

STATE OF NEBRASKA  
DEPARTMENT OF NATURAL RESOURCES

**COPY**

APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER TRANSFERS PERMIT

**INSTRUCTIONS**

**For Department Use Only**

Complete items 1 through 10 by printing in ink or typing the appropriate information and by placing an (X) in the appropriate boxes.

The following information shall be provided on 8 1/2 x 11 inch paper (or folded to such size). An answer is required for each item of A-H. Each answer must be clearly identified in the application. When using a ground water model, justify the applicability to the given geologic setting.

Application Number: MT-8  
Date Filed: October 29, 2004  
Receipt Number: G-35  
Amount: \$ 50.00

- A. Discussion of impacts on surrounding ground water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.
- B. Statement of impacts on any existing threatened or endangered species in project area.
- C. Pump test information, if available, including length of test, data from pump test, and location of observation wells.
- D. Information on geology and hydrology of area such as thickness of aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether aquifer is confined or unconfined.
- E. Description of type of well, including drawings.
- F. Planned operation schedule. (Describe hours per day the wells will likely be pumped, whether there will be seasonal changes to schedule, whether there will be a rotation of wells pumped, and whether certain wells are only for backup purposes.)
- G. Explanation of the basis for the amount of water requested. This should include current population and projected growth, daily per capita water use data, current industrial or other large uses and projected growth. The explanation should also include answers to the requirements for approval of the application stated in § 46-642, R.R.S., 1943, as amended, namely: whether request is reasonable, not contrary to the conservation and beneficial use of ground water, and not detrimental to the public welfare.
- H. Map showing location of proposed wells, pipelines (exclusive of distribution lines) and the area of proposed use. The map shall be legible and at a scale of not less than one inch to the mile.

A non-refundable filing fee (payable to the Department of Natural Resources) can be computed from the table below and must accompany this application.

<u>QUANTITY OF WATER REQUESTED (daily average)</u>	<u>COST</u>
First 5,000,000 gallons per day	\$50.00
Each additional increment (or portion) of 5,000,000 gallons per day	\$20.00

1. Name, address and telephone number of Applicant: Village of Big Springs, Nebraska  
PO Box 147  
Big Springs, NE 69147  
308 889 3681

Name, address and telephone number of person to contact concerning application: Tom Werblow, Village Engr.  
TC Engineering Inc.  
P.O. Box 832 North Platte, NE 69103 - 0832  
308 534 9245

2. Identify the city, village, rural area or other entity to be supplied water: Village of Big Springs, NE

3. Maximum rate of withdrawal for which a permit is requested (complete both) 1000 gallons per minute  
500000 gallons per day

Indicate whether the amount is for each well or a total rate for all wells. All wells.

APP

4. The daily AVERAGE amount of water requested: 104500 Gallons per day

5. Total quantity of water to be withdrawn annually (gallons). 38142500

6. Number of wells proposed: 2

Number of existing wells: 4

**COPY**

7. Location of the proposed ground water wells and existing wells:

(Indicate 40-acre government subdivision, Section, Township, Range and County, and registration number(s) if applicable):

Proposed: NE1/4, S23, T12N, R42W, Deuel County

Existing: NE 1/4, NE 1/4, S2, T13N, R42W, Deuel County

NE1/4, SW1/4, S30, T13N, R41W, Deuel County

SE1/4, SE1/4, S25, T13N, R42W, Deuel County

8. Construction will start on or before MaRCH, 20 05.

9. Construction will be completed on or before March, 20 05.

10. If the permit is granted, does the applicant request imposition of statutory spacing protection for one year for test holes or wells to be constructed?  Yes  No

If yes, indicate below the name and address of the owners and occupiers of land affected by the granting of such spacing protection, and a description of the land they own or occupy.

I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true.

 Village Engineer  
Applicant (Signature and Title)

10-26-04  
Date

Forward application and fee to:

State of Nebraska  
Department of Natural Resources  
301 Centennial Mall South  
P.O. Box 94676  
Lincoln, Nebraska 68509-4676  
(402)471-2363

**APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER  
TRANSFERS PERMIT**

**VILLAGE OF BIG SPRINGS, NEBRASKA**

**October 25, 2004**

**STATE OF NEBRASKA  
DEPARTMENT OF NATURAL RESOURCES**

**and**

**SOUTH PLATTE NATURAL RESOURCES DISTRICT**



**T. C. ENGINEERING INC.**

520 EAST FRANCIS STREET  
P. O. BOX 832  
NORTH PLATTE, NEBRASKA 69103  
(308) 634-9245  
email: tcwerblow@tcengineeringinc.com

**RECEIVED**

**OCT 29 2004  
DEPARTMENT OF  
NATURAL RESOURCES**

# **APPLICATION FORMS**

**APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER TRANSFERS  
PERMIT**

**PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE SOUTH PLATTE NATURAL  
RESOURCES DISTRICT**

**STATE OF NEBRASKA  
DEPARTMENT OF NATURAL RESOURCES**

**copy**

July 2000  
DNR Form 638-2



**APPLICATION FOR A MUNICIPAL AND RURAL DOMESTIC GROUND WATER TRANSFERS PERMIT**

**INSTRUCTIONS**

**For Department Use Only**

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Application Number: \_\_\_\_\_  
Date Filed: \_\_\_\_\_  
Receipt Number: \_\_\_\_\_  
Amount: \_\_\_\_\_

The following information shall be provided on 8 1/2 x 11 inch paper (or folded to such size). An answer is required for each item of A-H. Each answer must be clearly identified in the application. When using a ground water model, justify the applicability to the given geologic setting.

- A. Discussion of impacts on surrounding ground water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.
- B. Statement of impacts on any existing threatened or endangered species in project area.
- C. Pump test information, if available, including length of test, data from pump test, and location of observation wells.
- D. Information on geology and hydrology of area such as thickness of aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether aquifer is confined or unconfined.
- E. Description of type of well, including drawings.
- F. Planned operation schedule. (Describe hours per day the wells will likely be pumped, whether there will be seasonal changes to schedule, whether there will be a rotation of wells pumped, and whether certain wells are only for backup purposes.)
- G. Explanation of the basis for the amount of water requested. This should include current population and projected growth, daily per capita water use data, current industrial or other large uses and projected growth. The explanation should also include answers to the requirements for approval of the application stated in § 46-642, R.R.S., 1943, as amended, namely: whether request is reasonable, not contrary to the conservation and beneficial use of ground water, and not detrimental to the public welfare.
- H. Map showing location of proposed wells, pipelines (exclusive of distribution lines) and the area of proposed use. The map shall be legible and at a scale of not less than one inch to the mile.

