

Administrative Record for Fort Wingate

Tracking Form – Correspondences

Date on Letter: May 15, 2015

Letter Subject: Well Plugging Plan of Operation for monitoring wells cmw 06

Letter From (letterhead): State of New Mexico Office of State Engineer

Letter Signed By: Joey Fields

Letter Sent To: FWDA Bldg. 1

Category:

- Parcel 3
- Groundwater
- Facility Wide
- Soil
- Surface Water
- Storm Water
- Land Re-Use
- Eco
- Cultural
- Real Estate
- Utilities
- Ordnance Explosive
- Chemical Warfare
- Asbestos
- Igloos
- Public Involvement/RAB
- Other \_\_\_\_\_
- RCRA Permit
- General/Air/Construction Permits
- Media
- Multi-Parcel
- Military Munitions Maps

Notes: \_\_\_\_\_

Physical Letter Location:

Correspondence Year: 2015

Parcel/Category: 3

Cabinet: 12

Drawer #: A

*Sent to Lisa 5-21*

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> | Filed in Admin Record               |
| <input type="checkbox"/>            | Posted to Web/EMIS                  |
| <input type="checkbox"/>            | Hard Drive                          |
| <input type="checkbox"/>            | Index                               |
| <input checked="" type="checkbox"/> | Scheduler <i>Sent to Angie 5-21</i> |
| <input type="checkbox"/>            | Copy to Record Keeper               |
| <input type="checkbox"/>            | Sent to Addressee/CC List           |
| <input type="checkbox"/>            | FedEx Tracking Attached             |
| <input type="checkbox"/>            | 508 Compliant                       |



STATE OF NEW MEXICO  
OFFICE OF THE STATE ENGINEER

DISTRICT I

TOM BLAINE, P.E.  
New Mexico State Engineer

5550 San Antonio Drive, NE  
Albuquerque, NM 87109  
(505) 383-4000

May 15, 2015

File: None

Fort Wingate Depot Activity, Building 1  
Fort Wingate, New Mexico 87316

Office pick-up:  
National EWP  
Bryan Nydoske, Manager  
3621 Hwy 47  
Peralta, NM 87042

**RE: Well Plugging Plan of Operations for monitoring well "CMW06"**

Greetings,

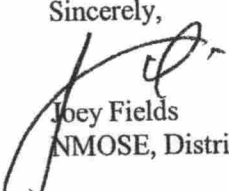
The Office of the State Engineer is in receipt of your plugging plan. The plan has been reviewed and is hereby approved, subject to the attached Conditions of Approval.

If you wish for this plugging to be witnessed by authorized OSE personnel, arrangements for appointments during normal work hours may be made with a minimum 48-hour notice by contacting Jess L. Ward, District 1 Supervisor at (505) 383-4000

Please deliver a copy of this plugging plan with attached conditions to the well driller contracted to provide plugging services.

If discussion is needed, please call us (505) 383-4000.

Sincerely,

  
Joey Fields  
NMOSE, District 1

JF:jf,  
Enclosure as stated



# WELL PLUGGING PLAN OF OPERATIONS



**NOTE:** A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

**I. FILING FEE:** There is no filing fee for this form.

**II. GENERAL / WELL OWNERSHIP:**

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: CMW06

Name of well owner: Fort Wingate Depot Activity

Mailing address: Building 1, 7 miles east of Gallup

City: Fort Wingate State: NM Zip code: 87316

Phone number: 505-905-6190 E-mail: richard.cruz2@us.army.mil

**III. WELL DRILLER INFORMATION:**

Well Driller contracted to provide plugging services: National EWP

New Mexico Well Driller License No.: WD-1210 Expiration Date: 10/31/15

**IV. WELL INFORMATION:**

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 35 deg, 25 min, 55.194 N sec  
Longitude: 108 deg, 37 min, 7.870 W sec, NAD 83

2) Reason(s) for plugging well: Environmental remediation of surface soils via excavation

3) Was well used for any type of monitoring program? Yes If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? \_\_\_\_\_ If yes, provide additional detail, including analytical results and/or laboratory report(s): \_\_\_\_\_

