

OCT 15 2004

Permit No: 63-11060

STATE OF IDAHO DEPARTMENT OF WATER RESOURCES  
DEPARTMENT OF WATER RESOURCES  
**BENEFICIAL USE FIELD REPORT**

### A. GENERAL INFORMATION

Permit No: 63-11060  
Exam Date: 7/24/1991  
& 9/24/2004

1. Current Owner: RICHARD M HORMAECHEA  
C/O RMH CO  
PO BOX 6887  
BOISE ID 83707  
(208)336-2200

And/Or

MARY B HORMAECHEA  
PO BOX 6887  
BOISE ID 83707  
(208)336-2200

2. Accompanied by: Terry Nyborg and Charles Brockway

Phone No: Same Address for Terry Nyborg and (208) 736-8543 for Charles Brockway

Address: Same address as above for Terry Nyborg and 2016 North Washington St, Suite 4, Twin Falls, Idaho 83301 for Charles Brockway.

Relationship to Permit Holder: Terry Nyborg is the Feedlot Manager and Charles Brockway is their consultant.

- ### 3. SOURCE
- GROUND WATER

## TRIBUTARY

N/A

## B. OVERLAP REVIEW

1. Other water rights with the same place of use: 63-4148A, 63-25981, 63-25982, and Drainage Dist. #2Rights
2. Other water rights with the same point of diversion: 63-4148A, 63-25981, and 63-25982

### C. DIVERSION AND DELIVERY SYSTEM

**1. LOCATION OF POINT(S) OF DIVERSION:**

|                            |               |         |          |               |
|----------------------------|---------------|---------|----------|---------------|
| GROUND WATER<br>ADA County | L1 NE1/4NE1/4 | Sec. 3, | Twp 04N, | Rge 01W, B.M. |
| GROUND WATER<br>ADA County | L2 NW1/4NE1/4 | Sec. 3, | Twp 04N, | Rge 01W, B.M. |
| GROUND WATER<br>ADA County | L1 NE1/4NE1/4 | Sec. 3, | Twp 04N, | Rge 01W, B.M. |

**Method of Determination: VISUAL INSPECTION AND GIS MAPPING WITH AERIAL PHOTOS**

2.

**PLACE OF USE:** STOCKWATER

[illegible]

**PLACE OF USE:** COMMERCIAL STORAGE

| Twp | Rge | Sec | NE        |           |           |           | NW        |           |           |           | SW        |           |           |           | SE        |           |           |           | Totals |
|-----|-----|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| 04N | 01W | 3   | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> |        |
|     |     |     |           |           | X         |           |           |           |           |           |           |           |           |           |           |           |           |           |        |

**PLACE OF USE:** DOMESTIC

| Twp | Rge | Sec | NE        |           |           |           | NW        |           |           |           | SW        |           |           |           | SE        |           |           |           | Totals |
|-----|-----|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| 04N | 01W | 3   | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> |        |
|     |     |     | X         |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |        |
|     |     |     | L 1       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |        |

**PLACE OF USE:** COMMERCIAL

| Twp | Rge | Sec | NE        |           |           |           | NW        |           |           |           | SW        |           |           |           | SE        |           |           |           | Totals |
|-----|-----|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| 04N | 01W | 3   | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> |        |
|     |     |     | X         | X         | X         |           |           |           |           |           |           |           |           |           |           |           |           |           |        |
|     |     |     | L 1       | L 2       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |        |

**PLACE OF USE:** COMMERCIAL FROM STORAGE

| Twp | Rge | Sec | NE        |           |           |           | NW        |           |           |           | SW        |           |           |           | SE        |           |           |           | Totals |
|-----|-----|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| 04N | 01W | 3   | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> | <u>NE</u> | <u>NW</u> | <u>SW</u> | <u>SE</u> |        |
|     |     |     | X         | X         | X         |           |           |           |           |           |           |           |           |           |           |           |           |           |        |
|     |     |     | L 1       | L 2       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |        |

**DIVERSION TO STORAGE same as COMMERCIAL FROM STORAGE**Method of Determination: VISUAL INSPECTION AND GIS MAPPING WITH AERIAL PHOTOS

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- YES Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- YES Aerial Photo Attached (required for irrigation of 10+ acres).
- YES Photo of Diversion and System Attached

4.

| Well or Diversion Identification No.* | Motor Make       | Hp     | Motor Serial No. | Pump Make  | Pump Serial No. or Discharge Size |
|---------------------------------------|------------------|--------|------------------|------------|-----------------------------------|
| WELL #1                               | FRANKLIN         | 7.5 Hp | MODEL 5CLC007    | FRANKLIN   | MODEL 5CLC007 4 INCH DISCHARGE    |
| WELL #2                               | FRANKLIN         | 30 Hp  | 2366066020       | FRANKLIN   | MODEL 7CHC 4 INCH DISCHARGE       |
| WELL #3                               | GRUNDFOS         | 5 Hp   | S8S1138110       | GRUNDFOS   | 150S50-2-5 HP                     |
| RELIFT PUMP SPRINKLERS                | BERKLEY          | 50 Hp  | R-6831-08-076    | BERKLEY    | 8 INCH DISCHARGE                  |
| RELIFT PUMP TRUCK FILL                | GENERAL ELECTRIC | 25 Hp  | 143588LCP        | PARMA PUMP | 7308358t 8 INCH DISCHARGE         |

\*Code to correspond with No. on map and aerial photo

**D. FLOW MEASUREMENTS**

1.

| Measurement Equipment | Type | Make | Model No. | Serial No. | Size | Calib. Date |
|-----------------------|------|------|-----------|------------|------|-------------|
|                       |      |      |           |            |      |             |
|                       |      |      |           |            |      |             |

2. Measurements:

No actual measurement was possible without excavating mainlines. Theoreticals and pump curves used to determine flow rate.

**E. FLOW CALCULATIONS**

Measured Method:

YES Additional Computation Sheets Attached

WELL #1

PUMP CURVE = 0.27 CFS

THEORETICAL = 0.25 CFS

USE → 0.25 CFS

WELL #2

PUMP CURVE = 1.06 CFS

THEORETICAL = 1.01 CFS

USE → 1.01 CFS

WELL #3

PUMP CURVE = 0.28 CFS

THEORETICAL = 0.33 CFS

USE → 0.28 CFS

0.25 CFS + 1.01 CFS + 0.28 CFS = 1.54 CFS ALLOWABLE

**F. VOLUME CALCULATIONS**

## 1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$$

## 2. Volume Calculations for Other Uses:

Please see attached sheet.

DOMESTIC USE = 1.2 AFA

STOCKWATER = 215 AFA

COMMERCIAL (12/16 TO 3/14) = 0.9 AFA

COMMERCIAL (3/15 TO 12/15) = 285.5 AFA

COMMERCIAL STORAGE AND COMMERCIAL FROM STORAGE = 2.1 AFA

TOTAL = 502.6 AFA

**G. NARRATIVE/REMARKS/COMMENTS**

The water for this permit is diverted from 3 wells, two in the NENE and one in the NWNE of S3 T4N R1W. The water is diverted into a common mainline that supplies water to a trailer home and yard for domestic use. It also supplies an office building, two shops, truck washing facility, horse washing facility, and feed mixing facility for a portion of the commercial use. The mainline also feeds approximately 80 stockwater tanks to supply a 16,000 head feedlot.

The stockwater tanks are designed to allow a constant flow of water through the tanks to keep down moss, reduce ice buildup in winter, and provide fresh water for the animals. Each of the stockwater tanks has a valve or spigot that allows the owner to adjust the water flow into each tank. The tanks have a standpipe in the tank that maintains the water level in the tank. The water that overflows into the standpipe flows down a drainage pipeline into the fresh pond. Each of the tanks holds approximately 170 gallons of water.

The water in the fresh pond is then re-lifted by a 50 Hp pump into a sprinkler system used for dust abatement. The dust abatement sprinkler system consists of 6-big gun sprinklers that apply approximately 630 gpm of water to the feedlot. The six sprinklers are moved throughout the feedlot to multiple heads along a mainline type system. The well water and dust abatement water mainlines are not connected. The owners also fill an 8,000 gallon water truck with a 25 Hp Parma Pump to spray down the alley ways and pens that are not covered by the sprinkler system. The water truck makes approximately 13 runs per day. The sprinklers are only operated approximately 12 Hours a day to allow time for the fresh water pond to refill. The dust abatement system is only needed approximately 210 days a year. The dust abatement system can fill and empty the pond within 24 hours, so commercial from storage is not needed during the standard dust abatement season.

The fresh pond does have an overflow system that sends any excess water into a nearby drain. This overflow is rarely used, but it is required by other state agencies. The owners try to regulate the stockwater troughs to only put the amount water needed for the sprinkler system into the pond. However, when they are not using the sprinkler system or they have a sudden wet spell, some overflow may occur. Each stockwater trough must be regulated individually. So, it could be a couple of days to get the system regulated to minimum flow.

The dust abatement system has been used periodically during the winter months during extremely dry seasons. However, the permit was filed in such a way that does not allow for the dust abatement between 12/16 and 3/15 each year. In conversations with Shelley King, we decided that we couldn't change the season of use of the commercial use of the permit without amending and re-advertising the permit. However, we did determine that the 2.1 acre-feet of water stored in the pond on a year round basis could be used if necessary under these unusual circumstances. Therefore, we recommend that the commercial from storage use be allowed on a year round basis. The owner will not be allowed by this permit to diverted excess water through the stockwater tanks during the winter season for dust abatement purposes.

The increase in diversion rate for commercial use and the volume for commercial use during the spring, summer, and fall seasons comes mainly from the dust abatement system. The sprinkler system diverts approximately 1.40 cfs. Even though the owner can divert the entire capacity of the wells of 1.54 cfs to the pond, it is very unlikely that this happens with the stockwater and other commercial use requirements. With the stockwater and other commercial uses, the wells and the pond cannot supply enough water for continuous use of the sprinklers for a 24-hour period. The owners can only operate their dust abatement sprinklers for approximately 12 hours then they need to allow the pond to refill before they begin again. Therefore, the volume for the dust abatement must be accounted for as a commercial use and not included in the storage components. Pond storage must be taken into account during the winter months when the dust abatement is not being used, but the pond use during the remainder of the year should be considered as part of the commercial system and regulated by the 24-hour fill rule.

Three wells were listed on the original hand written permit application, but were not listed on the computer generated copy. I recommended all three wells per the original hand written application, since they are connected within the same system. No amendment should be needed, since two of the wells are in the NENE. The remark that there were two wells in this tract was not carried forward.

This permit is overlapped by canal water and three adjudication claims currently owned by Hormaechea. The canal water is insignificant since very little if any irrigation actually occurs. This permit basically insures that the water for the feedlot was covered by a water right in case the beneficial use adjudication claims were not decreed. From the information available, the feedlot has changed very little if any since 1987 and a smaller version of the feedlot was in operation in approximately 1939. Adjudication claims 63-25981 and 63-25982 if allowed could replace this permit and make it unnecessary. This permit should be conditioned to show that some or all of the use described in this permit could actually be covered in the two above mentioned adjudication claims. The adjudication claims should also be amended to show year round dust abatement use and a single commercial use. This has been suggested to the adjudication agent reviewing those claims.

