DOE/ET/27217--T1-Vol.2-App.1-7

DE86 009109

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GEOPRESSURED - GEOTHERMAL PROGRAM

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II - WELL WORKOVER AND PRODUCTION TESTING
FOR THE PERIOD FEBRUARY 1982 - OCTOBER 1985

T-F&S/DOE GLADYS McCALL NO. 1 WELL
CAMERON PARISH, LOUISIANA

APPENDICES 1-7

PREPARED AS FINAL REPORT FOR THE U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE, UNDER
CONTRACT NO. DE-AC07-80ET27217

BY

TECHNADRIL-FENIX & SCISSON
3 NORTHPOINT DR. - SUITE 200
HOUSTON, TX 77060

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APPENDIX I

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APPENDIX I

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
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PERIOD FEB. 1982 TO OCT. 1986

FOR:
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REPORT 750-82-4346
ON
INVESTIGATION OF COUPLING FAILURE FROM THE GLADYS MCCALL NO. 1 WELL, CAMERON PARISH, LOUISIANA
FOR
TECHNADRIL-FENIX & SCISSON

BY

W. M. BUEHLER
and
T. V. BRUNO
September 22, 1982

METALLURGICAL CONSULTANTS, INC.
4820 Caroline
Houston, Texas 77004

VISUAL EXAMINATION

The two pins and coupling from the second failure are shown in Figure 1. The coupling contained several cracks, the largest of which was "L" shaped with a 4-7/16-inch longitudinal segment extending to the end of the coupling and a 2-3/4-inch circumferential segment. The curve between the two segments had a 3/4-inch radius. Near the curve were two smaller cracks, shown by magnetic particle build-up in Figure 2. The crack that intersected the main crack was 1-3/4-inches long and oriented at about a 30-degree angle to the longitudinal axis. The second small crack intersected the first about one-fourth inch from the main crack and extended circumferentially for about 2-7/8 inches. It spiralled slightly toward the end of the coupling.

Two other small cracks were found, which intersected the end of the circumferential segment of the main crack; see Figure 3. The longer of the two was approximately 2-1/4 inches long and the shorter approximately 7/16 inches.

The small cracks were very tight but the main crack had opened up as is evident in Figures 2 and 3. Figure 4 is an end view showing the opening of the longitudinal segment.

The general appearance and the manner in which the cracks intersected each other indicated the most likely sequence in which the cracks developed. The main crack appeared to have occurred first and, as discussed later, originated near the curve and propagated longitudinally to the end of the coupling and circumferentially around it. The angular crack that intersected the main crack was next, followed by the short spiral crack that intersected it. Based on this sequence, the cracks were designated as Nos. 1, 2 and 3 for ease of reference.

The coupling was sawcut longitudinally and a piece removed to separate Crack No. 1 so that the fracture surfaces could be examined. As shown in Figure 5, the circumferential segment ran more or less along the reversed internal shoulder. The center of the circumferential segment was generally flat, with several radial ridges that extended about two-thirds of the coupling thickness at the shoulder. The ridges, sometimes referred to as "hackle" marks, are indicative of multiple crack origins that intersect as they grow and form a common crack front. On each side of the flat fracture were brittle fracture markings that pointed back to the center of the circumferential segment as the failure origin. These markings were particularly noticeable at the radius where the crack turned longitudinally and continued to the end of the coupling. On the longitudinal segment of the crack there were shear fractures along the inside and outside surfaces.

The lighter-appearing fracture surface in Figure 5 beyond the ledge at the right side of the circumferential segment is the surface of the tight cracks shown by magnetic particle build-up in Figure 3. There were at least two fracture origins for these cracks located along the reversed internal shoulder. Figure 6 is a close-up of part of the matching fracture on the piece removed after sawcutting to separate Crack No. 1. It shows the hackle marks and one of the fracture origins for the tight cracks in Figure 3.

A second longitudinal sawcut was made to separate and examine the fracture surfaces of Crack No. 3. This sawcut was made parallel to the longitudinal segment of Crack No. 1 and about 2-1/4 inches beyond it. Figure 7 is a close-up of part of the fracture surface of the coupling showing the origins of both Crack No. 1 and Crack No. 3.

The fracture surfaces of Crack No. 2 were also examined for indication of the origin and direction of propagation. Although the fracture pattern was not as distinct as those of the other cracks, it indicated that Crack No. 2 originated at its intersection with Crack No. 1 and propagated away from Crack No. 1.

The surfaces of the coupling were examined for evidence of mechanical damage, excessive corrosion or other unusual conditions. We found no evidence of mechanical damage associated with the cracks other than damage on some of the fracture surfaces that appeared to have occurred after the failure. The outside and inside surfaces of the fractured end were rusty but no unusual attack was apparent to the naked eye. However, closer examination showed pitting on the inside surface of the heavy wall area at the center of the coupling and the area between the Teflon seal and the reversed shoulder at the failed end. Figure 8 shows the inside surface at the center of the coupling, most of which was covered with rust and pits with some machine marks still visible. Figures 9 and 10 show the same area at higher magnification before and after light sanding, showing extensive pitting. The area between the Teflon seal and the shoulder was similar.

The pins from each end of the failed coupling were also examined visually. The pin that pulled out of the failed side had severe galling on one location on the nose and minor damage on the stabbing flanks and crests. From the nature of the galling it appeared that it had occurred during make-up.

The pin that was made up in the coupling opposite the failure showed no evidence of galling.

EXAMINATION BY SCANNING ELECTRON MICROSCOPE

A fracture specimen from the origin of Crack No. 1 was examined using a scanning electron microscope to determine the nature of the cracking. Mechanical damage of the fracture was observed next to the internal shoulder, and generally the fracture surface appeared brittle, with no fatigue striations evident.

METALLOGRAPHIC EXAMINATION

Specimens for metallographic examination were taken from the origin areas of each of the three cracks, as well as from other areas of interest. All of the specimens from the cracks were mounted with the opposing crack surfaces matched.

Figure 11 shows the matched sections from the origin of Crack No. 1. The crack started at the shoulder and propagated across the wall to the outside surface where there was a small shear lip. (Shear lips form on brittle fractures at the last surface to part.) The crack had a smooth profile and appeared very brittle. One side of the fracture at the origin appeared to have been damaged after the failure, as indicated by a thin white layer believed to be martensite formed from metal-to-metal contact, see Figure 12. The sections from the origin area of Crack No. 3 are shown in Figures 13 and 14. Here too the fracture started at the shoulder and there was a shear lip at the outside surface.

Similar matching sections were cut from near the end of the circumferential segment of Crack No. 1 where it intersected the tight cracks shown by the magnetic particle build-up in Figure 3. At this location the circumferential segment of Crack No. 3 overlapped the smaller crack, as shown

in Figure 15. Both cracks were very brittle and a small piece had broken out of the main crack. The profile of the smaller crack was more irregular than that of the main crack. Again, evidence of mechanical damage was found on the inside surface at the shoulder.

Matching cross sections were cut near the origin of Crack No. 2, which proved to be significantly different from the other cracks in two respects. First, this crack started at the outside surface, rather than the inside, as indicated by a shear lip on the inside. Second, the crack contained secondary cracks that were distinctly intergranular. Figure 16 shows Crack No. 2 across the full wall thickness and Figure 17 shows some of the intergranular secondary cracks. Cracks No. 1 and No. 3 both started at the inside surface and had little or no secondary cracking.

The metallographic samples were also examined to evaluate the microstructure of the coupling. As is evidenced in the photomacrographs of Figures 11, 13, and 15, there was marked banding in the longitudinal direction. Figure 18 shows the general microstructure of one of the cross sections and Figures 19 and 20 show the structure at higher magnification. The microstructure was non-uniform with a mixture of transformation products. Such a structure is indicative of less than optimum properties.

CHEMICAL COMPOSITION OF COUPLING

An analysis was performed on the failed coupling to determine its chemical composition. The results, listed below, indicated that the composition was in accordance with the requirements for AISI 4140.

Element	Percent Content Coupling	AISI 4140
Carbon	0.40	0.38-0.43
Manganese	0.95	0.75-1.00
Phosphorus	0.012	0.040 Max.
Sulfur	0.033	0.040 Max.
Silicon	0.26	0.20-0.35
Molybdenum	0.18	0.15-0.25
Nickel	0.14	*
Chromium	0.98	0.80-1.10
Copper	0.08	*
Vanadium	0.01	*
Aluminum	0.02	*
Titanium	0.02	*
Tantalum	0.02	*
Niobium	0.02	*

* Not specified

HARDNESS TESTS

We performed hardness tests on the three couplings submitted, the pin that corresponded to the failed coupling end, and on selected metallographic specimens.

Brinell tests were performed on a flat ground on the outside surface at the middle of the couplings, as described to you in our letter 671-82-4346. The Brinell hardness of the pin end matching the failed end of the coupling was also determined. The results of the tests are listed below. For convenience,

the Brinell hardness numbers (BHN) have been converted to Rockwell C values (HRC).

	BHN	HRC
Failed Coupling	430	44
"Short" Coupling	418	43
"Long" Coupling	387	41
Pin	286	29

Rockwell testing of metallographic specimens at two origins showed hardness levels similar to those found by Brinell testing, as shown below.

	HRC
Specimen 1	40-43
Specimen 2	41-44

MICROHARDNESS TESTING

Using a 500-gram load with a Knoop indenter, we performed microhardness tests on the light-etching layer found during metallographic examination, and on the nearby microstructure. The test results, tabulated below, indicated much higher hardnesses in the light layer than in the surrounding microstructure.

HRC, Converted

Light Layer	Surrounding Microstructure
54-60	42-49

TOUGHNESS TESTING

Three transverse V-notch Charpy impact specimens notched radially were tested in accordance with ASTM A 370 and E 112 at 72°F (22°C). These specimens were 3/4 size (10 x 7.5 mm), and taken from around the

circumference at the middle of the coupling to determine the general Charpy toughness.

The tests showed very low toughness, both in terms of the energy absorbed and the percent shear of the fracture, as shown below.

Impact Value, Ft.-Lbs.	Percent Shear
5.0, 4.0, 4.5	10 (3)

ANALYSIS OF FLUIDS

A sample of the calcium chloride solution used in the well and a sample of the drilling mud to be used in drilling out the cement plug were analyzed in accordance with API Recommended Practice 13B, "Standard Procedure for Testing Drilling Fluids," and API Recommended Practice 45, "Recommended Practice for Analysis of Oil-Field Waters."

The test results showed sulfides in both samples, as tabulated below:

	$CaCl_2$ Solution	Drilling Mud
pH	8.5	9.5
Total sulfide, as H_2S	6.9 ppm	2.7 ppm
*Sulfate, as SO_4	104 ppm	6484 ppm
*Carbonate, as CO_3	179 ppm	313 ppm
*Bicarbonate, as HCO_3	252 ppm	393 ppm
*Chloride, as Cl	193,500 ppm	23,750 ppm

* These tests were run on the API filtrate of the mud sample.

DISCUSSION

The cause of the failure was not entirely clear, but most of the evidence indicated that it was environmentally induced. Environmentally

induced failures are a form of brittle fracture that occur with little or no warning, as discussed below. The overall significance of such a failure in the moderate conditions of a shut-in well is that the couplings are unsuitable for the intended service.

High strength steels are susceptible to brittle fracture from several causes, one of which involves the relationship of an increase in strength accompanied by a decrease in toughness. Low toughness reduces the ability of the steel to withstand high stresses in the presence of small flaws or stress raisers such as threads, fillets and changes in section. One reason for limits on hardness or strength of high strength steels is to minimize the reduction in toughness that accompanies high strength. The Charpy tests showed that the coupling that failed had very low impact strength, which is one measure of toughness. The low impact strength was not unexpected in view of the high hardness and poor microstructure, and shows that the coupling was susceptible to mechanically induced brittle fracture.

A second form of brittle fracture promoted by high strength is environmentally induced cracking. In high strength steels environmentally induced cracking almost invariably refers to cracking that is caused by hydrogen. However, because stress-corrosion cracking can also be involved and because hydrogen can induce several forms of failure that are often referred to by different names, such as hydrogen embrittlement, static fatigue, HIC, etc., environmentally induced cracking is used to describe brittle failures that result from aqueous corrosion. For the purpose of this discussion the phenomenon will be referred to as EIC.

EIC of high-strength steels results from nascent hydrogen that is generated by aqueous corrosion and accumulates on the corroding surface. Some of the hydrogen reacts on the surface to form water, hydrogen gas or other substance without promoting cracking; some is absorbed by the steel. Some of the absorbed hydrogen passes through the steel harmlessly and some migrates to areas of high stress where it accumulates. Because steel has a limited tolerance for absorbed hydrogen it will crack if the amount of hydrogen exceeds a critical amount.

A number of variables influence EIC, including the nature of the environment, the temperature, the stress state and the properties of the steel. Cracking is favored by acid environment and by certain chemical species that "poison" the reaction of nascent hydrogen on the corroding surface and promote its absorption into the steel. Hydrogen sulfide is the most prevalent poison and leads to sulfide stress cracking, a form of EIC.

Increasing temperature increases the diffusion of hydrogen out of the steel thereby decreasing the tendency to crack. As might be expected, higher stresses promote cracking and, as previously mentioned, so does higher hardness or strength. The microstructure of the steel also influences cracking resistance. For a given strength a structure of uniform tempered martensite affords the maximum resistance. Mixed structures reduce the resistance to EIC. For any given set of circumstances there is a critical combination of variables that will lead to cracking. Increasing the severity of one variable decreases the required severity of another. For example, in an acidic H_2S environment yield strength stresses may be required to crack a steel with a Brinell hardness of 235 while a less acidic environment with no H_2S and stresses

well below the yield strength may be sufficient to crack a much harder steel. Figure 21 is from work done by Continental Oil Company[1] and shows that increasing hardness decreases time to failure for a given stress level, reduces the stress level for failure in any given time and, of most significance, decreases the threshold stress below which failure does not occur. For example, the threshold stress for a hardness of Rockwell C 25 (Brinell 265) is about 80 percent of yield while at Rockwell C 35 (Brinell 340) it is less than 40 percent of yield. These tests were in a relatively severe environment but the same trend would be expected in other environments.

Another significant feature of EIC is that there is an incubation period before cracks develop. This period is believed to be due to the time required for hydrogen to migrate and accumulate. Failures do not, therefore, occur immediately upon exposure to the critical combination of variables. For this reason some types of EIC are referred to as delayed hydrogen failure or static fatigue.

Cracking caused by EIC in high strength steel is often intergranular but not always. The crack morphology is a function of the steel and its heat treatment, the stress intensity at the crack tip and the speed of fracture. Moreover, crack propagation can be strongly influenced by purely mechanical factors, particularly in steels with poor toughness. For this reason it is not possible to identify EIC by crack morphology alone.

As stated in the Summary, the conclusion that these failures resulted from EIC is based on four factors: the circumstances of the failure, the nature of the cracks, the properties of the coupling, and the evidence of corrosion.

One significant aspect of the failures that indicates EIC is the fact that both occurred under conditions of apparent steady stress. The first failure occurred long after the tubing string had been landed and a short time after perforating. The second occurred while the tubing was hanging in the slips. Delayed failure in this type of steel is consistent with EIC caused by hydrogen absorption but not with other types of brittle fracture. While it is true that flaws can grow at a steady stress under certain conditions, slow flaw growth is extremely unlikely in this steel because of its high hardness and low toughness. Any flaw of sufficient size to grow under steady stress would have been expected to grow to failure during running of the tubing or immediately upon application of the highest stress to which it was subjected.

The features of the cracks that indicate EIC are the multiple fracture origins, the fact that cracks started at both the inside and outside surfaces and the intergranular cracks associated with Crack No. 2. Except under fatigue conditions, failures from strictly mechanical causes usually originate at the point of highest stress. Even in a component with several flaws only the most severe, the "weakest link", will usually initiate a fracture. In EIC, however, it is common for cracks to initiate at several locations. The initiation of Crack No. 2 on the outside surface would be highly unlikely from mechanical forces alone.

Intergranular secondary cracks of the type found associated with Crack No. 2 would also be unexpected in a strictly mechanical failure. Although the exact reasons why such cracks were found only at Crack No. 2 are not apparent there are at least two reasonable possibilities. First, the stress state under which Crack No. 2 initiated and grew was quite different from that

of Cracks 1 and 3, and stress state can influence the crack path. Second, Crack No. 2 initiated in an essentially longitudinal direction while Cracks 1 and 3 initiated circumferentially; even though one segment of Crack No. 1 was longitudinal that segment appeared to be fast propagation from mechanical forces only. In most wrought products there is a difference between properties in the longitudinal and transverse directions, a condition known as anisotropy. The longitudinal banding in the microstructure is indicative of marked anisotropy in the couplings, which could account for differences in morphology between longitudinal and circumferential cracks.

The so-called "V" grades of tubular goods are inherently susceptible to EIC but the degree of susceptibility can vary significantly from one product to another. The hardness tests, impact tests and microstructure showed that the coupling we examined did not have maximum cracking resistance for V-140. First, the hardness was above the maximum specified and hardness control is essential to good resistance to EIC. Second, both the impact tests and microstructure indicated that the processing and heat treatment were less than optimum. Maximum resistance to EIC requires a uniform quenched and tempered, 100 percent martensitic microstructure. The structure in the coupling was non-uniform with a mixture of microconstituents. The Charpy test results are another indication of undesirable properties related to microstructure. Properly processed V-grades should show 30 ft.-lbs. or higher energy absorption at 72° F[2], compared to the 4 to 5 ft.-lbs. in the coupling.

Because the coupling was highly susceptible to EIC, a severe environment was not required for cracking. The visual examination showed that the coupling had corroded as indicated by the pitting that was found.

Although corrosion is a prerequisite for EIC only very little corrosion is necessary; in fact, conditions that produce high rates of metal loss usually do not cause cracking. In addition, detectable amounts of sulfides were found in both the drilling mud and the packer fluid. The properties of the coupling were such that, in our opinion, even corrosion in the absence of a poison could cause EIC but the presence of even small amounts of sulfides would significantly increase the cracking tendency of the environment. The aforementioned work by Continental[1] showed that N-80 types of tubular goods quenched and tempered to hardnesses of Rockwell C 33-34 (equivalent to approximately Brinell 311) failed at stress levels of 40 to 100 percent of yield with only 2-5 ppm H_2S in the test solution; at a stress of 130 percent of yield as little as 0.5-1.0 ppm H_2S caused failure. Other conditions of these test solutions may have been more severe than the well environment but these tests illustrate that a high sulfide content is not required for cracking.

The relatively high downhole temperature would tend to reduce the likelihood of EIC. However, the temperature above which high strength tubular goods can be used in sulfidic environment increases with strength. NACE Standard MR-01-75 allows quenched and tempered N-80, C-95 and proprietary 110-ksi yield grades to be used at 150°F or higher, and P-105 and proprietary V-140 at 175°F and higher. However, unpublished work[3] by a major oil company on V-150 material indicates it is susceptible to EIC at temperatures of at least 250°F. Considering industry experience with high strength steel, the presence of sulfides in the mud and packer fluid, and the evidence of corrosion on the coupling surface, we believe the environment was sufficiently severe to cause EIC.

The findings of this investigation do not answer all the questions about the failures. It is not apparent, for example, why only two couplings failed, why they failed when they did, why the cracks started at both the inside and outside surfaces, and what effect the dimensions and make-up of the connections may have had. However, we believe that these findings as well as all the other information available to us indicates EIC as the cause of failure and that, therefore, the tubing string is not suitable for this service.

W. M. Buehler

W. M. Buehler

T. V. Bruno

T. V. Bruno

WMB:TVB:fm

Enclosures

REFERENCES

1. "Hydrogen Sulfide Cracking of Carbon and Alloy Steels," C. M. Hudgins, R. L. McGlasson, P. Mehdizadeh and W. M. Rosborough, Corrosion, Vo. 22, No. 8, August 1966, pp 238-251.

2. "Casing for Arctic Wells," S. H. Reynolds, Petroleum Engineer, January 1975, pp 34-38.

3. Private communication.

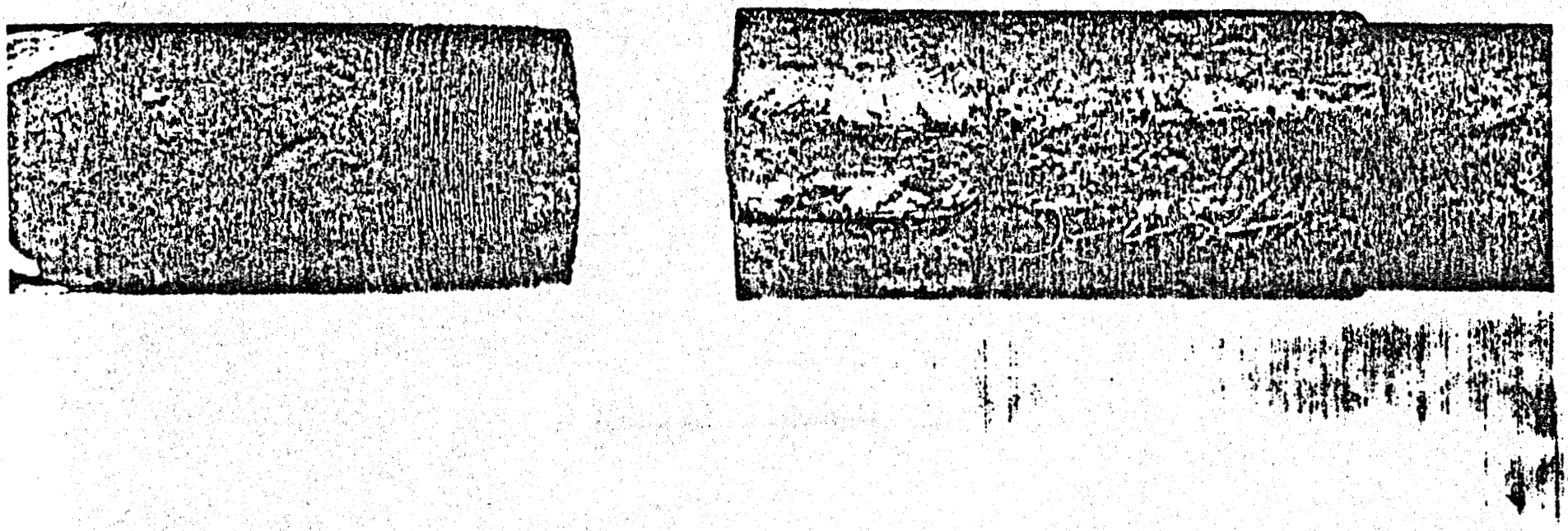


Figure 1

View of the matching sides of the T&C connection, with the failed coupling at right.

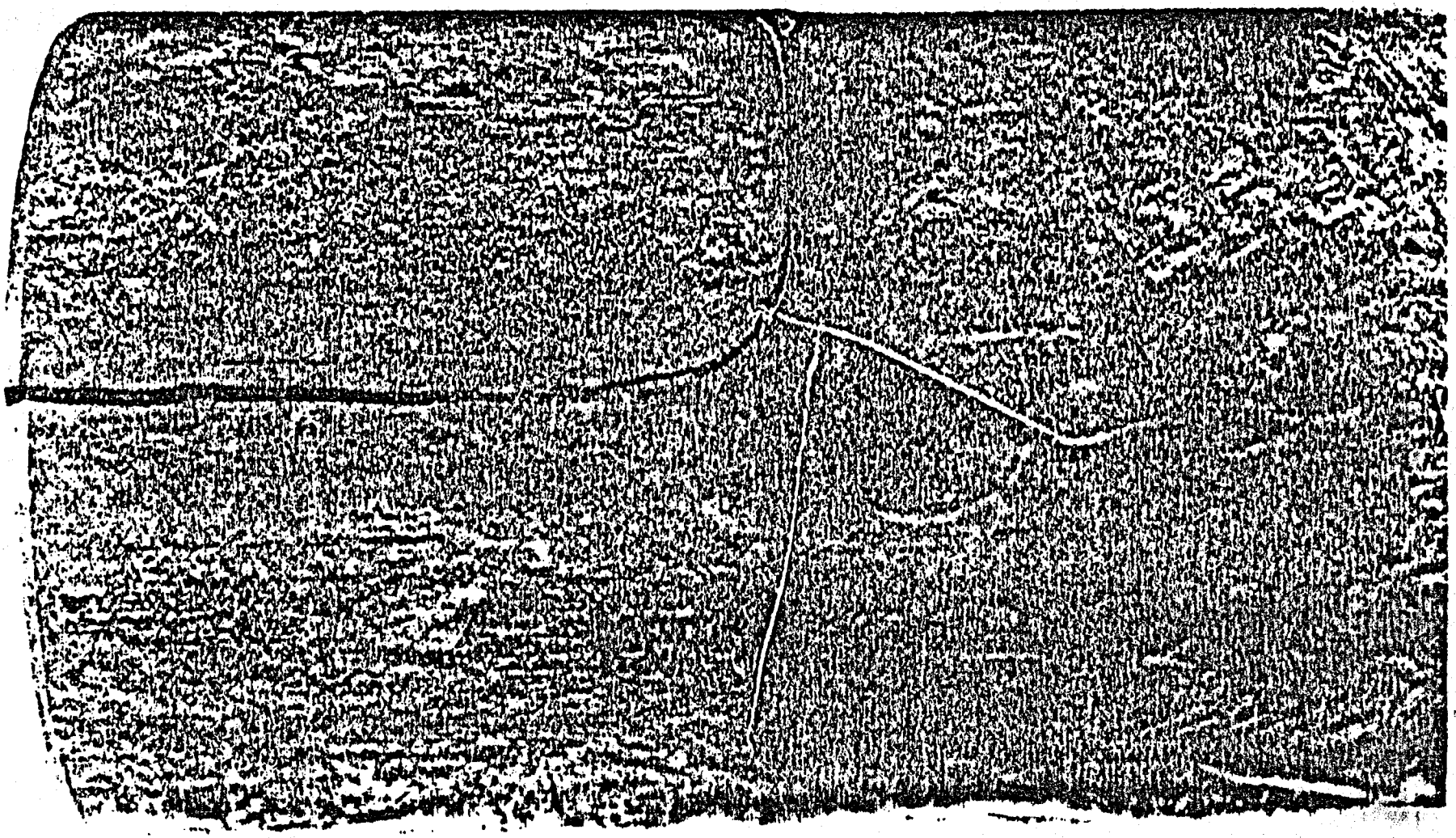


Figure 2

Close-up of the failed coupling showing large curving crack and gray magnetic particle build-up on two tighter cracks.

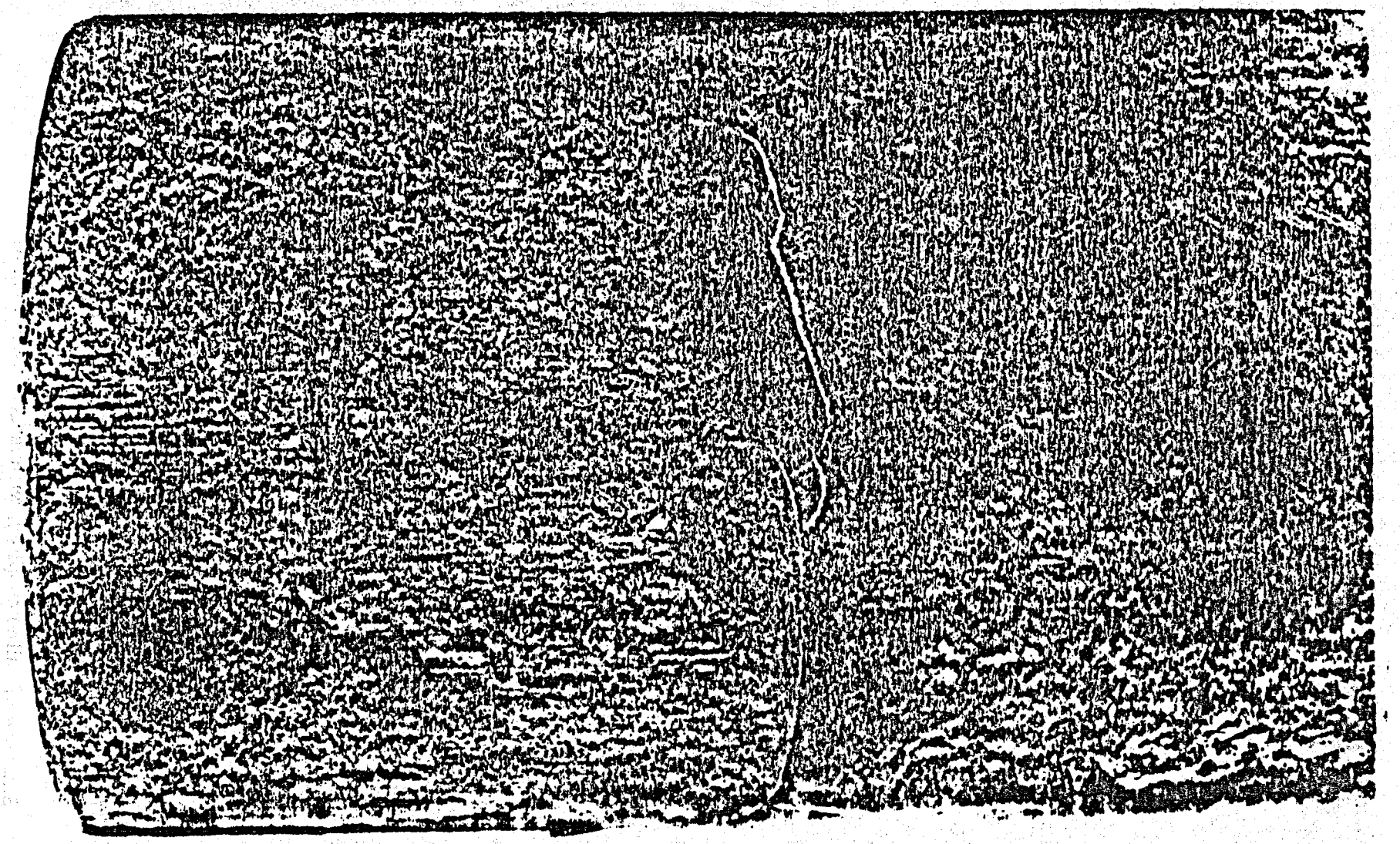


Figure 3

Close-up of the coupling after turning the sample 90 degrees. Gray magnetic particle build-up again indicates tight cracks that intersected the end of the curving crack in Figure 2.

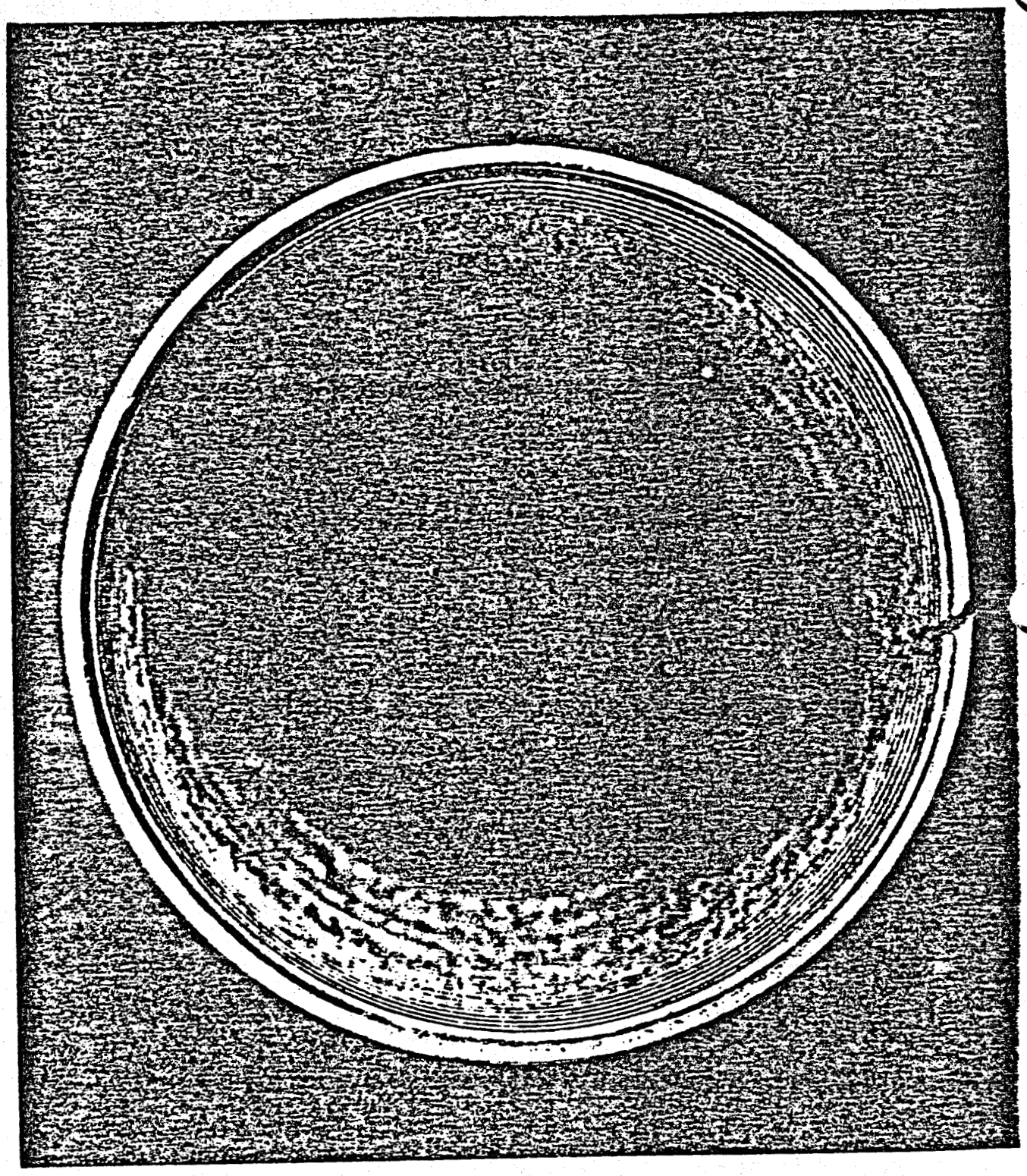


Figure 4

End view of failed coupling, with large crack at right.

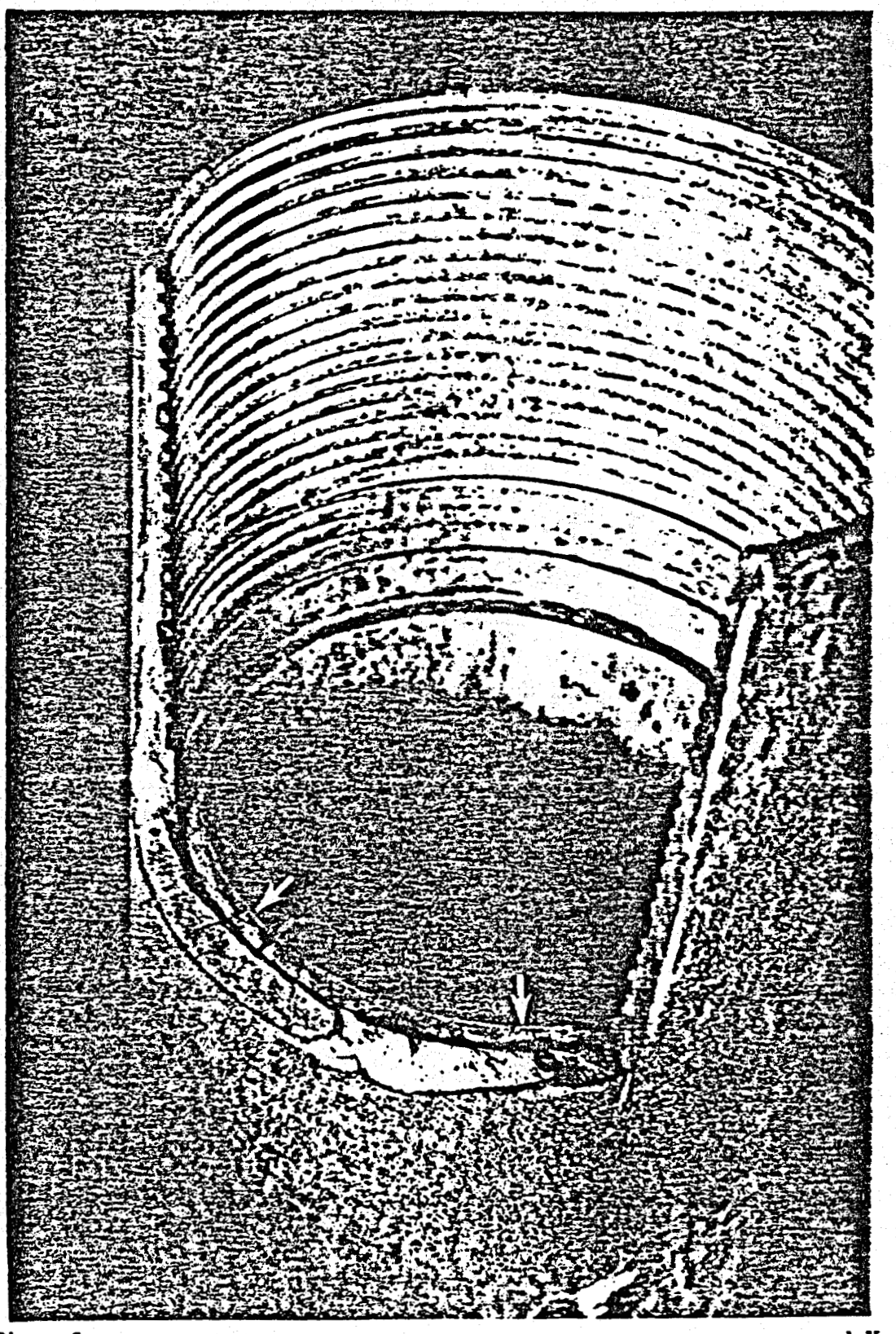


Figure 5 1 X

View of coupling after removing piece to separate Crack No. 1. The white arrows indicate the reversed internal shoulder and the red arrow the origin area of Crack No. 1. The longitudinal segment of Crack No. 1 is at left, the saw cut at right.

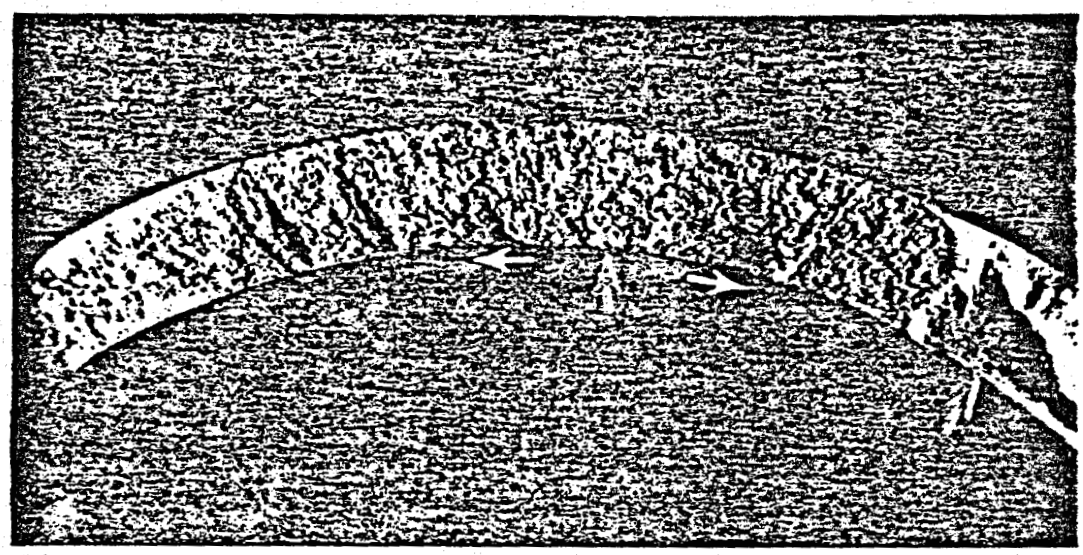


Figure 6 2 X

View of the piece removed when Crack No. 1 was separated. The radius where the crack curved and propagated to the end of the coupling is at left, the sawcut beyond the right edge of the photograph.

Crack No. 1 originated at the inside surface in the area indicated by the red arrow in the center of the photograph and propagated in the direction indicated by the white arrows. Hackle marks were evident at and near the origin. The red arrow at right indicates one of the fracture origins of the tight cracks in Figure 3.

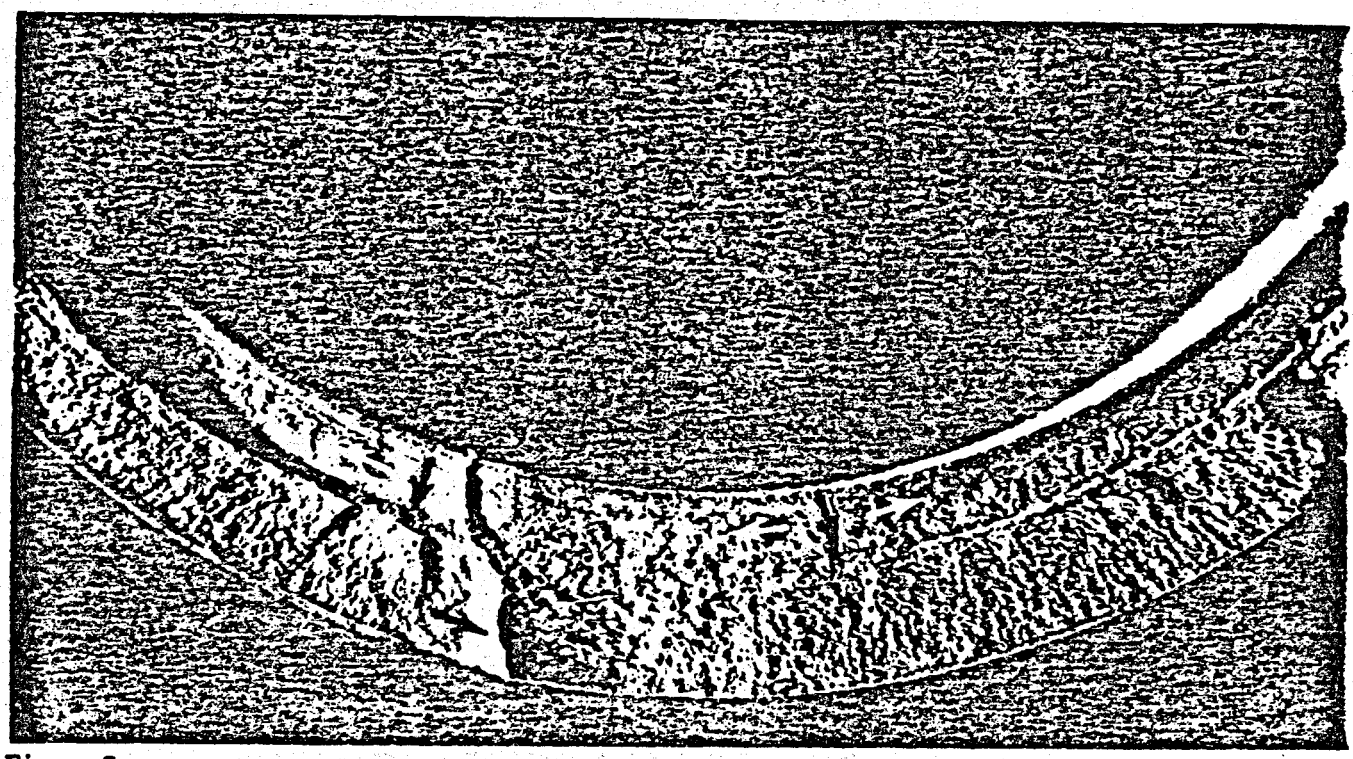


Figure 7 2 X

Close-up of crack surfaces on coupling. The red arrow and white arrows at right indicate the origin and propagation direction respectively of Crack No. 1, and correspond to those in Figure 6. Crack No. 3 originated at the area indicated by the red arrow at left and propagated as indicated by the white arrow. The black arrow indicates one surface of Crack No. 2.

This photograph also shows the location of the cracks with respect to the reversed internal shoulder.

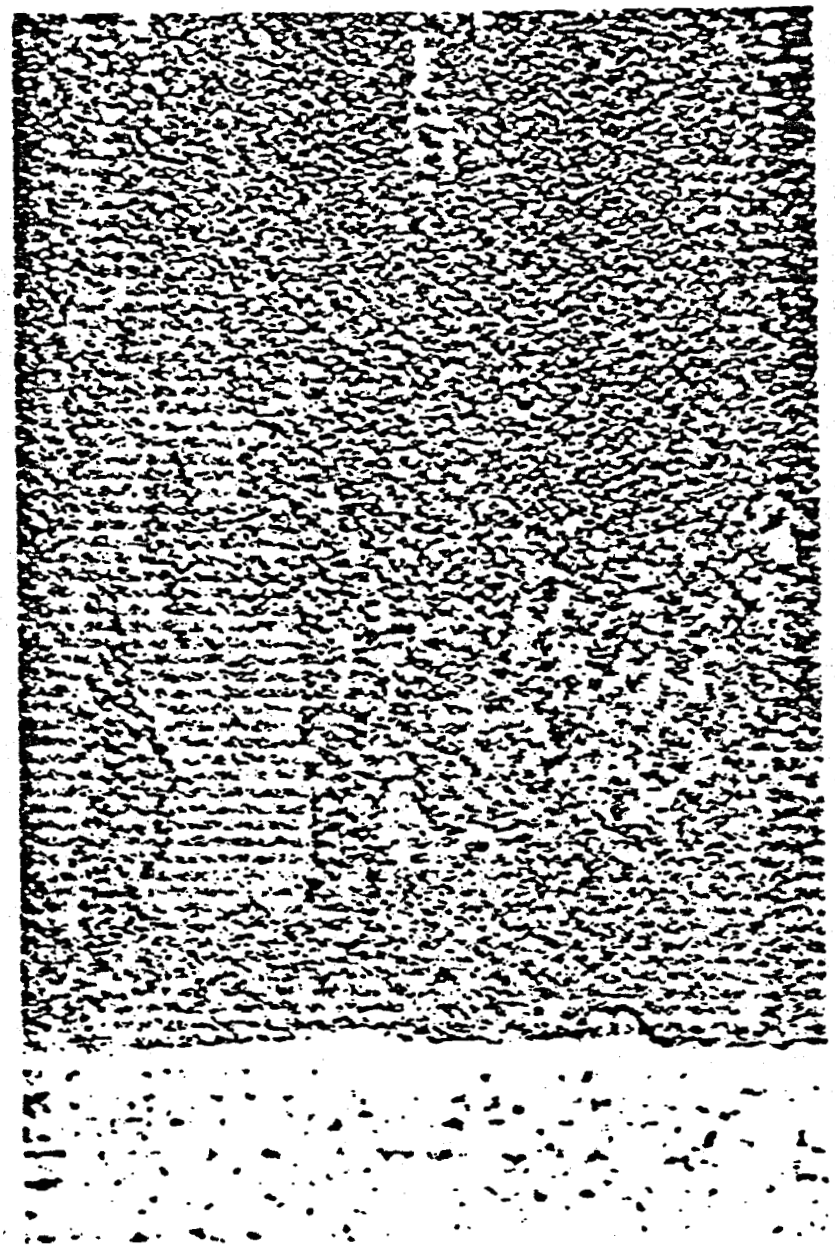


Figure 8 5 X

Close-up of the inside surface at the center of the coupling showing rusty pits. Reversed internal shoulder is horizontal edge near bottom of photograph.

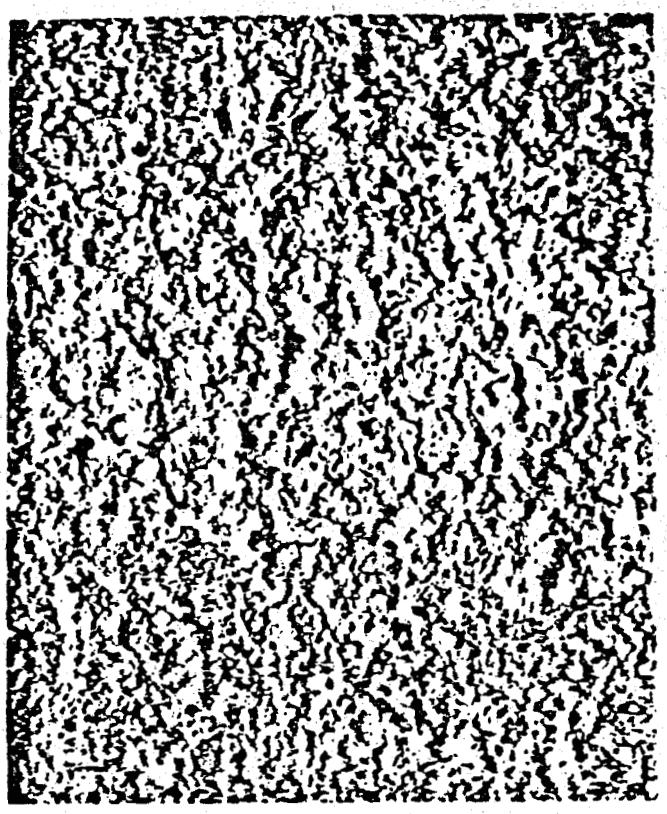


Figure 9 12 X

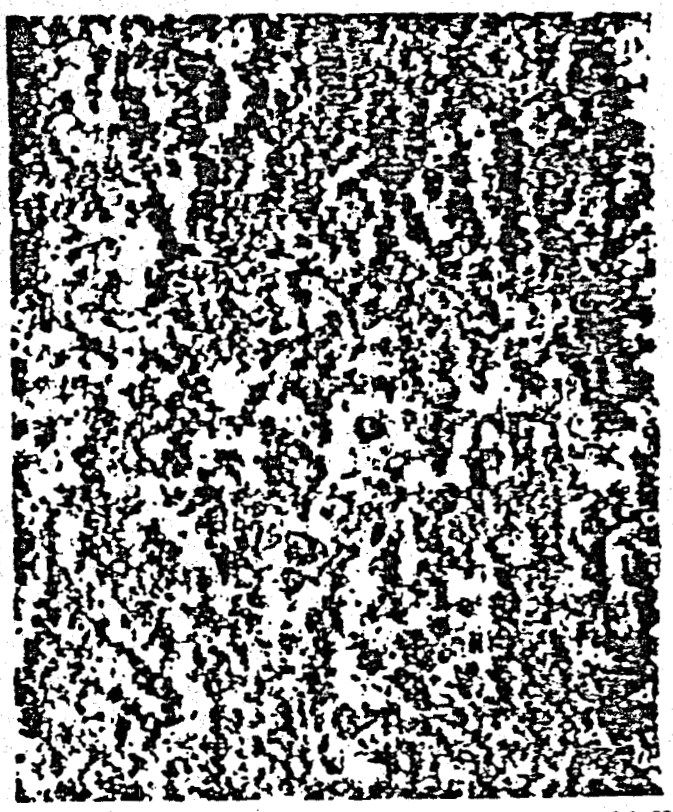
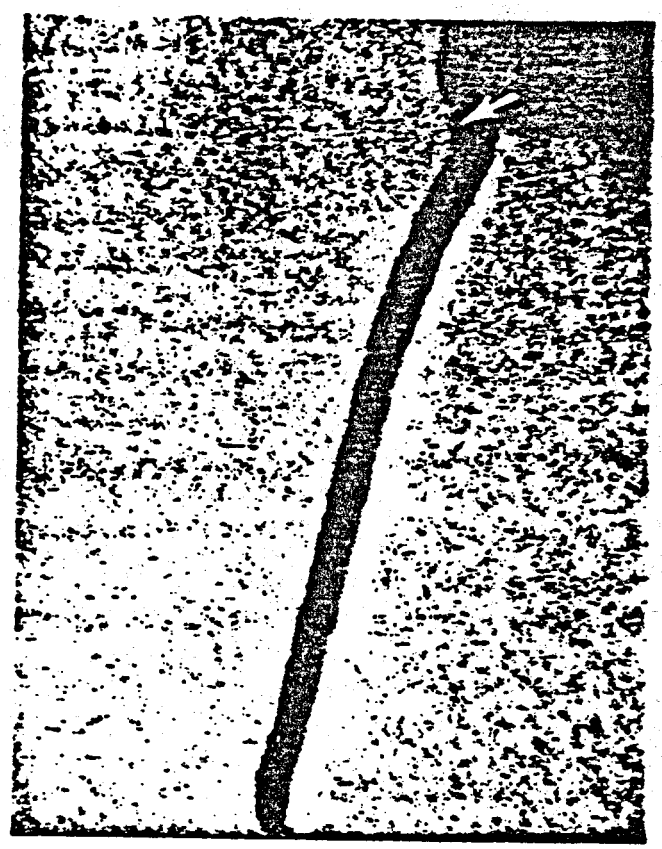


Figure 10 12 X

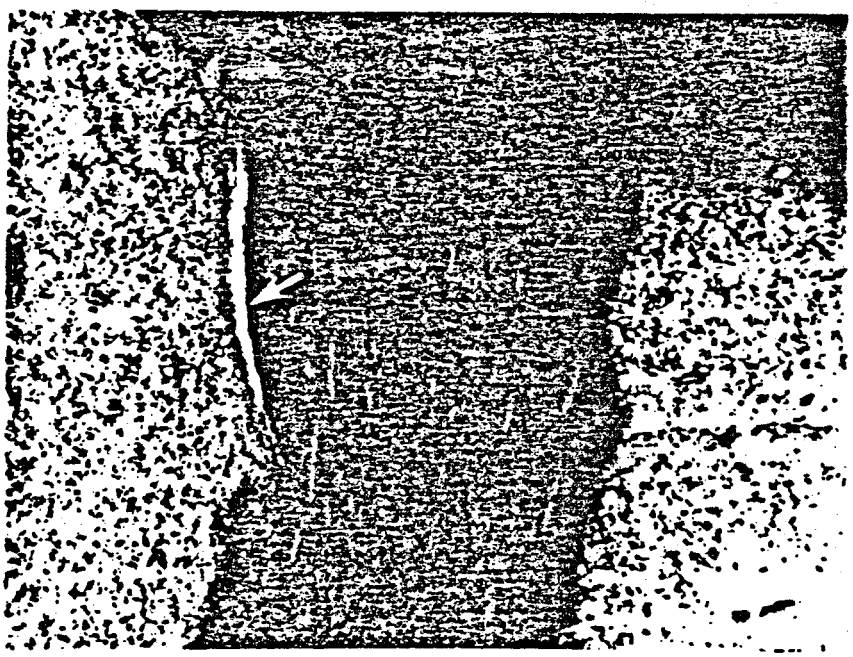
Inside surface at center of the coupling before, left, and after, right, light sanding to remove surface rust. The dark areas in Figure 10 are pits.



12 X
Picral Etch

Figure 11

Matching sections across the origin of Crack No. 1. The arrow indicates the area shown below.



100 X
Picral Etch

Figure 12

View at inside surface showing thin white layer from mechanical damage.

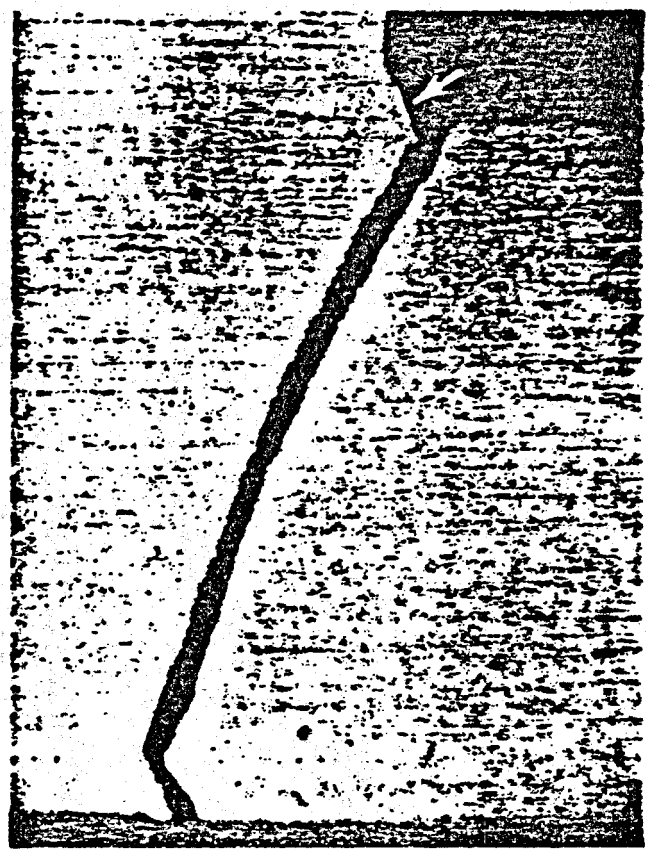


Figure 13

12 X
Picral Etch

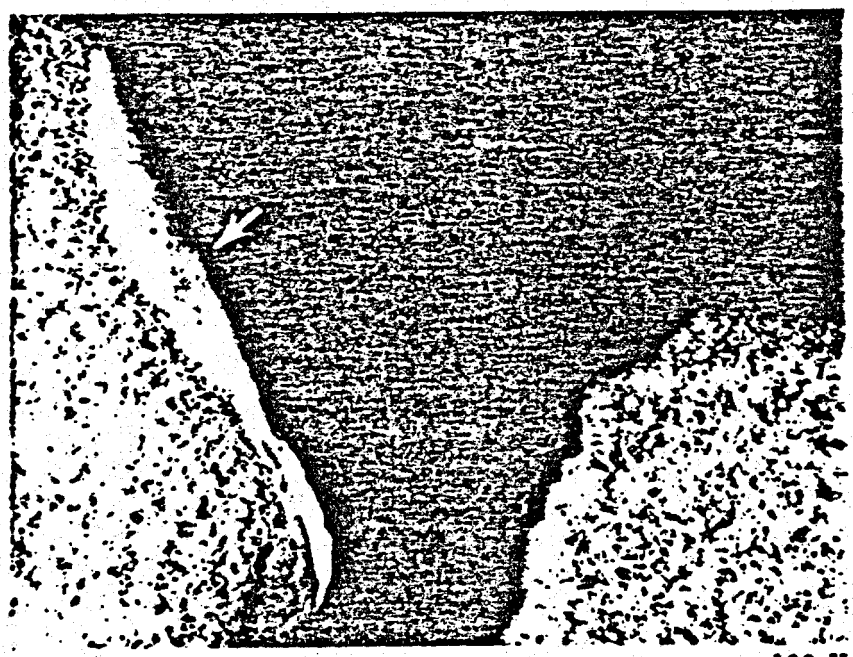


Figure 14

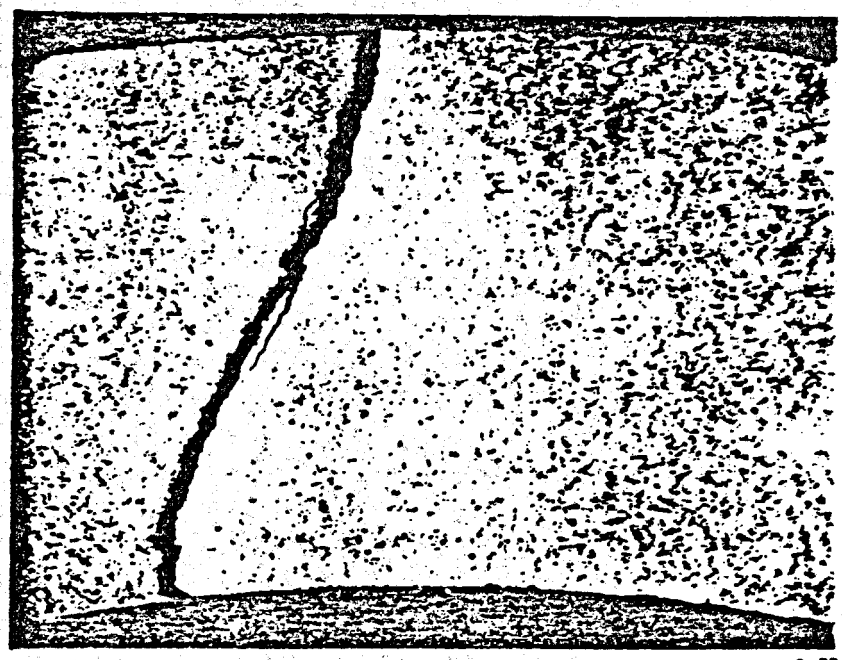
100 X
Picral Etch

Photomicrographs of matching sections from the origin of Crack No. 3, with arrow again indicating mechanical damage.

12 X
Picral Etch

Figure 15

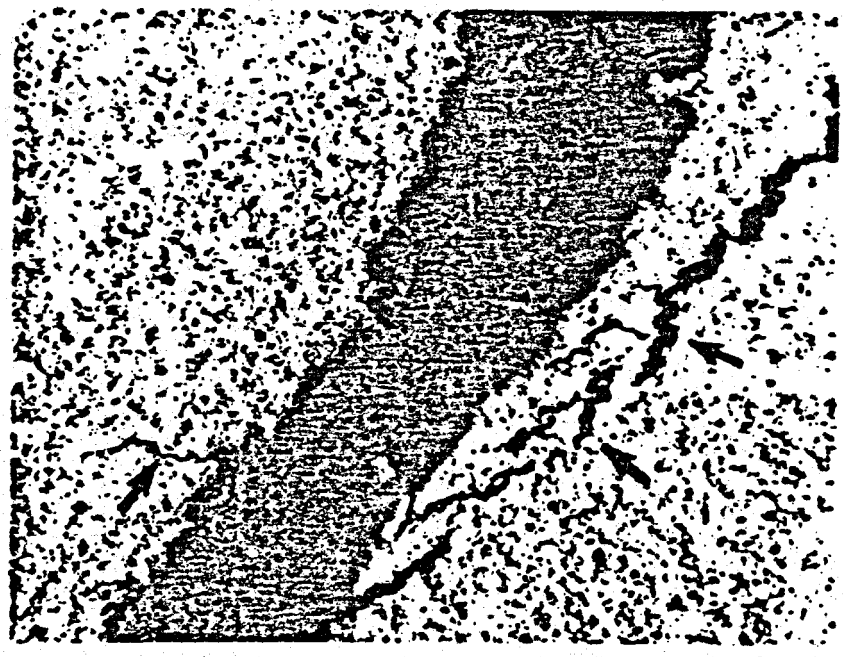
Matched sections across the end of the circumferential segment of Crack No. 1 where it overlapped one of the smaller cracks. The arrows indicate white areas from mechanical damage.



6 X

Figure 16 Picral Etch

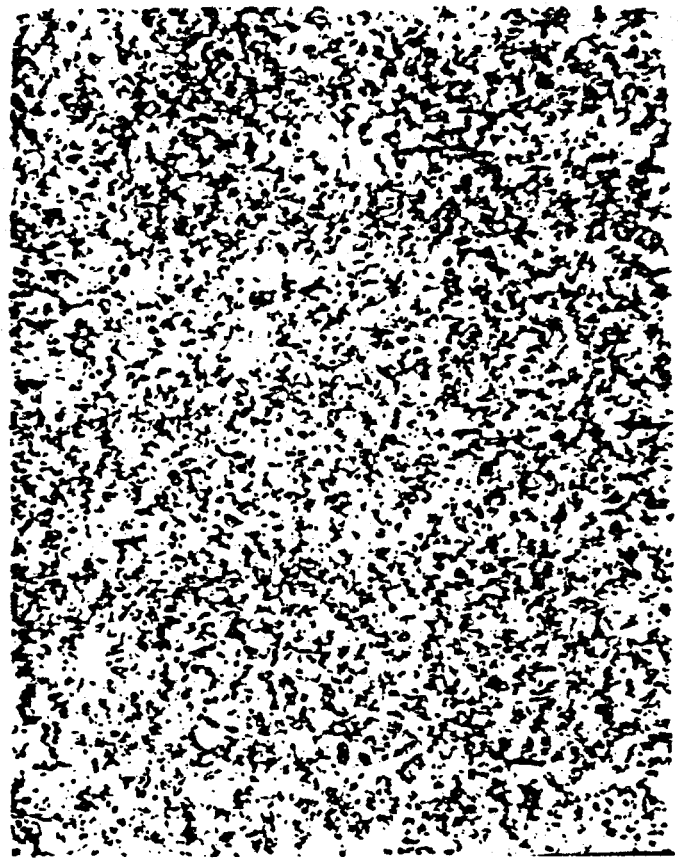
Photomacrograph of matched sections from Crack No. 2.



100 X

Figure 17 Picral Etch

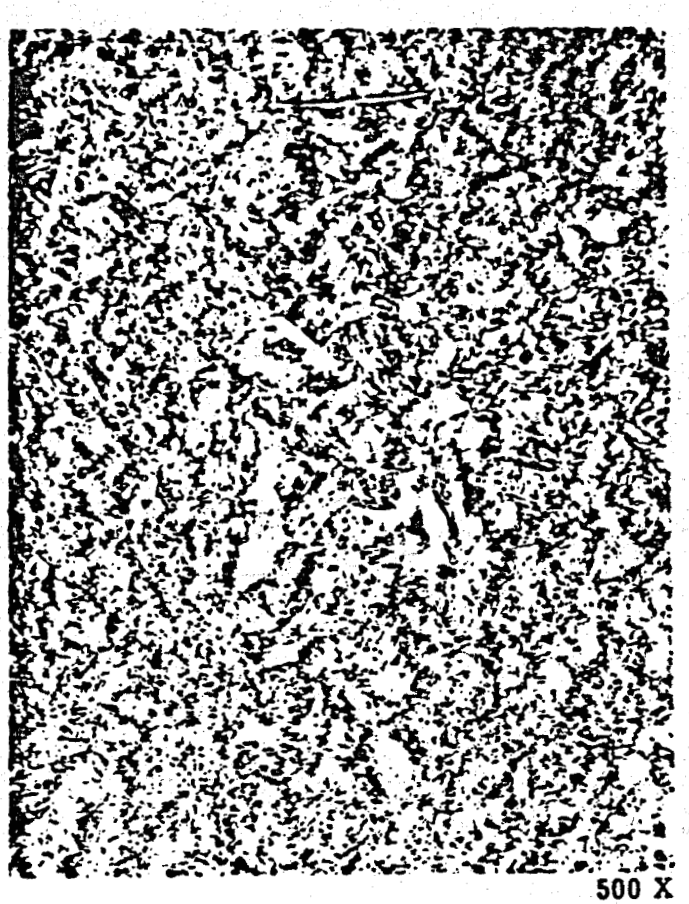
Photomicrograph of secondary cracks, indicated by arrows, that followed the prior austenite grain boundaries.



100 X
Picral Etch

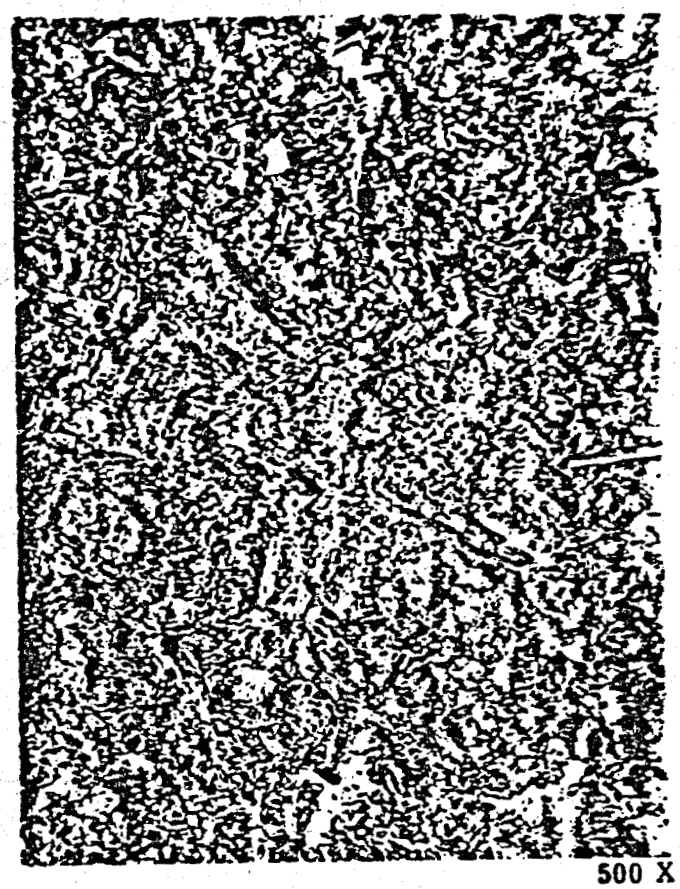
Figure 18

General microstructure of the coupling at about midwall. The structure was similar across the wall thickness.



500 X
Picral Etch

Figure 19



500 X
Picral Etch

Figure 20

Photomicrographs showing the coupling structure at higher magnification.

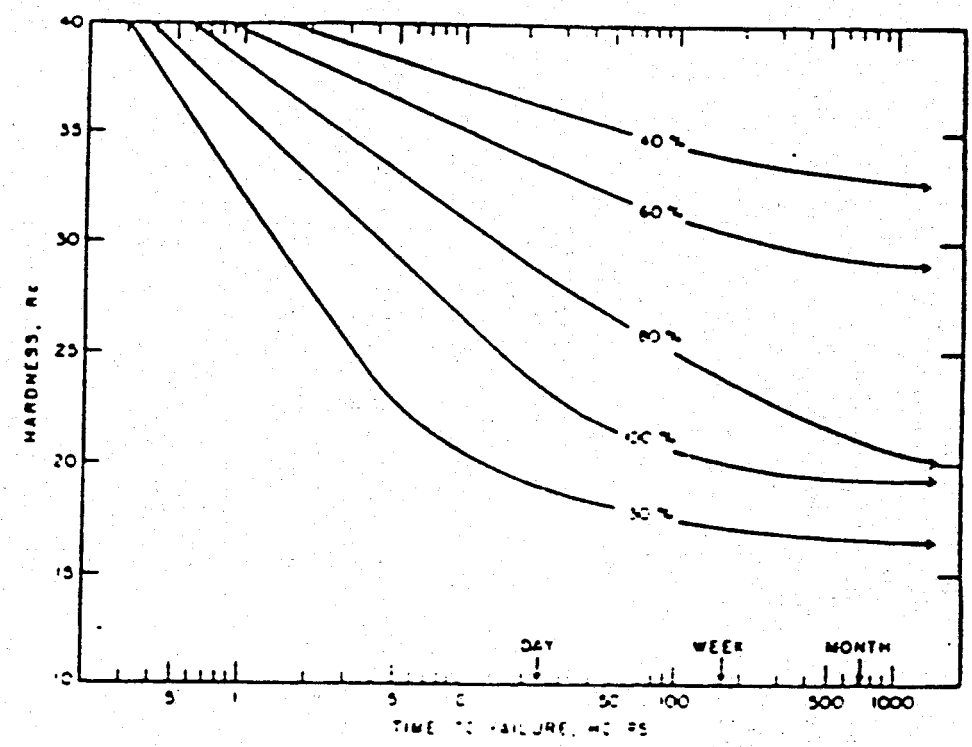


Figure 21

Approximate relationship between hardness, time to failure and stress in a percent of yield strength. The test solution was 3000 ppm H_2S in aqueous sodium chloride (from Reference 1).

APPENDIX II

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FAILURE ANALYSIS
OIL WELL CASING COUPLING

Metcut Report 2123-34457-1

for

Technadril-Fenix & Scisson
Houston, TX 77060

Attn: Larry Durrett

December 7, 1982

John T. Cammett III, Vice President
Advanced Materials Technology

Luciano R. Gatto, Manager
Metallography & Failure Analysis

Metcut Research Associates Inc.
3980 Rosslyn Drive
Cincinnati, OH 45209

513/271-5100

1. INTRODUCTION

At the request of Mr. Larry Durrett, a metallurgical examination was performed on a well tube coupling which had failed in service reportedly on July 22, 1982. The coupling was one of a number in a string of tubing used in a geothermal well in Crab Lake Field, Cameron Parish, Louisiana. The part represented the second coupling failure incident at this drilling site, both of which had occurred approximately 10,000 feet below surface.

The coupling was designated as an Atlas Bradford TC-4S casing connection which was manufactured from trepanned AISI 4140 alloy steel bar stock quenched and tempered to a hardness range of 330-401 Brinell, thus conforming to API Grade V150. The steel tubing string was identified as 5" O.D., 18 lb. per foot, API 5AX Grade P-110 product.

The coupling had been subjected to a considerable amount of destructive testing by a previous investigator. It was the purpose of our examination to determine (if possible) the mode of failure and establish whether any material deficiency had been a contributing factor. To aid us in the investigation, information regarding the metallurgical processing history of the coupling and tubing as well as photographic documentation of the fracture features and microstructure performed by the previous investigator were provided by Technadril-Fenix & Scisson. Findings are summarized in the subsequent text.

2. CONCLUSIONS

2.1 The fracture initiated at the internal shoulder or radius of the coupling, progressed circumferentially through the wall and culminated in the longitudinal direction across the threads. The instances of intergranular propagation and numerous secondary branching cracks observed suggested a stress corrosion or hydrogen induced (embrittlement) cracking mechanism. The investigation, however, could not identify the corrosive species that may have contributed to such a failure mode.

2.2 The mechanical or frictional damage which was observed on the shoulder radius area adjacent to the fracture plane was judged as a secondary occurrence which developed from interaction with the mating tube (pin) after the fracture had developed.

2.3 Instance of microstructural non-uniformity or banding were observed as well as hardness properties which were generally on the high side of the required range. The maximum hardness measured was approximately Rc 43 (BHN 404) which slightly exceeds the specified range (330-401). Although such metallurgical conditions may be less than desirable, it is difficult to indict these factors as a major contributor to the failure.

3. TEST RESULTS

3.1 Visual and Macroscopic Examination

Segments of the coupling and tube submitted to us for analysis are shown in Figure 1. The cuts and the removal of numerous pieces from the coupling had been performed by the previous investigator. As received, the pieces had been glued together and bound by adhesive tape. For the purpose of retaining specimen identity and "reconstruction" of the coupling, each piece was numbered by Metcut as shown in Figure 2 before "disassembly" for examination of the fracture surfaces.

Pieces containing fracture surfaces were cleaned ultrasonically to remove glue and other loose contaminants and then examined on a binocular microscope at magnifications of up to approximately 40X. Although certain portions of the fracture were missing and considerable secondary corrosion had taken place on the fracture surface, it was apparent that cracking had initiated at the internal shoulder radius of the coupling and then propagated through the wall as well as circumferentially along or in close proximity to the inner radius. The crack eventually culminated in the longitudinal direction (i.e. - parallel to the axis of the coupling). Since the previous investigator had obtained photographic documentation of the overall fracture features and areas of origin, it was not deemed appropriate by us to obtain additional photomacrographs considering the magnitude of sectioning that had been performed on the part. However, approximate crack locations are denoted in the views of Figure 2.

The macroscopic examination of portions of the primary (transverse) fracture surface revealed no evidence of beachline markings that would imply a fatigue type of failure progression. Some mechanical damage in the form of metal smearing and scoring was visible on the inner surface of the coupling adjacent to the fracture plane; this damage, however, was judged to be secondary in nature. There was evidence to indicate the presence of more than one origin of crack initiation for the development of the transverse fracture. In general, the inner surface of the coupling exhibited mild corrosion pitting.

3.2 Scanning Electron Microscopy

Three portions of the primary (transverse) crack exhibiting the least amount of corrosion damage were cleaned more meticulously in order to conduct an electron fractography study. For reference, the three pieces selected were Nos. 2, 4 and 12. The examination was performed on a Cambridge 600 scanning electron microscope at magnifications ranging from 20 to 2000X.

The fracture texture was found to be considerably deteriorated due to corrosion attack and much of the fine fracture detail had been obscured or obliterated. However, there existed isolated instances of apparent intergranular crack propagation and secondary cracking. Such features suggest a service failure due to stress corrosion or hydrogen induced cracking. Scanning electron photographs showing overall fracture features and instances of apparent intergranular crack propagation are shown in Figures 3 and 4 respectively.

3.3 Metallography

Initially, three metallographic specimens were prepared from the primary transverse crack - two pieces examined on the SEM (Nos. 2 and 12) and the mating segments Nos. 5 and 9 which apparently had been viewed microscopically by the previous investigator. (Reference is made to Figure 2 which shows the location of these pieces). Examination of the specimens in the unetched and etched conditions at magnifications ranging from 100 to 1000X yielded the following information:

3.3.1 Mechanical damage in the form of scallops of plastic deformation and untempered martensite existed on the inner shoulder radius adjacent to the fracture plane. In one sample, the damage was inflicted to a portion of the crack surface implying that the crack had developed before the damage had occurred. Reference is made to Figure 5 which illustrates this condition.

3.3.2 The primary fracture surface had suffered considerable corrosion pitting which prevented a clear assessment of the mode of crack propagation (intergranular or transgranular). However, a number of branching cracks were observed which had progressed in an intergranular fashion as shown in Figures 6 and 7. These findings are consistent with the electron fractography observations.

3.3.3 Microstructural variations were evident due to alloy segregation or banding in the steel. The banding was more pronounced in one sample (No. 2) than the others. For the most part, the microstructure consisted of tempered martensite with varying degrees of acicular ferrite and probably bainite. Reference is made to Figures 8 and 9.

In order to conduct a more in depth study into the nature of the frictional or mechanical damage observed on the inner shoulder of the coupling, additional longitudinal metallographic sections were prepared near one end and at a point nearly diametral to the area of initiation of the primary (transverse) crack. The appearance of the shoulder (radius) near one end of the transverse crack is shown in the photomacrograph of Figure 10. The worst area of frictional damage was noted at Plane A (Figure 10) and is illustrated in Figure 11. A microhardness survey of the (white) rehardened scallops yielded values of Rc 55 as compared to the unaltered microstructure which ranged Rc 39-43. (Rc values were converted from 100 gram Knoop). Only a slight amount of frictional damage was noted on the shoulder radius of the other samples examined.

3.4 SEM-EDAX Analysis

Since the scanning electron microscope (SEM) implemented in this study was equipped with an (EDAX) x-ray spectrometer, an attempt

was made to detect any species that could have been responsible for a stress corrosion attack. The analysis which was conducted on product contained within (secondary) branching cracks, however, proved inconclusive. Chlorine was detected within the crack, as evidenced from the energy x-ray spectrum in Figure 12, but this finding was not unexpected considering that the well tubing contains inhibited calcium chloride. A brief search into the literature has indicated that low alloy steels are generally not susceptible to stress corrosion cracking in a calcium chloride environment.

3.5 Hardness

The hardness of the coupling was checked by various techniques, all of which yielded values generally within the required range of BHN 330-401.

3.5.1 Direct Rc hardness on radial (longitudinal) section which included the shoulder area: Range Rc 40-42, (equivalent to BHN 372-393).