5) Static water level: 12 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 18.19 feet

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- 7) Inside diameter of innermost casing: 2 inches.
- 8) Casing material: PVC
- 9) The well was constructed with:  
 an open-hole production interval, state the open interval: \_\_\_\_\_  
 a well screen or perforated pipe, state the screened interval(s): 10 feet
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? \_\_\_\_\_
- 11) Was the well built with surface casing? yes If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? Yes If yes, please describe: Enviroplug bentonite seal - 2 feet and 3.2 inches of concrete
- 12) Has all pumping equipment and associated piping been removed from the well? NA If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

**V. DESCRIPTION OF PLANNED WELL PLUGGING:**

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: The well will be overdrilled and the boring will be grouted from the bottom to the top with cement bentonite grout.
- 2) Will well head be cut-off below land surface after plugging? Yes

**VI. PLUGGING AND SEALING MATERIALS:**

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant.

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table \_\_\_\_\_
- 3) Theoretical volume of grout required to plug the well to land surface: 56 gallons
- 4) Type of Cement proposed: Portland Type II
- 5) Proposed cement grout mix: 58 5.2 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be:  batch-mixed and delivered to the site  
 mixed on site

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7) Grout additives requested, and percent by dry weight relative to cement: 3% to 5% Bentonite pre-mixed  
with .65 gallons water per 1%

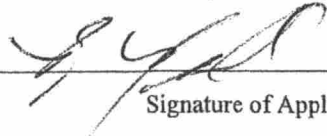
8) Additional notes and calculations: \_\_\_\_\_  
8.25" OD HSA will be used to overdrill the well with a 4.25" ID

**VII. ADDITIONAL INFORMATION:** List additional information below, or on separate sheet(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VIII. SIGNATURE:**

I, Bryan Nydoske, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

  
\_\_\_\_\_  
Signature of Applicant

5/7/15  
\_\_\_\_\_  
Date

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**IX. ACTION OF THE STATE ENGINEER:**

This Well Plugging Plan of Operations is:

- Approved subject to the attached conditions.  
 Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 15<sup>TH</sup> day of MAY, 2015

Tom Blaine, State Engineer

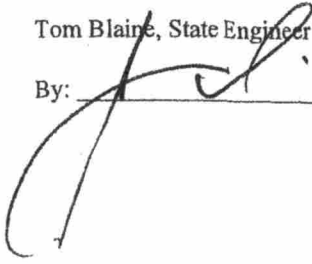
By:   
\_\_\_\_\_

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

|   | Interval 1 – deepest | Interval 2. | Interval 3 – most shallow  |
|---|----------------------|-------------|--|
|   |                      |             | Note: if the well is non-artesian and breaches only one aquifer, use only this column. |
| Top of proposed interval of grout placement (ft bgl)                          |                      |             | 1'   |
| Bottom of proposed interval of grout placement (ft bgl)                       |                      |             | 20'  |
| Theoretical volume of grout required per interval (gallons)                   |                      |             | 56   |
| Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement |                      |             | 5.8  |
| Mixed on-site or batch-mixed and delivered?                                   |                      |             | on site  |
| Grout additive 1 requested  |                      |             | Bentonite  |
| Additive 1 percent by dry weight relative to cement                           |                      |             | 3% to 5%   |
| Grout additive 2 requested  |                      |             |  |
| Additive 2 percent by dry weight relative to cement                           |                      |             |  |

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**TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.**

|   | Interval 1 – deepest | Interval 2 | Interval 3 – most shallow  |
|---|----------------------|------------|--|
|   |                      |            | Note: if the well is non-artesian and breaches only one aquifer, use only this column. |
| Top of proposed interval of sealant placement (ft bgl)        |                      |            |  |
| Bottom of proposed sealant of grout placement (ft bgl)        |                      |            |  |
| Theoretical volume of sealant required per interval (gallons) |                      |            |  |
| Proposed abandonment sealant (manufacturer and trade name)    |                      |            |  |

