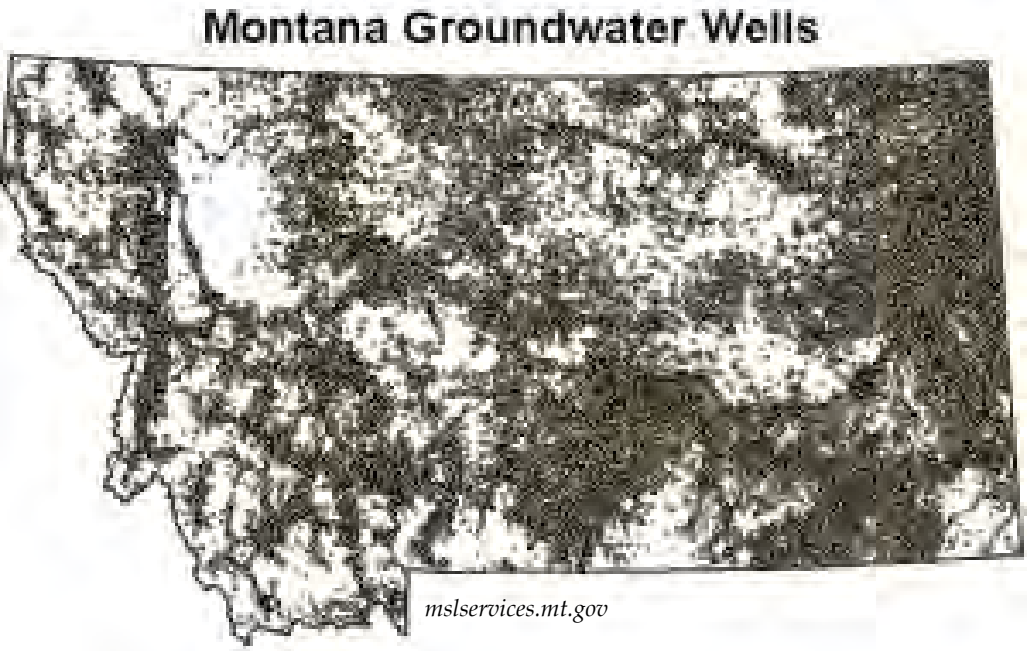
AN OVERVIEW OF THE MONTANA BOARD OF WATER WELL CONTRACTORS

Helping Protect Groundwater Since 1961

Thomas Palin, Program Manager
Board of Water Well Contractors
MT AWRA Conference
October 9th, 2025



- Board of Water Well Contractors (Board) established "*..to reduce and minimize the waste and contamination of ground water resources within this state by reasonable regulation and licensing of drillers..*" MCA 37-43-101

- Funded by License fees and permits

- Groundwater is vital for Montana
  - 184,000 domestic wells in GWIC
  - Approx. 523,000 housing units (2023)

Board Established

- First meeting of the Board was August 11, 1961

- Began with three-member to a seven-member Board today
    - Doug Askin – Chairman, Industry Member
    - Andy Eslinger – Industry Member
    - Will Hayes – Industry Member
    - James Madison – Montana Bureau of Mines and Geology
    - Reed Miner – MT DEQ
    - Todd Netto – DNRC
    - Dan O'Keefe – Industry Member

License Types

- **Water Well Contractor**—responsible party, holds $25,000 bond, may construct water wells and monitoring wells.

- **Water Well Driller**—is required to work under a water well contractor's license and bond. May only construct water wells.

- **Monitoring Well Constructor**– holds $25,000 bond and may only construct monitoring wells

Licensee Qualifications

- All require 1 year apprenticeship

- Demonstrate knowledge through an exam
  - WWC – 200 question exam
  - WWD – 125 question exam
  - MWC – 100 question exam

Exams include MT laws, construction standards, drilling, and geology

Current number of Licensees

- 139.....Water Well Contractors
- 41.....Water Well Drillers
- 5.....Water Well Driller/Monitoring Well Constructor
- 53.....Monitoring Well Constructors
- 20.....Inactive Licensees