SRBA decreed water right 63-4148B is a domestic right for this place of use. However, this water right is highly suspect, since another individual that claims he made an error in the legal description made the original filing. The original owner of the water right has filed a competing claim with the correct legal description. Therefore, I don't feel this right should be a large concern. The 1939 aerial photo shows a residence at the feedlot, and this right has a 1945 priority date. Either way there has been water at the feedlot residence for quite some time. I have included the domestic use on this water right, since it is connected into the feedlot wells. All three of the wells can service the household. The other water right only describes a single 4-inch well. Therefore, this overlapping right should not be considered a problem. At most a condition could be included on this license that when combined with 63-4148B is limited to a single domestic use from the three wells.

**I want to flag this right for the State Office Allocation staff. A portion or all of this right may be considered null and void upon the recommendations and decree of the Snake River Basin Adjudication. This permit allows what is in place as of the time of the second field exam (2004 exam), and may not represent what was in the feedlot in the past. However, it is my assumption that the system was operating at full capacity of the wells at the time of the 2004 field exam. Both of the wells that where the water level was measured were at or very near the intake for the pumps, and well #3 was actually pumping air. Any increase in the pumping capacity would most likely cause the all of the pumps to start pumping air and damage the pumps. Essentially, the wells at their present condition cannot supply anymore water.**

Have conditions of permit approval been met? ☒ Yes ☐ No

PLEASE NOTE: A measurement port was not installed, but theoretical calculations and pump curves could be used to ascertain the flow rate. If the applicant objects to the flow rate, then they would need to supply a proper means of measurement.

**H. RECOMMENDATIONS****1. Recommended Amounts**

| <u>BENEFICIAL USE</u>      | <u>PERIOD OF USE</u> | <u>DIVERSION RATE</u> | <u>ANNUAL VOLUME</u> |
|----------------------------|----------------------|-----------------------|----------------------|
| STOCKWATER                 | 01/01 to 12/31       | 1.540 CFS             | 215.00 AF            |
| COMMERCIAL STORAGE         | 01/01 to 12/31       |                       | 2.10 AF              |
| DIVERSION TO STORAGE       | 01/01 to 12/31       | 1.000 CFS             |                      |
| DOMESTIC                   | 01/01 to 12/31       | 0.040 CFS             | 1.20 AF              |
| COMMERCIAL                 | 12/16 to 03/14       | 0.040 CFS             | 0.90 AF              |
| COMMERCIAL                 | 03/15 to 12/15       | 0.810 CFS             | 285.50 AF            |
| COMMERCIAL FROM<br>STORAGE | 01/01 to 12/31       |                       | 2.10 AF              |
| <u>Totals:</u>             |                      | 1.540 CFS             | 502.60 AF            |

**2. Recommended Amendments**

\_\_\_ Change P.D. as reflected above \_\_\_ Add P.D. as reflected above \_\_\_ None

\_\_\_ Change P.U. as reflected above \_\_\_ Add P.U. as reflected above \_\_\_ Other

**I. AUTHENTICATION**

DANIEL A. NELSON – SENIOR AGENT

Field Examiner's Name  Date 10-13-04

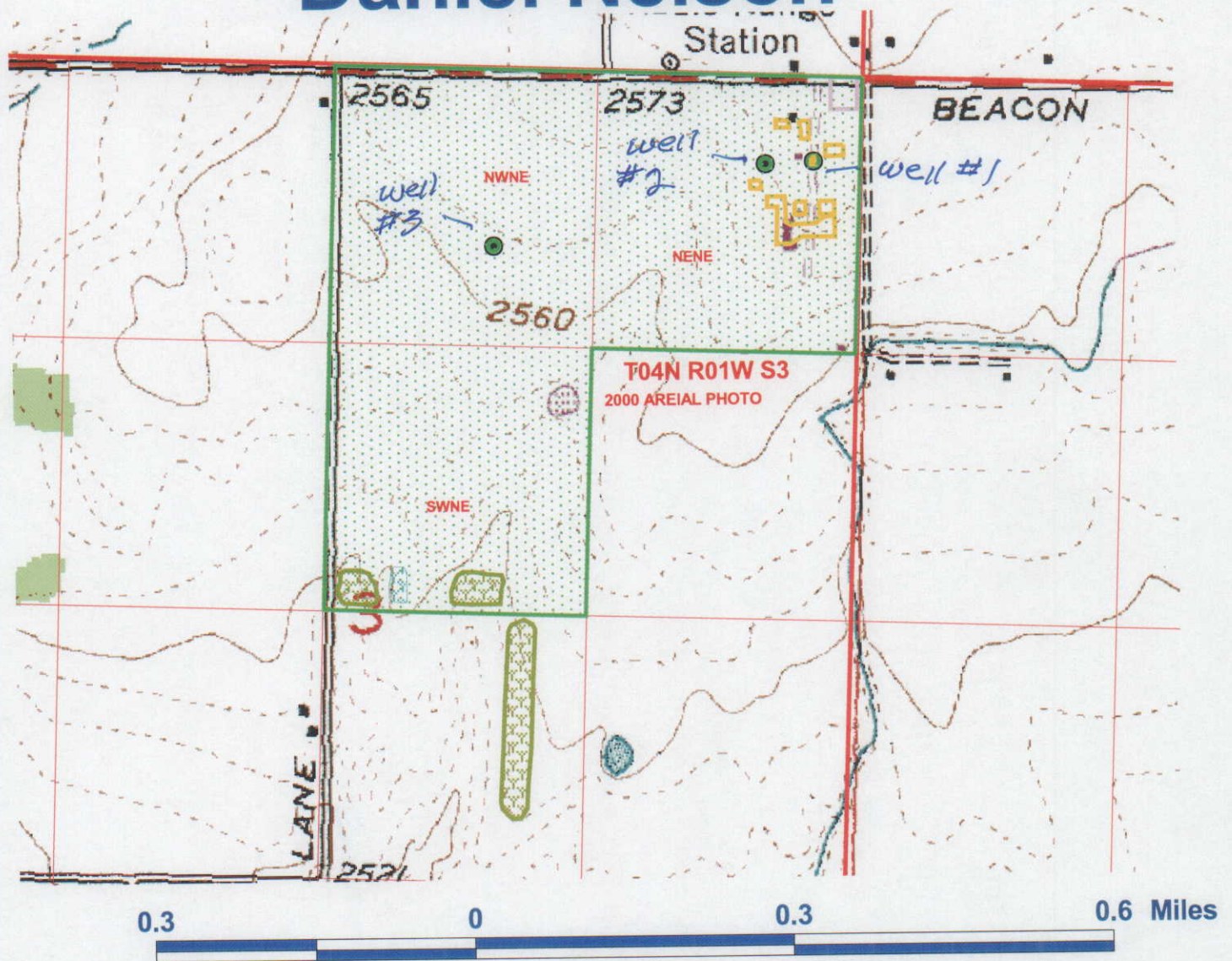
Reviewer \_\_\_\_\_ Date \_\_\_\_\_

SEAL

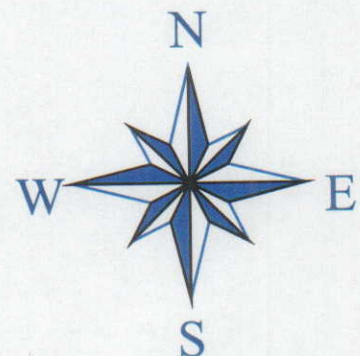
# Field Exam 63-11060

## Place of Use

### Daniel Nelson



- Place of Use
- Waste Lagoons
- Commercial Buildings
- Domestic Use
- Fresh Pond
- Wells
- Section Lines
- 1/4 1/4 Lines



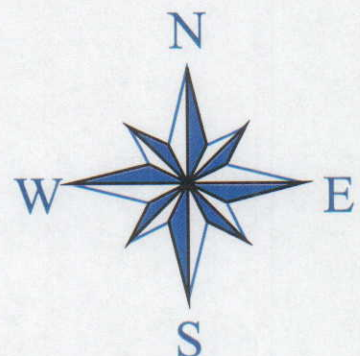
# FIELD EXAM 63-11060

## SYSTEM DIAGRAM

### BY DANIEL A. NELSON



- Water Troughs
- Waste Lagoons
- Commercial Buildings
- Domestic Use (Trailer)
- Booster Relift Pumps
- Sprinklers
- Fresh Pond
- Water Trough Drain Lines
- Wells
- Mainlines From Wells
- Section Lines
- 1/4 1/4 lines



# FIELD EXAM 63-11060

## COMMERCIAL AND DOMESTIC DIAGRAM

### DANIEL NELSON



0.08 0 0.08 0.16 Miles

- Commercial Buildings
- Domestic Home Trailer
- Wells
- Mainlines From Wells
- Section Lines
- 1/4 1/4 Lines



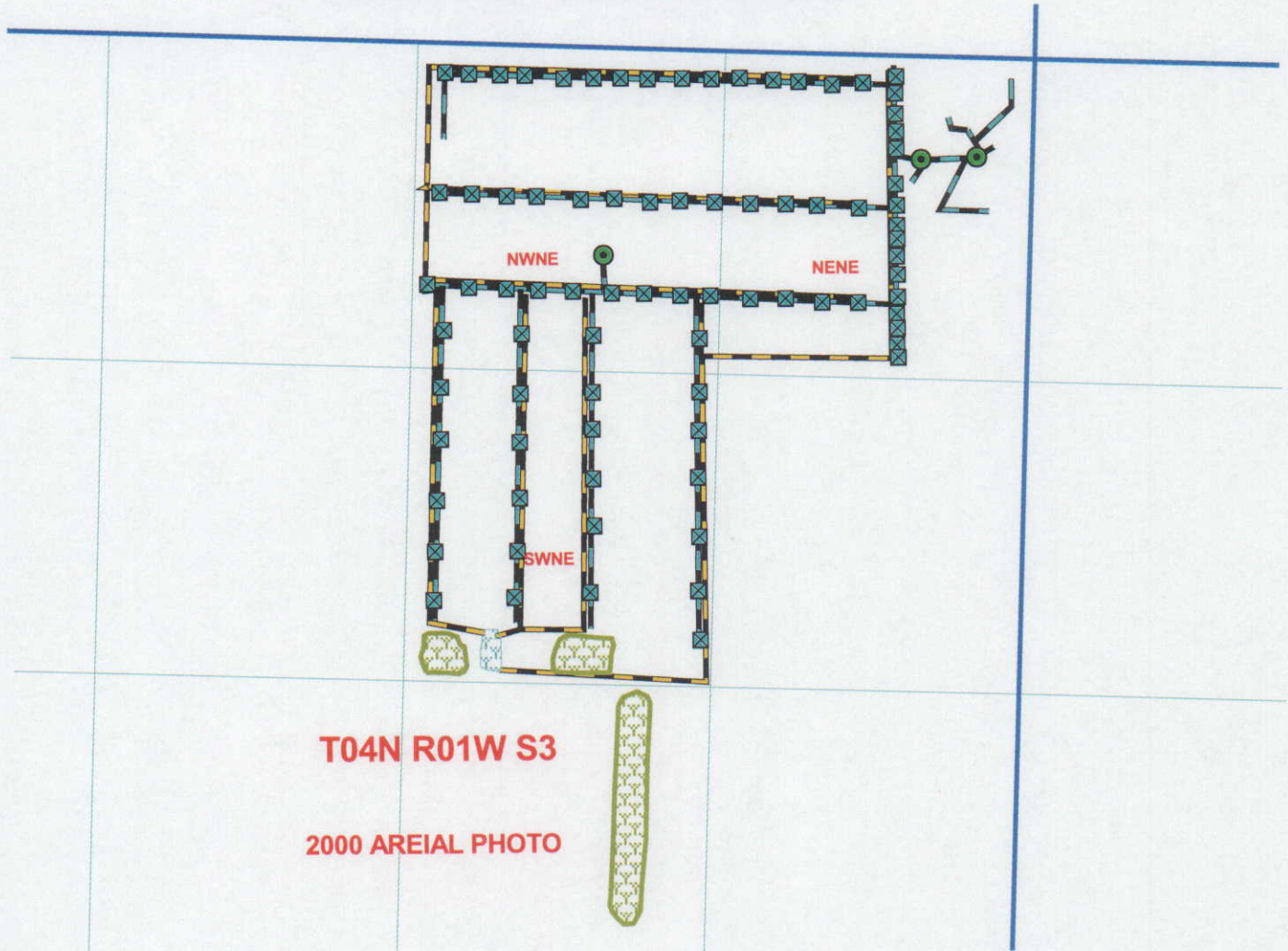
#### PLEASE NOTE:

The water from the wells are diverted through a mainline to two shops, an office, a horse washing facility, a truck washing facility, a feed mixing area, and a domestic home for the an employee. The employee home is supplied to be kind of the night watchman.

# Field Exam 63-11060

## Stockwater Diagram

### Daniel A. Nelson



0.2 0 0.2 0.4 Miles

- Water Troughs
- Waste Lagoons
- Fresh Pond
- Water Trough Drain Pipes
- Wells
- Mainlines From Wells
- Section Lines
- 1/4 1/4 Lines

**PLEASE NOTE:** The stockwater is diverted from the wells into an under ground mainline that runs to approximately 80 stockwater tanks. Each tank is custom made and is approximately 170 gallons. The water is constantly discharged into the tanks. Each tank has an overflow stand pipe that runs through a second mainline to the Fresh Water Pond. The water in the Fresh Water Pond is then pumped to the a sprinkler system for dust abatement. In order to supply all of the stockwater tanks with water, the owner must regulate the flow into each of the tanks to minimize the amount of water flowing into the pond. There are times that there is no flow going into the pond.





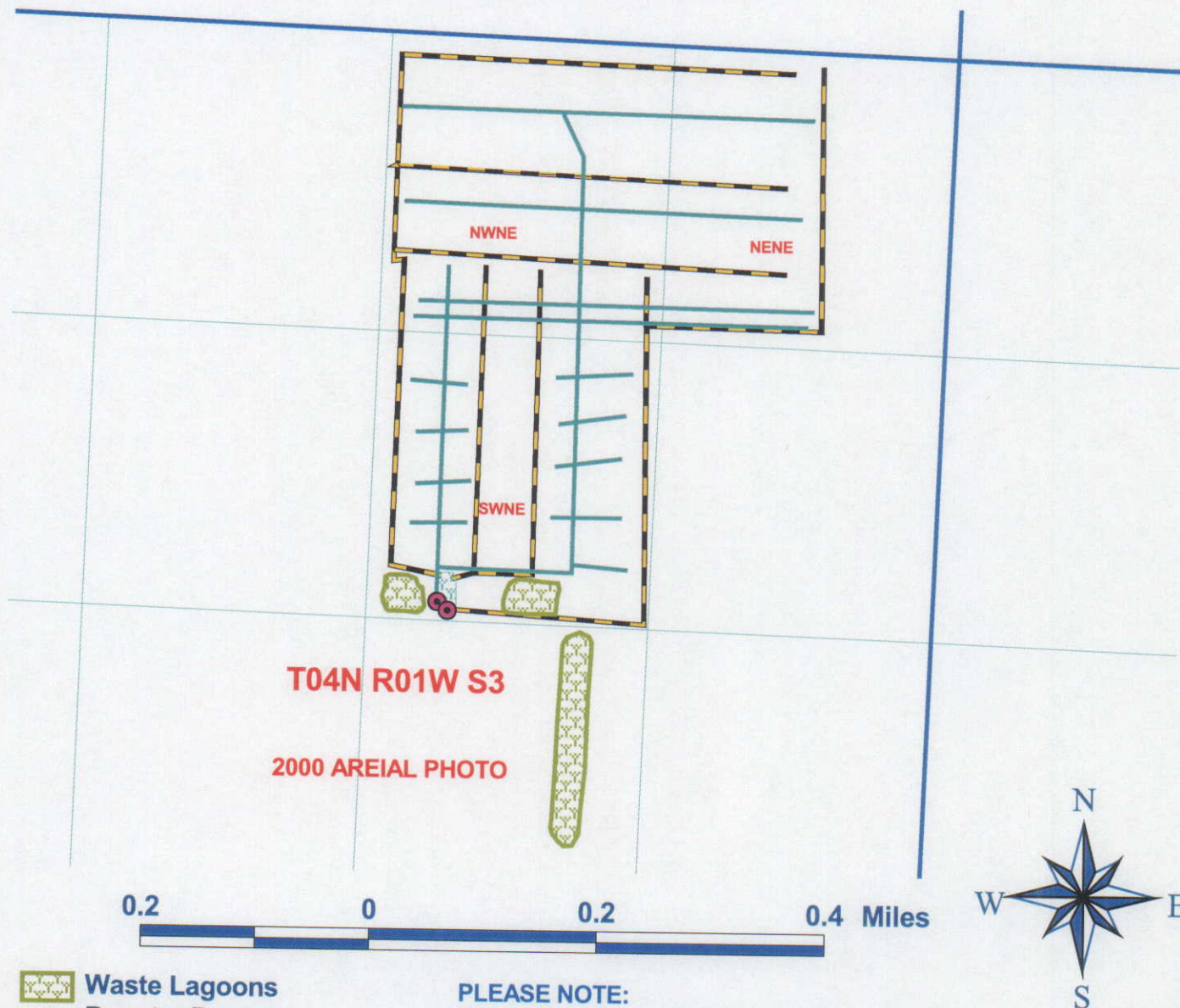
The dimensions of the Fresh pond is 0.35 acres surface area and approximately 6 ft deep (ranging from 4 to 10 ft.). The full flow of the wells of 1.54 cfs can be diverted into this pond. The sprinkler and truck filling station are only operated for 12 hours per day to allow the pond to refill at night. The pond only has a volume of 2.1 acre feet, but is re-filled constantly to maintain the dust abatement system.

The image is an aerial photograph of a site, likely a construction or industrial area, with a central pond. The pond is outlined in a dashed yellow line and filled with a black and white cross-hatch pattern. To the left of the pond is a large, dark, irregularly shaped area, possibly a body of water or a large building. The surrounding area is a mix of light and dark patches, representing different types of land or vegetation. A solid blue line runs horizontally across the top of the image, and a solid red line runs horizontally across the bottom. Two white circular markers are visible at the top of the image, and two red circular markers are visible on the left side of the pond. A dashed yellow line runs diagonally from the top left to the bottom right, passing through the pond.

# Field Exam 63-11060

## Dust Abatement Sprinkler Design

### Daniel Nelson

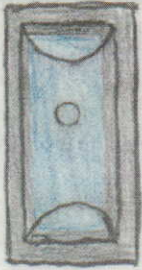


-  Waste Lagoons
-  Booster Pumps
-  Sprinklers
-  Fresh Pond
-  Water Trough Drain Pipes
-  Section Lines
-  1/4 1/4 Lines

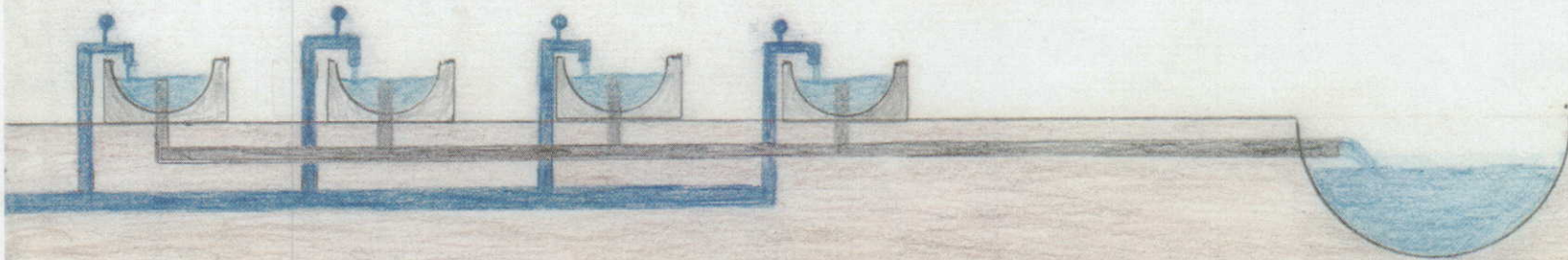
#### PLEASE NOTE:

Water for the dust abatement comes from the overflow of the stockwater tanks. The overflow from the stockwater tanks is carried by a mainline to the Fresh Pond and is relifted by a 25 Hp US Electric turbine pump into a sprinkler mainline that basically follows the fence lines. 6 sprinklers are then attached to various stand pipes located along the mainlines. The 6 sprinklers range from 45/64 to 29/32 nozzels and are operated at 100 psi. A second 20 Hp US Electric booster /relift pump is used to pump water into a 8,000 gallon water truck that is used to spray down the alley ways and the pens next to the road that are not covered by the sprinkler system.

