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RESULTS OF AN AQUIFER TEST AT VERMILLION, SOUTH DAKOTA

by

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INTRODUCTION

From June 2 through June 4, 2003, the Geological Survey Program, South Dakota Department of Environment and Natural Resources, conducted an aquifer test within the city of Vermillion's well field in cooperation with the city of Vermillion. The well field is located in N¹/₂ sec. 24, T. 92 N., R. 52 W. in southwestern Vermillion (figs. 1 and 2). The test consisted of an initial non-pumping phase during which water levels were allowed to recover to equilibrium or near equilibrium conditions, a second phase that consisted of pumping one municipal well, and a third phase during which water levels were again allowed to recover. The purpose of the test was to assess and characterize the general hydraulic properties of the aquifer in the Vermillion well field in an effort to assist the city in determining any appropriate modifications to its wellhead protection area.

HYDROGEOLOGIC SETTING

Vermillion is located in southern Clay County adjacent to, and in, the Missouri River valley (fig. 1). Surface sediments in the part of Vermillion occurring in the Missouri River valley are composed primarily of overbank deposits (figs. 3 and 4). These overbank deposits are up to 65 feet thick and are composed of clay and silt with minor amounts of sand (Christensen, 1967). They extend from the edge of the bluff southward to approximately one-third mile south of the Vermillion River. In this area, the overbank deposits comprise an aquitard above the underlying outwash. Within the immediate well field area, these generally fine-grained sediments are thickest to the north and west and become thinner to the south and east. The water table occurs in the fine-grained overbank deposits at a depth of about 16 feet immediately south of the bluff (Zutz, 2003).

Most of Vermillion occurs on uplands to the north of the Missouri River valley. Surface sediments on the uplands are composed primarily of loess-mantled till that is about 120 feet thick (Christensen, 1967). Christensen indicates the loess to range in thickness from 0 to 15 feet. Thus, there may be areas where loess is absent resulting in till being the surface sediment. The narrow bluff separating the Missouri River valley from the uplands is mapped as having till as the surface sediment (Christensen, 1967). The till is generally considered to be a unit of low permeability and forms an aquitard above the underlying outwash.

All areas of Vermillion are underlain at depth by outwash (sand and gravel), as indicated in figures 3 and 4, that was deposited by glacial meltwater (Christensen, 1967). The outwash that underlies the overbank sediments in the Missouri River valley is named the Missouri aquifer. The outwash that underlies the till in the bluff and uplands is named the Lower-Vermillion-Missouri aquifer. However, these two named aquifers are in direct hydraulic connection, occur at essentially the same elevation, act as a single water-bearing unit, and are referred to in this report as outwash. The outwash thickness in the well field ranges from about 55 to 76 feet.

The Graneros Shale directly underlies the outwash in the part of Vermillion that occurs in the Missouri River valley (Tomhave and Schulz, 2004). In Clay County, the Graneros Shale is

less than 30 feet thick (Christensen, 1967). The Dakota Formation, a source of artesian water, directly underlies the Graneros Shale.

Vermillion's well field is located within the city limits and mostly in the Missouri River valley (figs. 1 and 2). All except one of Vermillion's water supply wells is completed in the Missouri aquifer. The lone exception is the water-supply well identified as #6-Active, which is located on the bluff between the valley and the uplands. This well is completed in the Lower-Vermillion-Missouri aquifer.

Considering the outwash may be confined or partially confined in and immediately surrounding Vermillion's well field, the recharge to the outwash in the well field is primarily from lateral inflow. Recharge may also be from upward flow/leakage from the underlying Dakota Formation (Jorgensen, 1960). Some discharge from the outwash in the vicinity of the well field is into the Vermillion River. Farther away, some discharge from the Missouri aquifer would be into the Missouri River. However, during times of high stream flow, the rivers may be sources of recharge to the outwash. Water is also discharged from the outwash by lateral flow through the well field area and through pumping of wells.

THE AQUIFER TEST

Water-level data were collected from all eight wells shown on figure 2. These data are included in this report in appendix A. The water supply wells are 12 inches in diameter. The screen lengths of these wells range from 12 to 22 feet, only partially penetrating the full thickness of the aquifer (figs. 3 and 4). Well #3-Active was the only well that was pumped during the pumping phase of the study. All available wells were used to observe the development of the cone of depression induced by pumping and the deterioration of the cone of depression during the two non-pumping/recovery phases of the aquifer test. The test was conducted according to the schedule presented in table 1. The duration of the initial non-pumping phase was 13 hours, during which time the ground water was allowed to stabilize to equilibrium conditions, or near equilibrium conditions. The potentiometric surface of the outwash determined from water levels in the wells at equilibrium conditions is shown on figures 3 and 4. The subsequent pumping phase during which the cone of depression developed around the pumping well was 24 hours in duration. Finally, the second non-pumping, or recovery, phase lasted 4 hours. The pumping rate during the pumping phase of the test was kept steady at 520 gallons per minute and pumped water was discharged into the city's water storage facilities. Distances from the pumping well to the observation wells (non-pumping production wells or former production wells) ranged from 76 to 1,079 feet (table 2).

METHODOLOGY

AQTESOLV, a software program for determining aquifer parameters, was used to analyze aquifer test data.. Data were collected at pumping well #3-Active, and at observation wells #1-Inactive, #2-Active, #3-Inactive, #4-Active, #4-Inactive, and #6-Active. The data from well

#5-Active was not used to determine aquifer parameters due to the inaccurate and imprecise pressure gauge that was used to collect data from that well.

Both the Hantush-Jacob solution for leaky confined aquifers and the Thiem solution were applied to the drawdown data collected during the aquifer test. The Hantush-Jacob solution can be applied to non-equilibrium or unsteady flow conditions while the Thiem solution applies to equilibrium or steady-state flow conditions. The drawdown data indicate that equilibrium or steady-state flow conditions were reached, or nearly reached, in the aquifer by the conclusion of the aquifer test. However, a determination of equilibrium conditions being reached, or not, cannot be reliably made due to the short duration of the test and because of the uncertainties introduced by multiple field personnel making measurements on a given well. Thus, both Hantush-Jacob and Thiem solutions were applied to the data.

The Hantush-Jacob solution for leaky confined aquifers provided a good fit to the data using the AQTESOLV software. The formula for the Hantush-Jacob solution, along with the conditions assumed to exist when using this solution under ideal circumstances, is listed in appendix B. All conditions ideally assumed to exist are actually seldom, if ever, met in the course of conducting aquifer tests. As not all the assumptions listed in appendix B apply to the city's well field, the results of the calculations must be considered to be approximations.

Calculations for transmissivity using the Thiem equation for steady-state radial flow to wells in confined aquifers were performed manually. Storativity cannot be calculated using the Thiem solution. The formula for the Thiem solution, along with the conditions assumed to exist under ideal circumstances, is listed in appendix B. As with the Hantush-Jacob solution, not all of these conditions apply to the city's well field, and the results must be considered to be approximations.

A semi-log plot of the total drawdown occurring during the pumping phase of the test versus distance from the pumping well, #3-Active, was constructed, as shown in figure 5. Drawdown data from all observation wells except well #5-Inactive were used to determine the radius of influence of the pumping well (r_o) as the point on the distance axis that is intersected by the line of best fit to the data points. The specific capacity (pumping rate divided by total drawdown) of well #3-Active (the pumping well) was determined manually from its drawdown data.

RESULTS AND INTERPRETATION

Water levels in all assessed wells began to decline within the first 5 minutes of the pumping phase of the test. Recharge and discharge of water reached, or very nearly reached, equilibrium in all observation wells during the later part of the pumping phase of the aquifer test.

The Hantush-Jacob solution for leaky confined aquifers provided a good fit to the data from all observation wells using the AQTESOLV software. Results of the analysis of drawdown data from wells #1-Inactive, #2-Active, #3-Active, #3-Inactive, #4-Active, #4-Inactive and #6-Active determined using this solution are shown in table 2 and appendix C. The transmissivities determined for observation wells #1-Inactive, #3-Inactive, #4-Active, #4-Inactive, the four observation wells closest to the pumping well, ranged from 54,000 to 56,000 ft²/day. Storativities

of these four observation wells were 0.0005244, 0.0001557, 0.0002967, and 0.0003133, respectively. Thus, there was no substantial difference in the values of transmissivity, and the storativities were within the same order of magnitude among these four observation wells using the Hantush-Jacob solution. Three of these four wells are farther from the pumping well than the distance beyond which partial penetration of the screened portions of wells through the outwash has negligible effect on the analyses as described by Fetter (1988). Because there was no difference in transmissivities at distances greater and less than this critical distance, any effect of partial penetration of observation wells is assumed to have been negligible.

The transmissivities calculated using the Hantush-Jacob solution for wells #2-Active and #6-Active were 50,000 and 75,000 ft²/day, respectively. The storativities calculated for these two wells using this solution were 0.001168 and 0.0009802, respectively. The difference between the aquifer parameters calculated for these wells and those calculated for the four observation wells closest to the pumping well is attributed to heterogeneous conditions in the outwash. The median transmissivity and storativity calculated using the Hantush-Jacob solution for all six assessed observation wells were 55,000 ft²/day and 0.000419, respectively.

The results of five calculations of transmissivity using the Thiem steady-state solution are shown in table 2. These transmissivity values ranged from 37,000 to 45,000 ft²/day. The median transmissivity of these calculations was 43,000 ft²/day. The minor difference in the median transmissivity values calculated using the Hantush-Jacob and Thiem solutions is accounted for by the fact that these solutions use different factors in calculating aquifer parameters. Change in drawdown occurring within a well and leakage are factored only into the Hantush-Jacob solution, while the difference in total drawdown between wells is only factored into the Thiem solution. In addition, the ratio of the distances from the pumping well of two observation wells is factored only into the Thiem equation.

Transmissivity values calculated with the Thiem solution are more likely to be accurate than those obtained from a transient analysis (Fetter, 1988). However, there is some uncertainty as to whether steady-state conditions occurred in pumping wells #3-Active, well #4-Active, and well #4-Inactive. In addition, the use of the Hantush-Jacob solution accommodates reporting of storativity values. The good of fit of the data to the Hantush-Jacob solution is also indicative of leakage from an aquitard as a source of recharge during the aquifer test. Therefore, results of both the Hantush-Jacob and Thiem solutions are reported. The median transmissivity values calculated by the Hantush-Jacob and Thiem analytical solutions are both substantially higher than 14,000 ft²/day, which is the threshold transmissivity of a good aquifer (Freeze and Cherry, 1979).

Under ideal conditions, all flow to pumping wells in a completely confined aquifer occurs laterally. However, three possible additional sources of recharge to the aquifer during the test are suggested by this study. The Vermillion River was one probable source of recharge as it lies within the 2,400-foot radius of influence of the pumping well determined from the semi-log plot of total drawdown versus distance from the pumping well (fig. 5). The position of the data point corresponding with well #2-Active on figure 5 indicates that there was slightly less drawdown in this well than would be predicted from the line of best fit for all data. Since well #2-Active is closer to the Vermillion River than any other wells, this relatively smaller amount of drawdown

most likely indicates recharge from the river. An implication of the apparent recharge to the outwash from the river during the aquifer test is that the river is also a natural source of recharge to the outwash at times of high stream flow.

Another possible source of recharge to the observation wells during the aquifer test is upward flow of ground water induced by artesian pressure within the Dakota aquifer. Leakage of ground water through the Graneros Shale, which is believed to lie between the Dakota aquifer and most, if not all, of the outwash in the well field, is consistent with the good fit of the data from all observation wells to the Hantush-Jacob solution. The Hantush-Jacob solution is for leaky confined aquifers assuming steady-state flow (no storage) in the aquitard(s). Equilibrium between recharge and discharge during pumping was reached, or nearly reached, at all observation wells, including well #6-Active, which is evidence for recharge as leakage through an aquitard. Well #6-Active was the farthest observation well from the river and therefore the least likely to receive recharge from the river of all the wells monitored during the test.

The coefficient of determination (\mathbb{R}^2) for the data to the negatively sloping line on the total drawdown versus distance from pumping well semi-log plot shown in figure 5 was 0.9282. This very good fit of the data to the semi-log line implies that distance from pumping well #3-Active was a principle determinant of the amount of drawdown in the observation wells. While this goodness of fit is consistent with lateral flow as a recharge source, it is also consistent with the presence of a source of recharge approximately equidistant from all wells, such as leakage through the Graneros Shale.

The fine-grained sediments that overlie the outwash in the well field area are another possible source of recharge to the outwash. This source of recharge is also approximately equidistant to the outwash throughout the well field and therefore consistent with the good fit of the distance versus drawdown data points to the line of best fit shown in figure 5. Leakage from these sediments is also consistent with the goodness of fit of the drawdown data from all observation wells to the Hantush-Jacob solution. However, substantial gravity drainage of water from such fine-grained sediments is not likely. Significant leakage into the outwash is also unlikely from the till underlying the uplands. Whether there is any flow of water into the outwash from the overlying sediments during pumping cannot be determined from the test data. If available, a shallow observation well located south of the bluff near a pumping well and screened at or near the water table could be used to determine the effect of pumping on the water table. If the water table elevation falls in response to pumping, some recharge to the outwash from the overlying fine grained sediments would be indicated.

