length (hrs.)

Remarks

13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]

CONTRACTOR Cotter Corporation Phone (303) 980-1292 Lic. No. N/A
Mailing Address 12596 West Bayaud Avenue, #350 - Lakewood CO 80228

Name/Title (Please type or print) Thomas C. Lepry Signature Thomas C. Lepry Date 11-16-92
Mine Geologist

INSTRUCTIONS FOR WELL CONSTRUCTION AND TEST REPORT

The report must be typed or printed in **BLACK INK**. All changes on the form must be initialed and dated. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

This form may be reproduced by photocopy methods, or by computer generation with prior approval by the State Engineer.

The original and one copy of this form must be submitted to the State Engineer's Office within 60 days after completing the well or 7 days after the permit expiration date, whichever is earlier. Another copy of the form must be provided to the well owner.

1. Complete the **Well Permit Number** in full.
2. Fill in **Name and Mailing Address of Well Owner** where correspondence should be sent.
3. Complete the blocks for the **actual** location of the well where drilled. If the owner has more than one well serving this property, provide the identification (**Owner's Designation**) for this well. **DO NOT USE THE OWNER SUPPLIED LOCATION** unless a survey has been provided. For wells located in subdivisions the lot, block and subdivision information must also be provided.
4. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Describe the drilling method used to construct the well and the date completed. Indicate the total depth drilled and the actual completed depth of the well.
5. Fully describe the materials encountered in drilling. Do not use formation names unless they are in conjunction with a description of materials.
Examples of descriptive terms include:
 Grain size--Boulders, gravel, sand, silt, clay.
 Hardness--Loose, soft, tight, hard, very hard.
 Color--All materials. Most critical in sedimentary rock.
 Depth when water is encountered (if it can be determined).
6. Provide the diameters of the drilled bore hole.
7. The outside diameter, kind, wall thickness and interval of casing lengths must be indicated.
8. Indicate the type and size of filter (gravel) pack and the interval where placed.
9. Indicate the type and setting depth for any packers installed.
10. The density of the grout slurry must be reported and may be indicated as pounds per gallon, gallons of water per sack, total gallons of water and number of sacks used, etc. Specify the grout placement method, i.e. tremie pipe or positive displacement. The percentage of additives mixed with the grout should be reported under remarks.
11. Record the type and the amount of disinfection used, how placed and the length of time left in the hole.
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13. Fill in **Company Name and Address of Contractor** who constructed the well. The report must be signed by the licensed contractor responsible for the construction of the well.

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

LIC

APPLICANT

WELL PERMIT NUMBER **163756**

DIV. 1 CNTY. 30 WD 7 DES. BASIN MD

Lot: Block: Filing: Subdiv:

APPROVED WELL LOCATION

COUNTY JEFFERSON

NW 1/4 SE 1/4 Section 25
Twp 2 S, Range 71 W 6thP.M.

DISTANCES FROM SECTION LINES

1982 Ft. from South Section Line
1531 Ft. from East Section Line

COTTER CORP
12596 W BAYAUD AVE #350
LAKEWOOD, CO 80228

303/980-1292

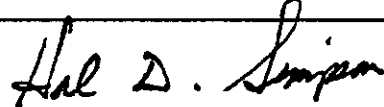
PERMIT TO CONSTRUCT MONITORING WELL MW-2

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
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- 10) This well shall be constructed not more than 200 feet from the location specified on this permit.


APPROVED:
FML



State Engineer

Receipt No. 0336089B

DATE ISSUED APR 20 1992



By

EXPIRATION DATE APR 20 1994

SCALE 1" = 20'

PAGE NO. 1

[illegible]

REMARKS: THIS IS THE REPLACEMENT MONITOR WELL, LOCATED ON THE WESTERN
EDGE OF THE EMPLOYEE PARKING LOT.