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Each additional increment (or portion) of 5,000,000 gallons per day	\$20.00

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PO Box 147  
Big Springs, NE 69147  
308 889 3681

Name, address and telephone number of person to contact concerning application: Tom Werblow, Village Engr.  
TC Engineering Inc.  
North Platte, NE 69103  
308 534 9245

2. Identify the city, village, rural area or other entity to be supplied water: Village of Big Springs, NE

3. Maximum rate of withdrawal for which a permit is requested (complete both) \_\_\_\_\_ 1000 \_\_\_\_\_ gallons per minute  
\_\_\_\_\_ 500000 \_\_\_\_\_ gallons per day

Indicate whether the amount is for each well or a total rate for all wells. All wells.

4. The daily AVERAGE amount of water requested: 104500 Gallons per day

5. Total quantity of water to be withdrawn annually (gallons). 38142500

6. Number of wells proposed: 2 Number of existing wells: 4

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Proposed: NE1/4, S23, T12N, R42W, Deuel County

Existing: NE 1/4, NE 1/4, S2, T13N, R42W, Deuel County

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If yes, indicate below the name and address of the owners and occupiers of land affected by the granting of such spacing protection, and a description of the land they own or occupy.

I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true.

 Village Engineer  
Applicant (Signature and Title)

10-26-04  
Date

Forward application and fee to:

State of Nebraska  
Department of Natural Resources  
301 Centennial Mall South  
P.O. Box 94676  
Lincoln, Nebraska 68509-4676  
(402)471-2363

**PERMIT APPLICATION TO CONSTRUCT A WATER WELL IN THE  
SOUTH PLATTE NATURAL RESOURCES DISTRICT**

**COPY**

1. Name of Landowner: Village of Big Springs, NE  
 Address: PO Box 147  
 City, State Zip: Big Springs, NE 69122  
 Telephone: 308 889 3681  
 Contact other than landowner: Tom Werblow  
 Address & Phone: PO Box 832; North Platte, NE 69103

NRD and DNR use only

Permit # SP- \_\_\_\_\_

Registration # \_\_\_\_\_

2. Purpose of Well:  New Well  Existing Well Modification (If so, registration of well to be modified \_\_\_\_\_)
3. Indicate Use of Well (check one):  Irrigation  Municipal (Public Supply Well)  Commercial/Industrial  Domestic  
 Monitoring  Observation  Injection  Recovery  Livestock  Dewatering (over 90 days)  Ground Heat Exchanger   
 Ground Source Heat Pump  Aquaculture

4. Location of Proposed Well: Attach the necessary aerial photo(s) marking the location of the proposed well and the area to be irrigated (if applicable). Complete the following information regarding the location of the proposed well and irrigated tract of land

Deuel County, Township 12N North, Range 42 West Section 23 Subsection NE 1/4

The well will be located 150 feet from the  North  South section line, and 150 feet from the  East  West section line.

If the purpose of the well is for irrigation, how many acres will be irrigated? For municipal use.

If the water is to be used outside of the above written legal description, give the legal description below:  
Deuel County, Township 13 North, Range 42 West Section 6&25 Subsection \_\_\_\_\_  
Deuel 13 41 30&31

5. Specifications of Intended Water Well and Pump:
- a. Well Casing Diameter: 18 inches b. Pump Column Diameter: 8 inches  
 c. Estimated Pump Capacity: 500 each gpm d. Estimated Total Depth: 330 feet  
 e. Expected Construction Date: JAN 2005 / / f. Attach well log if possible.  
 g. Type of Irrigation System:  Center Pivot  Gravity  Other NA (Please Specify)  
 h. Will this well be used in a series with other wells?  Yes  No If so, how many? 1  
 i. Aggregate capacity of commingled wells (if applicable) 1000 gpm  
 j. Will fertilizer, chemicals, animal waste be applied through the irrigation system?  Yes  No

6. Well Driller: Unknown. Contractor's License Number: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 \_\_\_\_\_ Fax Number: \_\_\_\_\_

7. Replacement & Abandoned Well Information (Notice of abandonment to NDNR is required for all decommissioned water wells)  
 These will replace wells drilled Jan 2004 north of Big Springs. See map
- a. Is this a replacement well?  Yes  No b. Registration Number of well to be replaced \_\_\_\_\_  
 c. Replacement Well is \_\_\_\_\_ feet from original well d. Original well last operated on \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 e. Original well decommissioned on \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ f. Pump column diameter for original well \_\_\_\_\_ inches

8. Late Permit Application:  Check when required.

Date well constructed \_\_\_\_\_ Date application for permit filed with SPNRD \_\_\_\_\_

I certify that I am familiar with the information in this application, and its restrictions pursuant to district rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate.

Date: 10-26-04 \_\_\_\_\_  
 Signature of Applicant

An incomplete or defective application will be returned. Sixty days shall be allowed for resubmission or the application will be returned with conditions attached or denied not later than 30 days after receipt of a complete application and correct filing fee in full and be accompanied by a non-refundable filing fee of \$50.00 (Late permit application fee is \$250) payable to the South Platte NRD; P.O. Box 294, 551 Parkland Drive; Sidney, NE 69162.