There may not have been any influence of pumping during the aquifer test on the ground water within the 2,400-foot calculated radius of influence (fig. 5) south of the Vermillion River because the river is a ground water boundary. However, at high pumping rates over extended periods of time, ground water could potentially be drawn northward under the Vermillion River from south of the river. The radius of influence determined for pumping in the well field would probably have been larger had more than one of the city's wells had been pumping simultaneously or had the rate of pumping been higher.

Several criteria indicate that the ground water in the outwash in the city of Vermillion's well field exists under confined conditions. One criterion is the position of the potentiometric surface of the outwash in the overbank sediments and till that comprise the upper aquitard (figs. 3 and 4). The lack of a gently sloping segment of the curve on the log drawdown versus log time plots shown in appendix C preceded and followed by more steeply sloping segments also indicates confined hydraulic conditions. Data plots of time versus drawdown for aquifers under water table conditions show such gently sloping segments corresponding with gravity drainage of ground water (Freeze and Cherry, 1979). Another indication of confined conditions is the order of magnitude of the storativity values for the outwash that were calculated. A typical range of storativity values for confined aquifers is from 0.00001 to 0.001 (Driscoll, 1986). The 2,400-foot radius of influence of the pumping well determined on figure 5 probably also indicates confined conditions. Thus, while the fine-grained sediments overlying the outwash from which the city of Vermillion obtains its water supply retard downward migration of any potential contaminants, they also cause confined hydraulic conditions to prevail in the outwash. As a result of this confined condition and the high transmissivity of the outwash, the area of influence of pumping is substantially greater than would occur under water table conditions and lower transmissivity.

Water table conditions exist south of the Vermillion River (fig. 4) and might also be present in the area between the southeastern part of the well field and the Vermillion River. It is inferred that any existing water table conditions in those portions of these two areas lying within the radius of influence of the pumping well had no influence on drawdown rates in the observation wells during the aquifer test. This lack of influence on drawdown rates is attributed to the relatively great distance of these areas from the pumping and observation wells. In the area south of the Vermillion River, the lack of influence on drawdown rates also resulted from the river being a ground water boundary.

The specific capacity of well #3-Active was determined to be 36.5 gallons/minute/foot, as shown on table 2. However, drawdown of the water level in the pumping well, #3-Active, may have still been occurring at the end of the pumping phase of the aquifer test. Therefore, the actual specific capacity of this well may be somewhat lower than the specific capacity calculated from the test data.

SUMMARY

All wells in the Vermillion well field are located in the Missouri River valley except well #6-Active, which is located on the bluff between the uplands and the Missouri River valley (figs. 1 and 2). Surface sediments in the part of the well field south of the bluff in the Missouri River valley are composed primarily of fine grained, relatively impermeable overbank sediments (figs. 3 and 4). These sediments range in thickness from 65 feet in the northern and western part of the well field to 5 feet just southeast of the well field. At well #6-Active, located on the bluff, a 49-foot thick surficial layer of glacial till is present. The permeable outwash sediments that underlie these surficial sediments range in thickness from about 55 to 76 feet in the well field. The outwash is underlain by the Graneros Shale which is about 30 feet thick. The Graneros Shale is underlain by the Dakota aquifer.

Water-level data were collected from eight wells shown on figure 2, including well #3-Active, the only well that was pumped during the pumping phase of the test. All available wells were used to observe the development of the cone of depression induced by pumping at a rate of 520 gallons per minute and the deterioration of the cone of depression during the two non-pumping/recovery phases.

The drawdown data from all wells except well #5-Active were analyzed using AQTESOLV software (data from well #5-Active were deemed unreliable). The Hantush-Jacob solution provided a good fit to the data collected during the pumping phase of the test. Log time versus log drawdown plots of the drawdown data along with the curve for this solution can be seen in appendix C. The median transmissivity calculated using this solution was 54,500 ft²/day while the median storativity was 0.000419. The median of five transmissivity values calculated manually using the Thiem solution was 43,000 ft²/day.

Equilibrium between recharge and discharge occurred, or very nearly occurred, as indicated by the stabilization of water levels in all observation wells during the later part of the pumping phase of the test. Three possible sources of recharge to the outwash in addition to lateral flow toward the pumping well during the test are suggested by the study. The Vermillion River was one probable source of recharge as it lies within the 2,400-foot radius of influence of the pumping well determined from the test data (fig. 5). Leakage through aquitards underlying and overlying the outwash during pumping was also possible, particularly as flow through the underlying Graneros Shale from artesian pressure in the Dakota aquifer. The test results cannot eliminate from possibility that some recharge to the outwash from the overlying aquitard may occur. However, substantial flow into the outwash from these surficial sediments is not likely to have occurred, especially where the overlying aquitard is relatively thick.

Multiple criteria indicate that the ground water in the outwash in the city of Vermillion's well field exists under confined hydraulic conditions. These criteria are the position of the potentiometric surface of the outwash in the upper aquitard (figs. 3 and 4), the shape of the curve that best fits the drawdown data (app. C), the order of magnitude of storativities calculated for the outwash (table 2), and the 2,400-foot radius of influence of the pumping well during the aquifer test (fig. 5). The fine-grained sediments overlying the outwash from which the city of Vermillion obtains its water supply act as a confining layer and retard downward migration of potential contaminants. As a result of this confined condition and the high transmissivity of the outwash, the area of influence of pumping is substantially greater than would occur under water table conditions and lower transmissivity. Water table conditions exist south of the Vermillion River (fig. 4) and might also exist in the area between the southeastern part of the well field and the Vermillion River. The area of influence of pumping may increase with higher discharge rates and pumping simultaneously from multiple wells. At high pumping rates over extended periods of time, ground water could potentially be drawn northward under the Vermillion River from south of the river.

The specific capacity of well #3-Active was determined to be 36.5 gallons/minute/foot (table 2). However, drawdown of the water level in the pumping well, #3-Active, may have still been occurring at the end of the pumping phase of the aquifer test. Therefore, the actual specific

capacity of this well may be somewhat lower than the specific capacity calculated from the test data.

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Figure 1. Map of the study area.



Map base from U.S. Geological Survey 1:24,000 scale Vermillion quadrangle, 7.5 minute series (topographic) digital raster graphic.

Figure 2. Locations of wells.





0

500 feet

Figure 3. Cross section A-A'.



Kgr

- 1000

1600 FEET

Vertical Exaggeration = 4X





Figure 5. Total drawdown versus distance from the pumping well.

Distance from pumping well (ft)

Date	Description of time period	Description of activities
Immediately prior to pre	epumping-stabilization phase of the test	Wells #3-Active and #4-Active are pumping to provide drinking water to Vermillion residents
	Approximately 7:55 PM	Water levels in all wells were measured
	8:00 PM	All pumping wells were shut off
Mon., June 2, 2003	8:00–10:00 PM, or 0 to 120 minutes of the initial stabilization phase of the test	Water levels are allowed to recover from pumping; water levels are measured at 15, 30, 45, 60, 90, and 120 minutes
Mon. and Tues., June 2 and 3, 2003	10:00 PM on June 2 through 8:55 AM on June 3	Water levels were measured every 2 hours and at 8:55 AM on June 3
	9:00 AM	Pumping phase of the test started using municipal well #3-Active
Tues., June 3, 2003	9:00–9:10 AM, or 0 to 10 minutes of the pumping phase of the test	Water levels were measured, relative to the start of pumping, at 30 sec., 60 sec., 90 sec., 2 min., 2 min. 30 sec., 3 min. 15 sec., 4 min., 5 min., 6 min. 30 sec., 8 min., and 10 min.
	9:15–10:50 AM, or 15 to 100 minutes of the pumping phase of the test	Water levels were measured, relative to the start of pumping, at 15, 20, 25, 30, 40, 50, 65, 80, and 100 min.
Tues. and Wed., June 3 and 4, 2003	10:50 AM on June 3 through 9:00 AM on June 4	Water levels were measured every 1 to 2 hours and at approximately 8:55 AM on June 4
	9:00 AM	Pump in well #3-Active is shut off; this ended the pumping phase of the test
	9:00–9:10 AM, or 0 to 10 minutes of the recovery phase of the test	Water levels were measured, relative to the end of pumping, at 30 sec., 60 sec., 90 sec., 2 min., 2 min. 30 sec., 3 min. 15 sec., 4 min., 5 min., 6 min. 30 sec., 8 min., and 10 min.
Wed., June 4, 2003	9:15–10:40 AM, or 15 to 100 minutes of the recovery phase of the test	Water levels were measured, relative to the end of pumping, at 15, 20, 25, 30, 40, 50, 65, 80, and 100 min.
	10:40 AM–1:00 PM, or 15 to 240 minutes of the recovery phase of the test	Water levels were measured at 1-hour intervals
	1:00 PM	Wells #3-Active and #4-Active were turned on to provide drinking water to Vermillion residents

Table 1. Schedule for pumping and measurement of water levels

Well name(s)	Distance from pumping well (ft)	Analytical method	Transmissivity (ft ² /day)	Storativity (dimensionless)	r _o (ft)	Specific capacity (gal/min/ft)
#1-Inactive	434	Hantush-Jacob	56,000	0.0005244		
#2-Active	677	Hantush-Jacob	50,000	0.001168		
#3-Active	0	Manual calculation				36.5
#3-Inactive	76	Hantush-Jacob	55,000	0.0001557		
#4-Active	385	Hantush-Jacob	54,000	0.0002967		
#4-Inactive	408	Hantush-Jacob	54,000	0.0003133		
#6-Active	1079	Hantush-Jacob	75,000	0.0009802		
All*		Jacob modified			2,400	
#1-Inactive and #3-Inactive		Thiem	43,000			
#3-Inactive and #4-Inactive		Thiem	45,000			
#3-Inactive and #6-Active		Thiem	44,000			
#4-Active and #6-Active		Thiem	37,000			
#4-Inactive and #6-Active		Thiem	43,000			

Table 2. Aquifer parameters calculated from water level drawdown data

 r_o- The maximum distance from the pumping well at which drawdown of water level occurred $\ast-~$ Except #5-Active and #3-Active

APPENDIX A

Field data

Note: Because not all watches used by personnel measuring water levels were properly synchronized, it was necessary to adjust the times of many water level measurements taken during the first 10 minutes of the pumping phase of the test according to the measurement schedule presented in table 1 in determining aquifer parameters.

All wells #	turned	loff at <u>8:0</u>	P.M. Dat	e 6-2-03	
Pretest (before wells tur	ned off.		\bigcirc		
Static Level 27. 4	<u>58</u> ft. Time: h	ours 7	minutes 58	seconds_ <u>35</u>	
1. Static level_27	<u>61</u> Time:	hours_8	minutes O	seconds 50	$\overline{}$
2. Static level 27	Time:	hours 8	minutes 15	seconds 03)
3. Static level <u>26</u>	<u>90</u> Time:	hours 8	minutes 32	seconds 15	
4. Static level <u>26</u>	. <u>87</u> Time:	hours 8	minutes 45	seconds_25	· ۲ ح
5. Static level <u>26</u>	. <u>75</u> Time:	hours 9	minutes 03	seconds 15	
6. Static level <u>26</u>	. <u>70</u> Time:	hours 9	minutes <u>28</u>	seconds 10)
7. Static level 26	. <u><u>64</u> Time:</u>	hours 10	minutes OR	seconds 12	
8. Static level 26	57 Time:	hours 12	minutes <u>8</u>	seconds <u>00</u>	VH
9. Static level <u>26</u>	<u>45</u> Time:	hours 2	minutes 16	seconds 25	- VH
10. Static level $\mathcal{J}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}}}}}}}}}}$	<u>. 41</u> Time:	hours 4	minutes 12	seconds 55	
11. Static level de	. <u>38</u> Time:	hours Le	minutes 13	seconds 35	
12. Static level 26	<u> </u>	hours 8	minutes 09	seconds 20	RI
13. Static level	Time:	hours	minutes	seconds	
14. Static level	Time:	hours	minutes	seconds	
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16. Static level	Time:	hours	minutes	seconds	
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23. Static level	Time:	hours	minutes	seconds	
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	late	6 - 3) 		to	1		Line by
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		•		Said	TEA TEA	(isher marcine	·5 ···· · +	ime VI
		Static level	26 .3.	> Tim	ne: hours	minutes	Sec	8:55 AM
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		Static level	26.3	<u> </u>	ne: hours	minutes	sec	9.01,00 130
		Static level	26.4	<u>-2</u> Tin	ne: hours_	minutes	<u>/-</u> sec. <u></u>	9.01.30
_		_Static level	<u></u> 4	<u>-8</u> Tin	ne: hours_	minutes	sec	9.02,00
2		_Static level	<u> </u>	Tim	ne: hours_	minutes	sec	9.02.30
		Static level	26 . 5	Tim	ne: hours_	minutes	Sec	9.03.15 3:40
Zar		_Static level	26 . 5	G Tin	ne: hours_	minutes	sec	9.04,00 ° 4:00
· ~	·	_Static level	26 . 6	<u>o</u> Tin	ne: hours_	minutes	\$ec	- 9.05.00 5.00
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₹ ZZ×	·····	_Static level	26.8	<u> </u>	ne: hours_	minutes	sec	9,30 31.00
- Se		_Static level	26.8	<u>2</u>	ne: hours_	minutes	sec	9,40 41.04
Cardo and		_Static level	26.8	$\frac{2}{3}$ Tin	ne: hours_	minutes	Sec,	9,50 Still
E.		_Static level	26.2		ne: hours_	minutes	sec	10.05 10:06 201
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S.		_Static level	······································	!IA	ne: nours_	minutes	Sec	
6		_Static level		11/1 	ne: nours_	minutes	sec	
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<u></u>	Time: hours 12	minutes 58 sec. 7
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HT Static level 26. 309	Time: hours 5	minutes 12 sec. 08
<u>VH</u> Static level <u>26</u> . <u>98</u>	Time: nours	
VH Static level 26.97	Time: nours	minutes 74 sec. 00
Static level	Time: hours	minutes 22 sec. 30
<u>TR</u> Static level 27.00	Time: hours /2	minutes 2 sec. r. Midwaht
the Static level 27 (90)	Time: hours 12	minutes 24 sec 10
Gm Static level 27 00	Time: hours	minutes A sec 14
510 Static level 26 99	Time: hours 3	minutes 10 sec 01
SM Static level 26 99	Time: hours 9	minutes 12 sec. 31
GH Static level 22, 00	Time: hours 5	minutes 10 sec. 20
CH Static level 27.00	Time: hours	minutes 04 sec. 00
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205 West Broadevery