FORM NO. GWS-31 11/90	WELL CONSTRUCTION AND TEST REPORT STATE OF COLORADO, OFFICE OF THE STATE ENGINEER	For Office Use only
1. WELL PERMIT NUMBER <u>163757</u> <u>N.W.-3A</u>		f
OWNER NAME(S) <u>Cotter Corporation</u> Mailing Address <u>12596 West Bayaud Avenue, #350</u> City, St. Zip <u>Lakewood, Colorado 80228</u> Phone (303) <u>980-1292</u>		
3. WELL LOCATION AS DRILLED: <u>NW 1/4</u> <u>SE 1/4</u> , Sec. <u>25</u> Twp. <u>2</u> <u>S</u> , Range <u>71</u> <u>W</u> DISTANCES FROM SEC. LINES: <u>1776</u> ft. from <u>South</u> Sec. line. and <u>1379</u> ft. from <u>East</u> Sec. line. OR (north or south) (east or west) SUBDIVISION: _____ LOT _____ BLOCK _____ FILING(UNIT) _____ STREET ADDRESS AT WELL LOCATION: _____		
4. GROUND SURFACE ELEVATION <u>6576.4</u> ft. DRILLING METHOD <u>Hammer/Air</u> DATE COMPLETED <u>06/19/89</u> TOTAL DEPTH <u>15.0</u> ft. DEPTH COMPLETED <u>14.0</u> ft.		
5. GEOLOGIC LOG: Depth Description of Material (Type, Size, Color, Water Location) <u>0' - 15'</u> <u>Alluvium gravels with fine brown dirt (Fill in parking lot)</u> <u>T.D. @ 15'</u> (See remarks below) <u>*Hit water @ 11.0'</u>		6. HOLE DIAM. (in.) From (ft) To (ft) <u>4"</u> <u>0</u> <u>15</u>
		7. PLAIN CASING OD (in) Kind Wall Size From(ft) To(ft) <u>4"</u> <u>PVC</u> <u>Sch 40</u> <u>+13.5</u> <u>8.5</u> <u>4"</u> <u>PVC</u> <u>Sch 40</u> <u>13.5</u> <u>14.0</u>
		PERF. CASING: Screen Slot Size: <u>0.03"</u> <u>4"</u> <u>PVC</u> <u>Sch 40</u> <u>8.5</u> <u>13</u>
		8. FILTER PACK: Material <u>Silica Sand</u> Size <u>8-12 Mesh</u> Interval <u>6.5' - 14.0'</u>
		9. PACKER PLACEMENT: Type _____ Depth _____
REMARKS: <u>Hole sloughed in to 14.0', could not clean it out</u>		10. GROUTING RECORD: Material Amount Density Interval Placement <u>Neat Cement</u> <u>& Bentonite (5%)</u> <u>0' - 3.5'</u> <u>Manually</u>
11. DISINFECTION: Type _____ Amt. Used _____		
12. WELL TEST DATA: <input type="checkbox"/> Check box if Test Data is submitted on Supplemental Form. TESTING METHOD _____ Static Level _____ ft. Date/Time measured _____, Production Rate _____ gpm. Pumping level _____ ft. Date/Time measured _____, Test length (hrs.) _____ Remarks _____		
13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.] CONTRACTOR <u>Cotter Corporation</u> Phone (303) <u>980-1292</u> Lic. No. <u>N/</u> Mailing Address <u>12596 West Bayaud Avenue, #350 - Lakewood CO 80228</u>		
Name/Title (Please type or print) <u>Thomas C. Lepry</u> <u>Mine Geologist</u>		Signature <u>[Signature]</u> Date <u>6/20/89</u>

MONITORING WELL INSTALLATION SHEET

Well No: monitor well -3A

Company ARROW DRILLING

Piezometer: _____

Driller PAUL

Location: Schwartzwalder Employee parking lot

Geologist TOM LEPRY

Date of Installation: 6-19-89

Drilling System ROTARY/Hammer with

Total Depth: 15.0'

Drilling Tools _____

Peizometer Type: Open well

Pipe Material PVC casing Schedule 40
O.D. 4 inch

Elevation of the Ground Surface: 6576.4

Elevation of the Pipe Top: _____

Joining Method THREAD

Water Level at Completion: 10.0'
Depth Ft. _____

Perforation Type Slotted .030 slot size

Elevation Ft. _____

CONCRETE CAP: FROM 3.5' TO: SURFACE

Size of Slots .030

No of Slots _____

Flushing of the Hole: _____

Perforated Zone: From 8.6 to 13.6 Sfeet
Size 4"

FLUSHED W/ COMPRESSED AIR

Non Perforated Pipes: From 3.5 to 8.6'
to 13.5 to 14.0'

Section Steel Casing: _____

Size 4" PVC 40 SCHEDULE
Gravel Pack: From 6.5 to 14.0'
Type: 8-12 Silica Sand - (maximum 2' above sc)

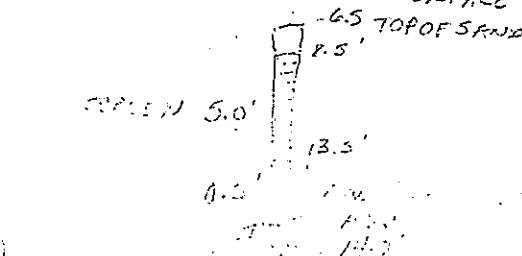
O.D. 8"
From +3.0
To 15'

Bentonite Seal: From 3.5'
to 6.5'

Hole Collar Size 8"
Depth: from 0' to 15'

Surface Casing: From 2.0' to 3.0' ABOVE
Size 8" METAL BELOW SURFACE SURFACE

Drilling fluids Used: AIR



* COLLARED hole cut 8" O.D. BURNER
4" DIA. 10' OF PIPE LEFT LAYING IN SO
DUG 2.5' IN THAT PIPE WAS USED INSIDE
TO 14.0' (SCHEDULE 40) 4\"/>

163757

PERMIT APPLICATION FORM

Application must be complete where applicable. Type or print in BLACK INK. No overstrikes or erasures unless initialed.