3.5.2 Direct Rc hardness and Direct Brinell hardness on transverse section through (.55") wall area: Rc 39; BHN 362.

3.5.3 Direct RA hardness on metallographic specimens prepared adjacent to and diametrically opposite primary transverse fracture: Range RA 68.5-72 (equivalent to BHN 332-404).

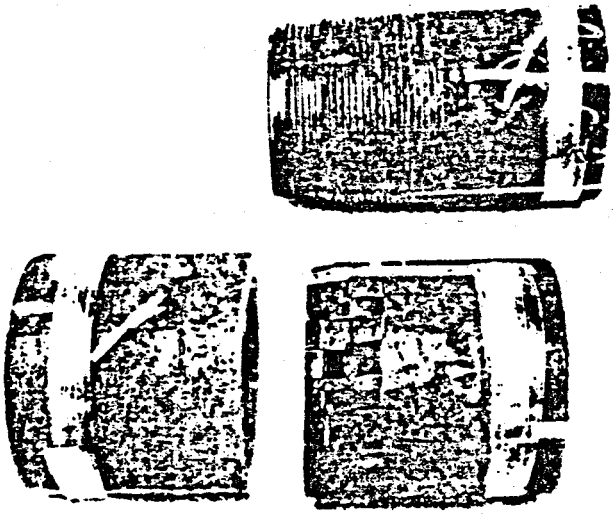


Figure 1 - View of coupling and tube segments as received at Metcut for analysis.

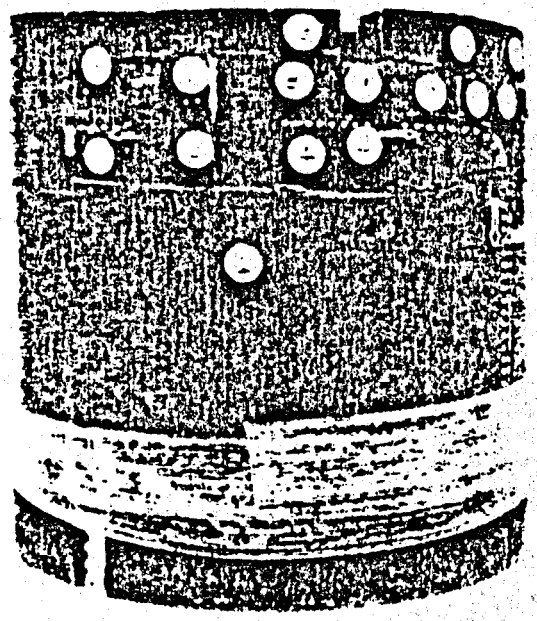


Photo "A"

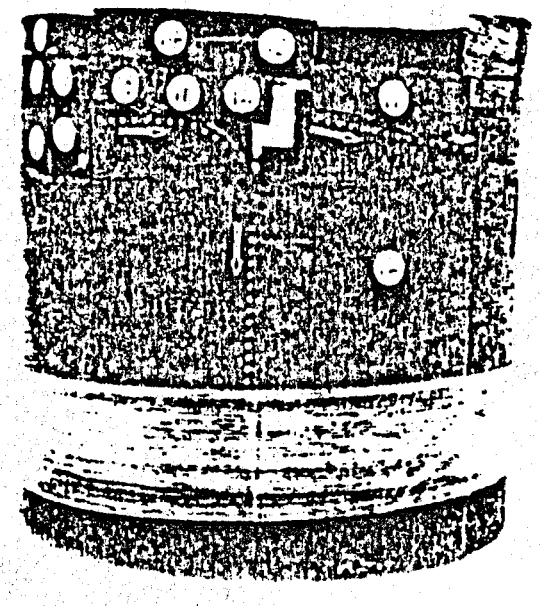


Photo "B"

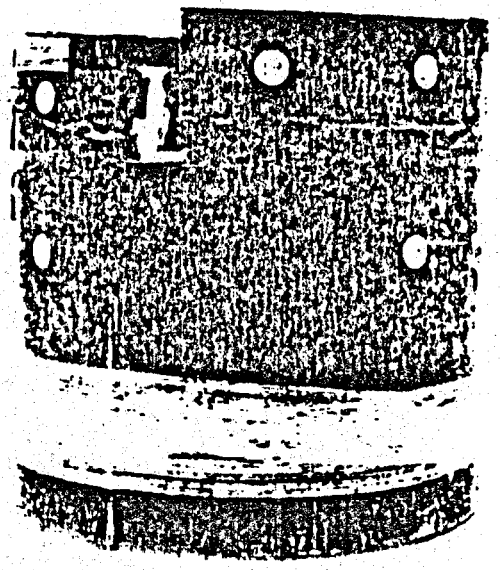
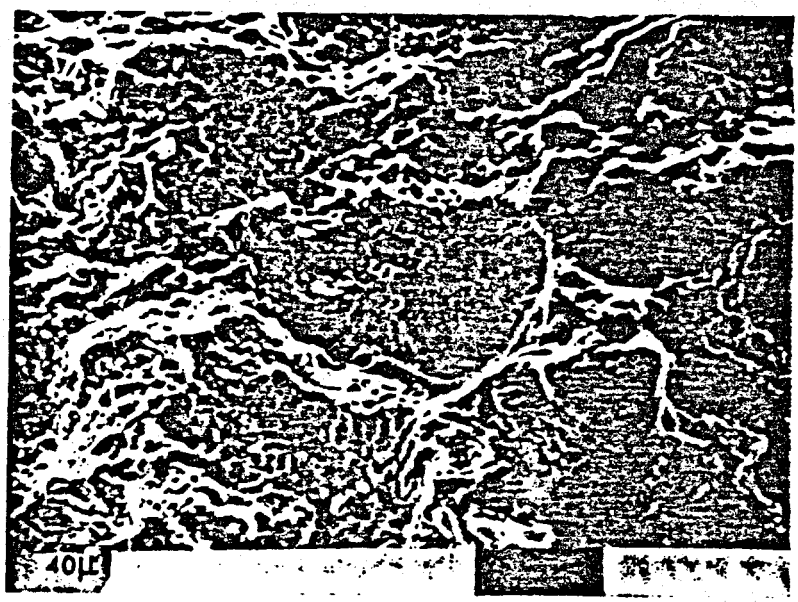


Photo "C"

Figure 2 - Views of the sectioned coupling with arbitrary identification labeling on the pieces. Dotted lines denote approximate location of cracking. Arrows denoted direction of crack propagation.

MAG: Approx. 2/3X



Inner surface edge of coupling

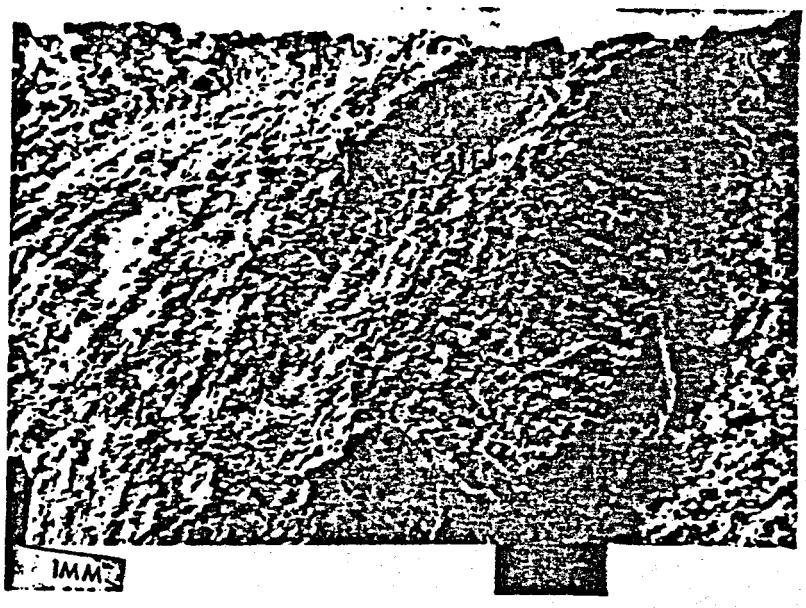


Figure 3 - Scanning electron photographs of corroded fracture surface.

MAG: 20X; 500X

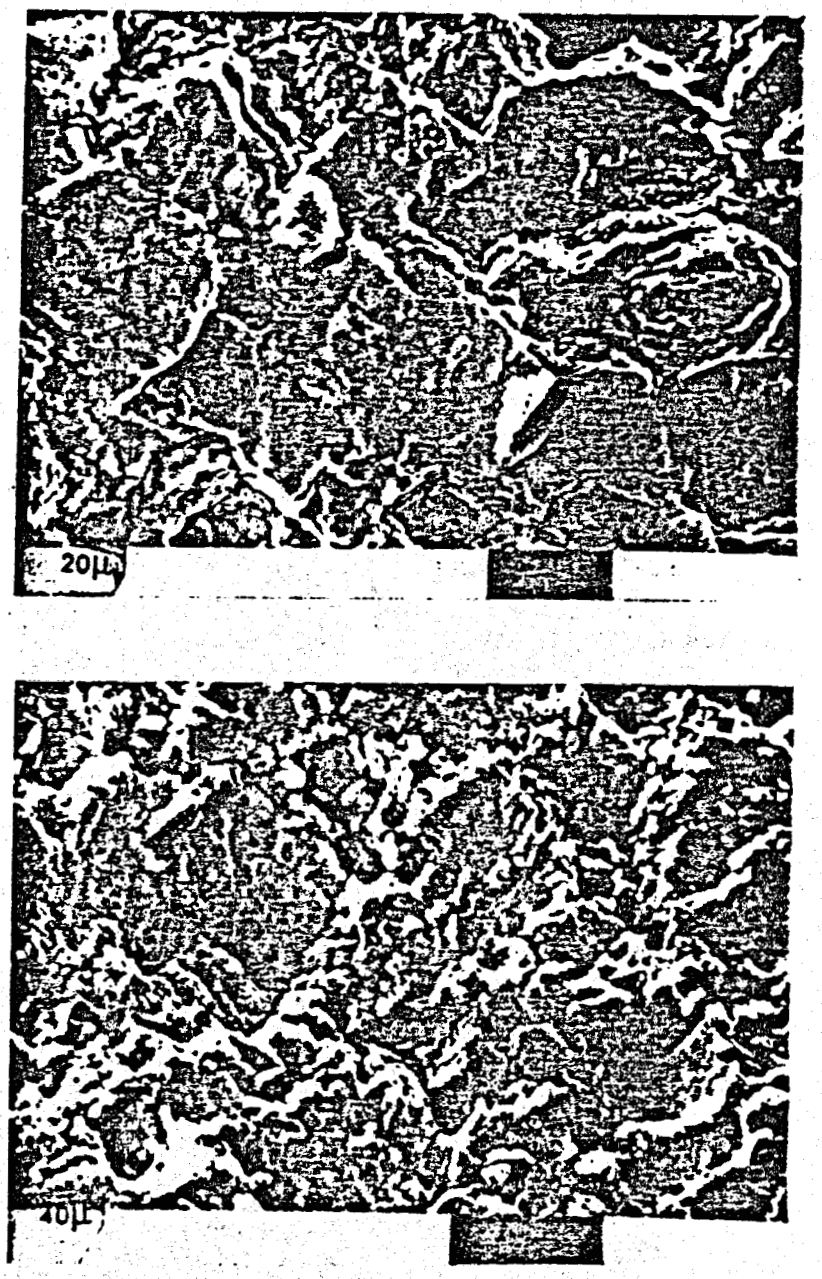


Figure 4 - Scanning electron photographs of isolated portions of the fracture revealing secondary cracking and intergranular propagation tendencies. The surface is covered with oxide.

MAG: 500X; 1000X (top)

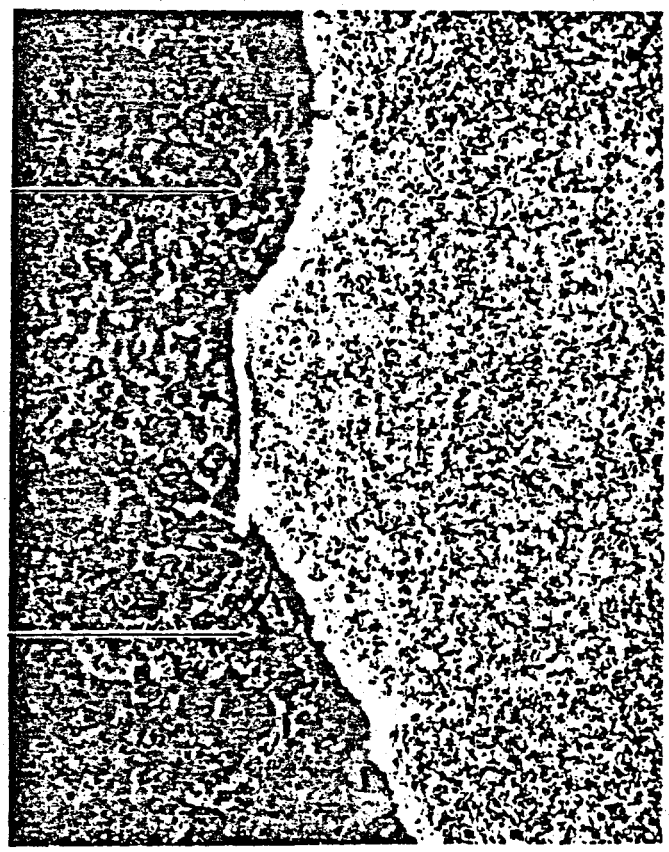


Figure 5 - Microstructural features at the coupling inner surface radius coinciding with the plane of fracture. Small arrow denotes frictional heating inflicted to a portion of the crack surface.

Etchant: Nital, 2%

MAG: 50X

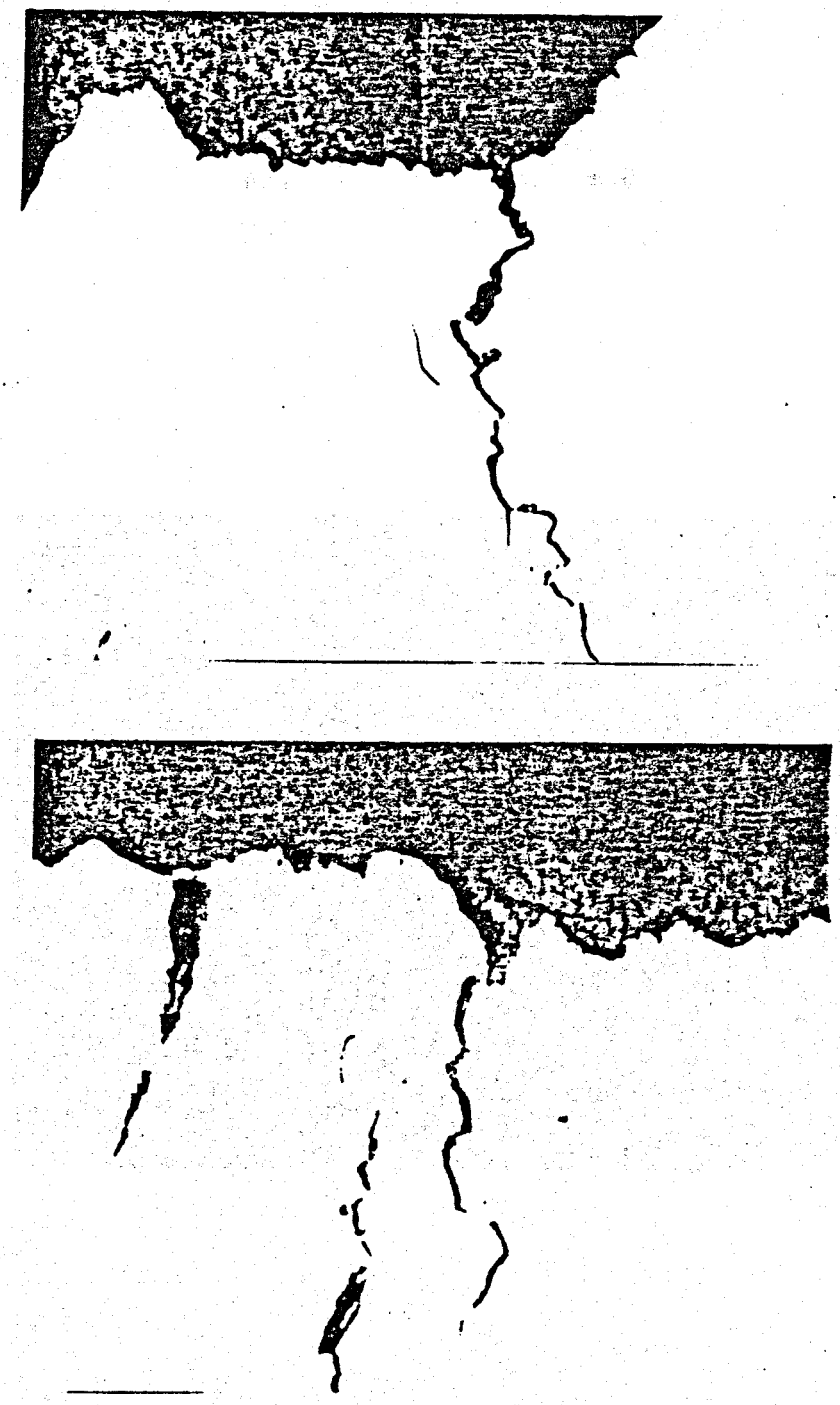


Figure 6 - Secondary intergranular cracks branching from the primary fracture surface (top of photo).

Etchant: None

MAG: 500X

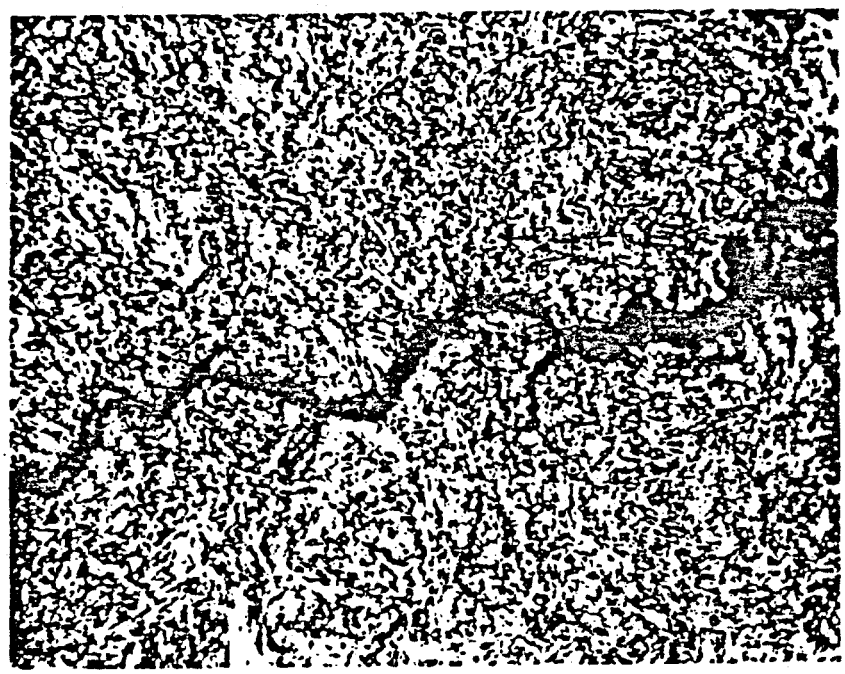


Figure 7 - Secondary intergranular crack branching from the primary fracture surface. Sample is etched to reveal microstructure which consists primarily of tempered martensite.

Etchant: Nital, 2%

MAG: 1000X

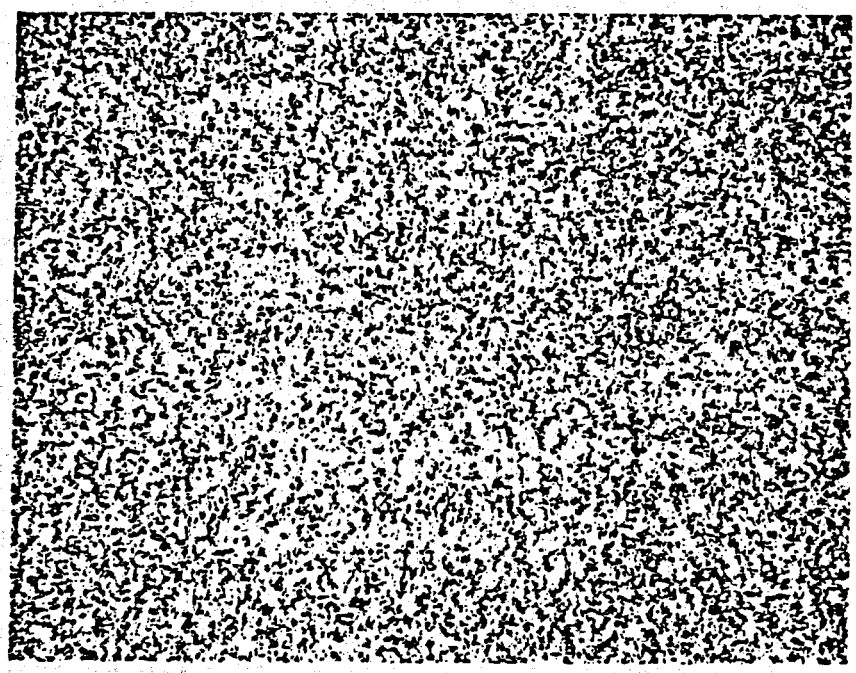


Figure 8 - Nature of banding or segregation in the material.

Etchant: Nital, 2%

MAG: 50X

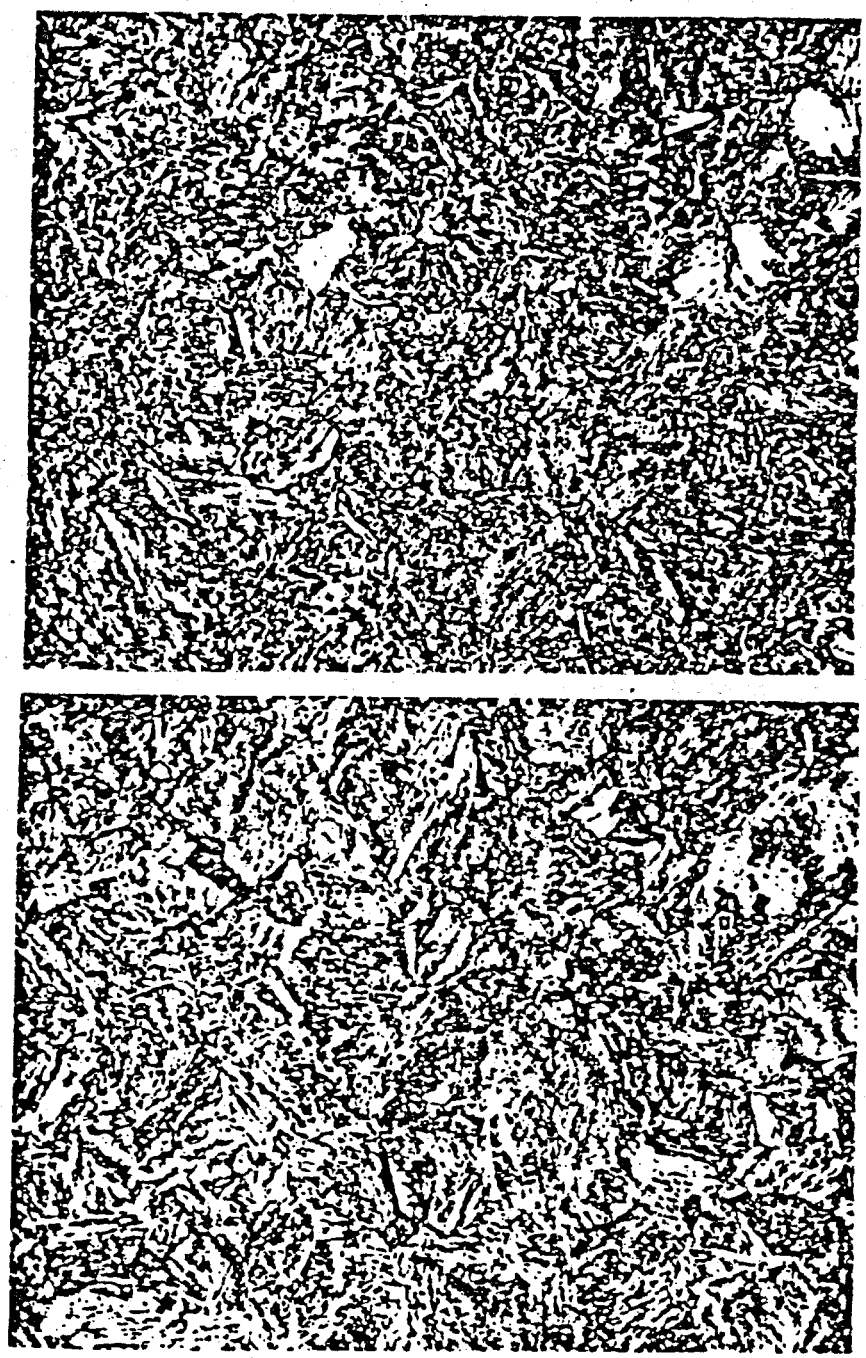


Figure 9 - Range of microstructural features observed in the coupling. Top - essentially tempered martensite; bottom - mixed microstructure consisting of tempered martensite with acicular ferrite and probably some bainite.

Etchant: Nital, 2%

MAG: 1000X

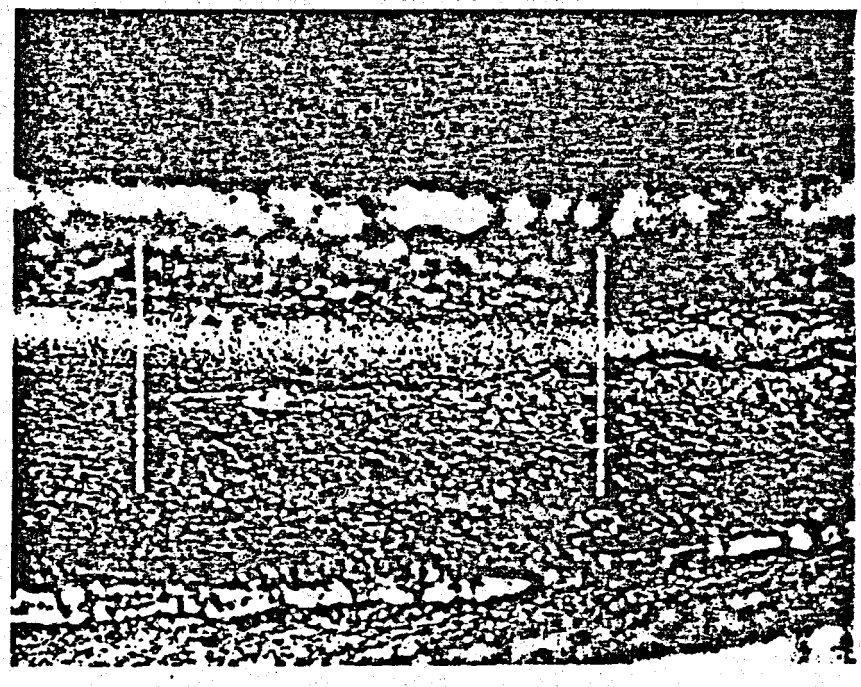


Figure 10 - View of radius area near terminus of the primary crack. Dotted lines denote approximate location of radial metallographic sections. Arrow denotes mechanical damage.

MAG: 8X

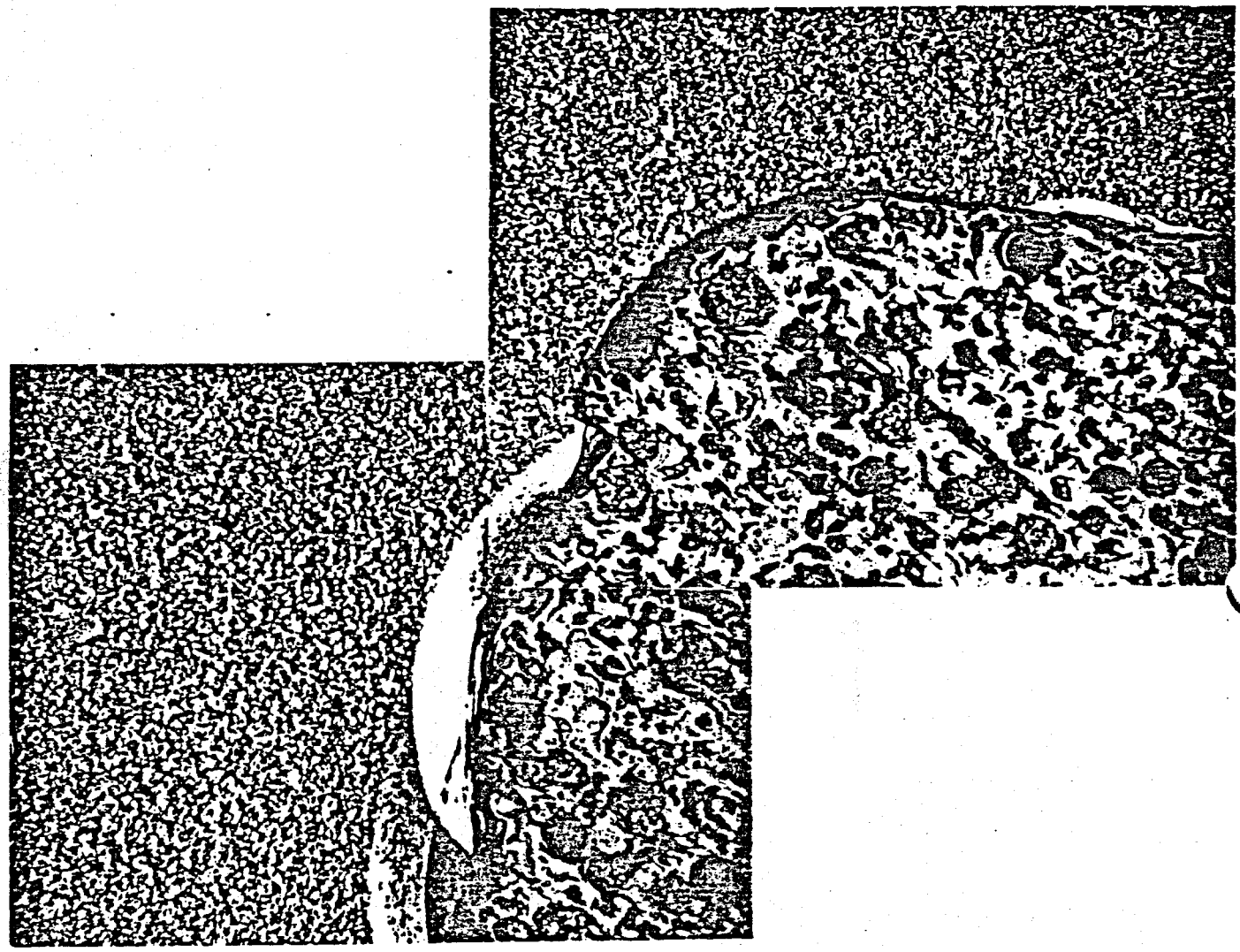
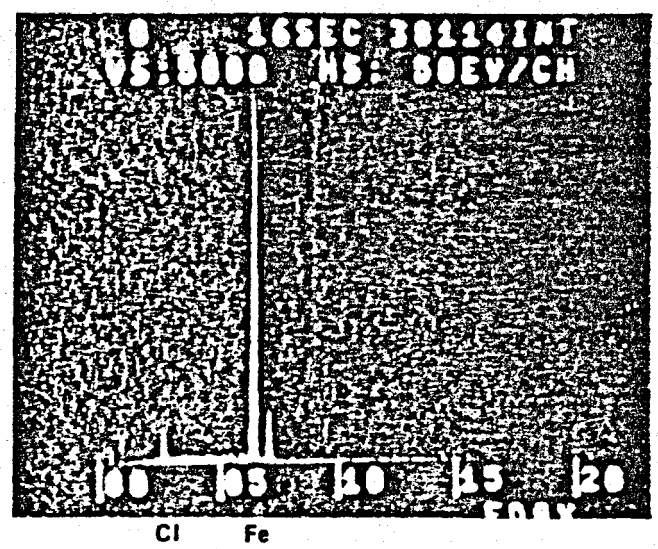


Figure 11 - Scallops of untempered (white) martensite created by intense localized frictional heating in the shoulder area, Plane A (Figure 10).

Etchant: Nital, 2%

MAG: 50X



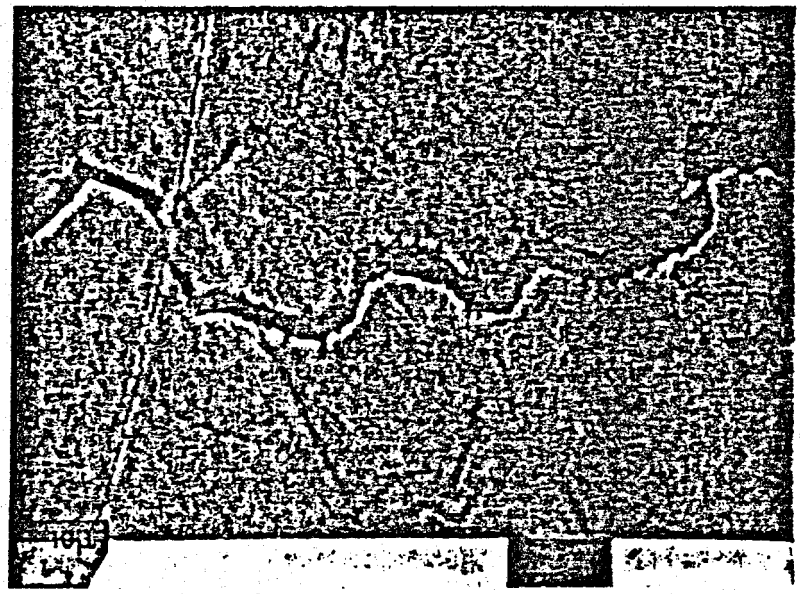


Figure 12 - EDAX spectrum from product within a branching crack.

MAG: 2000X

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TECHNADRIL-FENIX & SCISSON

TECHNICAL REMEDIAL REQUIREMENTS FOR 5-INCH PRODUCTION TUBING STRING T-F&S/DOE GLADYS McCALL NO. 1

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CAMERON PARISH, LOUISIANA

AUGUST 1982

TECHNADRIL - FENIX & SCISSON

TECHNICAL REMEDIAL REQUIREMENTS FOR 5-INCH PRODUCTION TUBING STRING

T-F&S/DOE GLADYS McCALL NO. 1

CAMERON PARISH, LOUISIANA

August 31, 1982 △1 Rev △1 8/31/82

I. SCOPE

Approximately 410 joints (approx. 16,000 ft.) of 5-inch (18 lbs./ft.) P-110 pipe and associated couplings shall be transported by Contractor (Technadril - Fenix & Scisson) from well sites (Gladys McCall and Sweetlake) in Cameron Parish, Louisiana and the Atlas Bradford yard in Houston to Subcontractor's facilities. Pins and couplings shall be cut off, gauged, tested and stored as directed herein, or by T-F&S or its designee.

Pipe joints shall be rethreaded with modified VAM threads and gauged. New special clearance couplings shall be supplied by Subcontractor, fabricated, threaded with modified VAM threads, gauged, and tested as specified herein. The new couplings shall be bucked-on to the pipe joints. Contractor shall transport pipe back to the T-F&S/DOE Gladys McCall No. 1 well site.

It should be noted that given the material specifications (high P-110 range/Q-125) for the special clearance couplings and the strength of the existing P-110 pipe, a modification of standard VAM threads is required to result in a coupling strength equal to or slightly greater than the pipe body. The required modification is to lengthen the threads by two inches on each end of the coupling and on the pins.

It should be further noted that threading of the following shall be required in addition to the pipe joints and couplings:

Five pup joints (30'-1 ea.-2',4',6',8',10') △1
Double pin sub (1) (2' length) △1
Tubing Hanger (1) (Boxthread) △1
Seal assembly (1) (Boxthread) △1

Specific methodology and procedures for certain inspection and testing are attached hereto, and shall be adhered to strictly. Any references to specifications or standards not attached hereto are incorporated herein by reference.

INSPECTION & HANDLING METHODS ⚠

DESCRIPTION	EFFECTIVE DATE
Wet Magnetic Particle Inspection	8/31/82
Rockwell Harness	8/31/82
Coupling Stock Ultrasonic Inspection	8/31/82
Drift Test	8/31/82
Hydrostatic Pressure Test	8/31/82
Handling, Transportation & Storage	8/31/82

All materials shall be of domestic manufacture.

II. TIME REQUIREMENTS

This entire job shall be completed no later than Saturday, October 2, 1982. Contractor shall transport pipe back to job site. ⚠

III. TRANSPORT PIPE AND COUPLINGS FROM LOUISIANA WELL SITES TO HOUSTON

Contractor shall tally and transport approximately 356 joints of used 5-inch pipe and couplings from the Gladys McCall well site near Grand Chenier and approximately 21 joints of new 5-inch pipe and couplings from the Sweetlake storage facility to Subcontractor's facilities in Houston.

IV. SUBCONTRACTOR CUT OFF, PROTECT, AND STORE PINS AND COUPLINGS

1) Subcontractor shall cut off all pins and couplings as follows:

   1. Buck off couplings (prior to cutting off pins) with a time/torque test machine (note that tape or disk and chart time/torque recording records are required.) ⚠

   2. Pins -- 2 inches past thread runout.

2) Install thread protectors on all cut off pins. (Use couplings) ⚠

3) Box all color-coded and numbered (painted green-numbered consecutively 1-21) new pins and couplings from the Sweetlake site, and all color-coded and numbered (painted red-numbered consecutively 22-42) used pins and couplings from the Gladys McCall site. Transfer custody of all these materials to T-F&S or its designee.

4) All remaining unpainted consecutively-numbered 43-377 cut off used pins and couplings shall be boxed and stored under cover.

5) An additional 33 joints of T-F&S used pipe and associated couplings are located currently in the Atlas Bradford yard in Houston. Contractor shall transport these materials to Subcontractor's

facilities. Subcontractor shall number consecutively from 378-410, and cut off pins and couplings. These pins and couplings shall also be boxed and stored under cover.

V. SUBCONTRACTOR RETHREADING, TREATMENT, GAUGING AND TESTING OF PIPE JOINTS

1) Pipe joints shall be rethreaded by subcontractor to modified VAM specifications for 5-inch (18 lbs./ft.) P-110 grade pipe. Threads shall be cut to complement the coupling makeup specifications--reference VI. (4) and VII.

2) All pipe joints shall be serial-numbered and the critical thread element dimensions (standoff, seal diameter, and length of seal nose at a minimum) gauged, recorded and transmitted immediately (but, in any event, prior to buck-on of new couplings) to T-F&S.

3) Perform wet magnetic particle inspection (both longitudinal and transverse on both internal and outside diameters) for a length of 18 inches from each end on each pipe joint.

4) Apply anti-gauling treatment (parkerization) to pin ends of each joint.

5) Apply uncut modified API thread dope (API Bulletin 5A2) to pin ends, install thread protectors, and store pipe joints.

VI. SUBCONTRACTOR FABRICATION, TREATMENT, THREADING, MEASUREMENT, GAUGING, AND TESTING OF NEW COUPLINGS

1) Secure AISI 4130/4132 mechanical tubing stock with the following limitations on its chemistry:

Sulfur	- 0.015% maximum
Manganese	- 0.90% maximum
Phosphorus	- 0.020% maximum
Nickel	- 0.25% maximum
Copper	- 0.35% maximum
Silicon	- 0.35% maximum

2) Heat treat (quench and temper) to a minimum 95% martensite microstructure on a cross-sectional area basis, and to the physical limitations as specified below.

Minimum Yield Strength - 120,000 psi
Maximum Yield Strength - 135,000 psi
Minimum Tensile Strength - 125,000 psi
Maximum Rockwell Hardness (HRC) - 30.9

All other specifications shall be as specified in the proposed specifications for proposed API grade Q-125 casing (reference agenda item 2075--dated May 18, 1982--copy attached.) In addition, each coupling shall be hardness tested for homogeneity.

3) Coupling stock shall be cut to length and rough machined to both internal and outside diameter dimensions. Perform ultrasonic inspection for both longitudinal and transverse defects.

4) Finish machine 5-inch modified VAM special clearance couplings to 5.40 inch O.D. maximum, and flush with the nominal bore of 5-inch (18 lbs./ft.) casing (4.276 inch I.D.)

5) All couplings shall be serial-numbered and the critical dimensions (standoff, seal diameter and depth of box at a minimum) gauged and measured, recorded, and transmitted immediately (but, in any event, prior to buck-on to pipe joints) to T-F&S.

6) Perform wet magnetic particle inspection for both longitudinal and transverse imperfections both inside and outside of each coupling.

7) Apply anti-gauling treatment (parkerization) to each coupling.

8) Lubricate and store couplings in wooden boxes.

VII. SUBCONTRACTOR ASSEMBLY AND TESTING

Pins and boxes shall be color-coded by Subcontractor based upon the recorded critical thread dimensions, and a stress analysis which will limit the maximum tensile hoop stress in couplings at service conditions (6,000 psi differential pressure) to 80% of the specified minimum yield strength (i.e., to 96,000 psi.) Like colors shall not be mated at mill buck-on, or in the field, to preclude excessive hoop stresses.

1) Buck-on selected pins and boxes to minimize the number of color-coded field pins and boxes. A torque-turn/time device giving a clear indication of the beginning of thread interference, seal engagement, shoulder torque and final torque shall be used to record buck-ons. A permanent record (magnetic tape or floppy disc as well as a chart of each joint) shall be provided to T-F&S prior to shipment to the well site. Makeup parameters such as doping specifications, maximum RPM, seal engagement parameters, minimum/maximum shouldering torque and minimum/maximum final torque shall be established prior to makeup, and adhered to strictly.

2) API drift testing shall be performed.

3) All joints shall be hydrostatically tested at 10,000 psi for a minimum period of 15 seconds. A pressure recorder with sufficient time resolution to clearly show each joint shall be used.

4) Clean boxes and pins, visually examine, dope, and install thread protectors.

VIII. CONTRACTOR TRANSPORT OF FINISHED PIPE AND COUPLINGS TO THE WELL SITE

Contractor shall transport finished pipe and couplings to T-F&S/DOE Gladys McCall No. 1 well site in Cameron Parish, Louisiana by no later than Saturday, October 2, 1982. △

IX. DOCUMENTATION

Documentation evidencing compliance with all specifications and standards shall be required as delineated in an attachment hereto.

Larry R. Durrett
For T. E. Goebel
Program Manager
Technadril-Fenix & Scisson

SECTION I
SCOPE

1.1 COVERAGE

This standard covers the Quality Assurance Program for completely manufactured new casing and tubing intended for critical service applications.

1.2 DESIGNATION

The determination of a well as "critical service" will be made by the Engineering Department and noted on the AFE.

1.3 PURPOSE

The need for an engineered Quality Assurance (Q.A.) Program for Oil Country Tubular Goods has been recognized in the oil industry for a number of years. This system permits flexible and effective quality control (Q.C.) evaluations to be performed upon an already manufactured, "off the shelf" product. It is also used in situations where the monitoring or alteration of the manufacturer's quality control program would be disruptive or ineffective.

Since various types of inspections are needed for the tubing and couplings of the DOE/Gladys McCall No. 1, various types of quality control procedures will be required. These are described in this standard.

1.4 AUTHORIZATION

This standard will become effective on August 31, 1982 by the authority of Larry R. Durrett, Testing Manager.

1.5 IMPLEMENTATION

Subsequent to the effective date the term "TD-001" or Quality Assurance Program will mean full implementation of the provisions contained in this standard. Unless specifically authorized in writing by Technadril-Fenix & Scisson or their designated representative, no deviation from this standard is permitted.

SECTION II
INSPECTION PROCESSES

2.1 SCOPE

This section describes the types of inspections which are available for new casing and tubing. Unusual well conditions or materials may require different procedures. These will always be specified on the purchase order.

2.2 CLASSIFICATION OF MATERIAL

New: Material which has never been in service.

Used: Material which has been in service or new material which has severely weathered (corroded) in storage. Used materials are within the scope of this standard only as specified by the owner.

2.3 DESCRIPTION OF INSPECTIONS

Type	Code	Description
2.3.01	FLD	Full length drift to API special sizes.
2.3.02	SEA	Residual field magnetic particle inspection of the pipe end (inside and outside) for longitudinal and transverse defects, with a visual thread examination and remaining wall verification with hand ultrasonic thickness gauge as required.
2.3.03	GTM (APITG)	Mechanical gauging of threads for diameter (stand-off), ovality, taper, lead and thread profile, (height, pitch, form, etc.).
2.3.04	EMI	Electromagnetic inspection of the body wall by an active magnetic field* for the detection of longitudinal and transverse defects incorporating a radiometric wall thickness measuring device and a grade verifier. Verification of body wall with a hand ultrasonic thickness gauge.

*Some EMI units may use a residual magnetic field, induced by the inspection unit, for detection of longitudinal-oriented defects.

2.3.05	FLMPI	Full length magnetic particle inspection of the O.D. surface for longitudinal-oriented defects using a residual transverse magnetic field. Verification of the body wall with a hand ultrasonic thickness gauge.
2.3.06	UWL	Ultrasonic shear wave inspection for weld line defects, (applied to ERW materials only).
2.3.07	URW	Determination of remaining body wall thickness by an ultrasonic thickness gauge at mill and/or after conditioning grinds.
2.3.08	UTFL	Continuous full length ultrasonic inspection utilizing multiple transducers with shear waves for longitudinal and transverse-oriented defects and compressive waves for wall thickness.
2.3.09	BHN	Measurement of the hardness of pipe or couplings by the Brinell test method. The Brinell hardness test is based on the size indentation a hard ball creates when it is forced into the surface of a test material.
2.3.10	HYD (Tested X psi for Y sec)	Hydrostatic pressure testing to 80% of minimum yield (full test pressure) or maximum leak pressure as required by joint design.
2.3.11	VTI (VEP)	Visual examination of the pipe body and/or visual examination of cleaned threads to determine general serviceability.
2.3.12	CP/SP	Cleaning (rattle and blow or brush) and/or oil coating as required to prepare the pipe for inspections, storage and/or service.
2.3.13	WMP	Wet magnetic particle inspection of the machined portion of proprietary connectors (threads) on highly critical service material.

2.3.14	HTS	Requirements for the handling, transporting, and shipping highly critical service material.
2.3.15	EFP	Fluorescent liquid penetrant inspection of the machined portion of proprietary connectors (threads) on highly critical service material.
2.3.16	UPU	Ultrasonic determination of extent of volumetric defects detected by EMI or UTFL.
2.3.17	SPG	Analysis of material elements for verification of critical service materials.
2.3.18	ACU	AccuThread is a gauging system (proprietary to Coulter-Mustang Services) which permits precision measurements of API threads in the shop or field. Due to the criticality of strings in wells with severe service conditions AccuThread will be used to evaluate the threaded connections.
2.3.19	UTC	Ultrasonic inspection of coupling stock to assure material is free from imperfections or defects which would affect the final machining and/or serviceability of the couplings.
2.3.20	HRC	Measurement of the hardness of pipe or couplings by the Rockwell C method. The Rockwell C test is based on the size of the indentation a diamond indentor creates when it is forced into the surface of a test material.

2.4 IDENTIFICATION OF INSPECTED ITEMS

All inspected casing and tubing (and couplings if boxed separately) will be identified in a uniform manner as described in API RP 5A5, Section 6 of the "Recommended Practice for Field Inspection of New Casing, Tubing and Plain End Drill Pipe," "Identification of Inspected New Tubular Good and Couplings," dated March 1982.

2.5 NOMENCLATURE

Wherever possible the terms and definitions as developed in API RP 5A5, Section 6, referenced above, and API BUL 5T1 (API Bulletin on Nondestructive Testing Terminology), will be utilized in this standard.

SECTION III
INSPECTION SCHEDULES

3.1 SCOPE

This section lists the specific inspection processes which are to be utilized for the DOE/Gladys McCall No. 1 service conditions.

3.2 INSPECTION SCHEDULE

The required inspections for the product type(s) shall be as shown in Appendix A to TD-001.

3.3 INSPECTION ORDER

The sequence of inspections for each product type is defined in Appendix B to TD-001.

3.4 SPECIAL COLOR CODE REQUIREMENTS

3.4.1 In addition to API color coding described in API RP 5A5, Section 6, materials purchased under this specification shall be marked per Technadril-Fenix & Scisson requirements listed in Appendix C to TD-001.

SECTION IV
RECORDS

4.1 SCOPE

This section describes the records which are required to be prepared and forwarded to Technadril-Fenix & Scisson. In general, records are prepared by the inspection/testing company and are reviewed for concurrence by the owner's Quality Assurance Engineering (Q.A.E.) department or consultants.

4.2 GENERAL

4.2.1 All inspection records shall identify the individual materials inspected (i.e., casing and tubing should be listed by joint number, couplings should be listed by piece number).

4.2.2 All inspection records shall show the actual date of inspection.

4.2.3 Each inspection record shall show the name(s) of the inspector(s) responsible for performing and evaluating the inspection.

4.2.4 Each inspection record shall show the results of the inspection (actual findings and status, i.e. accept, reject, indeterminate).

4.2.5 Records shall be legible, identifiable, traceable and retrievable.

4.2.6 Each inspection record shall show the governing code, standard, or procedure.

4.3 RECORD RETENTION

4.3.1 Chart recordings, fully traceable to each item, shall be retained by the inspection company for a minimum of 2 years after the date of inspection.

4.3.2 All other inspection records shall be maintained for a minimum of four years after the date of inspection.

4.4. RECORD TRANSMITTAL

4.4.1 After each shift, inspection companies shall transmit copies of their inspection records to the Q.A.E. representative(s).

4.4.2 Weekly, the Q.A.E. representative(s) shall transmit the past week's inspection records and accompanying Q.A. reports to Technadril-Fenix & Scisson.

4.4.3 Upon completion of purchase order items, the Q.A.E. representative(s) will transmit a final report to Technadril-Fenix & Scisson.

PRODUCTION TUBING

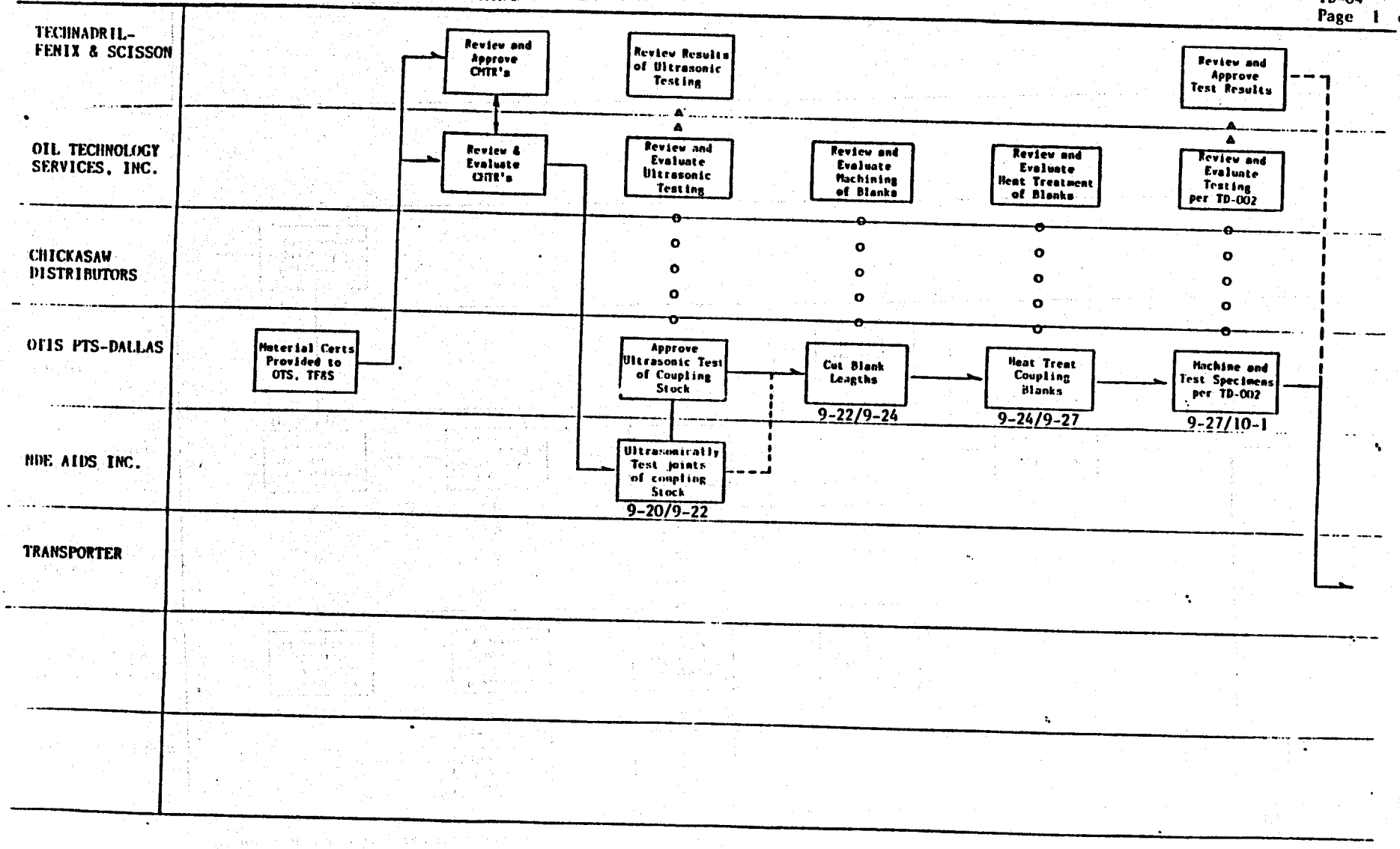
REMEDIAL INSPECTION SCHEDULE

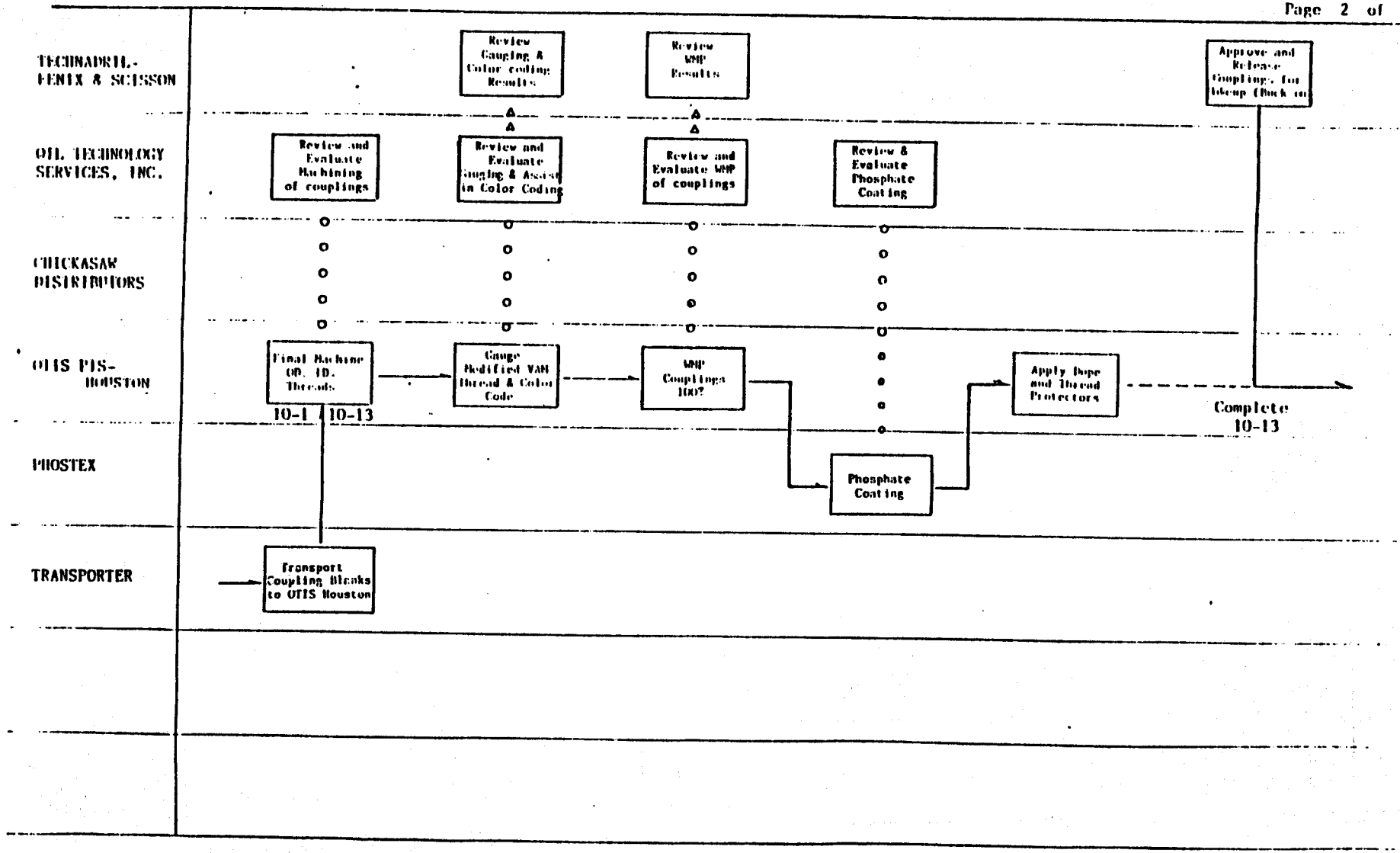
APPENDIX A

DESCRIPTION	FLD	SEA	GTM	EMI	FLMPI	UWL	UTC	HRC	HYD	VTI	WMP	HTS	EFP	ACU	
5" 18# P-110 VAM	*								*		*	*			
Couplings							*	*			*	*			

MODIFIED VAM COUPLING FABRICATION SCHEDULE

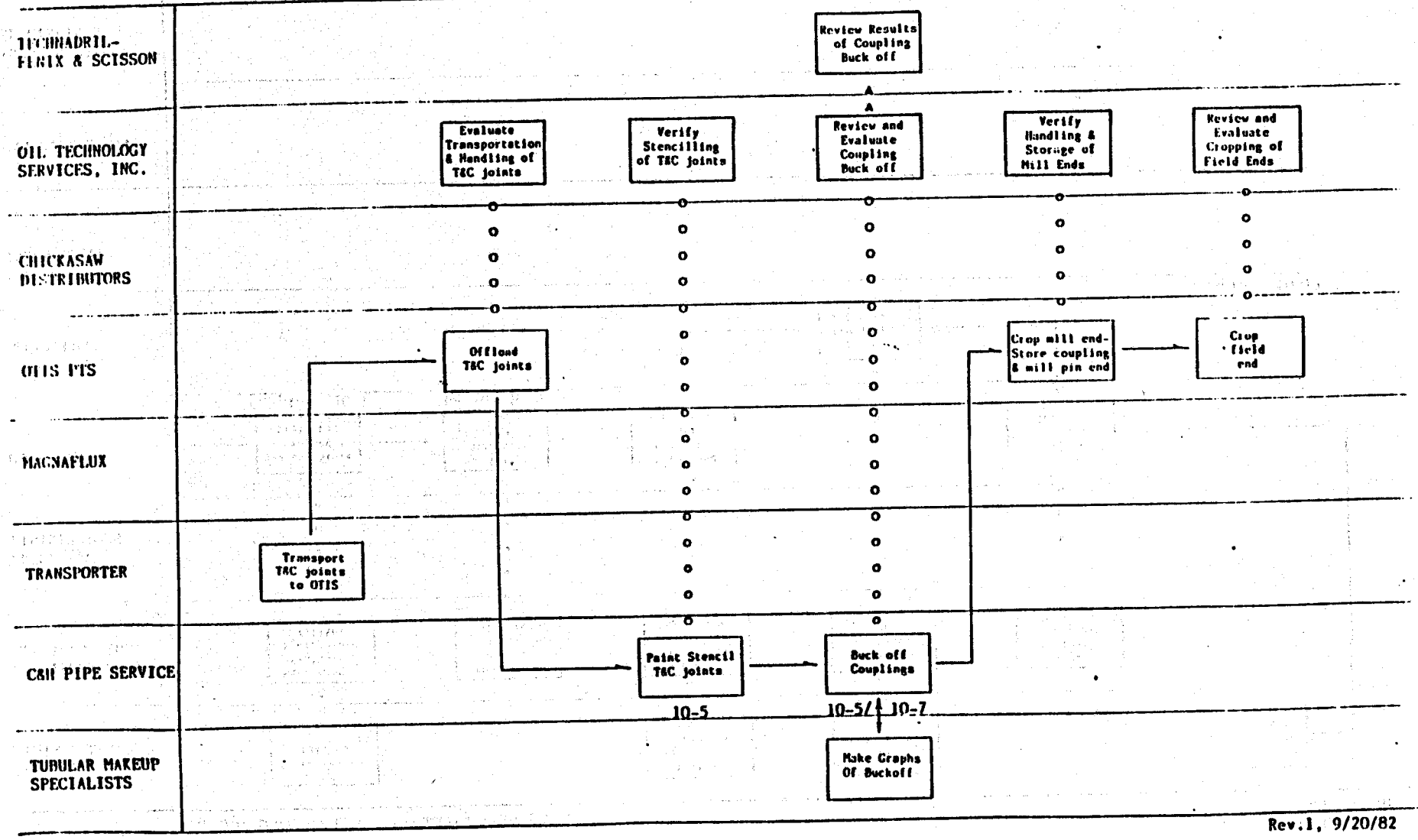
TF&S/DOE GLADYS MCCALL #1 5" PRODUCTION TUBING STRING




TECHNADRIL-
FENIX & SCISSON
OIL TECHNOLOGY
SERVICES, INC.
CHICKASAW
DISTRIBUTORS
OTIS PIS-
HOUSTON
PHOSTEX
TRANSPORTER
Review Gauging & Color coding Results
Review WMP Results
Approve and Release Couplings for Makeup (Back on
Review and Evaluate Machining of couplings
Review and Evaluate Gauging & Assist in Color Coding
Review and Evaluate WMP of couplings
Review & Evaluate Phosphate Coating
Final Machine OD, ID, Threads
10-1 10-13
Gauge Modified VAM Thread & Color Code
WMP Couplings 100?
Apply Dope and Thread Protectors
Complete
10-13
Phosphate Coating
Transport Coupling Blanks to OTIS Houston

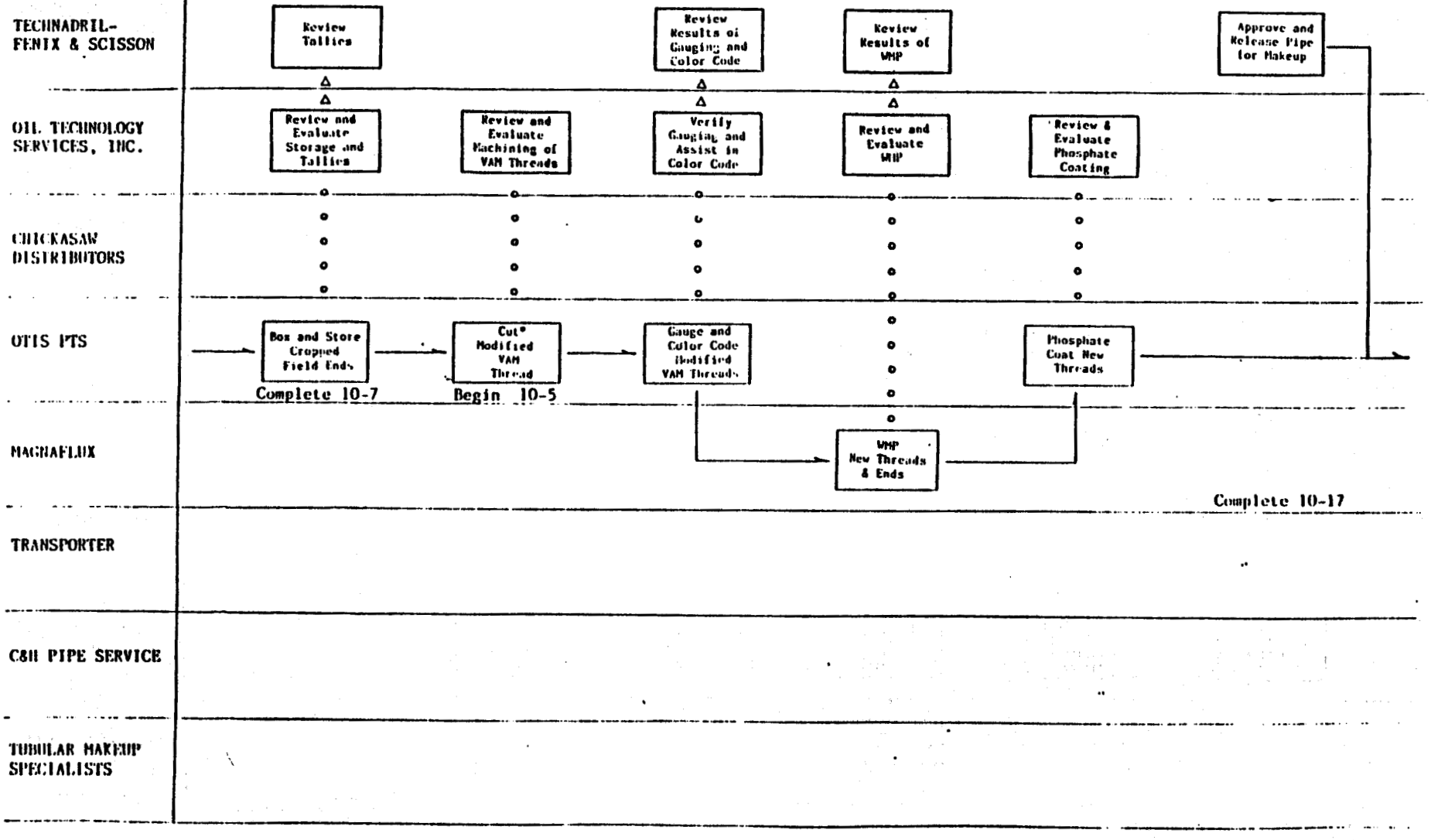
PROFILED VAM PIPE RELOADING FABRICATION SCHEDULE

T&S/ROE GLADYS MCCALL #1 5" PRODUCTION TUBING STRING



MODIFIED VAM PIPE RETHREADING FABRICATION SCHEDULE

T1&S/DOE GLADYS MCCALL #1 5" PRODUCTION TUBING STRING

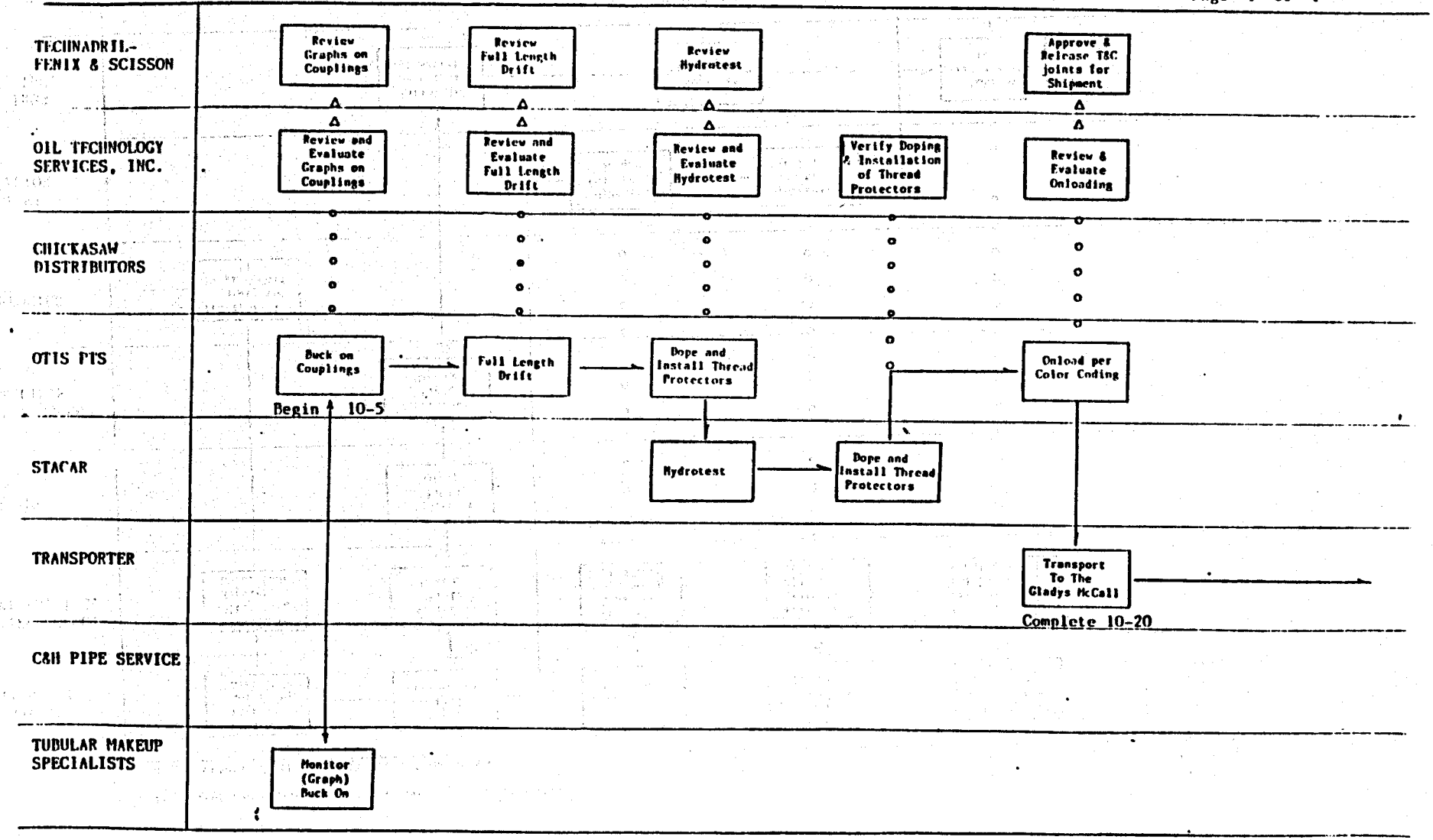


* also cut pup joints, double pin sub, tubing hanger, and seal assembly

Rev.1, 9/20/82

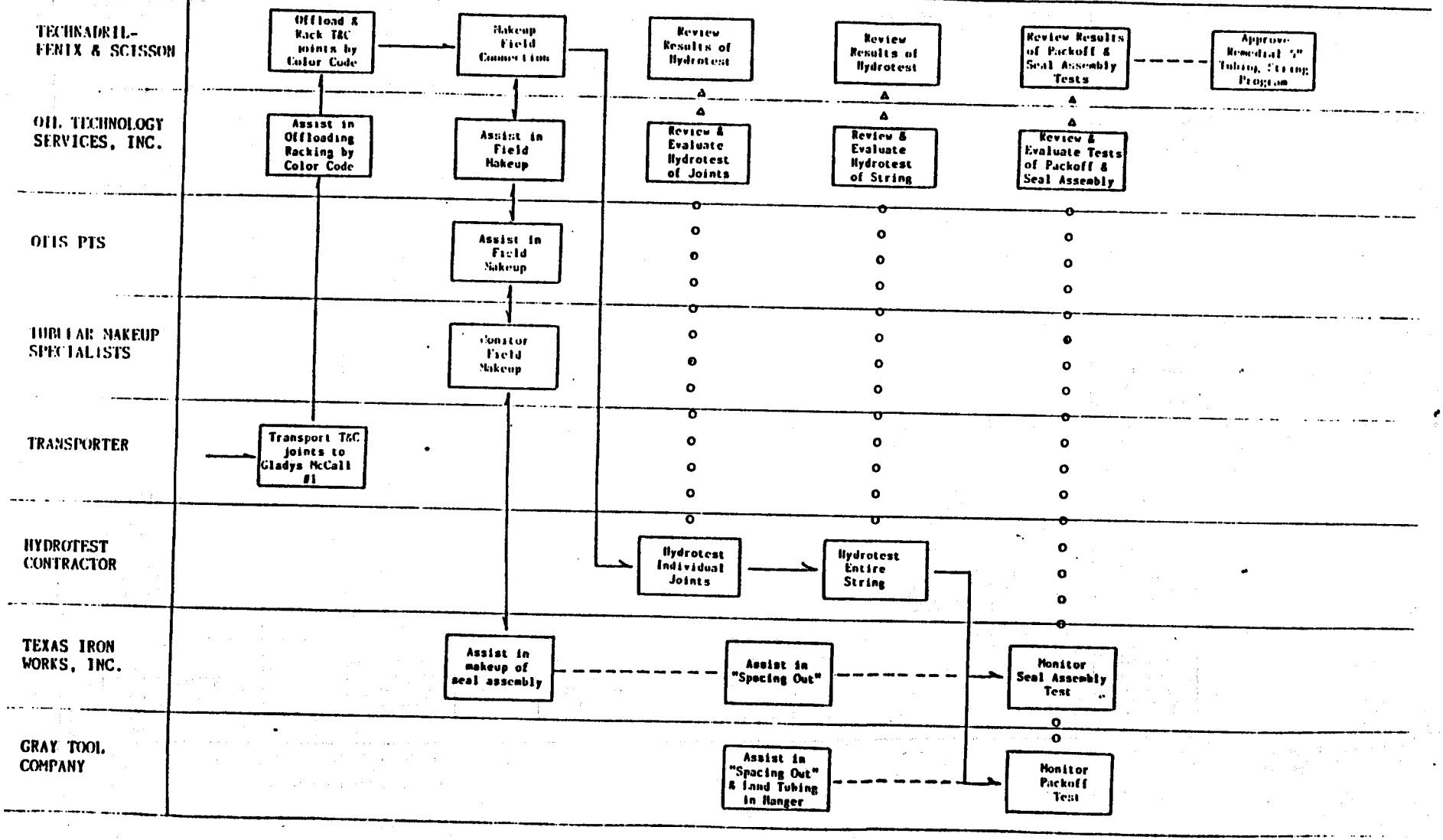
FABRICATION (MILL) MAKEUP AND TESTING SCHEDULE FOR MODIFIED VAM PIN & COUPLING

TEAS/DOE GLADYS MCCALL #1 5" PRODUCTION TUBING STRING

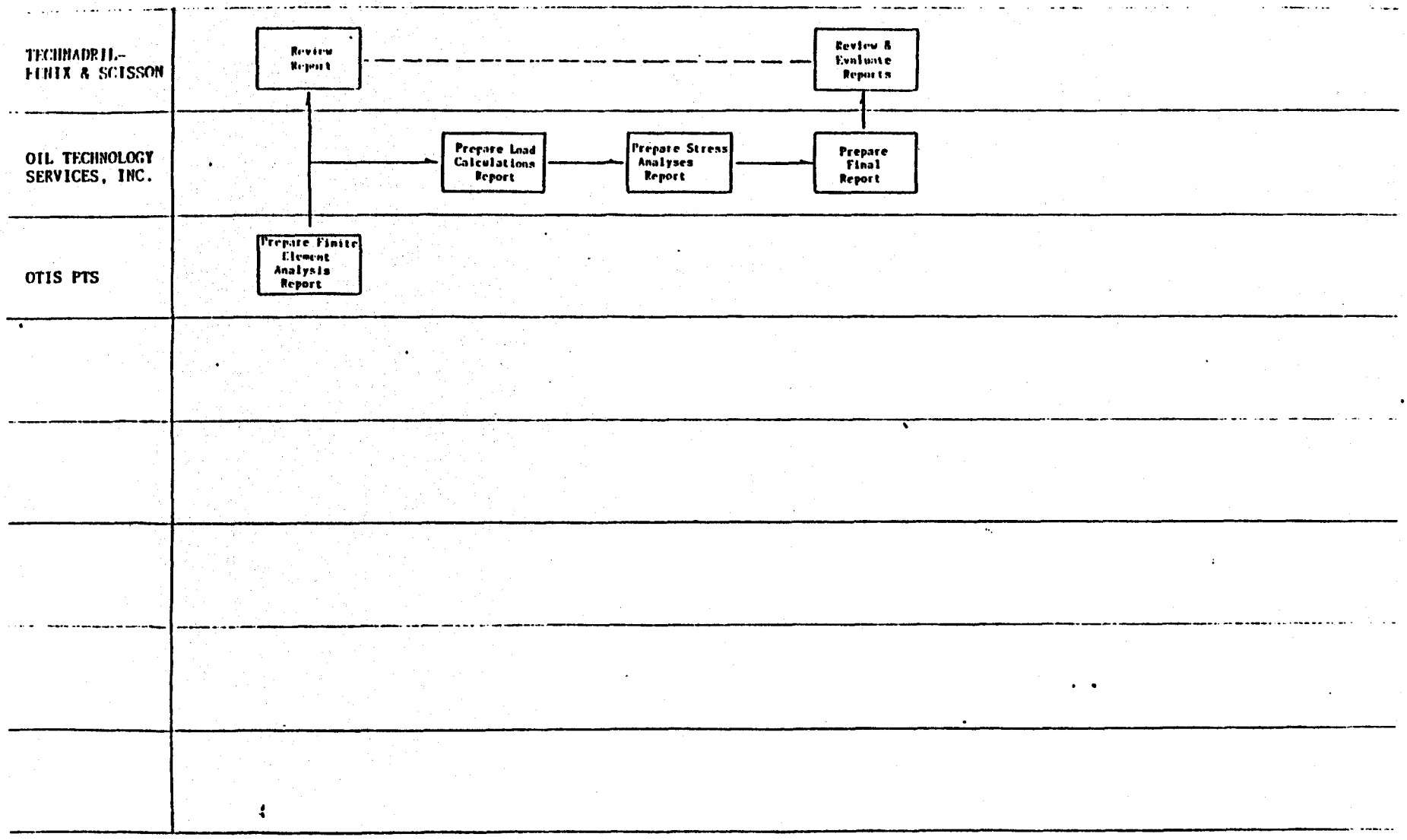


FIELD MAKEUP AND TESTING SCHEDULE FOR MODIFIED VAM PIN & COUPLING

EAS/DOE GLADYS MCCALL #1 5" PRODUCTION TUBING STRING



MODIFIED VAM PIN & COUPLING GEOMETRIES SCHEDULE T&S/DOE CLADY: DETAIL OF 5" PRODUCTION TUBING STRING



SURVEILLANCE

1.0 GENERAL

1.1 An effective quality assurance program requires that the inspection performed on the materials are conducted in an efficient manner. For this purpose and to obtain timely data, Technadril-Fenix & Scisson will utilize surveillance agents (QAE representatives) to supervise the inspection services performed on the designated material. This will insure the optimum performance possible from the inspection service company selected, their personnel, and the particlular inspection equipment and techniques utilized. To aid in the evaluation of NDE companies, ASTM E543 shall be used as a guideline.