Date June 4, 2003

Static levels on well # 1

Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003

_at 8:55 a.m. was _ 2 7 🔒 0 / Static level on well # 1 4 4 Static level Test # 1 Hrs 9 Min. 00 Scheduled time for test Sec. 30 20 Test taken at: Hrs Sec Min. 94 2.6 Test #2 Static level Hrs 9 Min 01 Scheduled time for test Sec 00 ()Test taken at: Hrs Min. Sec. A AI 26 Test #3 Static level Scheduled time for test Hrs 9 Min. 01 Sec. 30 0 Test taken at: Min. Sec. Hrs 86 2 Test#4 Static level Scheduled time for test Hrs. 9 Min. 02 Sec. 00 00 Test taken at: Hrs Min. Sec 94 0 Test # 5 Static level Min. 02 Scheduled time for test Hrs. 9 Sec. 30 2 1 Test taken at: Min. Sec. Hrs 80 26 Test#6 Static level Min. 03 Scheduled time for test Hrs. 9 Sec. 15 Test taken at: Hrs Min. Sec. 26 5 Test #7 Static level Sec. 00 Scheduled time for test Hrs. 9 04 Min. 0 Test taken at: Hrs Min. Sec. 26 76 Test#8 Static level Scheduled time for test Hrs. 9 Min. 05 Sec. 00 03 Test taken at: Hrs Min. Sec. $\langle \succ \rangle$ 21 Test #9 Static level Scheduled time for test Hrs. 9 Min. 06 Sec. 30 Test taken at: 5 Hrs Min. Sec. 69 26 Test # 10 Static level Scheduled time for test Hrs. 9 Min. 08 Sec. 00 DZ Test taken at: Hrs Min. Sec.

Well # 1

June 4, 2003

205 West Broadway

		- 1	, 17	
Test # 11	Static level	24	6/	
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Test taken at	L.		Min	San 25
restaken at				
		5/	11	
Test # 12	Static level	600	01	_
Scheduled time for tes	t	Hrs. 9	Min. 15	Sec. 00
Test taken at:		Hrs	Min	Sec <i>DU</i>
		-1	÷	
Test # 13	Static level	20	S /	
Scheduled time for tes	st	Hrs. 9	Min. 20	Sec. 00 ~ >
Test taken at:		Hrs	Min.	Sec. US
Test # 14	Static level	76	ΣC	
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T	o	26	.El	
lest # 15	Static level			• • •
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Test taken at:		Hrs	Min	Sec
		~/	+	
Test I# 16	Static level	<u>20_</u>	30	
Scheduled time for tes	st	Hrs. 9	Min. 40	Sec. 00
Test taken at:		Hrs	Min.	Sec. O/
		,		
Test # 17	Static level	26	4/	
Scheduled time for tes	st	Hrs 9	Min 50	Sec 00
Test taken at		Hre	Min	Sec 10
root taken at.				00000
Tost # 18	Statia lava	26	17	
Schodulad time for ter		<u> </u>	<u>-7 2</u>	Sec. 00
Scheduled lime for les	51	Hrs. TU	IVIIN. US	Sec. UU
Test taken at:		Hrs	Min	Sec/
		51	41	
1est # 19	Static leve	<u> </u>	11	
Scheduled time for tes	st	Hrs. 10	Min. 20	Sec. 00
Test taken at:		Hrs	Min	Sec
			1. 2	
Test # 20	Static leve	26.	40	
Scheduled time for tes	st	Hrs. 10	Min. 40	Sec. 00 🔿 🕤
Test taken at:		Hrs	Min.	Sec.
		. <u></u> ,		·
Test # 21	Static leve			
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root lanon al.				0ec
Tost # 22	Statia laura			
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\$ 6-4-03

WEIL #1

Start of test 11:02 AM 6-4-03

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EH	Static level	26	. 3.6
CH	Static level	26	. 3 5
CH		26	. 34
RI+5m	Static level	27	. 66
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3

Well # 2 Address 108	West Broadway	
All wells # Pretest (before wells turned off. Static Level 28 .478 ft. T	turned off at <u>8:00</u> P.M. D. Time: hours 97 minutes <u>55</u>	ate <u>6-2-03</u> seconds <u>0</u>
1.Static level $27'$ $10''$ 2.Static level $27'$ $8.58''$ 3.Static level $27'$ $8.58''$ 4.Static level $27'$ $7.5/8'$ 5.Static level $27'$ $6.79''$ 6.Static level $27'$ $4.5''$ 7.Static level $27'$ $4.5''$ 9.Static level $27'$ $4.5''$ 9.Static level $27'$ $3.74''$ 10.Static level $27'$ $3.74''$ 11.Static level $27'$ $3.74''$ 12.Static level $27'$ $3.74''$ 13.Static level $27'$ $3.74''$ 14.Static level $27''$ $3.74''$ 15.Static level $27''$ $3.74''$ 16.Static level $21''$ $3.5''$ 19.Static level $21''$ $3.5''$ 20.Static level $21''$ $21''$ 21.Static level $22''$ $3.5''$ 23.Static level $23''$ $3.5'''$	Time: hours 8 minutes 17 Time: hours 8 minutes 30 Time: hours 9 minutes 30 Time: hours 9 minutes 32 Time: hours 2 minutes 32 Time: hours 2 minutes 32 Time: hours 2 minutes 32 Time: hours 4 minutes 32 Time: hours 6 minutes 18 Time: hours 6 minutes 18 Time: hours 7 minutes 11 Time: hours 7 minutes 11 Time: hours 7 minutes 11 Time: hours 7 minutes 7 Time: hours 7 minutes 7 Time: hours 7 minutes 7 Time: hours 7 <t< td=""><td>seconds 28 seconds 09 seconds 10 seconds 13 seconds 42 seconds 42 seconds 42 seconds 42 seconds 55 seconds 53 seconds 53 seco</td></t<>	seconds 28 seconds 09 seconds 10 seconds 13 seconds 42 seconds 42 seconds 42 seconds 42 seconds 55 seconds 53 seconds 53 seco
24. Static level	Time: hours minutes	seconds

Well # <u>QAM</u> <u>Curt/Stacey</u> Date <u>613/03</u> to _____ -218 S. Dakota 10:40 AM 6-3-03

St.

27.24

6-3-03 Static level 27 .3/8	Time: ho	ours <u> </u>	minutes <u>5</u> 5	sec. 30	8,55 AM
Static level	Time: he	ours	minutes	SCC	
Static level 27 . 21/4	Time: he	ours 🖏	minutes 59	sec. 27	
Static level 27.30	Time: he	ours 9	minutes 00	sec. 00	
/ Static level 27 . 81/a	Time: h	ours 9	minutes 00	sec. 30	
2 Static level 27 . 234	Time: h	ours 9	minutes 01	sec. OO	
3 Static level 27, 30	Time: h	ours 9	minutes 01	sec. 30	
4 Static level 27. 31/2	Time: h	ours 9	minutes 0 Q	sec. 15	
5 Static level 27, 31/4	Time: h	ours 9	minutes 03	sec. OO	
6 Static level 27 40	Time: h	ours 9	minutes 04	sec. ()()	
7 Static level 27. 41/4	Time: h	ours 9	minutes 05	sec. 30	
8 Static level 27.40	Time: h	ours 9	minutes of	Sec. OO	
9 Static level 27.4/2	Time: h	iours 9	minutes 09	sec. ()0	
10 Static level 27.5	Time: h	ours 9	minutes 14	sec. 55	
// Static level 21 . 54	Time: h	iours 9	minutes 19	sec. 50	
12 Static level 21 h 12	Time: h	ours 9	minutes 24	sec. 50	
<u>/3</u> Static level 21 6	Time: h	iours 9	minutes 29	sec. 50	
14 Static level 27 534	Time: h	ours <u>9</u>	minutes 39	sec. 5.9	
15 Static level 27 . 6M	Time: h	iours <u>4</u>	minutes <u>49</u>	sec. <u>50</u>	
<u>/6</u> Static level 21	Time: h	ours 10	minutes4	sec. <u>50</u>	
<u>/7</u> Static level <u>) 6 3/9</u>	Time: h	iours 10	minutes <u>14</u>	sec. 50	
<u>/8_</u> Static level <u>21 _ 7 / 4</u>	Time: h	iours <u>10</u>	minutes_ <u>3</u> ¶	sec. 55	. .
Static level	Time: h	ours	minutes	sec	_
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Well # ______ 2 9:00 Am Date ______ 3-03

Curry to SOOK Â 10:40 AM 6-3-03 -to

6-3-03 Static level	27 3/8	Time:	hours_	8	minutes_	55	sec	30	8:55 AM
Static level		Time:	hours		minutes_		sec.		
/ Static level	27' . 2/4"	Time:	hours	8	minutes	59	sec	27.	
2 Static level	271. 3"	Time:	hours	9	minutes	00	sec.	00.	
3 Static level	271 2/5"	Time:	hours	9	minutes	00	sec.	30	
# Static level	17' 23/4"	Time:	hours	9	minutes	01	sec.	00	
6 Static level	271 31	Time	hours	9	minutes	01	sec.	. 30	
Otatic level	171 315"	Time:	hours	9	minutes	02	sec.	16	
Z Static level	571 3 Kill	Time	bours	á	minutos_	03		00	
	$\Delta 7 I \qquad I II$	Time:	hours	à	minutos	DH	500 600	00	
<u> </u>	27, 4//	Time:	hours_	9	minutes_	05	, 900 	30	
	101 111	Time.	hours_	- <u>6</u>	minutes_	03	Sec	00	
	27 11/2"	Time:	nours_	7	minutes_	07	Sec	00	
Static level	271 511	Time:	nours_	7	minutes_	11	sec	00	
	<u>ar: 5"</u>	Time:	nours_	7_	minutes_	17	Sec.	<u>35 /</u>	/
<u>/</u> 3 Static level	21.54	Time:	hours_	7	minutes	17	sec.	300	
Static level	27 . 42"	Time:	hours_	<u>_7</u>	minutes_	29	sec.	50	
/5Static level	21. 6"	Time:	hours_	9	minutes_	29	sec.	50 V	
/6Static level	27' . 5 1/4 "	Time:	hours_	9	minutes_	39	sec.	55	
/ 7Static level	27 . 6/4"	Time:	hours_	9	minutes_	49	sec.	50	
/ 8 Static level	271. 7"	Time:	hours_	10	minutes_	4	sec.	50	
/9 Static level &	271 . 6 78"	Time:	hours	10	minutes	19	Sec.	50 L	
20 Static level	271. 7/4"	Time:	hours	10	minutes	39	sec.	55	
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Well #	108 West	Broadway
D+ 1.3.03		
Jale	0	
BT static lavel 27 71/0	Time: hours 17 minute	6-3-03
5 M Static level 27 . 7/8	Time: hours / minute	es 0 6 sec. 4/7
<u>RF</u> Static level 27 7 1/8	Time: hours 2 minute	es 09 sec. 45
RI Static level 27. 71/2	Time: hours 3 minute	es 08 sec. 20
<u>Static level_2772</u>	Time: hours <u>4</u> minute	es_2/sec3_7
	Time: hours <u>5</u> minute	es_24_ sec. <u>30_</u>
<u>V/f</u> Static level <u>17</u> <u>7</u> <u>7</u>	Time: hours 6 minute	es_2/sec
<u>VH</u> Static level <u>17</u> . <u>1</u>	Time: hours / minute	es 11 5 sec. 00
	Time: hours 8 minute	es_232750C. 30 2
Static level / ///	Time: hours // minute	s 34 sec. 00 //////////////////////////////////
Cro Static level 07 7 3/2	Time: hours / a minute	
SM Static level 27 7 3/6	Time: hours 2 minute	25 <u>(0</u> 560. <u>5 5</u>
S/M Static level 27 7 3/8	Time: hours 4 minute	$\frac{15}{16} = \frac{15}{17}$
CH Static level 27 13/1	Time: hours 5 minute	as 13 sec. 45
CH Static level) 7 . 7 Kg	Time: hours 7 minute	$rac{1}{2}$ sec. 45
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108 West Broadeway