Besides Montana based licensees, licensees come from 8 other States

Construction Standards

Set through rulemaking

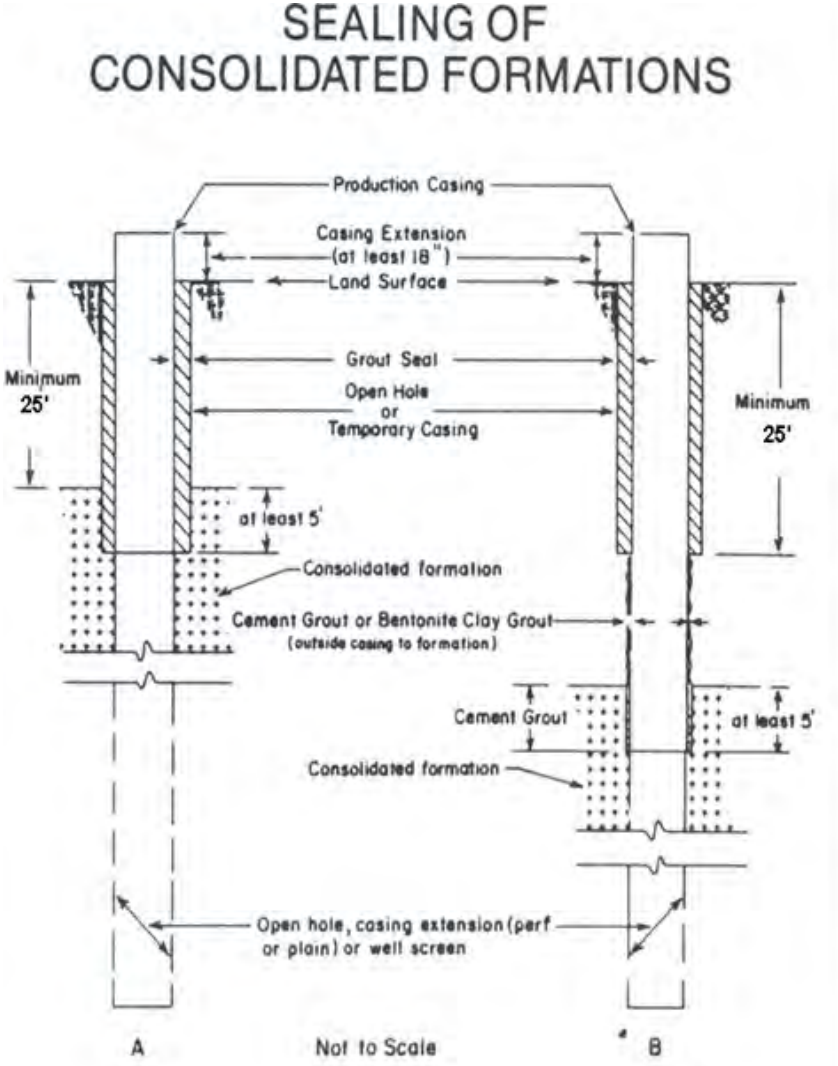
- For all domestic wells, exclusions?
- Casing Materials
- Sealing and Grouting
- Casing Perforations
- Tests for yield & drawdown
- Abandonment Procedures
- Well Logs

Permits

- Variances
- Exemption

Casing Materials

- Steel Casing Materials
  - ASTM A53 Specifications
  - 25 feet minimum casing
  - Casing to the bottom of the usable hole
  - 18 inches above finished surface
- Inner casing
  - Steel vs PVC
  - 4-foot overlap