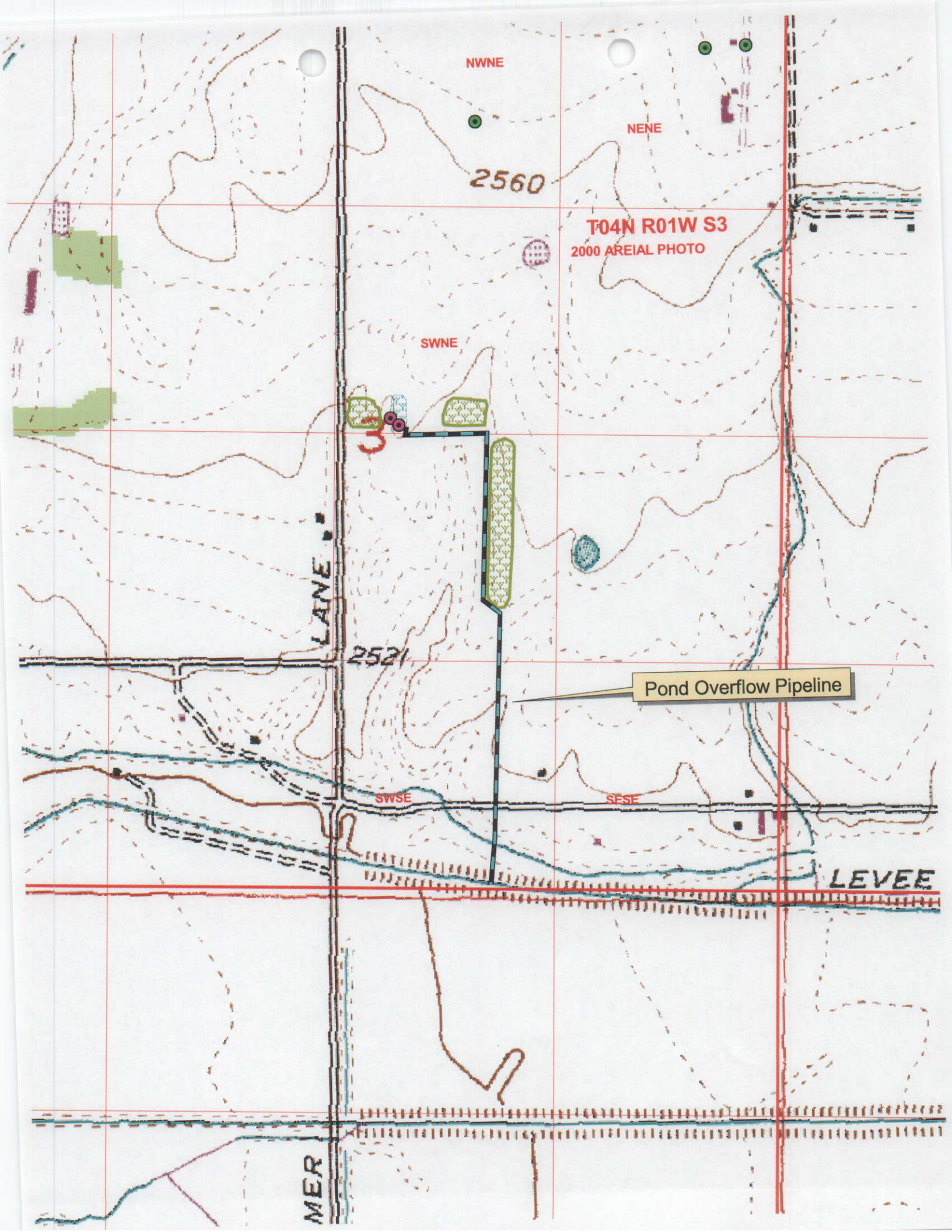
**FIELD EXAM 63-11060**  
**WATER TROUGH DIAGRAM**  
**DANIEL A. NELSON**



<-- Top view of a stockwater trough. They are square cement structure with cylindrical depression in the middle to hold the water with a overflow pipe in the center. Using the length and diameter of the tanks they are estimated at



Water is diverted from the well through a mainline (denoted as blue pipe), and the water run constantly into each tank. Once the water fills to the level of the stand pipe, the water goes through the standpipe and is diverted to the Fresh Pond, where it is used for dust abatement. The owner tries to adjust the water flowing into each stockwater tank to minimize the overflow into the standpipe. There are approximately 80 stockwater tanks, so it is imperative to not overfill the first set of tanks, or there would not be sufficient water to fill the stockwater tanks at the end of the system.



NWNE

NENE

2560

T04N R01W S3  
2000 AERIAL PHOTO

SWNE

LANE

2521

Pond Overflow Pipeline

SWSE

SESE

LEVEE

MER

## GROUNDWATER THEORETICAL ANNALYSIS

Well #1

FILE: 63-11060

DATE: 9-27-04

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW:  $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [ (LIFT) + (PSI X 2.31) ]

LIFT = Depth to water in FEET from land surface to puping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (7.5 \text{ Hp}) \times (0.70)}{[(90 \text{ FT}) + (40 \text{ PSI} \times 2.31)]} = \frac{46.2}{182.4} = 0.25 \text{ cfs} = 114 \text{ gpm}$$

**LIFT FROM:**

Measurement (X)

Owner ( )

Area estimate ( )

Well Logs ( )

**PSI FROM:**

Measurement ( )

Owner ( )

Estimate ( )

Owner Gage (X)

Booster (Y) (N)

**NOTES ON PUMP:**

Motor Make, Serial or ID

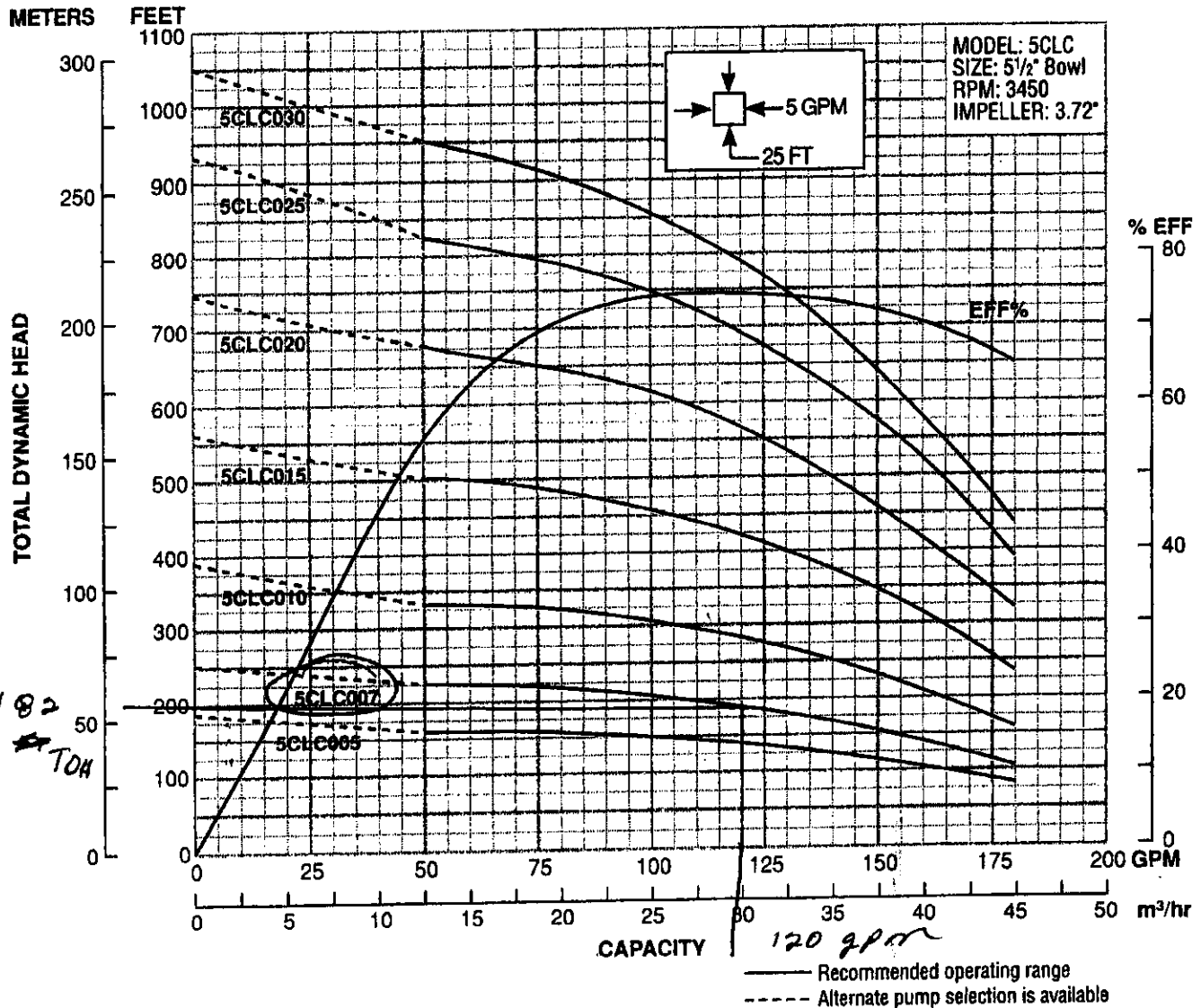
Pump Make, Serial or ID, rating

REMARKS: Well #1 & Well #2 are approx  
200 FT apart. Well #2 does have  
a larger pump, but both wells have  
similar construction and are close  
enough together to have the same  
lift. Well #2 was measured at 90  
FT, so it is safe to assume  
that well #1 was at the same  
pumping level.

The pump curve shows the well  
capacity at 120 gpm or 0.27 cfs

Front E Well

Model 5CLC 110 GPM



## DIMENSIONS AND WEIGHTS

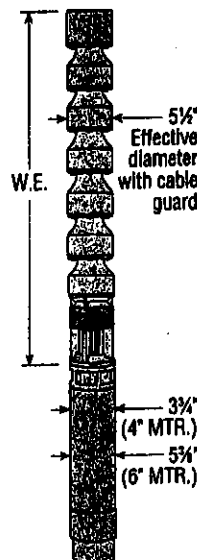
| HP    | Stages | W.E. Order Number | W.E. Length | W.E. Wt. (lbs.) |
|-------|--------|-------------------|-------------|-----------------|
| 5     | 3      | 5CLC00544CTB      | 25 1/4      | 73              |
|       |        | 5CLC00564CTB      | 28 1/4      | 75              |
| 7 1/2 | 4      | 5CLC00744CTB      | 30 3/4      | 86              |
|       |        | 5CLC00764CTB      | 32 13/16    | 88              |
| 10    | 6      | 5CLC01064CTB      | 42 7/16     | 114             |
| 15    | 9      | 5CLC01564CTB      | 56 3/4      | 153             |
| 20    | 12     | 5CLC02064CTB      | 71 1/2      | 192             |
| 25    | 15     | 5CLC02564CTB      | 85 5/8      | 231             |
| 30    | 17     | 5CLC03064CTB      | 95 1/4      | 257             |

(All dimensions in inches and weights in lbs. Do not use for construction purposes.)

## PLEASE NOTE:

- Order motors separately.
- For intermediate horsepower pumps consult factory.
- Solid line is recommended operating range. The dotted line (---) signifies an alternate pump selection is available.
- Please specify all options changes in W.E. order number.

## 4" NPT DISCHARGE CONNECTION



## MATERIALS OF CONSTRUCTION

| Part Name              | Material            |
|------------------------|---------------------|
| Shaft                  | ASTM A582 TYPE 416  |
| Coupling               | ASTM A582 S41600 CD |
| Suction Adapter        | ASTM A48 CL 40      |
| Discharge Bowl         | ASTM A48 CL 30B     |
| Bronze Bearings        | ASTM B584           |
| Discharge Bowl Bearing | ASTM B584           |
| Taperlocks             | ASTM A108 GR 101B   |
| Bowl                   | ASTM A48 CL 30B     |
| Upthrust Collar        | ASTM A276 S41400    |
| Impeller               | ASTM B584           |
| Fasteners              | SAE J429 GR 8       |
| Cable Guard            | ASTM A240 S 30400   |
| Suction Strainer       | ASTM A240 S 30400   |

# GROUNDWATER THEORETICAL ANNALYSIS

Well #2

FILE: 63-11060

DATE: 9-27-04

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW:  $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [ (LIFT) + (PSI X 2.31) ]

LIFT = Depth to water in FEET from land surface to puijping water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (30 \text{ Hp.}) \times (0.70)}{[(90 \text{ Ft}) + (40 \times 2.31)]} = \frac{184.8}{182.4} = 1.01 \text{ CFS}$$

454.7 gpm.