() A PERMIT TO USE GROUND WATER
(X) A PERMIT TO CONSTRUCT A WELL
FOR: () A PERMIT TO INSTALL A PUMP

() REPLACEMENT FOR NO. _____ WATER RESOURCES
() OTHER _____ STATE ENGINEER
WATER COURT CASE NO. _____ 3010.

RECEIVED

MAR 04 '92

WATER COURT CASE NO. _____

(1) APPLICANT - mailing address

NAME COTTER CORPORATION
STREET 12596 West Bayaud Avenue, STE 350
CITY Lakewood CO 80228
(State) (Zip)
TELEPHONE NO. (303) 980-1292

(2) LOCATION OF PROPOSED WELL

County JEFFERSON
NW $\frac{1}{4}$ of the SE $\frac{1}{4}$, Section 25
Twp. 2 S, Rng. 71 W, 6th P.M.
(N. S.) (E. W.)

(3) WATER USE AND WELL DATA

Proposed maximum pumping rate (gpm) N/A

Average annual amount of ground water to be appropriated (acre-feet): N/A

Number of acres to be irrigated: N/A

Proposed total depth (feet): 15.0'

Aquifer ground water is to be obtained from:

Surface Alluvium - Ralston Creek

Owner's well designation MW-3A

GROUND WATER TO BE USED FOR:

() HOUSEHOLD USE ONLY - no irrigation (0)
 () DOMESTIC (1) () INDUSTRIAL (5)
 () LIVESTOCK (2) () IRRIGATION (6)
 () COMMERCIAL (4) () MUNICIPAL (8)

(X) OTHER (9) Monitoring Well
DETAIL THE USE ON BACK IN (11)

(4) DRILLER

Name COTTER CORPORATION
Street 12596 West Bayaud Avenue, STE 350
City Lakewood CO 80228
(State) (Zip)
Telephone No. (303) 980-1292 Lic. No. N/A

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 336089C

Basin _____ Dist. _____

CONDITIONS OF APPROVAL

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

APPLICATION APPROVED

PERMIT NUMBER _____

DATE ISSUED _____

EXPIRATION DATE _____

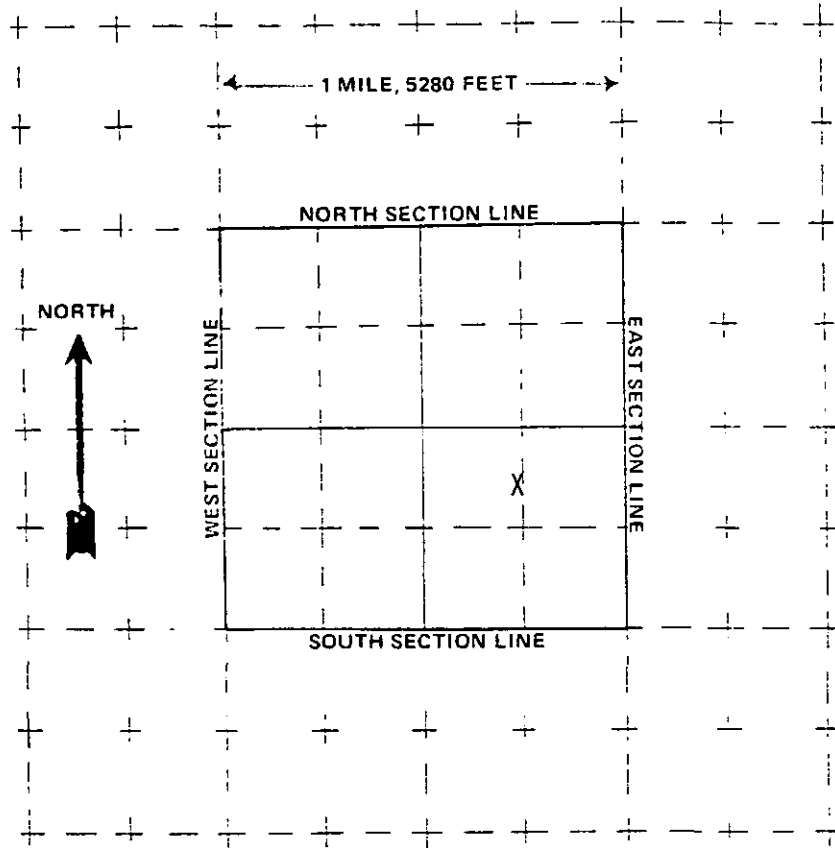
(STATE ENGINEER)