*# > changed to replace existing wells*

**PERMIT RESTRICTIONS AND RULES AND REGULATIONS**

1. Well construction cannot begin until this permit is approved and signed by an authorized representative of the South Platte Natural Resources District. Any person who has failed to obtain a permit for purposes of constructing a water well in the District must obtain a late permit. The application for a late permit must be accompanied by a non-refundable \$250 filing fee payable to the South Platte Natural Resources District.
2. This permit shall remain in force for six (6) months following date of approval. If construction of the well is not complete within six (6) months of permit approval, a new permit will be required and the previous permit will be cancelled.
3. Permits are not required for test holes, dewatering wells intended for use of 90 days or less, and water wells designed and constructed to pump 50 gallons per minute or less.
4. Replacement wells do need a permit from the South Platte NRD. A replacement well is a well that replaces a properly abandoned water well within 3 years of the last operation of the abandoned well, or replaces a water well that will not be used after construction of the new water well, provided that the replacement well is not designed or constructed to pump more water than the original well was designed to pump and the replacement well must be used for the same purpose as the original well. Also, the replacement well will provide water to the same tract of land serviced by the well being replaced. No more than one replacement well may be used to replace the original well.
5. After a replacement well is drilled, the abandoned well must be properly decommissioned according to state guidelines within 30 days of construction of the new water well. These guidelines are available from the Nebraska Health and Human Services System. Upon proper decommissioning of any water well, written notice of the abandonment shall be provided by the owner to the Department of Natural Resources within 60 days (§ 46-602(8)).
6. A permit must be obtained for an existing water well that did not require a permit before it is modified into a well that would otherwise require a permit, i.e. modifying a well that pumped less than 50 gallons per minute to one which pumps greater than 50 gallons per minute.
7. This water well must be constructed in accordance with the Water Well Standards and Contractors' Licensing Act and Rules and Regulation adopted pursuant thereto.
8. If the well authorized by this permit is for irrigation, the well may not be constructed closer than 600 feet from another landowner's existing registered irrigation well unless a special spacing permit has been granted from the Nebraska Department of Natural Resources, or unless the well complies with other well-spacing special provisions in current state statute (§§ 46-609, 46-610, 46-611). No irrigation well may be constructed closer than 1,000 feet from a registered industrial or municipal well and no industrial or municipal well may be constructed within 1,000 feet of another registered municipal, industrial, or irrigation well, unless a special spacing permit (§ 46-653) has been granted from the Nebraska Department of Natural Resources or if the wells are owned by the same person.
9. Water wells may not be drilled within 50 feet of a stream bank without first getting a surface water right for that stream from the Nebraska Department of Natural Resources (§ 46-637). This does not apply to replacement water wells if the water wells being replaced were originally constructed prior to July 1, 2000.
10. This permit does not register the well with the Nebraska Department of Natural Resources. All wells are required to be registered with the Nebraska Department of Natural Resources within 60 days after the well is completed.
11. The South Platte NRD encourages that all new non-domestic water wells designed to pump 50 gallons per minute or more be constructed with adequate free space in the pump discharge to accommodate a flow measurement device if required in the future.
12. Any person who commences or causes construction of a well for which the required permit has not been obtained, or who knowingly furnishes false information regarding such permit, shall be guilty of a Class IV misdemeanor pursuant to § 46-602-01 and § 46-613.02.
13. The issuance by the District of this permit, or the registration of a water well by the Director of the Nebraska Department of Natural Resources pursuant to § 46-602, shall not vest in any person the right to violate any district rule, regulation, or control in effect on the date of issuance of the permit or the registration of the water well or to violate any rule, regulation, or control properly adopted after such date.
14. The application for a permit shall be denied if (1) the location or operation of the proposed water well or other work would conflict with any regulations or controls adopted by the district, (2) the proposed use would not be a beneficial use, (3) in the case of a late permit only, that the applicant did not act in good faith in failing to obtain a timely permit.

**SPECIAL PROVISIONS FOR LODGEPOLE CREEK INTEGRATED GROUND WATER MANAGEMENT SUBAREA**

No permits to construct water wells shall be issued within the Lodgepole Creek Integrated Ground Water Management Subarea effective November 7, 2002, for five calendar years, unless the NRD Board of Directors determines that conditions warrant new permits.

**ADDITIONAL RESTRICTIONS/CONDITIONS FOR APPROVAL**

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A well construction permit is hereby approved subject to the permit restrictions listed above.

Signature of District Representative

Date Approved

*A. Discussion of impacts on surrounding ground water and surface water supplies. Include expected radius of cone of depression and how it was determined and location of any existing wells or water rights that may be impacted.*

The proposed well site consists of two wells located approximately 1100 feet apart in the NE ¼, Section 23, T 12 N, R 42 W, in Deuel County, Nebraska. Each well would be drilled using a 32" diameter bore hole, 16" casing and screen. Proposed well location and proposed construction details are in Appendix 1.

Adjacent land use is dryland farming south, west and east. There is irrigated cropland to the north and to the north east from the proposed site. There are two irrigation wells 1/3 mile north of the site and one irrigation well 1/3 northeast of the site. The Village has obtained first right for water well drilling on the portion of land of the proposed site. The quarter of section upon which the proposed well sites sit, has been dryland wheat ground since the beginning of cultivation.

Applications are included prior to Appendix 1, as follows:

- . Permit Application to Construct a Water Well in the South Platte Natural Resources District
- . Application for a Municipal and Rural Domestic Ground Water Transfers Permit

These proposed wells lie within an area within which a well drilling moratorium has been imposed. The Village's response is as follows:

The Village of Big Springs has four existing potentially active wells as shown on the location plan as Well 71-1, Well 72-1, Well 2004-1 and Well 2004-2. In addition, the Village has Well 60-1 and Well 48-1 that are not being used and will definitely be abandoned. Wells 2004-1 and 2004-2 were permitted last year through the South Platte NRD and the State of Nebraska Ground Water Transfer Permit for 500 gpm each. Wells 2004-1 and 2004-2 did not produce the amount of water expected and needed for the Village and will not be used for municipal use. There has been some discussion with adjacent property owners regarding these wells, however, even with these two wells and two more drilled by a private party approximately ¼ mile away, the total capacity would approximate the needs for one pivot. Well 72-1 is pumped at approximately 450 gpm and Well 71-1 is pumped at approximately 300 gpm. It is safe to say that none of these wells would be used by the Village for municipal water supply for the following reasons:

- Well 2004-1: Too far from town and insufficient capacity.
- Well 2004-2: Too far from town and insufficient capacity.
- Well 72-1: Considered under the influence of surface water and therefore subject to water treatment standards.
- Well 71-1: Considered under the influence of surface water and therefore subject to water treatment standards.
- Well 60-1: Insufficient capacity and considered under the influence of surface water and therefore subject to water treatment standards. Pumped approximately 80 gpm.
- Well 48-1: Insufficient capacity and considered under the influence of surface water and therefore subject to water treatment standards. Intended to pump approximately 200 gpm.

