

A photograph of two men in winter work clothes (tan jumpsuits, hats, and sunglasses) working in a snowy field. One man in the foreground is operating a device connected to a red bucket. The other man stands in the background holding a red circular object. The scene is outdoors with snow on the ground and trees in the background.

Natural Resources Ground Water Technician Training

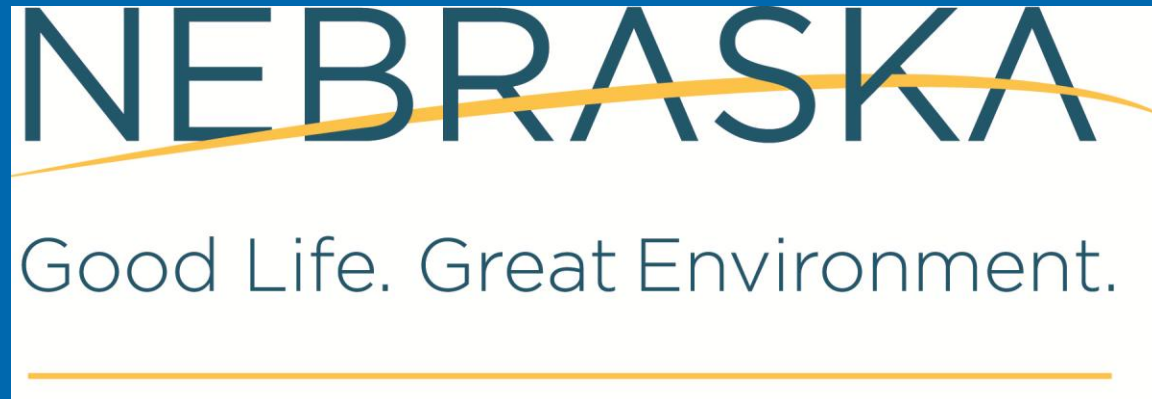
March 6, 2023

Holiday Inn, Kearney

02.12.2007

NRD Ground Water Technician Tutorial

Presented by:



Water Well Standards Program
David Miesbach/NDEE GW Section

NRD Ground Water Technician Tutorial: Department Name

DHHS → NDEQ → NDEE → DWEE



NRD Ground Water Technician Tutorial: Administers

NDEE Administers:

- Water Well Standards
- Underground Injection Control (UIC)
- Agricultural chemical releases
- Chemigation (already covered)



NRD Ground Water Technician Tutorial: Act

- Water Well Standards and Contractors Licensing Act-passed 1986
- Purposes of the “Act”
 - Provide protection to groundwater...licensing
 - Protect health and welfare of citizens of the State.
 - Protect groundwater resources...construction standards
 - Provide data...well logs/well registration
 - Matrix for Title 178

NRD Ground Water Technician Tutorial: Title 134

Title 134-Chapters

- NAC 1- Definitions
- NAC 2- Licensure
 - penalties/re-instatements/renewals,
 - CEU's, requirements-what is a CEU, reporting CEU's
- NAC 3- Fees for licensure
- NAC 4- Construction, installation and decommissioning standards for wells and pumps
- NAC 5- Board duties and descriptions of members

NRD Ground Water Technician Tutorial: NAC 2

NAC 2- Licenses and discipline

- Definitions:
- **Licensed Natural Resources Ground Water Technician:**
- means a natural resources ground water technician who has taken a training course, passed an examination based on the training course, and received a license from the Department indicating that s/he is a licensed natural resources ground water technician.

NRD Ground Water Technician Tutorial: 46-1208.02

46-1208.02. Natural resources ground water technician, defined. Natural resources ground water technician means any individual employed by a natural resources district and engaged in the inspection of chemigation systems, measuring and recording static water levels, inspection and servicing of flow meters, and water sampling practices and techniques. Natural resources ground water technician does not include