Board of Water Well Contractors Rule and Regulation Image

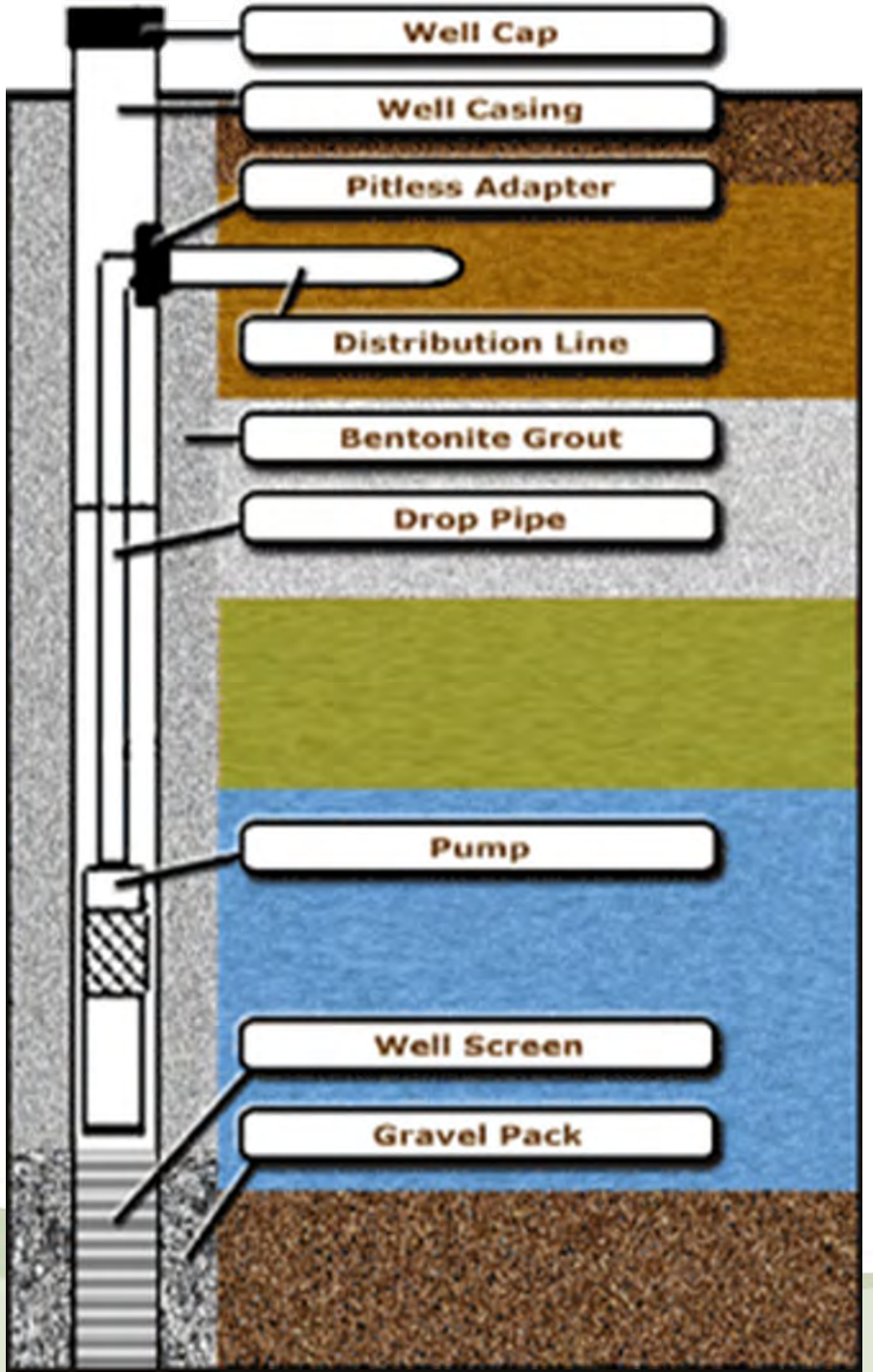
Figure 2.

Sealing and Grouting

- General Sealing of Casing
  - Minimum 1.5 inches of annular space with sealing material
  - 25-foot minimum sealing depth
  - Drill and Drive method
- Sealing material
  - Neat Cement Grout
  - Bentonite water slurry or grout
  - Bentonite chips/pellets

Casing Perforations

- No perforations above the lowest expected water level
- In-place perforations with star/mills knife, prefabricated mill slotted, sawed or drilled casing
- Inner casing can be torch-cut or prefabricated screens
- Allowing entrance velocities of 0.1 fps or less
- Remain structurally stable
- No deleterious interflow of aquifers
- No artesian flow interaction


Well Cap
Well Casing
Pitless Adapter
Distribution Line
Bentonite Grout
Drop Pipe
Pump
Well Screen
Gravel Pack

Tests for Yield & Drawdown

- 1-hour minimum test
  - Bailing
  - Airlift
  - Pumping
- 8-hour test for wells intended to yield 100 gpm or more
- Flowing wells 1-hour minimum test

Abandonment

- Abandoned in a way to
  - Prohibit movement of water within the well bore and annular space
  - Filled with sealing material within 3 feet of surface
  - Backfill remaining 3 feet with naturally occurring soils.