2.0 EQUIPMENT VERIFICATION

2.1 Prior to inspecting any materials, the surveillance agent shall witness a procedure qualification test utilizing the appropriate inspection equipment and calibration standards. The equipment calibration and performance shall be documented and evaluated.

2.2 Prior to inspecting any materials, the surveillance agent shall verify that the inspection equipment has been calibrated by the manufacturer or an approved calibration service within the time interval prescribed by the manufacturer.

2.3 At the start of each shift and periodically throughout the shift, as specified in each specific inspection standard, the surveillance agent shall verify that all inspection equipment is functioning properly.

2.3.1 Any equipment that is not functioning properly at the beginning of a shift or during a shift shall be repaired or replaced; any such failures shall be documented.

2.3.2 If equipment is found to be malfunctioning during a shift, all materials inspected since the last equipment calibration shall be reinspected once the equipment is repaired or replaced.

2.4 The surveillance agent shall witness all equipment calibrations.

3.0 PERSONNEL VERIFICATION

3.1 The surveillance agent shall verify that each inspection company performing inspection of tubular goods has a written procedure for training and certifying its inspection personnel.

3.2 The surveillance agent shall verify that each inspector is qualified and certified to perform his inspection.

3.3 The surveillance agent may require the inspection company to demonstrate that an inspector has the capabilities to perform assigned tasks.

4.0 OPERATING RESPONSIBILITIES

4.1 Establish contact with the inspection service company and other personnel who may be involved in the project, through a pre-job conference.

4.2 Verify on-site the specific lots of material to be inspected.

4.3 Verify with the inspection company the inspection services required and the specifications to be followed.

4.4 Visually inspect all material for obvious defects.

4.5 Verify that all inspection equipment to be used is functioning properly.

4.6 Witness all equipment calibrations on initial set-up, during the scheduled re-calibrations and following any shut-down.

4.7 Assure that all inspection procedures are carried out under satisfactory weather conditions and sufficient light, if indoors or at night.

4.8 Continually monitor every inspection procedure during the entire inspection operation.

4.9 Verify all defect locations, severity and final classification in accordance with specifications being employed.

4.10 Verify performance of recording inspection equipment by comparing physical evidence or material with tape readout of unit or other comparison as appropriate.

4.11 Assure an early warning if material reject rate is high or if insufficient material will be available for use.

4.12 If required by the owner, assure that all ground areas are coated with a preservative that will prevent corrosion.

4.13 Verify tally of all serviceable and rejected material.

4.14 Insure each length has proper identification at each stage of the inspection including all stencils and color bands. DO NOT PRE-STENCIL!.

4.15 Insure proper care of all tubular goods at all times including final racking of pipe and boxing of couplings for storage or preparation for transporation to rig.

5.0 REPORTING RESPONSIBILITIES

5.1 On a daily basis the surveillance agent shall notify Technadril-Fenix & Scisson of inspection progress, material status, and any problems incurred (high reject rate, malfunctioning equipment, handling problems, etc.).

5.2 On high volume projects, the surveillance agent shall transmit weekly the past week's inspection records and accompanying surveillance reports to Technadril-Fenix & Scisson.

5.3 When the inspections for individual purchase order items are completed the surveillance agent shall prepare and submit a final report which shows the following:

5.3.1 Material inspected.

5.3.2 Personnel employed.

5.3.3 Inspection procedures utilized.

5.3.4 Inspection specifications and/or standards used.

5.3.5 Summary of inspection results.

5.3.6 Nature and severity of defects.

5.3.7 General comments.

5.3.8 Summary of material available for use.

5.3.9 Copies of relevant reports.

Technadril-Fenix & Scisson
SPECIFICATIONS
For
COUPLINGS

1.0 SCOPE

This specification covers the requirements for oilfield country tubular goods couplings to be used in the Technadril-Fenix & Scisson DOE/Gladys McCall No. 1.

2.0 GENERAL SPECIFICATIONS

2.1 For proposed API Grade Q-125, the couplings shall meet the proposed API Specification for Q-125 casing (agenda item 2075--dated 5/18/82).

2.2 In the event of conflict, this specification shall govern.

3.0 PRODUCT DESCRIPTION

3.1 The couplings shall be as shown in Appendix "A".

4.0 MATERIALS

4.1 Chemical Analysis

4.1.1 The chemical analysis shall be reported for each heat and/or lot of the material to be used for coupling stock.

4.1.2 The chemical requirements of the materials shall be in accordance with the proposed API Specification Q-125, except the materials shall be made from AISI 4130 chromium-molybdenum steels with .015% maximum Sulfur (S), 0.90% maximum Manganese (Mn), and .020% maximum Phosphorous (P).

4.1.3 The following limits on the steel chemistry are suggested:

	C	Mn	Cr	Mo	Ni	Cu	P	S	Si
	%	%	%	%	%	%	%	%	%
Minimum	0.20	0.35	0.80	0.15	--	--	--	--	--
Maximum	0.35	0.90	1.50	0.75	0.25	0.35	0.02	0.015	0.35

4.2 Physical (Mechanical) Properties

4.2.1 A physical material test report (tensile, hardness, impact) shall be provided for each joint of coupling stock material.

4.2.2 Tensile Properties

4.2.2.1 Tensile testing shall be in accordance with the proposed API Specification Q-125 and ASTM A370.

4.2.2.2 The test specimens shall be removed from one end of the joint of coupling stock material. At least two test specimens shall be checked. (See Appendix "B").

4.2.2.3 The tensile requirements shall be as shown in Appendix "C".

4.2.3 Hardness Properties

4.2.3.1 Hardness testing shall be in accordance with ASTM E18.

4.2.3.2 A four quadrant, nine point HRC test, consisting of three (3) impressions near (1) the outside surface, (2) at mid-wall, and (3) near the inside surface, in four quadrants 90 apart, will be performed and recorded wherever a tensile test is taken. (See Appendix "B").

4.2.3.3 The hardness requirements shall be as shown in Appendix "C".

4.2.4 Impact Properties

4.2.4.1 Transverse impact testing shall be in accordance with ASTM E23.

4.2.4.2 One test set (3 specimens) shall be taken from material adjacent to the tensile test specimens at the same test frequency on one end of each piece as the tensile specimens. (See Appendix "B").

4.2.4.3 The impact requirements shall be as shown in Appendix "C".

4.3 Microstructure

4.3.1 The materials shall be quenched and tempered to obtain a 95% martensitic structure (on a cross-sectional area basis).

4.3.2 One test shall be performed on each joint of coupling stock material.

4.3.3 Photomicrographs shall be provided for each test.

4.4 Process of Manufacture

4.4.1 Couplings made from Q-125 Grade materials must be made from seamless mechanical tubing, no bar stock is allowed.

5.0 NONDESTRUCTIVE EXAMINATION

5.1 All coupling stock shall be ultrasonically examined and evaluated in accordance with procedure TD-2.3.19, Revision 0.

5.2 All couplings shall be wet magnetic particle examined and evaluated in accordance with procedure TD-2.3.13, Revision 0.

5.3 All threaded surfaces shall be visually inspected and gauged by the threader.

6.0 NONCONFORMING MATERIALS

6.1 Any nonconforming conditions shall be reported to the owner immediately.

6.2 Repairs shall not be performed on any material without the written permission of the owner.

7.0 TRACEABILITY

7.1 Every joint of coupling stock material shall be numbered in numerical sequence following the tempering operation.

7.2 Every joint of coupling stock material shall be traceable to heat and/or lot numbers.

7.3 All records shall be traceable to the unique products shown in Appendix "A".

8.0 NOTIFICATION AND OWNER'S ACCEPTANCE

8.1 The vendor shall notify the owner at least forty-eight hours prior the commencement of production to allow time for mobilization of the owner's Quality Assurance Engineering representative(s).

8.2 Couplings will be examined and evaluated by the owner's Quality Assurance Engineering representative(s) for compliance with these specifications at all stages of the manufacturing and delivery process. These actions shall in no way relieve the vendor of his responsibilities for compliance with these specifications.

8.3 The owner's Quality Assurance Engineering personnel shall operate independently of the vendor's examinations, inspections, and tests and shall have free access to all parts of manufacturing and testing facilities and mill records pertaining to this order.

9.0 RECORDS

9.1 Complete mill test reports shall be furnished to the owner in the number specified on the purchase order. Mill test reports shall include results of ladle and mill control and product chemical analysis, all standard API specification tests and all special tests required by the specification.

9.2 Ultrasonic and wet magnetic particle examination reports shall also be supplied to the owner.

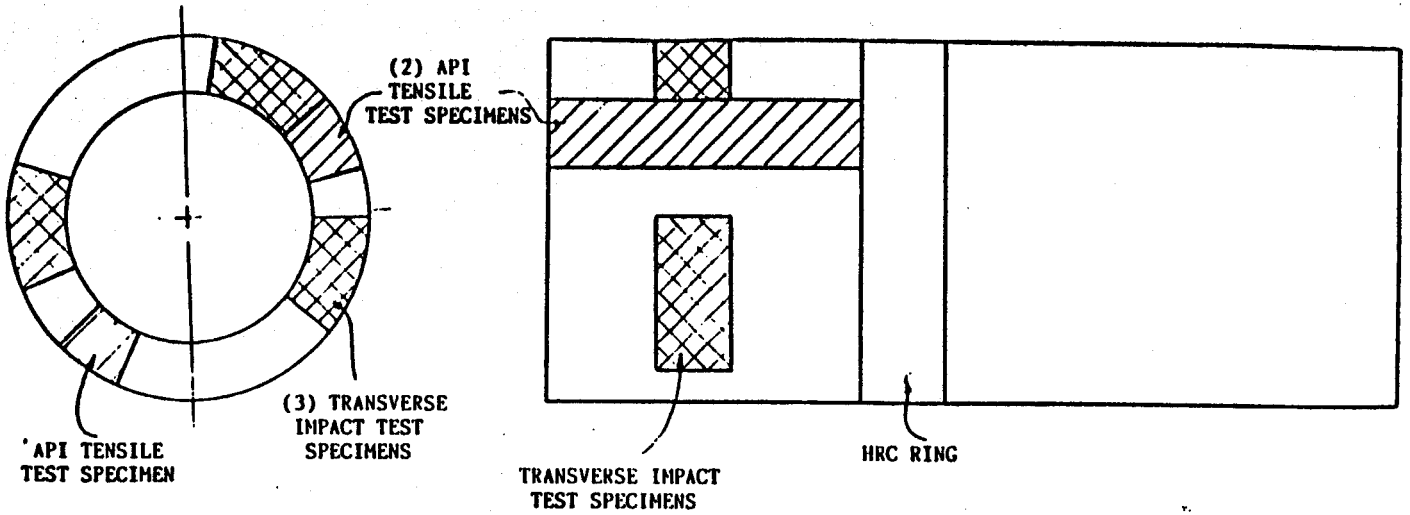
9.3 Examination and test results, insofar as possible, shall be in the form of numerical values utilizing customary United States units. All reports shall be in the English Language.

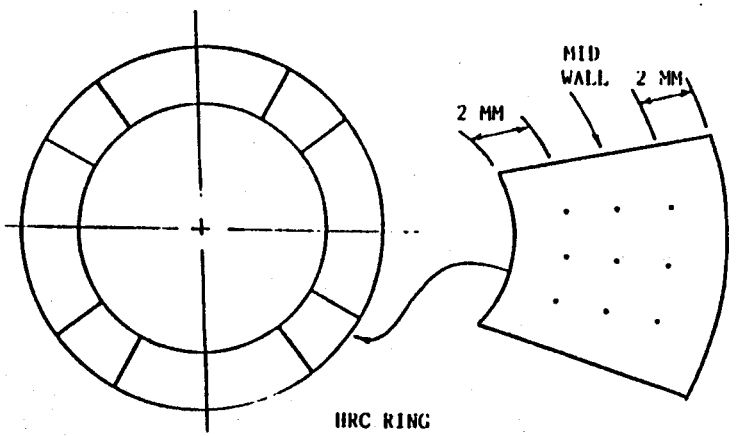
APPENDIX "A"
PRODUCT DESCRIPTION

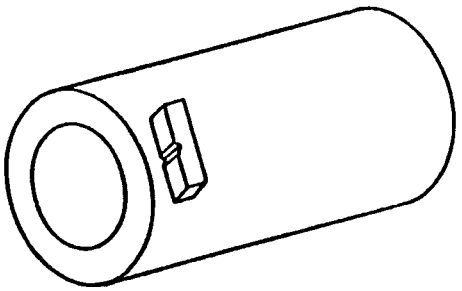
TO BE FURNISHED BY OTIS PTS

TECHNADRIL-FENIX & SCISSON

APPENDIX "B"
COUPLING STOCK
TEST SPECIMEN SELECTION







TRANSVERSE
IMPACT TEST
SPECIMEN

CHNADRIL-FENIX & SCISSON

APPENDIX "C"
PHYSICAL PROPERTIES

Grade	Yield Strength		Tensile Strength	Hardness Max.		Impact		
	Minimum	Maximum	Minimum	HRC	BHN	Temp.	Set Avg.	Minimum
*	120,000	135,000	125,000	30.9	293	75°±5°F	-	20 ft. lbs.

MADRIL-FENIX & SCISSON

Retail Trade

62-36-5220	Building materials dealers	1
62-36-5251	Hardware stores	1
62-36-5265	Garden supplies and mobile home dealers	1
62-37-5300	General merchandise stores	1
62-38-5400	Food stores	1
62-39-5541	Gasoline service stations	2
62-39-5598	Other automotive dealers	1
62-40-5600	Apparel and accessory stores	1
62-41-5700	Furniture and home furnishings stores	1
62-42-5800	Eating and drinking places	1
62-43-5912	Drug stores and proprietary stores	1
62-43-5921	Liquor stores	1
62-43-5995	Other retail stores	1
62-44-5997	Wholesale and retail trade not allocable	1

Services

80-52-7000	Hotels and other lodging places	1
80-53-7200	Personal services	2
80-54-7310	Advertising services	1
80-54-7389	Business services, except advertising	2
80-55-7500	Auto repair and services	1
80-55-7600	Miscellaneous repair services	1
80-56-7812	Motion picture production, distribution, and services	2
80-56-7830	Motion picture theaters	2
80-56-7900	Amusement and recreation services, except motion pictures	3
80-57-8015	Physicians' services	1
80-57-8021	Dentists' services	0.4
80-57-8050	Nursing and personal care facilities	1
80-57-8071	Medical laboratories	2
80-57-8099	Other medical services	1
80-57-8111	Legal services	0.4
80-57-8200	Educational services	1
80-57-8599	Miscellaneous services, not elsewhere classified	1

40-25-3698	Other electrical equipment	2
40-26-3710	Motor vehicles and equipment	1
40-27-3725	Aircraft, guided missiles and parts	1
40-27-3730	Ship and boat building and repairing	2
40-27-3798	Other transportation equipment, except motor vehicles	2
40-28-3815	Scientific instruments and measuring devices; watches and clocks	2
40-28-3845	Optical, medical, and opthalmic goods	4
40-28-3860	Photographic equipment and supplies	7
40-29-3998	Miscellaneous manufacturing and manufacturing not allocable	2
	Transportation And Utilities	
50-30-4000	Railroad transportation	2
50-30-4100	Local and interurban passenger transit	1
50-30-4200	Trucking and warehousing	1
50-30-4400	Water transportation	3
50-30-4500	Transportation by air	1
50-30-4600	Pipe lines, except natural gas	3
50-30-4700	Transportation services, not elsewhere classified	1
50-31-4825	Telephone, telegraph, and other communication services	3
50-31-4830	Radio and television broadcasting	5
50-32-4910	Electric services	2
50-32-4920	Gas production and distribution	3
50-32-4930	Combination utility services	1
50-32-4990	Water supply and other sanitary services	2
	Wholesale Trade	
61-33-5004	Groceries and related products	1
61-34-5008	Machinery, equipment, and supplies	2
61-35-5010	Motor vehicles and automotive equipment	1
61-35-5030	Lumber and construction materials	1
61-35-5050	Metals and minerals, except petroleum and scrap	2
61-35-5060	Electric goods	1
61-35-5070	Hardware; plumbing, and heating	1
61-35-5098	Other durable goods	1
61-35-5110	Paper and paper products	1
61-35-5129	Drugs, chemicals, and allied products	2
61-35-5130	Apparel, piece goods, and notions	1
61-35-5150	Farm-product raw materials	1
61-35-5170	Petroleum and petroleum products	1
61-35-5180	Alcoholic beverages	1
61-35-5190	Miscellaneous nondurable goods; wholesale trade not allocable	1

COUPLING STOCK ULTRASONIC INSPECTION (UTC)

1.0 GENERAL

1.1 Ferromagnetic coupling stock requires an ultrasonic inspection to detect pipe body longitudinal defects, transverse defects, and wall thinning prior to machining. A readout (strip-chart) of the coupling inspection indicating the imperfections that are detected shall be produced by the ultrasonic unit.

2.0 EQUIPMENT REQUIREMENTS AND CALIBRATION

2.1 The ultrasonic unit shall be of the pulse-echo type, capable of producing frequencies in the 1 Mhz to 5 Mhz range. The unit shall also be equipped with a strip-chart recorder. All calibration and production runs shall be recorded.

2.2 The unit shall be capable of clearly showing indications in the reference standards.

2.3 Transducers shall nominally be 4.0 Mhz. Minimum size shall be 1/2" x 1.0".

2.3.1 Transducers shall be of the two piece style with removable plastic shoes.

2.3.2 Compression (longitudinal) wave transducers shall introduce waves into the couplings that are normal to the outside and inside circumferences.

2.3.3 Shear wave transducers shall be 45° +/- 2 . The angle shall be checked every 4 hours of operating time as a minimum. Sanding is permitted on the plastic shoes to achieve the permitted angle. Transducer angle shall be checked on the IIW reference block.

2.4 Couplant shall be water.

2.5 Calibration Standards.

2.5.1 Thickness Gauging

2.5.1.1 The calibration standard shall be made from stock with the same diameter, wall thickness, and metallurgical properties as the coupling stock being inspected. The standard shall contain no defects and shall be of full wall thickness before machining.

2.5.1.2 The calibration standard shall be machined on the I.D. in two separate areas to reduce the wall thickness in accordance with Figure 1.

2.5.2 Flaw Detection

2.5.2.1 The calibration standard shall be made from stock with the same diameter, wall thickness, and metallurgical properties as the coupling stock being inspected. The standard shall contain no defects and shall be of full wall thickness before machining.

2.5.2.2 The calibration standard shall have notches machined and/or holes drilled to provide artificial defects. Machining of notches and drilling of holes shall be done in accordance with Figure 2.

2.6 Calibration

2.6.1 Thickness Gauging

2.6.1.1 Instrument shall be calibrated so that the values obtained from the reference standard are plus (+) or minus (-) two percent of the thickness measured.

2.6.2 Flaw Detection

2.6.2.1 The instrument shall be calibrated so that the screen represents correlation to the O.D. notches in the reference standard. Signals from the O.D. notch shall be placed at 40% and 80% on the horizontal screen grid. This will ensure that a minimum of two full vee-paths are used.

2.6.2.2 Maximize the response from the 40% O.D. notch and adjust the gain so that the response from this notch is at 60% vertical screen height. This is the primary reference level. Without adjusting the gain control, maximize (with the same transducer) the response from the 80% O.D. notch. Mark its vertical height on the screen. Draw a straight line across the screen through these two points. This is the accept/reject level. (See Figure 3).

2.6.2.3 Equipment shall be adjusted so that each transducer independently produces signals from each notch.

2.6.2.4 Reject and damping controls are to be off during calibration and production scanning.

2.6.2.5 Signals from similar probes should repeat from one inspection to another, and their signal amplitude should be within +/- 20 percent (2dB) of each other each time, for a specific imperfection.

2.6.2.6 Electronic gate alarms with audible alarms shall be used and set within 2dB of the primary reference level.

2.6.3 Verification

2.6.3.1 Calibration verification checks shall be made at start up (including afternoon break), after every 25 lengths of stock and after any power interruptions or system repairs.

2.6.3.2 Should the instrument be out of calibration at any verification check, all lengths of stock inspected since the last successful calibration verification shall be re-inspected once the instrument is calibrated.

2.6.3.3 Calibration shall be verified at scanning speeds.

3.0 OPERATING PROCEDURE

3.1 Assure that the pipe is clean enough to provide uninterrupted coupling during inspection.

3.2 Pass the pipe length through the inspection unit. Assure that the following coverage is obtained:

3.2.1 100% compression wave.

3.2.2 100% shear wave.

A. Longitudinal in both directions.

B. Circumferentially in both directions.

3.3 Scanning shall be performed at 200% (+6dB) of the reference level.

3.4 When an indication of an imperfection is received at scanning level, the location of the imperfection shall be marked on the pipe surface.

3.4.1 If required, move the marked coupling stock to the prove-up area.

4.0 EVALUATION OF IMPERFECTIONS

4.1 Thoroughly investigate all indications of imperfections using ultrasonic and visual methods.

4.2 Remove all detected imperfections and defects, provided enough stock will remain to allow machining to the final coupling dimensions.

4.3 All grinds for removal of imperfections shall be checked for remaining wall thickness with a calibrated ultrasonic wall thickness gauge.

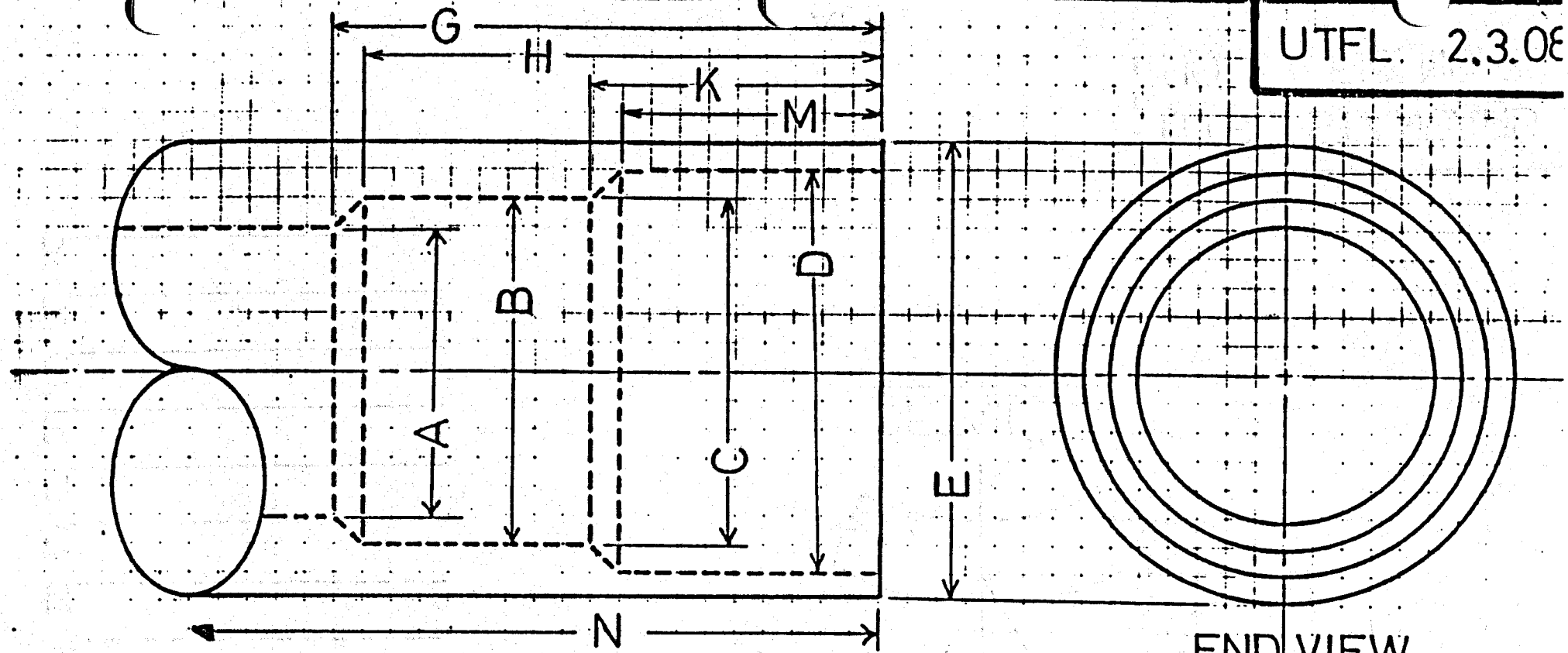
4.4 If coupling stock is sent to be proved and the piece is accepted, the stock must be re-run to positively prove that the indication does not exist.

5.0 IDENTIFICATION

5.1 Accepted stock shall be identified as shown for couplings in API RP 5A5, Section 6.

5.2 Rejected stock shall be identified as shown for couplings in API 5A5, Section 6.

UTFL. 2.3.0E



A _____ G _____

B _____ H _____

C _____ K _____

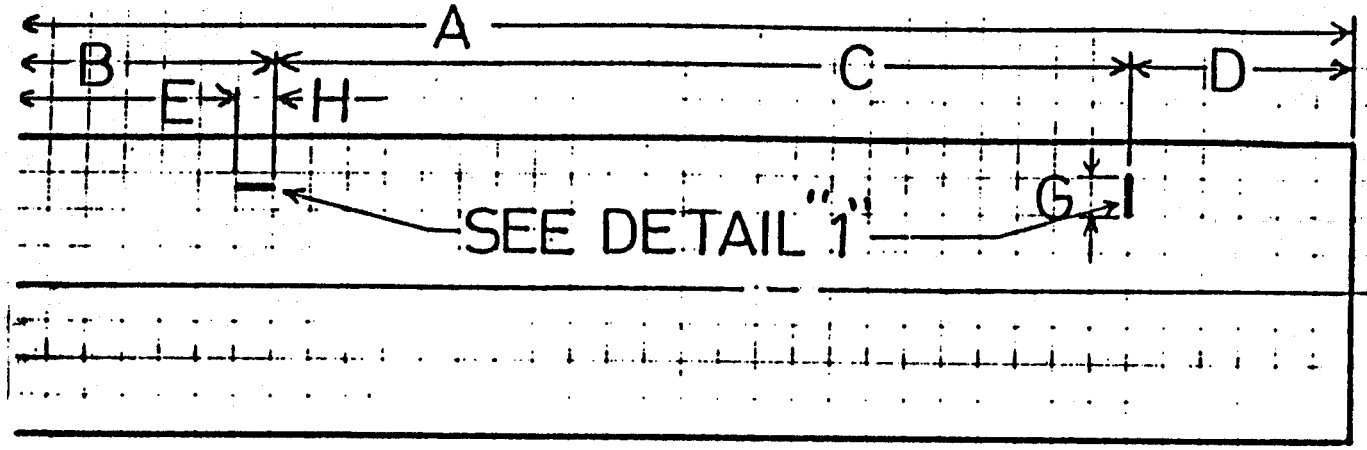
D _____ M _____

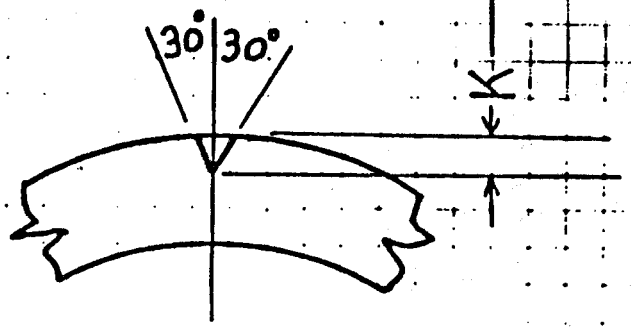
E _____ N _____

NOT TO SCALE

UTFL STANDARD
NO. 1 FIG. NO. 1

UTFL 2.3.08





DETAIL "1"

A _____

B _____

C _____

D _____

E _____

G _____

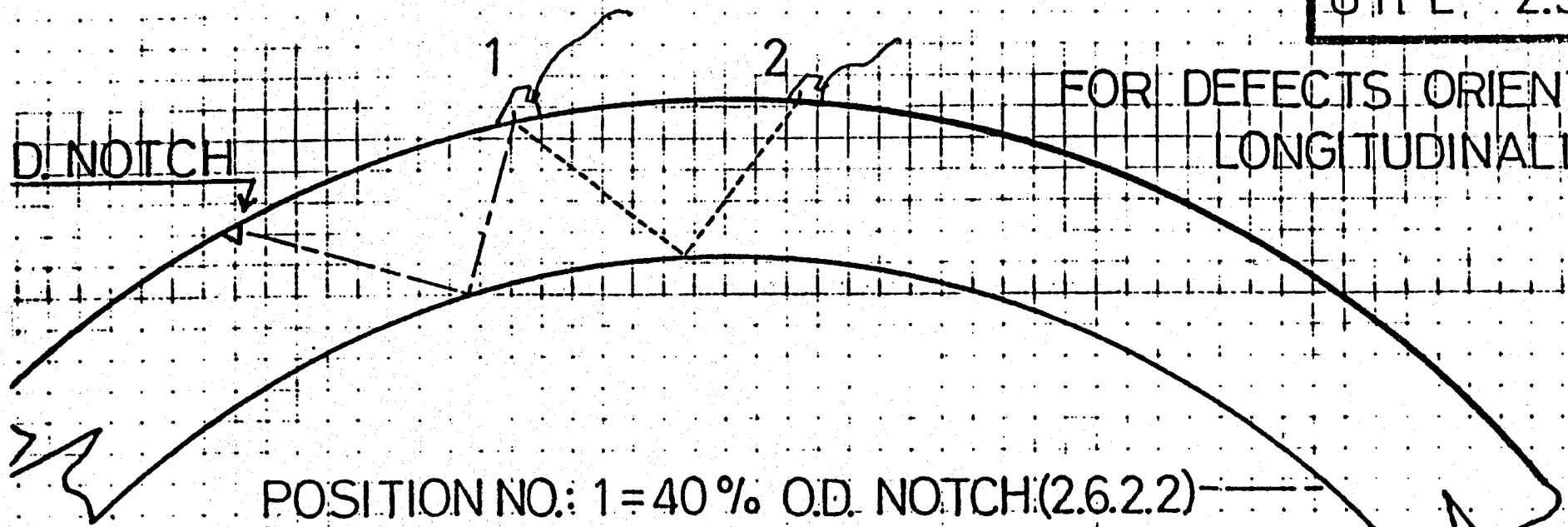
H _____

K _____

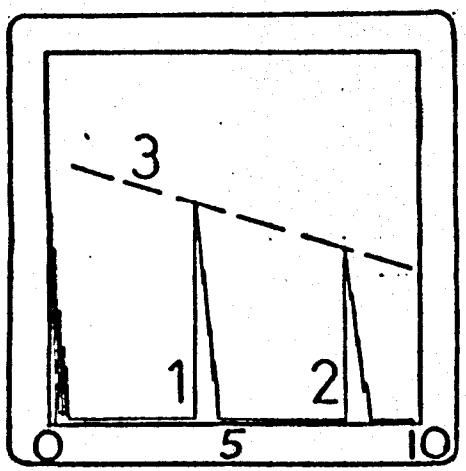
NOT TO SCALE

UTFL STANDARD
NO. 2 FIG. NO. 2

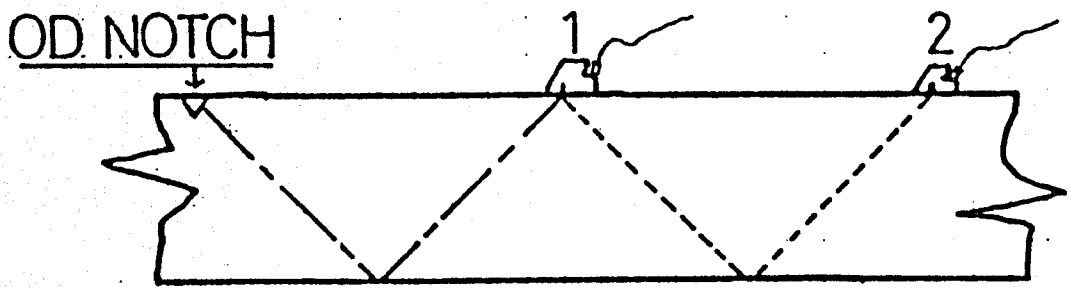
UTFL 2.3.08



POSITION NO.: 1 = 40 % O.D. NOTCH (2.6.2.2) ———
POSITION NO. 2 = 80 % O.D. NOTCH (2.6.2.2) - - - -
LINE NO. 3 = ACCEPT/REJECT LEVEL (2.6.2.2) — — — —



U.T. SCREEN



FOR DEFECTS ORIENTED TRANSVERSELY

UTFL STANDARD NO. 3 FIG. NO. 3

ROCKWELL HARDNESS TESTING (HRC)

1.0 GENERAL

1.1 A hardness test is required to determine that the material conforms to the general physical specifications for the indicated grade and that the material is suitable for critical service application. Since this test measures the resistance to permanent indentation, it is related to the ultimate tensile strength of the material tested. Therefore, the hardness test must be carefully performed to prevent an improperly heat treated joint or coupling from being used in the string. The test method shall be in accordance with ASTM E-18.

2.0 EQUIPMENT REQUIREMENTS AND CALIBRATION

2.1 Testers - Electronic

2.1.1 The hardness tester, if electronic, shall be an Equotip (Basic Unit D), or equivalent.

2.1.2 The tester shall be capable of accurately measuring the hardness of materials within +/-1 HRC unit.

2.1.3 The impact body shall be constructed from a material which will not deform or erode in typical field service. As a minimum the impact body shall have a hardness of HRC 68.

2.1.4 The tester shall be designed so that the load application line can be reliably established. The angle between the load line and the normal to the specimen shall not exceed 2 degrees.

2.2 Testers - Mechanical

2.2.1 The tester shall be capable of placing a 150 kilogram major load on the test surface.

2.2.2 The indenter shall be a Brale indenter having a diamond ground to a 120 degree cone with a spherical apex having a 0.2mm radius.

2.2.3 The tester shall be equipped so that the load application line can be reliably established.

2.3 Test Blocks

2.3.1 Standardized, certified test blocks which fall within (and/or bracket) the required hardness range of the materials to be tested shall be used for calibration of the tester.

2.3.2 All calibration checks shall be made on only one side of the test block.

2.3.3 The test blocks shall be made of steel.

2.4 Calibration (Verification)

2.4.1 Three (3) readings shall be made on the calibration test block.

2.4.2 In the calibration of the hardness tester, repetitive readings within +/-1 HRC value must be obtained.

NOTE: The indenter should contact the test block no closer than 1/8" to existing indentations and no closer than 1/4" to the edge of the test block.

2.4.3 The tester shall be calibrated at the beginning of every test session, after every 50 tests (100 punches), and at the end of every test session. Should the tester be subjected to abnormal shocks (dropped, hit, etc.), it shall be re-calibrated.

2.4.4 The test blocks shall be at approximately the same temperature as the pipe.

3.0 OPERATING PROCEDURE

3.1 Prior to the initial calibration for each test session, the impact body shall be visually examined for cracking, spalling, or deformation. If any defective condition exists, the impact body shall be replaced.

3.2 For critical service couplings, the test shall be conducted on a ring cut from one end of each joint of coupling stock (approximately 50% each end).

3.3 Operate tester according to the manufacturer's written instructions or procedure.

3.4 A test shall consist of nine (9) readings, as shown in Figure HRC-01. The readings shall be averaged to determine the hardness test value for the inside, mid-wall and outside of the test area. The readings and the hardness test values shall be recorded for each test area.

3.5 If the difference between any two (2) readings is equal to or more than a value of three (3) HRC units, the entire test for that area shall be considered invalid, and must be retaken.

NOTE: Invalid findings shall be recorded on the report form with a note that the readings are invalid.

4.0 EVALUATION OF RESULTS

4.1 All test areas shall have hardness averages in the range of HRC 25.0 - HRC 30.9.

5.0 IDENTIFICATION

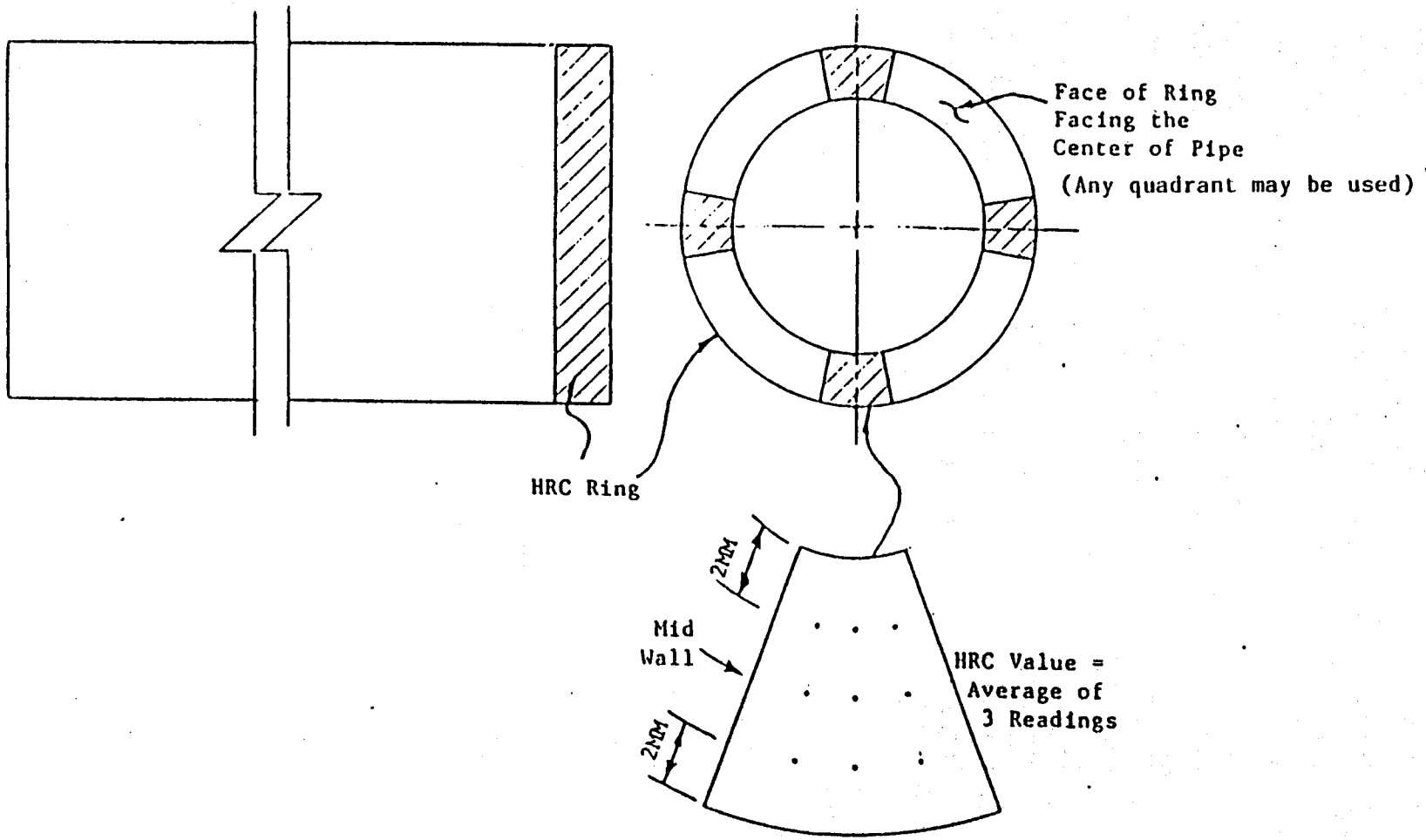
5.1 Record the coupling stock joint number on the hardness test ring with a white metal marker.

5.2 Record the hardness values on the coupling stock near the respective test area with a white metal marker.

FIGURE HRC-01

COUPLING STOCK

HARDNESS TEST SPECIMEN SELECTION



BRINELL HARDNESS TESTING (BHN)

1.0 GENERAL

1.1 A hardness test is required to determined that the material conforms to the general physical specifications for the indicated grade and that the material is suitable for critical service application. Since this test measures the resistance to permanent indentation, it is related to the ultimate tensile strength of the material tested. Therefore, the hardness test must be carefully performed to prevent an improperly heat treated coupling from being used in the string.

2.0 EQUIPMENT REQUIREMENTS AND CALIBRATION

2.1 Testers - Electronic

2.1.1 The hardness tester, if electronic, shall be an Equotip (Basic Unit D), or equivalent.

2.1.2 The tester shall be capable of accurately measuring the hardness of materials within +/-2% (≅+/- 8 BHN units).

2.1.3 The impact body shall be constructed from a material which will not deform or erode in typical field service. As a minimum the impact body shall have a hardness of HRC 68.

2.1.4 The tester shall be designed so that the load application line can be reliably established. The angle between the load line and the normal to the specimen shall not exceed 2 degrees.

2.2 Testers - Mechanical

2.2.1 The tester shall be capable of placing a 3000 kgf test load on the test surface.

2.2.2 The indenter shall be a 10 mm (+/-0.005 mm) diameter ball having a Vickers hardness of at least 850 using a 10 kgf load.

2.2.3 The tester shall be equipped so that the load application line can be reliably established. The angle between the load line and the normal to the specimen shall not exceed 2 degrees.

2.2.4 In lieu of a standard 3000 kgf tester, a Telebrineller system tester may be used to determine the hardness value.

2.3 Test Blocks

2.3.1 Standardized, certified test blocks which fall within (and/or bracket) the required hardness range of the materials to be tested shall be used for calibration of the tester.

2.3.2 All calibration checks shall be made on only one side of the test block.

2.3.3 The test blocks shall be made of steel.

2.4 Calibration (Verification)

2.4.1 Four (4) readings shall be made on the calibration test block, if the Equotip or Telebrineller is used. If a laboratory 3000 kgf tester is used, two (2) readings shall be made.

2.4.2 In the calibration of the hardness tester, repetitive readings within +/-8 BHN value must be obtained.

NOTE: The impact body should contact the test block no closer than 1/8" to existing indentations and no closer than 1/4" to the edge of the test block.

2.4.3 The tester shall be calibrated at the beginning of every test session, after every 25 tests (100 operations; 50 indentations for a 3000 kgf laboratory tester), and at the end of every test session. Should the tester be subjected to abnormal shocks (dropped, hit, etc.), it shall be re-calibrated.

2.4.4 The test blocks shall be at approximately the same temperature as the pipe.

3.0 OPERATING PROCEDURE

3.1 Prior to the initial calibration for each test session, the impact body shall be visually examined for cracking, spalling, or deformation. If any defective condition exists, the impact body shall be replaced.

3.2 For critical service threaded and coupled casing or tubing, the pin and box end of each pipe shall be tested. The test areas shall be 1" squares located 12"-24" from the respective pipe ends. On eccentric pipe, hardness test must be performed on the thick side.

3.3 For critical service couplings, two (2) areas in the center of the coupling, 180° apart, shall be tested. The test areas shall be no greater than 1" wide. On eccentric couplings, the hardness test must be performed on the thick side.

3.4 Prepare the 1" square test surfaces by filing or lightly grinding a smooth flat area through the decarburized zone. Care should be taken when grinding to assure that no valleys, ripples, or surface burning occur. If required, marks made by grinding or filing should be removed with an emery cloth or fine grit sandpaper.

NOTE: Do not file or grind beyond API and Technadril tolerances for wall thickness.

3.5 Place tester on the pipe or coupling according to the manufacturer's written instructions or procedure.

3.6 A test shall consist of a minimum of four (4) readings, (two (2) readings for 3000 kgf laboratory testers) each at least 1/4" from an edge of the test square. The readings shall be averaged to determine the hardness test value for that test square. The readings and the hardness test value shall be recorded for each test area.

3.7 If the difference between any two (2) readings is equal to or more than a value of sixteen (16) BHN units, the entire test for that area shall be considered invalid, and must be retaken.

NOTE: Invalid findings shall be recorded on the report form with a note that the readings are invalid.

3.8 After recording the hardness reading values, file or lightly grind out the hardness indentations on all couplings.

3.9 After filing, check the remaining wall thickness with a calibrated ultrasonic wall thickness gauge.

4.0 EVALUATION OF RESULTS

4.1 The accept-reject criteria shall be as defined in Attachment "A".

5.0 IDENTIFICATION

5.1 Record the hardness value on the couplings near the respective test area with a white metal marker.

5.2 Accepted couplings will be identified as shown in API RP 5A5, Section 6. Color coding of couplings shall be as defined in Attachment "A".

5.3 Rejected couplings will be identified as shown in API RP 5A5, Section 6. Color coding of couplings shall be as defined in Attachment "A".

Attachment "A"

HARDNESS CRITERIA

5" 18# P110 TC-4S Couplings

4.1 The Brinell hardness value and the "Equotip" "L" value shall be grouped into the categories indicated:

Category I - 400 BHN (665 "L") and less.

Category II - Greater than 400 BHN (665 "L")

5.2 Category I couplings (accepted) shall not be color coded.

5.3 Category II couplings (rejected) shall be identified by two red stripes around the coupling.

WET MAGNETIC PARTICLE INSPECTION (WMP)

1.0 GENERAL

1.1 Ferromagnetic pipe and couplings will receive a wet magnetic particle inspection (continuous method) on the machined and threaded surfaces, ID and OD, to locate and identify imperfections and subsequently evaluate any imperfections. Since most in-well failures of tubular products occur in the connection or near the ends, this inspection must be performed with the utmost diligence.

2.0 EQUIPMENT REQUIREMENTS AND CALIBRATION

2.1 Central Conductor or Direct Contact

2.1.1 The capacity of the unit producing the magnetizing current shall not be less than 4000 amps.

2.1.2 An ammeter or a low current indicator with an alarm shall be used to assure satisfactory current application.

2.1.3 The conductor should be maintained in such a manner that arcing due to loose connections, internal shorting, or corroded/dirty contactors is eliminated.

2.2 Coils

2.2.1 The capacity of the magnetizing coils to induce the proper magnetic field shall be defined and demonstrated to the user's satisfaction.

2.2.2 A current meter and field strength indicator (penetrameter style) shall be used to assure satisfactory current application.

2.3 Magnetic Particles (Wet)

2.3.1 Yellow-green fluorescent particles should be used.

2.3.2 The solution should be mixed according to the manufacturer's specification and should receive periodic agitation.

2.3.3 Concentration tests should be performed prior to use at least once each shift.

2.4 Blacklight

2.4.1 The minimum blacklight source should be a 100 watt mercury arc lamp.

2.4.2 The illumination intensity at the surface to be inspected shall be measured with a blacklight meter. The minimum illumination intensity shall be 800 microwatts/cm .

3.0 OPERATING PROCEDURE

3.1 Remove thread protectors.

3.2 Clean thread compound, dirt, grease, or other foreign materials from the threads and the surface of the adjacent body wall for a distance of 6" from the threads. Sandblasting of threads is prohibited.

3.3 Insert the central conductor and induce a transverse magnetic field in the entire length or pipe. The magnetizing current should not be less than 400 amps per inch of pipe diameter. If direct contact method is used, two examinations are required, the second with the contact moved to the opposite side of the part, diametrically.

3.4 Apply the magnetic particle solution while the current is on; examine the machined surface under a blacklight. Rotate pipe and/or blacklight, as required, to assure 100% inspection of the area of interest.

3.5 Demagnetize the pipe.

3.6 Place the magnetizing coil around the end of the pipe and induce a longitudinal magnetic field in the ends of the pipe. Sufficient field strength shall be verified by the penetrameter style field strength indicator at set up, and the magnetizing current should not vary more than +/-10% from the approved value.

3.7 Reapply additional magnetic particle solution while current is on; then examine the machine surface under a blacklight. Again, rotate pipe and/or blacklight, as required, to assure 100% inspection of the area of interest.

3.8 Demagnetize the pipe.

3.9 Clean magnetic particle solution and any other foreign materials from the threaded surface.

3.10 Place a uniform coat of uncut thread dope per API Standard 5A2.

3.11 Replace cleaned thread protectors and tighten handling tight.

4.0 EVALUATION OF IMPERFECTIONS

4.1 Machined Surfaces

4.1.1 For proprietary threads, no indications are acceptable.

4.2 Body Wall

4.2.1 Thoroughly investigate all indications of imperfections. Remove all detected imperfections and defects, provided 87-1/2% of the nominal body wall will remain after the imperfections or defects are removed.

4.2.2 Imperfections which exceed 12-1/2% of the specified body wall thickness shall be classified as rejects. In addition, a seam, crack, or lap detectable by magnetic particle inspection which is greater than 5% of the specified wall thickness, but is in a position where it cannot be removed by grinding, shall be classified as a reject.

4.2.3 If the depth or nature of an indication cannot be positively determined, it shall be classified an "imperfection of undetermined magnitude".

4.2.4 All grinds for removal of imperfections shall be reinspected to assure removal of the imperfection. Pipe ends which have had a section cut off shall be re-examined for a full 18" to 24" from the new end of the pipe.

4.2.5 All grinds for removal of imperfections shall be checked for remaining wall thickness with a calibrated ultrasonic wall thickness gauge.

5.0 IDENTIFICATION

5.1 Accepted joints shall be identified as shown in API RP 5A5, Section 6.

5.2 Rejected joints shall be identified as shown in API RP 5A5, Section 6.

DRIFT TEST (FLD)

1.0 GENERAL

1.1 Pipe requires a drift test to insure the free passage of downhole tools through the tubular product once it is in the well.

2.0 EQUIPMENT REQUIREMENTS AND CALIBRATION

2.1 The drift mandrel shall be cylindrical in shape with a rounded leading edge to permit easy entry into the pipe. The diameter and length of the drift mandrel shall be as shown in Table FLD-01.

2.2 Prior to starting the inspection job the drift mandrel shall be measured and its dimensions recorded. Drift mandrels not meeting the tolerances shown in Table FLD-01 shall not be used.

3.0 OPERATING PROCEDURE

3.1 Assure that the drift mandrel to be used is within +/- 20° F of the temperature of the pipe being inspected.

3.2 Assure that the drift mandrel is properly inserted and removed to avoid damage to the ends. If thread protectors allow drifting, leave the protectors on.

3.3 The drift mandrel should pass through the entire length of the pipe freely using a reasonable exerted force that does not exceed the weight of the mandrel.

3.4 To assure proper drift testing the pipe shall be free of foreign matter and shall be properly supported to prevent sagging.

4.0 EVALUATION OF IMPERFECTIONS

4.1 If the drift mandrel will not pass through an entire length of pipe that has been properly cleaned and supported, the length shall be considered a reject and identified as a "no drift".

5.0 IDENTIFICATION

5.1 Accepted joints shall be identified as shown in API RP 5A5, Section 6.

5.2 Rejected joints shall be identified as shown in API RP 5A5, Section 6.

TABLE FLD-01

PRODUCT	SIZE	DRIFT MANDREL LENGTH	DRIFT MANDREL DIAMETER
Casings and Liners			
Tubing	5"	42" ± 1/2"	4.151 $^{-0.000}_{+0.005}$

HYDROSTATIC PRESSURE TEST (HYD)

1.0 GENERAL

1.1 A hydrostatic pressure test is used to (1) determine if the connections will seal, (2) structurally test the pipe body, and (3) open any tight imperfections for a clearer resolution by subsequent inspections.

2.0 EQUIPMENT REQUIREMENTS AND VERIFICATION

2.1 Indicating Pressure Gauge

2.1.1 The test unit shall be equipped with an indicating pressure gauge that will directly indicate the pressure being applied to the pipe. The indicating pressure gauge shall be at least +/- 1% of full scale precision.

2.1.2 The indicating pressure gauge shall be positioned so that the test operator can easily observe the pressure reading throughout the test.

2.1.3 The range of the indicating pressure gauge must exceed the test pressure by a minimum of 25% and a maximum of 100%.

2.1.4 The indicating pressure gauge shall be constructed so that it can be read accurately to within +/- 5% of the actual applied pressure to the pipe throughout the test cycle.

2.1.5 The indicating pressure gauge shall have a calibration sticker (or tag) which indicates the following: calibration date, certification of accuracy, and the name of the person or organization which performed the calibration.

2.1.5.1 The calibration sticker (tag) shall be current within the past 6 months.

2.1.5.2 The calibration shall be performed with a hydraulic deadweight tester.

2.2 Recording Pressure Gauge

2.2.1 The test unit shall be equipped with a recording pressure gauge connected to a recorder that indicates the actual applied pressure to the pipe throughout the test cycle.

2.2.2 The recorder shall have sufficient resolution to clearly indicate the pressure and time values for each joint tested.

2.2.3 The recording pressure gauge shall have the same range and accuracy requirements as the indicating pressure gauge.

2.2.4 The recording pressure gauge shall be compared with the indicating pressure gauge at least once each hour to assure the reliability of the gauges.

2.2.5 The recording pressure gauge shall have a calibration sticker (or tag) which indicates the following: calibration date, certification of accuracy, and the name of the person or organization which performed the calibration.

2.2.5.1 The calibration sticker (tag) shall be current within the past 6 months.

2.2.5.2 The calibration shall be performed with a hydraulic deadweight tester.

2.3 Pressure Test Plugs

2.3.1 The test plugs shall contain no compounds or impurities which are capable of causing or promoting corrosion.

2.3.2 The test plugs shall be made of metal softer than the product.

2.3.3 The design of the test plugs shall permit a complete hydrostatic test seal without damage to the product threads and seal(s).

3.0 OPERATING PROCEDURE

3.1 Clean test plugs and examine for nicks, burrs, etc. which could damage the connections on the pipe.

3.2 Dope and screw test plugs together. Pressure test plugs for a minimum of one minute at pressure of product to be tested plus 10%. NOTE: For tapered proprietary threads, 3.2 can be waived.

3.3 After removing the thread protectors, clean the threaded areas (pin and box) of the joints to be tested;examine for and note visible imperfections. To minimize the amount of unprotected threads, only remove protectors and clean threads from joints on the inspection racks that will be inspected during a shift.

3.4 Apply uniform film of fresh thread compound (compound shall be clean and undiluted API modified thread compound as specified in API bulletin 5A2).

3.5 Make up plugs into product, torque to assure good seal, fill with water and bring up to the required pressure (both pressure gauges must meet or exceed the required test pressure).

NOTE: Do not begin pressurizing the pipe until all air has been purged from the pipe.

3.6 Maintain the required pressure for 15 seconds. Observe the indicating pressure drops. If a pressure drop does occur, try to identify the cause through observation of the pipe, connections, and test plugs.

3.7 If the cause of a pressure drop is not discovered, or if the pressure drop is due to a leak between the test plug and product, then clean and examine the product and test plug's threads for damage.

3.8 After completion of the test, release the hydrostatic pressure from the pipe and remove the water.

3.9 Remove test plugs, clean the product threads, apply uniform film of fresh thread compound (clean and undiluted API modified thread compound as specified in API Bullentin API 5A2) to product threads. Reinstall clean thread protectors.

3.10 Special instruction for proprietary joints.

3.10.1 Only the primary metal-to-metal seal will be active in the test plugs.

3.10.2 All non-metallic seal rings will be removed prior to testing.

4.0 EVALUATION OF RESULTS

4.1 The test pressure shall be 10,000 psi. The full test pressure shall be held for 15 seconds.

4.2 Joints failing to hold this test pressure or joints which leak, seep, or weep are unacceptable and shall be considered rejects.

5.0 IDENTIFICATION

5.1 Record the test pressure and time on the pipe with a white metal marker.

5.2 Accepted joints shall be identified as shown in API RP 5A5, Section 6.

5.3 Rejected joints shall be identified as shown in API RP 5A5, Section 6.

HANDLING, TRANSPORTATION & STORAGE (H, T & S)

1.0 GENERAL

1.1 Materials requiring this procedure will be used in critical service applications. Extreme caution must be employed when handling and transporting such tubulars. This procedure is supplemented by API 5AX and 5B. In case of conflict, this procedure will govern. All personnel involved in transporting, handling, inspecting, or testing this material shall be instructed as to the special nature and requirements of these materials.

2.0 EQUIPMENT REQUIREMENTS

2.1 Thread Protectors

2.1.1 No plastic protectors shall be used unless approved in writing by the owner.

2.1.2 Protector material shall contain no compounds or impurities which are capable of causing or promoting corrosion or protector adherence to the threads.

2.1.3 External and internal protectors shall be designed to cover the complete thread and seal area. The thread forms in the protectors shall be such that the product threads are not damaged by the protectors.

2.1.4 Thread protectors shall exclude water, dirt, and other foreign material from the threads during handling, transportation, and normal (one year) storage.

2.1.5 Thread protectors are to be clean and placed in boxes or other containers when not installed on the pipe. Under no circumstances will they be thrown or placed on the ground, sand, etc.

2.2 Handling and Tie-Down Equipment

2.2.1 The forks of forklifts shall not have sharp burrs or gouges.

2.2.2 Cranes shall be equipped with a spreader bar and padded choker slings.

2.2.3 Hooks cannot be used without the permission of the owner. If hooks are used, they shall be designed to prevent damage and shall be lined with soft metal,rubber, or plastic.

2.2.4 All chain bindings (on trucks) shall be padded at the point of contact with the pipe.

2.3 Hand Tools

2.3.1 Under no circumstances will pipe, monkey, and open-end or other type wrenches which can cause damage to the nose surface of the pipe, be used to tighten pin protectors. Strap wrenches will be used on open-end pin thread protectors.

3.0 SPECIAL (OPERATING) PROCEDURES

3.1 Handling

3.1.1 Handling and movement of material must be held to an absolute minimum. No material shall be moved without the knowledge, concurrence, and observation of the surveillance agency.

3.1.2 Do not allow pipes to bang or bump each other, another steel object, concrete or other materials that could possibly damage or alter the physical properties of the product.

3.1.3 When "bumping" pipe to position (each length parallel) boards must be used at either end to prevent metal-to-metal contact. The boards shall then be removed and the length rolled into its proper place.

3.1.4 Pipe is to be rolled by hand onto and off all racks. When off loading pipe from an inspection unit or rack, the length must be under control at all times, manually or mechanically.

3.1.5 Do not put weight on non-supported areas of pipe at any time.

3.1.6 Threaded pipe shall not be moved without pin thread protectors in place. Box thread protectors will be installed if interyard transfer is required. Thread protectors can be hand tight except after the last operation prior to shipping. It shall be the responsibility of the agency or company performing the last operation to install protectors wrench tight (handling-tight).

3.2 Transportation (Truck)

3.2.1 When positioning pipe on trailer (truck), one person shall be on each end of the trailer.

3.2.2 Each layer shall be stripped, including the first tier.

3.2.3 Each joint shall be collared; upset pipe past the upset runout.

3.2.4 Insure that all chain bindings are padded, as required at, point of contact with the pipe.

3.3 Storage

3.3.1 Pipe shall not be stored closer that 18" to the ground.

3.3.2 Pipe shall not rest on steel or concrete racks.

3.3.3 The area underneath and around the pipe is to be kept free of grass, weeds, and standing water which might come in contact with pipe.

3.3.4 The storage sills are to be flat and parallel, resting on firm supports which will not settle or tilt.

3.3.5 Strip each layer perpendicular to the pipe and directly over the sills, overlapping the boards. Extra thick boards (4 x 4) may be required on heavy upset pipe or oversized collared material to prevent layers from contacting each other. Use only hardwood stripping.

3.3.6 Three sills are required whenever material is stored more than 4 layers high.

3.3.7 Each layer will be chocked at no less than 4 places a layer.

3.3.8 Successive layers shall have progressively fewer joints.

3.3.9 When mixing weights, heavier pipe will be stored at lower levels.

3.3.10 For material stored over 60 days, random check 10% of pin and box threads monthly to insure no corrosion problems are occurring. Also, note the general surface condition of the product.

4.0 REPORTING CRITERIA

4.1 Any actions by service companies (inspection, handling, transportation, storage, etc.) which do not conform to this procedure shall be corrected. Failure to correct such actions shall be reported as a non-conformance by the Technadril-Fenix & Scisson surveillance agency.

4.2 Any damaged pipe shall be set aside for investigative examination.

LEGEND

5AC	= SAME AS API 5AC
5AX	= SAME AS API 5AX
5AX X-DP/T	= SAME AS API 5AX EXCEPT ELIMIMATES REFERENCES TO DRILL PIPE &/OR TUBING
5AX M	= MINOR CHANGES TO API 5AX
5AX M-T	= SAME AS API 5AX EXCEPT UNNECASSARY TABLES ARE REMOVED
5AC M	= MINOR CHANGES TO API 5AC

API SPECIFICATIONS FOR Q-125 CASING

Section 1: Scope

1.1 Coverage. This specification covers high strength casing, casing couplings, and couplings blanks. The sizes and wall thicknesses shall be as shown in Table 1.1 and the dimensional Tables 6.1 and 6.2, or as specified on the purchase order. Casing size range is 4-1/2 through 20" OD. Wall thickness may be .300 to 1.500". Special requirements unique to Q-125 include toughness, uniform hardness, chemistry, and frequent mill testing. Casing couplings with standard API threads shall have an outside diameter as specified on the purchase order and agreed to by user and manufacturer.

Supplementary requirements for coupling blanks, upset casing, electric resistance welded casing and increased frequency of mechanical testing are specified in SR9, SR10, SR11, and SR12 respectively.

1.2 5AX Dimensional requirements on threads and thread gages, stipulations on gaging practice, gage specifications and certification, as well as instruments and methods for inspection of threads are given API Std 5B and are applicable to products covered by this specification.

1.4 5AX Policy. American Petroleum Institute (API) specifications are published as an aid to procurement of standardized equipment and materials. These specifications are not intended to inhibit purchasers and producers from purchasing or producing products made to specifications other than API, and nothing in any API specification is intended to, in any way, inhibit the purchase of products from companies not authorized to use the API monogram.*

1.5 5AX Nothing contained in any API specification is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use in connection with any method, apparatus or product covered by letters patent, nor as insuring anyone against liability for infringement of letters patent.

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1.7 5AX The use of the API monogram is a warranty by the manufacturer to the purchaser that the manufacturer has obtained a license to use the monogram and, further, that the product which bears the monogram conforms to the applicable API specification. However, the American Petroleum Institute does not represent, warrant or guarantee that products bearing the API monogram do in fact conform to the applicable API standard or specification.

Section 2: Process and Manufacture

2.1 5AC M Process of Manufacture. Pipe furnished to this specification shall be made by one of the processes defined below as specified on the purchase order.

5AC (a) Seamless. Seamless pipe is defined as a wrought steel tubular product made without a welded seam. It is manufactured by hot working steel or, if necessary, by subsequently cold finishing the hot worked tubular product to produce the desired shape, dimensions, and properties.

5AC M (b) Electric Weld. Electric welded pipe is defined as pipe having one longitudinal seam formed by electric-resistance welding without the addition of extraneous metal.

Special requirements unique to upset casing are specified in SR10. Special requirements unique to electric welded pipe are as specified in SR11. When electric welded pipe is supplied, the provisions of SR11 are automatically in effect.

2.2 Heat Treatment. Material furnished to this specification shall be heat treated by the quench and temper process. Casing and coupling stock shall be heat treated the full length of the pipe (except as referenced in Par. 8.1). Gag press straightening or hot rotary straightening (950° minimum at end of straightening) is acceptable. If hot rotary straightening is not possible, the pipe may be cold rotary straightened provided it is then stress relieved at 950°F or higher. Pipe may be cold rotary straightened without subsequent stress relieving only when agreed on the purchase order.

2.3 Lot Definition. A lot is defined as all those lengths of casing or coupling stock from the same heat of steel which are heat-treated as part of a continous operation (or batch).

Section 3: Chemical Properties and Tests

3.1 Chemical Requirements. Casing and coupling material furnished to this specification shall conform to the chemical requirements specified in Table 3.1 (heat and product analyses) unless otherwise agreed between the purchaser and the manufacturer.

NOTE: Minimum joint strength listed in Bul. 5C2 for Buttress Thread Casing is limited by the coupling diameter in the following sizes and weights. Calculations are required to determine the joint strength when other than regular OD couplings are used.

Size	Weight, lb/ft Regular Coupling
4-1/2	--
5	21.4, heavier
5-1/2	23.0, heavier
6-5/8	--
7	35, heavier
7-5/8	42.8, heavier
8-5/8	--
9-5/8	--
10-3/4	--
11-3/4	--
13-3/8	--

8.2 Mechanical Properties. Couplings and coupling blanks shall conform to the tensile, impact, and hardness requirements as specified in Section 4 including the frequency of testing, retest provision, etc.

8.3 Dimensions and Tolerances. Couplings may be machined on the complete outside surface in addition to the inside surface. Dimensions shall be as specified on the purchase order unless standard API couplings are ordered, in which case the dimension shall be as shown on Tables 8.1 and 8.2.

NOTE: The purchaser should recognize that API threaded couplings with the regular outside diameter may not have a leak resistance as high as the internal yield pressure rating of the pipe body due to inadequate bearing pressure between the coupling and pin.

8.4 SAX M Regular Couplings. Regular couplings have diameters as shown in Col. 2 of Tables 8.1 and 8.2. The inside and outside edges of the bearing face shall be rounded or broke. The ends of couplings shall be faced true at right angles to the axis.

8.5 SAX M Combination Couplings. Combination couplings with different type threads of same nominal size shall be furnished when specified on the purchase order. The minimum length and minimum outside diameter of combination couplings shall be sufficient to accommodate the specified size and type of threads or shall be as specified on the purchase order.

8.6 SAX Threading. Coupling threads, gaging practice and thread inspection shall conform to the requirements of API Std 5B. Couplings shall not be expanded to provide the required taper for threads.

8.7 Surface Inspection.

(a) Couplings shall be inspected by the magnetic particle method (or other adequate nondestructive method).

shall be prepared in accordance with ASTM E-59 and chemical determinations shall be made in accordance with ASTM E-350 or other procedures agreed upon between purchaser and manufacturer.

Section 4: Mechanical Properties and Tests

4.1 Tensile Properties. Material furnished to this specification shall conform to the tensile requirements specified in Table 4.1. The report shall show the nominal width of the test specimen when strip specimens are used or the nominal diameter of the specimen when machined specimens are used.

TABLE 4.1
TENSILE REQUIREMENTS

1	2		3		4		5
Grade	Yield Strength Min		Yield Strength Max		Tensile Strength Min		Elongation
	ksi	MPa	ksi	MPa	ksi	MPa	Percent
Q-125	125	862	150	1034	135	931	see footnote[1]

[1]The minimum elongation in 2 inches (50.80 mm) shall be that determined by the following formula

$$e = 625{,}000 \frac{A^{0.2}}{U^{0.9}}$$

Where: e = minimum elongation in 2 inches (50.80 mm) in percent rounded to nearest 1/2 percent.
A = cross sectional area of the tensile test specimen in square inches, based on specified outside diameter or nominal specimen width and specified wall thickness, rounded to the nearest 0.01 sq. in. or 0.75 sq. in., whichever is smaller.
U = specified tensile strength, psi.

See Appendix B for minimum elongation values for various size tensile specimens and grades.

In any case, the elongation of strip specimen shall not be less than 15% and the elongation of round specimen shall not be less than 13%.

Round specimens are acceptable only as specified in Par. 4.4 below.

4.2 SAX M Yield Strength. The yield strength shall be the tensile stress required to produce a total elongation of the gage length, as determined by an extensometer or by multiplying dividers, as follows:

Grade	Total Elongation of Gage Length %
Q-125	0.65

4.3 SAX Tensile Tests. Tensile properties shall be determined by tests on longitudinal specimens conforming to the requirements of Par. 4.4, and ASTM A 370, "Mechanical Testing of Steel Products, Supplement II, Steel Tubular Products." Tensile tests shall be made with the specimens at room temperature. The strain rate during tensile testing shall be in accordance with the requirements of ASTM A 370.

4.4 SAX M Tensile Test Specimens. Tensile test specimens shall be removed from casing and coupling stock that has had its final heat treatment. Tensile test specimens shall be either strip specimens as shown in Fig.

4.4 5AX Cont. 4.1 or, if the wall thickness of the pipe is over 3/4 inch (19,1 mm), an ASTM A 370 round specimen 0.500 inch (12,7 mm) in diameter may be used. Round specimens shall be taken from the mid-wall. Strip specimens for seamless pipe may be taken from any location at the option of the manufacturer. Tensile specimens for upset tubulars shall be as specified in SR10. Tensile specimens for welded tubulars shall be as specified in SR11.

All strip specimens shall be approximately 1-1/2" (38,1 mm) wide in the gage length if suitable curved face testing grips are used, or if the ends of the specimen are machined to reduce the curvature in the grip area; otherwise, they shall be approximately 1" (25,4 mm) wide for pipe up to 7-5/8", and approximately 1-1/2" (38,1 mm) wide for pipe 8-5/8" and larger. If practical (considering testing equipment capacity), the test specimens shall represent the full wall thickness of the pipe from which the specimen was cut. Specimens shall be tested without flattening. Coupling material may be machined to the finished outside diameter and wall thickness prior to removing a strip specimen.

4.5 Frequency of Testing. Every joint of coupling material shall be numbered in numerical sequence following the tempering operation. This number shall be used for all subsequent identification. Tensile, impact, and hardness test specimens for coupling stock and casing (as required) shall be removed from locations shown in Figure 4.2 at frequencies specified below.

4.5.1 Casing. The tensile, impact and hardness test specimens shall be taken at the frequency of three joints per lot. The joints for testing may be selected at random provided the selection procedure provides samples representing at least the start and end of the heat treat cycle and the front and the back ends of the tubes (approximately 50% each end). By definition, the front of the tube is the end which enters the tempering furnace first.

4.5.2 Coupling Material. One end of each joint of coupling material shall be tested to verify conformance to tensile, impact, and hardness requirements (approximately 50% each end).

4.6 Retests.

4.6.1 Retests. If the tensile test specimen representing a lot of pipe fails to conform to the specified requirements, the manufacturer may elect to make retests on two additional lengths from the same lot. If both of the retest specimens conform to the requirements, all the lengths in the lot shall be accepted except the length from which the initial specimen was taken. If one or both of the retest specimens fail to conform to the specified requirements, the manufacturer may elect to test individually the remaining lengths in the lot, in which case determinations are required only for the particular requirements with which the specimens failed to comply in the preceding tests. Specimens for retests shall be taken in the same manner as specified in Par. 4.4.

4.6.2 Coupling Material. If a tensile, impact or hardness specimen fails to conform to the specified requirements, the manufacturer shall either make tests on both ends of the pipe in question to verify the property in question or reject the material. No additional testing will be allowed to qualify a piece of coupling material.

4.7 Impact Requirements.

4.7.1 Impact Tests. Charpy V-notch Type A impact tests shall be conducted at 75 ± 5F temperature as specified in ASTM A370, ASTM E23 and related specifications.

4.7.2 Impact Test Specimens. Samples shall be removed transverse to the axis of the tube with the notch oriented radially as shown in Figure 4.3. Full size 10 x 10 mm specimens shall be used whenever possible. A test shall consist of three transverse samples.

When full size (10 x 10 mm) test specimens (measured at the middle 1/3 of the specimen, i.e., rounded outer edges are acceptable) cannot be machined in the transverse direction, the maximum practical subsize specimen shall be substituted. The minimum required impact strength shall be reduced as shown in the following table:

TABLE 4.2
SUBSIZE IMPACT STRENGTH

1			2
Specimen Size			Percent of Requirements Specified in 4.7
mm	x	mm	
10		10	100
10		7.5	80
10		5	55
10		3.3	40

4.7.3 Minimum Impact Strength for any Piece. The minimum impact strength for any of the transverse 10 x 10 mm samples shall be 20 ft.-lb. (27 Joule) or as calculated by the following equation whichever is greater. See Table 4.3 for impact requirements for standard API sizes.

$$C_v \text{ (ft./lb)} = \frac{\sigma_{max.} (\pi a_c + 0.23)}{3.6}$$ rounded to the next higher whole number.

σ max. = maximum specified yield strength in ksi
a_c = 12-1/2% of nominal wall thickness of the material being qualified

Fracture appearance shall be a minimum of 95% shear

The results of the individual test (i.e, the impact strength in ft-lbs. and percent shear fracture) and the average impact strength shall be reported. Material failing to meet specifications shall be retested per 4.6.

TABLE 4.3
IMPACT REQUIREMENTS

See Appendix A for Metric Tables

1	2	3	4	5	6	7
Size Outside Diameter in. D	Nominal Weight:[1] Threads and Coupling lb. per ft.	Wall Thickness in t	Minimum Charpy V-Notch Required ft. lb. Pipe	Coupling Short	Coupling Long	Buttress
4-1/2	15.10	0.337	20	20	20	20
5	18.00	0.362	20	20	20	20
5	21.40	0.437	20	20	20	20
5	24.10	0.500	20	20	20	20
5-1/2	23.00	0.415	20	20	20	20
6-5/8	32.00	0.475	20	20	20	20
7	35.00	0.498	20	20	20	20
7	38.00	0.540	20	20	20	20
7-5/8	39.00	0.500	20	20	20	20
7-5/8	42.80	0.562	20	20	20	20
7-5/8	47.10	0.625	20	20	20	20
8-5/8	49.00	0.557	20	21	21	20
9-5/8	53.50	0.545	20	21	21	20
10-3/4	60.70	0.545	20	21	21	20
10-3/4	65.70	0.595	20	21	21	20
11-3/4	65.00	0.534	20	21	21	20
13-3/8	72.00	0.514	20	21	21	20

[1] Nominal weight, threads and coupling (col. 2), are shown for the purpose of identification in ordering.

4.8 Hardness Requirements.

4.8.1 Hardness Testing Techniques. Hardness testing shall be performed in accordance with current ASTM A370, ASTM E18 and related specifications. Calibration shall be checked at the beginning and end of a continuous run, and at such times during the run as are required to assure the operator and the purchaser or his representative the testing machine is in calibration. In any case, calibration must be checked at least once per 8-hour shift.

Calibration shall be on a certified test block in the range of 25 to 35 HRC. Hardness test surfaces shall be ground parallel and smooth to ensure reliable data. Rockwell hardness readings and average values shall be reported to the nearest tenth to minimize conflict as to the hardness and acceptance or rejection of the material. Personnel performing hardness testing shall be restricted in number and adequately trained to provide accurate data.

The first impression on each hardness block may be disregarded in order to reduce the probability of errors.

4.8.2 Hardness Test Specimens. Hardness test specimens (blocks or rings) shall be taken as shown in Figs. 4.2 and 4.4. The three hardness readings taken at each position (OD, midwall and ID) shall be averaged to give one hardness value for each position.

4.8.3 Hardness Limits. There is no upper or lower hardness limit for this material.

4.8.4 Hardness Variation. Hardness variation is defined as the difference between any two hardness values (see 4.8.2). This criteria shall not apply between specimens. Material furnished to this specification shall conform to the hardness requirements of Table 4.3.

TABLE 4.3
HARDNESS VARIATION

1	2
Wall Thickness (Inches)	Maximum Variation (HRC Units)
Less than 0.500	3.0
0.500 to 0.749	4.0
0.750 and above	5.0

4.8.5 Hardness Values in Excess of the Maximum Variation. If the maximum variation as specified in 4.8.4 is exceeded in any quadrant, the surface in that quadrant may (at the option of the manufacturer) be reground below the initial hardness impressions and retested. Only one retest is allowed. Material which fails to comply with 4.8.4 upon retest shall be rejected. Additional test joints required shall be as outlined in 4.6.

4.9 Defective Specimens. If any tensile, impact or hardness specimen shows defective machining or develops flaws, it may be discarded and another specimen substituted. When the elongation of any tensile specimen is less than that specified, if any part of the fracture is outside the middle third of the gage length as indicated by scribe scratches marked on the specimen before testing, the specimen may be discarded and another specimen substituted.

4.10 Reprocessing of Rejected Material. Casing and coupling stock lots from the same heat of steel which have been rejected by one or more of the above criteria may be reheat treated and retested since by definition they are then a new lot of pipe.

Section 5: Hydrostatic Tests

5.1 5AX M Mill-Inspection Hydrostatic Tests. Each length of casing shall be tested at the mill to at least the hydrostatic pressure specified in Par. 5.2, without leakage. Test pressure shall be held for not less than five seconds. All couplings shall be boxed separately unless otherwise specified on the purchase order.

5.2 Test Pressures. The mill hydrostatic test pressures for threaded pipe shall be the standard pressure listed in Table 5.1 or a higher pressure as agreed upon between the purchaser and the manufacturer. Mill test pressure may be limited due to mechanical restraints; however, any material which subsequently fails the API test pressure is a reject even if the test pressure is in excess of the mill pressure test capability.

Plain-end pipe shall be tested by the mill as agreed by the purchaser and the manufacturer.

NOTE: The user should be aware that API couplings with the standard outside diameters may leak at a pressure less than the API alternate test pressure for the plain-end or threaded and coupled tube due to inadequate bearing pressure between the coupling and pin.

NOTE: 5AX The hydrostatic test pressures specified herein are mill inspection test pressures, are not intended as a basis for design, and do not necessarily have any direct relationship to working pressures.

NOTE: 5AX The hydrostatic test pressures listed herein for plain-end pipe are based on the following formula and rounded to the nearest 100 psi:

$$P\ (\text{psi}) = \frac{2St}{D} \text{ or } 10{,}000 \text{ psi, whichever is smaller}$$

$$\left[\left(P\ (\text{kg/cm}^2) = \frac{200St}{D} \text{ or } 703 \text{ kg/cm}^2\text{, whichever is smaller}\right)\right]$$

Where:

P = hydrostatic test pressure, in poinds per square inch (kg/cm^2)
S = fiber stress, as given below
t = specified wall thickness, in inches (mm)
D = specified outside diameter, in inches (mm)

M

Grade	Fiber Stress* psi	kg/mm²
Q-125 casing	100,000	70,3

*Based on 80 percent of the specified minimum yield strength.

The hydrostatic test pressures for threaded and coupled pipe are the same as those for plain-end pipe, except where a lower pressure is required to avoid leakage due to unsufficient coupling strength. The lower pressures are based on the following formula and are rounded to the nearest 100 psi:

$$P = 0.8Y\left(\frac{W-d_1}{W}\right)$$

Where:

Y = minimum yield strength, psi
W = nominal outside diameter of coupling, inches
d_1 = diameter at the root of the coupling thread at the end of the pipe in the power-tight position rounded to the nearest .001 in

For round thread casing

$$d_1 = E_1 - (L_1 + A)\,T + H - 2S_{rn}$$

Where:

E_1 = pitch diameter at hand-tight plane, inches
L_1 = length, from end of pipe to hand-tight plane, inches
A = hand-tight standoff, inches
T = taper
0.0625 in/in
H = thread height, inches
0.08660 for 10 TPI
0.10825 for 8 TPI
S_{rn} = 0.014 in for 10 TPI
0.017 in for 8 TPI

For buttress thread casing

$$d_1 = E_7 - (L_7 + 1)\,T + .062$$

Where:

E_7 = pitch diameter, inches
L_7 = length of perfect threads, inches

	Size, inches	
	4-1/2	5 and larger
1 =	0.400	0.500
T =	0.0625	0.0625

Section 6: Dimensions, Weights, and Lengths

6.1 5AX M — Dimensions and Weights. Pipe shall be furnished in the sizes, wall thicknesses, and weights as specified on the purchase order or as shown on Tables 6.1 and 6.2.