NRD Ground Water Technician Tutorial: Sampling

- **Sampling Event** - The collection of one sample or one set of samples per each site visit from a water well for the purpose of water quality analysis.
- **Water Sampling Techniques** - means the procedure(s) and/or method(s) by which water sampling practices are conducted.
- **Water Sampling Practices** - Acts by which ground water samples are obtained from a water well or pumping system in which the water well seal is broken. The term generally includes any act which serves to protect the integrity of the water well or the quality of the ground water and may include preparation of the sampling point, use of sampling equipment, and certain aspects of sample collection. Water well monitoring technicians may temporarily employ sampling equipment or pumping equipment in a water well for each and every sampling event after which time the equipment must be removed. **Natural Resources Ground Water Technicians** may temporarily employ sampling equipment. Deployment of sampling equipment for longer periods of time or pumping equipment may only be carried out by a licensed pump installation contractor or supervisor and is deemed to be pump installation rather than water sampling practices.



NRD Ground Water Technician Tutorial: What You Can't Do

Natural Resource Ground Water Technician CAN NOT

- Install permanent pumps (not even to take a sample)
- Construct a well
- Decommission a well
- Supervise the work of others



NRD Ground Water Technician

Tutorial: Water Well

Water Well - means any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for ground water, monitoring ground water, utilizing the geothermal properties of the ground, obtaining hydrogeologic information, or extracting water from or injecting fluid as defined in Neb. Rev. Stat. § 81-1502 into the underground water reservoir.

NRD Ground Water Technician Tutorial: License

When is a license required?

A water well must be constructed, pumps and pumping equipment must be installed and repaired onsite, and water wells must be decommissioned in accordance with Title 178 NAC 10 and 12.

A water well may only be opened, or the seal may only be broken by:

1. A licensed contractor or supervisor or a person working directly under the supervision of a licensed contractor or supervisor;
2. An individual who owns a water well on land owned by him/her and used by him/her for farming, ranching, or agricultural purposes or as his/her place of abode.
3. A licensed water well monitoring technician or a licensed natural resources ground water technician,
4. A licensed operator of a public water system in the course of his/her employment or someone under his/her supervision, or
5. A state electrical inspector in the course of his/her employment.

NRD Ground Water Technician Tutorial: License Renewal

Reinstatement

- after expiration...retake and pass the test

Renewal of License

- All expire on Dec. 31 each even-numbered year
 - Pay the fees
 - Failure to renew automatically expires without further notice
- 

NRD Ground Water Technician Tutorial: Qualifications

Qualifications for Contractor:

- Age of Majority- 19
- Good Moral character
- Pass the test
- Pay the fees for license
- Proof of insurance- \$100,000 liability
- Comply with act

Qualifications for NRGW Technician:

- **NRGWT must be employed by an NRD**
- Take the training
- Pass the test
- Pay the fee for license
- Comply with the Act

NRD Ground Water Technician Tutorial: Disciplinary Action

Disciplinary Action and other sanctions:

- ...fraud in obtaining a license
- ...Violation of the act.
- Incompetence gross negligence
- Conduct detrimental to health or safety of persons hiring the services...
- Practice of the trade...fraudulently
- ...Impaired by drugs or alcohol
- Permitting the use of a license fraudulently
- Having had a license denied, suspended, revoked in the past...
- Unprofessional conduct...
- Practice of the trade while under suspension...
- Failing to file a well registration...

NRD Ground Water Technician Tutorial: Reinstatement

Reinstatement after Discipline- time frames

- To qualify for reinstatement, applicant must first meet the requirements for reinstatement
- Credential was suspended or limited may apply for reinstatement at any time.
- Credential that was revoked may apply for reinstatement **after a period of 2 year has elapsed** from date of revocation.
- Applicant must submit an application
- Request a hearing – 30 days from receipt

NRD Ground Water Technician Tutorial: Exams

Exams

- **Everyone but NRGWT** takes NE section plus a specialty exam.
- 70% passing grade
- Review materials provided by the program
- Hardship licensing used to replace a deceased license holder



NRD Ground Water Technician Tutorial: CEU Definitions

NAC 2 - CEU's Definitions

- **Continuing Education Program** - instruction or information to licensees-maintaining skills-protection of groundwater-health and general welfare of the citizens and the competent practice-Programs may be offered under the names such as-"course of study, seminar, school, clinic, lecture, short course, workshop, conference..."
Experience does not count.
- **Hour of Continuing Education = 1** hour of credit toward the requirement of the Act.
- **Provider** - institution, organization, or individual that presents programs approved by the board
- **Certificate of Completion** - Written evidence or documentation that shows attendance + completion of a continuing education program.