Abandonment

Abandonment

The Billings Gazette - Montana & Wyoming News

Sunday, October 31, 2004

Rescue workers pull Alabama toddler from well

Associated Press

FRISCO CITY, Ala. — Rescue workers pulled a 22-month-old boy to safety Monday morning after he was trapped for 13 hours in an abandoned well.

Authorities said the boy, Jermere McMillan, was playing in a vacant lot with other children when he fell into the 14-foot well shortly after 4 p.m. Sunday. Police used earth-moving equipment to dig a separate shaft, and workers were able to rescue the child about 5:15 a.m. Monday.

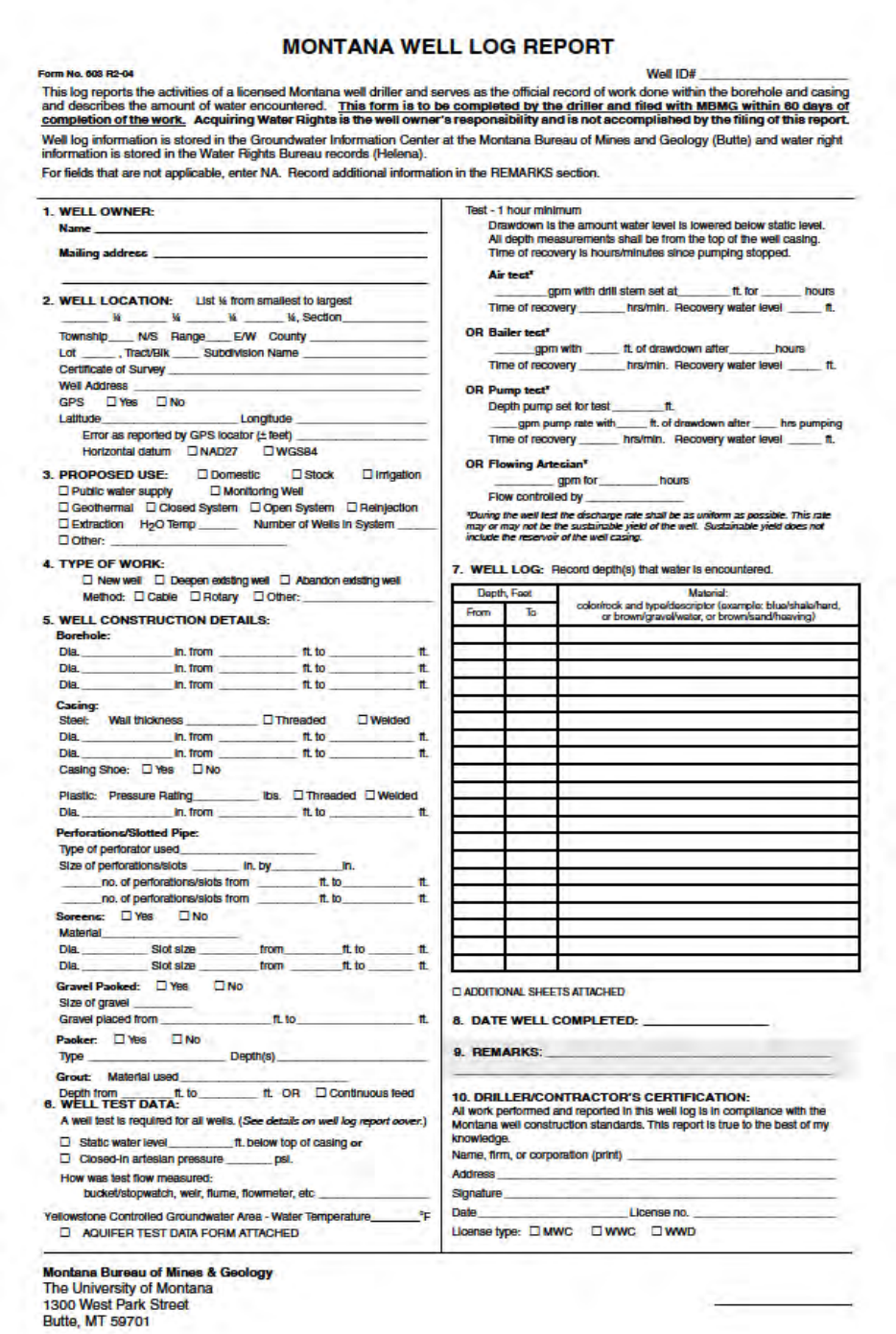
Mobile television station WKRG reported the youngster had scratches and bruises, according to paramedics and a doctor on the scene. He was taken to the University of South Alabama Medical Center in Mobile for observation.