6.2 5AX M — Diameter. The outside diameter shall be within the tolerances specified in Table 6.3. For threaded pipe, the outside diameter at the threaded ends shall be such that the thread length L_4, and the full-crest thread length, L_c, are within the dimensions and tolerances specified in API Std 5B.

(Inside diameters are governed by the outside diameter and weight tolerances.)

6.3 5AX M — Wall Thickness. Each length of pipe shall be measured for conformance to wall thickness requirements. The wall thickness at any place shall not be less than the tabulated thickness minus the permissible undertolerance specified in Table 6.3. Wall thickness measurements shall be made with a mechanical caliper or with a properly calibrated nondestructive testing device of appropriate accuracy. In case of dispute, the measurement determined by use of the mechanical caliper shall govern. The mechanical caliper shall be fitted with contact pins having circular

cross sections of 1/4 in. (6,35 mm) diameter. The end of the pin contacting the inside surface of the pipe shall be rounded to a maximum radius of 1-1/2 in. (38,10 mm) for pipe 6-5/8 in. and larger, a maximum radius of d/4 for pipe less than 6-5/8 in. with a minimum radius of 1/8 in. The end of the pin contacting the outside surface of the pipe shall be either flat or rounded to a radius of not less than 1-1/2 in. (38,10 mm).

6.4 5AX X-DP/T Weight Measurement. Each length of casing shall be weighed separately. Threaded-and-coupled pipe shall be weighed with the coupling screwed on or without couplings, provided proper allowance is made for the weight of the coupling. Threaded-and-coupled pipe, pipe shipped without couplings, and upset casing (see SR10) shall be weighed without thread protectors except for carload weighings, for which proper allowance shall be made for the weight of the thread protectors.

6.5 5AX M-T Weight. The weights determined as described in Par. 6.4 shall conform to the specified calculated weights (or adjusted calculated weights) for the end finish specified on the purchase order, within the tolerances stipulated in Table 6.3. Calculated weights shall be determined in accordance with the following formula:

$$W_L = (w_{pe} \times L) + e_w$$

Where:

W_L = calculated weight of a piece of pipe of length L, lb. (kg).
w_{pe} = plain-end weight lb/ft (kg/m).
L = length of pipe, including end finish, as defined in Par. 6.6, ft (m).
e_w = weight gain or loss due to end finishing, lb (kg). For plain-end pipe, e_w equals zero.

6.6 5AX Length. Pipe shall be furnished in range lengths conforming to Table 6.4 as specified on the purchase order. When pipe is furnished with threads and couplings, the length shall be measured to the outer face of the coupling, or if measured without couplings, proper allowance shall be made to include the length of coupling.

6.7 5AX Casing Jointers. If so specified on the purchase order, for round-thread casing only, jointers (two pieces coupled to make a standard length) may be furnished to a maximum of five percent of the order; but no length used in making a jointer shall be less than five ft. (1,52 m).

Section 7: Pipe Ends

7.1 5AX M Casing. Casing shall be furnished as specified on the purchase order, with any of the following end finishes:

Plain end
8 round thread with couplings
8 round thread without couplings
Buttress threads with couplings
Buttress threads without couplings

Extreme-line threads (See (SR-10)
Special end finish

NOTE: Special marking as shown in Section 11 is required for pipe furnished with plain ends or end finished not specified herein, but having the body of the pipe manufactured in accordance with the requirements specified herein.

7.2 5AX X-DP/T Threading. Casing threads, gaging practice, and thread inspection shall conform to the requirements of API Std 5B. Pipe ends shall not be rounded out by hammering to secure conformance with threading requirements.

7.3 5AX Burrs. The inside and outside edges of the ends of all pipe shall be free of burrs.

7.4 5AX M Coupling Makeup and Thread Protection. All casing couplings shall be shipped separately unless power-tight makeup is specified on the purchase order. A high-grade thread compound shall be applied to cover the full surface of the engaged thread of the couplings and pipe before making up the joint. Unless otherwise specified by the purchaser, the thread compound shall be that (or any) which meets performance requirements set forth in API Bul 5A2. When pipe is furnished threaded and coupled, the field end and the coupling shall be provided with thread protectors. When pipe is furnished threaded, but without couplings attached, each end shall be provided with a thread protector. Thread protectors shall conform to the requirements of Section 9. All exposed threads shall be coated with a high quality corrosion inhibitor.

NOTE: Mill applied couplings made up power-tight, although leak-proof at the time of makeup, may not always remain so after transportation, handling, and use.

7.5 Couplings and Coupling Blank Protection. All loose couplings and all coupling blanks that have been machined to their final outside diameter shall be boxed to prevent contact with one another during shipment. All other coupling blanks shall be boxed to prevent nicks and gouges that will not be removed by subsequent machining. Boxes are to be manufactured from wood and designed to be easily handled by fork lift. Boxes shall be limited to 4 ft. in width to facilitate truck transport.

Section 8: Couplings

8.1 Material. Couplings for pipe conforming with this specification shall be seamless and shall be of the same grade as the pipe. The couplings shall be manufactured using the same requirements, and quality control provisions as casing manufactured to this specification. See Section 2 and 3 above. Couplings and coupling blanks must be cut from coupling stock. Individually manufactured and heat treated couplings or coupling blanks are unacceptable unless specifically agreed to (including detailed quality control procedures) between the purchaser and the manufacturer.

NOTE: When couplings are electroplated, the electroplating process should be controlled to minimize hydrogen absorption.

TABLE 3.1
CHEMICAL REQUIREMENTS

GRADE		MAXIMUM* C %	Mn %	Cr %	Mo %	Ni %	P %	S %
Q-125	Type 1	0.35	1.00	1.20	.50	0.99	0.020	0.010
Q-125	Type 2	0.35	1.00	N.L.	N.L.	0.99	0.020	0.020
Q-125	Type 3	0.50	1.90	N.L.	N.L.	0.99	0.030	0.010
Q-125	Type 4	0.50	1.90	N.L.	N.L.	0.99	0.030	0.030

* N.L. = No Limit. Elements shown must be reported in chemistry check.

3.2 SAC M Heat Analyses. The manufacturer shall furnish a report to the purchaser giving the heat analysis of each heat of steel used in the manufacture of pipe furnished on the purchase order. The report shall include the quantative analysis for all the above elements and any other elements used by the manufacturer to control physical properties.

3.3 SAC M Product Analyses. Product analyses shall be made by the manufacturer on finished pipe. The results of the product analyses shall be provided to the purchaser. Product analyses shall include the results of quantitative determinations of all elements listed in Table 3.1 plus any other elements used by the manufacturer to control physical properties. Two samples shall be analyzed for product analyses, one from each of two lengths of pipe of the same size and weight from each 400 lengths or less per heat of each size 5-1/2" and smaller and one of each of two lengths of each 200 lengths or less per heat of each size 6-5/8" and larger. For multiple length seamless pipe, a length shall be considered as all of the sections cut from a particular multiple length.

3.4 SAC M Recheck Analyses. If the product analyses of both lengths of pipe representing the heat fail to conform to the specified requirements, at the manufacturere's option, either the heat shall stand rejected or all the remaining lengths in the heat shall be tested individually for conformance to the specified requirements. If only one of two sample fails, at the manufacturer's option either the heat shall stand rejected or two recheck analyses shall be made on two additional lengths from the same heat. If both recheck analyses conform to the requirements, the heat shall be accepted except for the length represented by the initial analysis which failed. If one or both of the recheck analyses fail, at the manufacturer's option the entire heat shall be rejected or each of the remaining lengths shall be tested individually. In the individual testing of the remaining lengths in any heat, analyses for only the rejecting element or elements need be determined. Samples for recheck analyses shall be taken in the same manner as specified for product analysis samples. The results of all recheck analyses shall be provided to the purchaser when specified on the purchase order.

3.5 SAC Procedures for Determining Chemical Analyses. Chemical analyses shall be determined by any of the procedures commonly used for determining chemical compositions such as emission spectroscopy, x-ray emissions, atomic absorption, combustion techniques or wet analytical procedures. The calibration methods used shall be traceable to established standards. In case of dispute, samples used in making chemical analyses

5AX (b) Finished couplings shall be free of all seams and cracks. Indications of non-metallic inclusions shall not be considered defects unless they are demonstrated to have a depth in excess of 0.035"; longitudinal discontinuities, which do not exceed one-half inch in length need not be probed by manufacturer.

5AX M (c) Finished couplings with pits, round bottom gouges, grip marks, sharp gouges, and similar imperfections are not cause for rejection unless the depth of the imperfection exceeds that listed in Table 8.3.

TABLE 8.3

1	2	
Coupling for Pipe Sizes; OD in Inches	Permissible Depth of Imperfection, in.	mm
All sizes	0.035	0.88

(d) Couplings shall be free of imperfections on the inside which break the continuity of the thread.

Imperfection. An imperfection is a discontinuity or irregularity in the product detected by methods outlined in this specification.

Defect. A defect is an imperfection of sufficient magnitude to warrant rejection of the product based on the stipulations of this specification.

8.8 5AX M Measurement of Imperfection. The depth of imperfection shall be measured from the normal surface or contour of the coupling extended over the imperfection. The outside diameter of the finished coupling shall be measured across the finished surface or contour of the coupling; (i.e., initial surface or grind contour resulting from the removal of an imperfection or defect). The outside diameter shall not be measured at the base of an acceptable pit.

8.9 5AX M Repair and Removal of Imperfections and Defects. Repair welding is not permitted. All seams, cracks, or pits may be removed, and all other imperfections and defects may be removed or reduced to acceptable limits, by machining or grinding on the outer surface, provided the outside diameter of the finished coupling, is within the tolerances when measured at the point of defect removed. The machining or grinding must be approximately faired into the outer contour of the coupling.

8.10 Thread Plating. Thread plating shall be as specified on the purchase order.

Section 9: Thread Protectors

9.1 5AX M Design. The manufacturer shall apply external and internal thread protectors of such design, material, and mechanical strength to protect the thread and end of the pipe from damage under normal handling and transportation. External thread protectors shall cover the full length

of the thread on the pipe and internal thread protectors shall cover the equivalent total pipe-thread of the internal thread. Thread protectors shall exclude water and dirt from the thread during transportation and normal storage period. Normal storage period shall be considered as approximately one year. The thread forms on protectors shall be such that the product threads are not damaged by the protectors.

9.2 5AX Material. Protector material shall contain no compounds capable of causing corrosion or promoting adherence of the protectors to the threads and shall be suitable for service temperatures of -50 to +150°F (-46 to +66°C).

Section 10: Inspection and Rejection

10.1 5AX Inspection Notice. Where the inspector representing the purchaser desires to inspect pipe or couplings at the mill or witness the required tests, reasonable notice shall be given of the time at which the run is to be made.

10.2 5AX Plant Access. The inspector representing the purchaser shall have free entry at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which will concern the manufacture of the pipe or couplings ordered. The manufacturer shall afford the inspector, without charge, all reasonable facilities to satisfy him that the pipe is being manufactured in accordance with this specification. All inspections should be made at the place of manufacture prior to shipment, unless otherwise specified on the purchase order, and shall be conducted so as not to interfere unnecessarily with the operation of the works.

10.3 5AX Rejection. Material which shows defects on mill inspection or subsequent to acceptance at manufacturer's works, or which proves defective when properly applied in service, may be rejected, and the manufacturer so notified. If tests that require the destruction of material are made, the purchaser shall pay for that material which meets the specification but shall not pay for any material which fails to meet the specification.

10.4 5AX Compliance. The manufacturer is responsible for complying with all of the provisions of this specification. The purchaser may make any investigation necessary to satisfy himself of compliance by the manufacturer and may reject any material that does not comply with this specification.

10.5 5AX Workmanship. All finished pipe shall be visually examined and shall be reasonably straight and free from seams and other defects as described in Par. 10.6.

10.6 5AX Defects. Any imperfection having a depth greater than 12-1/2% of the specified wall thickness, measured from the surface of the pipe, shall be considered a defect. Pipe containing defects must be given one of the following dispositions:

(a) The defect may be removed by grinding provided the remaining wall thickness is not less than 87-1/2% of the specified wall

thickness. When the depth of grind exceeds 10 percent of the specified wall thickness, the remaining wall thickness shall be verified in accordance with Par. 6.3.

(b) The section of pipe containing the defect may be cut off within the limits of requirements on length.

(c) Rejected

When wall thickness is reduced by the purchaser or third party inspector and the remaining wall thickness is less than 87-1/2% of the specified wall thickness, the pipe shall be rejected if the imperfection is detectable in the area of reduced wall thickness by visual, magnetic particle, or dye penetrant inspection.

10.7 SAX M — Nondestructive Inspection. In addition to visual inspection, all pipe shall be inspected full length for longitudinal defects by at least two of the following techniques: (1) magnetic particle inspection, (2) ultrasonic, or (3) electromagnetic methods. The location of the equipment shall be at the discretion of the manufacturer; however, at least one of the nondestructive inspections must take place after all heat-treating operations, and may take place before cropping or threading. Purchaser may reinspect the casing and/or coupling utilizing any NDT method.

10.8 SAX X-DP/T — Magnetic Particle Inspection. When magnetic particle inspection is employed to inspect for longitudinal defects, the entire outside surface and the inside surface for a distance of 12 in. (304,8 mm) from the end of casing shall be inspected. Magnetic particle inspection of casing may be employed on the inside surface after heat treating and before the ends are cropped. If defects are found, further cropping is permissible provided the inside surface is again inspected by the magnetic particle method as stipulated above. The depth of all imperfections revealed by magnetic particle inspection shall be determined and when found to be greater than 5 percent of the specified wall thickness the imperfection shall be considered a defect. See Par. 10.10 for disposition of pipe containing defects.

10.9 SAX M — Ultrasonic or Electromagnetic Inspection.

(a) Equipment. Any equipment utilizing the ultrasonic or electromagnetic principles and capable of continuous and uninterrupted inspection of the entire outer surface of the pipe may be used. The equipment shall be of sufficient sensitivity to indicate defects and shall be checked as prescribed in Par. 10.9(b).

(b) Reference Standards. A reference standard having the same grade, heat treatment, nominal diameter and thickness as the product being inspected shall be used to demonstrate the effectiveness of the inspection equipment and procedures at least once every working turn. The reference standard may be of any convenient length as determined by the manufacturer. It shall be scanned by the inspection unit in a manner simulating the inspection of the product. For ultrasonic inspection, the reference standard shall contain a

machined notch as specified in Fig. 10.1. For electromagnetic inspection, the reference standard shall contain either a machined notch as specified in Fig. 10.1 or a 1/16 in. (1,6 mm) drilled hole. The notch shall be in the outer surface of the reference standard and parallel to the longitudinal axis of the pipe or at the option of the manufacturer, the notch may be oriented at such an angle as to optimize detection of anticipated defects. The 1/16 in. (1,6 mm) hole shall be drilled radially through the wall of the reference standard. The inspection equipment shall be adjusted to produce a well-defined indication when the reference standard is scanned by the inspection unit.

NOTE: The reference standards defined above are convenient standards for calibration of nondestructive testing equipment. The dimensions of these standards should not be construed as the minimum size imperfection detectable by such equipment.

(c) Rejection Limits. Any imperfection that produces a signal as great as the signal received from the reference standard shall be considered a defect unless it can be demonstrated by the manufacturer that the imperfection does not exceed the provisions of Par. 10.10.

10.10 5AX Disposition. Imperfections revealed by magnetic particle inspection and determined to be greater in depth than five percent but not greater than 12-1/2% of the specified wall thickness shall be removed by grinding or machining or the pipe shall be rejected. All imperfections classified as defects by the ultrasonic or electromagnetic equipment which do not exceed 12-1/2% of the specified wall thickness in depth shall be removed by grinding or machining or the pipe shall be rejected. Pipe with defects, the removal of which requires grinding or machining to a depth in excess of 12-1/2% of the specified wall thickness, shall be disposed of in accordance with Par. 10.6. Where grinding or machining is done, generous radii shall be used to prevent abrupt changes in wall thickness and such areas shall be reinspected by one of the nondestructive testing methods specified herein to verify complete removal of the defect.

Section 11: Marking and Coatings

11.1 5AX M General. Pipe and couplings, manufactured in conformance with this specification, shall be marked by the manufacturer as specified hereinafter. (Additional markings as desired by the manufacturer or as requested by the purchaser are not prohibited.) Unless otherwise specified on the purchase order, die stamping may be applied hot or cold, but must be applied prior to heat treatment. No die stamping except the triangle on buttress thread pipe shall be applied after heat treatment unless such markings are located where they will be removed by subsequent machining operations. The location, size, and sequence of markings shall be as specified in Par. 11.4 and 11.5. Markings shall not overlap.

11.2 Couplings. Markings for couplings and methods of application shall be as follows:

5AX
M The manufacturer's name or mark, the API monogram, and the symbol for the grade [Par. 11.3(e)] shall be paint stenciled. Tin-plated couplings shall be paint stenciled with the letter "T".

11.3 Pipe and Pup Joints. Markings for pipe and pup joints and methods of application shall be as follows:

5AX
M (a) Manufacturer's Name or Mark

The manufacturer's name or mark shall be paint stenciled.

(b) API Monogram

The API monogram shall be paint stenciled, except as noted in 11.1. The upper and lower cross bars of the I in the monogram may be omitted. The API monogram shall be applied only as specified and only by authorized manufacturers, and shall not be applied on any product for which any requirement is indicated to be tentative. See Appendix D for regulations governing use of the monogram.

(c) Size

The size in inches[1] (Col. 1, Tables 6.1 and 6.2 or other special size) shall be paint stenciled.

(d) Weight per Foot

The nominal weight in pounds per foot[1], as given in Tables 6.1 and 6.2 or other special weight, shall be paint stenciled.

(e) Grade

The grade markings shall be paint stenciled as follows for casing and couplings:

Grade Q-125 . . . . . Q

(f) Length[1]

The length in feet and tenths of a foot, unless otherwise specified on the purchase order, as measured on the finished pipe, shall be paint stenciled.

---

(1) Size, weight per foot, length, and hydrostatic test pressure markings shall be given in English units except that for pipe intended for use in countries utilizing the metric system, these markings shall be in metric units, or both English and metric units, if so specified on the purchase order. If not so specified, for pipe made and intended for use in countries utilizing the metric system, these markings may be given in metric units only, at the option of the manufacturer.

(g) Total Weight

For size 4-1/2 in. and larger, the total weight in pounds[1] shall be paint stenciled.

(h) Pipe with Non-API Threads or End Finish

Casing furnished with plain ends or end finish not detailed herein, but having the body of the pipe manufactured in accordance with the requirements specified herein, shall be paint stenciled with the symbol UF immediately following the API monogram.

(i) Test Pressure

When the specified hydrostatic test pressure is higher than the tabulated standard pressure (Table 5.1), the test pressure in pounds per square inch[1], preceded by the word TESTED, shall be paint stenciled.

(j) Type of Thread

Casing shall be paint stenciled to identify the type of thread as follows:

ROUND THREAD
BUTTRESS THREAD
EXTREME-LINE (See SR10)

or at the option of the manufacturer, the abbreviations given on Par. 11.7 may be used. Unless otherwise specified on the purchase order, the triangle mark in buttress casing may be replaced with a transverse 3/8 in. wide white paint band, 3 in.± long, around the pipe. A 1 in.± wide, 12 in.± long white paint stripe shall be oriented along the axis of the tube, adjacent to the above band to assist in locating the band.

11.4 Die-Stamped Markings

Die-stamped markings for in-process mill identification may be placed on the outside of each length of pipe prior to heat treatment. All cold die-stamped marking of pipe or couplings is prohibited, except for the make-up triangle, which may be cold die-stamped with rounded or blunt dies on buttress thread casing and API round thread casing.

11.5 SAX M Paint-Stenciled Markings. Paint-stenciled markings shall be placed on the outside surface of each length of pipe starting approximately 12 in. (305 mm) from the coupling or box, or externally threaded end, or either end of plain-end pipe. For connectors and short length pup joints, the required paint stencil markings may be placed on a decalcomania attached to the outside surface within 12 inches (0,33 m) from one end. These markings shall be separated by a dash or shall be adequately spaced. The sequence of paint-stenciled markings shall be as follows:

Manufacturer's name or mark ..... (Subitem a, Par. 11.3)
API Monogram ..... (Subitem b, Par. 11.3)
Symbol UF ..... (Subitem h, Par. 11.3)
Size ..... (Subitem c, Par. 11.3)
Weight per foot ..... (Subitem d, Par. 11.3)
Grade of pipe ..... (Subitem e, Par. 11.3)
Hydrostatic test pressure ..... (Subitem i, Par. 11.3)
Length ..... (Subitem f, Par. 11.3)
Total Weight ..... (Subitem g, Par. 11.3)

Type of thread marking (Subitem j, Par. 11.3) shall be paint stenciled on the pipe at a location convenient to the manufacturer.

In addition, each length of coupling stock shall be paint stenciled clearly such that the material may be traced back to the lot and the joint within the lot so as to correlate with qualification test data. Couplings and coupling blanks shall be identified with regard to the lot with which they were processed and the joint of coupling stock from which they were cut to correlate with the qualification test data. When SR12 is specified each length of casing shall be paint stenciled clearly such that the material may be traced back to the lot and the joint within the lot so as to correlate with qualification test data. It is the responsibility of the mill to maintain the identification of the material as required by this specification until it is received by the purchaser.

Example

7 in., 38#, Grade Q-125 plain-end seamless steel casing from lot XYZ joint 28 shall be paint stenciled as follows:

AB CO API UF 7 38 Q (length) (total weight) (type thread) XYZ28

11.6 SAX M Color Identification. In addition to the required markings as specified above, each length of casing shall be color coded by one or more of the following methods:

(a) A paint band encircling the pipe at a distance not greater that 2 feet (0,67 m) from the coupling or box.

(b) A paint band encircling the center of the coupling.

(c) Paint entire outside surface of coupling.

The color shall be as follows:

Grade Q-125 . . . . . Orange

11.7 5AX M Thread Identification. At the manufacturer's option, any pipe threads which conform to the threading and gaging stipulations given in API Std 5B may be identified by stenciling the product adjacent to such thread with the manufacturer's name or mark, the size, the letters API, and the thread-type symbol. The thread marking may be applied to products which do or do not bear the API monogram. For example, 7" long casing thread may be marked:

AB CO 7 API LCSG

Thread-type symbols shall be as follows:

Casing (short round thread) . . . . . CSG
Casing (long round thread) . . . . . LCSG
Casing (buttress thread) . . . . . BCSG
Casing (Extreme-line) (See SR10) . . . . . XCSG

5AX The use of letters API as provided above shall constitute a certification by the manufacturer that the threads so marked comply with the requirements stipulated in API Std 5B, but should not be construed by the purchaser as a representation that the product so marked is in its entirety, in accordance with any API specification. Manufacturers who use the letters API for thread identification must have in their possession properly certified API reference master pipe gages.

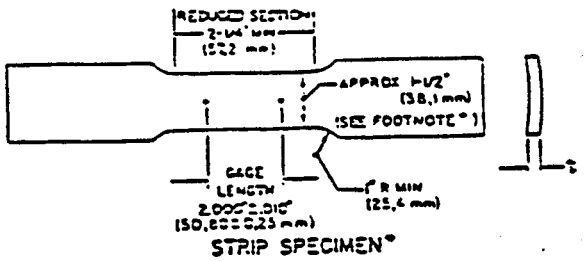
11.8 5AX Coatings. Unless otherwise ordered, pipe and couplings shall be given a mill coating for protection from rust while in transit.

NOTE: If bare pipe or specially coated pipe is desired, the purchase order should so state. For special coatings, the purchase order should state further whether the coating is to be applied to the full length or whether a certain specific distance from the end is to be left uncoated. Unless otherwise specified, such bare ends are commonly given a coating with oil for protection in transit.

11.9 Mill Certification. A mill certification shall be provided by the manufacturer for all pipe shipped to this specification. This will include the results of all the tests required in this specification and any other special provisions as required by the purchaser on the purchase order.

TABLE 1.1
API HIGH-STRENGTH CASING LIST

1		2	3	4		5			
Size: Outside Diameter D		Nominal Weight, Threads and Coupling lb. per ft.	Grade	Wall Thickness t		C_v lb-ft	Type of Thread		
ches	mm			Inch	mm		Short	Long	Butt.
-1/2	114,3	15.10	Q-125	0.337	8,56	20	...	X	X
5	127,0	18.00	Q-125	0.362	9,19	20	...	X	X
5	127,0	21.40	Q-125	0.437	11,19	20	...	X	X
5	127,0	24.10	Q-125	0.500	12,70	20	...	X	X
6-1/2	139,7	23.00	Q-125	0.415	10,54	20	...	X	X
6-5/8	168,3	32.00	Q-125	0.475	12,06	20	...	X	X
7	177,8	32.00	Q-125	0.498	12,65	20	...	X	X
7	177,8	38.00	Q-125	0.540	13,72	20	...	X	X
7-5/8	193,7	39.00	Q-125	0.500	12,70	20	...	X	X
7-5/8	193,7	42.80	Q-125	0.562	14,27	20	...	X	X
7-5/8	193,7	47.10	Q-125	0.625	15,86	20	...	X	X
8-5/8	219,1	49.00	Q-125	0.557	14,15	20	...	X	X
9-5/8	244,5	53.50	Q-125	0.545	13,84	20	...	X	X
10-3/4	273,0	60.70	Q-125	0.545	13,84	20	X	...	X
10-3/4	273,0	65.70	Q-125	0.595	15,11	20	X	...	X
11-3/4	298,4	65.00	Q-125	0.534	13,56	20	X	...	X
13-3/8	339,7	72.00	Q-125	0.514	13,06	20	X	...	X

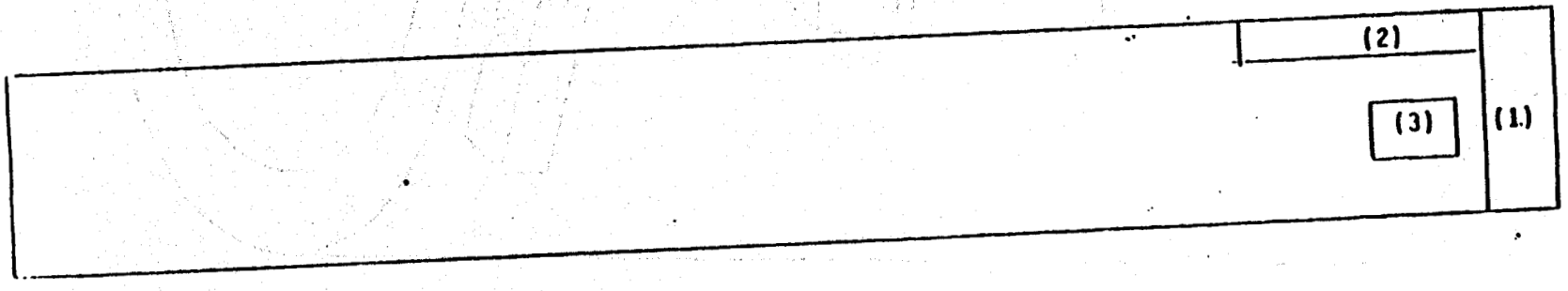


STRIP SPECIMEN*

*See Par. 4.4 for testing without use of suitable curved face testing grips.

FIG. 4.1
TENSILE TEST SPECIMENS

FIGURE 4.2
LOCATION OF TEST SAMPLES REMOVED FROM CASING AND COUPLING STOCK



Location of test samples:

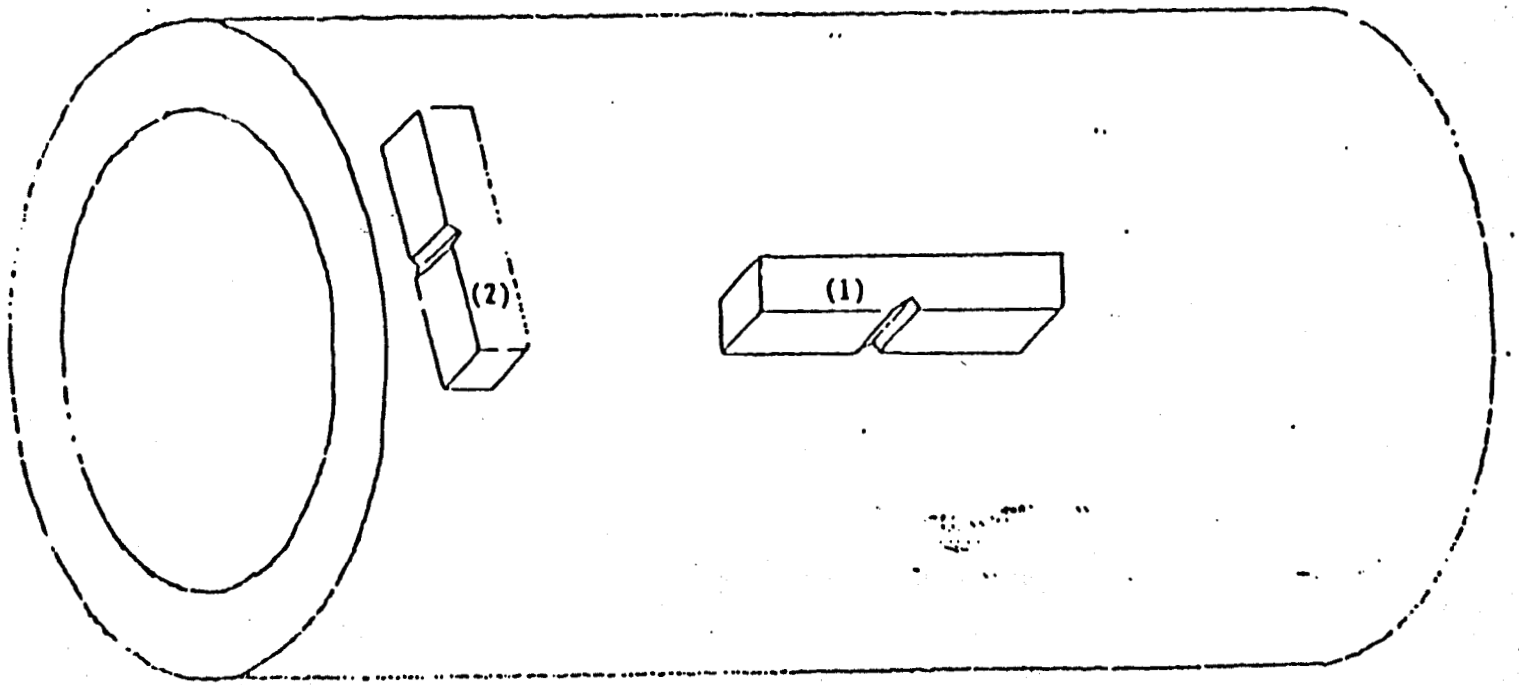
(1) Hardness test ring (See Figure 4.4 for detail)

(2) Tensile test specimen

(3) Impact test samples (See Figure 4.3 for detail.)

FIGURE 4.3

IMPACT TEST SAMPLE ORIENTATION



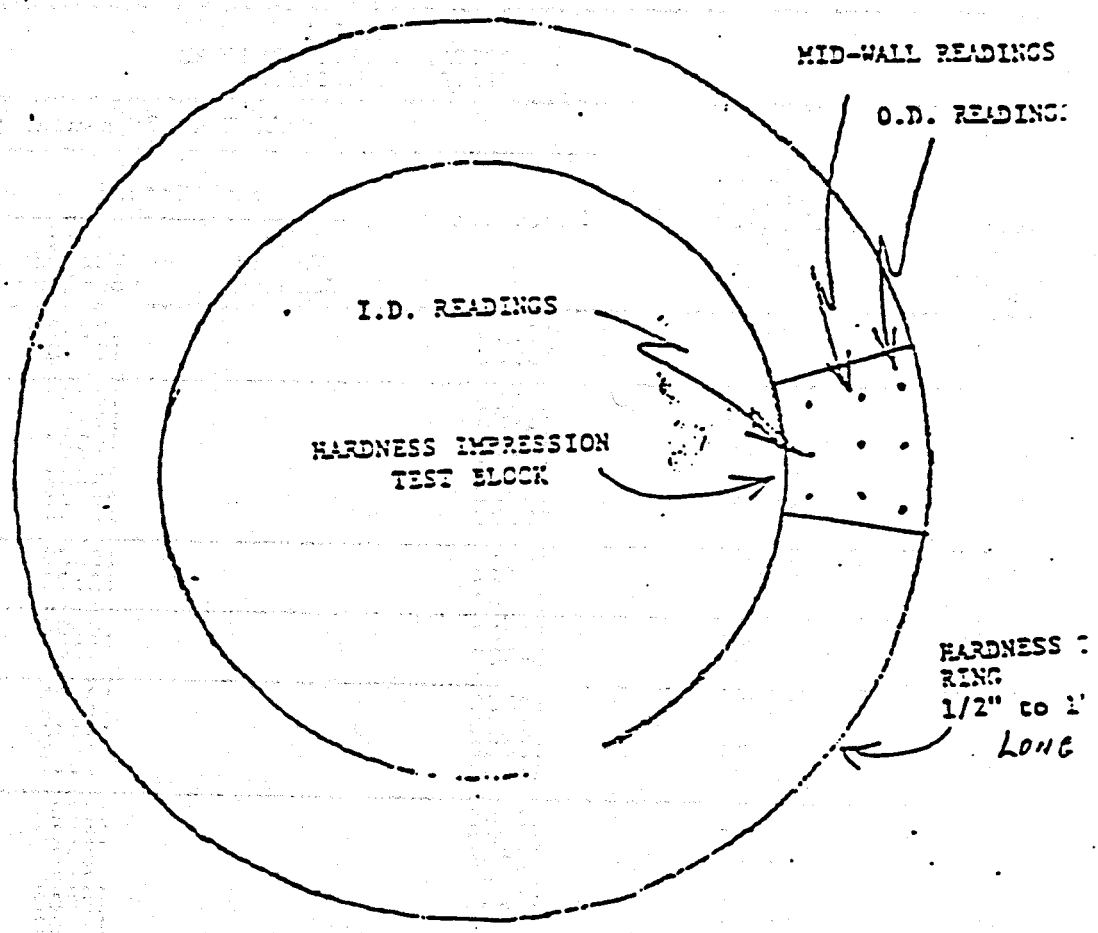
All impact samples to be 10mm x 10mm if possible.

(1) Longitudinal Samples - Shown for illustration only.

(2) Transverse Samples - Notch oriented perpendicular to the axis of the tube (tube surface).

FIGURE 4.4

HARDNESS TEST SPECIMENS



NOTES: (1) Hardness test surfaces shall be ground parallel and smooth.

(2) O.D. and I.D. readings are made on a band from 0.100 to 0.150 inches from the surface.

(3) Hardness readings shall be taken on the Rockwell C scale (HRC).

(4) All hardness impressions to be at least 3 to 5 diameters apart.

(5) The first impression on each hardness block (or ring quadrant) may be disregarded in order to reduce the probability of errors.

TABLE 5.1
HYDROSTATIC TEST PRESSURE
GRADE Q-125 CASING

Size Outside Diameter in.	Nominal Weight Threads and Coupling lb per ft	Mill Test Pressure, psi: Plain End	Round Thread: Short Thread Coupling	Round Thread: Long Thread Coupling	Buttress Thread Regular Coupling: Grade Q-125
4-1/2	15.10	10000 15000		10000 13300	10000 12200 *
5	18.00	10000 14500		10000 13500	10000 12400 *
5	21.40	10000 17500		10000 13500	10000 12400 *
5	24.10	10000 20000		20000 13500	10000 12400 *
5-1/2	23.00	10000 15100		10000 12300	10000 11200 *
6-5/8	32.00	10000 14300		10000 13300	10000 12300 *
7	35.00	10000 14200		10000 11600	10000 10600 *
	38.00	10000 15400		10000 11600	10000 10600 *
7-5/8	39.00	10000 13100		10000 13100	10000 12200 *
7-5/8	42.80	10000 14700		10000 13100	10000 12200 *
7-5/8	47.10	10000 16400		10000 13100	10000 12200 *
8-5/8	49.00	10000 12900		10000 12900	10000 12200 *
8-5/8	53.50	10000 11300		10000 11300	10000 11000 *
9-3/4	60.70	10000 10100	10000 10100		10000 10000 *
9-3/4	65.70	10000 11100	10000 10300		10000 10000 *
9-3/4	65.00	9100	9100		9100
9-3/8	72.00	7700	7700		7700

Alternate Pressures

TABLE 6.1

ROUND-THREAD CASING[1]

DIMENSIONS AND WEIGHTS

See Figure 6.1

See Appendix A for Metric Tables

1	2	3	4	5	6
				Calculated Weight lb per ft	
Size Outside Diameter in D	Nominal Weight:[2] Threads and Coupling, lb per ft	Wall Thickness in t	Inside Diameter in d	Plain End lb/ft w_{pe}	Threads[3] and Coupling lb e_w
4 1/2	15.10	0.337	3.826	14.98	2.80
5	18.00	0.362	4.276	17.93	4.20
5	21.40	0.437	4.126	21.30	2.95
5	24.10	0.500	4.000	24.03	1.95
5 1/2	23.00	0.415	4.670	22.54	3.20
6 5/8	32.00	0.475	5.675	31.20	8.80
7	35.00	0.498	6.004	34.58	5.60
7	38.00	0.540	5.920	37.26	4.40
7 5/8	39.00	0.500	6.625	38.05	13.60
7 5/8	42.80	0.562	6.501	42.39	12.01
7 5/8	47.10	0.625	6.375	46.72	10.16
8 5/8	49.00	0.557	7.511	48.00	19.60
9 5/8	53.50	0.545	8.535	52.85	23.40
10 3/4	60.70	0.545	9.660	59.40	18.80
10 3/4	65.70	0.595	9.560	64.53	16.80
11 3/4	65.00	0.534	10.682	58.81	22.60
13 3/8	72.00	0.514	12.347	70.60	24.20

[1] Sizes 4 1/2 in. through 9 5/8 in. are long thread. 10 3/4 in. through 13 3/8 in. are short thread.

[2] Nominal weights, threads and coupling (col. 2) are shown for the purpose of identification in ordering.

[3] Weight gain due to end finishing. See Par. 6.5.

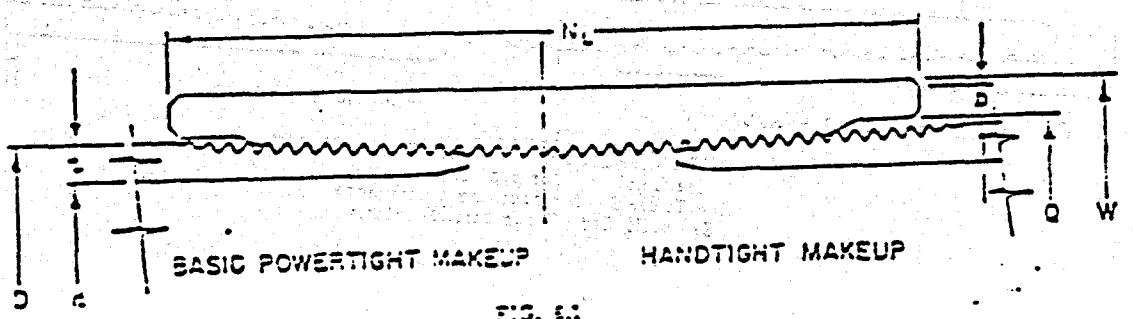


FIG. 6.1

ROUND-THREAD CASING AND COUPLING

See Table 6.1 for pipe dimensions

See Table 8.1 for coupling dimensions

See API Std 5B for thread details

TABLE 6.2
BUTTRESS THREAD CASING
DIMENSIONS AND WEIGHTS
See Fig. 6.2
See Appendix A for Metric Tables

1	2	3	4	5	6
				Calculated Weight lb per ft	
Size Outside Diameter in. D	Nominal Weight:[1] Threads and Coupling, lb per ft	Wall Thickness in t	Inside Diameter in d	Plain End lb/ft w_{pe}	Threads[2] and Coupling Regular lb e_w
4-1/2	15.10	0.337	3.826	14.98	3.20
5	18.00	0.362	4.276	17.93	4.40
5	21.40	0.437	4.126	21.30	2.46
5	24.10	0.500	4.000	24.03	1.24
5-1/2	23.00	0.415	4.670	22.54	3.40
6-5/8	32.00	0.475	5.675	31.20	9.00
7	35.00	0.498	6.004	34.58	5.60
7	38.00	0.540	5.920	37.26	4.20
7-5/8	39.00	0.500	6.625	38.05	14.60
7-5/8	42.80	0.562	6.501	42.39	11.39
7-5/8	47.10	0.625	6.375	46.72	9.23
8-5/8	49.00	0.557	7.511	48.00	19.80
9-5/8	53.50	0.545	8.535	52.85	22.40
10-3/4	60.70	0.545	9.660	59.40	24.40
10-3/4	65.70	0.595	9.560	64.53	22.00
11-3/4	65.00	0.534	10.682	58.81	29.60
13-3/8	72.00	0.514	12.347	70.60	31.60

[1]Nominal weights, threads and coupling (Col. 2), are shown for the purpose of identification in ordering.

[2]Weight gain or loss due to end finishing. See Par. 6.5.

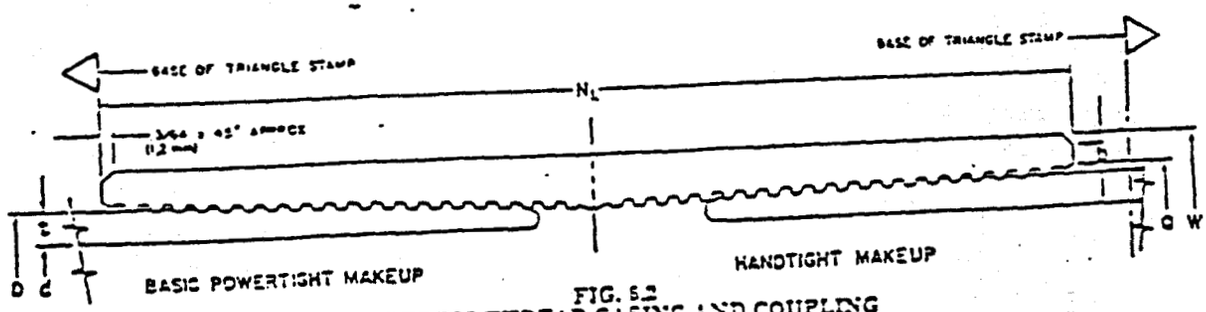


FIG. 6.2
BUTTRESS THREAD CASING AND COUPLING
See Table 6.2 for pipe dimensions
See Table 5. for coupling dimensions
See API Std 5B for thread details

TABLE 6.3
TOLERANCES ON DIMENSIONS AND WEIGHTS
See Appendix A for Metric Tables

OUTSIDE DIAMETER, D

4 1/2 in. and larger . . . . . ±0.75 percent

WALL THICKNESS, t . . . . . -12.5 percent

WEIGHT:
Single Lengths . . . . . +6.5 percent
-3.5 percent
Carload Lots . . . . . -1.75 percent

A carload is considered to be a minimum of 40,000 lb. (18,144 kg).

INSIDE DIAMETER, d, is governed by the outside diameter and weight tolerances.

DRIFT TEST: Each length of casing shall be tested throughout its entire length with a cylindrical drift mandrel conforming to the requirements listed below. The leading edge of the drift mandrel shall be rounded to permit easy entry into the pipe. The drift mandrel shall pass freely through the pipe with a reasonable exerted force equivalent to the weight of the mandrel being used for the test. Pipe shall not be rejected until it has been drift tested when it is free of all foreign matter and properly supported to prevent sagging.

Product and Size, in.	Drift Mandrel Size, in. Length	Diam., min.
Casing		
8 5/8 and smaller	6	d - 1/8
9 5/8 to 13 3/8	12	d - 5/32

Q-125
API
X-U

TABLE 6.4
RANGE LENGTHS
All Lengths in Feet
See Appendix A for Metric Tables

	Range 1	2	3
CASING			
Total range length, incl.	16-25	25-34	34-48
*Range length for 95 percent or more of carload:			
Permissible variation, max.	6	5	6
Permissible length, min.	18	28	36

*Carload tolerances shall not apply to orders of less than a carload shipped from the mill. For any carload of pipe, shipped from the mill to the final destination without transfer or removal from the car, the tolerance shall apply to each car. For any order consisting of more than a carload, and shipped from the mill by rail, but not to the final destination in the rail cars loaded at the mill, the carload tolerances shall apply to the total order, but not to the individual carloads.

TABLE 8.1
ROUND-THREAD CASING COUPLING DIMENSIONS, WEIGHTS, AND TOLERANCES
All dimensions in inches. See Figure 6.1
See Appendix A for Metric Tables

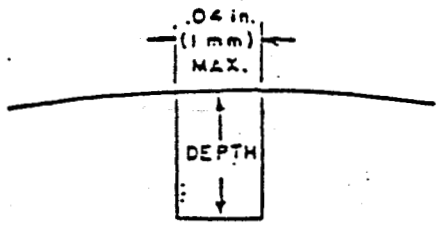
2	3	4	5	6	7	8
Outside Diameter W	Minimum Length N_L Short	Minimum Length N_L Long	Diameter of Recess Q	Width of Bearing Face b	Weight, lb	Min Cv ft-lb
5.000	-	7	4 19/32	5/32	9.07	
5.563	-	7 3/4	5 3/32	3/16	12.56	
6.050	-	8	5 19/32	1/8	14.03	
7.390	-	8 3/4	6 23/32	1/4	24.82	
7.656	-	9	7 3/32	3/16	23.67	
8.500	-	9 1/4	7 23/32	1/4	34.23	
9.625	-	10	8 23/32	9/32	47.48	
10.625	-	10 1/2	9 23/32	9/32	55.77	
11.750	8	-	10 27/32	9/32	45.53	
12.750	8	-	11 27/32	9/32	49.61	
14.375	8	-	13 15/32	5/16	56.23	

:e of the coupling is the same as the corresponding pipe size.
:e on outside diameter W, ± 1% but not greater than +1/8", -1/16".

TABLE 8.2
BUTTRESS THREAD CASING COUPLING DIMENSIONS, WEIGHTS, AND TOLERANCES
All dimensions in inches. See Figure 6.2
See Appendix A for Metric Tables

2	3	4	5	6	7
Outside[2] Diameter W	Minimum Length N_L	Diameter of Chamfer Q	Width of Bearing Face b	Weight, lb Regular	Mi: Cv ft-:
5.000	8 7/8	4.640	1/8	10.11	
5.563	9 1/8	5.140	5/32	12.99	
6.050	9 1/4	5.640	5/32	14.14	
7.390	9 5/8	6.765	1/4	24.46	
7.656	10	7.140	7/32	23.22	
8.500	10 3/8	7.765	5/16	34.84	
9.625	10 5/8	8.765	3/8	45.94	
10.625	10 5/8	9.765	3/8	50.99	
11.750	10 5/8	10.890	3/8	56.68	
12.750	10 5/8	11.890	3/8	61.74	
14.375	10 5/8	13.515	3/8	69.95	

:e of the coupling is the same as the corresponding pipe size.
: clearance API collars are not suitable for grade C-125 due to the low burst
:e on outside diameter W, ± 1% but not greater than +1/8", -1/16".



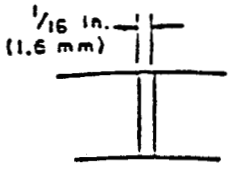
DEPTH: 5%T, ±15% WITH MIN. OF 0.012,
±.002 IN. (0.3±, .05 MM)

LENGTH: FOR EDDY CURRENT — 1.5 IN (38MM) MAX.
TOTAL LENGTH

FOR ULTRASONIC — 2 IN. (50 MM) MIN.
AT FULL DEPTH

FOR DIVERTED FLUX — THE LENGTH OF NOTCH SHALL BE AS REQUIRED BY THE EQUIPMENT DESIGN TO PROVIDE A REPRODUCIBLE SIGNAL WHEN THE REFERENCE STANDARD IS PASSED THROUGH THE EQUIPMENT AT THE INSPECTION LINE SPEED FOR THE PIPE BEING INSPECTED. THREE PASSES THROUGH THE EQUIPMENT SHALL BE REQUIRED TO INSURE REPRODUCIBILITY.

N5 NOTCH



DRILLED HOLE

FIG. 10.1
REFERENCE STANDARD

APPENDIX C
SUPPLEMENTARY REQUIREMENTS

y agreement between the purchaser and manufacturer and when specified on the purchase rder, the following supplementary requirements shall apply:

SR9 - COUPLING BLANKS

SR9.1 Definition. Coupling blanks are coupling material produced to the requirements of this specification and provided to the purchaser in an unthreaded condition.

SR9.2 Coupling Blank Size. Coupling blank dimensions shall be adequate to yield a fully machined cylinder with uniform wall thickness with an outside diameter (OD) and inside diameter (ID) and length as specified on the purchase order. The coupling blanks shall be provided fully machined by the manufacturer only when specified on the purchase order.

SR9.3 Dimensional Limitations. The tolerance on the OD and wall thickness for fully machined coupling blank shall be +3/32", -1/32" unless otherwise agreed upon between the purchaser and the manufacturer. Coupling order with as rolled OD surface shall have an outside diameter tolerance of ±1%, but not greater than +1/8", -1/16".

SR9.4 Imperfections. Coupling blanks that will not be fully machined by either the manufacturer or the purchaser shall be inspected and meet the same requirements as finished couplings. Coupling blanks that will be fully machined by either the manufacturer or the purchaser may have imperfections on the as-rolled surface; however, the machined surface must meet the surface inspection criteria of Par. 8.7 and be to the specified dimensions.

SR10 - UPSET CASING

SR10.1 Dimensions. By agreement between the purchaser and the manufacturer and when specified on the purchase order Q-125 grade casing shall be provided with upset end(s). Dimensions of the upset (including tolerances) shall be specified on the purchase order.

SR10.2 Material Properties. Tensile, impact, and hardness properties of the pipe and upset shall comply with the requirements of Section 4. The allowable hardness variation of the upset shall be based on the nominal wall thickness of the upset specified on the purchase order. The tensile test specimens for the upset shall be the largest ASTM round specimen feasible. The size to be used will be agreed to by the manufacturer and the purchaser prior to testing.

SR10.3 Heat Treatment. Upset pipe shall be heat treated full length after upsetting.

SR10.4 Other testing considerations. The frequency of testing, retest provisions, identification, etc. for both the pipe body and the upset material shall be as specified in Section 4.

SR10.5 End Area Inspection. The outside and inside surfaces of the ends of upset pipe shall be inspected for transverse and longitudinal defects by the magnetic particle method after final heat treatment.

SR10.6 Surface Inspection of Extreme Line Casing. The upset portions of extreme line casing shall be visually examined for imperfections. The maximum permissible depth of imperfections measured from the surface shall be as follows:

a. Pin End
External Surface..... 12-1/2% of specified pipe body wall thickness

Internal Surface
From end of pipe to plane of external shoulder (bored) .015 in. (0.38mm)

From plane of external shoulder to upset runout..... 12-1/2% of specified pipe body wall thickness

b. Box End
External Surface
From end of pipe to a plane 4-3/4 in. (120.6 mm) from the end of pipe 7-5/8 in. and smaller, and 6-1/2 in. (165.1 mm) from the end for pipe 8-5/8 in. and larger ..... .010 in. (0.25 mm)

From a plane 4-3/4 in. (120.6 mm) from the end for pipe 7-5/8 in. and smaller,

and 6-1/2 in. (165.1 mm) from the end for pipe 8-5/8 in. and larger, to the upset runout ... 12-1/2% of specified pipe body wall thickness

Internal Surface..... 12-1/2% of specified pipe body wall thickness

c. All machined surfaces of the box shall be free of seams and cracks. All threads and seals shall be free of any imperfections which break the continuity.

SR10.7 Dimensions and Weights. Dimensions and weights for extreme line casing are shown in Table SR10.1.

TABLE SR10.1
EXTREME-LINE CASING
[1]DIMENSIONS AND WEIGHTS
See Fig. 6.3
See Appendix A for Metric Tables

1	2	3	4	5	6	7
		Pipe Body Dimensions				
Size: Outside Diameter in.	Nominal Weight: Upset and Threaded lb.per ft	Wall Thickness in.	Inside Dia. in.	Plain End lb/ft	Upset and Threaded	
					Std. lb	Opt. lb
OD		WALL	ID	W_{pe}	e_w	e_w
5	18.00	0.362	4.276	17.93	1.40	...
5-1/2	23.00	0.415	4.670	22.54	0.00	-1.60
6-5/8	32.00	0.475	5.675	31.20	- 1.40	-3.00
7	32.00	0.453	6.094	31.68	- 0.60	-2.40
7	35.00	0.498	6.004	34.58	1.00	-1.80
7	38.00	0.540	5.920	37.26	- 0.20	-3.00
7-5/8	39.00	0.500	6.625	38.05	- 2.20	-4.60
8-5/8	49.00	0.557	7.511	48.00	- 0.80	-4.20
9-5/8	47.00	0.472	8.681	46.14	2.20	-1.20
9-5/8	53.50	0.545	8.535	52.85	- 1.20	-4.60
10-3/4	55.50	0.495	9.760	54.21	15.80	...
10-3/4	60.70	0.545	9.650	59.40	13.00	...

TABLE SP10.1 (Continued)

1	2	8	9	10	11	12	13	14	15	16
				Pin and Box Dimensions-Finished						
		Box and Pin			Box	Pin and Box Made-up[3] (Power-Tight)				
Size: Outside Diameter, in.	Nominal Weight Upset and Threaded lb. per ft.	Outside Dia. (Turned) in. +.020 -.010		Inside Dia. (Bored) in. +.015 -.015	Inside Dia. (Bored) in. +.030 -.000	Outside Dia. in. +.020 -.010		Inside Dia. in. +.010 -.005	Drift Dia. for Finish Bored Upset Members in.	Drift Dia.[4] for Full Length Drifting, in. min.
OD		Std. M	Opt. M	Std. & Opt. B	Std. & Opt. D	Std. 2	Opt. 2	Std. & Opt.	Std. & Opt.	Std. & Opt.
5	18.00	5.360	....	4.208	4.235	5.360	....	4.193	4.183	4.151
5-1/2	23.00	5.860	5.780	4.619	4.647	5.860	5.780	4.610	4.595	4.545
6-5/8	32.00	7.000	6.930	5.624	5.652	7.000	6.930	5.615	5.600	5.550
7	32.00	7.390	7.310	6.042	6.069	7.390	7.310	6.032	6.017	5.969
7	35.00	7.530	7.390	5.949	5.977	7.530	7.390	5.940	5.925	5.879
7	38.00	7.530	7.390	5.869	5.897	7.530	7.390	5.860	5.845	5.795
7-5/8	39.00	8.010	7.920	6.575	6.602	8.010	7.920	6.565	6.550	6.500
8-5/8	49.00	9.120	9.030	7.460	7.488	9.120	9.030	7.451	7.436	7.386
9-5/8	47.00	10.100	10.020	8.633	8.658	10.100	10.020	8.621	8.606	8.525
9-5/8	53.50	10.100	10.020	8.485	8.512	10.100	10.020	8.475	8.460	8.379
10-3/4	55.50	11.460	....	9.639	9.664	11.460	....	9.629	9.614	9.604
10-3/4	60.70	11.460	....	9.539	9.564	11.460	....	9.529	9.514	9.504

[1]Due to the nature of extreme-line casing, certain dimensional symbols and nomenclature differ from those for similar details for other pipe covered by this specification.

[2]Made-up joint OD is same as outside diameter dimension M.

[3]Shown for reference.

[4]See Table 6.7.

[5]Weight gain or loss due to end finishing. See Par. 5.5.

SR11 - ELECTRIC RESISTANCE WELDED CASING

SR11.1 General. Casing may be produced by the electric resistance weld process only when detailed quality control provisions are jointly agreed to by the manufacturer and the user prior to the manufacture of the pipe. Tensile, impact and hardness testing must be performed as frequently as required for seamless casing.

SR11.2 Flattening Test Requirements.

SR11.2.1 Flattening Test Frequency. Flattening tests shall be performed on each end of each length of pipe. On one end, flattening tests shall be made with weld at 6 o'clock and on the other end with weld at 3 o'clock. All inspection shall be performed and imperfections removed (cut backs made) prior to removal of flattening test specimens.

SR11.2.2 Flattening Tests. Test specimens shall be rings or crop ends not less than 2-1/2 in. (63.5 mm) long cut from each end of each length of pipe. Precaution shall be taken so that the test specimens can be identified with respect to the lengths of pipe from which they are cut. Flattening tests shall be conducted with the weld line located at the 6 or 3 o'clock position. Minimum acceptable flattening without cracking at any location shall be shown in Table SR11.1 or 0.85 D, whichever requires the greater flattening.

TABLE SR11.1
DISTANCE BETWEEN PLATES FOR
FLATTENING TESTS

1 Grade	2 D/t Ratio	3 Distance Between Plates, Max. in. or mm
Q-125	All	D (1.092 - 0.014 D/t)

D = Outside diameter of pipe, in inches or mm.
t = Wall thickness of pipe, in inches or mm.

No cracks or breaks shall occur anywhere in the specimen until the distance between the plates is less than that specified above; nor shall evidence of poor texture, incomplete fusion in the weld, laminations, burnt metal, or extruded metal develop during the entire flattening process.

SR11.2.3 Flattening Retests. If either test specimen representing a single length of pipe fails to meet the requirements specified, the manufacturer may elect to make three additional tests on specimens cut from the same end of the same length of pipe. The joint is accepted only if all three tests meet the specification. At the option of the manufacturer, any lot of pipes may be reheat treated and retested.

SR11.3 Other Material Properties. Electric resistance welded casing shall meet the same tensile, impact, and hardness requirements as the seamless pipe. The impact test specimen shall be machined with the notch at the weld line. The frequency at testing, retest provisions, identification, etc., shall be as specified in Section 4.

SR11.4 Inspection and Rejection.

SR11.4.1 Non Weld Area Inspection. The pipe body shall be inspected the same as the seamless product as specified in Section 10.

SR11.4.2 Nondestructive Inspection of Weld Seam. The weld seam of pipe furnished to this specification shall be inspected nondestructively full length (100 percent) by ultrasonic methods. The inspection shall be performed after all heat treatment and prior to flattening tests.

SR11.4.3 Equipment. Any Equipment utilizing the ultrasonic principles capable of continuous and uninterrupted inspection of the weld seam shall be used. The equipment shall be checked with an applicable reference standard as described in Par. 10.9.b at least once every working turn to demonstrate the effectiveness of the inspection equipment and procedures. The equipment shall be adjusted to produce well defined indications when the reference standard is scanned by the inspection unit in a manner simulating inspection of the product and shall be capable of inspecting 1/16" (1.6 mm) on either side of the weld line for the entire wall thickness.

SR11.4.4 Reference Standards. Reference standards shall have the same specified diameter and thickness as the product being inspected and may be of any convenient length as determined by the manufacturer. Reference standards shall contain machined notches, one on the inside surface and one on the outside surface, or a drilled hole, as shown in Figure SR11.1 at the option of the manufacturer. The notches shall be parallel to the weld seam, and shall be separated by distance sufficient to produce two separate and distinguishable signals. The 1/8" (3.2 mm) hole shall be drilled through the wall and perpendicular to the surface of the reference standard as shown in Figure SR11.1.

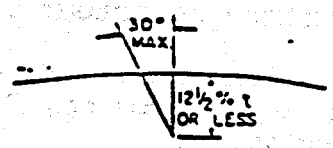
NOTE: The reference standards defined above are convenient standards for calibration of nondestructive testing equipment. The dimensions of these standards should not be construed as the minimum size imperfection detectable by such equipment.

SR11.4.5 Acceptance Limits. Table SR11.2 gives the height of acceptance limit signals in per cent of the height of signals produced by reference standards. An imperfection that produces a signal greater than the acceptance limit signal given in Table SR11.2 shall be considered a defect unless it can be demonstrated by the manufacturer that the imperfection does not exceed the provisions of Par. 10.6

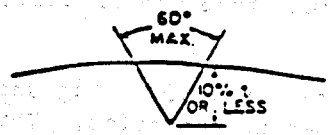
TABLE SR11.2
ACCEPTANCE LIMITS

1	2		3
Type Notch	Size Hole In.	mm	Acceptance Limit Signal Percent
N10, V10	1/8	3.2	100
B, P	———	———	80

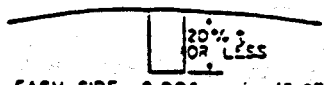
SR11.4.6 Supplemental Nondestructive Inspection. By agreement Between the purchaser and manufacturer, the entire outer surface of pipe furnished to this specification may be nondestructively inspected in accordance the supplemental requirements stipulated in Appendix C.



B (BUTTRESS) NOTCH

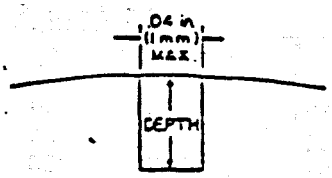


V10 NOTCH



AREA OF EACH SIDE, 0.006 sq. in. (3,87 mm²) MAX.

P (PARALLEL SIDED) NOTCH



DEPTH

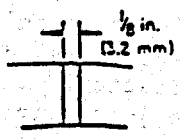
10% t ± 15% WITH MIN OF
0.012, ± .002 in. (0,3 ± .05 mm)

LENGTH

FOR EDDY CURRENT-1.5 in. (38mm) MAX.
Total Length

FOR DIVERTED FLUX
AND ULTRASONIC – 2 in. (50mm) MIN.
at Full Depth

N10 NOTCH



DRILLED HOLE

SK 11.1

FIG. 11.1

REFERENCE STANDARDS

See Par. 10.10

SR12 - INCREASED FREQUENCY OF MECHANICAL TESTING

SR12.1 General. The supplementary requirement specifies the increased frequency of tensile, impact and hardness tests on casing. Testing frequency on coupling stock is same as that in Section 4.

SR12.2 Test Procedure. Use the test procedure in Section 4 for performing tensile, impact and hardness tests.

SR12.3 Frequency Of Testing. Every joint of casing shall be numbered in numerical sequence following the tempering operation. This number shall be used for all subsequent identification. Tensile, impact and hardness test specimens for casing (as required) shall be removed from locations shown in Figure 4.2 at frequencies specified below.

SR12.3.1 Casing. The tensile, impact and hardness test specimens shall be taken at the same frequency. The sample size for each lot of casing shall be selected by the manufacturer from the following table:

Sample	F	Sample Size	F
3	13.857	16	4.534
4	9.215	18	4.415
5	7.501	20	4.319
6	6.612	25	4.143
7	6.061	30	4.022
8	5.686	35	3.937
9	5.414	40	3.866
10	5.203	45	3.811
12	4.900	50	3.766
14	4.690	∞	3.090

See end of specification for an explanation of the testing frequency and reference information.

The F factor shown for the lot size selected shall be used in SR12.5 to determine acceptance or rejection based on the transverse impact requirements of this specification. The number of samples is not dependent on the size of the lot. The joints for testing may be selected at random provided the selection procedure provides samples representing at least the start and end of the heat treat cycle and the front and the back ends of the tubes (approximately 50% each end). By definition, the front of the tube is the end which enters the tempering furnace first.

SR12.4 Retest Casing. If a tensile, impact, or hardness test specimen fails to conform to the specified requirements, the manufacturer shall either make an additional test on each end of the pipe in question to verify the property in question or reject the pipe. Any pipe failing to meet the tensile, impact, or hardness requirements of this specification upon retest shall be rejected. If any pipe is rejected from a lot due to failure to demonstrate acceptable tensile, impact, or hardness requirements, then the pipe tempered immediately before and after the joint rejected shall be tested on the same end as the pipe that was rejected. If one or both of the retest specimens fail to conform to the specified requirements, the manufacturer may elect to test individually all remaining lengths in the lot, in which case determinations are required only for the particular requirement with which the specimens failed to comply in the preceding tests (i.e., a lot which meets the hardness and impact criteria but which has been rejected due to low elongation must be retested to verify tensile properties. The retest sample must demonstrate that all criteria of 4.1 and SR12 are met). Specimens for all retests shall be taken in the same manner as the initial test specimen.

SR12.5 Impact Requirements. Acceptable impact strength for any lot of casing. Subsequent to all impact testing, the mean and standard deviation shall be calculated for the transverse average impact values. See end of specification for an explanation of the testing frequency and reference information. This calculation shall be made including the data for those joints rejected due to low impact strength. The Lot Minimum impact strength shall be estimated (based on the sample data) as follows:

C_v Lot Minimum = Lot Mean − F x Lot Standard Deviation
where F is determined in SR12.3.

SR12.6 Lot Acceptance/Rejection. The lot shall be accepted provided C_v Lot Minimum is greater than or equal to C_v determined in 4.7.3. If C_v Lot Minimum is less than C_v, then additional joints may be selected for impact testing by the manufacturer with the concurrence of the purchaser or his representative. The lot mean, lot standard deviation, and C_v Lot minimum shall be determined based on the new F value. The new C_v Lot Minimum shall exceed C_v determined in SR12.5 or the lot shall be rejected. Additional samples may be taken from additional pipes as many times as necessary. If the casing is rejected as a lot, then each pipe may be tested to demonstrate that it exceeds the requirements of SR12.5.

EXPLANATION OF TESTING FREQUENCY

The following sampling procedure assumes that the impact strength for the lot has a normal distribution and that all test data reresenting a lot is used to determine the transverse impact mean and standard deviation for the lot (this includes those below the minimum joint requirements).

Since a string of casing consists of more than one joint of pipe, then any meaningful analysis should consider the probability that the string includes one or more defective pipes (defective pipes are those whose properties do not meet the specification). The following is applicable for a pipe string of 100 joints:

Probability of one joint being defective	Probality that one or more defective pipes in included in the string of 100 pipes
1/10	0.99997
1/100	0.634
1/1,000	0.095 (or 10%)
1/10,000	0.00995 (or 1%)

Based on the standard statistical techniques, with a 95% confidence limit, at least 99.9% of the population is greater than the minimum required transverse impact strength, provided that:

$$\text{Lot Mean} - F \times \text{Lot Standard Deviation} \geq C_v$$

where C_v is as determined in 4.7.3 and F is determined in 4.5.1 based on the sample size selected. The joints selected for sampling must be taken at random to represent the entire lot and processing variables.

This procedure is taken from the National Bureau of Standards, Handbook 91, U.S. Department of Commerce, Experimental Statistics. The table in 4.5.1 comes from Table A-7 in the above. The procedure to calculate the mean and standard deviation for the average transverse impact strength for the lot come from the above, Chapter 1 Basic Statistical Concepts and Preliminary Considerations, Sections 1-6.

Since this testing procedure could result in a 10% chance that one or more joints (having transverse impact strength below the minimum) will be included in the lot of 100 pipes, the user should utilize the best inspection procedures available to insure that the pipe is as nearly imperfection free as possible.

APPENDIX IV

GEOPRESSURED - GEOTHERMAL WELL REPORT

VOLUME II

WELL WORKOVER AND PRODUCTION TESTING

FOR

PERIOD FEB. 1982 TO OCT. 1985

FOR:

U.S. DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE

CONTRACT NO. DE-AC07-80ET27217

TECHNADRIL - FENIX & SCISSON

T-F&S/DOE GLADYS McCALL NO. 1 WELL

CAMERON PARISH, LOUISIANA

APPENDIX IV

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
WELL WORKOVER AND PRODUCTION TESTING
FOR
PERIOD FEB. 1982 TO OCT. 1986

FOR:
U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
CONTRACT NO. DE-AC07-80ET27217

RESERVOIR LIMIT TEST DATA

SAND ZONE NO. 9 (15,508 - 15,636 FEET)

MARCH 21 - APRIL 17, 1983

DATA RECORDED BY RESERVOIR DYNAMICS, INC.