NRD Ground Water Technician Tutorial: CEU Requirements.

CEU requirements

- Each licensed person under the Act must complete at least 12 hours of CEU on or before Dec. 31st of an even numbered year following the issuance of their license,
- The licensee is responsible for:
 - Maintaining documentation of attendance at continuing education programs; and
 - Verifying with the Board that the continuing education program is approved by the Board
 - Hardship exemption – young worker, disabled, military

NRD Ground Water Technician Tutorial: CEU Approval

CEU approval

- The Board will evaluate applications from licensees or providers for approval of continuing education programs
- Application must be received **65 days prior to meeting** for pre-approval
- Application must be received by the board with 1 year of program for post approval
- Credential holder responsibility to maintain record of CEU course attended.

NRD Ground Water Technician Tutorial: Fee Schedule

Title 134 NAC 3-001 Schedule of Fees

- A fee of \$400 for any regular or temporary hardship, initial License

Title 134 NAC 3-003 Administrative Fees

- Dec. Order / Variance \$100.00

Title 134 NAC 3-003 Administrative Fees

- Renewal Fee of \$200 for NRGWT
- Late Renewal \$200 late fee and the \$200 renewal fee
 - After 60 day Exams must be retaken with \$400 initial fee along with the \$200 late renewal fee

NRD Ground Water Technician Tutorial: NAC 4

NAC 4

- Definitions:

- **Monitoring Well** – A cased well for the purpose of determining ground water quality.
- **Observation Well** – A cased well for the purpose of measuring water levels.
- **Recovery Well** – A water well constructed for the purpose of, or in conjunction with, the removal of contamination from an aquifer or aquifers
- **Sanitary Well Cap (seal)** – A cover fitted to the top of a well casing to seal the opening between the casing and the pump pipe

NRD Ground Water Technician Tutorial: Test Holes

NAC 4

- Test Holes:
 - Must not be retained for more than 10 days.
 - Must be decommissioned within 10 days of drilling.



NRD Ground Water Technician

Tutorial: Monitoring Wells

Groundwater monitoring, observation, and recovery wells:

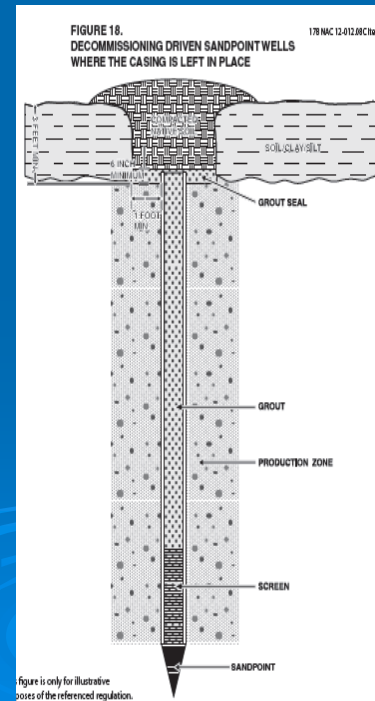
1. Watertight Well Casing must be composed of nontoxic durable material compatible with water quality encountered.
2. Observation wells are constructed solely to measure the elevation of the water table or potentiometric surface and are considered non-potable wells.
3. Monitoring wells are constructed solely for extracting water for chemical testing.
4. Above Ground Protection, non-steel cased wells completed above ground must be enclosed with a steel casing embedded in the concrete pad and covered with an overlapping, vandal-resistant secured steel cap.

NRD Ground Water Technician Tutorial: Decommissioning

Decommissioning of Water Wells

- Must be reported to DNR **within 60 days**
- Licensed contractor or landowner in decommissioning of a sand point

Form for Decommissioning of Wells, issued by the State of Nebraska Department of Natural Resources, Division of Water. The form includes sections for well identification (Name, Location, Depth, etc.), a declaration of completion, and a section for the well owner's signature and date. It also includes a section for the well owner's address and a section for the well owner's phone number.