LIFT FROM:

Measurement (X)

Owner ( )

Area estimate ( )

Well Logs ( )

PSI FROM:

Measurement ( )

Owner ( )

Estimate ( )

Owner Gage (X)

Booster (Y) (N)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

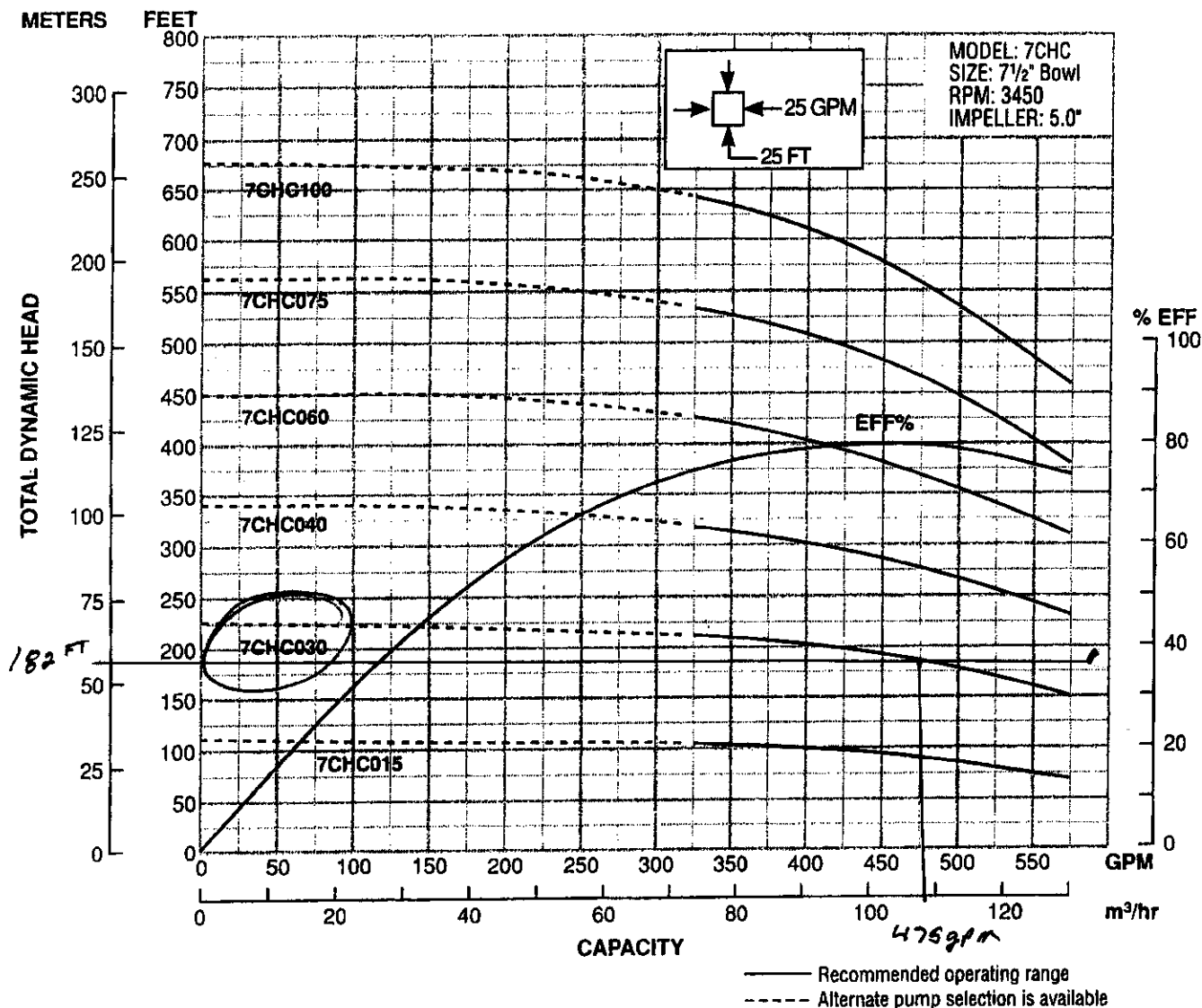
REMARKS: Well #2 was measured with a well probe

The pump curve shows 475 gpm  
OR 1.06 CFS

Large Front Well

“# 2

## Model 7CHC 475 GPM



## DIMENSIONS AND WEIGHTS

| HP  | Stages | W.E. Order Number | W.E. Length      | W.E. Wt. (lbs.) |
|-----|--------|-------------------|------------------|-----------------|
| 15  | 1      | 7CHC01568ATS      | 22 $\frac{1}{2}$ | 75              |
| 30  | 2      | 7CHC03066ATS      | 29 $\frac{1}{2}$ | 103             |
| 40  | 3      | 7CHC04066ATS      | 35 $\frac{1}{2}$ | 131             |
| 60  | 4      | 7CHC06086ATS      | 41 $\frac{1}{2}$ | 159             |
| 75  | 5      | 7CHC07586ATS      | 48 $\frac{1}{2}$ | 187             |
| 100 | 6      | 7CHC10086ATS      | 54               | 215             |

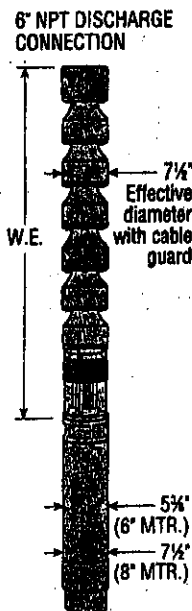
(All dimensions in inches and weights in lbs. Do not use for construction purposes.)

**PLEASE NOTE:**

- Order motors separately.
- For intermediate horsepower pumps consult factory.
- Solid line is recommended operating range. The dotted line (-----) signifies an alternate pump selection is available.
- Please specify all options changes in W.E. order number.

## MATERIALS OF CONSTRUCTION

| Part Name                | Material            |
|--------------------------|---------------------|
| Shaft                    | ASTM A582 TYPE 416  |
| Coupling                 | ASTM A582 S41600 CD |
| Suction Adapter          | ASTM A48 CL 40      |
| Discharge Bowl           | ASTM A48 CL 30B     |
| Rubber Bearings          | RUBBER              |
| Optional Bronze Bearings | ASTM B584           |
| Discharge Bowl Bearing   | ASTM B584           |
| Taperlocks               | ASTM A108 GR 101B   |
| Glassed Bowl             | ASTM A48 CL 30B     |
| Upthrust Collar          | ASTM A276 S41400    |
| Impeller                 | ASTM B584           |
| Fasteners                | SAEJ429 GR 8        |
| Cable Guard              | ASTM A240 S 30400   |
| Suction Strainer         | ASTM A240 S 30400   |



# GROUNDWATER THEORETICAL ANNALYSIS

Well #3

FILE: 63-11060

DATE: 9-27-04

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW:  $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

- Q = CFS  
 HP = Total Brake Horsepower of pumping plant (including booster)  
 Eff. = Pumping plant efficiency (assume 70% or 0.70)  
 TDH = Total dynamic head = [ (LIFT) + (PSI X 2.31) ]  
 LIFT = Depth to water in FEET from land surface to pumping water level  
 PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (5 HP) \times (0.70)}{[(50 FT) + (40 \times 2.31)]} = \frac{30.8}{92.4} = 0.33 CFS$$

149.6 gpm.

| <u>LIFT FROM:</u> | <u>PSI FROM:</u> | <u>NOTES ON PUMP:</u>           |
|-------------------|------------------|---------------------------------|
| Measurement (X)   | Measurement ( )  | Motor Make, Serial or ID        |
| Owner ( )         | Owner ( )        |                                 |
| Area estimate ( ) | Estimate ( )     | Pump Make, Serial or ID, rating |
| Well Logs ( )     | Owner Gage (X)   |                                 |
| Booster (Y) (N)   |                  |                                 |

REMARKS: Well #3 was measured  
Telephone conversation with  
pump installer confirms pumping  
water level at 50 FT.

Pump curve shows the well  
capacity at 125 gpm or 0.28 CFS.

S/r well

#3

## PERFORMANCE CURVES

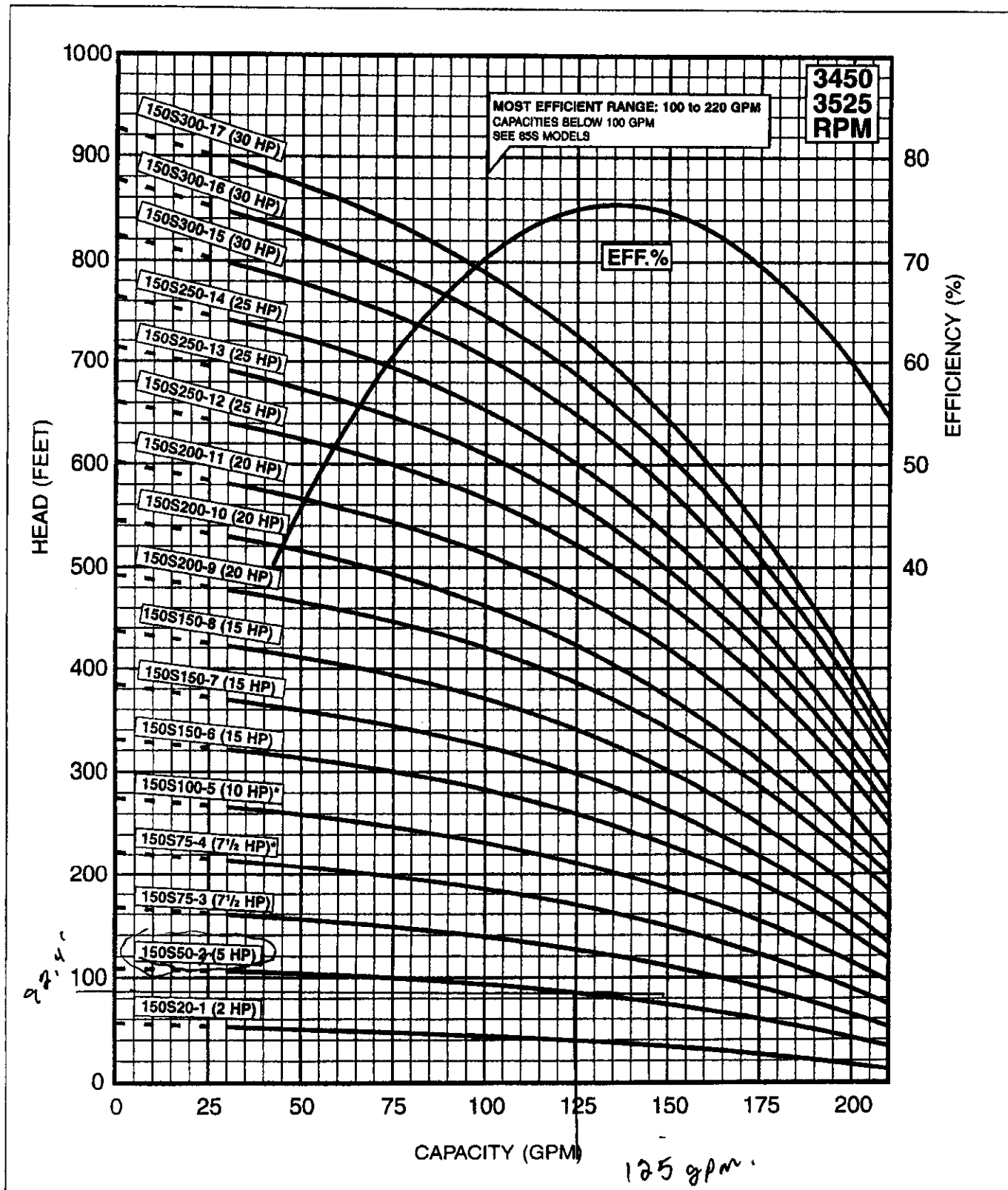
150 GPM

MODEL 150S

FLOW RANGE: 30 -220 GPM

OUTLET SIZE: 3" NPT

NOMINAL DIA. 6"



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

4" MOTOR STANDARD, 2-10 HP/3450 RPM

6" MOTOR STANDARD, 7.5-60 HP/3450 RPM.