03/21/1983 RESERVOIR DYNAMICS INC. Page: 1

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
17:54:00	0:00:00	1-0001	12910.81	12910.81	297.1	5940.73	169.00	55.2
17:55:00	0:01:00	1-0002	.01	12910.82	297.1	5940.90	163.00	46.4
RESERVOIR LIMITS SANDS ON #								
17:57:00	0:03:00	1-0004	.18	12911.00	297.2	5941.22	167.00	34.7
17:58:00	0:04:00	1-0005	-.18	12910.82	297.1	5941.22	169.00	36.6
17:59:00	0:05:00	1-0006	-.41	12910.41	297.2	5941.18	160.00	33.3
18:00:00	0:06:00	1-0007	.33	12910.74	297.2	5941.24	167.00	30.4
18:01:00	0:07:00	1-0008	.31	12911.05	297.1	5941.34	162.00	27.2
18:02:00	0:08:00	1-0009	-.48	12910.57	297.1	5941.43	170.00	36.4
18:03:00	0:09:00	1-0010	.07	12910.64	297.0	5941.50	169.00	35.7
PREPARING TO OPEN WELL								
18:03:50	0:09:50	1-0012	-25.72	12884.92	297.1	5749.23	15839.50	37.9
18:06:30	0:12:30	1-0014	11.88	12896.80	297.3	5940.46	160.00	40.9
18:06:40	0:12:40	1-0015	1.88	12898.68	297.3	5941.12	159.00	40.7
18:06:50	0:12:50	1-0016	1.08	12899.76	297.3	5941.56	159.00	40.5
18:07:00	0:13:00	1-0017	1.54	12901.30	297.4	5942.08	162.00	40.2
18:07:10	0:13:10	1-0018	.58	12901.88	297.3	5942.39	163.00	40.0
18:07:20	0:13:20	1-0019	.95	12902.83	297.3	5942.84	165.00	39.2
18:07:30	0:13:30	1-0020	.77	12903.60	297.3	5943.17	153.00	38.8
18:07:40	0:13:40	1-0021	.45	12904.05	297.3	5943.38	156.00	38.3
18:07:50	0:13:50	1-0022	.64	12904.69	297.4	5943.65	152.00	37.7
18:08:00	0:14:00	1-0023	.40	12905.09	297.5	5943.88	162.00	37.3
18:08:10	0:14:10	1-0024	.51	12905.60	297.4	5944.20	157.00	36.8
18:08:20	0:14:20	1-0025	.32	12905.92	297.5	5944.35	159.00	36.6
18:08:30	0:14:30	1-0026	.30	12906.22	297.3	5944.61	158.00	36.1
18:08:40	0:14:40	1-0027	.31	12906.53	297.5	5944.87	161.00	35.7
18:08:50	0:14:50	1-0028	.18	12906.71	297.5	5944.91	4.00	35.0
18:09:00	0:15:00	1-0029	.32	12907.03	297.4	5945.17	4.00	34.3
18:09:10	0:15:10	1-0030	.27	12907.30	297.4	5945.27	4.00	34.0
18:09:20	0:15:20	1-0031	.29	12907.59	297.4	5945.38	4.00	33.4
18:09:30	0:15:30	1-0032	.29	12907.88	297.5	5945.45	4.00	33.1
18:09:40	0:15:40	1-0033	.22	12908.10	297.4	5945.64	4.00	32.7
18:09:50	0:15:50	1-0034	.13	12908.23	297.5	5945.75	4.00	32.5
18:10:00	0:16:00	1-0035	-.01	12908.22	297.5	5945.85	4.00	32.0
18:10:10	0:16:10	1-0036	.25	12908.47	297.5	5945.90	4.00	31.6
18:10:20	0:16:20	1-0037	.32	12908.79	297.5	5945.96	4.00	31.0
18:10:30	0:16:30	1-0038	.26	12909.05	297.6	5946.05	4.00	30.7
18:10:40	0:16:40	1-0039	.10	12909.15	297.6	5946.10	4.00	30.2
18:10:50	0:16:50	1-0040	.11	12909.26	297.5	5946.23	4.00	29.7
19:11:00	0:17:00	1-0041	-001	12909.25	297.5	5946.23	4.00	29.3
18:11:10	0:17:10	1-0042	.23	12909.48	297.4	5946.36	4.00	28.4
18:11:20	0:17:20	1-0043	.06	12909.54	297.6	5946.39	4.00	27.8
18:11:30	0:17:30	1-0044	-.05	12909.49	297.5	5946.41	4.00	39.8
18:11:40	0:17:40	1-0045	.13	12909.62	297.6	5946.44	4.00	43.5
18:11:50	0:17:50	1-0046	.06	12909.68	297.7	5946.50	4.00	46.0
18:12:00	0:18:00	1-0047	-.03	12909.65	297.5	5946.54	4.00	46.6
18:12:10	0:18:10	1-0048	.15	12909.80	297.5	5946.56	4.00	46.6
18:12:30	0:18:30	1-0049	.12	12909.92	297.6	5946.62	3.00	45.9
18:12:40	0:18:40	1-0050	.30	12910.22	297.6	5946.66	4.00	45.3
18:12:50	0:18:50	1-0051	.09	12910.31	297.7	5946.70	3.00	44.9
18:13:00	0:19:00	1-0052	.07	12910.38	297.6	5946.70	3.00	44.4

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
18:13:10	0:19:10	1-0053	.10	12910.48	297.6	5946.76	4.00	4388
18:13:20	0:19:20	1-0054	-.09	12910.39	297.6	5946.80	3.00	43.5
18:13:30	0:19:30	1-0055	.18	12910.57	297.5	5946.81	3.00	42.9
18:13:40	0:19:40	1-0056	.07	12910.64	297.6	5946.83	3.00	42.6
18:13:50	0:19:50	1-0057	-.01	12910.63	297.6	5946.84	3.00	42.1
18:14:00	0:20:00	1-0058	-.17	12910.46	297.5	5946.83	3.00	41.8
18:14:10	0:20:10	1-0059	.15	12910.61	297.6	5946.83	3.00	41.2
18:14:20	0:20:2	1-0060	0.00	12910.61	297.6	594..89	3.00	40.8
18:14:30	0:20:30	1-0061	.22	12910.83	297.5	5946.89	3.00	40.2
18:14:40	0:20:40	1-0062	-.05	12910.78	297.7	5946.99	4.00	39.7
18:14:50	0:20:50	1-0063	-.13	12910.65	297.6	5946.97	4.00	39.3
18:15:00	0:21:00	1-0064	-.25	12910.40	297.6	5947.01	4.00	38.7
18:15:10	0:21:10	1-0065	.10	12910.50	297.6	5947.04	4.00	38.4
18:15:20	0:21:20	1-0066	.25	12910.75	29766	5947.04	4.00	37.8
18:15:30	0:21:30	1-0067	.17	12910.92	297.7	5947.05	4.00	37.5
18:15:40	0:21:40	1-0068	.09	12911.01	297.6	5947.04	4.00	37.1
18:15:50	0:21:50	1-0069	.13	12911.14	297.6	5947.03	4.00	36.7
18:16:00	0:22:00	1-0070	.05	12911.19	297.6	5947.03	4.00	36.4
18:16:10	0:22:10	1-0071	-.02	12911.17	297.6	5947.02	4.00	36.0
18:16:20	0:22:20	1-0072	.07	12911.24	297.7	5946.97	4.00	35.9
18:16:30	0:22:30	1-0073	.02	12911.26	297.6	5946.98	4.00	35.6
18:16:40	0:22:40	1-0074	.16	12911.42	297.6	5946.97	4.00	55.4
18:16:50	0:22:50	1-0075	.05	12911.47	297.6	5946.99	4.00	35.1
18:17:00	0:23:00	1-0076	0.00	12911.47	297.6	5946.99	4.00	34.7
18:17:10	0:23:10	1-0077	-.01	12911.46	297.6	5947.00	4.00	34.2
18:17:20	0:23:20	1-0078	-.17	12911229	297.6	5947.01	4.00	33.8
18:17:30	0:23:30	1-0079	-.03	12911.26	297.6	5947.00	4.00	33.7
18:17:40	0:23:40	1-0080	.99	19911.35	297.6	5946.95	4.00	34.5
18:17:50	0:23:50	1-0081	-.01	12911.34	297.6	5947.02	4.00	38.5
18:18:00	0:24:00	1-0082	.03	12911.37	297.7	5947.03	4.00	47.8
18:18:10	0:24:10	1-0083	.02	12911.39	297.6	5947.01	4.00	52.7
18:18:20	0:24:20	1-0084	-.02	12911.37	297.6	5947.00	4.00	57.1
18:18:30	0:24:30	1-0085	-.36	12911.01	297.6	5849.70	1070.00	59.5
18:18:40	0:24:40	1-0086	-5.28	12905.73	297.6	5862.45	1771.00	60.6
18:18:50	0:24:50	1-0087	-12.35	12893.38	297.6	5789.18	3053.00	62.0
18:19:00	0:25:00	1-0088	-11.32	12882.06	297.6	5732.94	3978.00	62.8
18:19:10	0:25:10	1-0089	-18.96	12863.10	297.6	5713.37	4398.00	63.7
18:19:20	0:25:20	1-0090	-18.17	12844.93	297.6	5676.46	4877.00	64.3
18:99:30	0:25:30	1-0091	-10.37	12834.56	297.6	5669.42	4885.00	65.1
18:19:40	0:25:40	1-0092	-13.49	12821.07	297.6	5644.05	5238.00	65.9
18:19:50	0:25:50	1-0093	-8.09	12812.98	297.6	5644.08	5186.00	66.4
18:20:00	0:26:00	1-0094	-10.00	12802.98	297.6	5640.89	5341.00	67.2
18:20:10	0:26:10	1-0095	-5.52	12797.46	297.6	5639.11	5491.00	67.6
18:20:20	0:26:20	1-0096	-6.81	12790.65	297.6	5636.77	5477.00	68.
18:20:30	0:26:30	1-0097	-5.51	12785.14	297.5	5635.41	5555.00	68.7
18:20:40	0:26:40	1-0098	-3.16	12781.98	297.6	5634.95	5646.00	69.2
18:20:50	0:26:50	1-0099	-3.79	12778.19	297.7	5633.07	5921.00	69.6
18:21:00	0:27:00	1-0100	-2.15	12776.04	297.7	5684.08	5336.00	69.8
18:21:10	0:27:10	1-0101	.90	12776.94	297.7	5675.16	5287.00	70.0
18:21:20	0:27:20	1-0102	.54	12777.48	297.5	5674.46	5177.00	70.4
18:21:30	0:27:30	1-0103	.55	12778.03	297.6	5675.00	5163.00	70.6
18:21:40	0:27:40	1-0104	.13	12778.16	297.6	5675.34	5156.00	70.8
18:21:50	0:27:50	1-0105	.20	12778.36	297.6	5675.32	5163.00	71.0
18:22:10	0:28:10	1-0106	.01	12778.37	297.7	5675.91	5135.00	71.2
18:22:20	0:28:20	1-0107	-.11	12778.26	297.6	5675.54	5164.00	71.5
18:22:30	0:28:30	1-0108	-.39	12777.87	297.7	5675.60	5174.00	72.1
18:22:40	0:28:40	1-0109	-.25	12777.62	297.7	5675.52	5206.00	72.5
18:22:50	00:28:50	1-0110	-.22	12777.40	297.8	5675.36	5239.00	73.1
18:23:00	0:29:00	1-0111	-.44	12776.94	297.7	5675.99	5259.00	73.3

18:23:10	0:29:10	1-0112	-.16	12776.78	297.7	5675.98	5262.00	73.6
18:23:20	0:29:20	1-0113	-.21	12776.57	297.6	5676.16	5250.00	73.8

03/21/1983 RESERVOIR DYNAMICS INC. Page: 3

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
18:23:30	0:29:30	1-0114	-.20	12776.37	297.7	5676.08	5260.00	73.7
18:23:40	0:29:40	1-0115	-.26	12776.11	297.7	5676.15	5282.00	73.3
18:23:50	0:29:50	1-0116	-.16	12775.95	297.6	5676.04	5305.00	73.1
18:24:00	0:30:00	1-0117	-.41	12775.54	297.7	5676.65	5269.00	72.6
18:24:10	0:30:10	1-0118	-.20	12775.34	297.7	5676.78	5244.00	72.4
18:24:20	0:30:20	1-0119	-.41	12774.93	297.7	5677.31	5286.00	71.8
18:24:30	0:30:30	1-0120	-.40	12774.53	297.7	5676.99	5306.00	71.2
18:24:40	0:30:40	1-0121	-.19	12774.34	297.7	5677.33	5286.00	70.7
18:24:50	0:30:50	1-0122	-.23	12774.11	297.7	5677.42	5377.00	69.9
18:25:00	0:31:00	1-0123	-.28	12773.83	2297.8	5678.16	5389.00	69.4
18:25:10	0:31:10	1-0124	-.23	12773.60	297.8	5684.58	5327.00	68.6
18:25:20	0:31:20	1-0125	.23	12773.83	297.8	5683.14	5277.00	68.0
18:25:30	0:31:30	1-0126	.01	12773.84	297.7	5683.88	5306.00	66.9
18:25:40	0:31:40	1-0127	-.07	12773.77	297.7	5683.70	5346.00	65.7
18:25:50	0:31:50	1-0128	.16	12773.93	297.8	5684.63	5367.00	64.8
18:26:00	0:32:00	1-0129	-.12	12773.81	297.7	5684.90	5109.00	63.6
18:26:10	0:32:10	1-0130	-.16	12773.65	297.8	5685.10	5097.00	62.8
18:26:20	0:32:20	1-0131	-.01	12773.64	297.8	5685.56	5093.00	61.5
18:26:30	0:32:30	1-0132	-.27	12773.37	297.7	5685.55	5179.00	60.7
18:26:40	0:32:40	1-0133	-.10	12773.27	297.6	5685.89	5202.00	59.3
18:26:50	0:32:50	1-0134	-.88	17773.19	297.8	5686.18	5213.00	58.0
18:27:00	0:33:00	1-0135	-.14	12773.05	297.8	5686.56	5227.00	57.1
18:27:10	0:33:10	1-013	-.30	12772.75	297.9	5686.73	5208.00	55.4
18:27:20	0:33:20	1-0137	-.09	12772.66	297.8	5687.22	5441.00	54.3
18:27:30	0:33:30	1-0138	-.09	12772.57	297.7	5687.58	5534.00	52.7
18:27:40	0:33:40	1-0139	-.49	12772.08	297.8	5688.42	5540.00	51.4
18:27:50	0:33:50	1-0140	-.07	12772.01	297.8	5688.26	5554.00	49.4
18:28:00	0:34:00	1-0141	-.38	12771.63	297.8	5688.80	5500.00	47.6
18:28:10	0:34:10	1-0142	-.07	12771.56	297.8	5688.79	5472.00	46.4
18:28:20	0:34:20	1-0143	-.23	12771.33	297.8	5689.52	5228.00	44.5
18:28:30	0:34:30	1-0144	-.04	12771.29	297.8	5689.24	5212.00	43.2
18:28:40	0:34:40	1-0145	-.24	12771.05	297.8	5689.81	5260.00	41.5
18:28:50	0:34:50	1-0146	-.02	12771.03	297.9	5690.05	5352.00	40.3
18:29:00	0:35:00	1-0147	-.06	12770.97	297.7	5690.34	5356.00	38.6
18:29:10	0:35:10	1-0148	-.26	12770.71	297.9	5691.07	5390.00	37.5
18:29:20	0:35:20	1-0149	-.10	12770.61	297.8	5691.06	5408.00	35.9
18:29:30	0:35:30	1-0150	-.12	12770.49	297.9	5691.62	5399.00	34.8
18:29:40	0:35:40	1-0151	-.17	12770.32	297.9	5691.88	5407.00	33.2
18:29:50	0:35:50	1-0152	-.18	12770.14	297.8	5692.07	5377.00	31.7
18:30:00	0:36:00	1-0153	-.08	12770.06	297.8	5693.09	5370.00	30.8
18:30:10	0:36:10	1-0154	-.12	12769.94	297.9	5692.85	5397.00	29.5
18:30:20	0:36:20	1-0155	-.07	12769.87	297.8	5693.12	5390.00	28.7
18:30:30	0:36:30	1-0156	.01	12769.88	297.9	5693.33	5378.00	27.6
18:30:40	0:36:40	1-0157	-.18	12769.70	298.0	5693.43	5392.00	26.9
18:30:50	0:36:50	1-0158	-.10	12769.60	297.8	5694.01	5417.00	25.9
18:31:00	0:37:00	1-0159	-.30	12769.30	297.8	5694.52	5509.00	33.7
18:31:10	0:37:10	1-0160	-.06	12769.24	297.9	5694.73	5491.00	44.6
18:31:20	0:37:20	1-0161	-.25	12768.99	297.8	5695.12	5446.00	52.3
18:31:30	0:37:30	1-0162	-.09	12768.90	297.9	5695.58	5462.00	54.5
18:31:50	0:37:50	1-0163	-.25	12768.65	297.9	5696.30	5479.00	55.9
18:32:00	0:38:00	1-0164	-.08	12768.57	297.9	5696.59	5441.00	55.7
18:32:10	0:38:10	1-0165	-.18	12768.39	297.8	5697.06	5455.00	55.4
18:32:20	0:38:20	1-0166	-.10	12768.29	297.9	5697.59	5470.00	55.1

18:32:30	0:38:30	1-0167	-.31	12767.98	297.9	5697.64	5475.00	54.7
18:32:40	0:38:40	1-0168	-.10	12767.88	297.9	5697.69	5473.00	54.4
18:32:50	0:38:50	1-0169	.03	12767.91	297.8	5697.95	5454.00	53.9
18:33:00	0:39:00	1-0170	-.22	12767.69	297.9	5699.34	5450.00	53.5
18:33:10	0:39:10	1-0171	-.20	12767.49	297.9	5698.91	5485.00	69.1
18:33:20	0:39:20	1-0172	-.02	12767.47	297.8	5699.34	5509.00	77.9
18:33:30	0:39:30	1-0173	-.07	12767.40	298.0	5699.22	5487.00	84.2
18:33:40	0:39:40	1-0174	-.12	12767.28	297.9	5699.88	5540.00	86.2

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
18:33:50	0:39:50	1-0175	-.28	12767.00	297.9	5699.55	5570.00	87.5
18:34:00	0:40:00	1-0176	-.10	12766.90	297.8	5700.43	5547.00	87.8
18:34:10	0:40:10	1-0177	-.06	12766.84	297.9	5700.72	5568.00	87.8
18:34:20	0:40:20	1-0178	-.01	12766.83	297.9	5701.03	5516.00	87.6
18:34:30	0:40:30	1-0179	-.13	12766.70	297.8	5701.52	5503.00	87.3
18:34:40	0:40:40	1-0180	-.17	12766.53	297.9	5701.64	5485.00	86.9
18:35:00	0:41:00	1-0181	-.40	12766.13	297.9	5702.65	5559.00	88.8
18:35:30	0:41:30	1-0182	-.19	12765.94	297.9	5703.22	5621.00	91.8
18:36:00	0:42:00	1-0183	-.32	12765.62	297.8	5704.06	5491.00	94.8
18:36:30	0:42:30	1-0184	-.57	12765.05	297.9	5704.96	5484.00	99.1
18:37:00	0:43:00	1-0185	-.14	12764.91	297.9	5706.23	5492.00	102.7
18:37:30	0443:30	1-0186	-.23	12764.68	297.9	5706.90	5489.00	108.2
18:38:00	0:44:00	1-0187	-.10	12764.58	297.9	5707.94	5482.00	112.8
18:38:30	0:44:30	1-0188	-.21	12764.37	297.9	5708.91	5482.00	118.0
18:39:00	0:45:00	1-0189	-.21	12764.16	297.9	5710.18	5480.00	122.7
18:39:30	0:45:30	1-0190	-.55	12763.61	297.9	5710.60	5534.00	126.9
18:40:00	0:46:00	1-0191	-.21	12763.40	298.0	5711.72	5595.00	130.0
18:40:30	0:46:30	1-0192	-.30	12763.10	297.9	5712.68	5624.00	132.5
18:41:00	0:47:00	1-0193	-.23	12762.87	297.9	5713.69	5588.00	134.5
18:41:30	0:47:30	1-0194	-.34	12762.53	298.0	5714.45	5579.00	135.8
18:42:00	0:48:00	1-0195	-.11	12762.42	297.9	5715.32	5573.00	137.1
18:42:30	0:48:30	1-0196	-.31	12762.11	297.9	5716.20	5656.00	137.5
18:43:00	0:49:00	1-0197	-.24	12761.87	298.0	5717.17	5656.00	137.1
18:43:30	0:49:30	1-0198	-.14	12761.73	297.9	5717.85	5648.00	135.9
18:44:00	0:50:00	1-0199	-.17	12761.56	297.9	5719.00	5680.00	135.4
18:44:30	0:50:30	1-0200	-.14	12761.42	297.9	5720.13	5701.00	134.6
18:45:00	0:51:00	1-0201	-.37	12761.05	297.8	5720.54	5727.00	133.2
18:45:30	0:51:30	1-0202	-.40	12760.55	297.9	5721.10	5709.00	131.9
18:46:00	0:52:00	1-0203	-.24	12760.41	297.9	5722.03	5730.00	131.3
18:46:30	0:52:30	1-0204	-.16	12760.25	297.9	5723.09	5739.00	130.4
18:47:00	0:53:00	1-0205	.05	12760.30	297.9	5723.71	5755.00	129.0
18:47:30	0:53:30	1-0206	-.31	12759.99	298.0	5724.41	5726.00	128.2
18:48:00	0:54:00	1-0207	-.10	12759.89	297.8	5725.11	5753.00	127.5
18:48:30	0:54:30	1-0208	-.31	12759.58	297.9	5726.09	5752.00	127.0
18:49:00	0:55:00	1-0209	-.19	12759.39	297.9	5727.08	5754.00	126.5
18:49:30	0:55:30	1-0210	-.17	12759.22	297.8	5727.97	5735.00	126.1
18:50:00	0:56:00	1-0211	-.13	12759.09	297.8	5728.87	5731.00	125.3
18:50:30	0:56:30	1-0212	.10	12759.19	297.9	5729.33	5769.00	124.5
18:51:00	0:57:00	1-0213	-.28	12758.91	297.8	5730.45	5985.00	123.9
18:51:30	0:57:30	1-0214	-.05	12758.86	297.9	5730.72	5982.00	123.3
18:52:00	0558:00	1-0215	-.09	12758.77	297.9	5731.74	5831.00	122.2
18:52:30	0:58:30	1-0216	-.36	12758.41	297.9	5732.55	5722.00	120.4
18:53:00	0:59:00	1-0217	-.21	12758.20	297.9	5733.05	5728.00	118.2
18:53:30	0:59:30	1-0218	-.06	12758.14	297.9	5733.37	5729.00	114.9
18:54:00	1:00:00	1-0219	-.26	12757.88	298.0	5734.52	5730.00	111.9
18:54:30	1:00:30	1-0220	-.23	12757.65	297.9	5735.17	5724.00	109.5
18:55:00	1:01:00	1-0221	-.05	12757.60	298.0	5736.08	5729.00	106.9

18:55:30	1:01:30	1-0222	.01	12757.61	298.0	5736.71	5731.00	102.6
18:56:00	1:02:00	1-0223	-.18	12757.43	297.9	5738.41	5743.00	98.3
18:56:30	1:02:30	1-0224	-.38	12757.05	297.9	5738.27	5735.00	94.8
18:57:00	1:03:00	1-0225	-.01	12757.04	297.9	5738.88	5739.00	91.8
18:57:30	1:03:30	1-0226	-.30	12756.74	297.9	5739.87	5766.00	88.6
18:58:00	1:04:00	1-0227	-.22	12756.52	297.9	5740.20	5775.00	83.8
18:58:30	1:04:30	1-0228	.09	12756.61	297.9	5740.60	5766.00	74.1
18:59:00	1:05:00	1-0229	-.37	12756.24	297.9	5741.18	5802.00	58.1
18:59:30	1:05:30	1-0230	-.13	12756.11	298.0	5742.22	5800.00	40.7
19:00:00	1:06:00	1-0231	-.03	12756.08	298.0	5742.99	5790.00	24.1
19:00:30	1:06:30	1-0232	-.12	12755.96	297.9	5743.61	5798.00	9.1
19:01:00	1:07:00	1-0233	-.28	12755.68	297.8	5744.03	5831.00	68.8
19:01:30	1:07:30	1-0234	1.11	12756.79	298.0	5759.86	5459.00	69.7
19:02:00	1:08:00	1-0235	2.97	12759.76	297.9	5764.62	5462.00	85.9

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
19:02:30	1:08:30	1-0236	1.59	12761.35	297.9	5765.99	5454.00	94.7
19:03:00	1:09:00	1-0237	.64	12761.99	298.0	5766.49	5446.00	103.5
19:03:30	1:09:30	1-0238	.60	12762.59	297.9	5767.41	5439.00	101.7
19:04:00	1:10:00	1-0239	.22	12762.81	297.8	5768.11	5450.00	112.9
19:04:30	1:10:30	1-0240	-.03	12762.78	298.0	5768.91	5454.00	110.6
19:05:00	1:11:00	1-0241	.05	12762.83	297.9	5769.47	5448.00	105.7
19:05:30	1:11:30	1-0242	-.03	12762.80	298.0	5770.68	5452.00	104.8
19:06:00	1:12:00	1-0243	0.00	12762.80	298.0	5771.47	5460.00	102.8
19:06:30	1:12:30	1-0244	0.00	12762.80	297.9	5771.44	5454.00	97.5
19:07:00	11:13:00	1-0245	-.10	12762.70	298.0	5772.25	5460.00	220.8
19:07:30	1:13:30	1-0246	.15	12762.85	298.0	5772.67	5456.00	120.0
19:08:00	1:14:00	1-0247	.04	12762.89	297.8	5773.46	5466.00	114.9
19:08:30	1:14:30	1-0248	-.20	12762.69	298.0	5773.92	5448.00	110.0
19:09:00	1:15:00	1-0249	-.13	12762.56	297.9	5774.63	5452.00	106.3
19:09:30	1:15:30	1-0250	-.10	12762.46	298.0	5775.09	5452.00	264.1
19:10:00	1:16:00	1-0251	.04	12762.50	298.0	5775.39	5458.00	454.4
19:10:30	1:16:30	1-0252	-.04	12762.46	298.0	5776.18	5461.00	93.4
19:11:00	1:17:00	1-0253	-.03	12762.43	298.0	5776.62	5450.00	-350.2
19:11:30	1:17:30	1-0254	-.20	12762.23	297.9	5777.23	5431.00	10.8
19:12:00	1:18:00	1-0255	-.12	12762.11	297.9	5777.83	5416.00	56.5
19:12:30	1:18:30	1-0256	-.36	12761.75	298.0	5778.29	5411.00	58.1
19:13:00	1:19:00	1-0257	.07	12761.82	297.9	5779.18	5410.00	71.4
19:13:30	1:19:30	1-0258	-.01	12761.81	297.9	5779.35	5396.00	109.8
19:14:00	1:20:00	1-0259	-.04	12761.77	297.9	5780.07	5384.00	118.7
19:14:30	1:20:30	1-0260	.14	12761.91	298.0	5780.50	5361.00	127.2
19:15:00	1:21:00	1-0261	.13	12762.04	297.9	5780.96	5361.00	135.2
19:15:30	1:21:30	1-0262	-.18	12761.86	297.9	5781.51	5336.00	141.7
19:16:00	1:22:00	1-0263	.04	12761.90	298.0	5781.90	5307.00	135.0
19:16:30	1:22:30	1-0264	-.16	12761.74	297.9	5782.45	5292.00	126.3
19:17:00	1:23:00	1-0265	-.02	12761.72	2297.8	5782.72	5303.00	128.
19117:30	1:23:30	1-0266	-.24	12761.48	298.0	5783.34	5301.00	130.2
19:18:00	1:24:00	1-0267	-.14	12761.34	298.0	5783.69	5292.00	132.7
19:18:30	1:24:30	1-0268	.08	12761.42	298.0	5784.24	5280.00	135.5
19:19:00	1:25:00	1-0269	.10	12761.52	297.9	5784.66	5256.00	137.4
19:19:30	1:25:30	1-0270	-.09	12761.43	297.9	5785.13	5241.00	139.1
19:20:00	1:26:00	1-0271	-.25	12761.18	297.8	5785.51	5193.00	140.4
19:20:30	1:26:30	1-0272	-.05	12761.13	297.9	5786.08	5171.00	141.2
19:21:00	1:27:00	1-0273	-.13	12761.00	298.0	5786.48	5232.00	142.1
19:21:30	1:27:30	1-0274	-.03	12760.97	297.9	5786.86	5241.00	126.3
19:22:00	1:28:00	1-0275	-.14	12760.83	298.0	55787.36	5234.00	122.4
19:22:30	1:28:30	1-0276	-.12	12760.95	297.9	5787.76	5230.00	119.7

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19:23:00	1:29:00	1-0277	-.18	12760.77	298.1	5788.13	5252.00	116.8
19:23:30	1:29:30	1-0278	-.17	12760.60	297.9	5788.52	5208.00	114.3
19:24:00	1:30:00	1-0279	.17	12760.77	297.9	5788.89	5221.00	111.7
19:24:30	1:30:30	1-0280	-.16	12760.61	297.9	5789.36	5229.00	108.7
19:25:00	1:31:00	1-0281	.11	12760.72	298.0	5789.63	5221.00	108.9
19:25:30	1:31:30	1-0282	-.19	12760.53	297.9	5790.16	5203.00	115.0
19:26:00	1:32:00	1-0283	-.23	12760.30	298.0	5790.52	5189.00	113.4
19:26:30	1:32:30	1-0284	-.06	12760.24	298.0	5790.95	5207.00	115.3
19:27:00	1:33:00	1-0285	-.05	12760.19	297.9	5791.40	5219.00	114.6
19:27:30	1:33:30	1-0286	.02	12760.21	297.9	5792.52	5200.00	109.5
19:28:00	1:34:00	1-0287	-.18	12760.03	297.9	5792.10	5223.00	110.4
19:28:30	1:34:30	1-0288	.01	12760.04	297.9	5792.67	5222.00	117.3
19:29:00	1:35:00	1-0289	.10	12760.14	297.9	5792.74	5235.00	114.1
19:29:30	1:35:30	1-0290	.57	12760.71	297.9	5792.81	5204.00	108.8
19:30:00	1:36:00	1-0291	-.44	12760.27	297.9	5793.29	5227.00	103.1
19:30:30	1:36:30	1-0292	-.27	12760.00	298.0	5796.69	5176.00	127.7
19:31:00	1:37:00	1-0293	1.24	12761.24	297.9	5801.31	5087.00	128.2
19:31:30	1:37:30	1-0294	1.36	12762.60	297.9	5801.61	5124.00	123.2
19:32:00	1:38:00	1-0295	.22	12762.82	297.9	5798.03	5168.00	122.5
19:32:30	11:38:30	1-0296	-.37	12762.45	298.0	5799.48	5172.00	129.9

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
19:33:00	1:39:00	1-0297	-.25	12762.20	297.9	5801.42	5157.00	121.8
19:33:30	1:39:30	1-0298	-.20	12762.00	298.0	5802.44	5162.00	110.7
19:34:00	1:40:00	1-0299	-.60	12761.40	298.0	5800.54	5180.00	98.2
19:34:30	1:40:30	1-0300	-.22	12761.18	297.9	5804.13	5187.00	88.4
19:35:00	1:41:00	1-0301	.17	12761.35	297.9	5799.88	5241.00	80.3
19:35:30	1:41:30	1-0302	-.16	12761.19	297.9	5802.52	5211.00	74.7
19:36:00	1:42:00	1-0303	-.06	12761.13	298.0	5800.25	4936.00	68.4
19:36:30	1:42:30	1-0304	.07	12761.20	297.9	5802.22	4913.00	64.0
19:37:00	1:43:00	1-0305	-.17	12761.03	298.0	5806.28	4925.00	80.1
19:37:30	1:43:30	1-0306	0.00	12761.03	297.9	5799.64	4938.00	129.0
19:38000	1:44:00	1-0307	-.12	12760.91	298.0	580..88	4883.00	130.1
19:38:30	1444:30	1-0308	-.29	12760.62	297.9	5793.73	5089.00	127.5
19:39:00	1:45:00	1-0309	-1.91	12758.71	297.9	5792.09	5093.00	124.3
19:39:30	1:45:30	1-0310	-1.21	12757.50	298.0	5790.89	5155.00	121.8
19:40:00	1:46:00	1-0311	-.45	12757.05	298.0	5791.31	5102.00	127.0
19:40:30	1:46:30	1-0312	-.15	12756.90	298.0	5796.36	5103.00	131.8
19:41:00	1:47:00	1-0313	-.38	12756.52	298.1	5791.54	5113.00	131.6
19:41:30	1:47:30	1-0314	-.14	12756.38	297.9	5792.55	5129.00	127.9
19:42:00	1:48:00	1-0315	-.27	12756.11	297.8	5794.35	5128.00	124.1
19:42:30	1:48:30	1-0316	-.20	12755.91	297.9	5793.60	5130.00	120.0
19:43:00	1:49:00	1-0317	-.41	12755.50	297.9	5792.93	5162.00	116.1
19:43:30	1:49:30	100318	-.26	12755.24	297.9	5792.75	5171.00	1112.6
19:44:00	1:50:00	1-0319	-.32	12754.92	298.1	5792.52	5179.00	108.7
19:44:30	1:50:30	1-0320	-.26	12754.66	298.0	5795.22	5154.00	111.4
19:45:00	1:51:00	1-0321	-.03	12754.63	297.9	5796.67	5160.00	123.9
19:45:30	1:51:30	1-0322	-.30	12754.33	297.9	5793.71	5180.00	122.5
19:46:00	1:52:00	1-0323	-.17	12754.16	298.0	5794.46	5183.00	118.3
19:46:30	1:52:30	1-0324	-.17	12753.99	297.9	5794.61	5202.00	113.2
19:47:00	1:53:00	1-0325	.08	12754.07	298.0	5795.14	5196.00	109.1
19:47:30	1:53:30	1-0326	-.19	12753.88	298.0	5795.71	5183.00	131.9
19:48:00	1:54:00	1-0327	-.26	12753.62	297.8	5794.36	5221.00	129.2
19:48:30	1:54:30	1-0328	-.14	12753.48	298.0	5794.77	5209.00	120.6
19:49:00	1:55:00	1-0329	-.44	12753.04	297.9	5794.75	5218.00	112.0
19:49:30	1:55:30	1-0330	.01	12753.05	297.9	5794.66	5212.00	104.0
19:50:00	1:56:00	1-0331	-.02	12753.03	298.0	5796.65	5193.00	97.0

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19:50:30	1:56:30	1-0332	.02	12753.05	297.9	5796.82	5201.00	89.3
19:51:00	1:57:00	1-0333	.05	12753.10	297.9	5795.35	5232.00	123.5
19:51:30	1:57:30	1-0334	-.15	12752.95	297.9	5795.89	5238.00	124.7
19:52:00	1:58:00	1-0335	-.45	12752.50	298.0	5796.13	5253.00	171.3
19:52:30	1:58:30	1-0336	-.07	12752.43	297.9	5795.75	5262.00	174.8
19:53:00	1:59:00	1-0337	-.77	12751.66	298.0	5796.48	5257.00	167.0
19:53:30	1:59:30	1-0338	.24	12751.90	297.9	5796.42	5257.00	153.4
19:54:00	2:00:00	1-0339	.20	12752.10	297.9	5796.95	5280.00	142.1
19:54:30	2:00:30	1-0340	.10	12752.20	297.9	5797.42	5280.00	132.2
19:55:00	2:01:00	1-0341	-.14	12752.06	298.0	5797.69	5283.00	127.1
19:55:30	2:01:30	1-0342	-.22	12751.84	297.8	5798.24	5278.00	121.1
19:56:00	2:02:00	1-0343	-.13	12751.71	297.9	5797.98	2275.00	113.0
19:56:30	2:02:30	1-0344	.07	12751.78	297.9	5798.70	5255.00	108.4
19:57:00	2:03:00	1-0345	.01	12751.79	298.0	5799.84	5237.00	105.6
19:57:30	2:03:30	1-034	.18	12751.97	297.9	5800.89	5218.00	105.4
19:58:00	2:04:00	1-0347	-.11	12751.86	298.0	5801.38	5217.00	105.9
19:58:30	2:04:30	1-0348	-.13	12751.73	298.0	5801.68	5206.00	105.7
19:59:00	2:05:00	1-0349	.14	12751.87	297.9	5801.83	5219.00	104.5
19:59:30	2:05:30	1-0350	-.02	12751.85	298.0	5801.72	5235.00	103.9
20:00:00	2:06:00	1-0351	-.27	12751.58	298.0	5801.54	5249.00	104.6
20:00:30	2:06:30	1-0352	.07	12751.65	297.9	5801.79	5252.00	106.5
20:01:00	2:07:00	1-0353	-.16	12751.49	297.9	5801.14	5282.00	107.6
20:01:30	2:07:30	1-0354	.17	12751.66	298.0	5800.95	5288.00	107.7
20:02:00	2:08:00	1-0355	-.63	12751.03	297.9	5798.14	5359.00	106.3
20:02:30	2:08:30	1-0356	-.61	12750.42	297.9	5797.76	5364.00	103.6
20:03:00	2:09:00	1-0357	-.34	12750.08	298.0	5797.69	5365.00	101.4

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
20:03:30	2:09:30	1-0358	-.20	12749.88	297.9	5797.75	5355.00	98.6
20:04:00	2:10:00	1-0359	-.47	12749.41	298.0	5798.31	5344.00	95.2
20:04:30	2:10:30	1-0360	-.26	12749.15	297.9	5799.90	5341.00	93.5
20:05:00	2:11:00	1-0361	.23	12749.38	297.9	5800.02	5327.00	92.2
20:05:30	2:11:30	1-0362	.12	12749.50	297.9	5801.31	5304.00	89.3
20:06:00	2:12:00	1-0363	-.13	12749.37	298.0	5801.16	5308.00	87.9
20:06:30	2:12:30	1-0364	.34	12749.71	298.0	5802.15	5297.00	86.2
20:07:00	2:13:00	1-0365	.46	12750.17	298.0	5805.76	5261.00	131.5
20:07:30	2:13:30	1-0366	-.11	12750.06	297.9	5803.98	5306.00	136.0
20:08:00	2:14:00	1-0367	.37	12750.43	298.0	5804.33	5313.00	134.1
20:08:30	2:14:30	1-0368	.06	12750.49	298.0	5803.32	5337.00	131.2
20:09:00	2:15:00	1-0369	.04	12750.53	297.9	5805.04	5340.00	126.6
20:09:30	2:15:30	1-0370	-.09	12750.44	297.9	5804.97	5326.00	121.3
20:10:00	2:16:00	1-0371	-.07	12750.37	297.9	5803.74	5359.00	116.9
20:10:30	2:16:30	1-0372	-.08	12750.29	298.0	5804.86	5337.00	112.9
20:11:00	2:17:00	1-0373	-.05	12750.24	297.9	5804.83	5361000	107.3
20:11:30	2:17:30	1-0374	-.51	12749.73	298.0	5807.20	5309.00	100.3
20:12:00	2:18:00	1-0375	.04	12749.77	298.0	5808.83	5223.00	994.9
20:12:30	2:18:30	1-0376	.11	12749.88	297.9	5809.90	5122.00	91.0
20:13:00	2:19:00	1-0377	.42	12750.30	298.0	5810.67	5113.00	114.7
20:13:30	2:19:30	1-0378	.21	12750.51	298.0	5810.06	5144.00	120.3
20:14:00	2:20:00	1-0379	.05	12750.56	298.0	5810.01	5158.00	117.6
20:14:30	2:20:30	1-0380	0.00	12750.56	298.0	5808.84	5217.00	111.0
20:15:00	2:21:00	1-0381	-.42	12750.14	298.0	5807.99	5286.00	126.6
20:15:30	2:21:30	1-0382	-.33	12749.81	298.0	5807.43	5314.00	199.9
20:16:00	2:22:00	1-0383	-.65	12749.16	298.1	5805.95	5354.00	125.8
20:16:30	2:22:30	1-0384	-.20	12748.96	297.9	5807.64	5333.00	122.0
20:17:00	2:23:00	1-0385	.01	12748.97	297.9	5806.96	5355.00	117.7

20:17:30	2:23:30	1-0386	-.10	12748.87	298.0	5807.65	5330.00	113.2
20:18:00	2:24:00	1-0387	-.15	12748.72	298.0	5807.41	5337.00	132.1
20:18:30	2:24:30	1-0388	.17	12748.89	298.1	5807.58	5341.00	133.1
20:19:00	2:25:00	1-0389	.15	12749.04	297.9	5810.08	5296.00	130.2
20:19:30	2:25:30	1-0390	.11	12749.15	298.0	5808.54	5337.00	126.9
20:20:00	2:26:00	1-0391	.02	12749.17	297.9	5807.85	5350.00	123.8
20:20:30	2:26:30	1-0392	-.13	12749.04	297.9	5809.24	5318.00	119.9
20:21:00	2:27:00	1-0393	.06	12749.10	297.9	5808.61	5320.00	124.6
20:21:30	2:27:30	1-0394	-.14	12748.96	298.0	5810.64	5332.00	143.8
20:22:00	2:28:00	1-0395	.21	12749.17	298.0	5812.14	5276.00	142.8
20:22:30	2:28:30	1-0396	-.37	12748.80	297.9	5810.76	5295.00	139.6
20:23:00	2:29:00	1-0397	.19	12748.99	297.9	5810.24	5304.00	136.6
20:23:30	2:29:30	1-0398	.70	12749.69	298.0	5815.89	5251.00	133.2
20:24:00	2:30:00	1-0399	-.2	12749.44	298.0	5814.23	5263.00	129.3
20:24:30	2:30:30	1-0400	.31	12749.75	298.0	5815.27	5268.00	125.5
20:25:00	2:31:00	1-0401	.24	12749.99	297.9	5817.66	5254.00	121.8
20:25:30	2:31:30	1-0402	-.01	12749.98	298.0	5817.98	5258.00	116.1
20:26:00	2:32:00	1-0403	.18	12750.16	297.9	5812.64	5312.00	111.3
20:26:30	2:32:30	1-0404	-1.01	12749.15	298.0	5821.38	5216.00	130.7
20:27:00	2:33:00	1-0405	-.19	12748.96	297.9	5818.40	5245.00	127.6
20:27:30	2:33:30	1-0406	.42	12749.38	298.0	5816.46	5293.00	122.4
20228:00	2:34:00	1-0407	.16	12749.54	298.0	5816228	5245.00	118.7
20:28:30	2:34:30	1-0408	.14	12749.68	297.9	5814.53	5293.00	124.4
20:29:00	2:35:00	1-0409	-.34	12749.34	298.0	5818.61	5258.00	131.9
20:29:30	2:35:30	1-0410	.08	12749.42	298.0	5816.51	5278.00	129.5
20:30:00	2:36:00	1-0411	-.41	12749.01	298.1	5819.00	5244.00	125.7
20:30:30	2:36:30	1-0412	.24	12749.25	298.0	5816.13	5276.00	121.8
20:31:00	2:37:00	1-0413	.28	12749.53	298.0	5816.28	5261.00	116.3
20:31:30	2:37:30	1-0414	.15	12749.68	298.0	5818.97	5285.00	108.8
20:32:00	2:38:00	1-0415	-.48	12749.20	298.1	5816.97	5291.00	104.3
20:32:30	2:38:30	1-0416	-.18	12749.02	298.0	5815.66	5302.00	12..0
20:33:00	2:39:00	1-0417	.24	12749.26	298.0	5816.96	5283.00	132.1
20:33:30	2:39:30	1-0418	.10	12749.36	297.9	5817.59	5258.00	129.6

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
20:34:00	2:40:00	1-0419	-.18	12749.18	297.9	5816.29	5254.00	126.4
20:34:30	2:40:30	1-0420	-.12	12749.06	298.0	5817.21	5274.00	122.3
20:35:00	2:41:00	1-0421	-.06	12749.00	297.9	5816.00	5237.00	119.0
20:35:30	2:41:30	1-0422	.24	12749.24	298.0	5817.03	5263.00	115.7
20:36:00	2:42:00	1-0423	-.06	12749.18	297.9	5814.67	5288.00	112.4
20:36:30	2:42:30	1-0424	-.31	12748.87	298.0	5815.84	5276.00	108.7
20:37:00	2:43:00	1-0425	-.09	12748.78	297.8	5819.24	5236.00	119.8
20:37:30	2:43:30	1-0426	-.68	12748.10	297.9	5819.56	5246.00	133.1
20:38:00	2:44:00	1-0427	.32	12748.42	297.9	5821.23	5229.00	130.4
20:38:30	2:44:30	1-0428	.12	12748.54	298.0	5819.27	5242.00	126.1
20:39:00	2:45:00	1-0429	.07	12748.61	298.1	5820.83	5215.00	122.2
20:40:00	2:46:00	1-0430	-.43	12748.18	297.9	5818.78	5278.00	104.8
20:41:00	2:47:00	1-0431	.11	12748.29	298.0	5822.72	5238.00	120.2
20:42:00	2:48:00	1-0432	.11	12748.40	298.0	5820.20	5246.00	133.7
20:43:00	2:49:00	1-0433	.99	12749.39	297.9	5829.45	5106.00	132.7
20:44:00	2:50:00	1-0434	1.02	12750.41	298.0	5825.16	5129.00	130.2
20:45:00	2:51:00	1-0435	-.44	12749.97	297.9	5825.13	5152.00	125.6
20:46:00	2:52:00	1-0436	-1.44	12748.53	298.0	5821.45	5226.00	122.6
220:47:00	2:53:00	1-0437	-.42	12748.11	297.8	5821.45	5258.00	119.
20:48:00	2:54:00	1-0438	.05	12748.16	297.9	5825.10	5165.00	115.8
20:49:00	2:55:00	1-0439	1.77	12749.93	298.0	5826.22	5084.00	118.4
20:50:00	2:56:00	1-0440	-.48	12749.45	297.9	5825.27	5145.00	115.5

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20:51:00	2:57:00	1-0441	-1.19	12748.26	297.9	5821.38	5220.00	108.3
20:52:00	2:58:00	1-0442	-.21	12748.05	298.0	5824.5	5192.00	103.6
20:53:00	2:59:00	1-0443	-.37	12747.68	298.1	5818.97	5233.00	102.6
20:54:00	3:00:00	1-0444	-.11	12747.57	298.0	5823.41	5220.00	134.2
20:55:00	3:01:00	11-0445	.20	12747.77	297.9	5827.90	5199.00	137.9
20:56:00	3:02:00	1-0446	-.16	12747.61	298.0	5828.16	5179.00	131.2
20:57:00	3:03:00	1-0447	.57	12748.18	298.1	5826.02	5192.00	121.9
20:58:00	3:04:00	1-0448	-.47	12747.71	298.0	5827.52	5199.00	113.0
20:59:00	3:05:00	1-0449	-.48	12747.23	297.9	5829.38	5148.00	106.4
21:00:00	3:06:00	1-0450	-.04	12747.19	298.0	5827.74	5195.00	100.8
21:01:00	3:07:00	1-0451	-.23	12746.96	297.9	5826.88	5197.00	131.9
21:02:00	3:08:00	1-0452	-.20	12746.76	298.0	5829.69	5205.00	128.8
21:03:00	3:09:00	1-0453	.35	12747.11	298.0	5827.76	5164.00	126.5
21:04:00	3:10:00	1-0454	.53	12747.64	298.0	5832.58	5078.00	124.8
21:05:00	3:11:00	1-0455	-.02	12747.62	297.9	5829.88	5135.00	118.9
21:06:00	3:12:00	1-0456	-.49	12747.13	297.9	5833.08	5107.00	112.3
21:07:00	3:13:00	1-0457	-.47	12746.66	298.0	5830.27	5144.00	109.1
21:08:00	3:14:00	1-0458	.75	12747.41	298.0	5828.79	5093.00	106.9
21:09:00	3:15:00	1-0459	-.86	12746.55	297.9	5831.97	5086.00	97.7
21:10:00	3:16:00	1-0460	.57	12747.12	297.9	5831.90	5069.00	133.4
21:11:00	3:17:00	1-0461	-.46	12746.66	298.0	5833.39	5094.00	132.1
21:12:00	3:18:00	1-0462	-.13	12746.53	297.9	5832.00	5105.00	130.9
21:13:00	3:19:00	1-0463	.30	12746.83	297.9	5831.89	5137.00	129.5
21:14:00	3:00:00	1-0464	-.36	12746.47	297.9	5831.99	5152.00	129.5
21:15:00	3:21:00	1-0465	.01	12746.48	298.1	5832.95	5150.00	122.7
21:16:00	3:22:00	1-0466	-.27	12746.21	297.9	5832.25	5185.00	117.6
21:17:00	3:23:00	1-0467	.11	12746.32	297.9	5832.46	5185.00	114.9
21:18:00	3:24:00	1-0468	-.33	12745.99	298.0	5831.41	5225.00	113.3
21:19:00	3:25:00	1-0469	-.22	12745.77	298.0	5829.74	5256.00	119.7
21:20:00	3:26:00	1-0470	.08	12745.85	298.0	5835.54	5187.00	150.6
21:21:00	3:27:00	1-047	0.00	12745.85	297.9	5837.75	5176.00	149.1
21:22:00	3:28:00	1-0472	0.00	12745.85	297.9	5834.84	5184.00	148.4
21:23:00	3:29:00	1-0473	-.02	12745.83	297.9	5840.90	1122.00	149.0
21:24:00	3:30:00	1-0474	-.16	22745.67	297.9	5837.09	5175.00	152.0
21:25:00	3:31:00	1-0475	-.10	12745.57	298.0	5838.68	5156.00	148.1
21:26:00	3:32:00	1-0476	-.07	12745.50	297.9	5835.83	5180.00	145.2
21:27:00	3:33:00	1-0477	-.32	12745.18	298.1	5835.73	5160.00	143.7
21:28:00	3:34:00	1-0478	-.13	12745.05	297.9	5837.90	5166.00	158.4
21:29:00	3:35:00	1-0479	.42	12745.47	297.9	5833.18	5180.00	160.8

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
21:30:00	3:36:00	1-0480	-.33	12745.14	297.9	5843.66	5137.00	154.9
21:31:00	3:37:00	1-0481	-.09	12745.05	298.0	5836.94	5212.00	150.0
21:32:00	3:38:00	1-0482	-.15	12744.90	298.0	5839.93	5188.00	147.8
21:33:00	3:39:00	1-0483	.15	12745.05	297.9	5836.70	5199.00	147.0
21:34:00	3:40:00	1-0484	-.13	12744.92	297.8	5838.63	5202.00	147.5
21:35:00	3:41:00	1-0485	.06	12744.98	298.0	5839.96	5172.00	196.0
21:36:00	3:42:00	1-0486	-.03	12744.95	298.0	5842.49	5147.00	196.6
21:37:00	3:43:00	1-0487	-.14	12744.81	298.0	5839.48	5168.00	185.0
21:38:00	3:44:00	1-0488	-.40	12744.41	298.1	5837.93	5220.00	176.6
21:39:00	3:45:00	1-0489	.14	12744.55	297.9	5839.19	5203.00	164.2
21:40:00	3:46:00	1-0490	.12	12744.67	298.0	5838.39	5225.00	150.4
21:41:00	3:47:00	1-0491	-.42	12744.25	298.1	5842.11	5199.00	136.5
21:42:00	3:48:00	1-0492	.44	12744.69	298.0	5841.70	5205.00	126.3
21:43:00	3:49:00	1-0493	-.37	12744.32	297.8	5842.25	5210.00	119.8
21:44:00	3:50:00	1-0494	0.00	12744.32	298.1	5839.92	5178.00	113.3
21:45:00	3:51:00	1-0495	-.01	12744.31	298.0	5844.19	5168.00	106.5

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
21:47:00	0:00:00	2-0001	12744.37	12744.37	298.0	5842.52	5187.00	107.8
21:48:00	0:01:00	2-0002	.02	12744.39	297.9	5844.72	5174.00	107.7
21:49:00	0:02:00	2-0003	-.16	12744223	298.0	5845.41	5151.00	108.1
21:5::00	0:03:00	2-0004	-.21	12744.02	298.0	5843.76	5180.00	108.9
21:51:00	0:04:00	2-0005	-.07	12743.95	298.0	5846.40	5154.00	106.8
21:52:00	0:05:00	2-0006	-.52	12743.43	297.9	5844.57	5176.00	102.0
21:53:00	0:06:00	2-0007	.39	12743.82	298.0	5841.24	5216.00	118.8
21:54:00	0:07:00	2-0008	-.62	12743.20	298.0	5846.57	5163.00	136.4
21:55:00	0:08:00	2-0009	.47	12743.6	298.0	5844.37	5221.00	129.2
21:56:00	0:09:00	2-0010	-.09	12743.58	298.0	5847.71	5177.00	125.0
21:57:00	0:10:00	2-0011	.03	12743.61	298.0	5846.99	5179.00	122.5
21:58:00	0:11:00	2-0012	-.10	12743.51	298.0	5843.82	5277.00	121.6
21:59:00	0:12:00	2-0013	-.06	17743.45	298.0	5845.40	5281.00	121.7
22:00:00	0:13:00	2-0014	-.23	12743.22	298.1	5847.01	5219.00	122.3
22:01:00	0:14:00	2-0015	.37	12743.59	298.0	5847.38	5217.00	124.6
22:02:00	0:15:00	2-0016	-.15	12743.44	298.0	5848.39	5201.00	125.3
22:03:00	0:16:00	2-0017	-.31	12743.13	298.0	5845.15	5245.00	122.9
22:04:00	0:17:00	2-0018	-.28	12742.85	298.0	5844.35	5246.00	116.8
22:05:00	0:18:00	2-0019	.68	12743.53	297.9	5847.47	5220.00	115.9
22:06:00	0:19:00	22-0020	-.06	12743.47	298.0	5848.22	5221.00	117.2
22:07:00	0:00:00	2-0021	-.21	12743.26	297.9	5844.50	5247.00	118.5
22:08:00	0:21:00	2-0022	-.40	12742.86	297.9	5843.82	5164.00	117.3
22:09:00	0:22:00	2-0023	-.31	12742.55	298.1	5847.59	5102.00	109.8
22:10:00	0:23:00	2-0024	.28	12742.83	297.9	5848.60	5070.00	104.6
22:11:00	0:24:00	2-0025	.63	12743.46	298.1	5845.82	5090.00	98.8
22:12:00	0225:00	2-0026	-.09	12743.37	297.9	5847.51	5068.00	91.3
22:13:00	0:26:00	2-0027	-.35	12743.02	298.0	5845.06	5059.00	141.3
22:14:00	0:27:00	2-0028	-.19	12742.83	298.0	5852.29	5018.00	136.2
22:15:00	0:28:00	2-0029	.04	12742.87	297.	5847.00	5095.00	130.2
22:16:00	0:29:00	2-0030	-.19	12742.68	297.9	5848.17	5095.00	122.6
22:17:00	0:30:00	2-0031	-.44	12742.24	298.0	5847.25	5082.00	116.9
22:18:00	0:31:00	2-0032	-.13	12742.11	298.0	5850.11	5018.00	117.1
22:19:00	0:32:00	2-0033	.33	12742.44	297.9	5847.81	5066.00	118.4
22:20:00	0:33:00	2-0034	-.08	12742.36	298.0	5855.04	4986.00	121.0
22:21:00	0:34:00	2-0035	.25	12742.61	298.1	5851.12	5015.00	123.1
22:22:00	0:35:00	2-0036	.04	12742.65	297.9	5850.66	5008.00	124.9
22:23:00	0:36:00	--0037	-.23	12742.42	298.1	5851.73	5017.00	247.1
22:24:00	0:37:00	2-0038	-.04	12742.38	298.1	5552.02	5026.00	373.0
22:25:00	0:38:00	2-0039	-.62	12741.76	298.0	5844.15	5147.00	-79.3
22:26:00	0:39:00	2-0040	-1.36	12740.40	297.9	5841.71	5219.00	161.0
22:27:00	0:40:00	2-0041	-.40	12740.00	298.0	5842.08	5160.00	167.1
22:28:00	0:41:00	2-0042	-1.52	12738.48	297.9	5840.54	5192.00	163.0
22:29:00	0:42:00	2-0043	-1.48	12737.00	298.0	5834.77	5252.00	145.6
22:30000	0:43:00	2-0044	-.45	12736.55	297.9	5837.78	5244.00	126.9
22:31:00	0:44:00	2-0045	.18	12736.73	297.9	5842.42	5257.00	113.5
22:32:00	0:45:00	2-0046	-.66	12736.07	29811	5835.37	4623.00	98.3
22:33:00	0:46:00	2-0047	.12	12736.19	298.0	5840.05	4577.00	84.8
22:34:00	0:47:00	2-0048	-.29	12735.90	298.1	5835.21	4943.00	72.9
22:35:00	0:48:00	2-0049	-.11	12735.79	298.1	5839.56	5135.00	147.2
22:36:00	0:49:00	2-0050	-.04	12735.75	297.9	5835.51	5219.00	138.8
22:37:00	0:50:00	2-0051	-.48	12735.27	297.9	5844.18	4968.00	131.6
22:38:00	0:51:00	2-0052	.20	12735.47	298.0	5834.44	5042.00	125.0
22:39:00	0:52:00	2-0053	-.18	12735.29	298.0	5841.00	4962.0	119.2
22:40:00	0:53:00	2-0054	.36	12735.65	297.9	5835.83	5006.00	114.8
22:41:00	0:54:00	2-0055	-.12	12735.53	277.9	5838.65	5021.00	111.1

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
22:42:00	0:55:00	2-0056	-.64	12734.89	298.0	5839.93	5009.00	107.4
22:43:00	0:56:00	2-0057	.38	12735.27	298.0	5839.28	5281.00	101.7
22:44:00	0:57:00	2-0058	-.53	12734.74	298.0	5839.50	5035.00	99.2
22:45:00	0:58:00	2-0059	.14	12734.88	298.0	5842.31	4888.00	96.5
22:46:00	0:59:00	2-0060	-.17	12734.71	297.9	5839.86	5121.00	162.5
22:47:00	1:00:00	2-0061	.27	12734.98	297.9	5838.31	4992.00	163.0
22:48:00	1:01:00	2-0062	-.16	12734.82	298.0	5839.59	5154.00	160.8
22:49:00	1:02:00	2-0063	-.03	12734.79	298.0	5837.89	5080.00	157.5
22:50:00	1:03:00	2-0064	0.00	12734.79	297.9	5845.50	5125.00	153.8
22:51:00	1:04:00	2-0065	-.18	12734.61	298.0	5841.21	5156.00	127.4
22:52:00	1:05:00	2-0066	-.18	12734.43	298.0	5839.47	5185.00	115.2
22:53:00	1:06:00	2-0067	.85	12735.28	297.9	5839.48	5075.00	109.2
22:54:00	1:07:00	2-0068	-.57	12734.71	298.0	5844.60	5067.00	143.5
22:55:00	1:08:00	2-0069	-.28	12734.43	298.0	5840.23	5041.00	171.5
22:56:00	1:09:00	2-0070	.17	12734.60	298.0	5843.24	5253.00	171.4
22:57:00	1:10:00	2-0071	-.18	12734.42	298.0	5840.30	5302.00	169.8
22:58:00	1:11:00	2-0072	.23	12735.65	298.1	5841.74	5301.00	168.0
22:59:00	1:12:00	2-0073	-.29	12734.36	298.0	5842.04	5309.00	169.1
23:00:00	1:13:00	2-0074	-.13	12734.23	298.0	5843.81	5304.00	170.4
23:01:00	1:14:00	2-0075	-.04	12734.19	297.9	5842.86	5262.00	170.0
23:02:00	1:15:00	2-0076	.13	12734.32	298.0	5846.39	5253.00	167.4
23:03:00	1:16:00	2-0077	.34	12734.66	297.9	5842.70	5321.00	163.7
23:04:00	1:17:00	2-0078	-.24	12734.42	298.0	5843.25	5337.00	164.0
23:05:00	1:18:00	2-0079	-.09	12734.33	298.0	5845.95	5303.00	164.5
23:10:00	1:23:00	2-0080	-.46	12733.87	298.0	5842.91	5374.00	173.9
23:15:00	1:28:00	2-0081	-.67	12733.20	298.0	5848.30	5325.00	163.7
23:20:00	1:33:00	2-0082	.15	12733.35	297.9	5842.95	5383.00	166.1
23:25:00	1:38:00	2-0083	-.07	12733.28	297.9	5844.50	5357.00	170.1
23:30:00	1:43:00	2-0084	-.55	12722.73	298.0	5847.34	5343.00	163.3
23:35:00	1:48:00	2-0085	-.19	12732.54	298.0	5846.17	5336.00	188.6
23:40:00	1:53:00	2-0086	-.50	12732.04	298.0	5847.26	5238.00	194.5
23:45:00	1:58:00	2-0087	.31	12732.35	298.0	5845.31	5266.00	182.6
23:50:00	2:03:00	2-0088	-.58	12731.77	298.0	5852.43	4915.00	180.0
23:55:00	2:08:00	2-0089	-.33	12731.44	298.0	5847.89	4976.00	180.3
00:00:00	2:13:00	2-0091	-.18	12731.26	298.0	5848.85	4952.00	157.3
00:05:00	2:18:00	2-0092	-.23	12731.03	298.0	5851.62	4944.00	157.6
00:10:00	2:23:00	2-0093	.29	12731.32	298.1	5847.59	4996.00	179.4
00:15:00	2:28:00	2-0094	-.60	12730.72	298.0	5851.57	4964.00	181.9
00:20:00	2:33:00	2-0095	.03	12730.75	298.0	5849.82	4938.00	191.1
00:25:00	2:38:00	2-0096	-.78	12729.97	298.0	5855.78	4903.00	198.4
00:30:00	2:43:00	2-0097	.34	12730.31	297.9	5857.09	4903.00	191.2
00:35:00	2:48:00	2-0098	-.44	12729.87	297.9	5850.80	4957.00	189.8
00:40:00	2:53:00	2-0099	.02	12729.89	298.0	5851.74	4965.00	175.7
00:45:00	2:58:00	2-0100	-.17	12729.72	297.9	5854.17	4951.00	172.4
00:50:00	3:03:00	2-0101	-.25	12729.47	298.0	5850.73	4951.00	170.3
00:55:00	3:08:00	2-0102	-.08	12729.39	298.0	5854.74	4935.00	170.6
01:00:00	3:13:00	2-0103	-.12	12729.27	298.0	5853.77	4940.00	173.4
01:05:00	3:18:00	2-0104	.11	12729.38	298.0	5857.94	4928.00	166.4
01:10:00	3:23:00	2-0105	-.80	12728.58	298.1	5856.86	4952.00	168.1
01:15:00	3:28:00	2-0106	.07	12728.65	298.0	5857.34	4949.00	166.2
01:20:00	3:33:00	2-0107	-.25	12728.40	298.1	5858.31	4947.00	162.3
01:25:00	3:38:00	2-0108	-.50	12727.90	298.0	5851.61	5007.00	159.8
01:30:00	3:43:00	2-0109	.54	12728.44	297.9	5854.50	4985.00	166.4
01:35:00	3:48:00	2-0110	-.47	12727.97	298.0	5857.12	4973.00	168.9
01:40:00	3:53:00	2-0111	-.05	12727.92	298.1	5855.60	4989.00	171.1
01:45:00	3:58:00	2-0112	-.20	12727.72	298.0	5857.54	5006.00	170.1
01:50:00	4:03:00	2-0113	-5.38	12722.34	298.0	5845.19	5208.00	157.2
01:55:00	4:08:00	2-0114	.91	12721.43	298.0	5845.71	5179.00	138.5
02:00:00	4:13:00	2-0115	.24	12721.67	297.9	5842.03	5245.00	158.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

02:05:00	4:18:00	2-0116	-.72	12720.75	298.0	5845.77	5220.00	152.8
02:10:00	4:23:00	2-0117	-.14	12720.81	298.0	5846.39	5223.00	149.1

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
02:15:00	4:28:00	2-0118	-.24	12720.57	298.0	5844.78	5216.00	139.6
02:20:00	4:33:00	2-0119	-.46	12720.11	298.0	5843.82	5221.00	128.6
02:25:00	4:38:00	2-0120	-.08	12720.03	298.1	5844.89	5222.00	156.7
02:30:00	4:43:00	2-0121	-.34	12719.69	298.0	5846.62	5208.00	163.7
02:35:00	4:48:00	2-0122	.25	12719.94	298.0	5845.27	5207.00	167.9
02:40:00	4:53:00	2-0123	-.04	12719.90	298.1	5845.44	5220.00	163.0
02:45:00	4:58:00	2-0124	-.61	12719.29	298.0	5843.42	5239.00	159.6
02:50:00	5:03:00	2-0125	-.05	12719.24	298.1	5845.57	5225.00	152.1
02:55:00	5:08:00	2-0126	-.52	12718.72	297.9	5845.29	5225.00	163.2
03:00:00	5:13:00	2-0127	-.19	12718.53	298.1	5842.44	5207.00	167.5
03:05:00	5:18:00	2-0128	.21	12718.74	298.0	5845.02	5217.00	163.0
03:10:00	5:23:00	2-0129	-.43	12718.31	298.0	5845.01	5229.00	169.8
03:15:00	5:28:00	2-0130	.07	12718.38	298.1	5847.38	5212.00	153.9
03:20:00	5:33:00	2-0131	-.38	12718.00	298.0	5845.64	5225.00	154.5
03:25:00	5:38:00	2-0132	-.13	12717.87	298.0	5844.99	5170.00	150.7
03:00:00	5:43:00	2-0133	-.49	12717.38	298.0	5446.40	5147.00	130.8
03:35:00	5:48:00	2-0134	.22	12717.60	298.0	5846.74	5150.00	127.7
03:40:00	5:53:00	2-0135	.04	12717.64	298.0	5846.18	5157.00	166.8
03:45:00	5:58:00	2-0136	-.45	12717.19	298.0	5847.08	5163.00	174.8
03:50:00	6:03:00	2-0137	.31	12717.50	298.0	5847.83	5155.00	171.8
03:55:00	6:08:00	2-0138	-.67	12716.83	298.0	5847.35	5178.00	175.0
04:00:00	6:13:00	2-0139	.23	12717.06	298.0	5848.23	5204.00	177.1
04:05:00	6:18:00	2-0140	-.49	12716.57	298.0	5849.05	5184.00	183.2
04:10:00	6:23:00	2-0141	-.22	12716.35	2298.0	5849.85	5193.00	184.4
04:15:00	6:28:00	2-0142	-.26	12716.09	298.1	5847.93	5211.00	191.9
04:20:00	6:33:00	2-0143	-.15	12715.94	298.1	5848.64	5202.00	200.6
04:25:00	6:38:00	2-0144	.70	12716.64	298.0	5850.96	5173.00	203.4
04.30:00	6:43:0	2-0145	-.35	12716.29	298.1	5850.05	5191.0	211.6
04:35:00	6:48:00	2-0146	-.40	17715.89	298.0	5848.00	5210.00	190.6
04:40:00	6:53:00	2-0147	-.61	12715.28	298.1	5846.38	5221.00	164.1
04:45:00	6:58:00	2-0148	.12	12715.40	298.1	5848.30	5208.00	218.1
04:50:00	7:03:00	2-0149	-.19	12715.21	298.0	5849.84	5187.00	223.0
04:55:00	7:08:00	2-0150	-.27	12714.9	298.0	5851.12	5191.00	210.7
05:00:00	7:13:00	2-0151	.09	12715.03	298.0	5850.74	5196.00	190.4
05:05:00	7:18:00	2-0152	-.28	12714.75	298.0	5848.27	5203.00	184.8
05:10:00	7:23:00	2-0153	.73	12715.48	298.0	5848.37	5215.00	189.5
05:15:00	7:28:00	2-0154	-1.13	12714.35	298.0	5848.23	5208.00	191.1
05.20:00	7:33:00	2-0155	.11	12714.46	298.0	5846.41	5201.00	197.2
05:25:00	7:38:00	2-0156	-.48	12713.98	298.0	5848.65	5212.00	196.1
05:30:00	7:43:00	2-0157	-.09	12713.89	298.0	55850.81	5203.00	213.0
05:35:00	7:48:00	2-0158	.13	12714.02	298.1	5847.24	5227.00	197.9
05:40:00	7:53:00	2-0159	-.53	12713.49	298.1	5851.13	5234.00	201.1
05:45:00	7:58:00	2-0160	.34	12713.83	298.0	5846.78	5271.00	184.2
05:50:00	8:03:00	2-0161	-.08	12713.75	298.1	5848.39	5241.00	204.8
05:55:00	8:08:00	2-0162	-.25	12713.50	298.0	55848.59	5243.00	213.9
06:00:00	8:13:00	2-0163	-.15	12713.35	298.1	5850.01	5227.00	214.2
06:05:00	8:18:00	2-0164	.05	12713.40	298.1	5849.71	5243.00	210.7
06:10:00	8:23:00	2-0165	-.13	12713.27	298.1	5848.82	5260.00	206.6
06:15:00	8:28:00	2-0166	-.25	12713.02	298.0	5848.49	5258.00	188.9
06:20:00	8:33:00	2-0167	-.08	12712.94	298.1	5848.87	5259.00	182.5
06:25:00	8:38:00	2-0168	.13	12713.07	298.1	5848.49	5261.00	187.6
06.30:00	8:43:00	2-0169	-.56	12712.51	299.0	5848.74	5264.00	195.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

06:35:00	8:48:00	2-0170	.08	12712.37	298.1	[illegible]	[illegible]	[illegible]
06:40:00	8:53:00	2-0171	-.36	12712.11	298.0	5852.97	5239.00	195.2
06:45:00	8:58:00	2-0172	-.14	12712.07	298.2	5846.26	5313.00	196.[illegible]
06:50:00	9:03:00	2-0173	-.26	12711.81	298.1	5846.54	5309.00	201.3
06:55:00	9:08:00	2-0174	-.08	12711.73	298.0	5847.43	5304.00	205.5
07:00:00	9:13:00	2-0175	.06	12711.79	298.0	5847.99	5319.00	202.9
07:05:00	9:18:00	2-0176	-.21	12711.58	298.1	5852.10	5269.00	199.4
07:10:00	9:23:00	2-0177	.08	12711.66	298.2	5846.23	53[illegible]6.00	199.0
07:15:00	9:28:00	2-0178	.02	12711.68	298.0	5849.13	5294.00	196.4

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
07:20:00	9:33:00	2-0179	-.69	12710.99	298.0	5851.28	5264.00	200.2
07:25:00	9:38:00	2-0180	-.11	12710.88	298.1	5847.94	5307.00	207.1
07:30:00	9:43:00	2-0881	.43	12711.31	298.0	5849.04	5299.00	206.5
07:35:00	9:48:00	2-0182	-.14	12711.17	298.0	5850.76	5295.00	195.3
07:40:00	9:53:00	2-0183	-.22	12710.95	297.9	5850.40	5300.00	190.3
07:45:00	9:58:00	2-0184	-.41	12710.54	298.0	5850.96	5292.00	198.0
07:50:00	10:03:00	2-0185	.01	12710.55	298.0	5848.50	5310.00	211.2
07:55:00	10:08:00	2-0186	-.41	12710.14	298.1	5847.83	5321.00	227.6
08:00:00	10:13:00	2-0187	.66	12710.80	298.0	5847.57	5331.00	238.8
08:05:00	10:18:00	2-0188	-.77	12710.03	298.0	5850.16	5296.00	255.9
08:10:00	10:23:00	2-0189	.23	12710.26	298.0	5850.17	5326.00	268.9
08:15:00	10:28:00	2-0190	-.53	12709.73	298.1	5851.69	5298.00	282.8
08:20:00	10:33:00	2-0191	.06	12709.79	298.1	5850.12	5336.00	290.0
08:25:00	10:38:00	2-0192	.10	12709.89	298.0	5847.85	5336.00	307.7
08:30:00	10:43:00	2-0193	-.42	12709.47	298.0	5851.32	5318.00	325.6
08:35:00	10:48:00	2-1194	-.04	12709.43	298.1	5851.09	5324.00	335.0
08:40:00	10:53:00	2-0195	-.11	12709.32	298.0	5850.61	5187.00	339.[illegible]
08:45:00	10:58:00	2-0196	-.01	12709.31	29..1	5851.63	5173.00	349.3
08:50:00	11:03:00	2-0197	-.46	12708.85	298.0	5850.26	5181.00	369.0
08:55:00	11:08:00	2-0198	-.03	12708.82	298.1	55847.90	5218.00	231,9
09:00:00	11:13:00	2-0199	.01	12708.83	298.1	5849.85	5193.00	247.6
09:05:00	11:18:00	2-0200	-.07	12708.76	288.1	5849.55	5201.00	257.7
09:10:00	11:23:00	2-0201	-.15	12708.11	298.1	5852.04	5180.00	267.2
09:15:00	11:28:00	2-0202	-.19	12708.42	298.1	5849.81	5201.00	283.1
09:20:00	11:33:00	2-0203	-.19	12708.23	298.0	5852.40	5186.00	326.4
09:25:00	11:38:00	2-0204	-.23	12708.00	298.0	5849.44	5247.00	336.9
09:30:00	11:43:00	2-0205	-.28	12707.72	298.1	5848.29	5241.00	330.1
09:35:00	11:48:00	2-0206	.04	12707.76	298.1	5849.01	5225.00	344.2
09:40:00	11:53:00	2-0207	-.41	12707.35	298.1	5850.71	5209.00	317.3
09:45:00	11:58:00	2-0208	.32	12707.67	298.0	5852.15	5202.00	3318.8
09:50:00	12:03:00	2-0209	.09	12707.76	298.1	5849.18	5207.00	293.6
09:55:00	12:08:00	2-0210	-.04	12707.72	298.1	5851.92	5197.00	268,
10:00:00	12:13:00	2-0211	-.49	12707.23	298.1	5853.19	5179.00	220.5
10:05:00	12:18:00	2-0212	.07	12707.30	298.1	5849.02	5222.00	210.1
10:10:00	12:23:00	2-0213	.12	12707.42	298.0	5850.18	5223.00	197.8
10:15:00	12:28:00	2-0214	-.04	12707.38	298.1	5848.90	5213.00	176.1
10:20:00	12:33:00	2-0215	-.45	12706.93	298.0	5853.62	5172.00	156.1
10:25:00	12:38:00	2-0216	.26	12707.19	298.1	5851.98	5201.00	205.7
10:30:00	12:43:00	2-0217	-.29	12706.90	298.1	5851.52	5203.00	185.9
10:35:00	12:48:00	2-0218	-.51	12706.39	298.1	5850.14	5214.00	173.1
10:40:00	12:53:00	2-0219	.14	12706.53	298.0	5849.27	5210.00	163.1
10:45:00	12:58:00	2-0220	-.01	12706.52	288.1	5847.09	5214.00	148.1
10:50:00	13:03:00	2-0221	.01	12706.53	298.1	5848.57	5246.00	189.8
10:55:00	13:08:00	2-0222	0.00	12706.53	298.0	5848.95	5228.00	198.5
11:00:00	13:13:00	2-0223	-.32	12706.21	298.1	5848.45	5247.00	221.6
11:05:00	13:18:00	2-0224	-.14	12706.07	298.1	5847.47	5236.00	224.3
11:10:00	13:23:00	2-0225	.05	12706.12	298.1	5850.03	5274.00	252.8

11:10:00	13:23:00	2-0225	.03	12703.12	298.0	5850.00	5234.00	222.7
11:15:00	13:28:00	2-0226	-.21	12705.91	298.0	5854.31	5220.00	220.0
11:20:00	13:33:00	2-0227	-.06	12705.85	298.0	5848.84	5260.00	228.7
11:25:00	13:38:00	2-0228	-.09	12705.76	298.1	5848.78	5265.00	220.7
11:30:00	13:43:00	2-0229	-.24	12705.52	298.0	5852.37	5221.00	196.7
11:35:00	13:48:00	2-0230	.09	12705.61	298.1	5849.04	5268.00	196.3
11:40:00	13:53:00	2-0231	-.56	12705.05	298.0	5849.20	5259.00	149.7
11:45:00	13:58:00	2-0232	.26	12705.31	298.0	5851.20	5232.00	187.1
11:50:00	14:03:00	2-0233	-.33	12704.98	298.1	5848.11	5247.00	187.9
11:55:00	14:08:00	2-0234	0.00	12704.98	298.0	5847.90	5254.00	173.1
12:00:00	14:13:00	2-0235	-.08	12704.90	298.1	5847.30	5273.00	142.6
12:05:00	14:18:00	2-0236	-.10	12704.80	298.1	5850.18	5255.00	97.4
12:10:00	14:23:00	2-0237	-.19	12704.61	298.1	5847.56	5235.00	149.4
12:15:00	14:28:00	2-0238	-.14	12704.47	298.0	5850.15	5232.00	192.4
12:20:00	14:33:00	2-0239	.03	12704.50	298.0	5847.16	5260.00	166.3

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
12:25:00	14:38:00	2-0240	-.41	12704.09	298.0	5850.14	5237.00	147.2
12:30:00	14:43:00	2-0241	.28	12704.37	298.1	5846.91	5252.00	146.0
12:35:00	14:48:00	2-0242	-.19	12704.18	298.0	5848.52	5219.00	157.2
12:41:00	14:53:00	2-0243	.40	12704.58	298.1	5850.59	5238.00	146.2
12:45:00	14:58:00	2-0244	-.61	12703.97	298.1	5851.70	5232.00	176.5
12:50:00	15:03:00	2-0245	-.24	12703.73	29..0	5845.45	5266.00	183.0
12:55:00	15:08:00	2-0246	-.46	12703.27	298.0	5847.84	5225.00	180.5
13:00:00	15:13:00	2-0247	-.36	12702.91	298.0	5848.88	5243.00	157.0
13:05:00	15:18:00	2-0248	.47	12703.38	298.1	5848.07	5057.00	148.0
13:10:00	15:23:00	2-0249	-.01	12703.37	298.1	5850.29	5024.00	167.8
13:15:00	15:28:00	2-0250	-.06	12703.31	298.1	5848.80	5049.00	188.1
13:20:00	15:33:00	2-0251	-.40	12702.91	298.1	5847.81	5040.00	182.2
13:25:00	15:38:00	2-0252	.12	12703.03	298.0	5850.03	5007.00	178.9
13:30:00	15:43:00	2-0253	-.31	12702.72	298.1	5846.63	5034.00	184.4
13:35:00	15:48:00	2-0254	.04	12702.76	298.1	5848.04	5034.00	197.3
13:40:00	15:53:00	2-0255	-.46	12702.30	298.1	5847.75	5013.00	182.1
13:45:00	15:58:00	2-0256	.05	12702.35	298.1	5846.59	5027.00	178.2
13:50:00	16:03:00	2-0257	.15	12702.50	298.1	5848.96	5008.00	184.9
13:55:00	16:08:00	2-0258	-.29	12702.21	298.0	5850.10	4995.00	186.5
14:00:00	16:13:00	2-0259	-.27	12701.94	298.0	5848.11	4991.00	178.0
14:05:00	16:18:00	2-0260	-.16	12701.78	298.1	5848.15	4996.00	189.3
14:10:00	16:23:00	2-0261	.71	12702.49	298.0	5845.77	5028.00	187.2
14:15:00	16:28:00	2-0262	-.31	12702.18	298.1	5844.24	5038.00	178.0
14:20:00	16:33:00	2-0263	-.34	12701.84	298.1	5846.82	5022.00	165.2
14:25:00	16:38:00	2-0264	-.10	12701.74	298.0	5847.88	5077.00	182.5
14:30:00	16:43:00	2-0265	-.20	12701.54	298.0	5845.82	5033.0	173.2
14:35:00	16:48:00	2-0266	-.06	12701.48	298.1	5846.71	5026.00	157.9
14:40:00	16:53:00	2-0267	-.08	12701.40	298.1	5848.69	5007.00	151.6
14:45:00	16:58:00	2-0268	.03	12701.43	298.1	5846.08	5040.00	152.3
14:50:00	17:03:00	2-0269	-.25	12701.18	298.0	5848.64	4996.00	151.9
14:55:00	17:08:00	2-0270	-.45	12700.73	298.0	5847.21	5005.00	170.6
15:00:00	17:13:00	2-0271	.36	12701.09	298.1	5846.58	5041.00	179.4
15:05:00	17:18:00	2-0272	-.30	12700.79	298.1	5845.99	5036.00	181.3
15:10:00	17:23:00	2-0273	.14	12700.93	298.1	5844.62	5058.00	170.2
15:15:00	17:28:00	2-0274	-.06	12700.87	298.1	5847.28	5027.00	173.7
15:20:00	17:33:00	2-0275	-.18	12700669	298.1	5845.05	5046.00	186.5
15:30:00	17:43:00	2-0276	.04	12700.73	298.1	5844.58	5058.00	181.3
15:40:00	17:53:00	2-0274	-.39	12700.34	298.1	5847.91	5039.00	179.0

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
15:50:00	0:00:00	3-0001	12700.24	12700.24	298.0	5846.91	5001.00	170.4
16:00:00	0:10:00	3-0002	-.32	12699.92	298.2	5846.07	5074.00	172.6
16:10:00	0:20:00	3-0003	-.44	12699.48	298.0	5846.45	5068.00	157.1
16:20:00	0:30:00	3-0004	-.18	12699.30	298.0	5844.38	5077.00	138.7
16:30:00	0:40:00	3-0005	-.14	12699.16	298.1	5847.88	5065.00	197.5
16:40:00	0:50:00	3-0006	.14	12699.30	298.2	5845.05	5090.00	188.7
16:50:00	1:00:00	3-0007	-.25	12699.05	298.1	5844.43	5084.00	169.2
17:00:00	1:10:00	3-0008	-.27	12698.78	298.1	5841.81	5095.00	165.7
17:10:00	1:20:00	3-0009	-.06	12698.72	298.2	5844.74	5041.00	142.3
17:20:00	1:30:00	3-0010	-.73	12697.99	298.0	5840.92	5080.00	134.2
17:30:00	1:40:00	3-0011	0.00	12697.99	298.0	5841.74	5070.00	123.3
17:40:00	1:50:00	3-0012	1.88	12699.87	298.0	5848.42	5028.00	117.5
17:50:00	2:00:00	3-0013	.31	12700.18	298.2	5844.83	5064.00	110.4
18:00:00	2:10:00	3-0014	-.40	12699.78	298.1	5845.95	5053.00	109.9
18:10:00	2:20:00	3-0015	-.34	12699.44	298.1	5848.90	5026.00	114.9
18:20:00	2:30:00	3-0016	-.01	12699.43	298.1	5842.54	5084.00	111.4
18:30:00	2:40:00	3-0017	.03	12699.46	298.2	5847.71	5077.00	106.7
18:40:00	2:50:00	3-0018	-.42	12699.04	298.2	5845.22	5055.00	116.7
18:50:00	3:00:00	3-0019	.14	12699.18	298.0	5847.03	5048.00	122.0
19:00:00	3:10:00	3-0020	-1.12	12698.06	298.2	5843.95	5093.00	124.1
19:10:00	3220:00	3-0021	.16	12698.22	298.1	5844.83	5770.00	126.9
19:20:00	3:30:00	3-0022	.27	12698.49	298.0	5847.29	5053.00	126.5
19:30:00	3:40:00	3-0023	-.48	12698.01	298.1	5846.56	5046.00	221.8
19:40:00	3:50:00	3-0024	.31	12698.32	298.2	5842.12	5097.00	168.0
19:50:00	4:00:00	3-0025	-1.28	12697.04	298.1	5845.96	5059.00	166.0
20:00:00	4:10:00	3-0026	.73	12697.77	298.1	5842.07	5063.00	170.4
20:10:00	4:20:00	3-0027	-.42	12697.35	298.2	5842.68	5068.00	183.1
20:20:00	4:30:00	3-0028	-.18	12697.17	298.1	5842.00	5062.00	203.1
20:30:00	4:40:00	3-0029	.01	22697.18	298.1	5841.20	5072.00	217.7
20:40:00	4:50:00	3-0030	-.71	12696.47	298.1	5842.12	5055.00	233.9
20:50:00	5:00:00	3-0031	.18	12696.65	29..1	55840.38	5071.00	242.5
21:00:00	5:10:00	3-0032	.11	12696.76	298.2	5840.79	4981.00	255.9
21:10:00	5:20:00	3-0033	-.43	12696.33	298.1	5841.08	4973.00	259.9
21:20:00	5:30:00	3-0034	-.10	12696.23	298.1	5843.82	4939.00	265.9
21:30:00	5:40:00	3-0035	-.38	12695.85	298.1	5841.06	4986.00	266.2
21:40:00	5:00:00	3-0036	-.03	12695.82	298.1	5842.15	4972.00	270.6
21:50:00	6:00:00	3-0037	.07	12655.89	298.1	5841.60	4966.00	270.1
22:00:00	6:10:00	3-0038	-.12	12695.77	298.1	5843.30	4971.00	275.8
22:10:00	6:20:00	3-0039	-.43	12695.34	298.1	5842.43	4956.00	282.5
22:20:00	6:30:00	3-0040	-.34	12695.00	298.1	5840.40	4949.00	289.7
22:30:00	6:40:00	3-0041	-.10	12694.90	298.1	5840.76	4983.00	292.0
22:40:00	6:50:00	3-0042	-.16	12694.74	298.1	5840.93	4978.00	292.1
22:50:00	7:00:00	3-0443	-.16	12694.58	298.1	5841.67	4977.00	292.1
23:00:00	7:10:00	3-0044	-.18	12694.40	298.2	5839.39	4983.00	286.8
23:10:00	7:20:00	3-0045	-.35	12694.05	298.1	5840.15	4973.00	279.7
23:20:00	7:30:00	3-0046	-.32	12693.73	298.1	5841.20	4993.00	261.5
23:30:00	7:40:00	3-0047	.60	12694.33	298.1	5835.79	5010.00	245.5
23:50:00	8:50:00	3-0048	-.84	12693.43	298.2	5838.82	5058.00	221.2
00:00:00	8:10:00	3-0052	.49	12693.62	298.0	5840.19	5044.00	211.7
00:10:00	8:20:00	3-0053	-.52	12693.10	298.2	5841.99	5025.00	177.0
00:20:00	8:30:00	3-0054	-.04	12693.06	298.1	5837.42	5066.00	161.8
00:30:00	8:40:00	3-0055	-.32	12692.74	298.1	5844.48	5032.00	148.4
00:40:00	8:50:00	3-0056	.23	12692.97	298.1	5837.74	5049.00	109.3
00:50:00	9:00:00	3-0057	-.23	12692.74	298.1	5838.64	5037.00	95.3