The total capacity of all of these wells is 2030 gpm, which is far more than the 1000 gpm of the two wells which are proposed. It should be noted that the proposed wells are actually replacement wells for the six aforementioned wells, but cannot be located near any of the others by reason of the setback requirements of the Nebraska Department of Health and Human Services and the EPA.

*B. Statement of impacts on any existing threatened or endangered species in project area.*

Comments were solicited from the Nebraska Game & Parks Commission and the Fish and Wildlife Service regarding any existing or endangered species being impacted by these wells. No response has been received from either agency as of 10-25-04.

*C. Pump test information, if available, including length of test, data from pump test, and location of observation wells.*

There will be two observation wells as shown on the attached drawing. These are the test wells drilled as required by the Department of Health and Human Services for municipal well projects in Nebraska.

Test pump information will not be obtained until the full wells are developed. The existing test wells would be used as observation wells if and when, the full well is developed.

The Department of Health and Human Services Site Approval and the drillers log for the only test well drilled to date is included in Appendix 2.

*D. Information on geology and hydrology of area such as thickness of aquifer, depth to water, aerial extent, transmissivity and how it was determined, and whether aquifer is confined or unconfined.*

The aquifer thickness is given in the area of the proposed wells as being approximately 200 feet thick according to the Groundwater Maps generated in 1980 by the University of Nebraska Conservation and Survey Division of the Institute of Agriculture and Natural Resources and the State of Nebraska Department of Environmental Control ( now the Dept. of Environmental Quality ).

It appears that the aquifer is unconfined. The thickness of the aquifer appears to extend south, east and west from the proposed site and underlies a total of the parts of a number of sections. The depth to water of 180 feet and the description of the water bearing formations are in the Water Well Registration for the test hole in Appendix 2.

*E. Description of type of well, including drawings.*

Each well is described in the drawings previously referenced. Drilling technique would be most likely reverse circulation rotary. Wells would be fitted with vertical turbine pumps having the motor mounted at the surface of the ground within dedicated well houses, or by using submersible wells and motors, with pitless adapters at the surface of the ground.

Water quality of the proposed well is included in Appendix 3.

*F. Planned operation schedule. (Describe hours per day the wells will likely be pumped, whether there will be seasonal changes to schedule, whether there will be a rotation of wells pumped, and whether certain wells are only for backup purposes.)*

These wells would be the main water supply wells for the Village of Big Springs. Existing wells would be abandoned. It is estimated that the Village would use 0.13 Ac-Ft ( 41800 gallons ) of water per day in the winter time and 0.45 Ac-Ft ( 146300 gallons ) of water per day in the summer time. Average usage would be 0.33 Ac-Ft ( 104500 gallons ) per day.

The wells are proposed to pump at a rate of 1.1 cubic feet per second ( 500 gallons per minute ) when in operation. Thus during normal demand, the combined run time for both wells would not exceed 209 minutes or about 3 ½ hours of pump time per day. Maximum pump time per day is 293 minutes per day or about 5 hours per day.

The lead well may vary by each call for water, daily or weekly, depending upon how the operator chooses to manipulate his controls. It will be possible to run both wells simultaneously, however, it is unlikely that that would be necessary or desirable, except in emergency conditions, such as a fire demand.

*G. Explanation of the basis for the amount of water requested. This should include current population and projected growth, daily per capita water use data, current industrial or other large uses and projected growth. The explanation should also include answers to the requirements for approval of the application stated in § 46-642, R.R.S., 1943, as amended, namely: whether request is reasonable, not contrary to the conservation and beneficial use of ground water, and not detrimental to the public welfare.*

The amount of water requested is based upon current population equivalent for Big Springs of 418 and an average water use as follows based upon season:

<u>Season:</u>	<u>Per Capita Water Use:</u> ( Gallons )
Winter	100
Summer	350
Average	250

These are based upon sound engineering practice and " text book " averages. There are no large water users within Big Springs at this time and no expected spurts of growth. These are reasonable requests and reflect that the Village recently installed water meters on every water service within the community and have raised water rates to a level which promotes conservation, especially in the summer. This is in accordance with sound public policy and should promote the general public welfare.

*H. Map showing location of proposed wells, pipelines (exclusive of distribution lines) and the area of proposed use. The map shall be legible and at a scale of not less than one inch to the mile.*

A map of the overall location is included in Appendix 1. The area of the proposed use is the Village of Big Springs corporate limits. There would be no services between the well site and the water distribution system for the Village of Big Springs.

FILING FEE CALCULATION:

*A non-refundable filing fee (payable to the Department of Natural Resources) can be computed from the table below and must accompany this application.*

**QUANTITY OF WATER REQUESTED (daily average) COST**

First 5,000,000 gallons per day \$50.00 = \$ 50.00

Each additional increment (or portion) of 5,000,000 \$20.00  
gallons per day = NONE.

Total: \$ 50.00

*1. Name, address and telephone number of Applicant:*

VILLAGE OF BIG SPRINGS, NEBRASKA 69122  
PO BOX 147  
BIG SPRINGS, NE 69122 – 0147  
  
PHONE: ( 308) 889 - 3681

*Name, address and telephone number of person to contact concerning application:*

TOM WERBLOW  
TC ENGINEERING INC.  
PO BOX 832  
NORTH PLATTE, NE 69103 - 0832  
  
PHONE: ( 308) 534 – 9245

*2. Identify the city, village, rural area or other entity to be supplied water:*

VILLAGE OF BIG SPRINGS, NEBRASKA 69122

*3. Maximum rate of withdrawal for which a permit is requested (complete both)*

1000 gallons per minute  
500000 gallons per day

This is a maximum rate of withdrawal as requested and assumes that there is a fire demand or some other extended and un-planned emergency.