BY _____

I.D. 1 COUNTY 30 07

68096-176-3689
33-04-921-3689
33-04-921-3689

(5) THE LOCATION OF THE PROPOSED WELL and the area on which the water will be used must be indicated on the diagram below. Use the CENTER SECTION (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile
Each small square represents 40 acres.

WATER EQUIVALENTS TABLE (Rounded Figures)

An acre-foot covers 1 acre of land 1 foot deep
1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
A family of 5 will require approximately 1 acre-foot of water per year.
1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) THE WELL MUST BE LOCATED BELOW by distances from section lines.

1776 ft. from South sec. line
(north or south)
1379 ft. from East sec. line
(east or west)
LOT N/A BLOCK N/A FILING # N/A
SUBDIVISION N/A

(7) TRACT ON WHICH WELL WILL BE LOCATED Owner: N/A

No. of acres N/A . Will this be the only well on this tract? N/A

(8) PROPOSED CASING PROGRAM

Plain Casing

4 in. from 2.0 ft. to 8.0 ft.

4 in. from 14.0 ft. to 15.0 ft.

Perforated casing

4 in. from 8.0 ft. to 14.0 ft.

 in. from ft. to ft.

(9) FOR REPLACEMENT WELLS give distance and direction from old well and plans for plugging it:

N/A

(10) LAND ON WHICH GROUND WATER WILL BE USED:

Owner(s): N/A No. of acres: N/A

Legal description:

(11) DETAILED DESCRIPTION of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used. Water Quality Monitoring Well

(12) OTHER WATER RIGHTS used on this land, including wells. Give Registration and Water Court Case Numbers.

Type or right	Used for (purpose)	Description of land on which used
<u>Commercial</u>	<u>Drinking/Sanitary</u>	<u> </u>
<u>Permit #64684 - Decree W6915</u>		

(13) THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.

Jimmy C. Smith Manager of Environmental Affairs
SIGNATURE OF APPLICANT(S)

WELL CONSTRUCTION AND TEST REPORT
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER

For Office Use only

RECEIVED

NOV 20 1992

WATER RESOURCES
STATE ENGINEER
GWS-311. WELL PERMIT NUMBER 163757 N.W.-3A2. OWNER NAME(S) Cotter Corporation
Mailing Address 12596 West Bayaud Avenue, #350
City, St. Zip Lakewood, Colorado 80228
Phone (303) 980-12923. WELL LOCATION AS DRILLED: NW 1/4 SE 1/4, Sec. 25 Twp. 2 S, Range 71 W
DISTANCES FROM SEC. LINES:
1776 ft. from South Sec. line. and 1379 ft. from East Sec. line. OR
(north or south) (east or west)
SUBDIVISION: LOT BLOCK FILING(UNIT)
STREET ADDRESS AT WELL LOCATION:4. GROUND SURFACE ELEVATION 6576.4 ft. DRILLING METHOD Hammer/Air
DATE COMPLETED 06/19/89 TOTAL DEPTH 15.0 ft. DEPTH COMPLETED 14.0 ft.

5. GEOLOGIC LOG:

Depth Description of Material (Type, Size, Color, Water Location)
0' - 15' Alluvium gravels with fine
brown dirt (Fill in parking lot)T.D. @ 15' (See remarks below)*Hit water @ 11.0'REMARKS: Hole sloughed into 14.0', could
not clean it out6. HOLE DIAM. (in.) From (ft) To (ft)
4" 0 15

7. PLAIN CASING

OD (in) Kind Wall Size From(ft) To(ft)
4" PVC Sch 40 +13.5 8.5
4" PVC Sch 40 13.5 14.0PERF. CASING: Screen Slot Size: 0.03"
4" PVC Sch 40 8.5 13.5

8. FILTER PACK:

Material Silica Sand
Size 8-12 Mesh
Interval 6.5' - 14.0'

9. PACKER PLACEMENT:

Type _____
Depth _____

10. GROUTING RECORD:

Material Amount Density Interval Placement
Neat Cement
& Bentonite (5%) 0' - 3.5' Manually