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Date June 4, 2003

Static levels on well #

Well #3 (active) turned off at 9:00 a.m. on June 4, 2003

Static level on well # <u>2 8:55:26</u>at 8:55 a.m. was <u>21.56</u> 2/ Д Test #1 Static level Min. 00 Scheduled time for test Hrs 9 Sec. 30 9 Test taken at: Sec. 35 Hrs Min. GD 2₩ Test #2 Static level Э. Scheduled time for test Hrs 9 Min 01 Sec 00 Test taken at: Hrs 9 Min. Ol Sec. co А Test # 3 Static level Scheduled time for test Hrs 9 Min. 01 Sec. 30 9 Test taken at: Hrs Min. O1 Sec. 30 Test#4 a Static level Scheduled time for test Hrs. 9 Min. 02 Sec. 00 Test taken at: Hrs 9 Min. 02 Sec. OC ð Test #5 Static level Scheduled time for test Hrs. 9 Min. 02 Sec. 30 G Min. 02 Sec. 30 Test taken at: Hrs 11 av **3**/4 Test#6 Static level Scheduled time for test Min. 03 Hrs. 9 Sec. 15 Test taken at: C Min. 🔊 Sec. 45 Hrs h 2 Test #7 Static level 00 Min. 04 Scheduled time for test Hrs. 9 Sec. 00 9 Test taken at: Min. CH Hrs Sec. OD h Test#8 Static level 27 60 Scheduled time for test Hrs. 9 Min. 05 Sec. 00 Test taken at: С Hrs Min. 05 Sec. OO $/\!/$ a 53/4 Test # 9 Static level Scheduled time for test Min. 06 Hrs. 9 Sec. 30 C Test taken at: Hrs Min. 🗘 Sec. 30 ∂ Test # 10 Static level Scheduled time for test Min. 08 Hrs. 9 Sec. 00 Test taken at: Hrs Min. 08 Sec. 00

Well # 2 June 4, 2003 108 West Broadway

				7	
Test # 11	Static level	27.5	51/4		
Scheduled time for test		Hrs. 9	Min. 1	0	00
Test taken at:	-	Hrs 9	Min.	10	Sec. OO
				10/1	
Test # 12	Static level	27.	42	4	
Scheduled time for test		Hrs 9	Min 1	5 8	ec 00
Test taken at:	•	Hrs 9	Min	Ĭ.5 Ĭ	Sec 00
				//	
Test # 13	Static level	21.	43	2	
Scheduled time for test	t	Hrs 9	Min 2	<u>,</u> 0 S	ec. 00
Test taken at:	-	Hrs q	Min.	20	Sec. OO
				11	
Test # 14	Static level	27	3 7	8	
Scheduled time for test	t	Hrs. 9	Min. 2	25 S	ec. 00
Test taken at:		Hrs 9	Min.	25	Sec. OO
			- 0	_ //	
Test # 15	Static level	27.	32	8	
Scheduled time for tes	t	Hrs. 9	Min. 3	30 S	ec. 00
Test taken at:		Hrs 9	Min.	30	Sec. 02
				11	
Test I# 16	Static level	27 .	3 5/	8	
Scheduled time for tes	t	Hrs. 9	Min. 4	10 S	ec. 00
Test taken at:		Hrs <u>4</u>	Min.	40	Sec. 02
				. 11	
Test # 17	Static level	27	37	1_	
Scheduled time for tes	t	Hrs. 9	Min.	50 S	ec. 00
Test taken at:		Hrs	Min	50	_Sec <i>O()</i>
		20	· · /	1	
Test # 18	Static level	110			
Scheduled time for tes	t	Hrs. 10	Min. (05 8	Sec. 00
Test taken at:		Hrs_10_	Min. <u>//</u>	<u>s</u>	_Sec
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Test # 19	Static level	1 5	1-1	1	
Scheduled time for tes	t	Hrs. 10	Min.	20 8	Sec. 00
Test taken at:		Hrs_ <u>10</u>	Min	20	_Sec
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Test # 20	Static level	1 0	<u> </u>	2	
Scheduled time for tes	t	Hrs. 10	Min.	40 8	Sec. 00
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Test # 22	Statia lava				
Scheduled time for too	t otalic level	Hre.	Min		See
Test taken at		Hrs	Wint		_000

6-4-03

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CH Static level 27 2" Time: hours III minutes 20 sec. 30 4" CH Static level 11 34" Time: hours 11 minutes 40 sec. 20 4" CH Static level 11 4" Time: hours 11 minutes 50 sec. 20 4" Static level 11 minutes 12 11 minutes sec. 20 6" 4" Static level 11 minutes sec. 11 minutes sec. 20 6"	CH	H	Static level	22'	2″т	ime:	hours 11	minut	es 00	Sec.	00	AM	
<i>L</i> H Static level <i>Y</i> T <i>Y</i> T <i>Y</i> T Static level <i>Y</i> T <i>Y</i> T Static level <i>Y</i> T <i>Y</i> T Static level <i>Y</i> T <i>Y</i>		CH.	Static level	27	2″ T	ime:	hours 11	minut	es 20	sec.	30	AM	
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	Well# 3	tive			
	Address//3 Chee	stnut	57.	· · · · · · · · · · · · · · · ·	
	All wells #turned of	ff at <u>8:00</u>	:00 P.M. Date	6-2-0	3
	Pretest (before wells turned off. Static Level <u>50</u> . 03ft. Time: hour	rs 7 n	ninutes 55	seconds O3	
	1. Static level 50.03 Time: ho	ours	minutes 55	seconds_03	6-2-03
	2. Static level 36.46 . Time: ho	ours 👔	minutes 05	seconds 60	
	3. Static level <u>36</u> . <u>16</u> Time: ho	ours_ <u>&</u>	minutes 15	seconds 00	
	4. Static level <u>36.01</u> Time: ho	ours_ <u></u>	minutes <u>30</u>	seconds <u>O</u>	
	5. Static level <u>35</u> . <u>9</u> Time: ho	ours81	minutes_ <u>45</u>	seconds_OO	
	6. Static level <u>35</u> . <u>78</u> Time: ho	ours <u>9</u> 1	minutes <u>DO</u>	seconds <u>00</u>	
1	7. Static level <u>35. 77</u> Time: ho	ours <u>'9</u>	minutes <u>30</u>	seconds <u>O</u>	
	8. Static level <u>35.74</u> Time: ho	ours <u>9</u>	minutes $\underline{47}$	seconds 00	
	9. Static level <u>35. 7/</u> Time: ho	ours_10	minutes 00	seconds_00	
	VH 10. Static level <u>35</u> <u>60</u> Time: ho	ours_12 :	minutes //	seconds 00	
	$\sqrt{411}$. Static level <u>35 52</u> Time: ho	ours 2	minutes 09	seconds_0.5	•
	12. Static level <u>35</u> . <u>50</u> Time: ho	ours 🧣	minutes <u>08</u>	seconds <u>45</u>	
	13. Static level <u>35</u> . <u>48</u> Time: ho	ours 🕼	minutes 08	seconds 15	
	14. Static level <u>35. 46</u> Time: ho	ours_ <u>}</u>	minutes 5	seconds O	
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щ.	21. Static level Time: ho	ours	minutes	seconds	
	22. Static level Time: ho	ours	minutes	seconds	
	23. Static level Time: ho	ours	minutes	seconds	
	24. Static level Time: ho	ours	minutes	seconds	

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Well # B3A Tom R/ Ryan Date 6-3-03 to

					6-3-03
Static level	Time:	hours	minutes	Sec	8:55 AM
Static level 35 . 45	Time:	hours 8	minutes 55	sec. 10	ok
Static level 48	Time:	hours 1	minutes <u>A</u>	sec. 35	0:35 0
Static level 04 . 8 %	Time:	hours 9	minutes 02	sec. 10	1:10 3
Static level 44 . 97	Time:	hours 9	minutes 02	sec. 35 :	1:35
Static level 4 g . 99	Time:	hours 9	minutes 03	sec. 0 5	2:05
Static level 49 06	Time:	hours 9	minutes 0 3	sec. 35	2:35
Static level 49 .07	Time:	hours 9	minutes 0 4	sec. 20	3:20 2 5
Static level 49.12	Time:	hours 9	minutes 04	sec. 05	4:05
Static level 4 9 . 15	Time:	hours 9	minutes 0 5	sec. 05	5:05
Static level 9 . 17	Time:	hours 9	minutes 07	sec. 40	6:40)
Static level 49.70	Time:	hours 9	minutes 0 8	sec. 05.	
Static level 49.24	Time:	hours 9	minutes 10	sec. 8 5	
Static level 49.27	Time:	hours 9	minutes 15	SEC. OO	
Static level 49. 36	Time:	hours 9	minutes 20	sec. DO	
Static level 49.40	Time:	hours 9	minutes 25	sec. 00	
Static level 49.41	Time	hours 9	minutes 30	sec. 0 ව	
Static level 49.43	Time:	hours 9	minutes 35	sec. OO	Extra
Static level 49.45	Time	hours 9	minutes 40	sec. 00	
Static level 49.48	Time	hours 9	minutes 50	sec. DO	
Static level 49.51	Time	hours 10	minutes 05	sec. DO.	
Static level 49.52	Time	hours 10	minutes 20	sec. OO	
Static level 49 52	Time	hours 10	minutes 40	sec. DO	
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	SMS	Static level	49.64	Time:	hours 3	minutes 04	sec. 4/6 ~	
	_Sm s	Static level	49.66	Time:	hours 4	minutes 07	_ sec. <u>Z/</u> <i>v</i>	
	CH S	Static level	49 62	Time:	hours '5	_ minutes_ <u>05</u> _	_ sec. <u>35</u> _	
	<u>H</u> s	Static level	49.66	Time:	hours 16 1	minutes <i>00</i>	_ sec <u>46</u> _/	
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		Static level		Time:	hours	_ minutes	_ sec	
	······································	Static level		Time.	hours	_ minutes		
		Static level	· · · · · · · · · · · · · · · · · · ·	Time:	hours	minutes	_ 3CU	
		Static level		Time:	hours	minutes	sec.	
		Static level		Time:	hours	minutes	sec.	
		Static level		Time:	hours	minutes	sec.	
		Static level	·	Time:	hours	_ minutes	sec	
e.		Static level	<u> </u>	Time:	hours	minutes		
		Static level	*	Time:	hours	_ minutes	_ sec	
		Static level		Time:	hours	_ minutes	sec	
•		Static level		Time:	hours	_ minutes	_ sec	
		Static level	······································	Time:	hours	_ minutes	sec	
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		Static level		Time.	hours	minutes		
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		Static level	· · · ·	Time:	hours	minutes	sec.	
		Static level		Time:	hours	minutes	sec.	
		Static level		Time:	hours	minutes	Sec.	
		Static level		Time:	hours	minutes	sec.	
		Static level		Time:	hours	minutes		
		Static level	· ·	Time:	hours	minutes	sec	
	·	Static level	· · · · · · · · · · · · · · · · · · ·	Time:	hours	_ minutes	_ sec	
		Static level		Time:	hours	_ minutes	sec	

Active 113 Cleaturel St.

Date June 4, 2003

Static levels on well #

Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003

Static level on well # 3 Active at 8:55 a.m. was 49 .65

Test #1 Static level Min. 00 Scheduled time for test Hrs 9 Sec. 30 Missed one 4 Min. 00 Test taken at: Hrs Sec. 6 7 Test #2 Static level Scheduled time for test Hrs 9 Min 01 Sec 00 05 Test taken at: Hrs Min. Sec. Â 0 Z 9 Static level Test#3 Min. 01 Scheduled time for test Hrs 9 Sec. 30 Min. O De Sec. 2 Test taken at: Hrs q Static level 36 .02 Test#4 Hrs. 9 Min. 02 Sec. 00 Scheduled time for test Min. 0 2 Sec. 09 Hrs_ 9 Test taken at: 4 5 9 Static level Test #5 Sec. 30 Min. 02 Scheduled time for test Hrs. 9 q Min. () 3 Sec. 3/7 Test taken at: Hrs 92 2 Test#6 Static level Hrs. 9 Min. 03 Scheduled time for test Sec. 15 Sec. Test taken at: Hrs Min. (9 3 39 Test #7 Static level Scheduled time for test Min. Sec. 00 Hrs. 9 04 Test taken at: Min. Og Sec. // Hrs 57 ろ 4 Test #8 Static level Scheduled time for test Hrs. 9 Min. 05 Sec. 00 6 Sec. 02 Test taken at: Hrs Min. 1 Static level 3 6 Test #9 Sec. 30 Scheduled time for test Min. 06 Hrs. 9 Min. 06 Test taken at: Hrs 4 Sec. 39 Test # 10 Static level Scheduled time for test Hrs. 9 Min. 08 Sec. 00 Q Min. OG Ø Test taken at: Hrs Sec.
Well # 3 Active 6-4-03 113 Chestrut