NRD Ground Water Technician

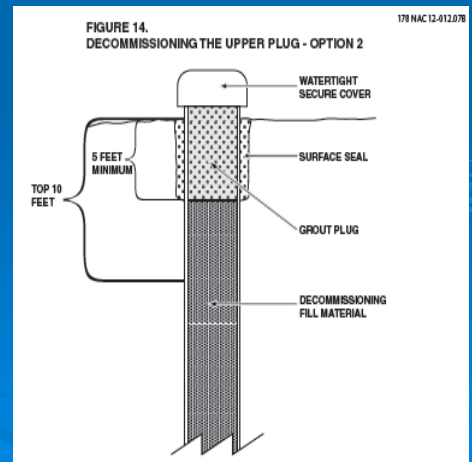
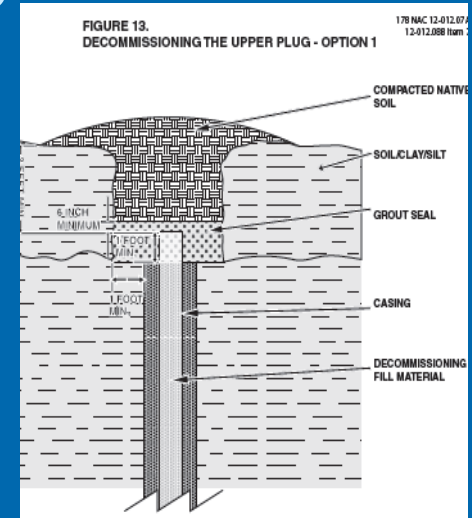
Tutorial: Upper Plug

Upper Plug:

All cased water wells to be decommissioned must have an upper plug to prevent surface and near-surface contaminants from entering the well casing. If the water well records indicate that a surface seal was installed during construction, then either option below may be used. If a surface seal was not installed or it is not known if a surface seal was installed, then Option 1 must be used.

Option 1: Remove the top 3 feet of the well casing and grout the upper 5 feet of the remaining casing. Install a 6-inch thick grout seal above the top of the casing that extends a minimum of 1 foot past the walls of the original drilled hole and extends at least 1 foot below the top of the cut-off casing. Backfill the remainder of the hole with native soil mounded for settlement and proper drainage. (See Figure 13.)

Option 2: If the water well was constructed with an annular surface seal, the water well casing may be left in place. A 5-foot long plug must be placed in the casing within the top 10 feet. (See Figure 14.) A watertight secure cover must be installed on top of the casing.





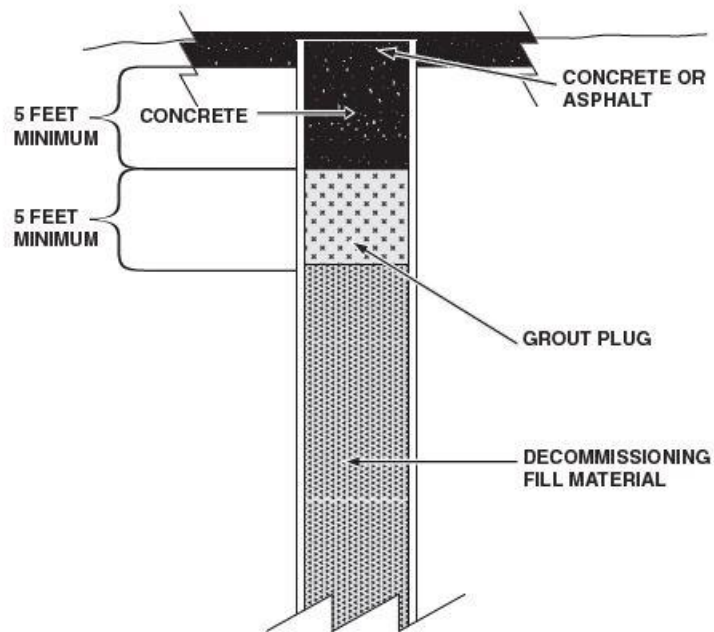
NRD Ground Water Technician Tutorial:

Upper Plug Continued

Option 3: If the water well is surrounded by concrete/asphalt that extends 1 foot beyond the original borehole, and the casing is to be cut off flush with the top of the concrete, then a 5 foot minimum grout plug must be placed 10 feet below the concrete pad, and a minimum of 5 feet of concrete must be installed above the grout plug and struck off level with the top of the concrete. (See Figure 15)

FIGURE 15.
DECOMMISSIONING THE UPPER PLUG - OPTION 3

178 NAC 12-012.07C





NRD Ground Water Technician

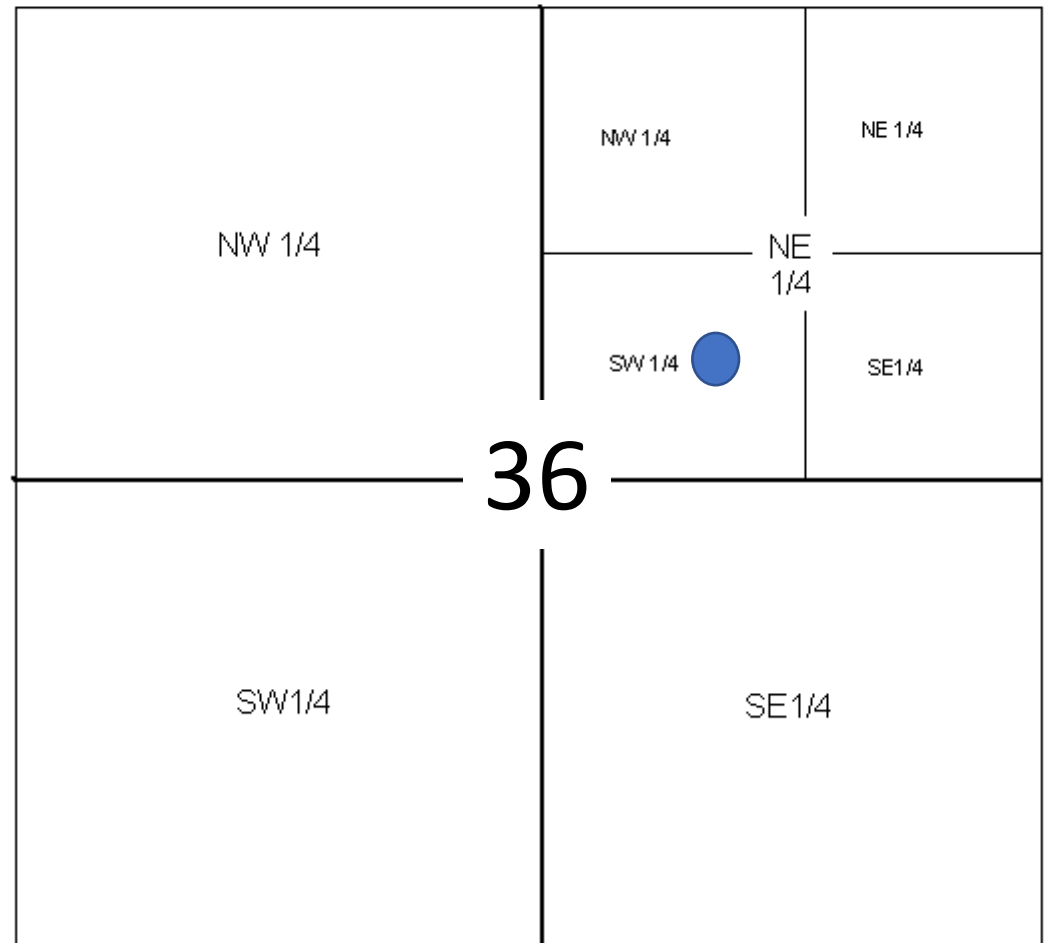
Tutorial- Section $\frac{1}{4}$, $\frac{1}{4}$