8" MOTOR STANDARD, 75 HP/3525 RPM.

\* Alternate motor sizes available.

Performance conforms to ISO 9906 Annex A  
@ 5 ft. min. submergence.

## VOLUME CALCULATIONS

**Domestic use** → 1 home including yard → 0.04 cfs / 1.2 afa (standard volume used)

**Stockwater** → 1.54 cfs / 215 afa

16,000 hd \* X 0.00022 (per field examiners handbook) = 3.52 cfs \*\*

16,000 hd \* X 12 gpd/hd X 365 days / 32850 = 215 afa

\* The applicant showed proof of 16,400 head on 1/1/2000 and 11/1/2001, but permit limits them to 16,000 head.

\*\* The applicant is allowed up to 3.52 cfs, but they are limited by the wells that only produce 1.54 cfs. 1.54 cfs can provide the 215 afa required for stockwater.

**Commercial use** → 0.04 cfs / 3.5 afa

Office → 2 Workers X 15 gpd X 365 days = 10,950 gpy

Outside Workers → 10 Workers X 50 gpd X 365 days = 182,500 gpy

Shop Use → 2 shops X 250 gpd X 365 days = 182,500 gpy

Truck Wash → 1 wash/day X 25 gpm nozzle X 60 min/wash X 365 days = 547,500 gpy

Horse Wash → 5 times/day X 10 min/day X 5gpm X 365 days = 91,250 gpy

Feed Mixing → 30 g/load X 12 loads X 365 days = 131,400 gpy

**TOTAL** → 1,146,100 gpy / 325,850 = 3.5 afa

0.04 cfs X 365 X 1.9835 = 29 afa (0.04 cfs could supply the volume needed, but if more than one process is happening at one time the rate could actually be higher.)

The commercial use has been split between dates the permit allows the pumps to be used for dust abatement and days not allowed for dust abatement. The wells can be used for dust abatement between 3/15/ to 12/15, for a total of 276 days. There are 89 days remaining are limited to general commercial use.

(3.5 afa / 365) X 89 days = 0.9 afa volume used between 12/16 to 3/14

(3.5 afa / 365) X 276 days = 2.6 afa volume used between 3/15 to 12/15

## **Dust Abatement →**

### **Sprinkler System:**

50 Hp pump Theoretical @ 90 psi → 652 gpm

Sprinklers SR100 Big Guns @ 90 psi

3 sprinklers @ ½" or 0.5" = 68 gpm/sprinkler X 3 = 204 gpm

1 sprinkler @ 5/8" or 0.65" = 117 gpm

2 sprinklers @ ¾" or 0.75 cfs = 155 gpm/sprinkler X 2 = 310 gpm

TOTAL = 631 gpm

SPRINKLER SYSTEM USES 631 gpm

System operated on an average of 12 hours/ day for 210 days a year.

631 gpm X 60 min/hr X 12 hrs X 210 days / 325850 = 292.8 afa

### **TRUCK SYSTEM:**

A 8,000 Gallon Spray truck is used to spray the alleyways and roads and pens not covered by sprinklers. The trucks averages 13 trips a day for 210 days a year.

25 Hp Theoretical → 1,687 gpm

8,000 gal tank X 13 tanks/day X 210 days per year / 325850 = 0.1 afa

## **TOTAL VOLUME USED →**

|                                             |                |
|---------------------------------------------|----------------|
| Domestic → 1.2 afa                          | (0.004 af/day) |
| Stockwater → 215 afa                        | (0.589 af/day) |
| General Commercial 12/16 to 3/14 → 0.9 afa  | (0.010 af/day) |
| *General Commercial 3/15 to 12/15 → 2.6 afa | (0.010 af/day) |
| *Dust Abatement → 282.9 afa                 | (1.95 af/day)  |

TOTAL → 502.6 afa (1.95 af/day average)

PLEASE NOTE: The dust abatement and general commercial between 3/15 to 12/15 will be combined for a total commercial volume of 285.5 for these dates.

Pump Capacity = 1.54 cfs X 365 days X 1.9835 = 1114.9 afa (3.05 af/day capacity)

**Idaho Feedlot Company**

**Cattle Inventory On Selected Dates**

| Date      | Head<br>Count |
|-----------|---------------|
| 1/1/2000  | 16,415        |
| 11/1/2000 | 15,668        |
| 3/1/2001  | 15,847        |
| 11/1/2001 | 16,356        |
| 1/1/2003  | 13,111        |

# GROUNDWATER THEORETICAL ANNALYSIS

Dust Abatement

FILE: 63-11060

~~SPRINKLER~~ Pump.

DATE: 9-27-04

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW:  $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [ (LIFT) + (PSI X 2.31) ]

LIFT = Depth to water in FEET from land surface to puijing water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (50 \text{ Hp}) \times (0.70)}{[(4) + (90 \times 2.31)]} = \frac{308}{211.9} = 1.45 \text{ CFS}$$

652 gpm.

## LIFT FROM:

Measurement (X)

Owner ( )

Area estimate ( )

Well Logs ( )

## PSI FROM:

Measurement (X)

Owner ( )

Estimate ( )

Owner Gage ( )

Booster (Y) (N)

## NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: The owner's stated that SPRINKLERS FOR DUST Abatement were operated at 100 psi. The gauge at the pump showed the psi at 72. I put on an Iowa gauge and it read 85-90 psi. ~~The~~ 90 psi matches the SPRINKLER Discharge Ratings pretty close. Allowing for expected friction loss & leakage this number sound Reasonable

# > NELSON SPRINKLER PERFORMANCE\* - U.S. units

## P85A PART CIRCLE IMPACT SPRINKLER — on 12' riser — 18° trajectory

| P85A PART CIRCLE IMPACT SPRINKLER — on 12' riser — 10' trajectory |      |              |      |              |        |              |       |              |        |              |      |              |        |              |       |              |        |              |      |              |        |              |        |              |
|-------------------------------------------------------------------|------|--------------|------|--------------|--------|--------------|-------|--------------|--------|--------------|------|--------------|--------|--------------|-------|--------------|--------|--------------|------|--------------|--------|--------------|--------|--------------|
| Noz. Diam. = 11/32"                                               |      |              | 3/8" |              | 13/32" |              | 7/16" |              | 15/32" |              | 1/2" |              | 17/32" |              | 9/16" |              | 19/32" |              | 5/8" |              | 21/32" |              | 11/16" |              |
| BASE<br>PSI                                                       | GPM  | DIAM.<br>FT. | GPM  | DIAM.<br>FT. | GPM    | DIAM.<br>FT. | GPM   | DIAM.<br>FT. | GPM    | DIAM.<br>FT. | GPM  | DIAM.<br>FT. | GPM    | DIAM.<br>FT. | GPM   | DIAM.<br>FT. | GPM    | DIAM.<br>FT. | GPM  | DIAM.<br>FT. | GPM    | DIAM.<br>FT. | GPM    | DIAM.<br>FT. |
|                                                                   |      |              |      |              |        |              |       |              |        |              |      |              |        |              |       |              |        |              |      |              |        |              |        |              |
| 20                                                                | 15.4 | 96           | 18.2 | 98           | 21.3   | 102          | 23.7  | 104          | 27.9   | 106          | 31.4 | 110          | 35.4   | 112          | 39.7  | 114          | 44.1   | 116          | 47.9 | 120          | 52.8   | 122          | 56.7   | 124          |
| 30                                                                | 18.9 | 110          | 22.4 | 112          | 26.2   | 116          | 29.5  | 120          | 34.4   | 124          | 38.9 | 126          | 43.7   | 128          | 49.0  | 130          | 54.2   | 132          | 59.3 | 136          | 66.4   | 140          | 69.8   | 142          |
| 40                                                                | 21.8 | 122          | 26.0 | 124          | 30.5   | 128          | 34.5  | 132          | 39.9   | 136          | 45.0 | 138          | 50.7   | 142          | 57.0  | 144          | 62.9   | 146          | 69.0 | 150          | 77.0   | 152          | 83.7   | 156          |
| 50                                                                | 24.6 | 128          | 29.1 | 132          | 34.1   | 136          | 38.9  | 140          | 44.7   | 142          | 50.5 | 146          | 56.8   | 150          | 63.4  | 152          | 70.4   | 156          | 77.4 | 158          | 86.0   | 160          | 93.8   | 162          |
| 60                                                                | 27.0 | 134          | 32.1 | 138          | 37.6   | 142          | 43.0  | 146          | 49.3   | 150          | 55.7 | 152          | 62.5   | 156          | 70.0  | 160          | 77.3   | 162          | 85.4 | 166          | 94.8   | 170          | 103    | 172          |
| 70                                                                | 29.0 | 138          | 34.8 | 144          | 40.7   | 148          | 46.7  | 152          | 53.2   | 156          | 60.4 | 158          | 67.7   | 162          | 75.8  | 166          | 83.8   | 168          | 92.8 | 172          | 102    | 174          | 111    | 178          |
| 80                                                                | 31.0 | 144          | 37.3 | 148          | 43.7   | 152          | 50.0  | 156          | 57.0   | 160          | 64.7 | 164          | 72.5   | 168          | 81.3  | 170          | 89.9   | 174          | 99.2 | 178          | 110    | 180          | 119    | 184          |
| 90                                                                | 33.2 | 148          | 39.4 | 152          | 46.2   | 156          | 52.9  | 162          | 60.8   | 164          | 68.5 | 168          | 76.8   | 172          | 86.3  | 176          | 95.3   | 180          | 104  | 182          | 116    | 184          | 126    | 186          |
| 100                                                               | 35.0 | 152          | 41.5 | 156          | 48.8   | 160          | 55.8  | 166          | 64.0   | 170          | 72.6 | 174          | 81.0   | 176          | 90.9  | 180          | 101    | 184          | 110  | 188          | 122    | 190          | 133    | 194          |