11. DISINFECTION: Type _____ Amt. Used _____

12. WELL TEST DATA: ☐ Check box if Test Data is submitted on Supplemental Form.

TESTING METHOD

Static Level _____ ft. Date/Time measured _____, Production Rate _____ gpm.
Pumping level _____ ft. Date/Time measured _____, Test length (hrs.) _____
Remarks _____

13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]

CONTRACTOR Cotter Corporation Phone (303) 980-1292 Lic. No. N/A
Mailing Address 12596 West Bayaud Avenue, #350 - Lakewood CO 80228Name/Title (Please type or print)
Thomas C. Lepry
Mine GeologistSignature
Thomas C. LepryDate
11-16-92

INSTRUCTIONS FOR WELL CONSTRUCTION AND TEST REPORT

The report must be typed or printed in **BLACK INK**. All changes on the form must be initialed and dated. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

This form may be reproduced by photocopy methods, or by computer generation with prior approval by the State Engineer.

The original and one copy of this form must be submitted to the State Engineer's Office within 60 days after completing the well or 7 days after the permit expiration date, whichever is earlier. Another copy of the form must be provided to the well owner.

1. Complete the **Well Permit Number** in full.
2. Fill in **Name and Mailing Address of Well Owner** where correspondence should be sent.
3. Complete the blocks for the **actual** location of the well where drilled. If the owner has more than one well serving this property, provide the identification (**Owner's Designation**) for this well. **DO NOT USE THE OWNER SUPPLIED LOCATION** unless a survey has been provided. For wells located in subdivisions the lot, block and subdivision information must also be provided.
4. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Describe the drilling method used to construct the well and the date completed. Indicate the total depth drilled and the actual completed depth of the well.
5. Fully describe the materials encountered in drilling. Do not use formation names unless they are in conjunction with a description of materials.
Examples of descriptive terms include:
 - Grain size--Boulders, gravel, sand, silt, clay.
 - Hardness--Loose, soft, tight, hard, very hard.
 - Color--All materials. Most critical in sedimentary rock.
 - Depth when water is encountered (if it can be determined).
6. Provide the diameters of the drilled bore hole.
7. The outside diameter, kind, wall thickness and interval of casing lengths must be indicated.
8. Indicate the type and size of filter (gravel) pack and the interval where placed.
9. Indicate the type and setting depth for any packers installed.
10. The density of the grout slurry must be reported and may be indicated as pounds per gallon, gallons of water per sack, total gallons of water and number of sacks used, etc. Specify the grout placement method, i.e. tremie pipe or positive displacement. The percentage of additives mixed with the grout should be reported under remarks.
11. Record the type and the amount of disinfection used, how placed and the length of time left in the hole.
12. Report well test data as required by Rule 10.7. Spaces are provided to report all measurements made during the test. The report should show that the test complied with the provisions of the rules. If a test was not performed explain when it will be done. If available, report clock time when measurements were taken.
13. Fill in **Company Name and Address of Contractor** who constructed the well. The report must be signed by the licensed contractor responsible for the construction of the well.

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

LIC

WELL PERMIT NUMBER **163757**

DIV. 1 CNTY. 30 WD 7 DES. BASIN MD

APPLICANT

Lot: Block: Filing: Subdiv:

APPROVED WELL LOCATION

COUNTY JEFFERSON

NW 1/4 SE 1/4 Section 25
Twp 2 S, Range 71 W 6thP.M.

DISTANCES FROM SECTION LINES

1776 Ft. from South Section Line
1379 Ft. from East Section Line

COTTER CORP
12596 W BAYAUD AVE #350
LAKEWOOD, CO 80228

303/980-1292

PERMIT TO CONSTRUCT MONITORING WELL MW-3A

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction and Pump Installation Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 17.
- 3) Approved pursuant to CRS 37-92-602(3)(b)(1) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling.
- 4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept locked at all times except during sampling or measuring.
- 5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
- 6) Upon conclusion of the monitoring program the well owner shall plug and abandon this well in accordance with the Water Well Construction and Pump Installation Rules.
- 7) The owner shall mark the well in a conspicuous place with well permit number and name of aquifer as appropriate. He shall take necessary means and precautions to preserve these markings.
- 8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction and Pump Installation Rules.
- 9) A well completion report including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction the report must include an as built drawing showing details; such as depth, casing, perforated zones, and a description of the grouting type and interval.
- 10) This well shall be constructed not more than 200 feet from the location specified on this permit.