Test # 11 Static	level 39,74
Scheduled time for test	Hrs. 9 Min. 10 00
Test taken at:	Hrs <u>9</u> Min. <u>10</u> Sec. <u>09</u>
Test # 12 Static	level 35,70
Scheduled time for test	Hrs 9 Min 15. Sec. 00
Test taken at:	Hrs_9Min/9Sec95
	75 65
Test # 13 Static	
Scheduled time for test	Hrs. 9 Min. 20 Sec. 00
Test taken at:	HrsMinSec
Test # 14 Static	level 39 . 63
Scheduled time for test	Hrs. 9 Min. 25 Sec. 00
Test taken at:	Hrs <u>9</u> Min. <u>2</u> 5_Sec. <u>00</u>
Test # 15 Static	level 36 60
Scheduled time for test	Hrs 9 Min 30 Sec 00
Test taken at:	Hrs 9 Min 30 Sec 01
	····· <u>································</u>
Test # 16 Static	level <u>79, 97</u>
Scheduled time for test	Hrs. 9 Min. 40 Sec. 00
Test taken at:	HrsMin <u>40</u> Sec <u>00</u>
Test # 17 Static	level $35, 54$
Scheduled time for test	Hrs 9 Min 50 Sec 00
Test taken at:	Hrs 9 Min 49/9Sec 5/6
Test # 18 Static	level <u>75 - 51</u>
Scheduled time for test	Hrs. 10 Min. 05 Sec. 00
Test taken at:	Hrs_10Min_05_Sec02
Test # 19 Statio	level 75. 49
Scheduled time for test	Hrs 10 Min 20 Sec 00
Test taken at:	Hrs 10° Min $\frac{\pi}{2}$ Sec 1°
root takon at.	
Test # 20 Statio	level <u>95 , 41</u>
Scheduled time for test	Hrs. 10 Min. 40 Sec. 00
Test taken at:	Hrs_ /0 Min. <u>_40</u> Sec. <u>_0</u>
Test # 21 Statio	
Scheduled time for test	Hrs Min Sec
Test taken at:	Hrs Min Sec
	·····
Test # 22 Station	evel
Scheduled time for test	HrsMinSec
Test taken at:	Hrs Min Sec

3 De ative

6-4-03 Start of test this she

CJH. Static level 35 .44	Time: hours //	minutes 7	sec. 30
RIF Static level 35 . 44	Time: hours //	minutes 2/	sec. 30
R Static level 35 . 44	Time: hours //	minutes 4/	sec. 35
RI Static level 35 . 44	Time: hours //	minutes 57	sec. 20
<u></u>	Time: hours /2	minutes 58	sec. 15
Static level	Time: hours	minutes	sec.
Static level	Time: hours	minutes	sec
Static level	Time: hours	minutes	sec
Static level	Time: hours	minutes	sec
Static level	Time: hours	minutes	sec
Static level	Time: hours	_ minutes	_ Sec
Static level	Time: hours	_ minutes	Sec
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Static level	Time: hours	_ minutes	
Static level	_ Time: hours	minutes	
Static level	Time: hours	_ minutes	_ 500
Static level	Time: hours	_ minutes	
Static level	Time: hours	minutes	_ Sec
Static level	Time: hours	minutes	
Static level	Time: hours	minutes	
Static level	Time: hours	minutes	_ 300
Static level	Time: hours	minutee	
Static level	Time: hours	minutes	_ 300
Static level	Time: hours	minutes	_ 360
Static level	Time: hours		
Static level	Time: hours		_ <u>560</u>
			500.



NACT Well # Thestnu Address turned off at 7:59 All wells # 3 and # 4 P.M. Date 6-2-03 Pretest (before wells turned off. .55 ft. Time: hours 7 Static Level 3/ seconds 06 minutes 3 Static level Time: hours minutes 🖉 seconds /O 1. 2. Static level 2 Time: hours minutes seconds 04 30 7 3. Static level 30 Time: hours 8 minutes seconds 15 Time: hours 4. Static level 29 minutes 30 seconds \mathcal{D} 5. Static level Time: hours minutes seconds 88 D 6. Static level Time: hours minutes seconds 01 7. Static level Time: hours minutes 30 seconds 8. Static level Time: hours minutes 46 seconds 2 9. Static level Time: hours /0 minutes seconds O * 6 C Midnight T0. Static level Time: hours minutes seconds O 11. Static level Time: hours minutes seconds \bigcirc 12. Static level 2 Time: hours minutes 05 seconds 40 13. Static level minutes 03 Time: hours seconds 59 14. Static level 42 Time: hours minutes 03seconds 15. Static level Time: hours minutes seconds 16. Static level Time: hours minutes seconds 17. Static level Time: hours minutes seconds 18. Static level Time: hours minutes seconds 19. Static level Time: hours minutes seconds 20. Static level Time: hours minutes seconds 21. Static level Time: hours minutes seconds 22. Static level Time: hours minutes seconds 23. Static level Time: hours minutes seconds 24. Static level Time: hours minutes seconds

Jes Well # @ 3I Vern/www.person &

Date 6-3-02 to

		Static level	29	40	Time:	hours 8	minutes_	55	sec.	02	8:55 AW	1
		Static level	29	7.2	Time:	hours 9	minutes	0	sec.	04		
· _	ŀ	Static level	29	95	Time:	hours 9	minutes	Ò	sec.	32	-	
-	2	Static level	30	50	Time:	hours 9	minutes	1	sec.	03		
-	3	Static level	30	. 12	Time:	hours 9	minutes	1	sec.	32		
_	4	Static level	30	15	Time:	hours 9	minutes	1	sec.	45		
_	5	Static level	30	20	Time:	hours 9	minutes	2	sec.	02		
-	6	Static level	30	24	Time:	hours 9	minutes	ス	sec.	Ø2		
-	7	Static level	30	28	Time:	hours 9	minutes	3	sec.	05		
· _	8	Static level	30	. 32	Time:	hours 9	minutes	4	sec.	08		
· -	9	Static level	30	. 34	Time:	hours 9	minutes	5	sec.	9 5	-	
_	10	_Static level	30	. 39	Time:	hours 9	minutes	6	sec.	45		
-	11	Static level	30	. 42	Time:	hours 9	minutes	8//	sec.	06		
_	12	Static level_	30	. 43	Time:	hours_9	minutes	16	sec.	00		
_	13	Static level	30	.47	Time:	hours_9	minutes	21	sec.	55		
_		Static level_		50	Time:	hours 9	minutes	26	sec.	58	-	
_	15	Static level	30	52	Time:	hours 9	minutes	31	sec.	06	-	
_	16	Static level	30	. 54	Time:	hours 2	minutes	36	sec.	10	-	
-	_ 17_	Static level	30	. 57	Time:	hours 2	minutes	51	sec.	20	-	
-		Static level_	30	58_	Time:	hours / 0	minutes	06	sec.	00	-	
-		Static level	30	. 60	Time:	hours 10	minutes	21_	sec.	<u> OO</u>	<u> </u>	
-	20	Static level	30	. 63	Time:	hours 10	minutes	41	sec.	00	- .	
-	2/	Static level	· · · · · ·	·	Time:	hours	minutes		sec.		_	
-		Static level	<u></u>	·	Time:	hours	minutes		sec.			
• -		Static level		.*	Time:	hours	minutes		Séc.		-	
		Static level		·	Time:	hours	minutes		sec.		-	
-	<u></u>	Static level		·	Time:	hours	minutes		sec.		- 2-1	`-
-	• -·	Static level		·	Time:	nours	minutes		sec.	·		34
-	<u></u>	Static level	··		Time:	hours	minutes		_ sec.		77.	22
-		Static level		·	Time:	nours	minutes		_ sec.	·	ړ -	25
-		Static level		·	Time:	nours			_ sec.		- 0	0
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-	·····			- '	Time.	hours	_ minutes	·		·	-	
•	· · · · · · · · · · · · · · · · · · ·			·	Time.	hours		·	ຸ່ວອບ		-	
-		Static level	·····	·	Time:	hours	_ minutes		_ 360			
-		Static level		··	Time:	hours	_ minutes	·	_ 300			
-		Static level	<u> </u>	··	Time.	hours	minutes	·	_ 300	•		
-		Static level	·	·*	Time.	hours	_ minutes	·	_ 300		-	
-		Otatic level		·	Time.	hours	minutes	·	_ 300	•		
~		Static level		·	Time	hours	_ minutes	·	_ 300	•		
-		Static lovel		·······	Time	hours	_ minutes			•	_	
-		Static level		·	Time:	hours	_ minutes	·	_ 300	•	_	
-		Static lovel		<i></i>	Time	hours	_ minutes		_ 560	•	_	
-	·····	Static level	<u> </u>	··	Time:	houre	_ minutes	·	_ 300	•	-	
-					nine.				_ 560	•	-	

Daketoot.

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Well # @ 3 I Insting AP States 1/3 Chestnut St. Date <u>6-3-03</u> to S 10

Det .		- 1-3-03
<u>NJ</u> Static level <u>30.68</u>	Time: hours [] minutes 5	<u>5</u> sec. <u>50</u>
<u>Sm</u> _Static level <u>30</u> .68	Time: hours 77/2 minutes 3	<u>5</u> sec. <u>38</u> //////
<u></u>	Time: hours 1 minutes 5	5 sec. <u>oo</u>
<u></u>	Time: hours 2 minutes 32	sec. <u>03</u>
<u><u><u>GM</u></u>Static level <u>30</u>. <u>108</u></u>	Time: hours <u>4</u> minutes <u>1</u>	<u>4</u> sec. <u>18</u>
<u>VH</u> Static level <u>30</u> . <u>68</u>	Time: hours 5 minutes 0	8 sec. <u>50</u>
VH_Static level <u>30</u> 68_	Time: hours minutesO	8 sec. 00
VH Static level 30 . 68	Time: hours <u>7</u> minutes <u>6</u>	8 sec. 00
<u>_7 K Static level 30.69</u>	Time: hours <u>&</u> minutes <u>/</u>	Z sec. 00
\underline{TR} Static level <u>36</u> $\underline{70}$	Time: hours <u>10</u> minutes <u>1</u>	G sec. 00
<u>V/</u> Static level <u>30</u> . 70	Time: hours / 2 minutes /	8 sec. 00 Midmy
<u><u>SM</u> Static level <u>30</u> <u>70</u></u>	Time: hours / minutes 3	<u>5</u> sec. 05
<u>SW</u> Static level <u>30</u> . <u>71</u>	Time: hours 3 minutes 0	<u>2</u> sec. <u>78</u>
<u>Static level</u> <u>30</u> . 70	Time: hours γ minutes O	<u>5</u> sec. <u>~ /</u>
<u>C FI Static level 50 07</u>	Time: hours 5 minutes 0	<u>< sec. 35</u>
<u>CFI</u> Static level <u>30</u> . <u>1</u>	Time: hours 6 minutes 5	8 sec. 10
	Time: hours minutes	Sec
	Time: nours minutes	Sec
	Time: hours minutes	Sec
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Static level	Time: hours minutes	sec
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Otatic level	Time: hours minutes	560
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Static level	Time: hours minutes	500
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Static level	Time: hours minutes	600
Static level	Time: hours minutes	Sec
Static level	Time: hours minutes	sec.
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Static level	Time: hours minutes	sec
Static level	Time: hours minutes	sec.
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Static level	Time: hours minutes	Sec
Static level	Time: hours minutes	Sec
Static level	Time: hours minutes	500 Sec
Static level	Time: hours minutes	500 Sec
Static level	Time: hours minutes	
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113 Chestant St.

05

Inactive Date June 4, 2003 ँउ Static levels on well #

Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003

vveii # 3 (active) turned on at 9:00	3 a.m. on June 4, 2003
Static level on well # 3 I_{M}	active at 8:55 a.m. was 30 ,70
Test # 1 Static leve	H <u>30,35</u>
Scheduled time for test	Hrs 9 Min. 00 Sec. 30
Test taken at:	Hrs <u>9</u> Min. <u>00</u> Sec. <u>03</u>
Test # 2 Static leve	el <u>30,15</u>
Scheduled time for test	Hrs 9 Min 01 Sec 00
Test taken at:	Hrs <u>9</u> Min. <u>01 S</u> ec. <u>04</u>
Test # 3 Static leve	el <u>30,07</u>
Scheduled time for test	Hrs 9 Min. 01 Sec. 30
Test taken at:	Hrs <u>9</u> Min. <u>01</u> Sec. <u>31</u>
Test # 4 Static leve	el <u>30_0 </u>
Scheduled time for test	Hrs. 9 Min. 02 Sec. 00
Test taken at:	Hrs_9Min. <u>02</u> Sec. <u>02</u>
Test # 5 Static leve	el <u>29_95</u>
Scheduled time for test	Hrs. 9 Min. 02 Sec. 30
Test taken at:	Hrs <u>9</u> Min. <u>02</u> Sec. <u>3</u>]
Test # 6 Static leve	el <u>29_90</u>
Scheduled time for test	Hrs. 9 Min. 03 Sec. 15
Test taken at:	Hrs_9Min. <u>03</u> Sec. <u>[7</u>
Test # 7 Static leve	el <u>29_88</u>
Scheduled time for test	Hrs. 9 Min. 04 Sec. 00
Test taken at:	Hrs <u>9</u> _Min. <u>09</u> _Sec. <u>02</u>
Test # 8 Static leve	el <u>29,84</u>
Scheduled time for test	Hrs.9 Min.05 Sec.00
Test taken at:	Hrs <u>9</u> Min. <u>05</u> Sec. <u>02</u>
Test # 9 Static leve	el <u>29 80 </u>
Scheduled time for test	Hrs. 9 Min. 06 Sec. 30
Test taken at:	Hrs <u>9 Min. 06 </u> Sec. <u></u> 81
Test # 10 Static lev	el <u>29,75</u>
Scheduled time for test	Hrs. 9 Min. 08 Sec. 00
Test taken at:	Hrs. 9 Min. ⁰⁸ Sec. 03