Lease: GLADYS McCALL Well #: 1 State: LUU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
01:00:00	9:10:00	3-0058	-.40	12692.34	298.1	5839.66	5009.00	34.3
01:10:00	9:20:00	3-0059	-.34	12692.00	298.1	5839.59	4986.00	-27.1
01:20:00	9:30:00	3-0060	-.08	12691.92	298.1	5834.93	5060.00	-60.8
01:30:00	9:40:00	3-0061	.06	12691.98	298.1	5837.61	5040.00	-76.1
01:40:00	9:50:00	3-0062	-.54	12691.44	298.1	5834.74	5065.00	-86.5
01:50:00	10:00:00	3-0063	-.03	12691.41	298.1	5836.71	5030.00	615.4
02:00:00	10:10:00	3-0064	-.24	12691.17	298.1	5835.40	5039.00	497.5
02:10:00	10:20:00	3-0065	-.18	12690.99	298.1	5839.73	5003.00	475.7
02:20:00	10:30:00	3-0066	-.05	12690.94	298.2	5838.04	4954.00	475.7
02:30:00	10:40:00	3-0067	-.34	12690.60	298.1	5834.25	4992.00	450.6
02:40:00	10:50:00	3-0068	-.07	12690.53	298.1	5837.05	4970.00	424.6
02:50:00	11:00:00	3-0069	-.26	12690.27	298.1	5834.41	5003.00	424.6
03:00:00	11:10:00	3-0070	-.11	12690.66	298.1	5836.30	4971.00	424.6
03:10:00	11:20:00	3-0071	-.17	12689.99	298.2	5837.15	4979.00	424.6
03:20:00	11:30:00	3-0072	-.13	12689.86	298.2	5838.44	4937.00	424.6
03:30:00	11:40:00	3-0073	.18	12690.04	298.1	5835.14	4967.00	424.6
03:40:00	11:50:00	3-0074	-.17	1268..87	298.1	5836.89	4974.00	424.6
03:50:00	12:00:00	3-0075	-.42	12689.45	298.1	5835.45	4984.00	424.6
04:00:00	12:10:00	3-0076	-.12	12689.33	298.2	5834.47	4985.00	424.6
04:10:00	12:20:00	3-0077	-.35	12688.98	298.1	5833.65	4991.00	424.6
04:20:00	12:30:00	3-0078	-.35	12688.63	298.3	5835.42	4937.00	424.6
44:30:00	12:40:00	3-0079	-.07	12688.56	298.2	5835.97	4958.00	424.6
04:40:00	1:50:00	3-0080	0.00	12688.56	298.1	5833.13	4982.00	424.6
04:50:0	13:00:00	3-0081	.15	12688.71	298.1	5837.93	4950.00	424.6
05:00:00	13:10:00	3-0082	-.16	12688.55	298.1	5832.66	5014.00	424.6
05:10:00	13:20:00	3-0083	-.68	12687.87	298.1	5835.19	4990.00	424.6
05:00:00	13:30:00	3-0084	-.40	12687.47	298.1	5835.14	4972.00	444.6
05:30:00	13:40:00	3-0085	-.06	12687.41	298.2	5834.08	4991.00	424.6
05:40:00	13:50:00	3-0086	-.16	12687.25	298.1	5830.42	5160.00	424.6
05:50:00	14:00:00	3-0087	-.03	12687.22	298.1	5832.49	5154.00	424.6
06:00:00	14:10:00	3-0088	-.47	12686.75	298.2	5830.91	5147.00	424.6
06:10:00	14:20:00	3-0089	-.94	12685.81	298.2	5830.27	5151.00	424.6
06:20:00	14:30:00	3-0090	.66	12686.47	298.1	5832.51	5137.00	424.6
06:30:00	14:40:00	3-0091	1.42	12687.89	298.1	5831.03	5129.00	424.6
06:40:00	14:50:00	3-0092	-1.88	12686.01	298.2	5832.85	5115.00	424.6
06:50:00	15:00:00	3-0093	.47	12686.48	2298.2	5830.09	5130.00	424.6
07:00:00	15:10:00	3-0094	-.61	12685.87	298.1	5829.46	5183.00	424.6
07:10:00	15:20:00	3-0095	-.03	12685.84	298.0	5827.68	5211.00	424.6
07:20:00	15:30:00	3-0096	.09	12685.93	298.1	5830.18	5174.00	424.6
07:30:00	15:40:00	3-0097	-.30	12685.63	298.2	5827.92	5212.00	424.6
07:40:00	15:50:00	3-0098	-.26	12685.37	298.1	5826.18	5183.00	424.6
07:50:00	16:00:00	3-0099	-.32	12685.05	298.2	5827.68	5207.00	647.1
08:00:00	16:10:00	3-0100	-.08	12684.97	298.1	5826.38	5210.00	225.4
08:10:00	16:20:00	3-0101	.01	12684.98	298.2	5828.74	5209.00	203.4
08:20:00	16:30:00	3-0102	-.03	12684.95	298.1	5830.77	5191.00	147.6
08:30:00	16:40:00	3-0103	-.40	12684.55	298.1	5831.45	5184.00	112.8
08:40:00	16:50:00	3-0104	-.24	12684.31	298.1	5826.07	5200.00	94.6
08:50:00	17:00:00	3-0105	-.17	12684.14	298.1	5827.56	5169.00	108.3
09:00:00	17:10:00	3-0106	-.13	12684.01	298.1	5828.34	5163.00	128.0
09:10:00	17:20:00	3-0107	-.29	12683.72	298.2	5826.26	5191.00	144.9
09:20:00	17:30:00	3-0108	-.05	12683.67	298.2	5824.93	5175.00	160.8
09:30:00	17:40:00	3-0109	.25	12683.92	298.1	5826.46	5167.00	146.0
09:40:00	17:50:00	3-0110	-.79	12683.13	298.2	5827.59	5164.00	125.4
09:50:00	18:00:00	3-0111	.26	12683.39	298.1	5825.93	5183.00	61.5
10:00:00	18:10:00	3-0112	-.58	12682.81	298.2	5830.66	5159.00	.8
10:10:00	18:20:00	3-0113	-.13	12682.68	298.2	5825.51	5211.00	-89.1
10:20:00	18:30:00	3-0114	-.17	12682.51	298.1	5824.98	5206.00	-139.8

FLO METER IS 25% HIGH

10:30:00	18:40:00	3-0116	.05	12682.56	298.2	5824.34	5212.00	607.6

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
10:40:00	18:50:00	3-0117	-.17	12682.39	298.1	5828.20	5174.00	-398.9
10:50:00	19:00:00	3-0118	-.28	12682.11	298.2	5824.76	5212.00	43.4
11:00:00	19:10:00	3-0119	-.20	12681.91	298.1	5827.23	5190.00	43.4
11:10:00	19:20:00	3-0120	.27	12682.18	298.1	5823.69	5212.00	43.4
11:20:00	19:30:00	3-0121	-.71	12681.47	298.2	5824.03	5213.00	43.4
11:30:00	19:40:00	3-0122	.37	12681.84	298.2	5822.03	5224.00	43.4
11:40:00	19:50:00	3-0123	-.53	12681.31	298.2	5823.01	5203.00	43.4
11:50:00	20:00:00	3-0124	.10	12681.41	298.1	5823.81	5215.00	43.4
12:00:00	20:10:00	3-0125	-.14	12681.27	298.2	5825.67	5178.00	43.4
12:10:00	20:20:00	3-0126	-.48	12680.79	298.1	5826.75	5174.00	43.4
12:20:00	20:30:00	3-0127	-.03	12680.76	298.1	5821.58	5246.00	43.4
12:30:00	20:40:00	3-0128	-.87	12679.89	298.1	5826.88	5124.00	43.4
12:40:00	20:50:00	3-0129	.30	12680.19	298.2	5821.09	5198.00	43.4
12:50:00	21:00:00	3-0130	-.60	12679.59	298.2	5823.25	5150.00	43.4
13:00:00	21:10:00	3-0131	.13	12679.72	298.2	5819.84	5203.00	43.4
13:10:00	21:20:00	3-0132	.63	12680.35	298.2	5823.23	5174.00	43.4
13:20:00	21:30:00	3-0133	-.02	12680.33	298.2	5819.15	5204.00	43.4
13:30:00	21:40:00	3-0134	-.89	12679.44	298.2	5821.76	5155.00	43.4
13:40:00	21:50:00	3-0135	-.32	12679.12	298.2	5821.65	5149.00	43.4
13:50:00	22:00:00	3-0136	-.06	12679.06	298.2	5825.97	5104000	43.4
14:00:00	22:10:00	3-0137	.10	12679.16	298.2	5818.95	5160.00	43.4
14:10:00	22:20:00	3-0138	-.33	12678.83	298.3	5823.73	5113.00	43.4
14:20:00	22:30:00	3-0139	-.32	12678.51	298.1	5817.28	5135.00	43.4
14:30:00	22:40:00	3-0140	.20	12678.71	298.2	5817.94	5139.00	43.4
14:40:00	22:50:00	3-0141	-.58	12678.13	298.1	5818.26	5133.00	43.4
14:50:00	23:00:00	3-0142	.14	12678.27	298.2	5821.24	5120.00	43.4
15:00:00	23:10:00	3-0143	-.35	12677.92	298.1	5823.55	5102.00	43.4
15:10:00	23:20:00	3-0144	-.32	12677.60	298.2	5820.18	5118.00	43.4

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
15:20:00	0:00:00	4-0001	12677.52	12677.52	298.2	5821.76	5089.00	43.4
15:30:00	0:10:00	4-0002	.10	12677.62	298.2	5819.82	5119.00	43.4
15:40:00	0:20:00	4-0003	-.67	12676.95	298.2	5818.73	5122.00	43.4
15:50:00	0:30:00	4-0004	.21	12677.16	298.2	5819.85	5131.00	43.4
16:00:00	0:40:00	400005	-.36	12676.80	298.2	5819.37	5037.00	43.4
16:10:00	0:50:00	4-0006	-.08	12676.72	298.2	5815.88	5020.00	43.4
16:20:00	1:00:00	4-0004	-.19	12676.53	298.2	5821.54	4985.00	300.1
16:30:00	1:10:00	4-0017	-.29	12676.24	298.2	5798.65	5062.00	154.7
16:40:00	1:20:00	4-0018	-.04	12676.20	298.2	5809.35	5000.00	307.2
16:50:00	1:30:00	4-0019	-.49	12675.71	298.1	5819.97	5071.00	470.5
17:00:00	1:40:00	4-0020	-.26	12675.45	298.1	5816.71	5055.00	285.8
17:10:00	1:50:00	4-0021	.22	12675.67	298.2	5845.40	5078.00	223.5
17:20:00	2:00:00	4-0022	-.55	12675.12	298.2	5849.96	5107.00	205.2
17:30:00	2:10:00	4-0023	.10	12675.22	298.1	5871.78	5101.00	220.8
17:40:00	2:20:00	4-0024	-.34	12674.88	298.1	5857.02	5103.00	184.7
17:50:00	2:30:00	4-0025	-.51	12674.37	298.1	6357.06	5080.00	177.7
18:00:00	2:40:00	4-0026	.11	12674.48	298.2	5852.86	5082.00	33.5
18:10:00	2:50:00	4-0027	-.48	12674.00	298.1	5861.02	5025.00	-43.3
18:20:00	3:00:00	4-0028	.12	12674.12	298.3	5868.59	5076.00	290.5
18:30:00	3:10:00	4-0029	-.63	12673.49	298.2	5873.73	5107.00	284.9
18:40:00	3:20:00	4-0030	-.59	12672.90	298.2	5877.84	5054.00	704.7
18:50:00	3:30:00	4-0031	.60	12673.50	298.2	5881.18	5053.00	308.5
19:00:00	3:40:00	4-0032	-.95	12672.55	298.1	5882.70	5070.00	18.8
19:10:00	3:50:00	4-0033	.06	12672.61	298.2	5885.78	5084.00	723.4
19:20:00	4:00:00	4-0034	-.31	12672.30	298.2	5887.57	5116.00	698.0
19:30:00	4:10:00	4-0035	-.36	12671.94	298.2	5880.76	5122.00	596.8
19:40:00	4:20:00	4-0036	.05	12671.99	298.1	5882.58	5128.00	570.6
19:50:00	4:30:00	4-0037	-.28	12671.71	298.2	5864.55	5103.00	599.1
20:00:00	4:40:00	4-0038	-.71	12671.00	298.3	5885.59	5097.00	685.1
20:10:00	4:50:00	4-0039	.02	12671.02	298.2	5886.70	5083.00	213.6
20:20:00	5:00:00	4-0040	.59	12671.61	298.2	5887.51	5099.00	104.3
20:30:00	5:10:00	4-0041	-.21	12671.40	298.3	5888.28	5085.00	210.2
20:40:00	5:20:00	4-0042	-.07	12671.33	298.2	5889.02	5126.00	797.4
20:50:00	5:30:00	4-0043	-.58	12670.75	298.1	5889.09	5128.00	932.1
21:00:00	5:40:00	4-0044	-.11	12670.64	298.1	5888.19	5078.00	490.1
21:10:00	5:50:00	4-0045	-.23	12670.41	298.3	5891.09	5137.00	901.1
21:20:00	6:00:00	4-0046	.05	12670.46	298.2	5892.31	5119.00	257.9
21:30:00	6:10:00	4-0047	-.21	12670.25	298.2	5892.39	5095.00	725.7
21:40:00	6:20:00	4-0048	-.57	12669.68	298.1	5893.64	5077.00	79.5
21:50:00	6:30:00	4-0049	.39	12670.07	298.2	5894.36	5063.00	240.7
22:00:00	6:40:00	4-0050	-.56	12669.51	298.2	5895.85	5035.00	287.6
22:10:00	6:50:00	4-0051	.94	12670.45	298.2	5896.15	5016.00	319.0
22:20:00	7:00:00	4-0052	-1.96	12668.49	298.0	5898.33	5046.00	282.5
22:30:0	7:10:00	4-0053	.55	12669.04	298.2	5904.12	5032.00	280.0
22:40:00	7:20:00	4-0054	.01	12669.05	298.2	5882.92	5036.00	332.3
22:50:00	7:30:00	4-0055	.02	12669.07	298.3	5866.19	5016.00	307.0
23:00:00	7:40:00	4-0056	-.70	12668.37	298.3	5869.24	5033.00	293.8
23:10:00	7:50:00	4-0057	-.19	12668.18	298.2	5864.29	5066.00	302.3
23:20:00	8:00:00	4-0058	.22	12668.40	298.2	5871.59	5015.00	362.6
23:30:00	8:10:00	4-0059	-.14	12668.26	298.1	5880.72	4898.00	362.8
23:40:00	8:20:00	4-0060	-8.23	12660.03	298.2	5891.25	5199.00	397.7
23:50:00	8:30:00	4-0058	-2.58	12657.45	298.3	5887.92	5287.00	430.9
00:00:00	8:40:00	4-0064	.09	12657.54	298.2	5889.34	5296.00	343.7
00:10:00	8:50:00	4-0065	-.60	12656.94	298.2	5893.70	5300.00	333.3
00:20:00	9:00:00	4-0066	-.19	12656.75	298.2	5898.99	5260.00	369.6

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
00:30:00	9:10:00	4-0067	-.54	12656.21	298.2	5902.74	5284.00	-416.1
00:40:00	9:20:00	4-0068	-.21	12656.00	298.2	5907.50	5277.00	-417.4
00:50:00	9:30:00	4-0069	-003	12655.97	298.1	5907.55	5423.00	-415.6
01:00:00	9:40:00	4-0070	-.74	12655.23	298.2	5895.58	5408.00	-414.9
01:10:00	9:50:00	4-0071	.46	12655.69	298.2	5874.77	5406.00	182.2
01:20:00	10:00:00	4-0072	-1.54	12654.15	298.3	5876.78	5425.00	220.4
01:30:00	10:10000	4-0073	1.06	12655.21	298.2	5885.68	5429.00	218.1
01:40:00	10:20:00	4-0074	-.64	12654.57	298.1	5886.29	5427.00	215.2
01:50:00	10:30:00	4-0075	.90	12655.47	298.2	5891.77	5431.00	228.0
02:00:00	10:40:00	4-0076	-1.65	12653.82	298.2	5902.42	5470.00	197.1
02:10:00	10:50:00	4-0077	.75	12654.57	298.2	5902.85	5415.00	199.1
02:20:00	11:00:00	4-0078	-1.61	12652.96	298.3	5904.74	5417.00	207.6
02:30:00	11:10:00	4-0079	.53	12653.49	298.3	5906.58	5425.00	201.4
02:40:00	11:20:00	4-0080	.16	12653.65	298.2	5910.48	5402.00	187.8
02:50:00	11:30:00	4-0081	-.58	12653.07	298.2	5910.35	5436.00	230.2
03:00:00	11:40:00	4-0082	.14	12653.21	298.1	5910.62	5427.00	243.2
03:10:00	11:50:00	4-0083	-.78	12652.43	298.3	5912.36	5395.00	245.8
03:20:00	12:00:00	4-0084	.73	12653.16	298.2	5912.22	5420.00	256.1
03:30:00	12:10:00	4-0085	-.68	12652.48	298.2	5912.30	5406.00	243.6
03:40:00	12:20:00	4-0086	-.77	12651.71	298.2	5913.70	5424.00	238.4
03:50:00	12:30:00	4-0087	.47	12652.18	298.2	5912.83	5414.00	238.2
04:00:00	12:40:00	4-0088	.04	12652.22	298.2	5911.69	5454.00	217.4
04:10:00	12:50:00	4-0089	-.93	12651.29	298.3	5914.43	5472.00	227.5
04:20:00	13:00:00	4-0090	.21	12651.50	298.2	5915.02	5649.00	208.8
04:30:00	13:10:00	4-0091	-.16	12651.34	298.2	5911.96	562..00	205.2
04:40:00	13:20:00	4-0092	6.97	12658.31	298.2	5908.54	5409.00	217.1
04:50:00	13:30:00	4-0093	-.15	12658.16	298.1	5905.75	5419.00	212.7
05:00:00	13:40:00	4-0094	.41	12658.57	298.3	5910.08	5194.00	205.0
05:10:00	13:50:00	4-0095	-.11	12658.46	298.2	5902.58	5228.00	246.1
05:20:00	14:00:00	4-0096	-.28	12658.18	298.2	5908.16	5201.00	190.9
05:30:00	14:10:00	4-0097	.52	12658.70	298.1	5910.35	5220.00	-89.4
05:40:00	14:20:00	4-0098	-.22	12658.48	298.3	5913.51	5238.00	294.1
05:50:00	14:30:00	4-0099	-.14	12658.34	298.2	5915.41	5222.00	289.0
06:00:00	14:40:00	4-0100	-.16	12658.18	298.3	5919.36	5204.00	291.1
06:10:00	14:50:00	4-0101	-.02	12658.16	298.2	5917.81	5232.00	296.6
06:20:00	15:00:00	4-0102	-.30	12657.86	298.2	5918.91	5179.00	206.6
06:30:00	15:10:00	4-0103	-.18	12657.68	298.3	5917.85	5169.00	195.9
WELL SHUT IN								
06:40:00	15:20:00	4-0105	114.22	12771.90	298.2	5957.70	4.00	190.3
WELL BACK ON LINE								
06:50:00	15:30:00	4-0107	-92.26	12679.64	298.2	5926.23	5208.00	175.9
07:00:00	15:40:00	4-0108	2.49	12682.13	298.3	5927.22	5321.00	180.2
07:10:00	15:50:00	4-0109	-.23	12681.90	298.1	5925.26	5340.00	153.4
07:20:00	16:00:00	4-0110	.05	12681.95	298.2	5925.34	5366.00	158.0
07:30:00	16:10:00	4-0111	.29	12682.24	298.2	5927.70	5380.00	139.0
07:40:00	16:20:00	4-0112	-.53	12681.71	298.3	5925.26	5396.00	163.3
07:50:00	16:30:00	4-0113	.42	12682.13	298.3	5925.84	5470.00	1162.2
08:00:00	16:40:00	4-0114	5.53	12687.66	298.3	5928.37	5180.00	153.0
SET REAL TIME								
08:10:00	16:50:00	4-0116	-1.56	12686.10	298.2	5928.46	5210.00	152.5
08:20:00	17:00:00	4-0117	2.36	12688.46	298.2	5929.41	5193.00	200.3

08:30:00	17:10:00	4-0118	.70	12689.18	298.2	5927.88	5218.00	160.4
08:40:00	17:20:00	4-0119	-.49	12688.67	298.2	5926.90	5308.00	165.0
08:50:00	17:30:00	4-0120	.09	12688.76	298.2	5930.09	5315.00	158.0
09:00:00	17:40:00	4-0121	.17	12688.93	298.2	5922.42	5281.00	137.0

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
09:10:00	17:50:00	4-0122	.16	12689.09	298.2	5920.43	5288.00	109.4
09:20:00	18:00:00	4-0123	-.34	12688.75	298.2	5899.65	5266.00	101.9
09:30:00	18:10:00	4-0124	.46	12689.21	298.2	5907.39	5264.00	91.0
09:40:00	18:20:00	4-0125	.13	12689.34	298.2	5921.84	5242.00	89.2
09:50:00	18:30:00	4-0126	-.48	12688.86	298.2	5928.77	5205.00	89.3
10:00:00	18:40:00	4-0127	.11	12688.97	298.2	5931222	5230.00	69.8
10:10:00	18:50:00	4-0128	-.07	12688.90	298.2	5926.89	5331.00	60.2
10:20:00	19:00:00	4-0129	.26	12689.16	298.3	5926.56	5320.00	55.4
10:30:00	19:10:00	4-0130	-.32	12688.84	298.2	5931.14	5264.00	55.3
10:40:00	19:20:00	4-0131	-.13	12688.71	298.2	5921.78	5271.0	64.6
10:50:00	19:30:00	4-0132	.22	12688.93	298.3	5921.16	5288.00	68.2
11:00:00	19:40:00	4-0133	-.05	12688.88	298.2	5930.88	5332.00	63.0
11:10:00	19:50:00	4-0134	-.01	12688.87	298.2	5924.24	5232.00	60.5
11:20:00	20:00:00	4-0135	-.30	12688.57	298.2	5911.57	5263.00	60.5
11:30:00	20:10:00	4-0136	.04	12688.61	298.2	5912.01	5254.00	44.8
11:40:00	20:20:00	4-0137	-.15	12688.46	298.2	5915.64	5301.00	44.6
11:50:00	20:30:00	4-0138	.36	12688.82	298.1	5923.66	5301.00	44.8
12:00:00	20:40:00	4-0139	-.34	12688448	298.2	5932.57	5300.00	44.8
12:10:00	20:50:00	4-0140	-.14	12688.34	298.1	5332.67	5316.00	44.8
12:20:00	21:00:00	4-0141	-.12	12688.22	298.1	5934.14	5312.00	44.6
12:30:00	21:10:00	4-0142	-.20	12688.02	298.1	5928.3	5291.00	44.8
12:40:00	21:20:00	4-0143	.35	12688.37	298.2	5932.48	5273.00	44.8
12:50:00	21:30:00	4-0144	-.28	12688.09	298.2	5912.05	5254.00	44.8
13:00:00	21:40:00	4-0145	-.32	12687.77	298.2	5909.22	5214.00	44.8
13:10:00	21:50:00	4-0146	.02	12687.79	298.1	5868.19	5249.00	44.8
13:20:00	22:00:00	4-0147	-.10	12687.69	298.1	5876.00	5277.00	44.8
13:30:00	22:10:00	4-0148	.26	12687.95	298.2	5868.53	5275.00	44.6
13:40:00	22:20:00	--0149	-.23	12687.72	298.3	5804.96	5260.00	44.6
13:50:00	22:30:00	4-0150	.17	12687.89	298.2	5805.32	5253.00	44.8
14:00:00	22:40:00	4-0151	-.18	12687.71	298.2	5811.29	5226.00	44.6
14:10:00	22:50:00	4-0152	-.15	12687.56	298.1	5798.99	5285.00	44.8
14:20:00	23:00:00	4-0153	-.22	12687.34	298.1	2844.05	5317.00	44.6
14:30:00	23:10:00	4-0154	.03	12687.37	298.2	5823.24	5302.00	44.8
14:40:00	23:20:00	4-0155	.05	12687.42	298.1	5824.01	5314.00	44.6
14:50:00	23:30:00	44-0156	-.31	12687.11	298.2	5852.30	5309.00	44.6

CHOKE ADJ. TO MAKE UP FOR P

LOSS :SINCE MOMENTARY SHUT

15:00:00	23:40:00	4-0159	-94.55	12592.56	298.2	5547.47	8884.00	44.6
15:10:00	23:50:00	4-0160	-78.07	12514.49	298.3	5574.23	7683.00	44.8
15:20:00	24:00:00	4-0161	-8.47	12506.02	298.4	5370.37	7836.00	44.6
15:30:00	24:10:00	4-0162	-4.91	12501.11	298.3	5370.21	7835.00	44.8
15:40:00	24:20:00	4-0163	-3.46	12497.65	298.2	5368.30	8030.00	44.6
15:50:00	24:30:00	4-0164	-2.97	12494.68	298.4	5366.52	8067.00	44.6
16:00:00	24:40:00	4-0165	-1.36	12493.32	298.4	5365.22	8600.00	44.8
16:10:00	24:50:00	4-0166	-3.1	12490.15	298.4	5362.12	9232.00	44.8
16:20:00	25:00:00	4-0167	-1.34	12488.81	298.4	5359.21	9630.00	44.8
16:30:00	25:10:00	4-0168	-1.72	12487.09	298.3	5356.12	9785.00	44.6

J

GOING BACK TO ORIGNAL FLOW

16:40:00	25:20:00	4-0171	73.33	12560.42	298.4	5628.23	4096.00	44.8
16:50:00	25:30:00	4-0172	72.21	12632.63	298.4	5771.25	5045.00	44.8

FLOW POINT AVERGE 4250 BBLD

17:00:00	25:40:00	4-0174	-7.55	12625.08	298.2	5751.47	5175.00	44.8

03/24/1983 RESERVOIR DYNAMICS INC. Page: 4

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
17:10:00	25:50:00	4-0175	2.11	12627.19	298.3	5754.18	5188.00	44.8
17:20:00	26:00:00	4-0176	7.79	12634.98	298.3	5770.99	4988.00	44.8
17:30:00	26:10:00	4-0177	.98	12635.96	298.2	5770.84	5017.00	44.8
17:40:00	26:20:00	4-0178	1.13	12637.09	298.2	5772.64	5016.00	44.8
17:50:00	26:30:00	4-0179	8.28	12645.37	298.3	5792.82	4755.00	44.8
18:00:00	26:40:00	4-0180	1.50	12646.87	298.3	5793.52	4708.00	44.8
18:10:00	26:50:00	4-0181	.63	12647.50	298.2	5795.37	4764.00	44.8
18:20:00	27:00:00	4-0182	-.10	12647.40	298.3	5812.65	4738.00	44.8
18:30:00	27:10:00	4-0183	.62	12648.02	298.2	5810.97	4771.00	44.8
18:40:00	27:20:00	4-0184	.65	12648.67	298.2	5811.75	4803.00	44.8
18:50:00	27:30:00	4-0185	.11	12648.78	298.2	5811.57	4.00	44.8
19:00:00	27:40:00	4-0186	.26	12649.04	298.2	5811.72	4.00	44.8
19:10:00	27:50:00	4-0187	-1.85	12647.19	298.2	5806.50	4047.00	44.8
19:20:00	28:00:00	4-0188	-.81	12646.38	298.3	5804.63	4796.00	44.8
19:30:00	28:10:00	4-0189	.09	12646.47	298.3	5800.01	4794.00	44.8
19:40:00	28:20:00	4-0190	-.12	12646.35	298.2	5800.51	4830.00	44.8
19:50:00	28:30:00	4-0191	.19	12646.54	298.3	5800.12	4791.00	44.8
20:00:00	28:40:00	4-0192	-.43	12646.11	298.2	5808.87	4852.00	44.8

POWER SURGE

SET REAL TIME

20:30:00	29:10:00	4-0199	-.26	12645.85	298.3	5807.18	4820.00	0.0
20:40:00	29:20:00	4-0200	.05	12645.90	298.2	5807.02	4837.00	0.0
20:50:00	29:30:00	4-0201	.24	12646.14	298.2	5807.53	4884.00	0.0
21:00:00	29:40:00	4-0202	.05	12666.19	298.2	5805.98	4861.00	0.0
21:10:00	29:50:00	4-0203	-.64	12645.55	298.2	5806.80	4856.00	0.0
21:20:00	30:00:00	4-0204	.30	12645.85	298.2	5806.45	4858.00	0.0
21:30:00	30:10:00	4-0205	-.34	12645.51	298.3	5806.57	4856.00	0.0
21:40:00	30:20:00	4-0206	-.43	12645.08	298.2	5805.89	4843.00	0.0
21:50:00	30:30:00	4-0207	.26	12645.34	298.2	5805.36	4896.00	0.0
22:00:00	30:40:00	4-0208	.10	12645.44	298.2	5804.23	4891.00	0.0
22:10:00	30:50:00	4-0209	.14	12645.58	298.2	5806.17	4744.00	0.0
22:20:00	31:00:00	4-0210	-.33	12645.25	298.3	5804.22	4855.00	0.0
22:30:00	31:10:00	4-0211	-.26	12644.99	298.3	5802.89	4809.00	0.0
22:40:00	31:20:00	4-0212	.32	12645.31	298.2	5806.91	4738.00	0.0
22:50:00	31:30:00	4-0213	-.39	12644.92	298.2	5805.13	4859.00	0.0
23:00:00	31:40:00	4-0214	-.17	12644.75	298.3	5804.57	4854.00	0.0
23:10:00	31:50:00	4-0215	-.23	12644.52	298.2	5804.29	4844.00	0.0
23:20:00	32:00:00	4-0216	.25	12644.77	298.3	5807.27	4753.00	0.0
23:30:00	32:10:00	4-0217	-.41	12644.36	298.2	5808.34	4863.00	0.0

23:40:00	32:20:00	4-0218	-.44	12643.92	298.3	5806.73	4819.00	0.0
23:50:00	32:30:00	4-0219	.46	12644.38	298.3	5806.30	4771.00	0.0
00:00:00	32:40:00	4-0220	0.00	12644.38	298.3	5804.60	4892.00	0.0
00:10:00	32:50:00	4-0221	-.42	12643.96	298.3	5802.95	4861.00	0.0
00:20:00	33:00:00	4-0222	-.48	12643.48	298.2	5802.70	4897.00	0.0
00:30:00	33:10:00	4-0223	.65	12644.13	298.2	5802.23	4897.00	0.0
00:40:00	33:20:00	4-0224	-.43	12643.70	298.2	5803.37	4828.00	0.0
00:50:00	33:30:00	4-0225	.64	12644.34	298.2	5805.42	4903.00	0.0
01:00:00	33:40:00	4-0226	-.93	12643.41	298.2	5806.55	4809.00	0.0
01:10:00	33:50:00	4-0227	-.48	12642.93	298.2	5805.30	4882.00	0.0
01:20:00	34:00:00	4-0228	.35	12643.28	298.2	5803.33	4817.00	0.0
01:30:00	34:10:00	4-0229	-.35	12642.93	298.2	5803.42	4906.00	0.0
01:40:00	34:20:00	4-0230	-.12	12642.81	298.2	5802.86	4884.00	0.0
01:50:00	34:30:00	4-0231	-.12	12642.69	298.3	5801.06	4878.00	0.0
02:00:00	34:40:00	4-0232	-.27	12642.42	298.2	5798.58	4869.00	0.0
02:10:00	34:50:00	4-0233	-.01	12642.41	298.2	5798.07	4905.00	0.0

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
02:20:00	35:00:00	4-0234	-.12	12642.29	298.3	5798.92	4840.00	0.0
02:30:00	35:10:00	4-0235	-.19	12642.10	298.3	5800.19	4824.00	0.0
02:40:00	35:20:00	4-0236	-.09	12642.01	298.3	5800.47	4878.00	0.0
02:50:00	35:30:00	4-0237	-.14	12641.87	298.2	5800.87	4863.00	0.0
03:00:00	35:40:00	4-0238	-.06	12641.81	298.2	5800.90	4869.00	0.0
03:10:00	35:50:00	4-0239	-.14	12641.67	298.2	5799.98	4863.00	0.0
03:20:00	36:00:00	4-0240	-.11	12641.56	298.2	5799.07	4885.00	0.0
03:30:00	36:10:00	4-0241	-.11	12641.45	298.2	5799.56	4879.00	0.0
03:40:00	36:20:00	4-0242	-.33	12641.12	298.2	5800.56	4869.00	0.0
03:50:00	36:30:00	4-0243	.03	12641.15	298.2	5799.45	4763.00	0.0
04:00:00	36:40:00	4-0244	-.01	12641.14	298.2	5799.24	4879.00	0.0
04:10:00	36:50:00	4-0245	-.08	12641.06	298.3	5797.59	4882.00	0.0
04:20:00	37:00:00	4-0246	-.99	12640.07	298.2	5796.95	4760.00	0.0
04:30:00	37:10:00	4-0247	.20	12640.27	298.2	5795.98	4822.00	0.0
04:40:00	37:20:00	4-0248	-.07	12640.20	298.2	5795.28	4858.00	0.0
04:50:00	37:30:00	4-0249	.27	12640.47	298.2	5797.37	4838.00	0.0
05:00:00	37:40:00	4-0250	.12	12640.59	298.2	5797.94	4874.00	0.0
05:10:00	37:50:00	4-0251	-.36	12640.23	298.2	5797.53	4831.00	0.0
05:20:00	38:00:00	4-0252	-.08	12640.15	298.2	5794.64	4899.00	0.0
05:30:00	38:10:00	4-0253	-.30	12639.85	298.2	5795.27	4850.00	0.0
05:40:00	38:20:00	4-0254	.07	12639.92	298.2	5795.30	4836.00	0.0
05:50:00	38:30:00	4-0255	.12	12640.04	298.2	5795.60	4818.00	0.0
06:00:00	38:40:00	4-0256	-.82	12639.22	298.2	5795.78	4699.00	0.0
06:10:00	38:50:00	4-0257	.26	12639.48	298.3	5795.56	4889.00	0.0
06:20:00	39:00:00	4-0258	.25	12639.73	298.2	5795.37	4867.00	0.0
06:30:00	39:10:00	4-0259	-.48	12639.25	298.2	5793.36	4877.00	0.0
06:40:00	39:20:00	4-0260	-.10	12639.15	298.2	5793.47	4881.00	0.0
06:50:00	39:30:00	4-0261	-.23	12638.92	298.2	5793.11	4874.00	0.0
07:00:00	39:40:00	4-0262	-.36	12638.56	298.2	5792.21	4883.00	0.0
07:10:00	39:50:00	4-0263	-.17	12638.39	298.2	5791.06	4859.00	0.0
07:20:00	40:00:00	4-0264	.15	12638.54	298.2	5791.22	4801.00	0.0
07:30:00	40:10:00	4-0265	-.20	12638.34	298.1	5733.41	4747.00	0.0
07:40:00	40:20:00	4-0266	-.14	12638.20	298.2	5793.09	4849.00	0.0
07:50:00	40:30:00	4-0267	-.38	12637.82	298.3	5792.49	4846.00	0.0
08:00:00	40:40:00	4-0268	-.01	12637.81	298.2	5792.95	4837.00	0.0
08:10:00	40:50:00	4-0269	.27	12638.08	298.2	5793.71	4820.00	0.0
08:20:00	41:00:00	4-0270	-.37	12637.71	298.2	5793.28	4857.00	0.0

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
08:30:00	0:00:00	5-0001	12637.72	1263..72	298.2	5792.81	4833.00	0.0
08:40:00	0:10:00	5-0002	.04	12637.76	298.2	5793.58	4843.00	0.0
08:50:00	0:20:00	5-0003	-.33	12637.43	298.2	5793.40	4817.00	0.0
09:00:00	0:30:00	5-0004	-.20	12637.23	298.2	5793.29	4853.00	0.0
09:10:00	0:40:00	5-0005	-.16	12637.07	298.3	5794.31	4806.00	0.0
09:30:00	0:50:00	5-0006	-.04	12636.89	298.2	5792.80	4845.00	0.0
09:40:00	1:10:00	5-0008	-.36	12636.53	298.1	5793.62	4824.00	0.0
09:50:00	1:20:00	5-0009	-.17	12636.36	298.2	5793.74	4840.00	0.0
10:00:00	1:30:00	5-0010	-.25	12636.11	298.2	5792.55	4847.00	0.0
10:10:00	1:40:00	5-0011	.09	12636.20	298.2	5794.10	4885.00	0.0
10:20:00	1:50:00	5-0012	-.40	12635.80	298.2	5793.08	4855.00	0.0
10:30:00	2:00:00	5-0013	.20	12636.00	298.2	5793.23	4861.00	0.0
10:40:00	2:10:00	5-0014	-.12	12635.88	298.2	5791.50	4727.00	0.0
10:50:00	2:20:00	5-0015	-.17	12635.71	298.2	5793.02	4853.00	0.0
11:00:00	2:30:00	5-0016	-.01	12635.70	298.2	5794.36	4824.00	0.0
11:10:00	2:40:00	5-0017	-.25	12635.45	298.2	5791.53	4874.00	0.0
11:20:00	2:50:00	5-0018	-.10	12635.35	298.2	5792.03	4801.00	0.0
11:30:00	3:00:00	5-0019	-.18	12635.17	298.2	5791.45	4995.00	0.0
11:40:00	3:10:00	5-0020	-.11	12635.06	298.2	5790.97	4806.00	0.0
11550:00	3:20:00	5-0021	-.30	12634.76	298.1	5790.39	4846.00	0.0
12:00:00	3:30:00	5-0022	-.18	12634.58	298.2	5791.62	4854.00	0.0
12:10:00	3:40:00	5-0023	-.15	12634.43	298.2	5790.34	4844.00	0.0
12:20:00	3:50:00	5-0024	-.04	12634.39	298.2	5789.22	4863.00	0.0
12:30:00	4:00:00	5-0025	.09	12634.48	298.2	5790.11	4840.00	0.0
22:40:00	4:10:00	5-0026	-.33	12634.15	298.2	5790.38	4851.00	0.0
12:50:00	4:20:00	5-0027	.03	12634.18	298.1	5791.46	4753.00	0.0
13:00:00	4:30:00	5-0028	-.27	12633.91	298.1	5790.48	4816.00	0.0
13:10:00	4:40:00	5-0029	-.22	12633.69	298.2	5788.99	-2908.00	0.0
13:20:00	4:50:00	5-0030	-.06	12633.63	298.1	5789.42	-2908.00	0.0
13:30:00	5:00:00	5-0031	-.10	12633.53	298.2	5790.02	12.00	0.0
13:40:00	5:10:00	5-0032	-.25	12633.28	298.2	5789.38	-356.00	0.0
13:50:00	5:20:00	5-0033	.10	12633.38	298.2	5788.90	-356.00	0.0
14:00:00	5:30:00	5-0034	-.13	12633.25	298.1	5789.31	8581.00	0.0
14:10:00	5:40:00	5-0038	-.39	12632.86	298.2	5789.45	49425.00	0.0
SET REAL TIME								
14:30:00	6:00:00	5-0042	-.09	12632.77	298.2	5787.34	4140.00	0.0
14:40:00	6:10:00	5-0043	-.05	12632.72	298.1	5789.37	4112.00	0.0
14:50:00	6:00:00	5-0044	-.36	12632.36	298.2	5787.27	4120.00	0.0

NOTE:BRINE PRODUCTION FLOW

DATA TO THIS POINT HAS BEE

HIGH BY ABOUT 20-25%(FLOTTE

METER (LOW RANGE IS OFF CAL

SWITCHING TO FLOW TECHNOLOG

HIGH RANGE METER

FLOIN IS BRINE PRODUCTION F

WELL FLO OUT IS BRINE PRODU

FROM SEPARATOR

1:10:00	6:40:00	5-0054	.23	12632.59	298.2	5788.65	4104.00	0.0

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO-1	FLOTEMP
15:20:00	6:50:00	5-0055	-.50	12632.09	298.2	5787.14	4090.00	0.0
15:30:00	7:00:00	5-0056	.21	12632.30	298.1	5786.28	4078.00	0.0
SET REAL TIME								
16:00:00	7:30:00	5-0066	-.94	12631.36	298.1	5787.56	4078.00	0.0
16:10:00	7:40:00	5-0064	.22	12631.58	298.2	5787.14	4086.00	0.0
16:20:00	7:50:00	5-0071	-.13	12631.45	298.2	5786.87	4116.00	0.0
16:30:00	8:00:00	5-0072	-.05	12631.40	298.1	5786.91	3996.00	0.0
16:40:00	8:10:00	5-0073	0.00	12631.40	298.1	5785.87	4104.00	0.0
16:50:00	8:20:00	5-0074	-.35	12631.05	298.2	5785.42	4122.00	0.0
17:00:00	8:30:00	5-0075	-.55	12630.50	298.1	5785.52	4083.00	0.0
17:10:00	8:40:00	5-0076	.07	12630.57	298.1	5785.06	4078.00	0.0
17:20:00	8:50:00	5-0077	-.10	12630.47	298.2	5784.94	4121.00	0.0
17:30:00	9:00:00	5-0078	-.10	12630.37	298.1	5784.35	4109.00	0.0
17:40:00	9:10:00	5-0079	-.02	12630.35	298.2	5784.07	4099.00	0.0
17:50:00	9:20:00	5-0080	-.21	12630.14	298.1	5783.68	4061.00	0.0
18:00:00	9:30:00	5-0081	.26	12630.40	298.2	5783.36	4048.00	0.0
18:10:00	9:40:00	5-0082	-.40	12630.00	298.1	5784.07	3998.00	0.0
18:20:00	9:50:00	5-0083	-.38	12629.6	298.2	5782.67	4076.00	0.0
18:30:00	10:00:00	5-0084	-.09	12629.53	298.2	5782.13	4076.00	0.0
18:40:00	10:10:00	5-0085	-.19	12629.34	298.1	5781.08	4047.00	0.0
18:50:00	10:20:00	5-0086	.10	12629.44	298.2	5781.57	4043.00	0.0
19:00:00	[illegible]	5-0089	-3.34	12626.10	298.1	5773.43	421..00	0.0
SET REAL TIME								
19:20:00	10:50:00	5-0091	-.61	12625.49	298.2	5772.20	4196.00	0.0
19:30:00	11:00:00	5-0092	.07	12625.56	298.2	5772.87	4135.00	0.0

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delt	BHP	BHT	WHP	FLO IN
SET REAL TIME								
19:50:00	0:00:00	6-0006	0	12625.22	12625.22	298.1	5771.61	4125.00
20:00:00	0:10:00	6-0007	0	-.21	12625.01	298.1	5771.79	4163.00
20:10:00	0:20:00	6-0008	0	-.06	12624.95	298.1	5771.73	4187.00
20:20:00	0:30:00	6-0009	0	-.09	12624.86	298.1	5771.34	4179.00
20:30:00	0:40:00	6-0010	0	-.40	12624.46	298.1	5771.10	4168.00
20:40:00	0:50:00	6-0011	0	.09	12624.55	298.2	5771.33	4152.00
20:50:00	1:00:00	6-0012	0	0.00	12624.55	298.1	5771.57	4120.00
21:00:00	1:10:00	6-0013	0	-.39	12624.16	298.2	5771.06	4146.00
21:10:00	1:20:00	6-0014	0	-.16	12624.00	298.1	5770.91	4191.00
21:20:00	1:30:00	6-0015	0	-.24	12623.76	298.1	5770.66	4167.00
21:30:00	1:40:00	6-0016	0	-.24	12623.52	298.1	5769.92	4185.00
21:40:00	1:50:00	6-0017	0	-.18	12623.34	298.1	5769.77	4140.00
21:50:00	2:00:00	6-0018	0	-.17	12623.17	298.1	5769.60	4194.00
22:00:00	2:10:00	6-0019	0	-.12	12623.05	298.1	5769.23	4220.00
22:10:00	2:20:00	6-0020	0	0.00	12623.05	298.2	5769.47	4178.00
22:20:00	2:30:00	6-0021	0	-.14	12622.91	298.1	5769.72	4217.00
22:30:00	2:40:00	6-0022	0	-.25	12622.66	298.1	5769.09	4209.00
22:40:00	2:50:00	6-0023	0	.13	12622.79	298.0	5769.77	4195.00
22:50:00	3:00:00	6-0024	0	-.24	12622.55	298.2	5768.94	4123.00
23:00:00	3:10:00	6-0025	0	-.31	12622.24	298.1	5769.32	4162.00
23:10:00	3:20:00	6-0026	0	-.02	12622.22	298.1	5768.94	4134.00
23:20:00	3:30:00	6-0027	0	-.11	12622.11	298.2	5769.28	4216.00
23:30:00	3:40:00	6-0028	0	-.26	12621.85	298.1	5768.62	4129.00
23:40:00	3:50:00	6-0029	0	-.07	12621.78	298.1	5768.25	4130.00
23:50:00	4:00:00	6-0030	0	-.44	12621.34	298.1	5767.78	4147.00
00:00:00	4:10:00	6-0031	0	.19	12621.53	298.1	5768.51	4164.00
00:10:00	4:20:00	6-0032	0	-.50	12621.03	298.1	5766.74	4219.00
00:20:00	4:30:00	6-0033	0	.02	12621.05	298.1	5767.31	4224.00
00:30:00	4:40:00	6-0034	0	-.13	12620.92	298.1	5766.96	4205.00
00:40:00	4:50:00	6-0035	0	-.07	12620.85	298.1	5766.74	4228.00
00:50:00	5:00:00	6-0036	0	.01	12620.86	298.1	5766.70	4222.00
01:00:00	5:10:00	6-0037	0	.04	12620.90	298.1	5767.22	4235.00
01:10:00	5:20:00	6-0038	0	-.11	12620.79	298.1	5766.94	4237.00
01:20:00	5:30:00	6-0039	0	-.41	12620.38	298.1	5765.98	4246.00
01:30:00	5:40:00	6-0040	0	-.14	12620.24	298.1	5765.95	4209.00
01:40:00	5:50:00	6-0041	0	-.24	12620.00	298.1	5765.58	4237.00
01:50:00	6:00:00	6-0042	0	-.02	12619.98	298.1	5765.48	4171.00
02:00:00	6:10:00	6-0043	0	-.27	12619.71	298.1	5764.92	4184.00
02:10:00	6:20:00	6-0044	0	-.07	12619.64	298.1	5765.83	4175.00
02:20:00	6:30:00	6-0045	0	-.21	12619.43	298.2	5765.08	4168.00
02:30:00	6:40:00	6-0046	0	.98	12620.41	298.1	5769.34	3996.00
02:40:00	6:50:00	6-0047	0	.30	12620.71	298.1	5767.92	4160.00
02:50:00	7:00:00	6-0048	0	-.59	12620.12	298.1	5766.77	4151.00
03:00:00	7:10:00	6-0049	0	.24	12620.36	298.1	5768.42	4153.00
03:10:00	7:20:00	6-0050	0	-.28	12620.08	298.1	5767.40	4126.00
03:20:00	7:30:00	6-0051	0	-.06	12620.02	298.1	5767.11	4108.00
03:30:00	7:40:00	6-0052	0	-.08	12619.94	298.1	5767.21	4172.00
03:40:00	7:50:00	6-0053	0	-.10	12619.84	298.1	5766.44	4168.00
03:50:00	8:00:00	6-0054	0	-.33	12619.51	298.1	5766.44	4102.00
04:00:00	8:10:00	6-0055	0	-.12	12619.39	298.0	5766.23	4152.00
04:10:00	8:20:00	6-0056	0	-.08	12619.31	298.0	5766.29	4169.00
04:20:00	8:30:00	6-0057	0	-.31	12619.00	298.1	5765.80	4163.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
04:30:00	8:40:00	6-0058	0	-.05	12618.95	298.0	5765.65	410..00
04:40:00	8:50:00	6-0059	0	-.28	12618.67	298.1	5765.30	4168.00
04:50:00	9:00:00	6-0060	0	.21	12618.88	298.1	5765.45	4119.00
05:00:00	9:10:00	6-0061	0	-.35	12618.53	298.0	5765.08	4086.00
05:10:00	9:20:00	6-0062	0	.06	12618.59	298.0	5764.08	4116.00
05:20:00	9:30:00	6-0063	0	-.10	12618.49	298.1	5764001	4092.00
05:30:00	9:40:00	6-0064	0	-.12	12618.37	298.1	5764.55	4105.00
05:40:00	9:50:00	6-0065	0	-.23	12618.14	298.1	5763.80	4111.00
05:50:00	10:00:00	6-0066	0	-.47	12617.67	298.1	5763.01	4172.00
06:00:00	10:10:00	6-0067	0	.75	12618.42	298.0	5764.00	4110.00
06:10:00	10:20:00	6-0068	0	-.74	12617.68	298.0	5763.55	4108.00
06:20:00	10:30:00	6-0069	0	-.28	12617.40	298.1	5763.42	4132.00
06:30:00	10:40:00	6-0070	0	-.11	12617.29	298.0	5762.64	4104.00
06:40:00	10:50:00	6-0071	0	0.00	12617.29	298.1	5762.33	4069.00
06:50:00	11:00:00	6-0072	0	-.17	12117.12	298.1	5762.37	4146.0
07:00:00	11:10:00	6-0073	0	-.42	12616.70	298.0	5761.22	4120.00
07:10:00	11:20:00	6-0074	0	-.17	12616.53	298.0	5760.68	4115.00
07:20:00	11:30:00	6-0075	0	.35	12616.88	298.0	5761.00	4111.00
07:30:00	11:40:00	6-0076	0	-.13	12616.75	298.0	5761.06	4164.00
07:40:00	11:50:00	6-0077	0	-.10	12616.65	298.1	5762.63	4110.00
07:50:00	12:00:00	6-0078	0	-.26	12616.39	298.0	5762.20	4142.00
08:00:00	12:10:00	6-0079	0	.06	12616.45	298.0	5762.37	4159.00
08:10:00	12:20:00	6-0080	0	-.54	12615.91	298.0	5761.02	4145.00
08:20:00	12:30:00	6-0081	0	.45	12616.36	298.0	5761.28	4130.00
08:30:00	12:40:00	6-0082	0	-.28	12616.08	298.0	5760.53	4082.00
08:00:00	12:50:00	6-0083	0	.16	12616.24	298.0	5761.03	4109.00
08:50:00	13:00:00	6-0084	0	-.63	12615.61	298.0	5760.73	4117.00
09:00:00	13:10:00	6-0085	0	-.25	12615.36	298.0	5761.61	4171.00
09:10:00	13:20:00	6-0086	0	.33	12615.69	298.1	5761.78	4087.00
09:20:00	13:30:00	6-0087	0	.06	12615.75	298.0	5759.92	4133.00
09:30:00	13:40:00	6-0088	0	-.61	22615.14	298.0	5760.28	4082.00
09:40:00	13:50:00	6-0089	0	-.11	12615.03	298.0	5760.65	4104.00
09:50:00	14:00:00	6-0090	0	.07	12615.10	298.0	5760.20	4089.00
10:00:00	14:10:00	6-0091	0	-.44	12614.66	298.0	5763.05	4070.00
10:10:00	14:20:00	6-0092	0	-.23	12614.43	298.0	5758.62	4108.00
10:20:00	14:30:00	6-0093	0	.25	12614.68	298.0	5756.23	4038.00
10:30:00	14:40:00	6-0094	0	.32	12615.00	298.1	5756.33	4084.00
10:40:00	14:50:00	6-0095	0	-.78	12614.22	298.0	5753.92	4076.00
10:50:00	15:00:00	6-0096	0	.23	12614.45	297.9	5754.07	4061.00
11:00:00	15:10:00	6-0097	0	-.21	12614.24	298.1	5754.06	4074.00
11:10:00	15:20:00	6-0098	0	-.27	12613.97	298.0	5753.53	4073.00

TOP LINE SO SURFACE WAS PLU

11:20:00	1::30:00	6-0100	0	.36	12614.33	298.0	5753.2	4104.00
11:30:00	15:40:00	6-0101	0	-.48	12613.85	298.0	5753.04	4042.00
11:40:00	15:50:00	6-0102	0	-.30	12613.55	298.0	5753.22	4047.00
11:50:00	16:00:00	6-0103	0	-.09	12613.46	298.0	5752.62	4105.00
12:00:00	16:10:00	6-0104	0	.24	12613.70	298.0	5752.20	4088.00
12:10:00	16:20:00	6-0105	0	-.28	12613.42	298.0	5751.49	4038.0^
12:20:00	16:30:00	6-0106	0	-.07	12613.35	298.0	5751.54	4049.00
12:30:00	16:40:00	6-0107	0	-.01	12613.34	298.0	5751.08	4089.00
12:40:00	16:50:00	6-0108	0	-.33	12613.01	298.0	5752.18	4068.00
12:50:00	17:00:00	6-0109	0	.25	12613.26	298.0	5751.38	4036.00
13:00:00	17:10:00	6-0110	0	-.57	12612.69	297.9	5749.82	4085.00
13:10:00	17:20:00	6-0111	0	-.38	12612.31	298.0	5748.28	4108.00
13:20:00	17:30:00	6-0112	0	.04	12612.35	298.0	5748.20	4100.00
13:30:00	17:40:00	6-0113	0	.24	12612.59	298.0	5749.31	4034.00
13:40:00	17:50:00	6-0114	0	-.27	12612.32	298.0	5747.62	4047.00

13:40:00	17:30:00	6-0114	0	.27	12612.32	298.0	5747.82	4097.00
13:50:00	18:00:00	6-0115	0	-.42	12611.90	298.0	5746.58	4097.00
14:00:00	18:10:00	6-0116	0	0.00	12611.90	298.0	5743.19	4100.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
14:10:00	18:20:00	6-0117	0	-.07	12611.83	298.0	5741.41	4055.00
14:20:00	18:30:00	6-0118	0	-.23	12611.60	298.0	5753.41	4048.00
14:30:00	18:40:00	6-0119	0	-.11	12611.49	297.9	5754.98	4009.00
14:40:00	18:50:00	6-0120	0	-.07	12611.42	298.0	5755.81	4086.00
14:50:00	19:00:00	6-0121	0	.01	12611.43	297.9	5756.19	4064.00
15:00:00	19:10:00	6-0122	0	-.54	12610.89	297.8	5756.87	3999.00
15:10:00	19:20:00	6-0123	0	-.07	12610.82	298.0	5755.69	4072.00
15:20:00	19:30:00	6-0124	0	-.32	12610.50	298.0	5754.25	3992.00
15:30:00	19:40:00	6-0125	0	.18	12610.68	297.9	5754.62	4037.00
15:40:00	19:50:00	6-0126	0	-.19	12610.49	297.9	5755.55	4036.00
15:50:00	20:00:00	6-0127	0	-.2	12610.23	297.9	5754.69	4092.00
16:00:00	20:10:00	6-0128	0	-.22	12610.01	297.9	5755.05	4092.00
16:10:00	20:20:00	6-0129	0	.26	12610.27	298.0	5755.37	4012.00
16:20:00	20:30:00	6-0130	0	-.55	12609.72	297.9	5754.09	4052.00
16:30:00	20:40:00	6-0131	0	.21	12609.93	297.9	5752.33	4017.00
16:40:00	20:50:00	6-0132	0	-.46	12609.47	297.9	5750.79	4065.00
16:50:00	21:00:00	6-0133	0	.24	12609.71	298.0	5742.57	4019.00
17:00:00	21:10:00	6-0134	0	-.44	12609.27	297.9	5744.36	4020.00
17:10:00	21:20:00	6-0135	0	-.94	12608.33	297.9	5750.90	4058.00
17:20:00	21:30:00	6-0133	0	-.63	12607.70	298.0	-496.29	4086.00

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SET REAL TIME

17:40:00	21:50:00	6-0145	0	-.57	12607.13	297.9	.98	4087.00

SET REAL TIME

LEAK ON LINE TO SURFACE GUA

18:00:00	22:10:00	6-0154		-.22	12606.91	298.0	-2760.99	4070.0
18:10:00	22:20:00	6-0155	0	-.55	12606.36	298.1	5784.36	4096.00
18:20:00	22:30:00	6-0156	0	-.14	12606.22	297.9	5787.45	4081.00
18:30:00	22:40:00	6-0157	0	-.07	12606.15	297.9	5774.54	4100.00
18:40:00	22:50:00	6-0158	0	-.36	12605.79	297.9	5783.24	4056.00
18:50:00	23:00:00	6-0159	0	.07	12605.86	2297.9	5783.23	4141.00
19:00:00	23:10:00	6-0160	0	-.04	12605.82	298.0	5781.90	4077.00
19:10:00	23:20:00	6-0161	0	-.35	12605.47	297.9	5780.46	4144.00
19:20:00	23:30:00	--0162	0	.38	12605.85	298.0	5782.01	4288.00
19:30:00	23:40:00	6-0163	0	-.47	12605.38	297.8	5783.63	4201.00
19:40:00	23:50:00	6-0164	0	-.36	12605.02	297.9	5781.40	4191.00
19:50:00	24:00:00	6-0165	0	.05	12605.07	297.9	5779.81	4223.00
20:00:00	24:10:00	6-0166	0	-.21	12604.86	298.0	5780.30	4156.00
20:10:00	24:20:00	6-0167	0	.02	12604.88	298.0	5781.69	4148.00
20:20:00	24:30:00	6-0168	0	-.62	12604.26	297.9	5782.66	4266.00
20:30:00	24:40:00	6-0169	0	.11	12604.37	298.0	5783.81	4294.00
20:40:00	24:50:00	6-0170	0	-.10	12604.27	297.9	5784.84	4285.00
20:50:00	25:00:00	6-0171	0	-.22	12604.05	298.0	5785.00	4302.00
21:00:00	25:10:00	6-0172	0	-.05	12604.00	297.9	5786.05	4293.00
21:10:00	25:20:00	6-0173	0	.30	12604.30	298.0	5788.23	4155.00

21:20:00	25:30:00	6-0174	0	5.58	12609888	297.9	5789.89	4168.00
21:30:00	25:40:00	6-0175	0	.26	12610.14	297.9	5790.30	4123.00
21:40:00	25:50:00	6-0176	0	.37	12610.51	297.8	5791.18	4129.00
21:50:00	26:00:00	6-0177	0	-.37	12610.14	297.9	5791.69	4128.00
22:00:00	26:10:00	6-0178	0	.02	12610.16	297.9	5792.01	4162.00
22:10:00	26:20:00	6-0179	0	-.25	12609.91	297.9	5791.94	4114.00
22:20:00	26:30:00	6-0180	0	-.35	12609.56	297.9	5791.91	4127.00
22:30:00	26:40:00	6-0181	0	.02	12609.58	297.9	5791.96	4145.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
22:40:00	26:50:00	6-0182	0	-.02	12609.5	297.9	5791.87	4127.00
22:50:00	27:00:00	6-0183	0	-.04	12609.52	298.0	5792.04	4157.00
23:00:00	27:10:00	6-0184	0	.21	12609.73	297.9	5784.11	4130.00
23:10:00	27:20:00	6-0185	0	-.05	12609.68	297.9	5784.34	4061.00
23:20:00	27:30:00	6-0186	0	-.52	12609.16	297.8	5783.86	4147.00
23:30:00	27:40:00	6-0187	0	.11	12609.37	298.0	5783.37	4134.00
23:40:00	27:50:00	6-0188	0	.08	12609.45	297.9	5782.96	4143.00
23:50:00	28:00:00	6-0189	0	.07	12609.52	297.9	7783.21	4114.00
00:00:00	28:10:00	6-0190	0	-.38	12609.14	297.9	5784.42	4120.00
00:10:00	28:20:00	6-0191	0	-.08	12609.06	298.0	5786.71	4165.00
00:20:00	28:30:00	6-0192	0	-.14	12608.92	297.8	5787.00	4141.00
00:30:00	28:40:00	6-0193	0	-.48	12608.44	297.9	5784.21	4118.00
00:40:00	28:50:00	6-0194	0	.22	12608.66	297.9	5782.71	1113.00
00:50:00	29:00:00	6-0195	0	.02	12608.68	297.9	5782.77	4137.00
01:00:00	29:10:00	6-0196	0	.05	12608.73	297.9	5783.18	4123.00
01:10:00	29:20:00	6-0197	0	-.51	12608.22	297.8	5784.36	4137.00
01:20:00	29:30:00	6-0198	0	.06	12608.28	297.8	5785.68	4138.00
01:30:00	29:40:00	6-0199	0	-.10	12608.88	297.9	5786.88	4161.00
01:40:00	29:50:00	6-0200	0	-.07	12608.11	297.8	5787.00	4132.00
01:50:00	30:00:00	6-0201	0	-.23	12607.88	297.9	5787.20	4163.00
02:00:00	30:10:00	6-0202	0	-.08	12607.80	297.9	5787.72	4155.00
02:10:00	30:20:00	6-0203	0	.42	12608.22	297.8	5783.43	4101.00
02:20:00	30:30:00	6-0204	0	-.53	12607.69	297.8	5783.57	4151.00
02:30:00	30:40:00	6-0205	0	.09	12607.78	297.8	5784.74	4139.00
02:40:00	30:50:00	6-0206	0	-.44	12607.34	297.8	5785.46	4128.00
02:50:00	31:00:00	6-0207	0	.16	12607.50	297.9	5786.40	4141.00
03:00:00	31:10:00	6-0208	0	-.75	12606.75	297.9	5787.32	4107.00
03:10:00	31:20:00	6-0209	0	.33	12607.08	297.9	5787.09	4150.00
03:20:00	31:30:00	6-0210	0	.45	12607.53	297.8	5787.46	4125.00
03:30:00	331:40:00	6-0211	0	-.27	12607.26	297.9	5786.73	4137.00
03:40:00	31:50:00	6-0212	0	-.17	12607.09	297.9	5781.98	4143.00
03:50:00	32:00:00	6-0213	0	-.40	12606.69	297.9	5782.45	4145.00
04:00:00	32:10:00	6-0214	0	-.20	12606.49	297.9	5782.53	4168.00
04:10:00	32:20:00	6-0215	0	.16	12606.65	297.8	5782.19	4151.00
04:20:00	32:30:00	6-0216	0	-.16	12606.49	297.9	5782.54	4091.00
04:30:00	32:40:00	6-0217	0	-.21	12606.28	297.8	5782.49	4076.00
04:40:00	32:50:00	6-0218	0	.08	12606.36	297.9	5782.75	4164.00
04:50:00	33:00:00	6-0219	0	-.38	12605.98	297.8	5782.95	4142.00
05:00:00	33:10:00	6-0220	0	.21	12606.19	297.9	5784.19	4131.00
05:10:00	33:20:00	6-0221	0	-.24	12605.95	297.9	5784.60	4152.00
05:20:00	33:30:00	6-0222	0	-.26	12605.69	297.8	5783.65	4099.00
05:30:00	33:40:00	6-0223	0	.21	12605.90	297.8	5781.80	4127.00
05:40:00	33:50:00	6-0224	0	-.39	12605.51	297.9	5780.10	4182.00
05:50:00	34:00:00	6-0225	0	-.05	12605.46	297.8	5777.92	4137.00
06:00:00	34:10:00	6-0226	0	.03	12605.49	297.9	5774.09	4128.00
[illegible]	[illegible]	[illegible]	[illegible]	-.40	12605.09	297.8	5758.85	4106.00

06:10:00	34:20:00	6-0227	0	-.40	12605.07	297.7	[illegible]	[illegible]
06:20:00	34:30:00	6-0228	0	.24	12605.33	297.9	5749.44	4131.00
06:30:00	34:40:00	6-0229	0	-.31	12605.02	297.9	5742.75	4132.00
06:40:00	34:50:00	6-0230	0	-.38	12604.64	297.9	5776.23	4125.00
06:50:00	35:00:00	6-0231	0	-.07	12604.57	297.8	5780.51	4142.00
07:00:00	35:10:00	6-0232	0	.09	12604.66	297.9	5785.52	4036.00
07:10:00	35:20:00	6-0233	0	-.13	12604.53	297.8	5789.45	4117.00
07:20:00	35:30:00	6-0234	0	-.05	12604.48	297.9	5800.10	4127.00
07:30:00	35:40:00	6-0235	0	-.30	12604.18	297.8	5780.62	4144.00
07:40:00	35:50:00	6-0236	0	-.02	12604.16	297.9	5779.88	4088.00
07:50:00	36:00:00	6-0237	0	-.43	12603.73	297.8	5783.11	4021.00
08:00:00	36:10:00	6-0238	0	.29	12604.02	297.9	5786.01	4135.00
08:10:00	36:20:00	6-0239	0	-.08	12603.94	297.8	5783.79	4086.00
08:20:00	36:30:00	6-0240	0	-.61	12603.33	297.9	5786.51	4090.00
08:30:00	36:40:00	6-0241	0	.21	12603.54	297.9	5789.95	4040.00
08:40:00	36:50:00	6-0242	0	-.14	12603.40	297.9	5793.92	4102.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
08:50:00	37:00:00	6-0243	0	.09	12603.49	297.9	5798.73	4137.00
09:00:00	37:10:00	6-0244	0	-.60	12602.89	297.8	5794.55	4145.00
09:10:00	37:20:00	6-0245	0	.09	12602.98	297.9	5790.54	4114.00
09:20:00	37:30:00	6-0246	0	--.19	12602.79	297.8	5777.93	4102.00
09:30:00	37:40:00	6-0247	0	.23	12603.02	297.9	5778.97	4099.00
09:40:00	37:50:00	6-0248	0	-.61	12602.41	297.8	5739.70	4137.00
09:50:00	38:00:00	6-0249	0	.32	12602.73	297.8	5712.14	4102.00
10:00:00	38:10:00	6-0250	0	.18	12602.91	297.8	5799.06	4139.00
10:10:00	38:20:00	6-0251	0	-.50	12602.41	297.9	5830.20	4146.00
10:20:00	38:30:00	6-0252	0	.14	12602.55	297.8	5790.58	4097.00
10:30:00	38:40:00	6-0253	0	-.38	12602.17	297.8	5794.44	4088.00
10:41:00	38:50:00	6-0254	0	-.20	12601.97	297.9	5793.56	4032.00
10:50:00	39:00:00	6-0255	0	.44	12602.41	297.8	5769.19	4049.00
11:00:00	39:10:00	6-0256	0	-.14	12602.27	297.9	5749.31	4135.00
11:10:00	39:20:00	6-0257	0	-.39	12601.88	297.9	5751.00	4112.00
11:20:00	39:30:00	6-0258	0	-.10	12601.78	297.9	5784.91	4143.00
11:30:00	39:40:00	6-0259	0	-.14	12601.64	297.8	5787.68	4109.00
11:40:00	39:50:00	6-0260	0	-.09	12601.55	297.9	5785.95	4122.00
11:50:00	40:00:00	6-0261	0	-.01	12601.54	297.8	5786.93	4073.00
12:00:00	40:10:00	6-0262	0	-.13	12601.41	297.9	5785.06	4051.00
12:10:00	40:20:00	6-0263	0	-.38	12601.03	297.9	5782.71	4071.00
12:20:00	40:30:00	6-0264	0	.21	12601.24	297.8	5803.93	4119.00
12:30:00	40:40:00	6-0262	0	-.49	12600.75	297.8	2086.79	4133.00
SET REAL TIME								
12:50:00	41:00:00	6-0270	0	.28	12601.03	297.9	5834.20	4109.00
13:00:00	41:10:00	6-0271	0	-.54	12600.49	297.9	5408.90	4054.00
13:10:00	41:20:00	6-0272	0	.12	12600.61	297.8	5737.64	4097.00
13:20:00	41:30:00	6-0273	0	-.20	12600.41	297.9	5786.11	4080.00
13:30:00	41:40:00	6-0274	0	.03	12600.44	297.8	5819.68	4103.00
13:40:00	41:50:00	6-0275	0	-3.26	12597.18	297.8	5525.15	4221.00
SURFACE IS OFF FROM12:50TO								
13:50:00	42:00:00	6-0277	0	5.89	12603.07	297.8	5778.22	4051.00
14:00:00	42:10:00	6-0278	0	-5.13	12597.94	297.8	5794.30	4144.00
14:10:00	42:20:00	6-0279	0	.09	12598.03	297.8	5776.05	4176.00
14:20:00	42:30:00	6-0280	0	-.51	12597.52	297.8	5753.08	4183.00
14:30:00	42:40:00	6-0281	0	-.01	12597.51	297.8	5729.46	4135.00

14:40:00	42:50:00	6-0282	0	-.27	12597.24	297.8	5778.17	4166.00
14:50:00	43:00:00	6-0283	0	-.20	12597.04	297.9	5789.04	4122.00
15:00:00	43:10:00	6-0284	0	.47	12597.51	297.7	5803.64	4117.00
15:10:00	43:20:00	6-0285	0	-.32	12597.19	297.8	5789.10	4072.00
15:20:00	43:30:00	6-0286	0	-.23	12596.96	297.8	5766.70	4165.00
15:30:00	43:40:00	66-0287	0	-.17	12596.79	297.7	5762.92	4164.00
15:40:00	43:50:00	6-0288	0	-.01	12596.78	297.7	5767.23	4202.00
15:50:00	44:00:00	6-0289	0	-.35	12596.43	297.8	5772.34	4195.00
16:00:00	44:10:00	6-0290	0	.09	12596.52	297.8	5777.84	4145.00
16:10:00	44:20:00	6-0291	0	-.09	12596.43	297.8	5774.33	4152.00
16:20:00	44:30:00	6-0292	0	-.40	12596.03	297.8	5780.33	4188.00
16:30:00	44:40:00	6-0293	0	.12	12596.15	297.8	5784.42	4050.00
16:40:00	44:50:00	6-0294	0	-.06	12596.09	297.8	5723.16	4112.00
16:50:00	45:00:00	6-0295	0	.03	12596.12	297.8	5739.81	4006.00
17:00:00	45:10:00	6-0296	0	-.47	12595.65	297.8	5735.91	4056.00
17:10:00	45:20:00	6-0297	0	.23	12595.88	297.8	5750.28	3967.00
17:20:00	45:30:00	6-0298	0	-.30	12595.58	297.9	5773.73	3997.00
17:30:00	45:40:00	6-0299	0	-.19	12595.39	297.9	5778.34	4171.00
17:40:00	45:50:00	6-0300	0	-.15	12595.24	297.9	5768.85	4129.00
17:50:00	46:00:00	6-0301	0	.20	12595.44	297.8	5767.02	4157.00
18:00:00	46:10:00	6-0302	0	-.37	12595.07	297.9	5780.31	4075.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
18:10:00	46:20:00	6-0303	0	.30	12595.37	297.8	5771.61	4144.00
18:20:00	46:30:00	6-0304	0	-.46	12594.91	297.8	5450.08	4196.00
18:30:00	46:40:00	6-0305	0	0.00	12594.91	297.8	5784.21	4181.00
18:40:00	46:50:00	6-0306	0	.66	12595.57	297.8	5775.39	4173.00
18:50:00	47:00:00	6-0307	0	-1.25	12594.32	297.8	5777.60	4164.00
19:00:00	47:10:00	6-0308	0	.15	12594.47	297.9	3691.35	4175.00
SET REAL TIME								
19:20:00	47:30:00	6-0315	0	0.00	12594.47	297.9	5759.62	4130.00
19:30:00	47:40:00	6-0316	0	-.57	12593.90	297.8	5763.90	4153.00
19:40:00	47:50:00	6-0317	0	-.16	12593.74	297.8	5769.06	4078.00
19:50:00	48:00:00	6-0318	0	.06	12593.80	297.8	5767.85	4111.00
20:00:00	48:10:00	6-0319	0	.39	12594.19	297.8	5767.81	4150.00
20:10:00	48:20:00	6-0320	0	-.58	12593.61	297.8	5768.03	4046.00
20:20:00	48:30:00	6-0321	0	.18	12593.79	297.8	5768.25	4104.00
20:30:00	48:40:00	6-0322	0	-.15	12593.64	297.9	5768.42	4095.00
20:40:00	48:50:00	6-0323	0	-.54	12593.10	297.8	5767.84	4080.00
20:50:00	49:00:00	6-0324	0	.17	12593.27	297.9	5768.03	4034.00
21:00:00	49:10:00	6-0325	0	-.41	12592.86	297.9	5768.06	4062.00
21:10:00	49:20:00	6-0326	0	.04	12592.90	297.8	5767.66	4087.00
21:20:00	49:30:00	6-0327	0	-.03	12592.87	297.8	5767.42	4114.00
21:30:00	49:40:00	6-0328	0	.05	12592.92	297.9	5767.69	4115.00
21:40:00	49:50:00	6-0329	0	-.18	12592.74	297.8	7767.53	4082.00
21:50:00	50:00:00	6-0330	0	-.43	12592.31	297.9	5767.05	4125.00
22:00:00	50:10:00	6-0331	0	.11	12592.42	297.9	5032.21	4150.00
22:10:00	50:20:00	6-0332	0	-.04	12592.38	297.8	-3579.80	4117.00
22:20:00	50:30:00	6-0333	0	-.33	12592.05	297.9	-244.63	4127.00
22:30:00	50:40:00	6-0334	0	.20	12592.25	297.8	5656.25	4098.00
22:40:00	50:50:00	6-0335	0	-.46	12591.79	297.9	5765.26	4100.00
22:50:00	51:00:00	6-0336	0	.07	12591.86	297.9	5766.76	4095.00
23:00:00	51:10:00	6-0337	0	-.29	12591.57	297.8	5766.46	4118.00
23:10:00	51:20:00	6-0338	0	-.41	12591.16	297.8	5764.31	4089.00
23:20:00	51:30:00	6-0339	0	.34	12591.50	297.8	5767.02	4048.00

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23:30:00	51:40:00	6-0340	0	-3.17	12588.35	297.9	5762.52	4176.00
23:40:00	51:50:00	--0341	0	-.22	12588.13	297.9	5760.49	4133.00
23:50:00	52:00:00	6-0342	0	-.51	12587.62	297.8	5760.15	4140.00
00:00:00	52:10:00	6-0343	0	-.05	12587.57	297.9	5761.42	4199.00
00:10:00	52:20:00	6-0344	0	.23	12587.80	297.9	5762.83	4162.00
00:20:00	52:30:00	6-0345	0	-.27	12587.53	297.8	5762.06	4216.00
00:30:00	52:40:00	6-0346	0	-.72	12586.81	297.9	5761.25	4177.00
00:40:00	52:50:00	6-0347	0	.22	12587.03	297.8	5759.04	4276.00
00:50:00	53:00:00	6-0348	0	-.41	12586.62	297.9	5755.80	4253.00
01:00:00	53:10:00	6-0349	0	.59	12587.21	297.8	5754.73	4142.00
01:10:00	53:20:00	6-0350	0	-.77	12586.44	297.9	8316.78	4225.00
01:20:00	53:30:00	6-0351	0	.09	12586.53	297.9	5749.16	4175.00
01:30:00	53:40:00	6-0322	0	-.02	12586.51	297.9	5755.16	4178.00
01:40:00	53:50:00	6-0353	0	-.33	12586.18	297.9	5755.20	4222.00
01:50:00	54:00:00	6-0354	0	.08	12586.26	297.8	5755.02	4015.00
02:00:00	54:10:00	6-0355	0	-.33	12585.93	297.8	5755.23	4163.00
02:10:00	54:20:00	6-0356	0	.25	12586.18	297.8	5754.56	4217.00
02:20:00	54:30:00	6-0357	0	-.74	12585.44	297.8	5753.95	4160.00
02:30:00	54:40:00	6-0358	0	-.52	12584.92	297.9	5754.33	4175.00
02:40:00	54:50:00	6-0359	0	1.36	12586.28	297.8	3397.46	4245.00
02:50:00	55:00:00	6-0360	0	-1.13	12585.15	297.9	4368.77	4229.00
03:00:00	55:10:00	6-0358	0	.09	12585.24	297.9	5361.94	4194.00

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
03:10:00	0:00:00	7-0001	0	12584.93	12584.93	297.8	5566.55	4168.00
03:20:00	0:10:00	7-0002	0	.16	12585.09	297.9	5761.49	4142.00
03:30:00	0:20:00	7-0003	0	-.16	12584.93	297.9	5757.70	4239.00
03:40:00	0:30:00	7-0004	0	0.00	12584.93	297.8	5761.60	4264.00
03:50:00	0:40:00	7-0005	0	-.12	12584.81	297.8	5761.10	4237.00
04:00:00	0:50:00	7-0006	0	-.34	12584.47	297.9	5758.71	4232.00
04:10:00	1:00:00	7-0007	0	-.93	12583.54	297.8	5753.91	4079.00
04:20:00	1:10:00	7-0008	0	.65	12584.19	297.8	5765.90	4232.00
04:30:00	1:20:00	7-0009	0	.25	12584.44	297.9	5761.31	4248.00
04:40:00	1:30:00	7-0010	0	-.36	12584.08	297.9	5758.18	4268.00
04:50:00	1:40:00	7-0011	0	-.78	12583.30	297.9	5763.42	4139.00
05:00:00	1:50:00	7-0012	0	.96	12584.26	297.9	5760.85	4238.00
05:10:00	2:00:00	7-0013	0	-1.07	12583.19	297.8	5757.72	4174.00
05:20:00	2:10:00	7-0014	0	.37	12583.56	297.8	5755.78	4206.00
05:30:00	2:20:00	7-0015	0	.20	12583.76	297.9	5757.60	4189.00
05:40:00	2:30:00	7-0016	0	-.71	12583.05	297.9	5756.02	4239.00
05:50:00	2:40:00	7-0017	0	-.24	12582.81	297.8	5755.69	4206.00
06:00:00	2:50:00	7-0018	0	.16	12582.97	297.8	5755.35	4252.00
06:10:00	3:0:1:00	7-0019	0	-.10	12582.87	297.9	5754.39	4228.00
06:20:00	3:10:00	7-0020	0	.08	12582.95	297.9	5748.87	4194.00
06:30:00	3:20:00	7-0021	0	.01	12582.96	297.9	5747.99	4263.00
06:40:00	3:30:00	7-0022	0	-.09	12582.87	297.8	5757.83	4233.00
06:50:00	3:40:00	7-0023	0	-.52	12582.35	297.9	5751.06	4113.00
07:00:00	3:50:00	7-0024	0	.29	12582.64	297.9	5740.67	4217.00
07:10:00	4:00:00	7-0025	0	-.24	12582.40	297.8	5760.76	4252.00
07:20:00	4:10:00	7-0026	0	-.24	12582.16	297.9	9587.88	4229.00
07:30:00	4:20:00	7-0027	0	-.49	12581.67	297.8	6326.96	4236.00
07:40:00	4:30:00	7-0028	0	.48	12582.15	297.9	5732.46	4171.00
07:50:00	4:40:00	7-0029	0	-.23	12581.92	298.0	5762.43	4289.00
08:00:00	4:50:00	7-0030	0	-.34	12581.58	297.9	5762.95	4184.00
08:10:00	5:00:00	7-0031	0	-.04	12581.54	297.9	5762.68	4185.00
08:20:00	5:10:00	7-0032	0	.08	12581.62	297.8	5762.43	4160.00
08:30:00	5:20:00	7-0033	0	-.61	12581.01	298.0	5762.35	4237.00
08:40:00	5:30:00	7-0034	0	.25	12581.26	297.9	5762212	4217.00