## SR75 BIG GUN® SPRINKLER — Taper Bore Nozzle — 24° trajectory

| SR75 BIG GUN® SPRINKLER — Taper Bore Nozzle — 24' trajectory |     |         |       |         |      |         |       |         |      |         |       |         |      |         |       |         |      |         |
|--------------------------------------------------------------|-----|---------|-------|---------|------|---------|-------|---------|------|---------|-------|---------|------|---------|-------|---------|------|---------|
| Noz. Diam. = 0.4"                                            |     |         | 0.45" |         | 0.5" |         | 0.55" |         | 0.6" |         | 0.65" |         | 0.7" |         | 0.75" |         | 0.8" |         |
| PSI                                                          | GPM | DIA.FT. | GPM   | DIA.FT. | GPM  | DIA.FT. | GPM   | DIA.FT. | GPM  | DIA.FT. | GPM   | DIA.FT. | GPM  | DIA.FT. | GPM   | DIA.FT. | GPM  | DIA.FT. |
| 25                                                           |     |         |       |         |      |         | 42    | 146     | 50   | 155     | 59    | 161     | 69   | 167     | 80    | 174     | 91   | 182     |
| 30                                                           |     |         |       |         |      |         | 45    | 158     | 55   | 165     | 64    | 172     | 75   | 182     | 87    | 187     | 99   | 192     |
| 35                                                           |     |         |       |         |      |         | 37    | 158     | 45   | 158     | 55    | 165     | 64   | 172     | 75    | 182     | 87   | 187     |
| 35                                                           |     |         | 32    | 154     | 40   | 164     | 49    | 172     | 59   | 178     | 69    | 191     | 81   | 196     | 93    | 202     | 106  | 208     |
| 40                                                           | 27  | 149     | 35    | 160     | 43   | 171     | 52    | 180     | 63   | 190     | 74    | 198     | 87   | 204     | 98    | 213     | 112  | 221     |
| 45                                                           | 29  | 155     | 37    | 167     | 46   | 180     | 56    | 189     | 67   | 198     | 79    | 206     | 91   | 214     | 104   | 223     | 118  | 230     |
| 50                                                           | 30  | 161     | 39    | 174     | 48   | 186     | 59    | 195     | 70   | 203     | 83    | 212     | 95   | 220     | 109   | 230     | 123  | 237     |
| 55                                                           | 32  | 165     | 41    | 179     | 50   | 193     | 62    | 203     | 74   | 213     | 87    | 221     | 100  | 230     | 115   | 239     | 130  | 247     |
| 60                                                           | 33  | 169     | 42    | 184     | 53   | 198     | 64    | 208     | 77   | 220     | 91    | 228     | 104  | 237     | 120   | 245     | 136  | 254     |
| 65                                                           | 35  | 172     | 44    | 189     | 55   | 205     | 67    | 216     | 80   | 227     | 95    | 237     | 109  | 247     | 125   | 254     | 142  | 263     |
| 70                                                           | 36  | 175     | 45    | 194     | 57   | 210     | 69    | 221     | 83   | 232     | 98    | 243     | 113  | 254     | 129   | 260     | 147  | 270     |
| 75                                                           | 37  | 179     | 47    | 201     | 59   | 217     | 72    | 228     | 86   | 239     | 101   | 250     | 117  | 261     | 134   | 268     | 153  | 277     |
| 80                                                           | 39  | 182     | 49    | 207     | 61   | 222     | 74    | 234     | 89   | 244     | 105   | 256     | 121  | 266     | 138   | 274     | 158  | 283     |

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Diameter (Dia) in feet and flowrate (GPM) are based on CIT (Center for Irrigation Technology) testing and some comparisons (dated 10/9/02).

Pressure/nozzle combinations OUTSIDE of the shaded-in areas produce a more desirable stream.

## SR100 BIG GUN® SPRINKLER — Taper Bore Nozzle — 24° trajectory

| SR100 BIG GUN® SPRINKLER — taper bore nozzle — 24' trajectory |     |         |       |         |       |         |       |         |       |         |       |         |       |         |       |         |       |         |      |         |
|---------------------------------------------------------------|-----|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|------|---------|
| Noz. Diam. = 0.50"                                            |     |         | 0.55" |         | 0.60" |         | 0.65" |         | 0.70" |         | 0.75" |         | 0.80" |         | 0.85" |         | 0.90" |         | 1.0" |         |
| PSI                                                           | GPM | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM   | DIA.FT. | GPM  | DIA.FT. |
| 40                                                            | 47  | 191     | 57    | 202     | 66    | 213     | 78    | 222     | 91    | 230     | 103   | 240     | 118   | 250     | 134   | 256     | 152   | 262     | -    | -       |
| 50                                                            | 50  | 205     | 64    | 215     | 74    | 225     | 87    | 235     | 100   | 245     | 115   | 256     | 130   | 265     | 150   | 273     | 165   | 280     | 204  | 300     |
| 60                                                            | 55  | 215     | 69    | 227     | 81    | 240     | 96    | 250     | 110   | 260     | 126   | 270     | 143   | 280     | 164   | 288     | 182   | 295     | 224  | 316     |
| 70                                                            | 60  | 225     | 75    | 238     | 88    | 250     | 103   | 263     | 120   | 275     | 136   | 283     | 155   | 295     | 177   | 302     | 197   | 310     | 243  | 338     |
| 80                                                            | 64  | 235     | 79    | 248     | 94    | 260     | 110   | 273     | 128   | 285     | 146   | 295     | 165   | 305     | 189   | 314     | 210   | 325     | 258  | 354     |
| 90                                                            | 68  | 245     | 83    | 258     | 100   | 270     | 117   | 283     | 135   | 295     | 155   | 306     | 175   | 315     | 201   | 326     | 223   | 335     | 274  | 362     |
| 100                                                           | 72  | 255     | 87    | 268     | 106   | 280     | 123   | 293     | 143   | 305     | 163   | 316     | 185   | 325     | 212   | 336     | 235   | 345     | 289  | 372     |
| 110                                                           | 76  | 265     | 92    | 278     | 111   | 290     | 129   | 303     | 150   | 315     | 171   | 324     | 195   | 335     | 222   | 344     | 247   | 355     | 304  | 380     |

\*Performance data has been obtained under ideal test conditions and may be adversely affected by wind, poor hydraulic entrance conditions or other factors. Nelson Irrigation Corporation makes no representation regarding droplet condition, uniformity, or application rates.

**WARRANTY AND DISCLAIMER:** Nelson Big Gun® Sprinklers are warranted for one year from date of original sale to be free of defective materials and workmanship when used within the working specifications for which the products were designed and under normal use and service. The manufacturer assumes no responsibility for installation, removal or unauthorized repair of defective parts. The manufacturer's liability under this warranty is limited solely to replacement or repair of defective parts and the manufacturer will not be liable for any crop or other consequential damages resulting from defects or breach of warranty. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES AND OF ALL OTHER OBLIGATIONS OR LIABILITIES OF MANUFACTURER. No agent, employee or representative of the manufacturer has authority to waive, alter or add to the provisions of this warranty, nor to make any representations or warranty not contained herein.

This product may be covered by one or more of the following U.S. Patent Nos. 3,744,720, 3,559,887 and other U.S. Patents pending or corresponding issued or pending foreign patents.



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# GROUNDWATER THEORETICAL ANNALYSIS

Dust Abatement  
Pump Used FOR  
TRUCK Filling.

FILE: 63-11060

DATE: 9-27-04

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW:  $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

- Q = CFS  
HP = Total Brake Horsepower of pumping plant (including booster)  
Eff. = Pumping plant efficiency (assume 70% or 0.70)  
TDH = Total dynamic head = [ (LIFT) + (PSI X 2.31) ]  
LIFT = Depth to water in FEET from land surface to puijing water level  
PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$$Q = \frac{(8.8) \times (25 HP) \times (0.70)}{[(4 FT) + (16 psi \times 2.31)]} = \frac{154}{40.96} = 3.76 CFS$$

1,687 gpm

|                   |                  |                                 |
|-------------------|------------------|---------------------------------|
| <u>LIFT FROM:</u> | <u>PSI FROM:</u> | <u>NOTES ON PUMP:</u>           |
| Measurement (k)   | Measurement ( )  | Motor Make, Serial or ID        |
| Owner ( )         | Owner ( )        |                                 |
| Area estimate ( ) | Estimate (x)     | Pump Make, Serial or ID, rating |
| Well Logs ( )     | Owner Gage ( )   |                                 |
| Booster (Y) (N)   |                  |                                 |

REMARKS: This pump open discharges INTO a TANKER TRUCK used to spray down Alleys for dustabatement. The discharge pipe stands approx 14 FT STRAIGHT UP and then elbows over to open discharge in the TRUCK. Pushing water STRAIGHT UP puts at least 6 psi OF PRESSURE against the pump with an added 10 psi estimated discharge pressure suggests a total of 16 psi against the pump. However, 3.76 cfs Dis charge seems EXTRAIVAGANT FOR this type of pump. Although the Flow Rate seems high, there is NO way to measure the pump accurately. The Flow Rate shouldn't matter, because this is a diversion FROM storage right NOT Requiring a Flow Rate.

# IDAHO DEPARTMENT OF WATER RESOURCES

## WELL INSPECTION FORM

Well #1

1. DRILLING PERMIT NO: UNKNOWN OTHER APPLICABLE NO: 63-11060  
Represented By - Terry Nyborg.
2. OWNER: Richard Hermaschea Phone: 336-2200  
Address: P.O. Box 6887, Boise, ID 83707
3. WELL LOCATION: Twp 4N, Rge. 1W, Sec. 3, NE 1/4 NE 1/4  
County ADA (Provide sketch map and photo on reverse.)
4. DRILLER: UNKNOWN Lic. No. UNKNOWN  
When Drilled? UNKNOWN
5. WELL CONSTRUCTION:  
Casing Diameter 14 inches Water tight cap? ☐ Yes ☒ No Access Port: ☐ Yes ☒ No  
Casing  $\geq$  12 inches above ground? ☒ Yes ☐ No - Describe Cement Block with casing in middle  
Depth of Casing Unknown ft. Method Drilled UNKNOWN  
Condition of Well Casing: ☐ Good ☐ Fair ☒ Poor Describe Cement needs Redone  
Control Valve? ☒ Yes ☐ No Pressure Gauge: ☐ Yes ☒ No  
Condition of Piping and Valving Fair  
Auger to a depth of 0 ft. Evidence of Annular Seal ☐ Yes ☒ No Cement Floor  
Are there obvious construction problems that may be a source for contamination or waste of water?  
☒ Yes ☐ No (Describe in Remarks and Attach Photo - On Reverse)  
Cement Box needs Repaired.
6. HYDROLOGIC INFORMATION:  
Depth to Static Water Unknown ft. Water Temperature Unknown °F  
Flowing Artesian ☐ Yes ☒ No Pressure: Unknown (psi)  
Water Sample Taken? ☐ Yes ☒ No If yes, describe purpose \_\_\_\_\_  
Water Quality Measurements/Observations (Describe) \_\_\_\_\_
7. WELL USE:  
☐ Domestic ☐ Irrigation ☒ Stock  
☐ Test ☐ Municipal ☐ Industrial  
☐ Abandoned ☐ Waste Disposal/Injection ☐ Not Used  
☐ Other: \_\_\_\_\_

8. POSSIBLE CONTAMINATION SOURCES:

Is there evidence of Chemigation? ☐ Yes ☒ No

If yes, is there a check-valve present? ☒ Yes ☐ No

Is there a possible source of contamination nearby? ☐ Yes ☒ No

If yes, what Type? \_\_\_\_\_

How far away from the well is this source? \_\_\_\_\_

9.