**APPENDIX 1**

**LOCATION MAP**

**PROPOSED WELL CONSTRUCTION DETAILS**

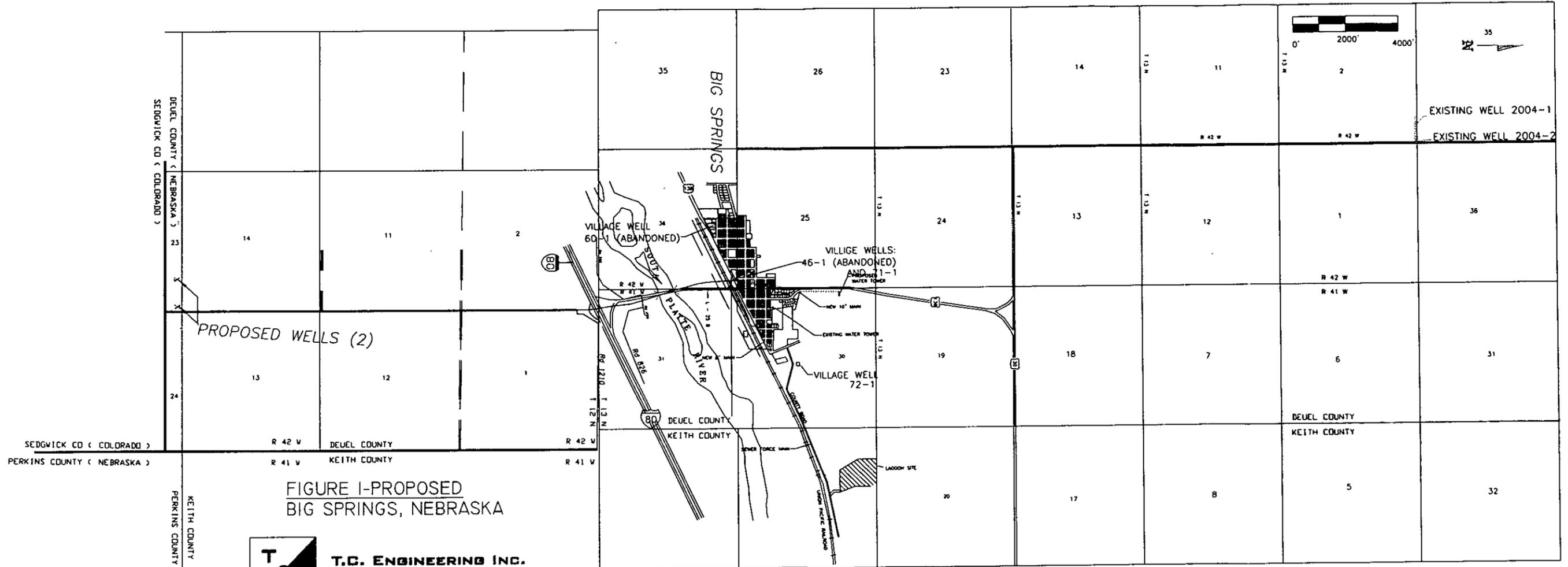


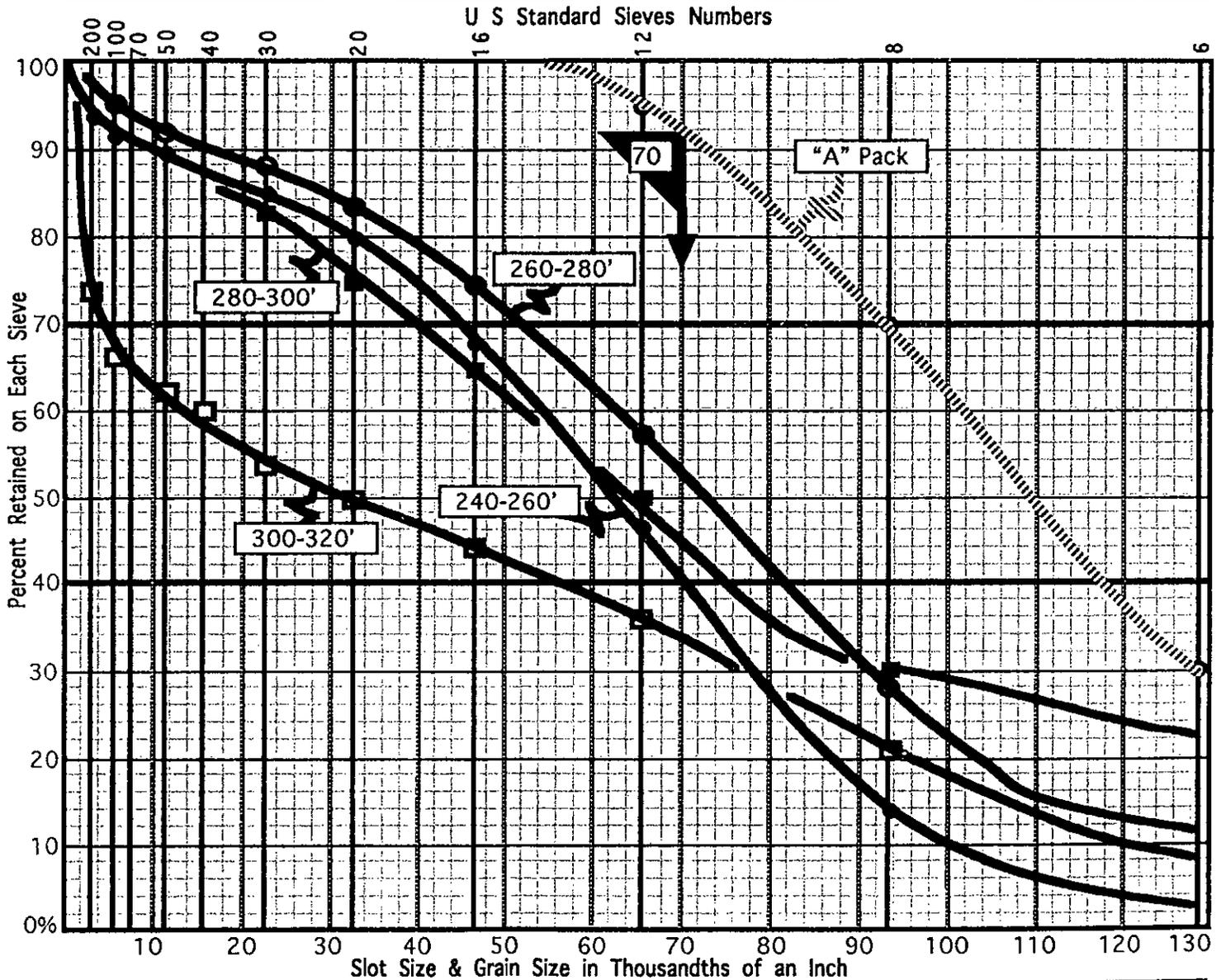
FIGURE I-PROPOSED  
BIG SPRINGS, NEBRASKA