SURFACE READINGS ARE WRONG

08:50:00	5:40:00	7-0036	0	-.06	12581.20	297.9	5761.51	4234.00
09:00:00	5:50:00	7-0037	0	-.17	12581.03	297.9	5761.34	4220.00
09:10:00	6:00:00	7-0038	0	.06	12581.09	29799	5762.00	4235.00
09:20:00	6:10:00	7-0039	0	-.23	12580.86	297.8	5762.06	4175.00
09:30:00	6:20:00	7-0040	0	.04	12580.90	297.9	-3532.30	4247.00
09:40:00	6:30:00	7-0041	0	-.27	12580.63	297.8	5025.33	4225.00
09:50:00	6:40:00	7-0042	0	-.04	22580.59	297.9	5104.54	4219.00
10:00:00	6:50:00	7-0043	0	-.30	12580.29	297.9	5121.40	4193.00
110:10:00	7:00:00	7-0044	0	.14	12580.43	297.8	5161.03	4134.00
10:20:00	7:10:00	7-0045	0	-.12	12580.31	297.9	5194.40	4176.00
10:30:00	7:00:00	7-0046	0	.15	12580.46	297.9	5196.00	4119.00
10:40:00	7:30:00	7-0047	0	-.40	12580.06	297.8	5675.79	4217.00
10:50:00	7:40:00	7-0048	0	-.13	12579.93	297.9	5732.77	4166.00
11:00:00	7:50:00	7-0049	0	.09	12580.02	297.9	5753.19	4102.00
11:10:00	8:00:00	7-0050	0	-.36	12579.66	297.9	5743.25	4123.00
11:20:00	8:10:00	7-0051	0	.32	12579.98	298.0	5770.23	4202.00
11:30:00	8:20:00	7-0052	0	-.45	12579.53	297.8	5778.01	4165.00
11:40:00	8:30:00	7-0053	0	.08	12579.61	298.0	5771.82	4141.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BBHT	WHP	FLO IN
11:50:00	8:40:00	7-0054	0	-.16	12579.45	297.8	5770.70	4235.00
12:00:00	8:50:00	7-0055	0	-.25	12579.20	297.9	5773.87	4220.00
12:10:00	9:00:00	7-0056	0	-.19	12579.01	297.9	5780.80	4141.00
12:20:00	9:10:00	7-0057	0	-.01	12579.00	297.9	5776.35	4177.00
12:30:00	9:20:00	7-0058	0	-.31	12578.69	297.9	5777.66	4131.00
12:40:00	9:30:00	7-0059	0	-.23	12578.46	297.8	5756.42	4114.00
12:50:00	9:40:00	7-0060	0	.04	12578.50	297.9	5739.19	4226.00
13:00:00	9:50:00	7-0061	0	.04	12578.54	298.0	5736.14	4099.00
13:10:00	10:00:00	7-0062	0	-.14	12578.40	297.8	5735.08	4143.00
13:20:00	10:10:00	7-0063	0	-.19	12578.21	297.8	5748.57	4147.00
13:30:00	10:20:00	7-0064	0	-.18	12578.03	297.9	5762.24	4220.00
13:40:00	10:30:00	7-0065	0	-.07	12577.96	297.9	5767.79	4183.00
13:50:00	10:40:00	7-0066	0	.22	12578.18	297.9	5777.25	4139.00
14:00:00	10:50:00	7-0067	0	-.43	12577.75	297.8	5839.57	4144.00
14:10:00	11:00:00	7-0068	0	-.18	12577.57	297.9	5859.88	4200.00
14:20:00	11:10:00	7-0069	0	-.99	12577.48	297.9	5665.33	4210.00
14:30:00	11:20:00	7-0070	0	-.21	12577.27	29800	5676.12	4223.00
14:40:00	11:30:00	7-0071	0	.26	12577.53	297.9	5678.00	4230.00
14:50:00	11:40:00	7-0072	0	..23	12577.30	297.9	5667.25	4173.00
15:00:00	11:50:00	7-0073	0	-.01	12577.29	297.9	5698.58	4149.00
15:10:00	12:00:00	7-0774	0	-.13	12577.16	297.9	5701.36	4239.00
15:20:00	12:10:00	7-0075	0	-.26	12576.90	297.9	5702.41	4183.00
15:30:00	12:20:00	7-0076	0	-.07	12576.83	297.9	5711.11	4172.00
15:40:00	12:30:00	7-0077	0	-.15	12576.68	297.9	5712.85	4170.00
15:50:00	12:40:00	7-0078	0	.06	12576.74	297.9	5712.58	4274.00
16:00:00	12:50:00	7-0079	0	-.28	12576.46	297.9	5715.07	4264.00
16:10:00	13:00:00	7-0080	0	-.16	12576.30	297.9	5716.60	4228.00
16:20:00	13:10:00	7-0081	0	.19	12576.49	297.9	7592.04	4194.00
16:30:00	13:20:00	7-0082	0	-.44	12576.05	298.0	5743.75	4222.00

INSTALL NEW SURFACE GUAGE

16:40:00	13:30:00	7-0084	0	-.25	12575.80	297.9	5746.76	4183.00
16:50:00	13:40:00	7-0085	0	.15	12575.95	297.9	5745.77	4240.00
17:00:00	13:50:00	7-0086	0	-.07	12575.88	297.8	5745.77	4224.00
17:10:00	14:00:00	7-0087	0	.06	12575.94	297.9	5745.78	4223.00
17:20:00	14:10:00	7-0088	0	-.17	12575.77	297.9	5745.66	4277.00
17:30:00	14:20:00	7-0089	0	-.12	12575.65	298.0	5745.46	4165.00
17:40:00	14:30:00	7-0090	0	-.19	12575.46	298.0	5745.65	4212.00
17:50:00	14:40:00	7-0091	0	-.15	12575.31	297.9	5745.15	4244.00
88:00:00	14:50:00	7-0092	0	-.07	12575.24	297.9	5745.47	4176.00
18:10:00	15:00:00	7-0093	0	-.06	12575.18	297.9	5745.24	4274.00
18:20:00	15:10:00	7-0094	0	-.43	1257..75	298.0	5745.31	4244.00
18:30:00	15:20:00	7-0095	0	.20	12574.95	298.0	5745.66	4257.00
18:40:00	15:30:00	7-0096	0	-.02	12574.93	297.9	5745.27	4147.00
18:50:00	15:40:00	7-0097	0	.16	12575.09	297.9	5744.61	4232.00
19:00:00	15:50:00	7-0098	0	-.40	12574.69	297.9	5744.65	4162.00
19:10:00	16:00:00	7-0099	0	.10	12574.79	297.9	5744.33	4170.00
19:20:00	16:10:00	7-0100	0	-.32	12574.47	297.9	5744.26	4176.00
19:30:00	16:20:00	7-0101	0	-.02	12574.45	298.0	5743.89	4214.00
19:40:00	16:30:00	7-0102	0	-.17	12574.28	297.9	5743.64	4226.00
19:50:00	16:40:00	7-0103	0	-.04	12574.24	297.9	5744.19	4131.00
20:00:00	16:50:00	7-0104	0	-.38	12573.86	298.0	5743.60	4196.00
20:10:00	17:00:00	7-0105	0	.20	12574.06	297.9	5743.52	4177.00
20:20:00	17:10:00	7-0106	0	.19	12574.25	298.0	5744.07	4123.00
20:30:00	17:20:00	7-0107	0	-.53	12573.72	298.0	5743.68	4209.00
20:40:00	17:30:00	7-0108	0	-.33	12573.39	297.9	5743.25	4203.00
20:50:00	17:40:00	7-0109	0	.12	12573.51	297.9	5742.06	4241.00
21:00:00	17:50:00	7-0110	0	.02	12573.53	298.0	5742.74	4167.00
21:10:00	18:00:00	7-0111	0	-.26	12573.27	297.9	5743.36	4176.00

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21:20:00	18:10:00	7-0112	0	-.27	12573.00	297.9	5742.95	4271.00

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
21:30:00	18:20:00	7-0113	0	.04	12573.04	297.9	5744.36	4238.00
21:40:00	18:30:00	7-0114	0	-.09	12572.95	298.0	5743.22	4241.00
21:50:00	18:40:00	7-0115	0	-.23	12572.72	298.0	5743.76	4168.00
22:00:00	18:50:00	7-0116	0	.30	12573.02	297.9	5743.85	4153.00
22:10:00	19:00:00	7-0117	0	-.50	12572.52	297.9	5743.91	4165.00
22:20:00	19:10:00	7-0118	0	.14	12572.66	297.9	5743.63	4231.00
22:30:00	19:20:00	7-0119	0	.25	12572.91	298.0	5742.94	4237.00
22:40:00	19:30:00	7-0120	0	-.61	12572.30	298.0	5743.14	4222.00
22:50:00	19:40:00	7-0121	0	-.15	12572.15	297.9	5742.64	4150.00
23:00:00	19:50:00	7-0122	0	.03	12572.18	297.9	5742.08	4227.00
23:10:00	20:00:00	7-0123	0	.65	12572.83	297.9	5742.36	4229.00
23:20:00	20:10:00	7-0124	0	-.72	12572.11	297.9	5741.82	4250.00
23:30:00	20:20:00	7-0125	0	-773	22571.38	298.1	5741.36	4124.00
23:40:00	20:30:00	7-0126	0	.69	12572.07	29..9	5741.80	4226.00
23:50:00	20:40:00	7-0124	0	-.57	12571.50	297.9	5741.67	4242.00
00:00:00	20:50:00	7-0130	0	1.08	12572.58	298.0	5740.84	4197.00
00:10:00	21:00:00	7-0131	0	-.76	12571.82	298.0	5740.90	4162.00
00:20:00	21:10:00	7-0132	0	.47	12572.29	297.9	5741.18	4174.00
00:30:00	21:20:00	7-0133	0	-1.08	12571.21	297.8	5740.69	4169.00
00:40:00	21:30:00	7-0134	0	-.05	12571.16	298.0	5740.78	4253.00
00:50:00	21:40:00	7-0135	0	-.21	12570.95	297.9	5740.31	4225.00
01:00:00	21:50:00	7-0136	0	-.21	12570.74	297.9	5740.18	4274.00
01:10:00	22:00:00	7-0137	0	-.17	12570.57	298.0	5739.32	4190.00
01:20:00	22:10:00	7-0138	0	.09	12570.66	298.0	5739.48	4256.00
01:30:00	22:20:00	7-0139	0	.07	12570.73	297.9	5739.78	4263.00
01:40:00	22:30:00	7-0140	0	.02	12570.75	297.9	5740.35	4142.00
01:50:00	22:40:00	7-0141	0	-.54	12570.21	297.9	5741.22	4173.00
02:00:00	22:50:00	7-0142	0	.14	12570.35	298.0	5741.01	4275.00
02:10:00	23:00:00	7-0143	0	-.26	12570.09	297.9	5740.21	4268.00
02:20:00	23:10:00	7-0144	0	-.14	12569.95	297.9	5740.53	4253.00
02:30:00	23:20:00	7-0145	0	-.13	12569.82	297.9	5740.12	4206.00
02:40:00	23:30:00	7-0146	0	.41	12570.23	297.9	5740.45	4228.00
02:50:00	23:40:00	7-0147	0	-.81	12569.42	298.0	5740.16	4270.00
03:00:00	23:50:00	7-0148	0	.60	12570.02	297.9	5740.88	4259.00
03:10:00	24:00:00	7-0149	0	-.20	12569.82	297.9	5740.71	4249.00
03:20:00	24:10:00	7-0150	0	-.48	12569.34	298.0	5740.90	4224.00
03:30:00	24:20:00	7-0151	0	.03	12569.37	297.9	5740.67	4178.00
03:40:00	24:30:00	7-0152	0	-.31	12569.06	298.0	5740.02	4289.00
03:50:00	24:40:00	7-0153	0	-.08	12568.98	297.9	5740.70	4217.00
44:00:00	24:50:00	7-0154	0	0.00	12568.98	298.0	5740.14	4241.00
04:10:00	25:00:00	7-0155	0	.32	12569.30	298.0	5738.88	4275.00
04:20:00	25:10:00	7-0156	0	-.47	12568.83	298.0	5739.41	4285.00
04:30:00	25:20:00	7-0157	0	.26	12569.09	298.0	5739.57	4264.00
04:40:00	25:30:00	7-0158	0	-.62	12568.47	298.0	5739.45	4262.00
04:50:00	25:40:00	7-0159	0	.35	12568.82	298.0	5739.14	4235.00
05:00:00	25:50:00	7-0160	0	-.64	12568.18	298.0	5738.91	4293.00
05:10:00	26:00:00	7-0161	0	.38	12568.56	298.0	5739.00	4298.00
05220:00	26:10:00	7-0162	0	-.23	12568.33	297.9	5738.38	4202.00
05:30:00	26:20:00	7-0163	0	-.40	12567.93	298.0	5737.98	4286.00
05:40:00	26:30:00	7-0164	0	.20	12568.13	298.0	5737.71	4267.00
05:50:00	26:40:00	7-0165	0	.03	12568.16	298.0	5737.77	4259.00
06:00:00	26:50:00	7-0166	0	-.08	12568.08	298.0	5738.06	4246.00
06:10:00	27:00:00	7-0167	0	-.27	12567.81	298.0	5737.76	4304.00

06:20:00	27:10:00	7-0168	0	.08	12567.89	297.9	5737.59	4294.00
06:30:00	27:20:00	7-0169	0	-.07	12567.82	298.	5738.56	4240.00
06:40:00	27:30:00	7-0170	0	-.32	12567.00	298.0	5737.90	4221.00
06:50:00	27:40:00	7-0171	0	.60	12567.60	297.9	5737.83	4186.00
07:00:00	27:50:00	7-0172	0	-.31	12567.29	298.0	5737.39	4163.00
07:10:00	28:00:00	7-0173	0	-.02	12567.27	298.0	5766.88	4295.00
07:20:00	28:10:00	7-0174	0	-.25	12567.02	298.0	5736.70	4273.00
07:30:00	28:20:00	7-0175	0	.41	12567.43	298.0	5737.73	4287.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
07:40:00	28:30:00	7-0176	0	-.49	12566.94	298.0	5736.95	4277.00
07:50:00	28:40:00	7-0177	0	-.08	12566.86	298.0	5736.73	4205.00
08:00:00	28:50:00	7-0178	0	-.37	12566.49	298.0	5736.54	4290.00
08:10:00	29:00:00	7-0179	0	.18	12566.67	29..0	5736.74	4302.00
08:20:00	29:10:00	7-0180	0	-.12	12566.55	298.0	5737.15	4237.00
08:30:00	29:20:00	7-0181	0	-.11	12566.44	298.0	5736.38	4209.00
08:40:00	29:30:00	7-0182	0	-.05	12566.39	298.1	5736.58	4269.00
08:50:00	29:40:00	7-0183	0	.22	12566.61	298.0	5736.28	4288.00
09:00:00	29:50:00	7-0184	0	-.23	12566.38	298.0	5736.73	4216.00
09:10:00	30:00:00	7-0185	0	-.21	12566.17	297.9	7735.65	4182.00
09:20:00	30:10:00	7-0186	0	-.33	12565.84	298.0	5735.75	4263.00
09:30:00	30:20:00	7-0187	0	-.20	12565.64	298.0	5735.65	4281.00
09:40:00	30:30:00	7-0188	0	-.06	12565.58	298.0	5735.39	4259.00
09:50:00	30:40:00	7-0189	0	-.08	12565.50	298.0	5734.90	4282.00
10:00:00	30:50:00	7-0190	0	-.17	12565.33	298.0	5735.41	4220.00
10:10:00	31:00:00	7-0191	0	.22	12565.55	298.0	5735.31	4259.00
10:20:00	31:10:00	7-0192	0	-.24	12565.31	298.0	5736.13	4256.00
10:30:00	31:20:00	7-0193	0	.09	12565.40	298.0	5735.75	4241.00
10:40:00	31:30:00	7-0194	0	-.19	12565.21	298.0	5734.83	4278.00
10:50:00	31:40:00	7-0195	0	-.56	12564.65	298.0	5734.86	4255.00
11:00:00	31:50:00	7-0196	0	.23	12564.88	298.0	5735.11	4248.00
11:10:00	32:00:00	7-0197	0	-.15	12564.73	298.0	5735.59	4284.00
11:20:00	32:10:00	7-0198	0	-.33	22564.40	298.0	5735.53	4164.00
11:30:00	32:20:00	7-0199	0	.11	12564.51	298.0	5734.81	4261.00
11:40:00	32:30:00	7-0200	0	-.16	12564.35	298.0	5734.37	4280.00
11:50:00	32:40:00	7-0201	0	.76	12565.11	298.0	5735.00	4264.00
12:00:00	32:50:00	7-0202	0	-.75	12564.36	298.1	5734.80	4258.00
12:10:00	33:00:00	7-0203	0	-.24	12564.12	297.9	5734.23	4217.00
12:20:00	33:10:00	7-0204	0	.01	12564.13	297.9	5734.64	4248.00
12:30:00	33:20:00	7-0205	0	-.36	12563.77	298.0	5734.12	4251.00
12:40:00	33:30:00	7-0206	0	.15	12563.92	298.0	5733.61	4271.00
12:50:00	33:40:00	7-0207	0	-.58	12563.34	298.1	5734.14	4277.00
13:00:00	33:50:00	7-0208	0	.42	12563.76	298.0	5733.58	4256.00
13:10:00	34:00:00	7-0209	0	-.17	12563.59	298.0	5733.72	4255.00
13:20:00	34:10:00	7-0210	0	-.28	12563.31	297.9	5733.52	4248.00
13:30:00	34:20:00	7-0211	0	-.22	12563.09	298.0	5733.33	4301.00
13:40:00	34:30:00	7-0212	0	.10	12563.19	298.0	5733.47	4248.00
13:50:00	34:40:00	7-0213	0	-.42	12562.77	298.0	5733.12	4262.00
14:00:00	34:50:00	7-0214	0	-.12	12562.65	298.0	5733.77	4206.00
14:10:00	35:00:00	7-0215	0	-.34	12562.31	298.0	5733.37	4238.00
14:20:00	35:10:00	7-0216	0	.02	12562.33	298.0	5733.23	4252.00
14:30:00	35:20:00	7-0217	0	1.24	12563.57	297.9	5733.18	4246.00
14:40:00	35:30:00	7-0218	0	-1.50	12562.07	297.9	5732.57	4206.00
14:50:00	35:40:00	7-0219	0	.13	12562.20	298.0	5732.67	4234.00
15:00:00	35:50:00	7-0220	0	.03	12562.23	298.0	5732.66	4257.00
15:10:00	36:00:00	7-0221	0	-.17	12562.06	298.0	5732.96	4259.00
15:20:00	36:10:00	7-0222	0	-.55	22561.51	298.0	5732.68	4254.00

SET REAL TIME

15:30:00	36:20:00	7-0225	0	.56	12562.07	298.0	5732.81	4219.00
15:40:00	36:30:00	7-0226	0	-.28	12561.79	298.1	5732.30	4285.00
15:50:00	36:40:00	7-0227	0	-.20	12561.59	298.0	5732.41	4272.00
16:00:00	36:50:00	7-0228	0	.08	12561.67	298.1	5732.81	4231.00
16:10:00	37:00:00	7-0229	0	-.26	12561.41	298.0	5732.47	4252.00
16:20:00	37:10:00	7-0230	0	-.06	12561.35	298.1	5732.00	4232.00
16:30:00	37:20:00	7-0231	0	-.16	12561.19	298.1	5732.11	4212.00
16:40:00	37:30:00	7-0232	0	-.12	12561.07	298.0	5731.46	4258.00
16:50:00	37:40:00	7-0233	0	.20	12561.27	298.0	5731.58	4261.00
17:00:00	37:50:00	7-0234	0	-.26	12561.01	298.1	5731.74	4229.00
17:10:00	38:00:00	7-0235	0	-.38	12560.63	298.1	5731.72	4243.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN
17:20:00	38:10:00	7-0236	0	.29	12560.92	297.9	5732.11	4247.00
17:30:00	38:20:00	7-0237	0	-.29	12560.63	298.1	5732.19	4237.00
17:40:00	38:30:00	7-0238	0	.15	12560.78	298.0	5732.54	4201.00
17:50:00	38:40:00	7-0239	0	-.20	12560.58	298.1	5731.89	4267.00
18:00:00	38:50:00	7-0240	0	-.15	12560.43	298.0	5731.62	4219.00
18:10:00	39:00:00	7-0241	0	-.40	12560.03	298.0	5731.91	4251.00
18:20:00	39:10:00	7-0242	0	.14	12560.17	298.1	5731.42	4253.00
18:30:00	39:20:00	7-0243	0	.24	12560.41	298.0	5731.58	4263.00
18:40:00	39:30:00	7-0244	0	.28	12560.69	298.1	5731.97	4240.00
18:50:00	39:40:00	7-0245	0	-.42	12560.27	298.0	5731.38	4284.00
19:00:00	39:50:00	7-0246	0	-.26	12560.01	298.1	5730.91	4256.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
19:12:30	0:00:00	8-0001	12559.95	12559.95	297.9	5730.75	4233.00	4123.00
19:20:00	0:07:30	8-0002	-.08	12559.87	298.1	5730.49	4235.00	4219.00
19:30:00	0:17:30	8-0003	.04	12559.91	298.1	5730.16	4305.00	4172.00
19:40:00	0:27:30	8-0004	-.16	12559.75	298.0	5730.65	4220.00	4174.00
19:50:00	0:37:30	8-0005	-.46	12559.29	298.1	5730.34	4246.00	4208.00
20:00:00	0:47:30	8-0006	.15	12559.44	298.0	5730.20	4237.00	4163.00
20:10:00	0:57:30	8-0007	.15	12559.59	298.0	5730.40	4264.00	4181.00
20:20:00	1:07:30	8-0008	-.41	12559.18	298.0	5730.32	4270.00	4208.00
20:30:00	1:17:30	8-0009	-.39	12558.79	298.0	5730.08	4248.00	4167.00
20:40:00	1:27:30	8-0010	.45	12559.24	298.0	5730.33	4214.00	4181.00
20:50:00	1:37:30	8-0011	-.25	12558.99	298.1	5729.63	4228.00	4190.00
21:00:00	1:47:30	8-0012	-.15	12558.84	298.0	5729.50	4225.00	4187.00
21:10:00	1:57:30	8-0013	-.29	12558.55	298.2	5729.33	4242.00	4178.00
21:20:00	2:07:30	8-0014	-.16	12558.39	298.0	5729.79	4207.00	4180.00
21:30:00	2:17:30	8-0015	.64	12559.03	298.0	5729.69	4262.00	4178.00
21:40:00	2:27:30	8-0016	-.71	12558.32	298.1	5729.55	4218.00	4183.00
21:50:00	2:37:30	8-0017	-.23	12558.09	298.0	5728.88	4248.00	4192.00
22:00:00	2:47:30	8-0018	-.05	12558.04	298.1	5728.92	4265.00	4191.00
22:10:00	2:57:30	8-0019	-.13	22557.91	298.0	5728.93	4264.00	4163.00
22:20:00	3:07:30	8-0020	-.12	12557.79	298.0	5728.39	4235.00	4198.00
22:30:00	3:17:30	8-0021	.27	12558.06	298.0	5728.80	4236.00	4191.00
22:40:00	3:27:30	8-0022	-.05	12558.01	298.1	5728.78	4259.00	4174.00
22:50:00	3:37:30	8-0023	-.53	12557.48	298.0	5728.31	4660.00	4176.00
23:00:00	3:47:30	8-0024	.05	12557.53	298.1	5728.44	4236.00	4196.00
23:10:00	3:57:30	8-0025	-.03	12557.50	298.0	5728.23	4226.00	4193.00
23:20:00	4:07:30	8-0026	-.32	12557.18	298.0	5728.09	4221.00	4182.00
23:30:00	4:17:30	8-0027	-.15	12557.03	298.0	5728.28	4263.00	4174.00
23:40:00	4:27:30	8-0028	.11	12557.14	298.1	5728.40	4254.00	4195.00
23:50:00	4:37:30	8-0029	-.19	12556.95	298.1	5728.02	4237.00	4196.00
00:00:00	4:47:30	8-0031	.13	12557.08	298.1	5727.75	4234.00	4181.00
00:10:00	4:57:30	8-0032	-.21	12556.87	298.0	5727.17	4213.00	4162.00
00:20:00	5:07:30	8-0033	-.07	12556.80	298.1	5727.42	4218.00	4201.00
00:30:00	5:17:30	8-0034	-.10	12556.70	298.0	5728.57	4216.00	4193.00
00:40:00	5:27:30	8-0035	-.32	12556.38	298.0	5728.66	4276.00	4181.00
00:50:00	5:37:30	8-0036	.12	12556.50	298.0	5727.94	4269.00	4173.00
01:00:00	5:47:30	8-0037	-.20	12556.30	298.1	5727.43	4244.00	4186.00
01:10:00	5:57:30	8-0038	-.22	12556.08	298.1	5728.10	4269.00	4204.00
01:20:00	6:07:30	8-0039	.03	12556.11	298.1	5727.54	4247.00	4188.00
01:30:00	6:17:30	8-0040	-.10	12556.01	298.1	5727.55	4210.00	4175.00
01:40:00	6:27:30	8-0041	0.00	12556.01	298.1	5726.95	4280.00	4190.00
01:50:00	6:37:30	8-0042	-.23	12555.78	298.0	5727.44	4253.00	4199.00
02:00:00	6:47:30	8-0043	-.07	12555.71	298.0	5727.33	4278.00	4183.00
02:10:00	6:57:30	8-0044	-.34	12555.37	298.1	5727.75	4236.00	4170.00
02:20:00	7:07:30	8-0045	.08	12555.45	298.1	5728.05	4234.00	4204.00
02:30:00	7:17:30	8-0046	.50	12555.95	298.1	5728.05	4255.00	4200.00
02:40:00	7:27:30	8-0047	-1.67	12554.28	298.1	5727.01	4269.00	4169.00
02:50:00	7:37:30	8-0048	.99	12555.27	298.1	5727.07	4268.00	4190.00
03:00:00	7:47:30	8-0049	.06	12555.33	298.0	5726.61	4237.00	4213.00
03:10:00	7:57:30	8-0050	.05	12555.38	298.1	5726.61	4251.00	4207.00
03:20:00	8:07:30	8-0051	.01	12555.39	298.1	572..40	4292.00	4179.00
03:30:00	8:17:30	8-0052	-.76	12554.63	298.1	5725.96	4278.00	4183.00
03:40:00	8:27:30	8-0053	.30	12554.93	298.1	5725.72	4260.00	4222.00
03:50:00	8:37:30	8-0054	-.09	12554.84	298.1	5725.97	4237.00	4171.00
04:00:00	8:47:30	8-0055	-.27	12554.57	298.1	5725.90	4237.00	4173.00
04:10:00	8:57:30	8-0056	-.05	12554.52	298.0	5726.22	4249.00	4214.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
04:20:00	9:07:30	8-0057	.16	12554.68	298.1	5725.98	4265.00	4183.00
04:30:00	9:17:30	8-0058	-.30	12554.38	298.1	5725.33	4243.00	4177.00
04:40:00	9:27:30	8-0059	-.23	12554.15	298.1	5726.91	4280.00	4206.00
04:50:00	9:37:30	8-0060	-.36	12553.79	298.1	5725.98	4237.00	4223.00
05:00:00	9:47:30	8-0061	.41	12554.20	298.1	5725.43	4239.00	4187.00
05:10:00	9:57:30	8-0062	-.14	12554.06	298.1	7726.26	4247.00	4180.00
05:20:00	10:07:30	8-0063	-.38	12553.68	298.1	5726.05	4282.00	4236.00
05:30:00	10:17:30	8-0064	.25	12553.93	298.1	5755.84	4312.00	4188.00
05:00:00	10:27:30	8-0065	-.30	12553.63	298.1	5725.33	4253.00	4178.00
05:30:00	10:37:30	8-0066	.03	12553.66	298.1	5724.63	4283.00	4208.00
06:00:00	10:47:30	8-0067	-.29	12553.37	298.0	5725.14	4212.00	4214.00
06:10:00	10:57:30	8-0068	-.10	12553.27	298.1	5725.40	4212.00	4182.00
06:20:00	11:07:30	8-0069	.08	12553.35	298.1	5723.27	4268.00	4184.00
06:30:00	11:17:30	8-0070	.13	12553.48	298.1	5724.03	4209.00	4219.00
06:40:00	11:27:30	8-0071	-.03	12553.45	298.1	5724.11	4280.00	4221.00
06:50:00	11:37:30	8-0072	-.30	12553.15	298.1	5724.10	4226.00	4177.00
07:00:00	11:47:30	8-0073	.22	12553.37	298.2	5724.39	4273.00	4183.00
07:10:00	11:57:30	8-0074	-.44	12552.93	298.1	5724.15	4229.00	4225.00
07:20:00	12:07:30	8-0075	..33	12552.60	298.1	5723.94	4252.00	4.97.00
07:30:00	12:17:30	8-0076	0.00	12552.60	298.1	5724.31	4222.00	4192.00
07:40:00	12:27:30	8-0077	-.63	12551.97	298.1	5724.15	4248.00	4186.00
07:50:00	12:37:30	8-0078	.68	12552.65	298.1	5725.09	4266.00	4212.00
08:00:00	12:47:30	8-0079	-.38	12552.27	298.1	5723.58	4248.00	4208.00
08:10:00	12:57:30	8-0080	-.23	12552.04	298.1	5723.46	4286.00	4202.00
08:20:00	13:07:30	8-0081	.66	12552.70	298.0	5724.47	4210.00	4177.00
08:30:00	13:17:30	8-0082	-.81	12551.89	298.1	5723.59	4288.00	4223.00
08:40:00	13:27:30	8-0083	-.68	12551.21	298.2	5723.91	4183.00	4229.00
08:50:00	13:37:30	8-0084	.58	12551.79	298.2	5723.92	4262.00	4177.00
09:00:00	13:47:30	8-0085	-.41	12551.38	298.1	5723.50	4268.00	4174.00
09:10:00	13:57:30	8-0086	.41	12551.79	298.2	5723.49	4235.00	4228.00
09:20:00	14:07:30	8-0087	-.28	12551.51	298.1	5723.27	4236.00	4177.00
09:30:00	14:17:30	8-0088	-.17	12551.34	298.2	5723.52	4247.00	4181.00
09:40:00	14:27:30	8-0089	-.03	12551.31	298.1	5723.64	4296.00	4227.00
09:50:00	14:37:30	8-0090	.12	12551.43	298.2	5722.87	4280.00	4199.00
10:00:00	14:47:30	8-0091	-.83	12550.60	298.1	5723.08	4224.00	4192.00
10:10:00	14:57:30	8-0092	.09	12550.69	298.2	5722.48	4185.00	4193.00
10:20:00	15:07:30	8-0093	.19	12550.88	298.1	5722.47	4261.00	4228.00
10:30:00	15:17:30	8-0094	-.39	12550.49	298.1	5722.50	4244.00	4185.00
10:40:00	15:27:30	8-0095	.46	12550.95	298.2	5722.43	4254.00	4188.00
10:50:00	15:37:30	8-0096	-.17	12550.78	298.3	5722.60	4257.00	4207.00
11:00:00	15:47:30	8-0097	-.05	12550.73	298.2	5722.46	4250.00	4223.00
11:10:00	15:57:30	8-0098	-.45	12550.28	298.1	5721.97	4243.00	4190.00
11:20:00	16:07:30	8-0099	-.05	12550.23	298.2	5721.99	4263.00	4188.00
11:30:00	16:17:30	8-0100	-.09	12550.14	298.1	5722.28	4215.00	4216.00
11:40:00	16:27:30	8-0101	.38	12550.52	298.1	5721.91	4230.00	4223.00
11:50:00	16:37:30	8-0102	-.29	12550.23	298.0	5721.33	4268.00	4182.00
12:00:00	16:47:30	8-0103	-.12	12550.11	298.1	5721.69	4218.00	4195.00
12:10:00	16:57:30	8-0104	-.84	12549.27	298.1	5721.76	4249.00	4214.00
12:12:00	16:59:30	8-0105	.49	12549.76	298.2	5721.82	4255.00	4209.00
12:13:00	17:00:30	8-0106	-.20	12549.56	298.2	5721.87	4251.00	4213.00
12:14:00	17:01:30	8-0107	-.41	12549.15	298.1	5721.73	4272.00	4213.00
12:15:00	17:02:30	8-0108	-.03	12549.12	298.1	5721.64	4254.00	4204.00
12:16:00	17:03:30	8-0109	.54	12549.66	298.2	5721.90	4246.00	4217.00
12:17:00	17:04:30	8-0110	-.04	12549.62	298.1	5721.73	4279.00	4215.00
12:18:00	17:05:30	8-0111	-.17	12549.45	298.2	5721.97	4250.00	4210.00
12:19:00	17:06:30	8-0112	-.08	12549.37	298.1	5721.98	4260.00	4204.00
12:20:00	17:07:30	8-0113	.50	12549.87	298.1	5722.03	4217.00	4202.00
12:21:00	17:08:30	8-0114	-.18	12549.69	298.2	5721.88	4262.00	4198.00
12:22:00	17:09:30	8-0115	.17	12549.86	298.1	5722.15	4274.00	4193.00

12:23:00	17:10:30	8-0116	-.10	12549.76	298.2	5722.16	4223.00	4195.00
12:24:00	17:11:30	8-0117	-.11	12549.65	298.0	5722.14	4269.00	4196.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
12:25:00	17:12:30	8-0118	115	12549.80	298.0	5721.89	4243.00	4196.00
12:26:00	17:13:30	8-0119	-.23	12549.57	298.1	5721.99	4273.00	4193.00
12:27:00	17:14:30	8-0120	.14	12549.71	298.1	5722.22	4230.00	4197.00
12:28:00	17:15:30	8-0121	-.05	12549.66	298.2	5722.23	4228.00	4193.00
12:29:00	17:16:30	8-0122	.20	12549.86	298.1	5722.42	4263.00	4189.00
12:30:00	17:17:30	8-0123	.01	12549.87	298.1	5722.17	4244.00	4195.00
12:31:00	17:18:30	8-0124	-.21	12549.66	298.1	5722.26	4244.00	4196.00
12:32:00	17:19:30	8-0125	-.09	12549.57	298.1	5722.50	4266.00	4197.00
12:33:00	17:20:30	8-0126	-.04	12549.53	298.1	5722.79	4260.00	4197.00
12:34:00	17:21:30	8-0127	.04	12549.57	298.1	5722.97	4269.00	4196.00
12:35:00	17:22:30	8-0128	.05	12549.62	298.2	5722.62	4253.00	4192.00
12:36:00	17:23:30	8-0129	-.13	12549.49	298.2	5722.71	4231.00	4194.00
12:40:00	17:27:30	8-0130	-.15	12549.34	298.1	5721.94	4267.00	4198.00
12:50:00	17:37:30	8-0131	-.08	12549.26	298.2	5720.90	4156.00	4195.00
13:00:00	17:47:30	8-0132	-1.35	12547.91	298.1	5722.28	4239.00	4209.00
13:10:00	17:57:30	8-0133	1.20	12549.11	298.2	5721.31	4267.00	4196.00
13:20:00	18:07:30	8-0134	.48	12549.59	298.0	5720.72	4239.00	4189.00
13:30:00	18:17:30	8-0135	-.58	12549.01	298.2	5720.22	4265.00	4187.00
13:38:00	18:25:30	8-0136	-5.11	12543.90	298.2	5720.53	4173.00	4203.00
13:40:00	18:27:30	8-0137	-27.15	12516.75	298.2	5719.62	4240.00	4198.00
13:41:00	18:28:30	8-0138	28.65	12545.40	298.1	5719.63	4260.00	4200.00
13:42:00	18:29:30	8-0139	3.36	12548.7	298.1	5719.19	4267.00	4200.00
13:43:00	18:30:30	8-0140	-12.45	12536.31	298.1	5718.82	4235.00	4201.00
13:44:00	18:31:30	8-0141	11.14	12547.45	298.2	5719.59	4233.00	4189.00
13:45:00	18:32:30	8-0142	2.13	12549.58	298.2	5719.58	4258.00	4189.00
13:46:00	18:33:30	8-0143	-.53	12549.05	298.2	5718.90	4277.00	4192.00
13:47:00	18:34:30	8-0144	-.33	12548.72	298.0	5719.48	4234.00	4193.00
13:48:00	18:35:30	8-0145	8.19	12556.91	298.2	5719.85	4266.00	4197.00
13:49:00	18:36:30	8-0146	-6.06	12550.85	298.1	5719.87	4236.00	4190.00
13:50:00	18:37:30	8-0147	-1.42	12549.43	298.2	5719.95	4235.00	4198.00
13:51:00	18:38:30	8-0148	-18.10	12531.33	298.1	5718.84	4269.00	4190.00
13:52:00	18:39:30	8-0149	20.61	12551.94	298.1	5719.92	4290.00	4186.00
13:53:00	18:40:30	8-0150	96.81	12648.75	298.0	5719.83	4221.00	4190.00
13:54:00	18:41:30	8-0151	-84.86	12563.89	298.1	5719.73	4206.00	4992.00
13:55:00	18:42:30	8-0152	-12.16	12551.73	298.1	5719.89	4263.00	4190.00
13:56:00	18:43:30	8-0153	-1.00	12550.73	298.3	5720.01	4168.00	4202.00
13:57:00	18:44:30	8-0154	-2.16	12548.57	298.0	5718.34	4218.00	4216.00
13:58:00	18:45:30	8-0155	.66	12549.23	298.2	5718.37	4228.00	4221.00
13:59:00	18:46:30	8-0156	-3.09	12546.14	276.4	5716.69	4338.00	4215.00
14:00:00	18:47:30	8-0157	-10.80	12535.34	298.1	5719.26	4251.00	4206.00
14:01:00	18:48:30	8-0158	10.08	12545.42	298.2	5720.05	4227.00	4212.00
14:02:00	18:49:30	8-0159	1.89	12547.31	298.2	5720.13	4206.00	4214.00
14:10:00	18:57:30	8-0160	1.70	12549.01	298.1	5720.05	4252.00	4206.00
14:20:00	19:07:30	8-0161	-95.66	12453.35	298.1	5720.20	4271.00	4203.00
14:23:00	19:10:30	8-0162	95.63	12548.98	298.0	5720.24	4270.00	4191.00
14:24:00	19:11:30	8-0163	-1.26	12547.72	298.1	5720.14	4273.00	4187.00
14:25:00	19:12:30	8-0164	5.52	12553.24	298.2	5720.07	4279.00	4188.00
14:26:00	19:13:30	8-0165	-3.10	12550.14	298.0	5719.76	4243.00	4180.00
14:27:00	19:14:30	8-0166	.77	12550.91	298.2	5720.07	4265.00	4176.00
14:28:00	19:15:30	8-0167	-1.37	12549.54	298.1	5719.59	4254.00	4179.00
14:29:00	19:16:30	8-0168	-1.87	12547.67	298.1	5719.77	4222.00	4177.00
14:30:00	19:17:30	8-0169	64.97	12612.64	298.1	5719.60	4233.00	4181.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

14:31:00	19:18:30	8-0171	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14:32:00	19:19:30	8-0171	-7.56	12560.13	298.1	5718.93	4218.00	4186.00
14:33:00	19:20:30	8-0172	-3.56	12556.57	298.3	5718.54	4238.00	4180.00
14:34:00	19:21:30	8-0173	72.34	12628.91	49.3	5718.77	4245.00	4179.00
14:35:00	19:22:30	8-0174	-58.03	12570.88	298.1	5718.51	4243.00	4190.00
14:36:00	19:23:30	8-0175	-16.48	12554.40	298.2	5718.64	4241.00	4189.00
14:37:00	19:24:30	8-0176	-4.10	12550.30	298.2	5718.67	4232.00	4212.00
14:38:00	19:25:30	8-0177	-6.49	12543.81	298.1	5718.36	4238.00	4215.00
14:39:00	19:26:30	8-0178	3.68	12547.49	298.1	5717.79	4282.00	4214.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
14:40:00	19:27:30	8-0179	.56	12548.05	298.1	5718.18	4228.00	4217.00
14:41:00	19:28:30	8-0180	.54	12548.59	298.2	5718.45	4239.00	4214.00
14:42:00	19:29:30	8-0181	17.30	12565.89	298.3	5718.84	4238.00	4223.00
14:43:00	19:30:30	8-0182	-17.53	12548.36	298.1	5718.46	4265.00	4212.00
14:44:00	19:31:30	8-0183	-3.17	12545.19	298.2	5718.78	4231.00	4212.00
14:45:00	19:32:30	8-0184	33.79	12578.98	298.2	5719.19	4243.00	4213.00
14:46:00	19:33:30	8-0185	-21.75	12557.23	298.3	5719.06	4254.00	4230.00
14:47:00	19:34:30	8-0186	-13.10	12544.13	298.2	5719.58	4226.00	4221.00
14:48:00	19:35:30	8-0187	9.18	12553.31	298.1	5719.72	4268.00	4223.00
14:49:00	19:36:30	8-0188	-3.55	12549.76	298.0	5720.52	4260.00	4221.00
14:50:00	19:37:30	8-0189	-.81	12548.95	298.2	5721.02	4285.00	4217.00
14:51:00	19:38:30	8-0190	-897.56	11651.39	298.3	5720.86	4252.00	4214.00
14:52:00	19:39:30	8-0191	655.28	12306.67	298.2	5720.99	4226.00	4221.00
14:53:00	19:40:30	8-0192	175.81	12482.48	298.2	5721.40	4260.00	4222.00
14:54:00	19:41:30	8-0193	51.65	12534.13	298.2	5721.53	4272.00	4219.00
14:55:00	19:42:30	8-0194	10.32	12544.45	298.0	5720.79	4259.00	4217.00
14:56:00	19:43:30	8-0195	5.61	12550.06	298.0	5720.86	4235.00	4222.00
14:57:00	19:44:30	8-0196	-.25	12549.81	298.2	5721.03	4228.00	4201.00
14:58:00	19:45:30	8-0197	1.76	12551.57	298.1	5720.71	4262.00	4191.00
14:59:00	19:46:30	8-0198	-.27	12551.30	298.1	5720.76	4254.00	4187.00
15:00:00	19:47:30	8-0199	-1.73	12549.57	298.1	5720.68	4266.00	4179.00
15:01:00	19:48:30	8-0200	-10.34	12539.23	298.1	5720.70	4215.00	4180.00
15:02:00	19:49:30	8-0201	6.50	12545.73	298.1	5720.51	4215.00	4182.00
15:03:00	19:50:30	8-0202	-9.76	12535.97	298.2	5720.31	4261.00	4178.00
15:04:00	19:51:30	8-0203	10.99	12546.96	298.1	5720.42	4271.00	4181.00
15:10:00	19:57:30	8-0204	116.26	12663.22	297.9	5720.25	4257.00	4181.00
15:21:00	20:07:30	8-0205	-167.02	12496.20	298.2	5721.32	4205.00	4206.00
15:30:00	20:17:30	8-0206	-836.89	11659.31	298.0	5721.14	4197.00	4207.00
15:40:00	20:27:30	8-0207	518.59	12177.90	297.9	5722.01	4242.00	4191.00
15:50:00	20:37:30	8-0208	-521.83	11656.07	297.0	5722.41	4227.00	4176.00
16:00:00	20:47:30	8-0209	-288.78	11367.29	295.6	5720.65	4230.00	4190.00
16:10:00	20:57:30	8-0210	-310.65	11056.64	294.7	5720.91	4177.00	4241.00

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Lease: GLADDYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
17:00:00	0:00:00	9-0001	12536.69	12536.69	298.2	5707.52	4129.00	4172.00
17:10:00	0:10:00	9-0002	-.38	12536.31	298.2	5707.04	4166.00	4160.00
17:20:00	0:20:00	9-0003	-.27	12536.04	298.2	5706.38	4190.00	4213.00
17:30:00	0:30:00	9-0004	-.76	12535.28	298.4	5706.55	4155.00	4339.00
17:40:00	0:40:00	9-0005	-.27	12535.01	298.3	5706.67	4148.00	4085.00
17:50:00	0:50:00	9-0006	.41	12535.42	298.4	5707.01	4145.00	4265.00
18:00:00	1:00:00	9-0007	-1.27	12534.15	298.1	5706.66	4161.00	4181.00
18:10:00	1:10:00	9-0008	-.05	12534.10	298.3	5706.59	4171.00	4268.00
18:20:00	1:20:00	9-0009	.05	12534.15	298.3	5705.97	4169.00	4256.00
18:30:00	1:30:00	9-0010	-.10	12534.05	298.4	5706.14	4151.00	4207.00
18:40:00	1:40:00	9-0011	-.06	12533.99	298.4	5705.39	4178.00	44214.00
18:50:00	1:50:00	9-0012	-.07	12533.92	298.4	5704.96	4176.00	4239.00
19:00:00	2:00:00	9-0013	-.34	12533.58	298.3	5704.20	4200.00	4198.00
19:10:00	2:10:00	9-0014	.37	12533.95	298.3	5704.61	4179.00	4313.00
19:20:00	2:20:00	9-0015	0.00	12533.95	298.3	5704.87	4196.00	4166.00
19:30:00	2:30:00	9-0016	-.17	12533.78	298.5	5704.95	4160.00	4303.00
19:40:00	2:40:00	9-0017	.02	12533.80	298.3	5704.15	4199.00	4229.00
19:50:00	2:50:00	9-0018	.19	12533.99	298.4	5704.15	4184.00	4278.00
20:00:00	3:00:00	9-0019	-.27	12533.72	298.4	5703.79	4205.00	4213.00
20:10:00	3:10:00	9-0020	-.27	12533.45	298.5	5704.18	4200.00	4305.00
20:20:00	3:20000	9-0021	.16	12533.61	298.4	5703.85	4196.00	44183.00
20:30:00	3:30:00	9-0022	-.34	12533.27	298.4	5702.68	4221.00	4288.00
20:40:00	3:40:00	9-0023	.01	12533.28	298.5	5703.66	4199.00	4207.00
20:50:00	3:50:00	9-0024	-.40	12532.88	298.5	5703.26	4203.00	4225.00
21:00:00	4:00:00	9-0025	.03	12532.91	298.4	5702.99	4177.00	4215.00
21:10:00	4:10:00	9-0026	-.37	12532.54	298.4	5702.94	4233.00	4206.00
21:20:00	4:20:00	9-0027	-.04	12532.50	298.5	5701.61	4260.00	4281.00
21:30:00	4:30:00	9-0028	-.59	12531.91	298.3	5701.32	4238.00	4170.00
21:40:00	4:40:00	9-0029	.89	12532.80	298.3	5703.09	4226.00	4333.00
21:50:00	4:50:00	9-0030	-.01	12532.79	298.3	5702.81	4209.00	4211.00
22:00:00	5:00:00	9-0031	.12	12532.91	298.5	5703.39	4203.00	4292.00
22:10:00	5:10:00	9-0032	-.14	12532.77	298.4	5702.71	4194.00	4111.00
22:20:00	5:20:00	9-0033	.10	12532.87	298.4	5702.89	4192.00	4231.00
22:30:00	5:30:00	9-0034	-.50	12532.37	298.4	5702.58	4206.00	4217.00
22:40:00	5:40:00	9-0035	.21	12532.58	298.3	5702.52	4169.00	4225.00
22:50:00	5:50:00	9-0036	-.05	12532.53	298.3	5702.40	4218.00	4217.00
23:00:00	6:00:00	9-0037	-.18	12532.35	298.	5702.29	4177.00	4243.00
23:10:00	6:10:00	9-0038	.18	12532.53	298.3	5702.10	4220.00	4200.00
23:20:00	6:20:00	9-0039	-.16	12532.37	298.4	5702.05	4201.00	4247.00
23:30:00	6:30:00	9-0040	-.01	12532.36	298.4	5702.10	4205.00	4212.00
23:40:00	6:40:00	9-0041	-.32	12532.04	298.4	5701.51	4192.00	4233.00
23:50:00	6:50:00	9-0042	.20	12532.24	298.4	5701.66	4234.00	4202.00
00:00:00	7:00:00	9-004	-.27	12531.97	298.4	5701.34	4191.00	4299.00
00:10:00	7:10:00	9-0044	-.03	12531.94	298.6	5701.63	4214.00	4189.00
00:20:00	7:20:00	9-0045	-.30	12531.64	298.5	5701.07	4196.00	4261.00
00:30:00	7:30:00	9-0046	.11	12531.75	298.3	5701.24	4205.00	4209.00
00:40:00	7:40:00	9-0047	.11	12531.86	298.4	5701.21	4195.00	4226.00
00:50:00	7:50:00	9-0048	-.22	12531.64	298.3	5701.16	4201.00	4255.00
01:00:00	8:00:00	9-0049	.11	12531.75	298.4	5701.15	4215.00	4204.00
01:10:00	8:10:00	9-0050	-.14	12531.61	298.5	5700.86	4174.00	4223.00
01:20:00	8:20:00	9-0051	.01	12531.62	298.5	5700.77	4228.00	4232.00
01:30:00	8:30:00	9-0052	-.22	12531.40	298.5	5701.07	4185.00	4218.00
01:40:00	8:40:00	9-0053	-.15	12531.25	298.5	5701.10	4202.00	4219.00
01:50:00	8:50:00	9-0054	.03	12531.28	298.5	5700.71	4213.00	4237.00
02:00:00	9:00:00	9-0055	-.02	12531.26	298.3	5700.71	4177.00	4217.00

Lease: GLADDYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLOUT
02:10:00	9:10:00	9-0056	-.18	12531008	298.5	5700.70	4205.00	4212.00
02:20:00	9:20:00	9-0057	-.07	12531.01	298.3	5700.57	4197.00	4250.00
02:30:00	9:30:00	9-0058	-.10	12530.91	298.4	5700.75	4158.00	4212.00
02:40:00	9:40:00	9-0059	.14	12531.05	298.6	5700.42	4179.00	4236.00
02:50:00	9:50:00	9-0060	-.25	12530.80	298.4	5700.38	4191.00	4243.00
03:00:00	10:00:00	9-0061	-.05	12530.75	298.4	5700.50	4163.00	4224.00
03:10:00	10:10:00	9-0062	.04	12530.79	298.3	5700.15	4210.00	4224.00
03:20:00	10:20:00	9-0063	-.22	12530.57	298.4	5700.13	4214.00	4228.00
03:30:00	10:30:00	9-0064	.05	12530.62	298.4	5699.98	4231.00	4231.00
03:40:00	10:40:00	9-0065	-.06	12530.56	29844	5699.86	4189.00	4226.00
03:50:00	10:50:00	9-0066	-.24	12530.32	298.4	5699.62	4216.00	4213.00
04:00:00	11:0:00	9-0067	-.07	12530.25	298.5	5699.56	4201.00	4219.00
04:10:00	11:10:00	9-0068	.03	12530.28	298.4	5699.80	4197.00	4233.00
04:20:00	11:20:00	9-0069	.03	12530.31	298.5	5699.51	4187.00	4229.00
04:30:00	11:30:00	9-0070	.04	12530.35	298.6	5699.54	4228.00	4226.00
04:40:00	11:40:00	9-0071	.07	12530.42	298.4	5699.43	4219.00	4227.00
04:50:00	11:50:00	9-0072	-.31	12530.11	298.5	5699.26	4231.00	4203.00
05:00:00	12:00:00	9-0073	.10	12530.21	298.4	5699.37	4231.00	4215.00
05:10:00	12:10:00	9-0074	-.07	12530.14	298.4	5699.39	4196.00	4253.00
05:20:00	12:20:00	9-0075	-.26	12529.88	298.5	5698.91	4216.00	4190.00
05:30:00	12:30:00	9-0076	-.26	12529.62	298.4	5699.00	4199.00	4232.00
05:40:00	12:40:00	9-0077	.18	12529.80	298.4	5699.01	4209.00	4208.00
05:50:00	12:50:00	9-0078	-.21	12529.59	298.3	5698.55	4211.00	4209.00
06:00:00	13:00:00	9-0079	-.12	12529.47	298.3	5698.6	4213.00	4239.00
06:10:00	13:10:00	9-0080	0.00	12529.47	298.2	5698.44	4202.00	4218.00
06:20:00	13:20:00	9-0081	.07	12529.44	298.5	5698.52	4204.00	4203.00
06:30:00	13:30:00	9-0082	-.22	12529.32	298.4	5698.38	4216.00	4219.00
06:40:00	13:40:00	9-0083	-.10	12529.22	298.4	5698.01	4204.00	4232.00
06:50:00	13:50:00	9-0084	-.04	12529.18	298.4	5697.60	4223.00	4222.00
07:00:00	14:00:00	9-0085	-.13	12529.05	298.4	5697.90	4196.00	4211.00
07:10:00	14:10:00	9-0086	-.15	12528.90	290 4	5697.99	4199.00	4224.00
07:20:00	14:20:00	9-0087	.16	12529.06	298.4	5697.91	4237.00	4229.00
07:30:00	14:30:00	9-0088	-.16	12528.90	298.3	5697.95	4196.00	4214.00
07:40:00	14:40:00	9-0089	-.19	12528.71	298.3	5697.49	4226.00	4208.00
07:50:00	14:5:00	9-0090	-.05	12528.66	298.4	5697.59	4201.00	4220.00
08:00:00	15:00:00	9-0091	-.03	12528.63	298.5	5697.41	4218.00	4247.00
08:10:00	15:10:00	9-0092	-.15	12528.48	298.3	5697.30	4211.00	4202.00
08:20:00	15:20:00	9-0093	-.03	12528.45	298.5	5697.15	4199.00	4215.00
08:30:00	15:30:00	9-0094	-.13	12528.32	298.5	5697.53	4202.00	4220.00
08:40:00	15:40:00	9-0095	-.14	12528.18	298.3	5697.38	4152.00	4213.00
08:50:00	15:50:00	9-0096	.09	12528.27	298.4	5696.78	4188.00	4214.00

Lease: GLADYS McCALL Well #: 1 State: LOU.

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN	FLOUT
09:00:00	0:00:00	10-0001	0	12528.20	12528.20	298.5	5697.00	4188.00	4227.00
09:10:00	0:10:00	10-0002	0	-.22	12527.98	298.5	5697.02	4175.00	4231.00
09:20:00	0:20:00	10-0003	0	.01	12527.99	298.4	5696.02	4189.00	4223.00
09:30:00	0:30:00	10-0004	0	-.31	12527.68	298.4	5696.75	4200.00	2205.00
09:40:00	0:40:00	10-0005	0	-.12	12527.56	298.4	5697.39	4214.00	4219.00
09:50:00	0:50000	10-0006	0	-.08	12527.48	298.4	5696.87	4199.00	4231.00
10:00:00	1:00:00	10-0007	0	.16	12527.64	298.4	5696.78	4212.00	4226.00
10:10:00	1:10:00	10-0008	0	-.04	12527.60	298.5	5696.49	4212.00	4214.00
10:20:00	1:20:00	10-0009	0	-.16	12527.44	298.3	6696.79	4196.00	4216.00
10:30:00	1:30:00	10-0010	0	-.23	12527.21	298.5	5696.41	4216.00	4221.00
10:40:00	1:40:00	10-0011	0	.02	12527.23	298.4	5696.29	4224.00	4227.00
10:50:00	1:50:00	10-0012	0	-.14	12527.09	298.4	5696.31	4187.00	4234.00
11:00:00	2:00:00	10-0013	0	-.07	12527.02	298.4	5696.10	4215.00	4219.00
11:10:00	2:10:00	10-0014	0	.01	12527.03	298.5	5695.89	4206.00	4207.00
11:20:00	2:20:00	10-0015	0	-.13	12526.90	298.4	5695.75	4219.00	4218.00
11:30:00	2:30:00	10-0016	0	-.13	12526.77	298.3	5696.13	4178.00	4226.00
11:40:00	2:40:00	10-0017	0	-.06	12526.71	298.4	5696.01	4195.00	4218.00
11:50:00	2:50:00	10-0018	0	-.18	12526.53	298.4	5695.59	4220.00	4222.00
12:00:00	3:00:00	10-0019	0	.13	12526.66	298.4	5695.82	4217.00	4218.00
12:10:00	3:10:00	10-0020	0	-.18	12526.48	298.4	5695.89	4194.00	4221.00
12:20:00	3:20:00	10-0021	0	-.18	12526.30	298.4	5695.92	4200.00	4218.00
12:30:00	3:30:00	10-0022	0	-.05	12526.25	298.3	5695.45	4195.00	4209.00
12:40:00	3:40:00	10-0023	0	.04	12526.29	298.3	5695.66	4187.00	4220.00
12:50:00	3:50:00	10-0024	0	-.15	12526.14	298.5	5695.50	4199.00	4211.00
13:00:00	4:00:00	10-0025	0	-.10	12526.04	298.4	5695.24	4157.00	4229.00
13:10:00	4:10:30	10-0026	0	-.15	12525.89	298.4	5695.65	4171.00	4223.00
13:20:00	4:20:00	10-0027	0	-.24	12525.65	298.3	5695.34	4178.00	4215.00
13:30:00	4:30:00	10-0028	0	-.20	12525.45	298.4	5695.39	4174.00	4215.00
13:40:00	4:40:00	10-0029	0	.14	12525.59	298.4	5695.43	4188.00	4224.00
13:50:00	4:50:00	10-0030	0	-.35	12525.24	298.4	5695.59	4175.00	4214.00
14:00:00	5:00:00	10-0031	0	.19	12525.43	298.4	5695.11	4192.00	4221.00
14:10:00	5:10:00	10-0032	0	-.41	12525.02	298.3	5694.78	4221.00	4208.00
14:20:00	5:20:00	10-0033	0	.09	12525.11	298.4	5694.23	4198.00	4215.00
14:30:00	5:30:00	10-0034	0	-.12	12524.99	298.3	5694.14	4215.00	4213.00
14:40:00	5:40:00	10-0035	0	-.02	12524.97	298.3	5633.87	4223.00	4236.00
14:50:00	5:50:00	10-0036	0	-.03	12524.94	298.4	5694.39	4219.00	4203.00
15:00:00	6:00:00	10-0037	0	.17	12525.11	298.4	5694.04	4238.00	4204.00
15:10:00	6:10:00	10-0038	0	-.21	12524.90	298.4	5693.93	4190.00	4195.00
15:20:00	6:20:00	10-0039	0	-.28	12524.62	298.4	5694.13	4181.00	4227.00
15:30:00	6:30:00	10-0040	0	-.14	12524.48	298.3	5693.64	4225.00	4237.00
15:40:00	6:40:00	10-0041	0	.01	12524.49	298.4	5693.61	4197.00	4205.00
15:50:00	6:50:00	10-0042	0	.12	12524.61	298.3	5693.57	4217.00	4210.00
16:00:00	7:00:00	10-0043	0	-.30	12524.31	298.3	5693.56	4186.00	4219.00
16:10:00	7:10:00	10-0044	0	-.09	12524.22	298.2	5693.60	4179.00	4220.00
16:20:00	7:20:00	10-0045	0	-.19	12524.03	298.3	5692.94	4216.00	4204.00
16:30:00	7:30:00	10-0046	0	.13	12524.16	298.4	5693.39	4175.00	4211.00
16:40:00	7:40:00	10-0047	0	.06	12524.22	298.3	5693.05	4179.00	4226.00
16:50:00	7:50:00	10-0048	0	-.15	12524.07	298.3	5692.91	4192.00	4232.00
17:00:00	8:00:00	10-0049	0	-.26	12523.81	298.3	5692.71	4223.00	4218.00
17:10:00	8:10:00	10-0050	0	-.36	12523.45	298.4	5692.67	4201.00	4215.00
17:20:00	8:20:00	10-0051	0	.07	12523.52	298.3	5692.76	4208.00	4210.00
17:30:00	8:30:00	10-0052	0	-.01	12523.51	298.3	5693.04	4185.00	4235.00
17:40:00	8:40:00	10-0053	0	-.24	12523.27	298.3	5692.81	4192.00	4210.00
17:50:00	8:50:00	10-0054	0	-.12	12523.15	298.3	5692.54	4182.00	4205.00
18:00:00	9:00:00	10-0055	0	.02	12523.17	298.2	5692.61	4206.00	4231.00

Lease: GLADYS McCALL Well #: 1 State: LOU.

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN	FLOUT
18:10:00	9:10:00	10-0056	0	-.13	12523.04	298.4	5692.13	4209.00	4226.00
18:20:00	9:20:00	10-0057	0	.06	12523.10	298.2	5692.46	4179.00	4207.00
18:30:00	9:30:00	10-0058	0	-.26	12522.84	298.4	5692.23	4191.00	4210.00
18:40:00	9:40:00	10-0059	0	.04	12522.88	298.3	5692.04	4217.00	4233.00
18:50:00	9:50:00	10-0060	0	-.04	12522.84	298.3	5691.75	4212.00	4219.00
19:00:00	10:00:00	10-0061	0	-.15	12522.69	298.4	5691.52	4204.00	4205.00
19:10:00	10:10:00	10-0062	0	-.09	12522.60	298.4	5691.91	4209.00	4223.00
19:20:00	10:20:00	10-0063	0	-.30	12522.30	298.1	5691.70	4212.00	4204.00
19:30:00	10:30:00	10-0064	0	.13	12522.43	298.3	5692.43	4219.00	4217.00
19:40:00	10:40:00	10-0065	0	.02	12522.45	298.2	5692.20	4212.00	4216.00
19:50:00	10:50:00	10-0066	0	-.04	12522.41	298.2	5691.86	4208.00	4191.00
20:00:00	11:00:00	10-0067	0	-.22	12522.19	298.4	5691.93	4191.00	4199.00
20:10:00	11:10:00	10-0068	0	-.07	12522.12	298.4	5691.78	4189.00	4202.00
20:20:00	11:20:00	10-0069	0	-.06	12522.06	298.4	5691.53	4198.00	4199.00
20:30:00	11:30:00	10-0070	0	-.11	12521.95	298.3	5691.38	4186.00	4198.00
20:40:00	11:40:00	10-0071	0	-.02	12521.93	298.2	5690.60	4234.00	4217.00
20:50:00	11:50:00	10-0072	0	-.15	12521.78	298.4	5691.05	4155.00	44216.00
21:00:00	12:00:00	10-0073	0	-.09	12521.69	298.4	5690.36	4213.00	4209.00
21:10:00	12:10:00	10-0074	0	-.22	12521.47	298.4	5690.29	4197.00	4196.00
21:20:00	12:20:00	10-0075	0	.05	12521.52	298.4	5689.84	4169.00	4201.00
21:30:00	12:30:00	10-0076	0	-.21	12521.31	298.3	5688.93	4209.00	4212.00
21:40:00	12:40:00	10-0077	0	.13	12521.44	298.3	5688.93	4208.00	4217.00
21:50:00	12:50:00	10-0078	0	-.29	12521.15	298.3	5688.57	4197.00	4214.00
22:00:00	13:00:00	10-0079	0	-.07	12521.08	298.3	5688.50	4211.00	4187.00
22:10:00	13:10:00	10-0080	0	-.23	12520.85	298.2	5687.93	4219.00	4190.00
22:20:00	13:20:00	10-0081	0	-.03	12520.82	298.3	5687.86	4228.00	4208.00
22:30:00	13:30:00	10-0082	0	-.03	12520.79	298.4	5687.93	4212.00	4207.00
22:40:00	13:40:00	10-0083	0	.15	12520.94	298.2	5687.83	4170.00	4192.00
22:50:00	13:50:00	10-0084	0	-.42	12520.52	298.4	5687.66	4199.00	4196.00
23:00:00	14:00:00	10-0085	0	.04	12520.56	298.5	5687.44	4219.00	4218.00
23:10:00	14:10:00	10-0086	0	-.13	12520.43	298.2	5687.33	4203.00	4202.00
23:20:00	14:20:00	10-0087	0	-.15	12520.28	298.2	5686.84	4238.00	4199.00
23:30:00	14:30:00	10-0088	0	-.20	12520.08	298.4	5686.91	4230.00	4210.00
23:40:00	14:40:00	10-0089	0	.05	12520.13	298.4	5687.11	4216.00	4217.00
23:50:00	14:50:00	10-0090	0	-.30	12519.83	298.1	5687.20	4138.00	4196.00
00:00:00	15:00:00	10-0091	0	-.03	12519.80	298.3	5686.79	4228.00	4207.00
00:10:00	15:10:00	10-0092	0	.06	12119.86	298.2	5686.80	4213.00	4207.00
00:20:00	15:20:00	10-0093	0	-.15	12519.71	298.4	5686.66	4205.00	4205.00
00:30:00	15:30:00	10-0094	0	-.05	12519.66	298.3	5686.76	4230.00	4213.00
00:40:00	15:40:00	10-0095	0	0.00	12519.66	298.3	5686.79	4211.00	4207.00
00:50:00	15:50:00	10-0096	0	-.26	12519.40	298.0	5686.26	4221.00	4207.00
01:00:00	16:00:00	10-0097	0	.03	12519.43	298.4	5686.12	4235.00	4202.00
01:10:00	16:10:00	10-0098	0	-.18	12519.25	298.2	5686.24	4226.00	4203.00
01:20:00	16:20:00	10-0099	0	-.03	12519.22	298.2	5686.17	4237.00	4213.00
01:30:00	16:30:00	10-0100	0	0.00	12519.22	298.3	5686.01	4222.00	4218.00
01:40:00	16:40:00	10-0101	0	-.09	12519.13	298.2	5686.14	4235.00	4183.00
01:50:00	16:50:00	10-0102	0	-.09	12519.04	298.1	5685.61	4225.00	4195.00
02:00:00	17:00:00	10-0103	0	.03	12519.07	298.1	5685.33	4242.00	4221.00
02:10:00	17:10:00	10-0104	0	-.21	12518.86	298.3	5685.66	4189.00	4208.00
02:20:00	17:20:00	10-0105	0	.01	12518.87	298.1	5685.25	4221.00	4201.00
02:30:00	17:30:00	10-0106	0	-.18	12518.69	298.3	5684.90	4233.00	4196.00
02:40:00	17:40:00	10-0107	0	-.03	12518.66	298.1	5684.94	4227.00	4213.00
02:50:00	17:50:00	10-0108	0	-.15	12518.51	298.4	5684.31	4204.00	4217.00
03:00:00	18:00:00	10-0109	0	-.20	12518.31	298.2	5684.29	4196.00	4193.00
03:10:00	18:10:00	10-0110	0	.16	12518.47	298.3	5684.40	4201.00	4199.00
03:20:00	18:20:00	10-0111	0	-.09	12518.38	298.2	5684.30	4218.00	4215.00
03:30:00	18:30:00	10-0112	0	-.21	12518.17	298.2	5683.81	4215.00	4204.00
03:40:00	18:40:00	10-0113	0	.04	12518.21	298.3	5683.75	4208.00	4193.00
03:50:00	18:50:00	10-0114	0	-.10	12518.11	298.3	5683.46	4214.00	4185.00

04:00:00	19:00:00	10-0115	0	-.05	12518.06	298.2	5683.44	4200.00	4212.00
04:10:00	19:10:00	10-0116	0	-.01	12518.05	298.2	5683.31	4197.00	4210.00

Lease: GLADYS McCALL Well #: 1 State: LOU.

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN	FLOUT
04:20:00	19:20:00	10-0117	0	-.19	12517.86	298.1	5683.12	4221.00	4218.00
04:30:00	19:30:00	10-0118	0	-.14	12517.72	298.2	5682.79	4213.00	4194.00
04:40:00	19:40:00	10-0119	0	-.19	12517.53	298.3	5682.76	4199.00	4203.00
04:50:00	19:50:00	10-0120	0	-.14	12517.39	298.2	5682.37	4216.00	4203.00
05:00:00	20:00:00	10-0121	0	-.26	12517.13	298.4	5682.63	4216.00	4207.00
05:10:00	20:10:00	10-0122	0	.26	12517.39	298.3	5682.32	4216.00	4213.00
05:20:00	20:20:00	10-0123	0	-.12	12517.27	29811	5682.71	4188.00	4204.00
05:30:00	20:30:00	10-0124	0	-.23	12517.04	298.1	5682.10	4171.00	4198.00
05:40:00	20:40:00	10-0125	0	.16	12517.20	298.0	5682.06	4189.00	4208.00
05:50:00	20:50:00	10-0126	0	-.29	12516.91	298.3	5682.18	4200.00	4219.00
06:00:00	21:00:00	10-0127	0	.12	12517.03	298.3	5681.87	4197.00	4224.00
06:10:00	21:10:00	10-0128	0	-.17	12516.86	298.3	5682.15	4180.00	4197.00
06:20:00	21:20:00	10-0129	0	-.27	12516539	298.1	5681.56	4176.00	4201.00
06:30:00	21:30:00	10-0130	0	.17	12516.76	298.3	5681.57	4219.00	4210.00
06:40:00	21:40:00	10-0131	0	-.28	12516.48	298.3	5681.19	4197.00	4209.00
06:50:00	21:50:00	10-0132	0	-.08	12516.40	298.3	5681.01	4214.00	4212.00
07:00:00	22:00:00	10-0133	0	.05	12516.45	298.2	5680.80	4198.00	4200.00
07:10:00	22:10:00	10-0134	0	-.12	12516.33	298.1	5611.75	4174.00	4202.00
07:20:00	22:20:00	10-0135	0	-.29	12516.04	298.1	5681.54	4211.00	4206.00
07:30:00	22:30:00	10-0136	0	-.04	12516.00	298.1	5611.70	4189.00	4209.00
07:40:00	22:40:00	10-0137	0	-.23	12515.77	29..2	5681.82	4199.00	4211.00
07:50:00	22:50:00	10-0138	0	.30	12516.07	298.2	5681.55	4213.00	4195.00
08:00:00	23:00:00	10-0139	0	-.32	12515.75	298.3	5681.59	4186.00	4202.00
08:10:00	23:10:00	10-0140	0	0.00	12515.75	298.2	5681.52	4183.00	4204.00
08:00:00	23:20:00	10-0141	0	-.38	12515.37	298.0	5681.83	4161.00	4214.00
08:30:00	23:30:00	10-0142	0	-.13	12515.24	298.2	5681.70	44203.00	4207.00
08:40:00	23:40:00	10-0143	0	-.41	12514.83	298.	5680.80	4189.00	4195.00
08:50:00	23:50:00	10-0144	0	.39	12515.22	298.0	5681.11	4184.00	4193.00
09:00:00	24:00:00	10-0145	0	-.11	12515.11	298.2	5681.76	4213.00	4215.00
09:10:00	24:10:00	10-0146	0	-.14	12514.97	298.2	5681.73	4190.00	4221.00
09:20:00	24:20:00	10-0147	0	-.18	12514.79	298.0	5681.33	4194.00	4188.00
09:30:00	24:30:00	10-0148	0	.08	12514.87	298.3	5681.23	4201.00	4205.00
09:40:00	24:40:00	10-0149	0	-.13	12514.74	298.0	5680.59	4203.00	4194.00
09:50:00	24:50:00	10-0150	0	-.19	12514.55	298.1	5681.41	4217.00	4207.00
10:00:00	25:00:00	10-0151	0	.07	12514.62	298.0	5682.10	4228.00	4203.00
10:10:00	25:10:00	10-0152	0	0.00	12514.62	298.1	5681.56	4214.00	4196.00
10:20:00	25:20:00	10-0153	0	-.25	12514.37	298.2	5682.20	4199.00	419..00
10:30:00	25:30:00	10-0154	0	-.02	12514.35	298.2	5682.11	4192.00	4195.00
10:40:00	25:40:00	10-0155	0	.29	12514.64	298.2	5681.39	4163.00	4209.00
10:50:00	25:50:00	10-0156	0	-.49	12514.15	298.1	5681.53	4187.00	4213.00
11:00:00	26:00:00	10-0157	0	-.38	12513.77	298.1	5681.12	4227.00	4197.00
11:10:00	26:10:00	10-0158	0	.06	12513.83	298.2	5681.72	4170.00	4186.00
11:20:00	26:20:00	10-0159	0	.06	12513.89	298.1	5681.06	4223.00	4198.00
11:30:00	26:30:00	10-0160	0	-.23	12513.66	298.0	5681.79	4199.00	4202.00
11:40:00	226:40:00	10-0161	0	.05	12513.71	298.0	5681.26	4180.00	4209.00
11:50:00	26:50:00	10-0162	0	-.17	12513.54	298.1	5681.33	4218.00	4213.00
12:00:00	27:00:00	10-0163	0	-.07	12513.47	298.1	5681.29	4184.00	4208.00
1:10:00	27:10:00	10-0164	0	0.00	12513.47	298.2	5681.85	4184.00	4194.00
12:20:00	27:20:00	10-0165	0	-.40	12513.07	298.0	5681.28	4193.00	4194.00
12:30:00	27:30:00	10-0166	0	0.00	12513.07	298.1	5681.52	4199.00	4200.00
12:40:00	27:40:00	10-0167	0	.22	12513.29	298.3	5681.30	4186.00	4216.00
12:50:00	27:50:00	10-0168	0	-.31	12512.98	298.0	5681.55	4163.00	4215.00
13:00:00	28:00:00	10-0169	0	-.15	12512.83	298.0	5681.40	4160.00	4168.00

13:10:00	28:10:00	10-0170	0	-.24	12512.59	298.1	5680.98	4172.00	4212.00
13:20:00	28:20:00	10-0171	0	.11	12512.70	298.1	5681.64	4165.00	4216.00
13:30:00	28:30:00	10-0172	0	-.03	12512.67	298.0	5681.67	4193.00	4203.00
13:40:00	28:40:00	10-0173	0	-.25	12512.42	298.0	5681.01	4187.0	4184.00
13:50:00	28:50:00	10-0174	0	-.09	12512.33	298.1	5681.75	4170.00	4195.00
14:00:00	29:00:00	10-0175	0	.07	12512.40	298.1	5681.28	4175.00	4216.00
14:10:00	29:10:00	10-0176	0	-.07	12512.33	298.1	5681.36	4175.00	4203.00
14:20:00	29:20:00	10-0177	0	-.09	12512.24	998.0	5681.33	4176.00	4187.00

Lease: GLADYS McCALL Well #: 1 State: LOU.