A $\frac{1}{4}$ of $\frac{1}{4}$ is 1320' or $\frac{1}{4}$ mile

A $\frac{1}{4}$ of a section is 2460' or $\frac{1}{2}$ mile

A Section is 5280' or 1 mile

Remember to always read
smaller to larger
(SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of
Section 36)



NRD Ground Water Technician Tutorial

Township

Township (N-S) , Section (1-36),
Range (E-W) – known as legal
description

Well Location refers to Township
(North),

Range (East or West), section
and sub section

	R1W					
	6	5	4	3	2	1
	7	8	9	10	11	12
T1N	18	17	16	15	14	13
	19	20	21	22	23	24
	30	29	28	27	26	25
	31	32	33	34	35	36

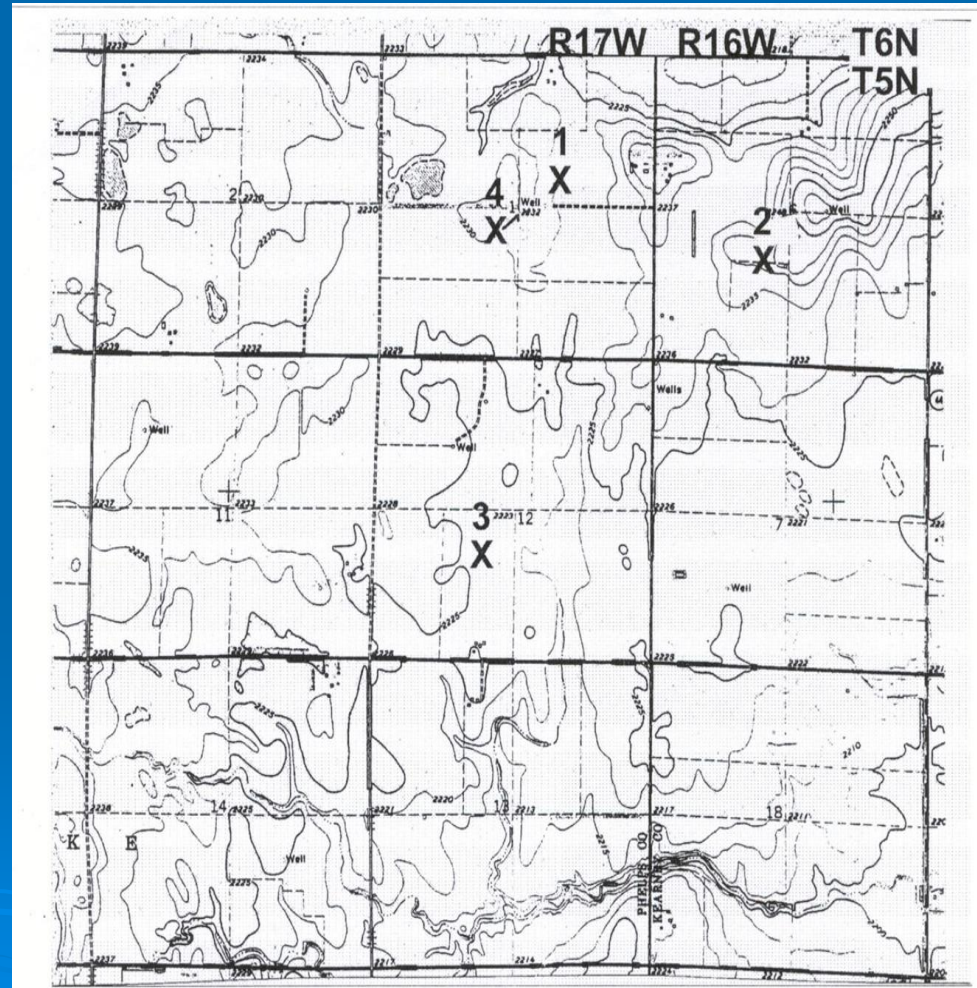


1854
survey marker

NRD Ground Water Technician

Tutorial: Topo Map

- The USGS took over responsibility for mapping the country in 1879 and has been the primary civilian mapping agency of the United States ever since. The best known USGS maps are the 1:24,000-scale topographic maps, also known as 7.5-minute quadrangles.
- Contour lines illustrate differences in elevations
- Based on benchmarks (BM) established from a known geodesic point
- Section = 1 Square Mile
- Read from smaller to larger
- Scaled in minutes (7.5 minutes = 1:24,000)