**T.C. ENGINEERING INC.**  
NORTH PLATTE, NEBRASKA

Job Name Big Springs, NE TH#04-1 Date: September 24, 2004  
 Contractor Sargent Drilling, Broken Bow, NE Engineer  
 Comments 180' SWL Artesian Aquifer Design Analysis by David T. Hanson, Design Water Technologies

Graph Code for Formation Samples  
 ● 240-260'    ○ 260-280'    ■ 280-300'    □ 300-320'



Screen Recommendations Alloy Const: 135 wire	Slot	Length	Setting
Diameter: 16" PS, Extra Collapse Strength	70 (.070") slot	50'	250-300'
Open Area: 241.3 sq. in./ft or 40%.			
Transmitting Capacity: 74.8 GPM/ft @ .1'/sec			

Comments/Recommendations: The recommended filter pack should be similar to the "A" Pack available from Central Sand in Grand Island, Nebraska. This choice of packs is a little conservative because of the high percentage of fines in these samples.

Our recommendations are based upon collected samples. We assume no responsibility for the successful, sand free operation of a well

### Design Considerations

This well will probably react to pumping as a Artesian Water Table Aquifer as long as the pumping level be kept above 238'. The best part of the aquifer according to the electric log information is from 238 to 300' (62' thickness) and is consistent with the samples received and sieved. The recommended length of screen (50') represents screening 80% of this best part of the aquifer thickness. This will provide optimum yield potential for the well.

A screen set to a depth of 300' should have a minimum calculated collapse of 58 psi. The recommended screer as manufactured by Alloy Screen of Houston Texas has a calculated collapse strength of 98.8 psi.

### Estimates of Well Yield

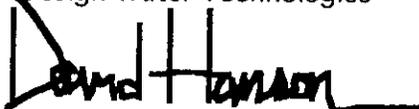
The actual aquifer is probably stratified with stingers of fine, cemented sands so it is difficult to accurately predict Permeability. Visual estimates of Permeability with gravels similar in grain size may range conservatively between 1000 to 1800 gallons per day/foot squared. This would calculate to an estimated Transmissivity between 60,000 to 110,000 gallons per day. Estimated field Specific Capacity would be estimated between 20 to 35 GPM/foot of drawdown.

Please use these only as estimates as all calculations are based upon visual estimates of similar size sand and gravel which may not be truly representative of the actual formation, or any layering effects. It also can not account for any boundary or recharge conditions within the aquifer.

If you have any questions, please call. Thank you.

Sincerely,

Design Water Technologies



David T. Hanson, President  
Alloy Screen Technical Representative

*Check out our new web site  
@ [www.designwater.com](http://www.designwater.com)*

Enclosed: 2 copies

## **APPENDIX 2**

### **WELL SITE APPROVAL**

#### **TEST WELL REGISTRATIONS INCLUDING DRILLERS LOGS**

October 25, 2004

T.C. Engineering  
 C/o Thomas Werblow  
 520 E. Francis St.  
 North Platte, NE 69101

**Re:** 2004-1 and 2004-2 new proposed well site inspections, PWS NE 31-04902, Village of Big Springs, # 15 South Platte NRD, Deuel County.

Dear Mr. Werblow:

Recently, on October 22, 2004 I inspected the following proposed well sites 2004-1 and 2004-2, with Tom Werblow, T.C. Engineering. The following GPS well site locations for:

<b>2004-1 is:</b>	N. 41 00 12.9
	W. 102 04 16.8
<b>2004-2 is:</b>	N. 41 00 14.3
	W. 102 04 30.3

The proposed well site **2004-1** and **2004-2** is "Acceptable" for locating a Community Public Water Supply well for human consumption. This decision is based on the GPS locations stated herein and the fact that the site **does** meet the setback recommendations as stated in Attachment 1 of Title 179 NAC Chapter 2 Regulations Governing Public Water Supply Systems.

If Total Water Quality (TWQ) samples are to be taken from the proposed wells describe herein, the PWS or its designated representative must use the assigned following three numbers for each test kit to be ordered:

- A. Project number - NE 31-04902
- B. Client ID number - TW 2004-1 and TW 2004-2
- C. Locator number - Test Well number 2004-1 and Test Well 2004-2

If these numbers are not used, you will not be able to receive the sample kits of test the proposed wells in a timely manner.

NORTH PLATTE LOCAL OFFICE  
 200 SOUTH SILBER, NORTH PLATTE, NEBRASKA 69101, (308) 535-8134 FAX (308) 535-8175

*AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER*

PRINTED WITH SOY INK ON RECYCLED PAPER

T.C. Engineering  
Thomas Werblow  
Page 2

If I may be of further assistance to you in this matter please contact me by E-Mail at [doug.allen@hhss.ne.gov](mailto:doug.allen@hhss.ne.gov) or by phone at (308)-535-8216 or at the address on this letter. If you have any questions, you may also contact Doug Woodbeck, Field Services Program Manager, at [doug.woodbeck@hhss.ne.gov](mailto:doug.woodbeck@hhss.ne.gov) or by phone at (402) 471- 0521 or Subhash Jha, Engineering Services Program Manager, at [subhash.jha@hhss.ne.gov](mailto:subhash.jha@hhss.ne.gov) or by phone at (402)-471-0524 with questions regarding this matter.

Sincerely,



Doug Allen  
Water Supply Specialist  
State of Nebraska  
HHSS-R&L-PHA-EHS

CC: Doug Woodbeck, Field Services Program Manager  
Subhash Jha, Engineering Services Program Manager  
Greg McGreer, Chairman  
Curtis Brown, Maintenance Supervisor  
South Platte NRD  
File



**PUBLIC WATER SUPPLY  
Inspection Report**

System Name VILLAGE OF BIG SPRINGS Account Number NE31-04902  
 Person Contacted TOM WERLOW Title VILLAGE ENGINEER Phone 302-531-9245  
 Inspector DOUG ALLEN Phone 308-536-3929  
 Type Inspection: 01 Sanitary Survey for Cause 02 Construction 03 Final  
 04 Site 05 Other: \_\_\_\_\_