Well # 3 INactive 113 Chestmat St. June 4, 2003

Test # 11 S	tatic level	29 .	73	
Scheduled time for test		Hrs. 9	Min. 10	00
Test taken at:		Hrs 9	Min. /O	Sec. 63
		. 0		
Test # 12 S	Static level	29 -	68	
Scheduled time for test	•	Hrs. 9	Min. 15	Sec. 00
Test taken at:		Hrs 9	Min 15	Sec 00
		·		0000
Test # 13 S	Static level	29	63	
Scheduled time for test			Min 20	Sec. 00
Test taken at:		Hre 9	Min 20	Sec AD
i est lanen al.		HIS/		
Teet # 1/ 9	Static laval	29	61	
Cohodulad time for test			Min 05	0.00
Scheduled time for test		Hrs. 9	Min. 25	
lest taken at:		Hrs7		Sec
Tack#45		29	10	
lest # 15	static level	010	60	
Scheduled time for test		Hrs. 9	Min. 30	Sec. 00
Test taken at:		Hrs <u>9</u>	Min <i>30</i>	Sec
		A A		
Test I# 16 S	Static level	29.	51	
Scheduled time for test		Hrs. 9	Min. 40	Sec. 00
Test taken at:		Hrs9	MinO	Sec. 00
Test # 17 5	Static level	29.	53	
Test # 17 Scheduled time for test	Static level	<i></i>	<u>53</u> Min. 50	Sec. 00
Test # 17 S Scheduled time for test Test taken at:	Static level	<u>29</u> Hrs. 9 Hrs. 9	<u>53</u> Min. 50 Min. 50	Sec. 00
Test # 17 Scheduled time for test Test taken at:	Static level	29, Hrs. 9 Hrs_9	<u>53</u> Min. 50 _Min. <u>50</u>	Sec. 00 Sec <i>Q </i>
Test # 17 S Scheduled time for test Test taken at:	Static level	29 Hrs. 9 Hrs <u>9</u>	53 Min. 50 Min0	Sec. 00 Sec <i>O [</i>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for test	Static level Static level	<u>29</u> Hrs. 9 Hrs. 9 Ag.	<u>53</u> Min. 50 Min. <u>50</u> <u>5</u> / Min. 05	Sec. 00 Sec <i>O_1</i>
Test # 17 S Scheduled time for test Test taken at: Test # 18 S Scheduled time for test	Static level Static level	<u>29</u> Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> <u>5/</u> Min. 05	Sec. 00 Sec <u>01</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:	Static level Static level	29 Hrs. 9 Hrs <u>9</u> Hrs <u>9</u> Hrs. 10 Hrs_10	<u>5</u> Min. 50 Min. <u>50</u> <u>5</u> Min. 05 Min. 05	Sec. 00 Sec <i>O</i> / _Sec <i>D O</i>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19	Static level Static level	<u>29</u> Hrs. 9 Hrs <u>9</u> Hrs <u>7</u> Hrs. 10 Hrs <u>70</u>	53 Min. 50 _Min. 50 5 5 5 Min. 05 5 6 6	Sec. 00 Sec <i>O [</i> _Sec. 00 Sec <i>D O</i>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for test	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10 Hrs. 10	53 Min. 50 Min. 50 5/ Min. 05 Min. 05 48 Min. 20	Sec. 00 Sec. <u>01</u> Sec. 00 Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest # 19Scheduled time for test	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10	53 Min. 50 Min. 50 5/ Min. 05 Min. 05 4/8 Min. 20	Sec. 00 Sec. <u>01</u> Sec. 00 Sec. <u>00</u> Sec. 00
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest taken at:	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10	53 Min. 50 Min. 50 Min. 05 Min. 05 48 Min. 20 Min. 20	Sec. 00 Sec. <u>01</u> _Sec. 00 Sec. <u>00</u> _Sec. 00 2_Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest taken at:	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 1.29 1.29 1.29 1.10 Hrs. 10 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> <u>5/</u> Min. 05 Min. <u>05</u> <u>48</u> Min. 20 Min. 20	Sec. 00 Sec. <u>01</u> _Sec. 00 Sec. <u>00</u> _Sec. 00 2_Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest # 20Scheduled time for test	Static level Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> <u>5</u> Min. 05 Min. 05 <u>48</u> Min. 20 Min. 20 <u>45</u>	Sec. 00 Sec. <u>01</u> Sec. 00 Sec. <u>00</u> Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest # 20Scheduled time for test	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10	53 Min. 50 Min. 50 5/ Min. 05 Min. 05 48 Min. 20 Min. 20 Min. 20 Min. 20 Min. 40	Sec. 00 Sec. <u>01</u> Sec. <u>00</u> Sec. <u>00</u> Sec. <u>00</u> Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest # 19Scheduled time for testTest # 19Scheduled time for testTest # 20Scheduled time for testTest # aken at:	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> Min. 05 Min. 05 Min. 20 Min. 20 Min. 20 Min. 40 Min. 40	Sec. 00 Sec. <u>01</u> Sec. <u>00</u> Sec. <u>00</u> Sec. <u>00</u> Sec. <u>00</u> Sec. <u>00</u>
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest # 20Scheduled time for testTest # 20Scheduled time for testTest taken at:	Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> Min. 05 Min. 05 Min. 20 Min. 20 Min. 20 Min. 40 Min. 40	Sec. 00 _Sec. 01 Sec. 00
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Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 20Scheduled time for testTest # 21Scheduled time for test	Static level Static level Static level Static level	29 Hrs. 9 Hrs. 7 10 Hrs. 10	<u>53</u> Min. 50 Min. <u>50</u> <u>5</u> Min. 05 Min. 05 <u>48</u> Min. 20 Min. 20 <u>45</u> Min. 40 Min. 40 Min. 40	Sec. 00 Sec. 00 Sec. 00 Sec. 00 2_Sec. 00 Sec. 00 Sec. 00 Sec. 00
Test # 17SScheduled time for testTest taken at:Test # 18Scheduled time for testTest # 19Scheduled time for testTest # 19Scheduled time for testTest # 20Scheduled time for testTest # 20Scheduled time for testTest # 21Scheduled time for testTest # 21Scheduled time for testTest # 21Scheduled time for testTest taken at:	Static level Static level Static level Static level	29 Hrs. 9 Hrs. 9 Hrs. 10 Hrs. 10 H	<u>53</u> Min. 50 Min. <u>50</u> <u>5</u> Min. 05 Min. 05 Min. 20 Min. 20 Min. 20 Min. 20 Min. 20 Min. 20 Min. 40 Min. 40	Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00 Sec. 00
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VH

Kecovery test ended at 12:03 3 Imactive 6-

Start of test this sheet) 6-4-03

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RI	_Static level_	29.	41	Time:	hours	<i>II</i>	minutes	39	sec.	50
RI	_Static level	29.	40	Time:	hours	11	minutes	55	sec.	05
•	_Static level_	39 .	5/	Time:	hours	12	minutes	54	sec.	40
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6-4-03

= Wells A Noveled of 12:03 pm

Wells 4-6

12-A

Well # Address turned off at \$:00 P.M. Date 62-03 .All wells # Pretest (before wells turned off. Static Level 50 04 ft. Time: hours minutes 55 seconds 40 04 34 1. Static level 50 04 minutes \$5 seconds **#**O Time: hours Static level 33 89 2. minutes 30Time: hours seconds 17 3. Static level 33 80 Time: hours minutes 45 seconds 16 4. Static level 33 74 Time: hours minutes OOseconds 5. Static level 33 9 65 Time: hours minutes 30 seconds 13 62 6. Static level 33Time: hours ľØ minutes 00 seconds 12seconds 10 (Mid wight) UH7. Static level 32 Time: hours 12 minutes 03 VH8. Static level Time: hours seconds 02 minutes 73 9. Static level Time: hours 4 minutes DO seconds 04 10. Static level 33 Time: hours minutes 02 seconds 🛆 🗘 11. Static level 3 8 Time: hours minutes 59 seconds 35 12. Static level Time: hours minutes seconds 13. Static level Time: hours minutes seconds 14. Static level Time: hours minutes seconds 15. Static level Time: hours minutes seconds 16. Static level Time: hours minutes seconds 17. Static level Time: hours minutes seconds Est with 18. Static level Time: hours minutes seconds 19. Static level 33 G Time: hours minutes 40 seconds 0 5 20. Static level Time: hours minutes seconds 21. Static level Time: hours minutes seconds 22. Static level Time: hours minutes seconds 23. Static level Time: hours minutes seconds 24. Static level Time: hours minutes seconds

(Active) 5 Chestant Terry / Jessica Jes Well # 4 A Date 6:3-02

	Static loval	23	3.3:	Time		minutes 5 5	sec 25	8:55 AM
	Static level	00		Time.		minutes	Sec. <u>4</u>	
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·····	_Static level_	THE ZZ	जय	Time.	hours Q	minutes <u></u>	sec.	
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······	_Static level_	<u>32</u>	22	Time:	hours <u>1</u>	minutes <u>a</u>	sec. <u>></u>	
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	Static level	<u>25 .</u>	6 Y	Time:	hours	minutes 9	sec. d	
	Static level	<u> </u>	_73_	Time:	hours 9	minutes	sec. <u>3</u>	
- <u>-</u>	_Static level_	33 .	75	Time:	hours 9	minutes 4	sec. <u>95</u>	
	Static level	33.	78	Time:	hours <u> </u>	minutes	sec. <u>30</u>	
	Static level	33	83	Time:	hours <u>~</u>	minutes 15	sec. 12	
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-	_Static level_	<u>33 </u>	88	Time:	hours 9	minutes 25	sec. 9	
	Static level	<u>33</u>	89	Time:	hours 9	minutes 30	sec. 7	
	Static level	<u>33</u>	92	Time:	hours_9	minutes 40	sec. 5	
	Static level	33	94	Time:	hours 9	minutes 50	sec. 3	
	Static level	33.	96	Time:	hours 10	minutes 5	sec. 23	
	Static level	33	98	Time:	hours 10	minutes 20	sec. 14	
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Well #_4A

6-3-03

Date

19. A.

6-3-03 RI 46 Static level 20 01 Time: hours minutes Sec 0 Noon ۲ 4/3 sec 17 SM Static level Time: hours minutes 02 RI Static level 34 06 Time: hours minutes 51 sec. 20 06 25 3 4 5ス sec. Static level Time: hours minutes 33 3 Ż ЧM Static level 0 Time: hours minutes sec. VH 34 0 07 Static level 7 Time: hours minutes ð sec. 00 05 06 Static level Time: hours minutes sec. V# 05 00 Static level 06 Time: hours minutes sec. ž ${ }$ 10 Static level sec. 06 Time: hours minutes Ō 15 - Midnight Static level 3 L Time: hours minutes sec 0 D Static level 3 07 Time: hours minutes sec. 3 08 4 W Static level Time: hours minutes ſ Sec. 09 03 ιĹ n Static level Time: hours minutes sec. 09 Ô Static level Time: hours minutes sec Static level 07 Time: hours minutes sec. R D0 b Static level Time: hours СН minutes sec. 0 Static level Time: hours minutes sec. Static level Time: hours minutes sec Static level Time: hours minutes sec. Static level Time: hours minutes sec Static level Time: hours minutes sec. Static level Time: hours minutes sec.

active 5 Chestnut St.

5 Chestrut St.

Date June 4, 2003
Static levels on well # 4 /7C/10E
Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003
Static level on well # 4 Active at 8:55 a.m. was 35 01
W at 33,94
Test # 1 Static level Static level Static level Scheduled time for test Hrs 9 Min. 00 Sec. 30 Å ^L Test taken at: Hrs 1 Min. 00 Sec. 10
Test # 2 Static level
Scheduled time for test Hrs 9 Min 01 Sec 00 Test taken at: Hrs 1 Min 2 Sec. 55
Test # 3 Static level
Scheduled time for testHrs9Min.01Sec.30Test taken at:Hrs1Min.03Sec.2-5
Test # 4 Static level
Scheduled time for test Hrs. 9 Min. 02 Sec. 00 Test taken at: Hrs. 9 Min. 02 Sec. 01
Test # 5 Static level 33 7 . 4
Scheduled time for testHrs. 9Min. 02Sec. 30Test taken at:Hrs. 9Min. 48Sec. 40
Test # 6 Static level
Scheduled time for test Hrs. 9 Min. 03 Sec. 15 Test taken at: HrsMinSec
Test # 7 Static level 33, 79
Scheduled time for testHrs. 9Min. 04Sec. 00Test taken at:Hrs. 9Min. 4Sec. 00
Test # 8 Static level 33, 75
Scheduled time for test Hrs. 9 Min. 05 Sec. 00 Test taken at: Hrs_ 9 Min5 Sec. 00
Test # 9 Static level 38 69
Scheduled time for test Hrs. 9 Min. 06 Sec. 30
Test taken at: HrsMinSec
Test # 10 Static level <u>33 67</u>
Scheduled time for test Hrs. 9 Min. 08 Sec. 00