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**DISTRICT 1**  
**TOM BLAINE, P.E.**  
**NEW MEXICO STATE ENGINEER**

NMED is in agreement with the Army's plan to plug and abandon the well per Ben Wear, Hazardous Waste Bureau, NMED

**Well Owner:** Fort Wingate Depot Activity, Building 1

**Well No.:** CMW06

**Well Location:** Latitude = 35d 25m 55.194s, N, and Longitude = 108d 37m 7.870, W, NAD83

**Well Driller:** National EWP, WD-1210, expires 10/31/15

**Specific Plugging Conditions of Approval**

1. Water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC, which requires any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall perform the well plugging.
2. Theoretical volume of sealant of the borehole required for abandonment is as shown on the plugging plan. Total minimum volume of necessary sealant shall be calculated upon sounding the actual pluggable depth of the well.
3. The Well Plugging Plan of Operations submitted requests the use of 3% to 5% bentonite-enriched cement. When supplementing a cement slurry with bentonite as requested, water demand for the mix increases at a rate of approximately **0.65 gallons of water for each 1% increment** of bentonite bdwc (by dry weight cement) above **fundamental water demand of 5.2 gallons water per 94-lb. sack of cement**. A 5% bentonite/cement slurry may therefore contain up to **8.45 gallons of water total** per 94-lb. sack of cement / approximate 5-lb. bentonite increment when appropriately mixed.

The bentonite should be hydrated separately with its required increment of water before being mixed into the cement slurry. If water is otherwise added to the combination of dry ingredients or the dry bentonite blended into wet cement, the alkalinity of the cement will restrict yield of the bentonite powder, resulting in excess free water in the slurry and enhanced cement shrinkage upon curing.

4. Placement of the sealant within the wells shall be by pumping through a tremie pipe extended to near well bottom, and kept below top of the slurry column as the well is plugged from bottom-upwards in a manner that displaces the standing water column.

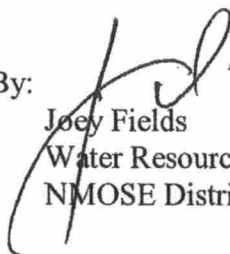


5. Should the NMED, or another regulatory agency sharing jurisdiction of the project authorize, or by regulation require a more stringent well plugging procedure than herein acknowledged, the more-stringent procedure should be followed. This, in part, includes provisions regarding pre-authorization to proceed, contaminant remediation, inspection, pulling/perforating of casing, or prohibition of free discharge of any fluid from the borehole during or related to the plugging process.
6. NMOSE witnessing of the plugging will not be required, but shall be facilitated if a NMOSE observer is onsite. NMOSE witnessing may be requested during normal work hours by calling the District 1 NMOSE Office at 505-383-4000, at least 48-hours in advance. NMOSE inspection will occur dependant on personnel availability.
7. A Well Plugging Report itemizing actual abandonment process and materials used shall be filed with the State Engineer (NMOSE, 5550 San Antonio Dr. N.E., Albuquerque, NM 87109), within 20 days after completion of well plugging. Please attach a copy of these plugging conditions.

The NMOSE Well Plugging Plan of Operations plan, as annotated, is hereby approved with the aforesaid conditions applied.

Witness my hand and seal this 15th day of May, 2015.

By:

  
Joey Fields  
Water Resource Specialist  
NMOSE District 1

# GEOLOGIC BORING / WELL LOG

Page 1 of 2

|   |  |   |  |   |  |
|---|--|---|--|---|--|
| Project#: <u>00311.20</u>   |  | Project Name: <u>FICT/Wingate</u>   |  | Boring/Well#: <u>cmw06</u>  |  |
| Geologist: <u>D. DeL. H. is</u>   |  | Chris Macez   |  | Driller/Company: <u>Philip Fawcett</u>  |  |
| Drilling Equip. <u>Hard Auger</u>   |  | Date Start: <u>8-9-96</u>   |  | Date Completed: <u>8-9-96</u>   |  |
| Surface Elev.: _____  |  | Top of Casing Elev.: _____  |  | Total Depth: <u>15</u>  |  |
| Well Depth: _____   |  | Method of Drilling  |  | Casing/Riser Type   |  |
| <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Direct Rotary<br><input type="checkbox"/> Air Rotary <input type="checkbox"/> Bucket Auger<br><input type="checkbox"/> MUD Rotary <input type="checkbox"/> Flight Auger |  | <input type="checkbox"/> Steel <input type="checkbox"/> Threaded    Height above/<br><input type="checkbox"/> Galv <input type="checkbox"/> Welded    below surface<br><input type="checkbox"/> PVC <input type="checkbox"/> Solvent<br><input type="checkbox"/> SS    Welded<br>Drive Shoe? Yes No |  | Screen Portion of Well<br>Material _____<br>Diameter _____ Length _____<br>Set between _____ ft and _____ ft<br>Slot size _____ |  |
| Hole Diameter: <u>2.7"</u><br><u>Hard Auger</u>   |  | Filter Pack   |  | Annulus Seal  |  |
| Size _____  |  | <input type="checkbox"/> Bentonite Pellets    _____ Chips _____<br><input type="checkbox"/> _____   |  | Grout   |  |
| Meth of Install. _____  |  | Volume Used? _____  |  | Used? <input type="checkbox"/> Yes <input type="checkbox"/> No Volume _____   |  |
| Composition _____   |  | Method of Instal. _____   |  | <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite<br><input type="checkbox"/> _____                       |  |
| Volume Used _____   |  | Depth : from _____ ft. to _____ ft. ft.   |  | Method of Instal. _____   |  |
| Depth to top of f.p. _____  |  | Development   |  | Static Water Level  |  |
| <input type="checkbox"/> Flushmount <input type="checkbox"/> Stand Up<br>Cap Type _____<br>Lock # _____<br>Volume Used _____  |  | Method _____<br>Gallons Evacuated _____<br>Date _____<br>Odor _____   |  | Initial _____ ft.<br>Development _____ ft.<br>24 hr. _____ ft.  |  |