APPROVED:
FML

Hal D. Simpson
State Engineer

Frederick M. Long
By

Receipt No. 0336089C

DATE ISSUED APR 20 1992

EXPIRATION DATE APR 20 1994

HOLE NO. MW-9

SCALE 1" = 10

PAGE NO. 1

DEPTH IN HOLE	H.G. RCV'Y	ROCK TYPE	GEOLOGY	ASSAYS
0-5			FILL GRAVEL AND SAND, METAMORPHIC LITHICS, LSHG & MS, ^{MINOR} NO PEG'S. CRS - VCBS AND PEBBLES TO SMALL CBS	1/4" BENTONITE PELLETS
5-10			DRILLING WITH TRI-LOGE, SAME LITHO AS ABOVE, CUTTINGS COMING UP AS PEBBLES w/SOME SAND, DRILLING SLOWED AT 8' "FIRMED UP"	4" PVC CASING
10-16			MIXED SAND AND GRAVEL, CRS TO VCBS AND PEBBLES TO CBS, Peg's & Mica Schist w/some GNEISS	8-12 MESH SILICA SAND 10 BACK
16-19.2			"BED ROCK", Hornblende GNEISS WITH QUARTZ Stringers Chloritic Alteration	1 JOINT (10') OF 4" SLOTTED CASING 0.03-1/4" SLOT
20		T.O 19.2		4" PVC END CAP

REMARKS:

10" CASING 17.5' LONG

SCHWARTZWALDER MINE

WELL Piezometer QA/QC Form
Well Designation MW-9
Date 11/2/98
Inspector P. L. NIESEN
Page 1 of 5

Piezometers

I. Collection and Recording of Lithology Samples

A. Handling of core or cuttings samples

1) Collected from surface to total depth? Yes ☒ No ☐
Reason for variation: _____

2) Samples cleaned of drilling fluids and placed in core boxes or sample bags at time sample is collected? Yes ☒ No ☐
Reason for variation: _____

SAMPLES WET FROM INJECTED WATER, EXCESS WATER DRAINED OFF, SAMPLE PUT IN PLASTIC BAGS

3) Core boxes or sample bags clearly marked with hole identification number and depth interval represented by sample. Yes ☒ No ☐
Reason for variation: _____

B. Description of cuttings

1) Name of geologist describing cuttings? P. L. Niesen

2) Sample log prepared prior to removal of samples from drill site. Yes ☒ No ☐
Reason for variation: _____

II. Well Construction

A. Well location

1) Well collared at location staked by Cotter representative? Yes ☒ No ☐
Reason for variation: _____

B. Drilling fluids

1) Type(s) of fluid used and interval(s):
AIR WITH INJECTED WATER AND SOME EASY-MUD

Reason for using drilling fluids other than air or air mist:
IN ORDER TO LET CUTTING AND STABILIZE HOLE WALL.

- 2) Source of any water used for drilling:

SCHWARTZWALDER MINE WATER TREATMENT PLANT

- 3) Name of any chemical additives or muds used:

EASY-MUD BY CETCO/ACC

- C. Size and depth of well bore hole, type of drilling

- 1) Method used to drill well bore hole?

ROTARY AIR

- 2) Nominal hole size? 10" NOMINAL

- 3) Type of drilling used AIR ROTARY TRI-CONE BIT

Drilled depth of hole? 20'

- D. Piezometer casing and screen

- 1) Well casing and screen specifications.

- a. Type of well casing and screen used? PVC-FLUS JOINT
Reason other than PVC casing and screen with screw joints was used:

- b. Nominal diameter of casing and screen used? 4" 6
Reason for variation from minimum 2 inch nominal diameter:

CONSTRUCTION PLAN CALLED FOR 6" CASING AND SCREEN
SO THAT WELL WOULD ACCOMMODATE A PUMP FOR PUMP TEST.

- 2) Installation 0.03 inch slot size

- a. Length of screen installed? 10'

Reason for variation from specified screen interval

- b. Total length of casing installed? 10.7' Number of joints used? 1

Was sufficient casing installed to reach from total depth of hole to within one foot of top of surface casing?

Yes ☒ No ☐ Reason for variation:

3) Sand Pack and Bentonite Seal

- a. Size of sand used to backfill hole? 8-12 Mesh
Reason size varied from that specified by Cotter geologist or engineer: COLORADO SILICA SAND

10 sacks sand

- b. Depth to which sand pack was placed? 9' Method used to sound depth to top of sand pack: Tremie Pipe marked at 5' intervals and tape measure.
Does sand pack extend 2 feet above top of screen interval? Yes ✓ No Reason sand pack does not extend 2 feet above top of screen interval:

- c. Size of bentonite chips or pellets used for seal above sand pack? 1/4" PELLETS

2 buckets pellets

- d. Depth to which bentonite was placed? 6'
Method used to sound depth of bentonite seal? Tremie

4) Cementation

- a. Volume of annular space between well casing and hole wall from top of bentonite seal to surface?