NRD Ground Water Technician Tutorial:

Legend & Notes from DNR

- Registered Groundwater Wells Database

Legend and Notes:

Use Code Water Use

- A Aquaculture
- C Commercial/Industrial
- D Domestic
- G Ground Heat Exchanger well - Closed Loop Heat Pump well
- H Heat Pump well - Open Loop Heat Pump Well
- I Irrigation
- J Injection
- L Observation (Ground Water Levels)
- O Other - Lake Supply, Fountain, Geothermal, Wildlife, Wetlands,

- Recreation, Plant & Lagoon, Sprinkler, Test, Vapor Monitoring

- P Public Water Supply with Spacing Protection

- Q Monitoring (Ground Water Quality)

- R Recovery

- S Livestock

- T Geothermal

- U Public Water Supply without Spacing Protection

- W Dewatering (Over 90 Days)

Series Type Codes

- Car Connected to pump into a common carrier
- DEQ Part of a DEQ site plan for spill or underground storage
- Mon Monitoring Wells Part of a single site
- PRO Single Project

Registration Number (example G81537A) Prefix of well registration number ('A' or 'G') Well registration number (3-5 digits) (#81537 in above example)

This number is assigned by Nebraska Department of Natural Resources.

Suffix of well registration number (A-Z, AA-ZZ) (A in above example)

Status Status of the well

A Active

I Inactive

S Suspense (Replacement well, original well not yet abandoned)

U Unregistered Abandoned

X Abandoned

Z Inactive Suspense (Pump Not installed, Replacement well original well not yet abandoned)

[Return to Search Page](#)

Nebraska Department of Natural Resources

Database Through: 2/21/2012

Processed: 2/22/2012 9:32:22 AM

REGISTERED GROUNDWATER WELLS DATA RETRIEVAL

Note:

Information on Public Water Supply Wells is not available through this interface. Contact the Department of Natural Resources (Data Bank) at 402-471-2363 for more information. All registration documentation for water wells registered after January 1, 1997, except Public Water Supply wells, are now available.

Due to possibility of a well being in more than one series, an individual well might be listed more than once.

1 Records found.

Registration# Well ID Permit Number	Use Status	County Name NRD Name Well Location Footage Latitude Longitude	Completion Date Filing Date Decommission Date Times Replaced	Acres Irrig Gallons/Min Static Level Pumping Level Series	Pump Col Dia Pump Depth Well Depth	Owner's Name and Address Owner ID
G-123456 WellID: 152371 Other Info Logs View as PDF	D A	Grant Upper Loup 24N 36W 2 NWSE 2710 S 1339 E Map It 42° 4' 58.08" 101° 27' 1.80"	7/17/2003 9/19/2003	— 122 gpm 4.5 ft 18 ft PRO	3 in 42 ft 670 ft	University of Nebraska Lincoln OwnerID: 73801 1700 Y Street Lincoln ,NE 68588

[Data copy of requested wells.](#)

[Data copy of Geo Logs for requested wells.](#)

[Data copy of Casing Screen for requested wells.](#)

[Data copy of Grout Gravel for requested wells.](#)

[Legend and Notes](#)

NRD Ground Water Technician Tutorial: UIC Program

UIC program (Title 122)

- Subsurface drip irrigation (SDI)
 - Needs authorization (Class V) prior to construction
 - **Must maintain 4 feet from SDI tape to GW**





NRD Ground Water Technician Tutorial: Chemigation

Chemigation

- Any accident should be investigated by the appropriate NRD and NDEE
- Must have UIC Class V authorization when used with SDI
- Operator can inject chemicals once a year for maintenance of an SDI system without a chemigation permit





Contacts - DWEE

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- Jaiden Dufek - Lincoln office (402) 471-0546
- Tim Sizer - Arthur office (308) 530-2303
- Bill Allen - Emerson office (402) 922-3360
- Dan Egeland - Clarks office (402) 649-0516





Questions?