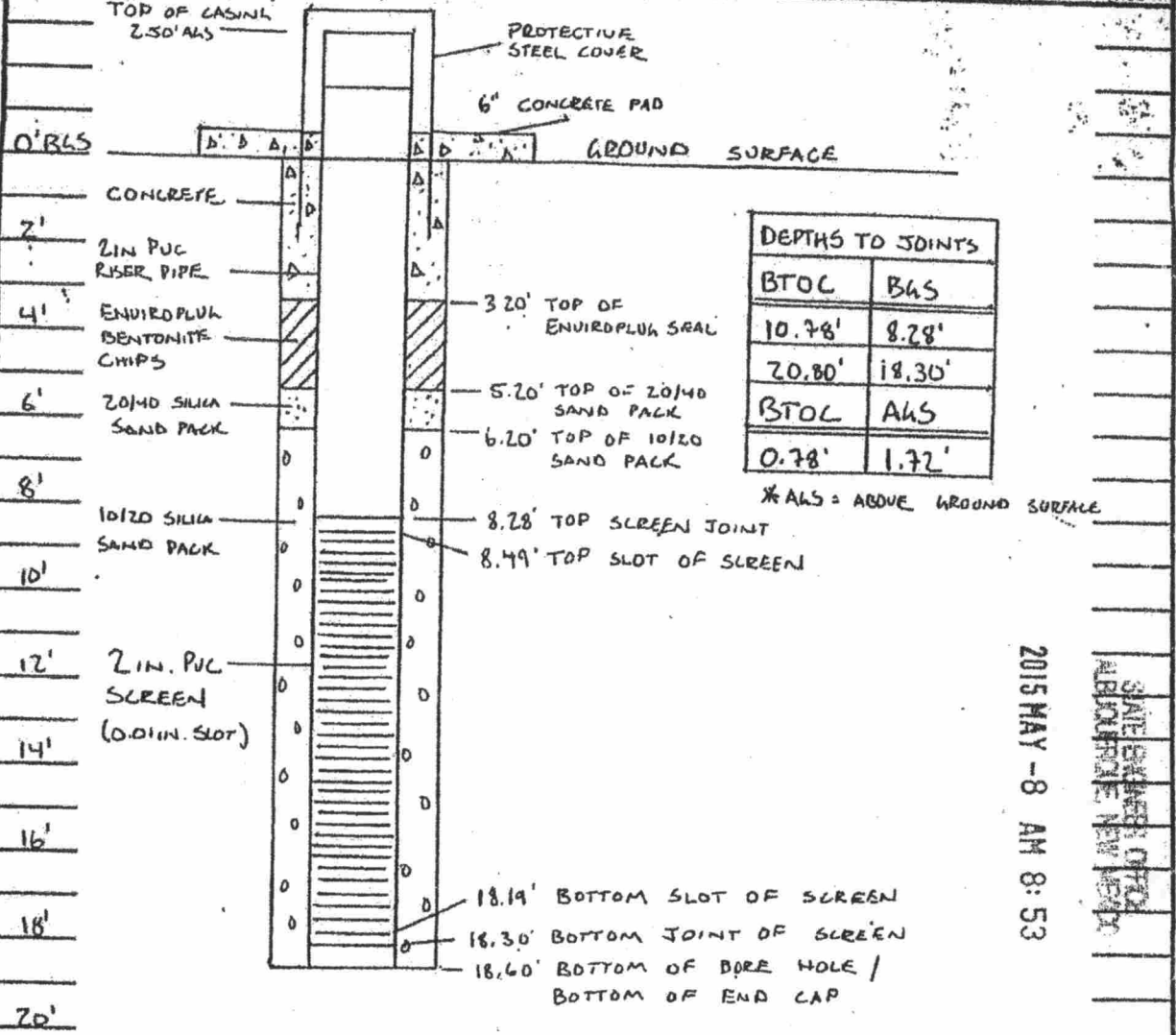
| DRILLING   |                   | SAMPLE      |           |            |       | GEOLOGIC LOG |        |               |            |               |   |
|------------|-------------------|-------------|-----------|------------|-------|--------------|--------|---------------|------------|---------------|---|
| Depth (ft) | PID Reading (ppm) | Sample Type | Sample ID | Blow Count |       |              |        | Recovery (in) | USCS Class | Contact-Depth | Description and Comments  |
|            |                   |             |           | 0-5"       | 6-12" | 12-18"       | 18-24" |               |            |               |   |
| 0          |                   |             | cmw06     |            |       |              |        |               | SI         |               | Clayey Sand, Sand 70%, Clay 30%, subrounded, fine to medium grained, 5/16 3/8 (dark reddish brown), dense, moist, no bedding.                                       |
| 1          |                   |             | 01        |            |       |              |        |               |            |               |   |
| 2          |                   |             |           |            |       |              |        |               | SM         |               | Silty Sand, Sand 80%, Silt 20%, subrounded, fine to medium grained, 1/5 1/4 brown, loose, dry, no bedding. few thin interbedded clay layers (less than 0.1" thick). |
| 3          |                   |             |           |            |       |              |        |               |            |               |   |
| 4          |                   |             | cmw06     |            |       |              |        |               |            |               |   |
| 5          |                   |             | 02        |            |       |              |        |               |            |               |   |
| 6          |                   |             | 05        |            |       |              |        |               |            |               |   |

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STATE OF NEW YORK  
NORTHWESTERN DISTRICT