The boy's mother, Mica Wilson, accompanied him to the hospital, the station said.

Little Jermere was monitored by cameras and paramedics during his ordeal.

Well Logs

- Required in Water Use Statute 85-2-516
- Found in Board Rules
  - Includes:
  - Two forms of locations
  - Construction details
  - Lithologic descriptions
  - Need to be submitted to GWIC within 60 days



MONTANA WELL LOG REPORT

Form No. 603 R2-04 Well ID# _____

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. **This form is to be completed by the driller and filed with MBMG within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.**

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

For fields that are not applicable, enter NA. Record additional information in the REMARKS section.

1. WELL OWNER:
Name _____
Mailing address _____

2. WELL LOCATION: List ¼ from smallest to largest
_____ ¼ _____ ¼ _____ ¼ _____ ¼, Section_____
Township____ N/S Range____ E/W County _____
Lot _____ , Tract/Blk ____ Subdivision Name _____
Certificate of Survey _____
Well Address _____
GPS ☐ Yes ☐ No
Latitude_____ Longitude _____
Error as reported by GPS locator (± feet) _____
Horizontal datum ☐ NAD27 ☐ WGS84

3. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation
☐ Public water supply ☐ Monitoring Well
☐ Geothermal ☐ Closed System ☐ Open System ☐ Reinjection
☐ Extraction H_2O Temp _____ Number of Wells in System _____
☐ Other: _____

4. TYPE OF WORK:
☐ New well ☐ Deepen existing well ☐ Abandon existing well
Method: ☐ Cable ☐ Rotary ☐ Other: _____

5. WELL CONSTRUCTION DETAILS:
Borehole:
Dia._____in. from _____ ft. to _____ ft.
Dia._____in. from _____ ft. to _____ ft.
Dia._____in. from _____ ft. to _____ ft.

Casing:
Steel: Wall thickness _____ ☐ Threaded ☐ Welded
Dia._____in. from _____ ft. to _____ ft.
Dia._____in. from _____ ft. to _____ ft.
Casing Shoe: ☐ Yes ☐ No

Plastic: Pressure Rating_____ lbs. ☐ Threaded ☐ Welded
Dia._____in. from _____ ft. to _____ ft.

Perforations/Slotted Pipe:
Type of perforator used_____
Size of perforations/slots _____ in. by_____in.
_____no. of perforations/slots from _____ ft. to_____ ft.
_____no. of perforations/slots from _____ ft. to_____ ft.

Screens: ☐ Yes ☐ No
Material_____
Dia._____ Slot size _____ from_____ft. to _____ ft.
Dia._____ Slot size _____ from _____ft. to _____ ft.

Gravel Packed: ☐ Yes ☐ No
Size of gravel _____
Gravel placed from _____ ft. to_____ ft.

Packer: ☐ Yes ☐ No
Type _____ Depth(s)_____

Grout: Material used_____
Depth from _____ ft. to_____ ft. OR ☐ Continuous feed

6. WELL TEST DATA:
A well test is required for all wells. (*See details on well log report cover.*)
☐ Static water level_____ft. below top of casing or
☐ Closed-in artesian pressure _____ psi.
How was test flow measured:
bucket/stopwatch, weir, flume, flowmeter, etc _____
Yellowstone Controlled Groundwater Area - Water Temperature_____°F
☐ AQUIFER TEST DATA FORM ATTACHED

Test - 1 hour minimum
Drawdown is the amount water level is lowered below static level.
All depth measurements shall be from the top of the well casing.
Time of recovery is hours/minutes since pumping stopped.

Air test*
_____gpm with drill stem set at_____ ft. for _____ hours
Time of recovery _____ hrs/min. Recovery water level _____ ft.

OR Bailer test*
_____gpm with _____ ft. of drawdown after_____hours
Time of recovery _____ hrs/min. Recovery water level _____ ft.