DID NOT USE GROUT TO FILL ANNULAR SPACE.
USED 4 buckets of pellets, hydrated with 10 gallons of water to get seal between surface casing and well casing.

Emplacement of neat cement grout between well casing and borehole wall.

- i) Volume of neat cement grout emplaced?
Reason for variation between volume of annular space and amount of grout emplaced:

- ii) Was grouting operation continuous? Yes
No Reason for non-continuous emplacement:

- iii) Was there a return of grout to surface? Yes
No Reason for variation:

c. Neat cement grout specifications

- i) Number of sacks of cement used? _____
ii) Number of gallons of water mixed with cement? _____
iii) Was clean fresh water used? Yes _____ No _____

E) Well head protection

1. Type of casing used? 10" STEEL

2. Dimension of casing? 10" DIAMETER

3. Length of casing placed in surface hole? 6.4'

- a) Is casing of sufficient length to extend a minimum of 1 foot and a maximum of 2 feet above the ground surface?
Yes ☒ No ☐ Reason for variation. _____

- b) Was a single length of surface casing used? Yes ☒ No ☐
If not were joints welded? Yes ☐ No ☐

F) Well Development

1. Length of time cement was allowed to cure after cementation of well casing was complete? 24 hrs

2. Development using surge block and bailing.

- a) Length of time necessary to develop well (minimum of one hour)? 1 3/4 hrs.

- b) Was development continued until clear water with out fines was produce? Yes ☒ No ☐ If answer is no, what is reason for discontinuing development. _____

11/3/98

During development with air lift well made 40 to 50 gpm of water. pH was checked during development and stabilized at 8.1 pH uncorrected for temperature.

III. Review of any variation from the construction specifications on critical items by Drilling QA Coordinator and Drilling QA Inspector.

Signature

Date

Drilling QA Inspector

Drilling QA Coordinator

Water Level @ 10' on 1/19/99
Bump Set @ 15' 5" 1/19/99

FORM NO. GWS-31 04/2005		WELL CONSTRUCTION AND TEST REPORT			For Office Use Only	
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER 1313 Sherman St., Room 818, Denver, CO 80203 Phone - Info (303) 866-3587 Main (303) 866-3581 Fax (303) 866-3589 http://www.water.state.co.us		RECEIVED FEB 14 2011 WATER RESOURCES STATE ENGINEER COLO				
1. WELL PERMIT NUMBER: 74573-F						
2. WELL OWNER INFORMATION						
NAME OF WELL OWNER: Cotter Corporation						
MAILING ADDRESS: 7800 E Dorado PL, Suite 210						
CITY: Englewood STATE: CO ZIP CODE: 80111						
TELEPHONE NUMBER: (720) 554-6211						
3. WELL LOCATION AS DRILLED: NE 1/4, SE 1/4, Sec. 25, Twp. 2 <input type="checkbox"/> N or <input checked="" type="checkbox"/> S, Range 71 <input type="checkbox"/> E or <input checked="" type="checkbox"/> W						
DISTANCES FROM SEC. LINES: 1805 ft. from <input type="checkbox"/> N or <input checked="" type="checkbox"/> S section line and 1965 ft. from <input checked="" type="checkbox"/> E or <input type="checkbox"/> W section line.						
SUBDIVISION: _____, LOT _____, BLOCK _____, FILING (UNIT) _____					Owner's Well Designation: Sump 9	
Optional GPS Location: GPS Unit must use the following settings: Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N, <input type="checkbox"/> Zone 12 or <input type="checkbox"/> Zone 13					Easting: _____	
STREET ADDRESS AT WELL LOCATION: _____					Northing: _____	
4. GROUND SURFACE ELEVATION 6573.18 feet					DRILLING METHOD Excavation	
DATE COMPLETED 11/12/2010 TOTAL DEPTH 11 feet					feet DEPTH COMPLETED 11 feet	
5. GEOLOGIC LOG:					6. HOLE DIAM (in.) From (ft) To (ft)	
Depth Type Grain Size Color Water Loc.					48 0 11	
0 - 11' sand & gravel w/ cobble						
					7. PLAIN CASING:	
					OD (in) Kind Wall Size (in) From (ft) To (ft)	
					48 steel 16 gauge 0 7	
					PERFORATED CASING: Screen Slot Size (in): .5"	
					48 steel 16 gauge 7 11	
					8. FILTER PACK:	
					Material gravel	
					Size 4"	
					Interval 4' - 11'	
					9. PACKER PLACEMENT:	
					Type _____	
					Depth _____	
					10. GROUTING RECORD	
					Material Amount Density Interval Placement	
Remarks: _____						
11. DISINFECTION: Type _____					Amt. Used _____	
12. WELL TEST DATA: <input type="checkbox"/> Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test.						
TESTING METHOD Steady State Drawdown/ submersible pump						
Static Level 1.05 ft. Date/Time measured: 2/4/11 9:57 Production Rate 75.56 gpm.						
Pumping Level 1.30 ft. Date/Time measured 2/4/11 12:02 Test Length (hrs) 2:05						
Remarks: specific capacity=302.22 gpm/ft transmissivity=453,000 gal/day/ft						
13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to \$5000 and/or revocation of the contracting license.]						
Company Name: Frontier Environmental Services, Inc.				Phone: (303) 234-9350		License Number: _____
Mailing Address: 5350 Vivian Street, Unit B Arvada, CO 80002						
Signature: _____		Print Name and Title: Brent Scarborough Vice President			Date: 2/11/11	