# WELL CONSTRUCTION DIAGRAM

|                            |  |                            |                                      |                         |  |
|----------------------------|--|----------------------------|--------------------------------------|-------------------------|--|
| Project#: _____            |  | Project Name: FWDA         |                                      | Well#: CMW-01a          |  |
| Geologist: ERIK IPSEN      |  |                            | Driller/Company: MIKE DONOHUE/PHILIP |                         |  |
| Drilling Equip. HAND AUGER |  | Date Start: 10/5/96        |                                      | Date Completed: 10/5/96 |  |
| Surface Elev.: _____       |  | Top of Casing Elev.: _____ |                                      | Total Depth: 18.60' BAS |  |
|                            |  |                            |                                      | Well Depth: 18.19' BAS  |  |



| BTOL   | BAS    |
|--------|--------|
| 10.78' | 8.28'  |
| 20.80' | 18.30' |
| BTOL   | ALS    |
| 0.78'  | 1.72'  |

\*ALS = ABOVE GROUND SURFACE

**MATERIALS**

- 1 - 50 lb BAG 10/20 SILICA SAND
- 3/4 GAL 20/40 SILICA SAND
- 1/4 - 50 lb BAG ENVIROPLUG BENTONITE CHIPS
- 30 - 94 60 lb BAGS QUIKRETE CONCRETE (FOR PAD)

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SAFE SHEET 0700  
ABOVE NEW 15200



# GEOLOGIC BORING / WELL LOG

|                                  |  |                              |
|----------------------------------|--|------------------------------|
| Project#: <u>CD 311.20</u>       | Project Name: <u>Feet Wings</u>                            | Boring/Well#: <u>cmw 01e</u> |
| Geologist: <u>D. De Lillo</u>    | Driller/Company: <u>Chris Platz / Philip Environmental</u> |                              |
| Drilling Equip. <u>Handauger</u> | Date Start: <u>8-9-96</u>                                  | Date Completed:              |
| Surface Elev.:                   | Top of Casing Elev.:                                       | Total Depth: <u>15'</u>      |
|                                  |  | Well Depth:                  |

| DRILLING   |                   | SAMPLE      |           |            |       | GEOLOGIC LOG |        |               |            |               |   |
|------------|-------------------|-------------|-----------|------------|-------|--------------|--------|---------------|------------|---------------|---|
| Depth (ft) | PID Reading (ppm) | Sample Type | Sample ID | Blow Count |       |              |        | Recovery (in) | USCS Class | Contact Depth | Description and Comments  |
|            |                   |             |           | 0-6"       | 6-12" | 12-18"       | 18-24" |               |            |               |   |
| 6          |                   |             |           |            |       |              |        |               | ML         |               | Clayey silt, silt 70%, clay 30%, 7.5 YR 3/4 (dark brown), soft, plastic, moist to wet, no bedding.                |
| 7          |                   |             |           |            |       |              |        |               | SM         |               | Silty Sand, Sand 80%, silt 20%, subrounded, fine to medium grained, 7.5 YR 4/3 (brown), dense, moist, no bedding. |
| 8          |                   |             |           |            |       |              |        |               | SM         |               | Silty Sand, Sand 80%, silt 20%, subrounded, fine to medium grained, 7.5 YR 4/3 (brown), dense, moist, no bedding. |
| 9          |                   |             | cmw 06    |            |       |              |        |               |            |               |   |
| 10         |                   |             | 03        |            |       |              |        |               |            |               |   |
| 11         |                   |             | 10        |            |       |              |        |               | SM         |               | Silty Sand, Sand 85%, silt 15%, subrounded, fine to medium grained, 7.5 YR 4/4 (brown), dense, wet, no bedding.   |
| 12         |                   |             |           |            |       |              |        |               |            |               | Saturated at 12'.   |
| 13         |                   |             |           |            |       |              |        |               | CL         |               | Clay, clay 95%, silt 5%, 7.5 YR 4/3 (brown), stiff, plastic, very moist to wet, no bedding.                       |
| 14         |                   |             | cmw 06    |            |       |              |        |               |            |               |   |
| 15         |                   |             | 04        |            |       |              |        |               | CL         |               | Silty Clay, Clay 60%, silt 40%, 7.5 YR 4/4 (brown), stiff, plastic, very moist, no bedding.                       |
| 16         |                   |             | 10        |            |       |              |        |               |            |               |   |
| 17         |                   |             |           |            |       |              |        |               |            |               |   |
| 18         |                   |             |           |            |       |              |        |               |            |               |   |
| 19         |                   |             |           |            |       |              |        |               |            |               |   |