Well # 4 Active 6-4-03

5 Chestnut St.

Test # 11	Static level	33.	65	
Scheduled time for tes	t	Hrs. 9	Min. 10	00
Test taken at:		Hrs 9	Min. 10	Sec. D()
		~~~	 	
Test # 12	Static level	<u> </u>	60	
Scheduled time for tes	t	Hrs. 9	Min. 15	Sec. 00
Test taken at:		Hrs <u> </u>	Min\$	Sec <i>00</i>
		23	( (	
Test # 13	Static level	, <u></u> ,	35	
Scheduled time for tes	t	Hrs. 9	Min. 20	Sec. 00
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Toot # 14	Ctatia Iava	33	514	519
1051#14 Cohodulad time for tea			<u> </u>	0
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lest taken at:		Hrs	Min	Sec
Test # 15	Static level	33	52	
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rest taken at.		1113	IVINI	0ec
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Scheduled time for tes	at and the test of the	Hrs 9	Min 40	Sec 00
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				000
Test # 17	Static leve	1 33.	, 48	
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Test taken at:	-	Hrs 9	Min. S	Sec. 00
		2.4		
Test # 18	Static leve	<u> </u>	. 4.4	
Scheduled time for tes	st	Hrs. 10	Min. 05	Sec. 00
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Test # 19	Static leve	-33	<u> </u>	
Scheduled time for tes	st	Hrs. 10	Min. 20	Sec. 00
Test taken at:		Hrs0	Min. 2	Sec
		22	24	
Test # 20	Static leve	<u> 2_</u>	-21	
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T				
Test#21	Static leve	۱ <u> </u>		
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lest taken at:		Hrs	Min	Sec
Test # 22	Statia lawa	.1		
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. oot takon at,		113	I V311 1.	000.

Well # <u>4A</u>

Date 900 6-4-03 to -

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Spi Static level 33	<u>- 35</u> Time 34 Time	bours 10	minutes $\frac{2}{\sqrt{2}}$	sec. 17	
<u>Static level</u> <u>10</u>	- <u>97</u> Time	$\frac{10015}{2}$	minutes 01	sec. 17	Dno
Otatic level		, hours	_ minutes	<u>sec</u>	F // X
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15-A

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	Well # 4	LNact	ive		
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		hes hap J	<i>I</i> ₄		
	All wells #	_turned off at <u>8:00</u>	P.M. Dat	e 6.2.03	
	Pretest (before wells turned off.				
	Static Level <u>37.3</u> ft.	Time: hours 7	minutes <u>56</u>	seconds 20	
	1. Static level <u>33. 26</u>	Time: hours 8	minutes 16	seconds 12	
	2. Static level <u>35</u> 11	Time: hours g	minutes 3/	seconds O	
	3. Static level <u>35</u> .02	Time: hours 8	minutes 4/6	seconds <u>14</u>	
	4. Static level <u>34</u> . 97	Time: hours 7	minutes_01	seconds <u>/ 8</u>	
	5. Static level <u>34</u> . <u>90</u>	Time: hours 9	minutes <u>3/</u>	seconds //	
	6. Static level <u>34.85</u>	Time: hours 10	minutes 0/	seconds 19	
$\circ H$	7. Static level $34 \cdot 73$	_Time: hours_/2_	minutes OD	seconds OZ	(Midnight
	8. Static level <u>34 . 65</u>	_Time: hours 2 A/	[#] minutes <u>0</u>	seconds OO	Ŭ
Tr	9. Static level <u>34</u> . 41	Time: hours 3	minutes 54	seconds 00	
EV.	10. Static level <u>34</u> . <u>59</u>	Time: hours 6	minutes OD	seconds 4	
	11. Static level <u>34</u> . <u>53</u>	Time: hours 7	minutes 57	seconds 34	
141	12. Static level	Time: hours	minutes	seconds	
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STA SALAR	4. Static level	Time: hours	minutes	seconds	
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. •	18. Static level	Time: hours	minutes	seconds	
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Yen Well # Co 4 I Rondy/ Anna

Date

56 Ο 34 8 8:55 AM Time: hours minutes sec Static level Static level 3-59 Time: hours a minutes 00 Sec. 30 64 q Static level 34 Time: hours minutes 0 sec. 00 1 34 Static level 70 Time: hours 9 minutes (7. / sec. 2 -9 34 õ 74 Time: hours 9 minutes 02 sec.  $\circ$ Static level ٩ З Static level 24 78 Time: hours minutes 07 sec. 0 81 ٩ 03 05 Static level 34 Time: hours minutes sec. 85 00 34 9 04 Time: hours minutes sec. Static level L 89 ٩ 05 sec. O Ò Static level З Time: hours minutes 9 L 93 sec. 3 Z Static level Time: hours minutes 66 96 Static level 34 Time: hours 9 minutes 08 sec. OO 98 10 Static level 34 Time: hours 9 minutes SOC. 01 3 5 9 5 Static level 02 Time: hours sec. 01 minutes 1 35 Static level 05Time: hours 9 minutes 20 Sec. OO 3 9 25 Static level 5 07 Time: hours minutes Sec. O \ 5 09 Static level Time: hours 9 minutes З  $\sim$ Sec. OO 40 35 9 Static level ١. Time: hours minutes 01 sec. 9 35 13 Static level Time: hours minutes 50 sec. 00 Static level 35 15 Time: hours minutes 05 10 sec. 06 35 17 90 Static level Time: hours minutes 20 sec. 00 Static level 35 19 Time: hours 10 minutes 4 sec. 0 0 Static level 10 Time: hours minutes Sec. С Static level Time: hours minutes sec. Static level Time: hours **\$**0 minutes sec. Time: hours Static level Ð minutes Sec. Static level Time: hours 8 minutes Sec. ø Static level Time: hours minutes Sec. Static level Time: hours A minutes sec Static level Time: hours Ø minutes Sec. Static level Time: hours minutes sec.

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6-3-03

6 DOG

Well # 4I Innature 6-3-03 5 Chestnut St. Date <u>5M</u> Static level <u>35</u> <u>27</u> Time: hours <u>11</u> minutes <u>43</u> sec. <u>00</u>  $6^{-3-07}$ Time: hours <u>12</u> minutes <u>43</u> sec. <u>00</u>  $8^{-3-07}$ <u>81</u> Static level <u>35</u> <u>23</u> Time: hours <u>12</u> minutes <u>43</u> sec. <u>08</u> <u>Noon</u></u>

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Sm	_Static level_	35	24	Time:	hours 4	minutes_05	sec	27		
_VH	_Static level_	35.	24	Time:	hours 5	minutes_03	_ sec.	00		
VH	_Static level_	35	24	Time:	hours 6	minutes_03	_ sec.	05		
<u> </u>	_Static level_	35	23	Time:	hours 2	minutes 03	sec.	00	-	
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SM	Static level	35 .	25	Time:	hours /	minutes 47	Sec.	47	•	·
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Static level

Static level

5 Chestant &

Date June 4, 2003

Static levels on well #

Inactive

Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003

Static level on well # 4 Inactive at 8:55 a.m. was 35, 26

Static level 35 25 Test #1 00 Scheduled time for test Hrs 9 Min. Sec. 30 a Min. 00 Sec. 30 Test taken at: Hrs Static level 35 19 Test # 2 Hrs 9 Min 01 Sec 00 Scheduled time for test Test taken at: Hrs Q <u>Min. Ö (</u> Sec. O O 13 35 Test # 3 Static level Min. 01 Scheduled time for test Hrs 9 Sec. 30 Test taken at: Hrs 9 Min. 01 Sec. 3 35 09 Test #4 Static level Min. 02 Scheduled time for test Sec. 00 Hrs. 9 9 Sec. DI Test taken at: Hrs Min. 02 Static level 35 05 Test # 5 Min. 02 Scheduled time for test Hrs. 9 Sec. 30 Test taken at: Hrs 9 Min. 02 Sec. 30 0 \ 35 Static level Test #6 999 Min. 03 Scheduled time for test Hrs. Sec. 15 Min. 03 Test taken at: Hrs Sec. 15 Static level 34 98 Test #7 Min. 04 Sec. 00 Scheduled time for test Hrs. 9 ٩ Min. 04 Sec. () () Test taken at: Hrs 94 Static level 34 Test #8 Min. 05 Scheduled time for test Hrs. 9 Sec. 00 9 Min. 05 Test taken at: Hrs_ Sec. 0 2 91 24 Test #9 Static level 99 Min. 06 Scheduled time for test Sec. 30 Hrs. Sec. 30 Test taken at: Min. 06 Hrs Static level 34 Test # 10 Scheduled time for test Hrs. 9 Min. 08 Sec. 00 Test taken at: Hrs 9 Min. OB Sec.0D

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Well # 4 Inactive 6.4.03 5 Chestnut St,

Test # 11 Static le	vel <u>34,85</u>
Scheduled time for test	Hrs. 9 Min. 10 00
Test taken at:	Hrs <u>9</u> Min. <u>10</u> Sec. <u>06</u>
	211
Test # 12 Static le	evel <u>27 6 80</u>
Scheduled time for test	Hrs. 9 Min. 15 Sec. 00
Test taken at:	Hrs <u>9</u> Min. <u>/5</u> Sec. <u>00</u>
Test # 13 Static le	evel <u>34 77</u>
Scheduled time for test	Hrs. 9 Min. 20 Sec. 00
Test taken at:	HrsMinSecO \
	211 7-
Test # 14 Static le	evel_276
Scheduled time for test	Hrs. 9 Min. 25 Sec. 00
Test taken at:	Hrs <u>9</u> Min. <u>25</u> Sec. <u>00</u>
	73
Test # 15 Static le	evel 34 , 73
Scheduled time for test	Hrs. 9 Min. 30 Sec. 00
Test taken at:	Hrs <u>9</u> Min. <u>30</u> Sec. <u>6</u> \
	. 24 70
Test # 16 Static le	
Scheduled time for test	Hrs. 9 Min. 40 Sec. 00
Test taken at:	Hrs <u> </u>
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Test # 17 Static le	evel <u>34_68</u>
Test # 17 Static le Scheduled time for test	evel <u>34,68</u> Hrs. 9 Min. 50 Sec. 00
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Test # 17 Static le Scheduled time for test Test taken at:	evel <u>34,68</u> Hrs. 9 Min. 50 Sec. 00 Hrs <u>9</u> Min. <u>БО</u> Sec. <u>00</u>
Test # 17Static leScheduled time for testTest taken at:Test # 18Static le	evel <u>34,68</u> Hrs. 9 Min. 50 Sec. 00 Hrs <u>9</u> Min. <u>50</u> Sec. <u>00</u> evel <u>34,65</u>
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Test # 17Static leScheduled time for testTest taken at:Test # 18Scheduled time for testTest taken at:Test # 19Scheduled time for testTest # 19Scheduled time for testTest # taken at:	evel <u>34</u> , <u>68</u> Hrs. 9 Min. 50 Sec. 00 Hrs. 9 Min. <u>50</u> Sec. <u>00</u> evel <u>34</u> , <u>65</u> Hrs. 10 Min. 05 Sec. 00 Hrs. <u>10</u> Min. <u>05</u> Sec. <u>00</u> evel <u>34</u> , <u>63</u> Hrs. 10 Min. <u>20</u> Sec. <u>00</u> Hrs_ <u>10</u> Min. <u>20</u> Sec. <u>05</u>
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of Inactive

Well #_

Date _

6-4-03-6

SM	Static level	34.	60	Time:	hours	11	minutes	0	Sec.	0.	3
SM	Static level	34	5 8	Time:	hours	11	minutes	20	sec.	05	
SM	Static level	34	56	Time:	hours	1/	minutes	40	sec.	04	1
SM	Static leve	34.	55	Time:	hours	12	minutes	00	sec.	07	7
SM	Static leve	37.	37	Time:	hours	1	minutes	00	sec.	03	2
0	Static leve			Time:	hours		minutes		sec.		
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Wells 2-3-4-6 2-3-4-6 Ilerted of 12:03pm 12:03pm 12:03pm 12:03pm 12:03pm

Datotalet

18-A

Well# 5			
Address	412 Sout	h Dakota	St.
All 11- 11 3 + 4		50	,
All Wells # - 2	$_$ turned off at $_/\cdot$	<u>P.M.</u> Da	te
Pretest (before wells turned o	tf		-
Static Level $\underline{\neg /}$ f	t. Time: hours /	minutes 48	seconds O
1 Static loval 47	Time 1 7		
1. Static level $\frac{7}{1}$ .	Time: hours /	minutes 38	seconds /D
2. Static level 47.	lime: hours	minutes 13	seconds 8
5. Static level 47.	Time: hours <u>8</u>	minutes 28	seconds 7
4. Static level <u>47</u> .	Time: hours_8	minutes <u>43</u>	seconds_3
5. Static level 47	Time: hours	minutes 58	seconds <u>8</u>
6. Static level <u>47</u> .	Time: hours 12	minutes 26	seconds O
7. Static level $\frac{47}{7}$	$_$ Time: hours <u>2</u>	minutes $23$	seconds 50
8. Static level 4	<u>Time: hours $4$</u>	minutes 23	seconds 30
9. Static level <u>47</u>	Time: hours	minutes 21	seconds_O
10. Static level $47$	Time: hours	minutes 17	seconds / O
11. Static level	Time: hours	minutes	seconds
12. Static level	Time: hours	minutes	seconds
13. Static level 44.5	Time: hours	minutes Ø	seconds 15
14. Static level <u>46.5</u> .	Time: hours	minutes p	seconds 30
15. Static level <u>46,5</u> .	Time: hours	minutes 0	seconds 45
16. Static level <u>46.5</u>	Time: hours_ 9	minutes /	seconds 00
17. Static level <u>76.5</u> .	Time: hours_9	minutes	seconds 3/7
18. Static level <u>46,5</u> .	Time: hours	minutes 2	seconds D/
19. Static level 45.5.	Time: hours 9	minutes 3	seconds Dn