OR Pump test*
Depth pump set for test_____ft.
_____gpm pump rate with_____ ft. of drawdown after ____ hrs pumping
Time of recovery _____ hrs/min. Recovery water level _____ ft.

OR Flowing Artesian*
_____ gpm for_____hours
Flow controlled by _____

**During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

7. WELL LOG: Record depth(s) that water is encountered.

Depth, Feet		Material: color/rock and type/descriptor (example: blue/shale/hard, or brown/gravel/water, or brown/sand/heaving)
From	To	

☐ ADDITIONAL SHEETS ATTACHED

8. DATE WELL COMPLETED: _____

9. REMARKS: _____

10. DRILLER/CONTRACTOR'S CERTIFICATION:
All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.
Name, firm, or corporation (print) _____
Address _____
Signature _____
Date _____ License no. _____
License type: ☐ MWC ☐ WWC ☐ WWD

Montana Bureau of Mines & Geology
The University of Montana
1300 West Park Street
Butte, MT 59701

Well Logs

- Montana Well Inspection Report
  - Used for wells not in GWIC
  - Can be submitted by anyone
  - Does not allow for altering of the well

MONTANA WELL INSPECTION REPORT

1. **WELL OWNER:**

Name_____

Mailing address_____

_____

2. **WELL LOCATION:** List ¼ from smallest to largest

_____¼ _____¼ _____¼ _____¼, Section _____

Township ___ N/S Range ___ E/W County _____

Lot _____, Tract/Blk ____ Subdivision Name _____

Well Address _____

GPS ☐ Yes ☐ No

Latitude _____ Longitude _____

Error as reported by GPS locator (+ feet) _____

Horizontal datum ☐ NAD27 ☐ WGS84

3. **WELL USE:** ☐ Domestic ☐ Stock ☐ Irrigation

☐ Public water supply ☐ Monitoring Well

☐ Geothermal ☐ Closed System ☐ Open System

☐ Reinjection ☐ Extraction ☐ Other: _____

4. **TYPE OF CASING:**

☐ Steel Dia._____in.

☐ Plastic Dia._____in.

☐ Concrete Dia._____in.

☐ Other Dia._____in.

5. **WELL DATA:**

Depth of well: _____ ft.

Static water level _____ ft.

Top of Casing from ground _____ ft.

Closed-in artesian pressure _____ psi.

6. **WELL FLOW RATE (if measured):**

How was flow measured:

Bucket/stopwatch, weir, flume, flowmeter, etc _____

PUMP TEST (existing pump)

_____gpm pump rate with ____ft. of drawdown after ____hrs pumping.

Time of recovery _____hrs/min. Recovery water level ____ft.

7. **DATE WELL INSPECTED:** _____

8. **REMARKS:** _____

_____

_____

_____

_____

9. **COMPANY REPRESENTATIVE:**

All information on this form obtained after the original drilling of this well, the original driller/construction is unknown. The signature below does not certify the original drilling construction of this well. The signature does represent that all data obtained at the time of the inspection and on this report is true to the best of my knowledge.

Name, firm, or corporation (print)_____

Address_____

Signature_____

Date _____ License no. _____

License type: ☐ MWC ☐ WWC ☐ WWD

This report can be emailed to GWIC@mtech.edu, faxed to the GWIC office at (406) 496-4343, or sent to:

Ground Water Information Center
1300 W. Park St.
NRB 329
Butte, MT 59701-8997

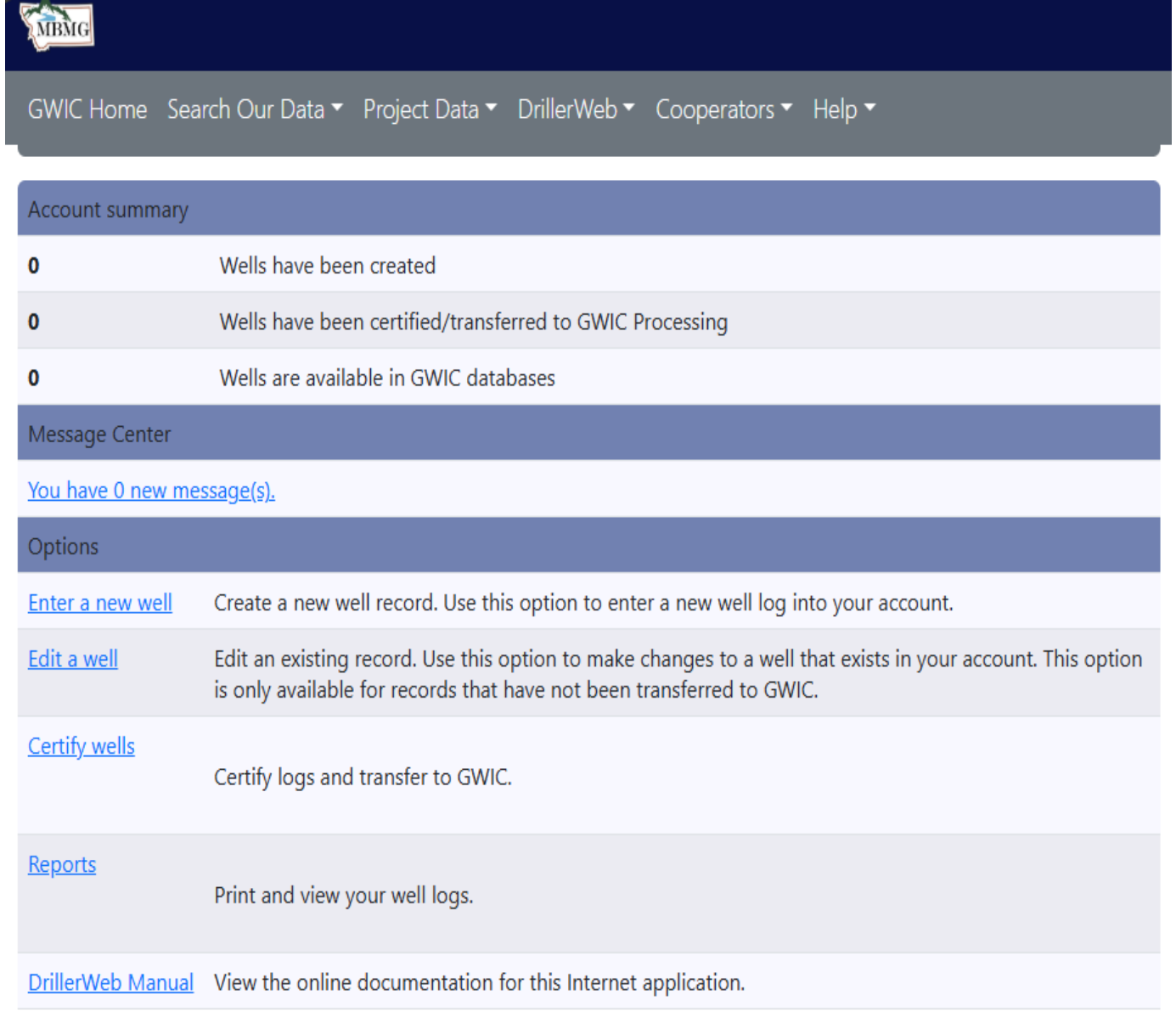
Montana Bureau of Mines and Geology
The University of Montana
1300 West Park Street
Butte, MT 59701

MBMG
GWIC ID_____

Ground Water Information Center

- Managed by MBMG

- Uses
  - Water Planning
  - Research
  - Environmental Monitoring



Driller web main page: 23 Sept 2025, https://mbmggwic.mtech.edu/drillerweb/drillerMain.asp

Permits

- Variances
- Issued to Licensee
- "*When due to special circumstances beyond the control of the contractor, compliance with these minimum construction standards is impossible or otherwise unreasonably difficult, a variance may be requested from the Board….*" ARM 36.21.680

- Exemptions
  - Allows the landowner or lessee to "*drill, alter or rehabilitate a well on land that is owned or leased by the person…*" MCA 37-43-302
  - Must conform to minimum construction standards

Monitoring Wells

- Incorporated in Board statute and rule in the mid to late 80's
  - Went through some amendments in the mid 2000's
- Measures groundwater quality or flow direction, but not for withdrawing
- Exclusions: Piezometers, Wells less than 10 feet

Complaints

- Receive from customers and other agencies
  - No well log
  - Dry well
  - Ungrouted casing
  - Drill cuttings washed onto adjacent property
  - Unlicensed driller
- Accused must be given opportunity to respond

Thank You!

Questions?