Total depth is 15'  
(maximum length of augers)

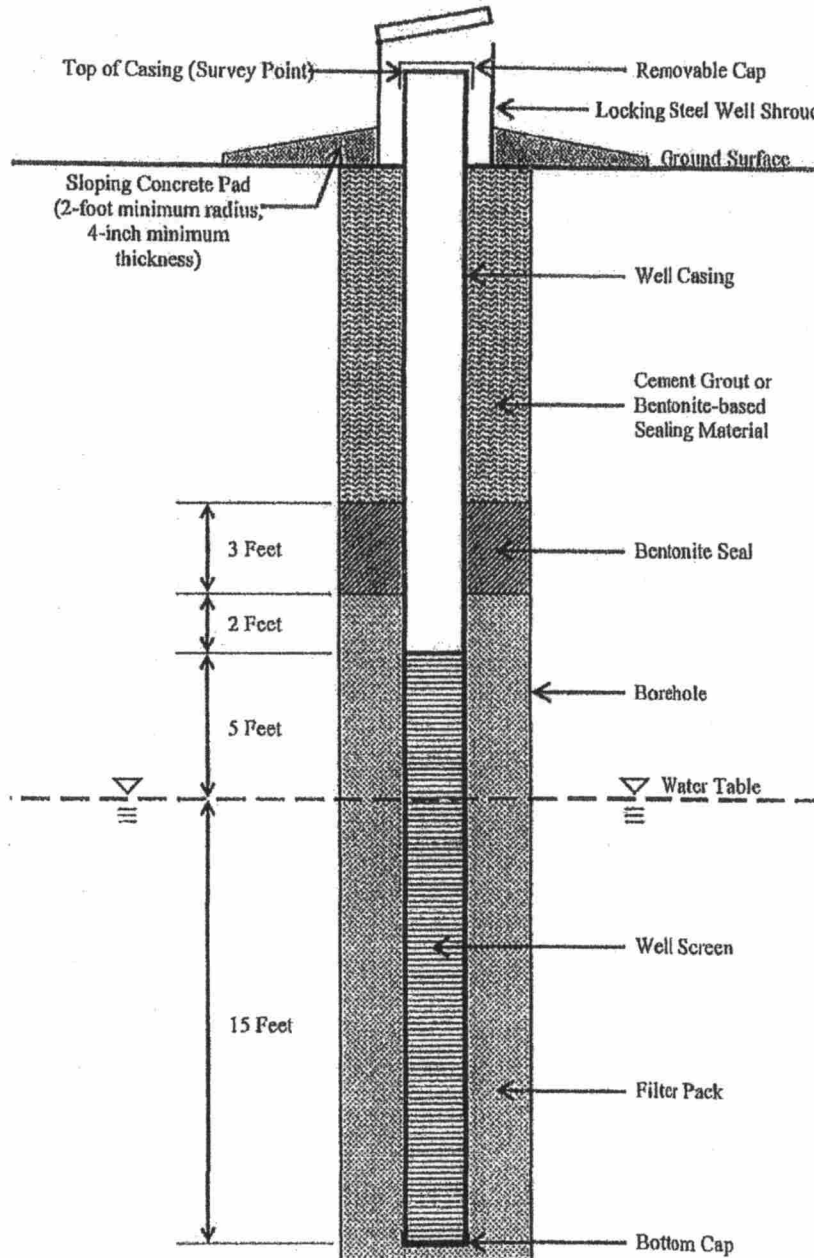
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NEW BRUNSWICK



**Deviation from Monitoring Well Construction and Abandonment Requirements:** Requests to construct water table monitoring wells or other types of monitoring wells for ground water monitoring under ground water Discharge Permits or Abatement Plans in a manner that deviates from the specified requirements must be submitted in writing to the GWQB. Each request must state the rationale for the proposed deviation from these requirements and provide detailed evidence supporting the request. The GWQB will approve or deny requests to deviate from these requirements in writing.

**MONITORING WELL SCHEMATIC**  
(Not to Scale)



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