REMARKS: THIS WELL LOOKS OK EXCEPT  
FOR THE CEMENT BOX AROUND THE  
CASING AND BACK OF AN ACCESS PORT.  
I WOULD LIKE TO SEE THIS BOX  
REBUILT, ~~AND~~ HOWEVER THE ~~BOX~~ CEMENT  
BOX SEEMS TO ENCLOSE THE  
CASING AND SHOULDN'T REQUIRE ADMINISTRATIVE  
ACTION

Denise A. Nelson - Senior Agent  
Signature of Dept. Representative & Title

9-27-04  
Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS:

See - Field Exam.

# IDAHO DEPARTMENT OF WATER RESOURCES

## WELL INSPECTION FORM

Well #2

1. DRILLING PERMIT NO: UNKNOWN OTHER APPLICABLE NO: 63-11060  
Represented By TERRY NYBORG
2. OWNER: RICHARD NORMAECHER Phone: 336-2200  
Address: P.O. Box 6887 Boise ID 83707
3. WELL LOCATION: Twp 4N, Rge. 1W, Sec. 3, NE 1/4 NE 1/4  
County ADA (Provide sketch map and photo on reverse.)
4. DRILLER: UNKNOWN Lic. No. UNKNOWN  
When Drilled? UNKNOWN
5. WELL CONSTRUCTION:  
Casing Diameter 16 inches Water tight cap? ☒ Yes ☐ No Access Port: ☒ Yes ☐ No  
Casing  $\geq$  12 inches above ground? ☒ Yes ☐ No - Describe \_\_\_\_\_  
Depth of Casing UNKNOWN ft. Method Drilled UNKNOWN  
Condition of Well Casing: ☒ Good ☐ Fair ☐ Poor Describe \_\_\_\_\_  
Control Valve? ☒ Yes ☐ No Pressure Gauge: ☐ Yes ☒ No  
Condition of Piping and Valving GOOD  
Auger to a depth of 0 ft. Evidence of Annular Seal ☐ Yes ☒ No  
Are there obvious construction problems that may be a source for contamination or waste of water?  
☐ Yes ☒ No (Describe in Remarks and Attach Photo - On Reverse)
6. HYDROLOGIC INFORMATION:  
Depth to Static Water UNKNOWN ft. Water Temperature UNKNOWN °F  
Flowing Artesian ☐ Yes ☒ No Pressure: UNKNOWN (psi)  
Water Sample Taken? ☐ Yes ☒ No If yes, describe purpose \_\_\_\_\_  
Water Quality Measurements/Observations (Describe) \_\_\_\_\_
7. WELL USE:  

|                                       |                                                   |                                           |
|---------------------------------------|---------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Domestic     | <input type="checkbox"/> Irrigation               | <input checked="" type="checkbox"/> Stock |
| <input type="checkbox"/> Test         | <input type="checkbox"/> Municipal                | <input type="checkbox"/> Industrial       |
| <input type="checkbox"/> Abandoned    | <input type="checkbox"/> Waste Disposal/Injection | <input type="checkbox"/> Not Used         |
| <input type="checkbox"/> Other: _____ |                                                   |                                           |

8. POSSIBLE CONTAMINATION SOURCES:

Is there evidence of Chemigation? ☐ Yes ☒ No

If yes, is there a check-valve present? ☒ Yes ☐ No

Is there a possible source of contamination nearby? ☒ Yes ☐ No

If yes, what Type? This well is located beside a Feedlot

How far away from the well is this source? 10 FT.

9. REMARKS: The well seems to be ~~not~~  
Sealed Sufficiently, But it is  
located within a Feedlot.  
There doesn't seem to be  
any immediate peril.

David H. Nelson Senior Agent  
Signature of Dept. Representative & Title

9-27-04  
Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS:

See Field Exam.

IDAHO DEPARTMENT OF WATER RESOURCES

Well #3

WELL INSPECTION FORM

1. DRILLING PERMIT NO: UNKNOWN OTHER APPLICABLE NO: 63-11060  
Represented by Terry Nyborg.
2. OWNER: Richard Hormaechea Phone: 336-2200  
Address: P.O. Box 6887, Boise, ID 83707
3. WELL LOCATION: Twp 4N, Rge. 1W, Sec. 3, NW 1/4 NE 1/4  
County ADA. (Provide sketch map and photo on reverse.)
4. DRILLER: UNKNOWN Lic. No. UNKNOWN  
When Drilled? UNKNOWN
5. WELL CONSTRUCTION:
- Casing Diameter 8 Inches Water tight cap? ☒ Yes ☐ No Access Port: ☒ Yes ☐ No Cap Removal  
Casing  $\geq$  12 inches above ground? ☒ Yes ☐ No - Describe \_\_\_\_\_  
Depth of Casing UNKNOWN Method Drilled UNKNOWN  
Condition of Well Casing: ☒ Good ☐ Fair ☐ Poor Describe \_\_\_\_\_  
Control Valve? ☒ Yes ☐ No Pressure Gauge: ☐ Yes ☒ No  
Condition of Piping and Valving GOOD  
Auger to a depth of 0 ft. Evidence of Annular Seal ☐ Yes ☒ No  
Are there obvious construction problems that may be a source for contamination or waste of water?  
☐ Yes ☒ No (Describe in Remarks and Attach Photo - On Reverse)
6. HYDROLOGIC INFORMATION: UNKNOWN
- Depth to Static Water 0 ft. Water Temperature UNKNOWN °F  
Flowing Artesian ☐ Yes ☒ No Pressure: UNKNOWN (psi)  
Water Sample Taken? ☐ Yes ☒ No If yes, describe purpose \_\_\_\_\_  
Water Quality Measurements/Observations (Describe) \_\_\_\_\_
7. WELL USE:
- |                                       |                                                   |                                           |
|---------------------------------------|---------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Domestic     | <input type="checkbox"/> Irrigation               | <input checked="" type="checkbox"/> Stock |
| <input type="checkbox"/> Test         | <input type="checkbox"/> Municipal                | <input type="checkbox"/> Industrial       |
| <input type="checkbox"/> Abandoned    | <input type="checkbox"/> Waste Disposal/Injection | <input type="checkbox"/> Not Used         |
| <input type="checkbox"/> Other: _____ |                                                   |                                           |

8. POSSIBLE CONTAMINATION SOURCES:

Is there evidence of Chemigation? ☐ Yes ☒ No

If yes, is there a check-valve present? ☒ Yes ☐ No

Is there a possible source of contamination nearby? ☒ Yes ☐ No

If yes, what Type? STOCK YARD

How far away from the well is this source? - 0 - ~~in~~ well in pens

9.

REMARKS: The well is located in  
The middle of the corral  
I don't know if well seal is  
adequate. NO Eminent Danger  
seen present.

Donald A. Nelson - Senior Agent  
Signature of Dept. Representative & Title

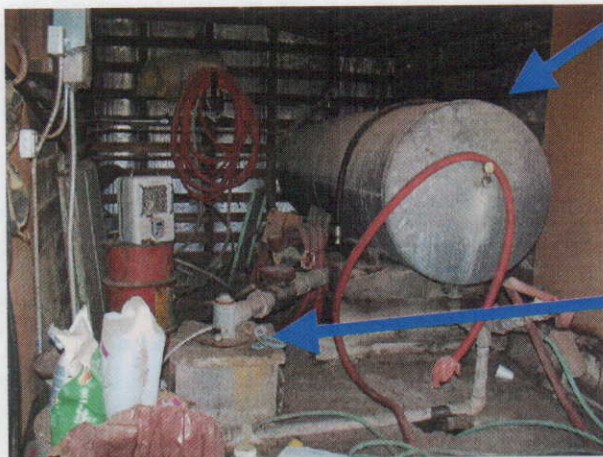
9-27-04  
Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS:

See Field Exam.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/27/2004

FILE NUMBER 63-11060

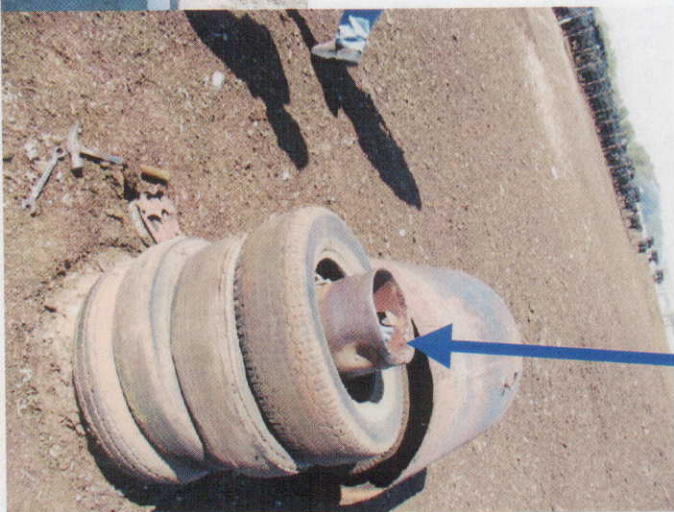


3.25 ft x 8ft pressure tank (500 gal) with 40 psi read on the gauge. The psi gauge was holding steady, so system was at equilibrium (max flow).

This is well number 1. This well originally had a 7.5 Hp turbine pump, but that pump was replaced with a 7.5 Hp submersible pump.



This is well number 2. This well supposedly used to have a 35 Hp submersible pump; however, I believe the current 30Hp submersible pump is actually the size pump originally used. Standard pump sizes begin going up by 10 Hp at 30 Hp, and I haven't been able to find any 35 Hp pumps in any of our literature.



This is well number 3. This well originally had a 7.5 Hp submersible pump, but that pump was replaced with a 5 Hp submersible pump. The 5 Hp submersible pump is currently sucking air and any larger pumps would not be able pump for any sustained period without burning up the pump. The owners did say that they were constantly replacing the pumps until they went to the lower horsepower pump. Therefore, it is reasonable to assume that the 5 Hp pump is pumping the maximum available water from this well.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/27/2004

FILE NUMBER 63-11060



This is a photo of one of the 80 stockwater troughs. The troughs are approximately 170 gallon tanks are 1.4 ft depth and 7.4 ft long. They are designed in a 1/2 circle.

These photos are of the fresh water pond. Please note the pump used for the dust abatement sprinklers and the pump used for filling the water truck. The stand pipe for the water truck is approximately 14 ft tall.

50 Hp relift pump for the dust abatement sprinkler system.



25 Hp Parma pump used to fill water truck though stand pipe.



63-11060

Water Truck.

It uses 15,000 gal a load  
8x a day



Well #3



Water Users and  
the automatic water  
tank system.

DAVE GRAY  
7/21/1991



63-11060

Fresh water Pond.



View from Northwest  
corner of property  
looking East.



View from the the  
Northwest corner of  
property viewing South

DAVE GRAY  
7/21/1991