REMARKS WELL # 2004-1 EAST (PROPOSED & SUBMITTED EE 127)  
WELL SITE ACCEPTABLE FOR MUNICIPAL  
WELL AS PER EE 127

WELL # 2004-2 WEST (PROPOSED & SUBMITTED EE 127)  
WELL SITE ACCEPTABLE FOR MUNICIPAL  
WELL. AS PER EE 127

GPS LOCATION OF 2004-1 EAST  
 N 41° 00 12.9  
 W 102° 04 16.8

GPS LOCATION OF 2004-2 WEST  
 N 41° 00 14.3  
 W 102° 04 30.3

Inspector's Signature

*Doug Allen*

*OK to have wells close together*

Report Received By:

*[Signature]*

*10-22-07*

Signature

Date



DEPARTMENT OF NATURAL RESOURCES  
WATER WELL REGISTRATION

Fee Paid \$70.00 DNR Cash Fund \$18.50  
HHSS Fee \$30.00 HHSS-DNR Cash Fun \$0.00  
Get Billing 8013

FOR DEPARTMENT USE ONLY

NOL ID 109536372625185 NOL Status Accepted Well Status A Registration Code G-129803  
Owner ID 2640 NOL Date 09/17/2004 Call Up Code Registration Date 09/17/2004  
Seq Num 161987 Call Up Date

09172004 - 161987 - WWRF

a Owner's Name Village of Big Springs  
b Company Name  
c Correspondent Name Attention Name  
Address PO Box 147  
City: Big Springs State NE Zip Code 69122 Phone 308 - 889-3681

a HHSS Contractor Lic ID: 16593907 Contractor's Name: Loren C. Taylor  
Contractor's License No: 3919407 Contractor's Email Address:  
b Drilling Firm Name Charles Sargent Irrigation Inc (Drilling) -Broken  
Address P.O. Box 627  
City: Broken Bow State NE Zip Code 68822 Phone 308 - 872-5125  
Drilling Firms Email Address drilling@sargentirrigation.com

a Well Location SENE of Section 23 Township 12 North, Range 42 W (E/W). Deuel County  
b Natural Resource District South Platte  
c The well is feet from the (N/S) section line and feet from the (E/W) section line  
GPS: or Latitude: 41 00' 12.70" Longitude: -102 04' 16.70"  
d Street address or block, lot and subdivision, if applicable: Block No Lot  
e Location of water use, if applicable (give legal descriptions) SENE, S 23, T 12 N, R 42 W, Deuel Co.  
f If for irrigation, the land to be irrigated is Acres  
g Well Reference letter(s), if applicable

	Permits Number	Date	Permits	Permits Number	Date
1 Management Area Permit			Transfer Out-Of-State		
Surface Water			Well Spacing		
Geothermal			Conduct Water		
Industrial			Municipal		
Industrial Transfer Notice			Other		

5 Purpose of Well Observation (Ground Water Levels) Other  
Notes

6 Wells in a Series  
a Is this well a part of a series?  
b If one or more of the wells in the series is currently registered, give the well registration number  
c How many wells in the series are you registering at this time?

7 Replacement and abandoned well information  
a Is this well a replacement well?  
b Registration number of abandoned well  
If not registered, date abandoned well was constructed  
c Replacement well is feet from abandoned well.  
d Abandoned well last operated

SEP-22-2004 04:39 FROM:BIG SPRINGS CITY SHD 13088983641 TO:1308543735 P.1/3

09172004 - 161987 - WWRP

e Original well pump column size:  Inches. f Completion of original abandonment on   
 Location of water use of abandoned well

**8 Pump Information**

a Is pump installed at this time?   
 Is pump installed by well owner in section 17  Is pump installed by contractor in section 2?   
 Else installed by pump installer.

b HHSS Installer's License ID.   
 Pump Installer's License No.  Pump Installer's Name   
 Pump Installer's Email Address   
 Pump Installer's Firm Name   
 Pump Installer's Firm Address   
 City:  State  Zip Code  -0000 Phone  -   
 Pump Installer's Firm Email Address

c Pumping Rate  gallons per minute  measured or estimated  
 d Drop pipe diameter  inches e Length of drop pipe  feet.  
 f Pumping equipment installed  /  /  g Pump Brand   
 h This well will be used to pump less than 50 gpm

**9 Well Construction Information**

a Total well depth  300 . feet. b Static Water Level  180 . feet.  
 c Pumping Water Level  feet. d Well construction began:  09 /  09 /  2004  
 e Well construction completed:  09 /  09 /  2004 f Bore hole diameter in inches. Top  11 . Bottom  11 .  
 g Casing and Screen Joints  Glued  Other

**10 Well Construction (Casing and Screen)**

From Depth	To Depth	Inside Diam	Outside Diam	Thickness	Screen Slot Size	Material	Trade Name	Ca
0	252	4	4.5	.375		PVC		
252	292	4	4.5	.375	0.032	PVC	Titan	
292	300	4	4.5	.375		PVC		

**11 Well Construction (Grout and Gravel)**

NOL ID	From Depth	To Depth	Material
10953637262	0	240	Bentonite Hole Plug
10953637262	240	300	Gravel

**12 Geolog Material Logged**

NOL ID	From Depth	To Depth	Description
10953637262	0	2	Top Soil
10953637262	2	15	Medium to Coarse Gravel
10953637262	15	20	Sandy Clay
10953637262	20	50	Fine to Medium Gravel, Trace Coarse Gravel
10953637262	50	85	Sandy Clay
10953637262	85	90	Fine Gravel
10953637262	90	133	Sandy Clay
10953637262	133	140	Coarse Sand, Trace of Fine Gravel
10953637262	140	160	Coarse Sand, Fine Gravel
10953637262	160	170	Sandy Clay
10953637262	170	200	Sandy Clay, Trace Mag
10953637262	200	238	Sandy Clay

SEP-22-2004 04:39 FROM:BIG SPRINGS CITY SHD 13088893641 10:13085343735 P.2/3

NO.	ID	From Depth	To Depth	Description
0953637262		238	240	Coarse Sand, Trace of Fine Gravel
10953637262		240	300	Coarse Sand, Fine Gravel