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES
818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

1466

APPLICANT

WELL PERMIT NUMBER 290046 - -
DIV. 1 **WD 7** **DES. BASIN** **MD**

COTTER CORPORATION NSL
C/O WHETSTONE ASSOCIATES INC
104 W RUBY AVENUE
GUNNISON, CO 81230-

(970) 641-7471

APPROVED WELL LOCATION

JEFFERSON COUNTY
NW 1/4 SE 1/4 Section 25
Township 2 S Range 71 W Sixth P.M.

DISTANCES FROM SECTION LINES

1730 Ft. from South Section Line
1820 Ft. from East Section Line

UTM COORDINATES (Meters, Zone: 13, NAD83)

Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to CRS 37-92-602(3)(b)(i) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as MW18.
- 4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
- 5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
- 6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
- 7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
- 8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
- 9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
- 10) This well shall be constructed not more than 200 feet from the location specified on this permit.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
SVJ

State Engineer

DATE ISSUED 12-19-2012

By

EXPIRATION DATE 12-19-2014

Receipt No. 3658027F

Attachment B: Monitoring Well Abandonment Form, GWS-09

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Form No GWS-09 03/2017	STATE OF COLORADO, OFFICE OF THE STATE ENGINEER 1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581 www.water.state.co.us and dwrpermitsonline@state.co.us	For Office Use Only
<h2 style="margin: 0;">WELL ABANDONMENT REPORT</h2> <p style="margin: 0;">Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side</p>		
1. Well Permit Number of plugged well _____ or MH File Number MH- _____ Owners Well Designation- _____ SSSSSSSSSSSS Receipt Number: _____		
2. Individual/Company responsible for plugging and sealing the well: Name(s) _____ License # _____ Mailing Address _____ City, St., Zip _____ Phone (_____) _____ Email _____		
3. Well (Hole) Owner: Name(s): _____ Phone: (_____) _____ Email: _____ Mailing Address, City, St., Zip: _____		
4. Well Location Address: _____		
5. GPS Well Location: County _____ UTM <input type="checkbox"/> Zone 12 or <input type="checkbox"/> Zone 13 Easting _____ Northing _____		
6. Legal Location: ___ 1/4 of the ___ 1/4, Sec ____, Twp _____ N or S ____, Range _____ E or W ____, ___ P.M. Distance from Section Lines _____ Ft. From _____ N or S _____, _____ Ft. From _____ E or W _____ Line. Subdivision Name _____ Lot _____, Block _____, Filing/Unit _____		
7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s): <input type="checkbox"/> The well was plugged and sealed as required under Well Permit Number _____. <input type="checkbox"/> The well was not in use and was plugged and sealed. <input type="checkbox"/> Other (please explain) _____		
8. Aquifer Type: <input type="checkbox"/> Type I (One Confining Layer) <input type="checkbox"/> Type I (Multiple Confining Layer) <input type="checkbox"/> Laramie-Fox Hills (check one) <input type="checkbox"/> Type II (Not Overlain by Type III) <input type="checkbox"/> Type II (Overlain by Type III) <input type="checkbox"/> Type III (alluvial)		
9. Intervals of Casing Removed/Ripped: from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,		
10. Amount and Type of Material	Method of Placement	Interval
_____	_____	from _____ feet to _____ feet
_____	_____	from _____ feet to _____ feet
_____	_____	from _____ feet to _____ feet
_____	_____	from _____ feet to _____ feet
I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402.2. The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to \$1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.		
11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	_____	_____
_____	_____	_____
It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.		

Instructions

This report must be computer-generated online, typed or printed in BLACK OR BLUE INK and may be reproduced by photocopy or computer generation. Photocopy reproductions must retain margins and print quality. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

If filing online please see online form submittal instructions at

<http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx>

You may also save, print and email the completed form to: dwrpermitonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals where casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitonline@state.co.us