20. Static level 45.5.	Time: hours 9	minutes 4	seconds 121
21. Static level 45.5.	Time: hours 9	minutes b	seconds D/
22. Static level 46.5.	Time: hours	minutes 3	seconds A/5
23. Static level 44.5.	Time: hours 9	minutes 12	seconds nn
24. Static level 465.	Time: hours 9	minutes 18	seconds pp

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Vet Well # 635 Wade alone and State

Date 6-3-03-6-

WB	Static level	46.	5	Time:	hours	8	minutes	55	Sec	00
	Static level	46.	5	Time:	hours		minutes		sec.	
	Static level	46 .	5	- Time:	hours		minutes_		sec.	
	Static level	46 .	. 5	Time:	hours_	9	minutes	0	sec.	15
	Static level	46.	5	Time:	hours	9	minutes	0	sec.	30.
	Static level	46 .	5	Time:	hours	9	minutes	D	_ sec	45
	Static level	46	5	Time:	hours_	9	minutes		_ sec	DD
	Static level	46	5	Time:	hours_	9	minutes_	1	_ sec	30
	Static level	<u>46</u>	5	_ Time:	hours_	9	minutes	2	_ sec	01
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<u> </u>	Static level	46		_ Time:	nours_	<u> </u>		48	_ sec	<u>DV</u>
	Static level_	<u> </u>	· <u>V</u>	_ Time:	nours_	10	minutes	00	_ sec	30
	Static level_	<u> </u>	·	_ Time:	hours	10	minutes	10	_ sec	<u>15</u>
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Well #____5

Date 6-3-03

412 5, Dahote St.

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	RT static laval 14 aci	Time hours 12	minutes 12	SAC
	GM Static level 14 P51	Time: hours /	minutes 7	sec.
	RT Static level 14 "	Time: hours 2	minutes 12	sec.
	PT Static level 19 1	Time hours 3	minutes //	sec.
	Static level 14 251	Time: hours 4	minutes 24	sec.
	1/17 Static level 19 PS1	Time: hours 5	minutes 2 9	Sec.
	1/H Static level 14 PS/	Time: hours	minutes 2 A	sec.
	VH Static level 14 PS/	Time: hours '7	minutes 20	Sec.
	R Static level 15 PS1	Time: hours	minutes 33	Sec.
	TR Static level 15 PS1	Time: hours / Q	minutes 34	sec.
	VH Static level 14 PS1	Time: hours 12	minutes 34	sec.
	Static level / L/ PSI	Time: hours 2	minutes 9	sec
	Stratic level 14 PSI	Time: hours 3	minutes 17	sec
	CVI Static level 14 PS/	Time: bours 4	minutes 18	sec.
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	CH Static level 14 PS1	Time: hours 7	minutes 10	sec.
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# 5 Well 412 S. Dahota St. Wednesday June 4,2003



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4	Hrs. <u>9</u>	_Min01	_Sec <i>DD</i>
5	Hrs. 9	_Min01	Sec. 31
6	Hrs. <u>9</u>	_Min. <u>02</u>	Sec. 00
7	Hrs. <u>9</u>	_Min 22	Sec. 30
8	Hrs. <u>9</u>	_Min. <u>03</u>	Sec. 15
9	Hrs. <u>9</u>	Min. <u>04</u>	Sec. 00
10	Hrs. 9	Min. 05	Sec. 0
11	Hrs. 4	Min. 06	Sec. 30
12	Hrs. 9	_Min0_&	Sec. 01
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14	Hrs. <u>9</u>	_Min <i>15</i>	Sec. 00
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WM	5. Static level	47.00	Time: hours_/	minutes 00	seconds <u>20</u>	14 851
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	12. Static level	•	Time: hours	minutes	seconds	24-6
	13. Static level	•	Time: hours	minutes	seconds	2-3-14
	14. Static level	<u> </u>	Time: hours	minutes	seconds	Atold
	15. Static level	<u> </u>	Time: hours	minutes	seconds	Martin
	16. Static level		Time: hours	minutes	seconds	inro3 pm
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	24. Static level	·	Time: hours	minutes	seconds	

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	All wells # 384	turned	l off at 7.59	P.M. Dat	e 6-2-03	
	Static Level <u>45</u> 7	<u>s</u> ft. Time: h	ours_7	minutes 55	seconds /O	
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-	3. Static level <u>45</u>	. <u>3/</u> Time:	hours 8	minutes 30	seconds 12	
750.0	4. Static level 43	<u>. as</u> Time:	hours 8	minutes 45	seconds 10	
	5. Static level <u>43</u>	. <u>17</u> Time:	hours 9	minutes 0	seconds 2	
	6. Static level 45	. <u>1</u> , <u>Time</u> :	hours 9	minutes 15	seconds O	
	7. Static level $43$		hours 9	minutes 30	seconds 0	
	8. Static level 43	Time:	hours 9	minutes 43	seconds 3	
	9. Static level 43	<u> </u>	hours 10 V	minutes O	seconds O	
	10. Static level <u>44</u>	. <u>Gy yo</u> lime:	hours /2	minutes 3/	seconds 10	
	11. Static level $\underline{774}$	. <u>87</u> Time:	hours	minutes 30	seconds <u>40</u>	
	12. Static level $44$	$\frac{3}{2}$ Time:	hours 4	minutes $\frac{2}{2}$	seconds 13	
	15. Static level $44$	. 87 1 ime:	hours 6	minutes 26	seconds 20	
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Ver Well # 6 Derek (Harold 218 5. Dakota St.

Date 6-3-03 to _____

Static level 47	Time: hours 💰 n	ninutes 54 sec. 50	8:55 AM
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Static level 44 18	Time: hours 9 n	ninutes 00 sec. 48	
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Static level st d 7/0	Time: hours 9 n	ninutes 01 sec 45	
Static level 4.4 76	Time: hours 9 r	minutes $Q \rightarrow sec / f'$	
Static level 44 77	Time: hours 9 n	minutes $\frac{3}{3}$ sec $0.0$	
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Static level 44 29	Time bours 9 r	minutes $14$ sec $4.5$	-
Static level 49 90	Time: hours 9	minutes 29 sec 44	•
Static level 44 93	Time hours 9	minutes $3.4$ sec $6.0$	
Static level 44 95	Time: hours 9	minutes 49 sec 45	- المنظمة المحمد المرحب المعالمة المرجب
Static level 144 95	Time: hours / (2)	minutes 64 sec 46	-
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111-11 # 10	218 5. Dakota 5.
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Jare 6-5-05	
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RI Static level 45'05	Time hours 12 minutes 11, sec. 45
SM Static level 45 .05.	Time: hours / minutes 12 sec. 27
RT Static level 45.06	Time: hours 2 minutes 17 sec. 20
RI Static level 45.07	Time: hours 3 minutes 15 sec. 40
Sm Static level 45.08	Time: hours 4 minutes 28 sec. 28
V/_ Static level 45 08	Time: hours 5 minutes 35 sec. 00
<u>VH</u> Static level <u>45</u> 08	Time: hours 6 minutes 3,5 sec. 00
<u>VH</u> Static level <u>45.08</u>	Time: hours 7 minutes 3.5 sec. 00
Static level4507	Time: hours 8 minutes 35 sec. 5
TR Static level 45	32Time: hours 10 minutes 45 sec. 45 U.A. MA
VN Static level 45.0'8	Time: hours $12$ minutes $41$ sec. $30$ / $000$
2/7 Static level $45$ 07	Time: hours minutes sec do /
$-\frac{6}{5}$ Static level $\frac{45}{5}$ $\frac{07}{5}$	lime: hours 3 minutes 20 sec. 42
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218 5, Dakota St

Date June 4, 2003

## Static levels on well #

Well # 3 (active) turned off at 9:00 a.m. on June 4, 2003 10 48 Static level on well #_ 6 at 8:55 a.m. was 45 11 Static level Test #1 Min. 00 Sec. 30 Scheduled time for test Hrs 9 Hrs 9 Min. 00 Test taken at: Sec. 46 11 Test #2 Static level Scheduled time for test Hrs 9 Min 01 Sec Sec. () G Test taken at: Hrs Min. ON 46 11 Test # 3 Static level Min. 01 Scheduled time for test Hrs 9 Sec. 30 31 Test taken at: Hrs Min. O Sec  $\mathcal{O}$ Test#4 Static level Scheduled time for test Min. 02 Hrs. 9 Sec. 00 9 Test taken at: Min. 02 Hrs Sec. 46 08 Test #5 Static level Scheduled time for test Min. 02 Hrs. 9 Sec. 30 34 Test taken at: વે Min. 07 Hrs Sec. 45 бЬ Test #6 Static level Min. 03 Scheduled time for test Hrs. 9 Sec. 15 Min. O 3 Test taken at: 9 Hrs Sec 45 05 Test #7 Static level Scheduled time for test Hrs. 9 Min. 04 Sec. 00 05 Test taken at: 9 Min. 04 Sec. Hrs 45 Q3 Test #8 Static level Scheduled time for test Hrs. 9 Min. 05 Sec. 00 9 Min. 05 Test taken at: Hrs Sec. 03 45 Test #9 Static level Scheduled time for test Min. 06 Hrs. 9 Sec. 30 34 ٩ Test taken at: Hrs Min. OG Sec 45 Test # 10 Static level Min. 08 Scheduled time for test Hrs. 9 Sec. 00 Test taken at: Min. 08 Hrs ۶ Sec.

Well # 6 218 S. Dakota St. June 4- 2003

Test # 11	Static level	45	00	
Scheduled time for test		Hrs. 9	Min. 10	00
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lest taken at:		Hrs <u> </u>	_win. <u>20</u>	Sec. <u>V</u>
	01-11-1-1-1	110	07	
lest # 14	Static level	<u> </u>	92	a
Scheduled time for tes	t	Hrs. 9	Min. 25	Sec. 00
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Test # 15	Static level	44,	91	
Scheduled time for tes	t	Hrs. 9	Min. 30	Sec. 00
Test taken at:		Hrs <u>9</u>	Min <u>პე</u>	Sec <u>03</u>
Test I# 16	Static level	44,	89	
Scheduled time for tes	t	Hrs. 9	Min. 40	Sec. 00
Test taken at:		Hrs 9	Min. 40	Sec. 02
Test # 17	Static level	44	86	
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Test # 18	Static level	44.	44	
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Test # 10	Statia Java	ide	a 2	
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Test # 20	Static level	-14	60	
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Test # 21	Static level			
Scheduled time for tes	st	Hrs	Min	Sec
Test taken at:		Hrs	Min	Sec
Test # 22	Static level		•	
Scheduled time for tes	st	Hrs	Min.	Sec.
Test taken at		Hre	Min	Sec

11-12 well #6 6-4-03 Derek

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DM	Static level	LICI	75	Time:	hours 11	minutes 40	sec. 03	•
DM	Static level	44	75	Time:	hours 12	minutes 00	sec. 04/	•
DM	Static level	56.	21	Time:	hours /	minutes 00	sec. 03	PM
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Wells 23-4 tailed at 2:03 pm

23-A

## **APPENDIX B**

## Key to analytical solutions

The Hantush-Jacob solution for a pumping test in a leaky aquifer is given as:

 $s = [Q/4\pi T] W(u, r/B)$  and  $u = r^2 S/4Tt$ 

Where the integral expression W(u, r/B) is referred to as the Hantush well function and:

B = leakage factor determined by the Aqtesolv[®] software

- Q = flow rate from pumping well
- r = distance from pumping well
- S = storativity
- s = drawdown at time since pumping began
- T = transmissivity
- t = time since pumping began

Conditions assumed to exist when applying the Hantush-Jacob solution (Duffield, 2000):

- Aquifer has infinite areal extent
- Aquifer is homogeneous, isotropic, and of uniform thickness
- Aquifer potentiometric surface is initially horizontal
- Pumping well is fully or partially penetrating
- Flow to pumping well is horizontal when pumping well is fully penetrating
- Aquifer is leaky
- Flow is unsteady
- Water is released instantaneously from storage with decline in hydraulic head
- Diameter of pumping well is very small so that storage in well can be neglected
- Confining bed(s) is overlain by an infinite constant-head plane source
- Flow in the aquitard(s) is vertical

The Thiem equation for steady-state flow in a confined aquifer is given as:

 $T = Qln(r_2/r_1)/2\pi(h_2-h_1)$ Where:  $h_1, h_2$  = respective steady-state drawdowns Q = flow rate from pumping well  $r_1, r_2$  = respective distances from pumping well

Conditions assumed to exist when applying the Thiem solution (Kruseman and de Rider, 1994):

- The aquifer is confined
- The aquifer has an infinite areal extent
- The aquifer is homogeneous, isotropic, and of uniform thickness
- Prior to pumping the piezometric surface is horizontal
- The pumping rate is constant
- The well is screened over the entire thickness of the aquifer
- The hydrologic system is at a steady-state
- Water is released instantaneously from storage with decline in hydraulic head
- Diameter of pumping well is very small so that storage in well can be neglected

## **APPENDIX C**

Results of analyses of aquifer test data using AQTESOLV software