# SARGENT IRRIGATION CO.

GRANT, NE  
308-352-4379

OGALLALA, NE  
308-284-4750

IMPERIAL, NE  
308-882-4259

## TEST WELL LOG

OWNER: Big Springs Village

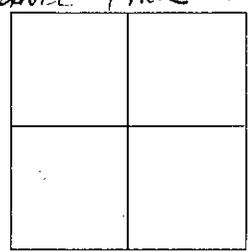
DATE: 9-8-04

ADDRESS: \_\_\_\_\_

6-129803

COUNTY	Interval	Description
		<u>Duel 1/4 NE 1/4 NE S 23 T 12 R 42</u>
0	20	<u>3 Top Soil 13 M/C Gravel 4 SClay</u>
20	40	<u>20 F/M Gravel tr C Gravel</u>
40	60	<u>10 F/M Gravel tr C Gravel 10 SClay</u>
60	80	<u>20 SClay</u>
80	100	<u>5 SClay 5 FGravel 10 SClay</u>
100	120	<u>20 SClay w Very few thin C Sand layers</u>
120	140	<u>13 SClay w Very few thin C Sand layers 7 C Sand tr FGravel</u>
140	160	<u>20 C Sand FGravel</u>
160	180	<u>10 SClay 10 SClay w Mag</u>
180	200	<u>20 SClay w F/M Gravel layer tr Mag</u>
200	220	<u>20 SClay w 4 Sand layers</u>
220	240	<u>18 SClay w 5 Sand layer 2 C Sand tr FGravel</u>
240	260	<u>20 C Sand FGravel</u>
260	280	<u>20 C Sand FGravel</u>
280	300	<u>20 C Sand FGravel</u>
300	320	<u>8 C Sand FGravel 30" 1/2 C Sand w thin SClay layers (Trashy)</u>
320	340	<u>20 C Sand w 5 S and SClay layers (Trashy)</u>
340	360	<u>8 C Sand w SClay layers (Trashy) 12 Green SClay</u>
360	380	<u>8 Green SClay tr C Sand 1/2 Brule</u>
380	400	
400	420	
420	440	<u>+2 } 4 1/2" PVC CASING</u>
440	460	<u>250</u>
460	480	<u>40 } 4 1/2" SCREEN .016</u>
480	500	<u>8 } Sump</u>
500	520	<u>300 TD</u>
520	540	
540	560	
560	580	<u>0-240 3/8" CHIPS</u>
580	600	<u>240-300 TD GRAVEL PACK 1+yd</u>

N 41° 00' 12.5"  
W 102° 04' 16.7"  
AC 14 FT



### WELL COMPLETION RECORD

DEPTH _____	SWL _____
HOLE _____	PWL _____
CASING _____	
PERF _____	
GRAVEL _____	
GROUT _____	<u>Aaron Withington</u>
DRILLING FLUID _____	

## **APPENDIX 3**

### **WATER QUALITY ANALYSIS OF PROPOSED WELL**

**Nebraska Health and Human Services  
 Regulation and Licensure • Laboratory Services**  
 3701 South 14th Street  
 Lincoln, NE 68502  
 (402) 471-2122  
 (402) 471-2080 (fax)

**SARGENTBRO  
 SARGENT IRRIGATION-BROKEN BOW  
 GARY MCCrackEN  
 BOX 627  
 BROKEN BOW, NE 68822**

Laboratory Report Printed on: OCT-05-04

**Laboratory Analysis For: PRIVATE 13 PARAMETER**

Page: 1 of 1

**Sample Comments:**

Laboratory Number: P26216-10  
 Sampled By: SARGENT DRILLING  
 Location: TEST WELL BIG SPRING

Date Collected: 13-Sep-2004 09:30 PM  
 Date Received: 14-Sep-2004

Parameters	Test Results	Qualifier	Report Level	Units	Method	Prep Date	Analysis Date	Analyst
Alkalinity, Total	120		20	mg/l	2320B		09/21/04	SH
CALCIUM	24.7		.15	mg/l	215.1		09/28/04	CC
Chloride	254		1	mg/L	4500CL-E		09/16/04	km
Nitrate+Nitrite (As N)	1.6		.05	mg/l	353.2		09/15/04	sr
Fluoride	0.54		.2	mg/l	4500F-C		09/21/04	JN
IRON	<RL		50	ug/l	SM3111B		09/28/04	CC
Hardness, Total	120		4	mg/l	2340C		09/21/04	SH
MANAGANESE	<RL		1	ug/l	200.8		09/24/04	CC
SODIUM	<RL		10	mg/l	SM3111B		09/28/04	CC
pH	7.81			pH	150.1		09/15/04	SH
SULFATE	<RL		10	mg/l	EPA 375.4		10/01/04	HK
TOTAL COLIFORM	200		0	cfu/100ml	0223B-QT		09/15/04	HK
E. COLI	0.0		0	cfu/100ml	0223B-QT		09/15/04	HK
Solids, Total Dissolved (Tds)	199		10	mg/l	180.1		08/14/04	SH

**Report Remarks:**

LOT 280 CZ

See reverse side of report for description of acronyms and data qualifiers  
 For Inquiries on result interpretation call: (402) 471-2541.

*from test  
 hole/monitor well  
 6-129803*

10/05/2004 13:25 3088726512  
10/05/2004 12:31 FAX 402 471 2080

SARGENT IRRIGATION  
HHS LABORATORY

PAGE 03/03  
002

**Nebraska Health and Human Services  
Regulation and Licensure - Laboratory Services**

3701 South 14th Street  
Lincoln, NE 68502  
(402) 471-2122  
(402) 471-2080 (fax)

SARGENTBRO  
SARGENT IRRIGATION-BROKEN BOW  
GARY MCCrackEN  
BOX 627  
BROKEN BOW, NE 68822

Laboratory Report Printed on: OCT-05-04

**Laboratory Analysis For: ARSENIC AND URANIUM**

Page: 1 of 1

Sample Comments:

Laboratory Number: P26216-17  
Sampled By: SARGENT DRILLING  
Location: TEST WELL BIG SPRING

Date Collected: 13-Sep-2004 03:30 PM  
Date Received: 14-Sep-2004

Parameters	Test Results	Qualifier	Report Level	Units	Method	Prep Date	Analysis Date	Analyst
ARSENIC	6.87		2	ug/l	200.8		09/24/04	CC
URANIUM	3.26		1	ug/l	200.8		09/24/04	CC

Report Remarks:

See reverse side of report for description of acronyms and data qualifiers  
For inquiries on result interpretation call: (402) 471-2541.