Real	Elapse	Rec #	CS	delta	BHP	BHT	WHP	FLO IN	FLOUT
14:30:00	29:30:00	10-0178	0	-.08	12512.16	298.1	5680.84	4154.00	4193.00
14:40:00	29:40:00	10-0179	0	-.28	12511.88	297.9	5681.26	4151.00	4206.00
14:50:00	29:50:00	10-0180	0	.23	12512.11	298.3	5681.06	4177.00	4221.00
15:00:00	30:00:00	10-0181	0	-.18	12511.93	298.1	5681.15	4136.00	4216.00
15:10:00	30:10:00	10-0182	0	-.15	12511.78	298.1	5681.27	4135.00	4188.00
15:20:00	30:20:00	10-0183	0	-.11	12511.67	298.0	5680.81	4180.00	4196.00
15:30:00	30:30:00	10-0184	0	-.06	12511.61	297.9	5680.68	4191.00	4209.00
15:00:00	30:40:00	10-0185	0	-.11	12511.50	298.1	5680.69	4187.00	4204.00
15:50:00	30:50:00	10-0186	0	.08	12511.58	298.2	5680.96	4171.00	4189.00
16:00:00	31:00:00	10-0187	0	-.26	12511.32	298.0	5681.16	4158.00	4188.00
16:10:00	31:10:00	10-0188	0	-.40	12510.92	298.0	5680.27	4180.00	4190.00
16:20:00	31:20:00	10-0189	0	.10	12511.02	297.9	5681.12	4142.00	4206.00
16:30:00	31:30:00	10-0190	0	-.08	12510.94	298.0	5680.26	4156.00	4207.00
16:40:00	31:40:00	10-0191	0	-.11	12510.83	298.0	5679.33	4150.00	4197.00
16:50:00	31:50:00	10-0192	0	-.19	12510.64	298.0	5679.80	4129.00	4187.00
17:00:00	32:00:00	10-0193	0	-.06	12510.58	297.9	5680.09	4154.00	4201.00
17:10:00	32:10:00	10-0194	0	.06	12510.64	297.9	5680.30	4144.00	4198.00
17:20:00	32:20:00	10-0195	0	-.24	12510.40	297.8	5680.41	4170.00	4203.00
17:30:00	32:30:00	10-0196	0	-.25	12510.15	297.8	5680.41	4147.00	4193.00
17:40:00	32:40:00	10-0197	0	-.20	12509.95	297.8	5680.37	4191.00	4200.00
17:50:00	32:50:00	10-0198	0	-.01	12509.94	297.9	5679.80	4185.00	4192.00
18:00:00	33:00:00	10-0199	0	.14	12510.08	297.9	5680.46	4151.00	4195.00
18:10:00	33:10:00	10-0200	0	-.07	12510.01	297.9	5680.42	4195.00	4191.00
18:20:00	33:20:00	10-020	0	-.28	12509.73	297.8	5680.49	4172.00	4192.00
18:30:00	33:30:00	10-0202	0	.07	12509.80	297.7	5680.56	4188.00	4204.00
18:40:00	33:40:00	10-0203	0	0.00	12509.80	298.0	5680.72	4137.00	4225.00
18:50:00	33:50:00	10-0204	0	.10	12509.90	298.0	5680.16	4154.00	4773.00
19:00:00	34:00:00	10-0205	0	-.25	12509.65	297.9	5680.07	4157.00	4170000
19:10:00	34:10:00	10-0206	0	.01	12509666	298.0	5680.14	4133.00	4208.00
19:20:00	34:20:00	10-0207	0	-.35	12509.31	297.8	5679.48	4174.00	4179.00
19:30:00	34:30:00	10-0208	0	-.03	12509.28	297.8	5679.33	4160.00	4195.00
19:40:00	34:40:00	10-0209	0	-.05	12509.23	297.9	5679.02	4202.00	4213.00
19:50:00	34:50:00	10-0210	0	-.13	12509.10	298.0	5679.09	4196.00	4192.00
20:00:00	35:00:00	10-0211	0	.14	12509.24	297.8	5679.29	4149.00	4180.00
20:10:00	35:10:00	10-0212	0	-.35	12508.89	297.7	5678.94	4150.00	4212.00
20:20:00	35:20:00	10-0213	0	-.11	12508.78	297.6	5678.42	4114.00	4208.00
20:30:00	35:30:00	10-0214	0	-.33	12508.45	297.9	5678.34	44191.00	4182.00
20:40:00	35:40:00	10-0215	0	-.09	12508.36	297.7	5677.83	4142.00	4195.00
20:50:00	35:50:00	10-0216	0	.04	12508.40	297.7	5677.71	4161.00	4213.00
21:00:00	36:00:00	10-0217	0	-.19	12508.21	297.7	5677.16	4170.00	4181.00
21:10:00	36:10:00	10-0218	0	.06	12508.27	297.8	5676.77	4134.00	4181.00
21:20:00	36:20:00	10-0219	0	-.04	12508.23	297.8	5676.68	4164.00	4208.00
21:30:00	36:30:00	10-0220	0	.20	13508.43	297.9	5676.95	4175.00	4201.00
21:40:00	36:40:00	10-0221	0	-.42	12508.01	297.8	5676.59	4123.00	4169.00
21:50:00	36:50:00	10-0222	0	-.21	12507.80	297.7	5676.44	4198.00	4211.00
22:00:00	37:00:00	10-0223	0	.22	12508.02	297.8	5676.20	4195.00	4208.00
22:10:00	37:10:00	10-0224	0	-.33	12507.69	297.8	5676.00	4155.00	4175.00

22:20:00	37:20:00	10-0225	0	.09	12507.78	298.0	5676.07	4160.00	4202.00
22:30:00	37:30:00	10-0226	0	-.01	12507.77	297.8	5676.12	4168.00	4210.00
22:40:00	37:40:00	10-0227	0	.15	12507.92	297.8	5676.07	4152.00	4178.00
22:50:00	37:50:00	10-0228	0	-.36	12507.56	297.7	5676.09	4151.00	4189.00
23:00:00	38000:00	10-0229	0	.23	12507.79	297.8	5675.77	4135.00	4193.00
23:10:00	38:10:00	10-0230	0	-.41	12507.38	297.8	5675.73	4141.00	4211.00
23:20:00	38:20:00	10-0231	0	-.27	12507.11	297.8	5675.42	4180.00	4194.00
23:30:00	38:30:00	10-0232	0	.12	12507.23	297.7	5675.70	4143.00	4183.00
23:40:00	38:40:00	10-0233	0	.13	12507.36	298.0	5676.01	4127.00	4211.00
23:50:00	38:50:00	10-0234	0	-.41	12506.95	297.7	5675.54	4143.00	4195.00
00:00:00	39:00:00	10-0232	0	-.12	12506.83	297.7	5675.54	4137.00	4190.00

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Lease: GLADY McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO UUT
00:10:00	0:00:00	11-0001	12506.80	12506.80	297.8	5675.09	4172000	4181.00
00:20:00	0:10:00	11-0002	.18	12506.98	297.8	5674.84	4443.00	4201.00
00:30:00	0:20:00	11-0003	-.24	12506.74	297.8	5674.70	4141.00	4162.00
00:40:00	0:30:00	11-0004	-.21	12506.53	297.6	5675.22	4183.00	4204.00
00:50:00	0:40:00	11-0005	-.19	12506.34	297.5	5675.49	4114.00	4210.00
01:00:00	0:50:00	11-0006	-.25	12506.09	297.7	5675.02	4167.00	4169.00
01:10:00	1:00:00	11-0007	-.13	12505.96	297.8	5674.97	4152.00	4201.00
01:20:00	1:10:00	11-0008	.29	12506.25	297.6	5674.83	4174.00	4209.00
01:30000	1:20:00	11-0009	-.20	12506.05	297.6	5674.13	4156.00	4211.00
01:40:00	1:30:00	11-0010	-.16	12505.89	297.5	5674.21	4099.00	4185.00
01:50:00	1:40:00	11-0011	-.29	12505.60	297.6	5674.55	4122.00	4177.00
02:00:00	1:50:00	11-0012	-.08	12505.52	297.7	5675.47	4141.00	4212.00
02:10:00	2:00:00	11-0013	-.01	12505.51	297.7	5675.42	4154.00	4210.00
02:20:00	2:10:00	11-0014	-.47	12505.04	297.6	5674.71	4115.00	4204.00
02:30:00	2:20:00	11-0015	.43	12505.47	297.6	5673.97	4129.00	4171.00
02:40:00	2:30:00	11-0016	0.00	15505.47	297.8	5673.82	4094000	4198.00
02:50:00	2:40:00	11-0017	-.10	12505.37	297.8	5673.57	4158.00	4212.00
03:00:00	2:50:00	11-0018	-.11	12505.26	297.7	5673.78	4124.00	4174.00
03:10:00	3:00:00	11-0019	-.06	12505.20	297.7	5673.45	4176.00	4192.00
03:20:00	3:10:00	11-0020	-.37	12504.83	297.6	5673.50	4085.00	4215.00
03:30:00	3:20:00	11-0021	-.14	12504.69	297.5	5673.21	4162.00	4168.00
03:40:00	3:30:00	11-0022	.20	12504.89	297.7	5673.60	4118.00	4186.00
03:50:00	3:40:00	11-0023	-.08	12504.81	297.5	5673.31	4168.00	4220.00
04:00:00	3:50:00	11-0024	.05	12504.86	297.5	5672.44	4108.00	4197.00
04:10:00	4:00:00	11-0025	-.36	12504.50	297.5	5672.56	4168.00	4166.00
04:20:00	4:10:00	11-0026	-.20	12504.30	297.4	5675.17	4147.00	4216.00
04:30:00	4:20:00	11-0027	.15	12504.45	297.8	5675.80	4081.00	4178.00
04:40:00	4:30:00	11-0028	-.03	12504.42	297.5	5675.40	4143.00	4204.00
04:50:00	4:40:00	11-0029	0.00	12504.42	297.6	5675.90	4126.00	4203.00
05:00:00	4:50:0	11-0030	-.27	12504.15	297.5	5676.52	4129.00	4888.00
05:10:00	5:00:00	11-0031	-.26	12503.89	297.6	5676.41	4090.00	4185.00
05:20:00	5:10:00	11-0032	.40	12504.29	297.7	5676.51	4100.00	4200.00
05:30:00	5:20:00	11-0033	-.19	12504.10	297.7	5677.02	4059.00	4206.00
05:40:00	5:30:00	11-0034	-.61	12503.49	297.4	5675.85	4131.00	4201.00
05:50:00	5:40:00	11-0035	-.22	12503.27	297.3	5674.72	4122.00	4198.00
06:00:00	5:50:00	11-0036	.50	12503.77	297.4	5674.55	4125.00	4162.00
06:10:00	6:00:00	11-0037	-.36	12503.41	297.4	5674.54	4117.00	4198.00
06:20:00	6:10:00	11-0038	-.53	12502.88	297.3	5674.67	4085.00	4202.00
06:30:00	6:20:00	11-0039	-.10	12502.78	297.4	5673.54	4129.00	4201.00
06:40:00	6:30:00	11-0040	0.00	12502.78	297.5	5672.43	4046.00	4194.00
06:50:00	6:40:00	11-0041	-.03	12502.75	297.4	5673.20	4098.00	4187.00
07:00:00	6:50:00	11-0042	-.02	12502.73	297.5	5672.83	4084.00	4202.00
07:10:00	7:00:00	11-0043	-.29	12502.44	297.4	5773.71	3968.00	4193.00
07:20:00	7:10:00	11-0044	.26	12502.70	29..4	5673.39	4060.00	4208.00
07:30:00	7:20:00	11-0045	.14	12502.84	297.5	5673.51	4095.00	4191.00
07:40:00	7:30:00	11-0046	-.03	12502.81	297.4	5673.87	3954.00	4183.00
07:50:00	7:40:00	11-0047	-.04	12502.77	297.5	5673.60	4038.00	4216.00
08:00:00	7:50:00	11-0048	-.41	12502.36	297.5	5673.12	4172.00	4202.00
08:10:00	8:00:00	11-0049	.19	12502.55	297.4	5673.10	4107.00	4173.00
08:20:00	8:10:00	11-0050	-.45	12502.10	297.6	5673.58	4079.00	4197.00
08:30:00	8:20:00	11-0051	.12	12502.22	297.5	5674.11	4142.00	4205.00
08:40:00	8:30:00	11-0052	.21	12502.43	297.2	5673.80	4084.00	4192.00
08:50:00	8:40:00	11-0053	-.08	12502.35	297.6	5674.08	4070.00	4182.00
09:00:00	8:50:00	11-0054	-.34	12502.01	297.6	5674.04	4055.00	4221.00
09:10:00	9:00:00	11-0055	-.08	12501.93	297.3	5674.05	3982.00	4213.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
09:20:00	9:10:00	11-0056	-.32	12501.61	297.6	5673.93	4143.00	4197.00
09:30:00	9:20:00	11-0057	-.22	12501.39	297.4	5673.25	4103.00	4181.00
09:40:00	9:30:00	11-0058	0.00	12501.39	297.6	5672.63	4083.00	4223.00
09:50:00	9:40:00	11-0059	.04	15501.43	297.5	5673.80	3899.00	4215.00
10:00:00	9:50:00	11-0060	-.26	12501.17	297.4	5674.18	4096.00	4188.00
10:10:00	10:00:00	11-0061	.14	12501.3	297.4	5674.59	4080.00	4180.00
10:20:00	10:10:00	11-0062	-.09	12501.22	297.4	5674.45	4020.00	4218.00
10:30:00	10:20:00	11-0063	-.14	12501.88	297.5	5674.66	3967.00	4191.00
10:40:00	10:30:00	11-0064	-.25	12500.83	297.4	5673.45	4041.00	4177.00
10:50:00	10:40:00	11-0065	-.04	15500.79	297.4	5673.63	4107.00	4198.00
11:00:00	10:50:00	11-0066	-.04	12500.75	297.4	5673.63	3970.00	4225.00
11:10:00	111:00:00	11-0067	-.10	12500.65	297.4	5673.68	4096.00	4179.00
11:20:00	11:10:00	11-0068	.11	12500.76	297.4	5673.44	4089.00	4164.00
11:30:00	11:20:00	11-0069	-.26	12500.50	297.3	5673.75	3976.00	4219.00
11:40:00	11:30:00	11-0070	.08	12500.58	297.4	5673.03	4107.00	4171.00
11:50:00	11:40:00	11-0071	-.15	12500.43	297.6	5672.92	4010.00	4180.00
12:00:00	11:50:00	11-0072	-.15	12500.28	29..5	5672.89	4089.00	4204,00
12:10:00	12:00:00	11-0073	-.23	12500.05	297.4	5672.43	4088.00	4155.00
12:20:00	12:10:00	11-0074	.10	12500.15	297.5	5672.73	4089.00	4187.00
12:30:00	12:20:00	11-0075	-.13	12500.02	297.5	5672.21	4022.00	4266.00
12:40:00	12:30:00	11-0076	.01	12500.03	297.4	5672.15	3958.00	4135.00
12:50:00	12:40:00	11-0077	-.03	12500.00	297.5	5672.25	3977.00	4205.00
13:00:00	12:50:00	11-0078	.16	12500.16	297.6	5672.20	4064.00	4172.00
13:10:00	13:00:00	11-0079	-.48	12499.68	297.4	5672.40	4059.00	4186.00
13:20:00	13:10:00	11-0080	-.08	12499.60	297.4	5672.04	4058.00	4214.00
13:30:00	13:20:00	11-0081	-.06	12499.54	297.4	5672.41	4055.00	4166.00
13:40:00	13:30:00	11-0082	.10	12499.64	297.5	5672.59	4023.00	4215.00
13:50:00	13:40:00	11-0083	-.43	12499.21	297.4	5672.54	4000.00	4192.00
14:00:00	13:50:00	11-0084	.16	12499.37	297.4	5672.37	4081.00	4189.00
14:10:00	14:00:00	11-0085	-.14	12499.23	297.3	5672.64	4081.00	4215.00
14:20:00	14:10:00	11-0086	-.18	12499.05	297.4	5671.86	4115.00	4160.00
14:30:00	14:20:00	11-0087	-.03	12499.02	297.4	5671.66	4080.00	4183.00
14:40000	14:30:00	11-0088	-.17	12498.85	297.4	5672.30	4033.00	4203.00
14:50:00	14:40:00	11-0089	-.06	12498.79	297.4	5672.09	3993.00	4175.00
15:00:00	14:50:00	11-0090	.03	12498.82	297.4	5671.79	4094.00	4198.00
15:10:00	15:00:00	11-0091	-.18	12498.64	297.4	5771,26	4059.00	4180.00
15:20:00	15:10:00	11-0092	-.10	12498.54	297.3	5671.71	4057.00	4184.00
15:30:00	15:20:00	11-0093	-.08	12498.46	297.3	5671.14	4051.00	4214.00
15:40:00	15:30:00	11-0094	.02	12498.48	297.4	5671.35	3982.00	4194.00
15:50:00	15:40:00	11-0095	-.04	12498.44	297.4	5671.27	4068.00	4173.00
16:00:00	15:50:00	11-0096	-.17	12498.27	297.3	5671.17	4110.00	4171.00
16:10:00	16:00:00	11-0097	.05	12498.32	297.4	5671.64	4009.00	4203.00
16:20:00	16:10:00	11-0098	-.21	12498.11	297.4	5671.55	4081.00	4190.00
16:30:00	16:20:00	11-0099	.05	12498.16	297.4	5670.67	4095.00	4169.00
16:40:00	16:30:00	11-0100	-.10	12498.06	297.4	5670.19	4052.00	4220.00
16:50:00	16:40:00	11-0101	-.14	12497.92	297.4	5670.42	4063.00	4152.00
17:00:00	16:50:00	11-0102	-.13	12497.79	297.4	5670.55	4049.00	4215.00
17:10:00	17:00:00	11-0003	.10	12497.89	297.4	5670.72	3901.00	4157.00
17:20:00	17:10:00	11-0104	-.17	12497.72	297.5	5670,90	4009.00	4166.00
17:30:00	17:20:00	11-0105	.04	12497.76	297.3	5670.80	4160.00	4190.00
17:40:00	17:30:00	11-0106	-.28	12497.48	297.5	5670.77	4077.00	4176.00
17:50:00	17:40:00	11-0107	.08	12497.56	297.4	5671.03	4043.00	4213.00
18:00:00	17:50:00	11-0108	-.16	12497.40	297.5	5670.96	4056.00	4182.00
18:10:00	18:00:00	11-0109	-.02	12497.38	297.4	5671.00	4016.00	4197.00
18:20:00	18:10:00	11-0110	-.14	12497.24	297.4	5670.63	4096.00	4175.00
18:30:00	18:20:00	11-0111	-.12	12497.12	297.5	5670.91	4022.00	4202.00
18:40:00	18:30:00	11-0112	.08	12497.20	297.3	5670.61	3938.00	4179.00
18:50:00	18:40:00	11-0113	-.01	12497.19	297.4	5670.19	3993.00	4198.00

19:00:00	18:50:00	11-0114	-.41	12496.78	297.5	5669.53	3823.00	4176.00
19:10:00	19:00:00	11-0115	.10	12496.88	297.4	5670.03	3922.00	4178.00
19:20:00	19:10:00	11-0116	-.22	12496.66	297.5	5669.51	4070.00	4205.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
19:30:00	19:20:00	11-0117	.07	12496.73	297.5	5669.36	33965.00	4182.00
19:40:00	19:30:00	11-0118	.01	12496.74	297.2	5669.29	4077.00	4181.00
19:50:00	19:40:00	11-0119	-.19	12496.55	297.2	5669.19	3908.00	4196.00
20:00:00	19:50:0	11-0120	-.04	12496.51	297.5	5669.31	3829.00	4779.00
20:10:00	20:00:00	11-0121	-.18	12496.33	297.4	5669.16	3990.00	4189.00
20:20:00	20:10:00	11-0122	0.00	12496.33	297.3	5669.45	3975.00	4199.00
20:30:00	20:20:00	11-0123	.03	12496.36	297.4	5669.14	4018.00	4186.00
20:40:00	20:30:00	11-0124	-.33	12496.03	297.3	5669.46	4045.00	4174.00
20:50:00	20:40:00	11-0125	.31	12496.34	297.4	5668.92	4068.00	4184.00
21:00:00	20:50:00	11-0126	-.31	12496.03	297.4	5668.85	4041.00	4192.00
21:10:00	21:00:00	11-0127	.12	12496.15	297.4	5668.65	3991.00	4183.00
21:20:00	21:10:00	11-0128	-.22	12495.93	297.4	5668.56	4072.00	4182.00
21:30:00	21:20:00	11-0129	-.21	12495.72	297.3	5668.65	3845.00	4180.00
21:40:00	21:30:00	11-0130	.09	12495.81	297.4	5668.36	4036.00	4190.00
21:50:00	21:40:00	11-0131	-.16	12495.65	297.4	5668.19	4015.00	4183.00
22:00:00	21:50:00	11-0132	-.09	12495.56	297.4	5668.35	4029.00	4176.00
22:10:00	22:00:00	11-0133	-.05	12495.51	297.4	5668.31	4025.00	4173.00
22:20:00	22:10:00	11-0134	-.04	12495.47	297.4	5668.50	3974.00	4198.00
22:30:00	22:20:00	11-0135	.02	12495.49	297.4	5668.31	3970.00	4195.00
22:40:00	22:30:00	11-0136	-.01	12495.48	297.4	5668.16	3908.00	4168.00
22:50:00	22:40:00	11-0137	-.18	12495.30	297.5	5668.15	3943.00	4179.00
23:00:00	22:50:00	11-0138	-.05	12495.25	297.4	5668.18	4018.00	4189.00
23:10:00	23:00:00	11-0139	.08	12495.33	297.5	5667.89	3913.00	4182.00
23:20:00	23:10:00	11-0140	-.21	12495.12	297.4	5667.64	4014.00	4183.00
23:30:00	23:20:00	11-0141	-.06	12495.06	297.4	5667.76	3974.00	4183.00
23:40:00	23:30:00	11-0142	.03	12495.09	297.4	5668.09	4022.00	4185.00
23:50:00	23:40:00	11-0143	-.10	12494.99	297.3	5667.54	3963.00	4193.00
00:00:00	23:50:00	11-0145	.09	12495.08	297.4	5667.80	3936.00	4172.00
00:10:00	24:00:00	11-0146	-.28	12494.80	297.4	5667.40	4004.00	4183.00
00:20:00	24:10:00	11-0147	-.23	12494.57	297.4	5667.87	3981.00	4180:00
00:30:00	24:20:00	11-0148	-.02	12494.55	297.4	5668.02	4041.00	4201.00
00:40:00	24:30:00	11-0149	-.09	12494.46	297.4	5667.37	3993.00	4192.00
00:50:00	24:40:00	11-0150	.03	12494.49	297.3	5667.64	4018.00	4175.00
01:00:00	24:50:00	11-0151	-.43	12494.06	297.4	5667.89	4020.00	4195.00
01:10:00	25:00:00	11-0152	.12	12494.18	297.5	5667.20	3971.00	4199.00
01:20:00	25:10:00	11-0153	-2.16	12492.02	297.4	5666.91	4020.00	4192.00
01:30:00	25:20:00	11-0154	4.61	12496.63	297.4	5666.82	3969.00	4181.00
01:40:00	25:30:00	11-0155	-3.41	12493.22	297.4	5666.78	3968.00	4186.00
01:50:00	25:40:00	11-0156	.68	12493.90	297.4	5666.93	4002.00	4178.00
02:00:00	25:50:00	11-0157	.38	12494.28	297.4	5666.95	3977.00	4198.00
02:10:00	26:00:00	11-0158	-.39	12493.89	297.5	5666.85	4064.00	4191.00
02:20:00	26:10:00	11-0159	-.31	12493.58	297.4	5666.49	4040.00	4187.00
02:30:00	26:20:00	11-0160	-.01	12493.57	297.5	5666.73	4055.00	4160.00
02:40:00	26:30:00	11-0161	-.01	12493.56	297.4	5665.93	3924.00	4189.00
02:50:00	26:40:00	11-0162	.05	12493.61	297.4	5666.20	4016.00	4204.00
03:00:00	26:50:00	11-0163	-.96	12492.65	297.4	5665.86	4025.00	4174.00
03:10:00	27:00:00	11-0164	.68	12493.33	297.4	5666.08	4007.00	4174.00
03:20:00	27:10:00	11-0165	-.16	12493.17	297.4	5665.77	3937.00	4193.00
03:30:00	27:20:00	11-0166	.04	12493.21	297.4	55665.89	4026.00	4184.00
03:40:00	27:30:00	11-0167	-.13	12493.08	297.4	5665.64	4020.00	4169.00
03:50:00	27:40:00	11-0168	-.10	12492.98	297.4	5665.78	4025.00	4168.00
04:00:00	27:50:00	11-0169	.04	12493.02	297.4	5665.62	4032.00	4209.00

04:10:00	28:00:00	11-0170	-.18	12492.84	297.4	5665.73	4030.00	4178.00
04:20:00	28:10:00	11-0171	-.03	12492.81	297.4	5665.56	3994.00	4184.00
04:30:00	28:20:00	11-0172	.03	12492.84	297.5	5665.59	4019.00	4185.00
04:40:00	28:30:00	11-0173	-.09	12492.75	297.5	5665.31	4022.00	4197.00
04:50:00	28:40:00	11-0174	-.13	12492.22	297.4	5665.12	4053.00	4186.00
05:00:00	28:50:00	11-0175	-.08	12492.54	297.5	5664.87	4034.00	4161.00
05:10:00	29:00:00	11-0176	-.09	12492.45	297.6	5665.01	4042.00	4184.00
05:20:00	29:10:00	11-0177	-.15	12492.30	297.4	5664.98	4021.00	4186.00
05:30:00	29:20:00	11-0178	.08	12492.38	297.3	5665.15	4066.00	4187.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
05:40:00	29:30:00	11-0179	-1.11	12491.27	297.6	5664.83	4007.00	4186.00
05:50:00	29:40:00	11-0180	-3.36	12487.91	297.4	5664.67	4021.00	4191.00
06:00:00	29:50:00	11-0181	-166.80	12321.11	297.4	5664.72	4043.00	4194.00
06:10:00	30:00:00	11-0182	170.87	12491.98	297.4	5664.53	4066.00	4192.00
06:20:00	30:10:00	11-0183	-.13	12491.85	297.4	5664.84	4100.00	4173.00
06:30:00	30:20:00	11-0184	.13	12491.98	297.3	5664.36	4029.00	4174.00
06:40:00	30:30:00	11-0185	-.03	12491.95	297.6	5664.19	4039.00	4181.00
06:50:00	30:40:00	11-0186	-.10	12491.85	297.4	5664.24	4042.00	4212.00
07:00:00	30:50:00	11-0187	-.06	12491.79	297.4	5664.14	4061.00	4176.00
07:10:00	31:00:00	11-0188	-.62	22491.17	297.4	5664.03	4016.00	4170.00
07:20:00	31:10:00	11-0189	-798.62	11692.55	297.4	5664.06	3976.00	4175.00
07:25:30	31:15:30	11-0190	796.38	12488.93	297.4	5663.85	3926.00	4184.00
07:30:00	31:20:00	11-0191	2.45	12491.38	297.4	5663.77	3943.00	4207.00
07:40:00	31:30:00	11-0192	.01	12491.39	297.4	5663.94	3951.00	4202.00
07:50:00	31:40:00	11-0193	-.07	12491.32	297.4	5664.21	3949.00	4194.00
08:00:00	31:50:00	11-0194	-.09	12991.23	297.5	5663.86	3996.00	4173.00
08:10:00	32:00:00	11-0195	.04	12491.27	297.5	5664.17	4008.00	4188.00
08:20:00	32:10:00	11-0196	-.21	14491.06	297.3	5663.86	4005.00	4203.00
08:30:00	32:20:00	11-0197	.07	12491.13	297.4	5663.95	4051.00	4183.00
08:40:00	32:30:00	11-0198	-.10	12491.03	297.5	5663.36	4097.00	4170.00
08:50:00	32:40:00	11-0199	-.09	12490.94	297.4	5663.23	4085.00	4174.00
09:00:00	32:50:00	11-0200	-.55	12490.39	297.4	5663.47	4036.00	4207.00
09:10:00	33:00:00	11-0201	.38	12490.77	297.5	5663.15	4026.00	4181.00
09:20:00	33:10:00	11-0202	-30.57	12460.20	297.5	5663.24	4045.00	4171.00
09:30:00	33:20:00	11-0203	23.52	12483.72	297.4	5663.49	4088.00	4187.00
09:40:00	33:30:00	11-0204	4.57	12488.29	297.4	5662.67	4050.00	4195.00
09:43:10	33:33:10	11-0206	1.53	12489.82	270.6	5661.83	3982.00	4205.00
09:43:20	33:33:20	11-0207	.15	12489.97	270.6	5662.40	3971.00	4209.00
SET REAL TIME								
10:00:00	33:50:00	11-0209	-.91	12489.06	270.6	5663.52	3908.00	4169.00
10:10:00	34:00:00	11-0210	.72	12489.78	270.6	5663.33	3957.00	4172.00
10:20:00	34:10:00	11-0211	-.10	12489.68	270.5	5662.96	4002.00	4183.00
10:30:00	34:20:00	11-0212	-.06	12489.62	270.6	5663.06	4040.00	4197.00
10:40:00	34:30:00	11-0213	-.07	12489.55	270.5	5662.76	4032.00	4176.00
10:50:00	34:40:00	11-0214	-.13	12489.42	270.5	5662.65	4040.00	4172.00
11:00:00	34:50:00	11-0215	0.00	12489.42	270.7	5662.45	4041.00	4200.00
11:10:00	35:00:00	11-0216	-.32	12489.10	270.5	5662.60	4028.00	4229.00
11:20:00	35:10:00	11-0217	.08	12489.18	270.7	5662.50	4027.00	4161.00
11:30:00	35:20:00	11-0218	0.00	12489.18	270.6	5662.54	4040.00	4174.00
11:40:00	35:30:00	11-0219	-.02	12489.16	270.6	5662.26	4017.00	4207.00
11:50:00	35:40:00	11-0220	-.11	12489.05	270.7	5662.33	4036.00	4183.00
12:00:00	35:50:00	11-0221	-.10	12488.95	270.7	5662.34	4040.00	4164.00
12:10:00	36:00:00	11-0222	-5.69	12483.26	270.7	5662.61	4012.00	4204.00
12:20:00	36:10:00	11-0223	5.21	12488.47	270.6	5662.15	4036.00	4185.00

12:30:00	36:20:00	11-0224	.24	12488.71	270.6	5662.19	4025.00	4181.00
12:40:00	36:30:00	11-0225	-.16	12488.55	270.5	5662.01	4046.00	4199.00
12:50:00	36:40:00	11-0226	.02	12488.57	270.5	5662.03	4051.00	4185.00
13:00:00	36:50:00	11-0227	-.21	12488.36	270.7	5661.83	3938.00	4177.00
13:10:00	37:00:00	11-0228	-.67	12487.69	270.6	5661.77	4011.00	4179.00
13:20:00	37:10:00	11-0229	.53	12488.22	270.5	5661.54	3997.00	4204.00
13:30:00	37:20:00	11-0230	.03	12488.25	270.5	5661.71	3980.00	4186.00
13:40:00	37:30:00	11-0231	.04	12488.29	270.7	5661.57	3973.00	4180.00
13:50:00	37:40:00	11-0232	-.09	12488.20	270.5	5661.92	3989.00	4202.00
14:00:00	37:50:00	11-0233	-2.20	12486.00	270.6	5661.59	4018.00	4211.00
14:10:00	38:00:00	11-0234	2.87	12488.87	270.5	5661.47	4019.00	4167.00
14:20:00	38:10:00	11-0235	-115.74	12373.13	270.5	5661.29	4037.00	4178.00
14:30:00	38:20:00	11-0236	108.50	12481.63	270.6	5661.20	4049.00	4200.00
14:40:00	38:30:00	11-0237	3.86	12485.49	270.6	5661.38	4047.00	4185.00
14:50:00	38:40:00	11-0238	-4.92	12480.57	270.5	5661.23	4039.00	4170.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
15:00:00	38:50:00	11-0239	-123.07	12347.50	270.6	5661.19	3977.00	4161.00
15:10:00	39:00:00	11-0240	122.73	12470.23	270.6	5661.37	4021.00	4207.00
15:20:00	39:10:00	11-0241	16.13	12486.36	270.7	5660.97	4040.00	4183.00
15:30:00	39:20:00	11-0242	-2.12	12484.24	270.6	5661.12	4037.00	4154.00
15:40:00	39:30:00	11-0243	2.16	12486.40	270.7	5660.79	4012.00	4202.00
15:50:00	39:40:00	11-0244	.73	12487.13	270.7	5660.44	3997.00	4178.00
16:00:00	39:50:00	11-0245	-1.95	12485.18	270.7	5659.15	4029.00	4178.00
16:10:00	40:00:00	11-0246	2.78	12487.96	270.5	5658.98	3993.00	4188.00
16:20:00	40:10:00	11-0247	-7.52	12480.44	270.7	5659.36	4003.00	4184.00
16:30:00	40:20:00	11-0248	-1.84	12478.60	270.6	5659.58	3974.00	4189.00
16:40:00	40:30:00	11-0249	1.37	12479.97	270.7	5658.57	3988.00	4180.00
16:50:00	40:40:00	11-0250	5.91	12485.88	270.7	5659.47	3919.00	4190.00
17:00:00	40:50:00	11-0251	-2.32	12483.56	270.7	5659.23	4000.00	4181.00
17:10:00	41:00:00	11-0252	103.65	12587.21	297.8	5658.13	3977.00	4174.00

BOTTOM HOLE GUAGE IS OFF

17:20:00	41:10:00	11-0254	-.98	12586.23	297.8	5657.83	3985.00	4190.00
17:30:00	41:20:00	11-0255	.17	12586.40	297.7	5658.34	3988.00	4188.00
17:40:00	41:30:00	11-0256	-1.17	12585.23	297.9	5659.22	3980.00	4189.00
17:50:00	41:40:00	11-0257	-.59	12584.64	297.9	5660.43	3979.00	4180.00
18:00:00	41:50:00	11-0258	.13	12584.77	297.7	5659.61	3965.00	4181.00
18:10:00	42:00:00	11-0259	-.79	12583.98	297.9	5658.23	4005.00	4179.00
18:20:00	42:10:00	11-0260	-.82	12583.16	297.8	5658.43	3981.00	4176.00
18:30:00	42:20:00	11-0261	-103.28	12479.88	297.9	5659.28	3976.00	4186.00
18:40:00	42:30:00	11-0262	3.02	12482.90	297.8	5657.83	3942.00	4193.00
18:50:00	42:40:00	11-0263	-2.62	12480.28	297.9	5657.76	3945.00	4186.00
19:00:00	42:50:00	11-0264	1.67	12481.9	297.9	5658.25	3945.00	4166.00
19:10:00	43:00:00	11-0265	-1.17	12480.78	297.8	5658.71	3930.00	4193.00
19:20:00	43:10:00	11-0266	1.89	12482.67	297.9	5660.89	3933.00	4194.00
19:30:00	43:20:00	11-0267	-1.81	12480.86	297.9	5658.59	3967.00	4169.00
19:40:00	43:30:00	11-0268	.28	12481.14	297.8	5658.42	3966.00	4175.00
19:50:00	43:40:00	11-0269	-1.79	12479.35	297.9	5658.33	3967.00	4196.00
20:00:00	43:50:00	11-0270	1.88	12481.23	298.0	5657.80	3921.00	4169.00
20:10:00	44:00:00	11-0271	1.20	12482.43	297.8	5657.25	3921.00	4171.00
20:20:00	44:10:00	11-0272	-1.30	12481.13	297.9	5656.10	3929.00	4223.00
20:30:00	44:20:00	11-0273	.81	12481.94	297.8	5657.36	3950.00	4170.00
20:40:00	44:30:00	11-0274	-2.18	12479.76	277.1	5658.11	3942.00	4170.00
20:50:00	44:40:00	11-0275	-.87	12478.89	297.9	5659.33	3930.00	4207.00
21:00:00	44:50:00	11-0276	2.77	12481.66	297.8	5658.24	3941.00	4175.00

21:10:00	45:00:00	11-0277	-2.26	12479.40	297.9	5656.80	3952.00	4189.00
21:20:00	45:10:00	11-0278	-4.83	12474.57	297.8	5657.77	3945.00	4198.00
21:30:00	45:20:00	11-0279	4.19	12478.76	297.7	5657.73	3947.00	4175.0
21:40:00	45:30:00	11-0280	.92	12479.68	297.9	5659.67	3936.00	4182.00
21:50:00	45:40:00	11-0281	-3.26	12476.42	297.9	5659.42	3937.00	4193.00
22:00:00	45:50:00	11-0282	3.03	12479.45	297.8	5657.55	3914.00	4203.00
22:10:00	46:00:00	11-0283	-1.26	12478.19	297.7	5656.26	3966.00	4182.00

PULLING TOOL OUT OF HOLE

22:20:00	46:10:00	11-0285	2.16	12480.35	297.8	5658.15	3941.00	4176.00
22:30:00	46:20:00	11-0286	-49.42	12430.93	297.8	5658.88	3924.00	4202.00
22:40:00	46:30:00	11-0287	-121.82	12309.11	297.7	5659.19	3950.00	4188.00
22:50:00	46:40:00	11-0288	-232.54	12076.57	297.3	5659.52	3971.00	4164.00
23:00:00	46:50:00	11-0289	-285.88	11790.69	296.5	5659.32	3990.00	4160.00
23:10:00	47:00:00	11-0290	-361.28	11429.41	295.6	5658.71	3970.00	4210.00
23:20:00	47:10:00	11-0291	-594.50	10834.91	293.0	5659.31	4004.00	4172.00
23:30:00	47:20:00	11-0292	-776.45	10058.46	288.5	5659.90	3994.00	4197.00
23:40:00	47:30:00	11-0293	-964.47	9093.99	280.9	5659.91	3963.00	4195.00
23:50:00	47:40:00	11-0294	-1048.93	8045.06	270.9	5659.92	3969.00	4211.00
00:00:00	47:50:00	11-0295	-1104.77	6940.29	258.6	5659.19	3963.00	4171.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
00:10:00	48:00:00	11-0296	-1019.66	5920.43	245.9	5657.97	3930.00	4189.00
00:20:00	48:10:00	11-0297	-193.66	5726.77	136.5	5663.61	3906.00	4118.00
00:30:00	48:20:00	11-0298	-4042.95	1683.82	82.9	5658.39	3954.00	4223.00
00:40:00	48:30:00	11-0299	-1470.65	213.17	71.7	5658.33	3952.00	4234.00
00:50:00	48:40:00	11-0300	-134.87	78.30	71.4	5658.13	3947.00	4173.00
01:00:00	48:50:00	11-0301	0.00	78.30	71.4	5661.25	3962.00	4165.00
01:10:00	49:00:00	11-0302	-3930.10	-3851.80	71.4	5660.70	3970.00	4215.00
01:20:00	49:10:00	11-0303	0.00	-3851.80	71.4	5659.89	3954.00	4212.00
01:30:00	49:20:00	11-0304	3865.95	14.15	72.4	5657.22	3970.00	4174.00
01:40:00	49:30:00	11-0305	2.51	16.66	72.2	5658.19	3869.00	4217.00
01:50:00	49:40:00	11-0306	-2.22	14.44	71.7	5657.79	3961.00	4191.00
02:00:00	49:50:00	11-0307	.02	14.46	71.6	5657.98	3946.00	4163.00
02:10:00	50:00:00	11-0308	.22	14.68	71.7	5658.94	4003.00	4210.00
02:20:00	50:10:00	11-0309	.27	14.95	72.3	5658.35	3967.00	4218.00
02:30:00	50:20:00	11-0310	-.23	14.72	72.4	5659.55	3937.00	4187.00
02:40:00	50:30:00	11-0311	-.73	13.99	72.4	5659.06	3960.00	4191.00
02:50:00	50:40:00	11-0312	5645.87	5659.86	89.2	5657.90	3965.00	4220.00

SET REAL TIME

03:10:00	51:00:00	11-0315	68.32	5728.18	238.0	5657.55	3991.00	4193.00
03:20:00	51:10:00	11-0316	285.67	6013.85	245.8	5657.56	4002.00	4207.00
03:30:00	51:20:00	11-0317	994.44	7008.39	254.4	5657.53	3858.00	4211.00
03:40:00	51:30:00	11-0318	1133.33	8141.72	266.3	5653.68	3855.00	4170.00
03:50:00	51:40:00	11-0319	1286.83	9428.55	277.5	5654.33	3989.00	4186.00
04:00:00	51:50:00	11-0320	1476.65	10905.20	287.2	5652.50	4207.00	4230.00
04:10:00	52:00:00	11-0321	1610.67	12515.87	294.9	5652.16	4204.00	4198.00
04:20:00	52:10:00	11-0322	94.86	12610.73	300.0	5651.25	4190.00	4176.00
04:30:00	52:20:00	11-0323	-256.84	12353.89	303.2	5651.22	4203.00	4239.00

SET REAL TIME

05:30:00	53:20:00	11-0330	115.78	12469.67	298.0	5655.39	4279.00	4157.00
05:40:00	53:40:00	11-0332	-.38	12468.89	298.0	5655.88	4276.00	4224.00

06:00:00	53:50:00	11-0334	2.17	12470.79	298.0	5655.46	4259.00	4224.00
06:10:00	54:00:00	11-0335	-.78	12470.01	297.9	5654.38	4255.00	4151.00
06:20:00	54:10:00	11-0338	-1.11	12468.90	297.9	5653.91	4229.00	4243.00
06:30:00	54:20:00	11-0339	.25	12469.15	298.0	5656.14	4198.00	4167.00

SET REAL TIME

06:50:00	54:40:00	11-0342	-.55	12468.60	298.0	5654.55	4154.00	4233.00

SET REAL TIME

07:00:00	54:50:00	11-0345	.96	12469.56	297.8	5655.68	4176.00	4178.00
07:10:00	55:0:00	11-0346	91.91	12561.47	298.0	5655.36	4209.00	4183.00
07:20:00	55:10:00	11-0347	-493.00	12068.47	276.3	5653.65	44187.00	4240.00
07:30:00	55:20:00	11-0348	0.00	12068.47	276.3	5654.51	4186.00	4178.00

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	ddelta	BHP	WHP
17:30:00	0:00:00	12-0001	0	12461.09	12461.09	5651.64
17:40:00	0:10:00	12-0002	0	-1.69	12459.40	5650.02
17:50:00	0:20:00	12-0003	0	-.71	12458.69	5651.04
18:00:00	0:30:00	12-0004	0	.69	12459.38	5650.38
18:10:00	0:40:00	12-0005	0	-.14	12459.24	5650.62
18:20:00	0550:00	12-0006	0	-.78	12458.46	5650.52
18:30:00	1:00:00	12-0007	0	.46	12458.92	5650.55
18:40:00	1:10:00	12-0008	0	1.14	12460.06	5650.54
18:50:00	1:20:00	12-0009	0	-1.43	12458.63	5650.60
19:00:00	1:30:00	12-0010	0	007	12458.70	5648.91
19:10:00	1:40:00	12-0011	0	.47	12459.17	5651.12
19:20:00	1:50:00	12-0012	0	-.91	12458.26	5651.54
19:30:00	2:00:00	12-0013	0	1.97	12460.23	5650.05
19:40:00	2:10:00	12-0014	0	-.42	12459.81	5646.32
19:50:00	2:20:00	12-0015	0	-1.74	12458.07	5648.64
20:00:00	2:30:00	12-0016	0	.15	12458.22	5648.57
20:10:00	2:40:00	12-0017	0	-1.26	12456.96	5649.32
20:12:00	2:42:00	12-0018	0	5.68	12462.64	5647.90
20:13:00	2:43:00	12-0019	0	.41	12463.05	5648.62
20:14:00	2:44:00	12-0020	0	.14	12463.19	5650.50
20:15:00	2:45:00	12-0021	0	-.58	12462.61	5648.68
20:16:00	2:46:00	12-0022	0	-4.18	12458.43	5648.22
20:17:00	2:47:00	12-0023	0	3.02	12461.45	5649.23
20:18:00	2:48:00	12-0024	0	-6.70	12454.75	5648.56
20:19:00	2:49:00	12-0025	0	.24	12454.99	5648.60
20:20:00	2:50:00	12-0026	0	3.35	12458.34	5649.71
20:21:00	2:51:00	12-0027	0	-.07	12458.27	5648.18
20:22:00	2:52:00	12-0028	0	.41	12458.68	5649.07
20:23:00	2:53:00	12-0029	0	.92	12459.60	5647.06
20:24:00	2:54:00	12-0030	0	6.31	12465.91	5648.97
20:25:00	2:55:00	12-0031	0	-2.16	12463.75	5647.67
20:26:00	2:56:00	12-0032	0	.81	12464.56	5647.23
20:27:00	2:57:00	12-0033	0	.19	12464.75	5647.97
20:28:00	2:58:00	12-0034	0	.37	12465.12	5651.03
20:29:00	2:59:00	12-0035	0	-1.39	12463.73	5647.55
20:30:00	3:00:00	12-0036	0	.19	12463.92	5648.49
20:31:00	3:01:00	12-0037	0	-.05	12463.87	5651.87
20:32:00	3:02:00	12-0038	0	.08	12463.95	5647.47
20:33:00	3:03:00	12-0039	0	.36	12464.31	5648.01
20:34:00	3:04:00	12-0040	0	.34	12464.65	5647.97
20:35:00	3:05:00	12-0041	0	.33	12464.98	5648.31
20:36:00	3:06:00	12-0042	0	.86	12465.84	5647.90
20:37:00	3:07:00	12-0043	0	-2.00	12463.84	5646.67
20:38:00	3:08:00	12-0044	0	1.83	12465.67	5648.24
20:39:00	3:09:00	12-0045	0	.35	12466.02	5648.78
20:40:00	3:10:00	12-0046	0	.23	12466.25	5651.66
20:41:00	3:11:00	12-0047	0	-2.07	12464.18	5648.68
20:42:00	3:12:00	12-0048	0	.26	12464.44	5647.30
20:43:00	3:13:00	12-0049	0	.12	12464.56	5649.91
20:44:00	3:14:00	12-0050	0	.31	12464.87	5648.04
20:45:00	3:15:00	12-0051	0	-.22	12464.65	5648.42
20:46:00	3:16:00	12-0052	0	-.28	12464.37	5647.89
20:47:00	3:17:00	12-0053	0	-1.63	12462.74	5647.07
20:48:00	3:18:00	12-0054	0	2.87	12465.61	5647.80
20:49:00	3:19:00	12-0055	0	-1.24	12464.37	5647.02

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
20:50:00	3:20:00	12-0056	0	.59	12464.96	5650.62
20:51:00	3:21:00	12-005	0	-.42	12464.54	5648.47
20:52:00	3:22:00	12-0058	0	-.82	12463.72	5648.45
20:53:00	3:23:00	12-0059	0	-5.23	12458.49	5649.68
20:54:00	3:24:00	12-0060	0	-1.52	12456.97	5647.98
20:55:00	3:25:00	12-0061	0	.89	12457.86	5650.03
20:56:00	3:26:00	12-0062	0	.85	12458.71	5650.31
20:57:00	3:27:00	12-0063	0	-.22	12458.49	5645.95
20:58:00	3:28:00	12-0064	0	-.64	12457.85	5649.91
20:59:00	3:29:00	12-0065	0	-1.43	12456.42	5645.93
21:00:00	3:30:00	12-0066	0	.27	12456.69	5648.21
21:01:00	3:31:00	12-0067	0	.46	12457.15	5649.22
21:02:00	3:32:00	12-0068	0	-.34	12456.81	5647.23
21:03:00	3:33:00	12-0069	0	1.24	12458.05	5645.75
21:04:00	3:34:00	12-0070	0	-1.75	12456.30	5647.29
21:05:00	3:35:00	12-0071	0	.85	12457.15	5647.28
21:06:00	3:36:00	12-0072	0	.22	12457.37	5646.54
21:07:00	3:37:00	12-0773	0	-.33	12457.04	5647.82
21:08:00	3:38:00	12-0074	0	-.82	12456.22	5647.00
21:09:00	3:39:00	12-0075	0	3.69	12459.91	5646.66
21:10:00	3:40:00	12-0076	0	-3.44	12456.47	5646.10
21:11:00	3:41:00	12-0077	0	2.38	12458.85	5647.24
21:12:00	3:42:00	12-0078	0	.45	12459.30	5651.11
21:13:00	3:43:00	12-0079	0	-.79	12458.51	5648.39
21:14:00	3:44:00	12-0080	0	-1.61	12456.90	5649.95
21:15:00	3:45:00	12-0081	0	1.59	12458.49	5648.95
21:16:00	3:46:00	12-0082	0	-.31	12458.18	5648.04
21:17:00	3:47:00	12-0083	0	-.81	12457.37	5649.04
21:18:00	3:48:00	12-0084	0	15.49	12472.86	5647.00
21:19:00	3:49:00	12-0085	0	-.34	12472.52	5648.52
21:20:00	3:50:00	12-0086	0	-.23	12472.29	5647.74
21:21:00	3:51:00	12-0087	0	-.22	12472.07	5649.25
21:22:00	3:52:00	12-0088	0	.57	12472.64	5648.47
21:23:00	3:53:00	12-0089	0	-.06	12472.58	5647.00
21:24:00	3:54:00	12-0090	0	-.20	12472.38	5646.93
21:25:00	3:55:00	12-0091	0	.32	12472.70	5648.08
21:26:00	3:56:00	12-009	0	-.75	12471.95	5647.61
21:27:00	3:57:00	12-0093	0	1.19	12473.14	5647.37
21:28:00	3:58:00	12-0094	0	-.27	12472.87	5644.52
21:29:00	3:59:00	12-0095	0	.35	12473.22	5646.79
21:30:00	4:00:00	12-0096	0	.18	12473.40	5646.32
21:31:00	4:01:00	12-0097	0	-.70	12472.70	5648.19
21:32:00	4:02:00	12-0098	0	.41	12473.11	5648.11
21:33:00	4:03:00	12-0099	0	-.66	12472.45	5647.15
21:34:00	4:04:00	12-0100	0	-.14	12472.31	5645.54
21:35:00	4:05:00	12-0101	0	.34	12472.65	5645.12
21:36:00	4:06:00	12-0102	0	.40	12473.05	5645.44
21:37:00	4:07:00	12-0103	0	-.83	12472.22	5645.22
21:38:00	4:08:00	12-0104	0	-.33	12471.89	5645.89
21:39:00	4:09:00	12-0105	0	1.24	12473.13	5647.43
21:40:00	4:10:00	12-0106	0	-.41	12472.72	5648.73
21:41:00	4:11:00	12-0107	0	.03	12472.75	5646.12
21:42:00	4:12:00	12-0108	0	.49	12473.24	5647.38
21:43:00	4:13:00	12-0109	0	-.60	12472.64	5646.38
21:44:00	4:14:00	12-0110	0	-.79	12471.85	5648.68
21:45:00	4:15:00	1200111	0	1.22	12473.07	5647.69
21:46:00	4:16:00	12-0112	0	.31	12473.38	5647.19
21:47:00	4:17:00	12-0113	0	.25	12473.63	5646.27
21:48:00	4:18:00	12-0114	0	-.66	12472.97	5646.54
21:49:00	4:19:00	12-0115	0	-.09	12472.88	5648.12

21:50:00	4:20:00	12-0116	0	-.10	12472.78	5648.04

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
21:51:00	4:21:00	12-0117	0	.65	12473.43	5646.78
21:52:00	4:22:00	12-0118	0	-1.17	12472.26	5646.93
21:53:00	4:23:00	12-0119	0	.12	12472.38	5647.02
21:54:00	4:24:00	12-0120	0	-.19	12472.19	5649.07
21:55:00	4:25:00	12-0121	0	-.15	12472.04	5645.59
21:56:00	4:26:00	12-0122	0	0.00	12472.04	5646.25
21:57:00	4:27:00	12-0123	0	.08	12472.12	5646.60
21:58:00	4:28:00	12-0124	0	.70	12472.82	5647.50
21:59:00	4:29:00	12-0125	0	-.69	12472.13	5647.02
22:00:00	4:30:00	12-0126	0	.15	12472.28	5646.88
22:01:00	4:31:00	12-0127	0	.38	12472.66	5648.78
22:02:00	4:32:00	12-0128	0	-.61	12472.05	5646.54
22:03:00	4:33:00	12-0129	0	.60	12472.65	5647.01
22:04:00	4:34:00	12-0130	0	-.08	12472.57	5646.61
22:05:00	4:35:00	12-0131	0	-.41	12472.16	5647.08
22:06:00	4:36:00	12-0132	0	.18	12472.34	5648.22
22:07:00	4:37:00	12-0133	0	.38	12472.72	5648.44
22:08:00	4:38:00	12-0134	0	.20	12472.92	5646.53
22:09:00	4:39:00	12-0135	0	-.66	12472.26	5647.06
22:10:00	4:40:00	12-0136	0	1.47	12473.73	5647.09
22:11:00	4:41:00	12-0137	0	.11	12473.84	5647.72
22:12:00	4:42:00	12-013	0	-1.14	12472.70	5649.27
22:13:00	4:43:00	12-0139	0	.64	12473.34	5648.13
22:14:00	4:44:00	12-0140	0	-.72	12472.62	5646.95
22:15:00	4:45:00	12-0141	0	.47	12473.09	5648.47
2:16:00	4:46:00	12-0142	0	-.72	12472.37	5647.41
22:17000	4:47:00	12-0143	0	-.10	12472.27	5647.89
22:18:00	4:48:00	12-0144	0	.33	12472.60	5648.35
22:19:00	4:49:00	12-0145	0	-.19	12472.41	5648.47
22:20:00	4:50:00	12-0146	0	-.32	12472.09	5646.06
22:21:00	4:51:00	12-0147	0	.72	12472.81	5648.22
22:22:00	4:52:00	12-0148	0	-.18	12472.63	5647.92
22:23:00	4:53:00	12-0149	0	-.42	12472.21	5646.45
22:24:00	4:54:00	12-0150	0	.85	12473.06	5646.91
22:25:00	4:55:00	12-0151	0	-.23	12472.83	5649.05
22:26:00	4:56:00	12-0152	0	--.71	12472.12	6645.45
22:27:00	4:57:00	12-0153	0	.62	12472.74	5648.37
22:28:00	4:58:00	12-0154	0	-.19	12472.55	5649.87
22:29:00	4:59:00	12-0155	0	.70	12473.25	5447.91
22:30:00	5:00:00	12-0156	0	-.68	12472.57	5646.53
22:31:00	5:01:00	12-0157	0	-.86	12471.71	5646.14
22:32:00	5:02:00	12-0158	0	-.17	12471.54	5646.14
22:33:00	5:03:00	12-0159	0	.76	12472.30	5647.8
22:34:00	5:04:00	12-0160	0	-.16	12472.14	5647.99
22:35:00	5:05:00	12-0161	0	.75	12472.89	5647.93
22:36:00	5:06:00	12-0162	0	-.86	12472.03	5647.26
22:40:00	5:10000	12-0163	0	-.07	12471.96	5647.63
22:50:00	5:20:00	12-0164	0	.57	12472.53	5646.38
23:00:00	5:30:00	12-0165	0	-1.05	12471.48	5647.05
23:10:00	5:40:00	12-0166	0	.23	12471.71	5647.51
23:20:00	5:50:00	12-0167	0	-.14	12471.57	5646.79
23:30:00	6:00:00	12-0168	0	.78	12472.35	5646.59
23:40:00	6:10:00	12-0169	0	-1.85	12470.50	5645.65
23:50:00	6:20:00	12-0170	0	1.22	12471.72	5647.45

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
00:00:00	6:30:00	12-0172	0	-.61	12471.11	5647.12
00:10:00	6:40:00	12-0173	0	.17	12471.28	5646.93
00:20:00	6:50:00	12-0174	0	.50	12471.78	5646.63
00:30:00	7:00:00	12-0175	0	.02	12471.80	5646.55
00:40:00	7:10:00	12-0176	0	-.41	12471.39	5646.82
00:50:00	7:20:00	12-0177	0	-.09	12471.30	5645.26
01:00:00	7:30:00	12-0178	0	-.76	12470.54	5646.69

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
01:10:00	7:40:00	12-0179	0	.24	12470.78	5645.72
01:20:00	7:50:00	12-0180	0	.31	12471.09	5646.17
01:30:00	8:00:00	12-0181	0	.30	12471.39	5646.86
01:40:00	8:10:00	12-0182	0	-.40	12470.99	5647.36
01:50:00	8:20:00	12-0183	0	.18	12471.17	5647.27
02:00:00	8:30:00	12-0184	0	-.12	12471.05	5646.45
02:10:00	8:40:00	12-0185	0	-.44	12470.51	5648.26
02:20:00	8:50:00	12-0186	0	-.64	12469.87	5648.12
02:30:00	9:00:00	12-0187	00	-.38	12469.49	5647.45
02:40:00	9:10:00	12-0188	0	.47	12469.96	5647.03
02:50:00	9:20:00	12-0189	0	.15	12470.11	5646.34
03:00:00	9:30:00	12-0190	0	-.87	12469.24	5646.51
03:10:00	9:40:00	12-0191	0	.58	12469.82	5645.73
03:20:00	9:50:00	12-0192	0	.26	12470.08	5645.67
03:30:00	10:00:00	12-0193	0	-.82	12469.26	5646.06
03:40:00	10:10:00	12-0194	0	.43	12469.69	5645.67
03:50:00	10:20:00	12-0195	0	-.43	12469.26	5645.90
04:00:00	10:30:00	12-0196	0	-583.76	11885.50	6645.68
04:10:00	10:40:00	12-0197	0	582.51	12468.01	5645.21
04:20:00	10:50:00	12-0198	0	1.39	12469.40	5645.43
04:30:00	11:00:00	12-0199	0	-.39	12469.01	5644.68
04:40:00	11:10:00	12-0200	0	-.85	12468.16	5644.69
04:50:00	11:20:00	12-020	0	.65	12468.81	5645.48
05:00:00	11:30:00	12-0202	0	-.90	12467.91	5644.56
05:10:00	11:40:00	12-0203	0	.16	12468.07	5645.08
05:20:00	11:50:00	12-0204	0	-.82	12467.25	5644.20
05:30:00	12:00:00	12-0205	0	.76	12468.01	5644.46
05:40:00	12:10:00	12-0206	0	-.21	12467.80	5644.58
05:50:00	12:20:00	12-0207	0	-.75	12467.05	5644.60
06:00:00	12:30:00	12-0208	0	.33	12467.38	5644.35
06:10:00	12:40:00	12-0209	0	--.67	12466.71	5644.27
06:20:00	12:50:00	12-0210	0	-.22	12466.49	5644.22
06:30:00	13:00:00	12-0211	0	.48	12466.97	5643.88
06:40:00	13:10:00	12-0212	0	.18	12467.15	5643.99
06:50:00	13:20:00	12-0213	0	-.78	12466.37	5644.01
07:00:00	13:30:00	12-0214	0	.84	12467.21	5643.71
07:10:00	13:40:00	12-0215	0	-1.25	12465.96	5643.76
07:20:00	13:50:00	12-0216	0	.61	12466.57	5643.46
07:30:00	14:00:00	12-0217	0	-1.07	12465.50	5643.63
07:40:00	14:10:00	12-0218	0	1.92	12467.42	5643.76
07:50:00	14:20:00	12-0219	0	.20	12467.62	5643.46
08:00:00	14:30:00	12-0220	0	.28	12467.90	5643.30
08:10:00	14:40:00	12-0221	0	.43	12468.33	5642.98
08:20:00	14:50:00	12-0222	0	-.81	12467.52	5642.86
08:30:00	15:00:00	12-0223	0	-.05	12467.47	5643.17
08:40:00	15:10:00	12-0224	0	-.39	12467.08	5642.81
08:50:00	15:20:00	12-0225	0	.69	12467.77	5643.22
09:00:00	15:30:00	12-0223	0	-.19	12467.58	5642.73

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
09:10:00	0:00:00	13-0001	0	12452.05	12452.05	5642.80
09:20:00	0:10:00	13-0002	0	7.47	12459.52	5643.09
09:30:00	0:20:00	13-0003	0	-.91	12458.61	5642.71
09:40:00	0:30:00	13-0004	0	-4.50	12454.11	5642.89
09:50:00	0:40:00	13-0005	0	-6.44	12447.67	5643.11
10:00:00	0:50:00	13-0006	0	3.85	12451.52	5642.51
10:10:00	1:00:00	13-0007	0	5.26	12456.78	5641.56
10:20:00	1:10:00	13-0008	0	3.07	12459.85	5642.33
10:30:00	1:20:00	13-0009	0	-1.18	12458.67	5642.88
10:40:00	1:30:00	13-0010	0	.43	12459.10	5642.69
10:50:00	1:40:00	13-0011	0	.57	12459.67	5642.85
11:00:00	1:50:00	13-0012	0	-1.49	12458.18	5642.82
11:10:00	2:00:00	13-0013	0	-.33	12457.85	5642.75
11:20:00	2:10:00	13-0014	0	1.71	12459.56	5642.40
11:30:00	2:20:00	13-0015	0	-.36	12459.20	5642.79
11:40:00	2:30:00	13-0016	0	-.71	12458.49	5642.63
11:50:00	2:40:00	13-0017	0	.95	12459.44	5642.76
12:00:00	2:50:00	13-0018	0	-.56	12458.88	5642.51
12:10000	3:00:00	13-0019	0	.90	12459.78	5642.11
12:20:00	3:10:00	13-0020	0	-1.09	12458.69	5642.04
12:30:00	3:20:00	13-0021	0	-7.37	12451.32	5641.83
12:40:00	3:30:00	13-0022	0	.55	12451.87	5641.24
12:50:00	3:40:00	13-0023	0	14.05	12465.92	5641.12
13:00:00	3:50:00	13-0024	0	.50	12466.42	5641.14
13:10:00	4:00:00	13-0025	0	-.40	12466.02	5641.12
13:20:00	4:10:00	13-0026	0	-7.18	12458.84	5641.22
13:30:00	4:20:00	13-0027	0	-4.68	12454.16	5640.88
13:40:00	44:30:00	13-0028	0	-4.01	12450.15	5640.60
13:50:00	4:40:00	13-0029	0	.27	12450.42	5640.75
14:00:00	4:50:00	13-0030	0	.62	12451.04	5639.87
14:10:00	5:00:00	13-0031	0	-.10	12450.94	5639.87
14:20:00	5:10:00	13-0032	0	-.59	12450.35	5639.06
14:30:00	5:20:00	13-0033	0	.96	12451.31	5640.20
14:40:00	5:30:00	13-0034	0	-.36	12450.95	5640.00
14:50:00	5:40:00	13-0035	0	-.34	12450.61	5640.23
15:00:00	5:50:00	13-0036	0	-.16	12450.45	5640.11
15:10:00	6:00:00	13-0037	0	.14	12450.59	5639.94
15:13:00	6:03:00	13-0038	0	-.48	12450.11	5639.94
15:14:00	6:04:00	13-0039	0	.08	12450.19	5640.22
15:15:00	6:05:00	13-0040	0	-.85	12449.34	5639.47
15:16:00	6:06:00	13-0041	0	.83	12450.17	5639.63
15:17:00	6:07:00	13-0042	0	-.12	12450.05	5640.01
15:18:00	6:08:00	13-0043	0	.27	12450.32	5640.03
15:19:00	6:09:00	13-0044	0	-.06	12450.26	5640.16
15:20:00	6:10:00	13-0045	0	-.09	12450.17	5639.67
15:21:00	6:11:00	13-0046	0	.30	12450.47	5640.12
15:22:00	6:12:00	13-0047	0	-.61	12449.86	5639.84
15:23:00	6:13:00	13-0048	0	.94	12450.80	5640.10
15:24:00	6:14:00	13-0049	0	-.82	12449.98	5639.77
15:25:00	6:15:00	13-0050	0	.34	12450.32	5640.01
15:26:00	6:16:00	13-0051	0	.21	12450.53	5640.37
15:27:00	6:17:00	13-0052	0	-.58	12449.95	5640.11
15:88:00	6:18:00	13-0053	0	.10	12450.05	5639.75
15:29:00	6:19:00	13-0054	0	.19	12450.24	5639.89
15:30:00	6:20:00	13-0055	0	.58	12450.82	5639.70

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
15:31:00	6:21:00	13-0056	0	-.55	12450.27	5639.70
15:32:00	6:22:00	13-0057	0	-.13	12450.14	5639.07
15:33:00	6:23:00	13-0058	0	.12	12450.26	5639.62
15:34:00	6:24:00	13-0059	0	-.08	12450.18	5639.52
15:35:00	6:25:00	13-0060	0	.52	12450.70	5639.41
15:36:00	6:26:00	13-0061	0	-.74	12449.96	5639.27
15:37:00	6:27:00	13-0062	0	-.07	12449.89	5639.47
15:38:00	6:28:00	13-0063	0	.20	12450.09	5639.33
15:39:00	6:29:00	13-0064	0	.12	12450.21	5639.70
15:40:00	6:30:00	13-0065	0	.56	12450.77	5639.70
15:41:00	6:31:00	13-0066	0	-.93	12449.84	5640.09
15:42:00	6:32:00	13-0067	0	-.09	12449.75	5639.62
15:43:00	6:33:00	13-0068	0	-.15	12449.60	5639.67
15:44:00	6:34:00	13-0069	0	.16	12449.76	5639.98
15:45:00	6:35:00	13-0070	0	.23	12449.99	5699.70
15:46:00	6:36:00	13-0071	0	-.08	12449.91	5640.09
15:47:00	6:37:00	13-0072	0	.10	12450.01	5640.12
15:48:00	6:38:00	13-0073	0	-.27	12449.74	5639.83
15:49:00	6:39:00	13-0074	0	-.20	12449.54	5639.67
15:50:00	6:40:00	13-0075	0	.17	12449.71	5640.05
15:51:00	6:41:00	13-0076	0	.81	12450.52	5639.51
15:52:00	6:42:00	13-0077	0	-.24	12450.28	5640.56
15:53:00	6:43:00	13-0078	0	-.92	12449.36	5639.79
15:54:00	6:44:00	13-0079	0	.65	12450.01	5639.80
15:55:00	6:45:00	13-0080	0	.25	12450.26	5639.77
15:56:00	6:46:00	13-0081	0	-.13	12450.13	5639.66
15:57:00	6:47:00	13-0082	0	-.15	12449.98	5639.37
15:58:00	6:48:00	13-0083	0	-.46	12449.52	5639.93
15:59:00	6:49:00	13-0084	0	.21	12449.73	5640.04
16:00:00	6:50:00	13-0085	0	-.27	12449.46	5640.18
16:01:00	6:51:00	13-0086	0	.17	12449.63	5639.91
16:02:00	6:52:00	13-0087	0	.06	12449.69	5639.74
16:03:00	6:53:00	13-0088	0	1.04	12450.73	5639.85
16:04:00	6:54:00	13-0089	0	-.50	12450.23	5639.69
16:05:00	6:55:00	13-0090	0	-.35	12449.88	5639.49
16:06:00	6:56:00	13-0091	0	-.06	12449.82	5639.63
16:07:00	6:57:00	13-0092	0	-.03	12449.79	5639.46
16:08:00	6:58:00	13-0093	0	.21	12450.00	5640.02
16:09:00	6:59:00	13-0094	0	-.08	12449.92	5639.71
16:10:00	7:00:00	13-0095	0	0.00	12449.92	5640.08
16:11:00	7:01:00	13-0096	0	-.27	12449.65	5639.99
16:12:00	7:02:00	13-0097	0	-.05	12449.60	5639.94
16:13:00	7:03:00	13-0098	0	.15	12449.75	5639.75
16:14:00	7:04:00	13-0099	0	-.25	12449.50	5639.72
16:15:00	7:05:00	13-0100	0	.58	12450.08	5639.74
16:16:00	7:06:00	13-0101	0	-.44	12449.64	5640.34
16:20:00	7:10:00	13-0102	0	.08	12449.72	5640.02
16:30:00	7:20:00	13-0103	0	.11	12449.83	5640.01
16:40:00	7:30:00	13-1104	0	-.83	12449.00	5639.98
16:50:00	7:40:00	13-0105	0	.57	12449.57	5639.73
17:00:00	7:50:00	13-0106	0	-.40	12449.17	5639.10
17:10:00	8:00:00	13-0107	0	.83	12450.00	5638.94
17:20:00	8:10:00	13-0108	0	-.57	12449.43	5639.11
17:30:00	8:20:00	13-0109	0	-.03	12449.40	5638.30
17:40:00	8:30:00	13-0110	0	-.39	12449.01	5638.32
17:50:00	8:40:00	13-0111	0	-.60	12448.41	5638.66
18:00:00	8:50:00	13-0112	0	.81	12449.22	5638.69
[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]

18:10:00	9:00:00	13-0113	0	-.37	12448.63	5638.38
18:20:00	9:10:00	13-0114	0	.08	12448.71	5638.50
18:30:00	9:20:00	13-0115	0	.30	12449.01	5638.84
18:40:00	9:30:00	13-0116	0	-.64	12448.37	5638.70

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
18:50:00	9:40:00	13-0117	0	.77	12449.14	5638.92
19:00:00	9:50:00	13-0118	0	-4.59	12444.55	5638.53
19:10:00	10:00:00	13-0119	0	-2244.81	10199.74	5638.35
19:20:00	10:10:00	13-0120	0	2248.86	12448.60	5638.17
19:30:00	10:20:00	13-0118	0	-.10	12448.50	5638.56
SET REAL TIME						
19:50:00	10:40:00	13-0126	0	-.35	12448.15	5638.70
20:00:00	10:50:00	13-0127	0	-.01	12448.14	5638.41
20:10:00	11:00:00	13-0128	0	0.00	12448.14	5638.53
20:20:00	11:10:00	13-0129	0	-.14	12448.00	5638.59
20:30:00	11:20:00	13-0130	0	-.24	12447.76	5638.76
20:40:00	11:30:00	13-0131	0	.20	12447.96	5637.92
20:50:00	11:40:00	13-0132	0	.28	12448.24	5638.51
21:00:00	11:50:00	13-0133	0	-.63	12447.61	5637.58
21:10:00	12:00:00	13-0134	0	-.28	12447.33	5637.87
21:20:00	12:10:00	13-0135	0	1.08	12448.41	5636.91
21:30:00	12:20:00	13-0136	0	-.26	12448.15	5637.61
21:40:00	12:30:00	13-0137	0	-.42	12447.73	5637.31
21:50:00	12:40:00	13-0138	0	-.67	12447.06	5636.59
22:00:00	12:50:00	13-0139	0	.17	12447.23	5637.77
22:10:00	13:00:00	13-0140	0	-.15	12447.08	5637.00
22:20:00	13:10:00	13-0141	0	1.45	12448.53	5636.67
22:30:00	13:20:00	13-0142	0	-1.43	12447.10	5637.34
22:40:00	13:30:00	13-0143	0	.38	12447.48	5636.88
22:50:00	13:40:00	13-0144	0	-.14	12447.34	5635.87
23:00:00	13:50:00	13-0145	0	-.26	12447.08	5636.23
23:10:00	14:00:00	13-0146	0	-.02	12447.06	5636.69
23:20:00	14:10:00	13-0147	0	-.56	12446.50	5637.21
23:30:00	14:20:00	13-0148	0	1.22	12447.72	5638.66
23:40:00	14:30:00	13-0149	0	-1.55	12446.17	5637.06
23:50:00	14:40:00	13-0150	0	.68	12446.85	5636.16
00:00:00	14:50:00	13-0151	0	-.86	12445.99	5636.62
00:10:00	15:00:00	13-0152	0	.70	12446.69	5636.83
00:20:00	15:10:00	13-0153	0	-.17	12446.52	5636.60
00:30:00	15:20:00	13-0154	0	-.23	12446.29	5636.52
00:40:00	15:30:00	13-0155	0	.25	12446.54	5636.31
00:50:00	15:40:00	13-0156	0	-.03	12446.51	5636.08
01:00:00	15:50:00	13-0157	0	.18	12446.69	5636.17
01:10:00	16:00:00	13-0158	0	-1.04	12445.65	5635.34
01:20:00	16:10:00	13-0159	0	.60	12446.25	5635.73
01:30:00	16:20:00	13-0160	0	.34	12446.59	5636.00
01:40:00	16:30:00	13-0161	0	-.96	12445.63	5636.48
01:50:00	16:40:00	13-0162	0	-.14	12445.49	5636.24
02:00:00	16:50:00	13-0163	0	1.08	12446.57	5635.84
02:10:00	17:00:00	13-0164	0	-.75	12445.82	5635.85
02:20:00	17:10:00	13-0165	0	-.35	12445.47	5635.40
02:30:00	17:20:00	13-0166	0	-.88	12444.59	5634.98
02:40:00	17:30:00	13-0167	0	.22	12444.81	5635.70
02:50:00	17:40:00	13-0168	0	.52	12445.33	5635.92

03:00:00	17:50:00	13-0169	0	.48	12445.77	5635.44
03:00:00	18:00:00	13-0170	0	-.21	12445.58	5635.83
03:20:00	18:10:00	13-0171	0	-1.24	12444.34	5635.06
03:30:00	18:20:00	13-0172	0	.47	12444.81	5635.18
03:40:00	18:30:00	13-0173	0	1.52	12446.33	5634.62
03:50:00	18:40:00	13-0174	0	-1.04	12445.29	5634.94
04:00:00	18:50:00	13-0175	0	-.04	12445.25	5634.86
04:10:00	19:00:00	13-0176	0	.84	12446.09	5634.86
04:20:00	19:10:00	13-0177	0	-1.47	12444.62	5634.67
04:30:00	19:20:00	13-0178	0	-.30	12444.32	5634.54

Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
04:40:00	19:30:00	13-0179	0	.62	12444.94	5634.60
04:50:00	19:40:00	13-0180	0	-.35	12444.59	5634.72
05:00:00	19:50:00	13-0181	0	.15	12444.74	5634.97
05:10:00	20:00:00	13-0182	0	-.57	12444.17	5634.73
05:20:00	20:10:00	13-0183	0	.55	12444.72	5635.10
05:30:00	20:20:00	13-0184	0	-.49	12444.23	5634.42
05:40:00	20:30:00	13-0185	0	.85	12445.08	5635.11
05:50:00	20:40:00	13-0186	0	-1.03	12444.05	5635.43
06:00:00	20:50:00	13-0187	0	.45	12444.50	5635.00
06:10:00	21:00:00	13-0188	0	.07	12444.57	5634.29
06:20:00	21:10:00	13-0189	0	-.65	12443.92	5633.84
06:30:00	21:20:00	13-0190	0	-.50	12443.42	5634.87
06:40:00	21:30:00	13-0191	0	1.26	12444.68	5634.20
06:50:00	21:40:00	13-0192	0	.35	12445.03	5634.32
07:00:00	21:50:00	13-0193	0	-1.21	12443.82	5633.60
07:10:00	22:00:00	13-0194	0	1.04	12444.86	5633.93
07:20:00	22:10:00	13-0195	0	-.72	12444.14	5634.06
07:30:00	22:20:00	13-0196	0	.18	12444.32	5633.88
07:40:00	22:30:00	13-0177	0	-.79	12443.53	5633.56
07:50:00	22:40:00	13-0198	0	-.49	12443.04	5634.03
08:00:00	22:50:00	13-0199	0	-.18	12442.86	5633.88
08:10:00	23:00:00	1--0200	0	.92	12443.78	5633.19
08:20:00	23:10:00	13-0201	0	-1.36	12442.42	5633.01
08:30:00	23:20:00	13-0202	0	1.05	12443.47	5632.88
08:40:00	23:30:00	13-0203	0	-.19	12443.28	5632.92
08:50:00	23:40:00	13-0204	0	-.48	12442.80	5633.41
09:00:00	23:50:00	13-0205	0	.07	12442.87	5632.91
09:10:00	24:00:00	13-0206	0	.46	12443.33	5633.19
09:20:00	24:10:00	13-0207	0	-.37	12442.96	5632.90
09:30:00	24:20:00	13-0208	0	-.72	12442.24	5632.78
09:40:00	24:30:00	13-0209	0	.84	12443.08	5633.01
09:50:00	24:40:00	13-0210	0	-1.04	12442.04	5632.86
10:00:00	24:50:00	13-0208	0	.37	12442.41	5632.79

SET REAL TIME

10:20:00	25:10:00	13-0216	0	-.43	12441.98	5632.75
10:30:00	25:20:00	13-0217	0	.25	12442.23	5632.83
10:40:00	25:30:00	13-0218	0	-.67	12441.56	5632.78
10:50:00	25:40:00	13-0219	0	.03	12441.59	5632.71
11:00:00	25:50:00	13-0220	0	.58	12442.17	5632.59
11:10:00	26:00:00	13-0221	0	-.20	12441.97	5632.64
11:20:00	26:10:00	13-0222	0	.39	12442.36	5632.35

SET REAL TIME

11:40:00	26:30:00	13-0225	0	-.99	12441.37	5632.53
11:50:00	26:40:00	13-0226	0	-.50	12440.87	5631.61
12:00:00	26:50:00	13-0227	0	.94	12441.81	5631.81
12:10:00	27:00:00	13-0228	0	-.70	12441.11	5631.45
12:20:00	27:10:00	13-0229	0	.25	12441.36	5631.61
12:30:00	27:20:00	13-0230	0	.28	12441.64	5632.36
12:40:00	27:30:00	13-0231	0	1.45	12443.09	5631.54
12:50:00	27:40:00	13-0232	0	-1.94	12441.15	5631.75
13:00:00	27:50:00	13-0233	0	.03	12441.18	5630.61
13:10:00	28:00:00	13-0234	0	.27	12441.45	5631.84
13:20:00	28:10:00	13-0235	0	.29	12441.74	5631.74
13:30:00	28:20:00	13-0236	0	-.16	12441.58	5632.35
13:40:00	28:30:00	13-0237	0	-.34	12441.24	5632.34
13:50:00	28:40:00	13-0238	0	0.00	12441.24	5632.89
14:00:00	28:50:00	13-0239	0	.13	12441.37	5632.43

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Lease: GLADYS McCALL Well #: 1 State: LOU

Real	Elapse	Rec #	CS	delta	BHP	WHP
14:10:00	29:00:00	13-0240	0	.61	12441.98	5632.35
14:20:00	29:10:00	13-0241	0	-.19	12441.79	5631.99
14:30:00	29:20:00	13-0242	0	-.73	12441.06	5632.07
14:40:00	29:30:00	13-0243	0	-.25	12440.81	5632.39
14:50:00	29:40:00	13-0244	0	-.15	12440.66	5632.05
15:00:00	29:50:00	13-0245	0	.17	12440.83	5631.88
15:10:00	30:00:00	13-0246	0	-.14	12440.69	5632.43
15:20:00	30:10:00	13-0247	0	.31	12441.00	5631.44
15:30:00	30:20:00	13-0248	0	-.72	12440.28	5631.55
15:40:00	30:30:00	13-0249	0	.39	12440.67	5632.05
15:50:0	30:40:00	13-0250	0	-1.25	12439.42	5630.34
16:00:00	30:50:00	13-0251	0	.72	12440.14	5630.21
16:10:00	31:00:00	13-0252	0	.58	12440.72	5630.23
16:20:00	31:10:00	13-0250	0	-.49	12440.23	5630.48
16:30:00	31:20:00	13-0257	0	-12440.23	0.00	0.00
16:40:00	31:30:00	13-0260	0	0.00	0.00	0.00
16:50:00	31:40:00	13-0261	0	0.00	0.00	0.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
04:02:00	0:00:00	14-0001	12416.20	12416.20	5626.36
04:03:00	0:01:00	14-0002	-.81	12415.39	5625.71
ON BOTTOM 04:01:00					
04:04:00	0:02:00	14-0004	-1.01	12414.38	5625.65
04:05:00	0:03:00	14-0005	-.42	12413.96	5625.59
04:06:00	0:04:00	14-0006	-.22	12413.74	5625.71
04:07:00	0:05:00	14-0007	1.50	12415.24	5625.79
04:08:00	0:06:00	14-0008	-2.12	12413.12	5625.48
04:09:00	0:07:00	14-0009	1.41	12414.53	5626.34
04:10:00	0:08:00	14-0010	-1.06	12413.47	5625.85
04:11:00	0:09:00	14-0011	-1.01	12412.46	5625.90
04:12:00	0:10:00	14-0012	-.15	12412.31	5625.92
04:13:00	0:11:00	14-0013	.92	12413.23	5625.93
04:14:00	0:12:00	14-0014	-1.22	12412.01	5625.59
04:15:00	0:13:00	14-0015	.47	12412.48	5625.66
04:16:00	0:14:00	14-0016	-.49	12411.99	5625.52
04:17:00	0:15:00	14-0017	.50	12412.49	5626.00
04:18:00	0:16:00	14-0018	.03	12412.52	5626.00
04:19:00	0:17:00	14-0019	-.43	12422.09	5625.51
04:20:00	0:18:00	14-0020	-.15	12411.94	5625.41
04:21:00	0:19:00	14-0021	1.79	12413.73	5626.16
04:22:00	0:20:00	14-0022	-1.74	12411.99	5625.61
04:23:00	0:21:00	14-0023	.41	12412.40	5625.54
04:24:00	0:22:00	14-0024	.45	12412.85	5625.82
04:25:00	0:23:00	14-0025	-.43	12412.42	5625.51
04:26:00	0:24:00	14-0026	.31	12412.73	5625.51
04:27:00	0:25:00	14-0027	-.40	12412.33	5625.44
04:28:00	0:26:00	14-0028	1.08	12413.41	5625.65
04:29:00	0:27:00	14-0029	-.49	12412.92	5625.62
04:30:00	0:28:00	14-0030	-.51	12412.41	5626.08
04:31:00	0:29:00	14-0031	-.18	12412.23	5625.96
04:32:00	0:30:00	14-0032	-.46	12411.77	5625.73
04:33:00	0:31:00	14-0033	.82	12412.59	5625.74
04:34:00	0:32:00	14-0034	-1.15	12411.44	5625.55
04:35:00	0:33:00	14-0035	.47	12411.91	5625.23
04:36:00	0:34:00	14-0036	.84	12412.75	5625.53
04:37:00	0:35:00	14-0037	.10	12412.85	5625.64
04:38:00	0:36:00	14-0038	-.66	12412.19	5625.89
04:39:00	0:37:00	14-0039	-.12	12412.07	5625.55
04:40:00	0:38:00	14-0040	1.47	12413.54	5625.88
04:41:00	0:39:00	14-0041	-.79	12412.75	5625.66
04:42:00	0:40:00	14-0042	-1.00	12411.75	5625.76
04:43:00	0:41:00	14-0043	.23	12411.98	5625.96
04:44:00	0:42:00	14-0044	.05	12412.03	5625.51
04:45:00	0:43:00	14-0045	.94	12412.97	5625.89
04:46:00	0:44:00	14-0046	-1.37	12411.60	5625.68
04:47:00	0:45:00	14-0077	.57	12412.17	5625.89
04:48:00	0:46:00	14-0048	-.05	12412.12	5625.81
04:49:00	0:47:00	14-0049	.09	12412.21	5625.55
04:50:00	0:48:00	14-0050	.07	12412.28	5626.11
04:51:00	0:49:00	14-0051	.13	12412.41	5625.77
04:52:00	0:50:00	14-0052	.93	12413.34	5625.80
04:53:00	0:51:00	14-0053	-.43	12412.91	5625.97

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
04:54:00	0:52:00	14-0054	-.50	12412.41	5625.57
04:55:00	0:53:00	14-0055	.34	12412.75	5625.33
04:56:00	0:54:00	14-0056	-.92	12411.83	5625.84
04:57:00	0:55:00	14-0057	-.01	12411.82	5625.60
04:58:00	0:56:00	14-0058	.40	12412.22	5625.33
04:59:00	0:57:00	14-0059	.31	12412.33	5625.39
05:00:00	0:58:00	14-0060	-.48	12412.05	5625.45
05:01:00	0:59:00	14-0061	.18	12412.23	5625.72
05:02:00	1:00:00	14-0062	.34	12412.57	5625.09
05:03:00	1:01:00	14-0063	-.84	12411.73	5625.24
05:04:00	1:02:00	14-0064	-.63	12411.10	5625.27
05:05:00	1:03:00	14-0065	.81	12411.91	5625.02
05:06:00	1:04:00	14-0066	.51	12412.42	5625.48
05:07:00	1:05:00	14-0067	.21	12412.63	5625.35
05:08:00	1:06:00	14-0068	-.18	12412.45	5625.66
05:09:00	1:07:00	14-0069	.34	12412.79	5624.86
05:10:00	1:08:00	14-0070	-.82	12411.97	5625.09
05:11:00	1:09:00	14-0071	.91	12412.88	5625.67
05:12:00	1:10:00	14-0072	-.51	12412.37	5625.53
05:13:00	1:11:00	14-0073	-.25	12412.12	5625.34
05:14:00	1:12:00	14-0074	1.47	12413.59	5625.25
05:15:00	1:13:00	14-0075	-.43	12413.16	5625.07
05:16:00	1:14:00	14-0076	-.89	12412.27	5625.66
05:17:00	1:15:00	14-0077	.92	12413.19	5625.84
05:18:00	1:16:00	14-0078	-.80	12412.39	5625.31
05:19:00	1:17:00	14-0079	1.12	12413.51	5625.61
05:20:00	1:18:00	14-0080	-1.41	12412.10	5625.17
05:21:00	1:19:00	14-0081	.71	12412.11	5625.13
05:22:00	1:20:00	14-0082	-1.00	12411.81	5625.30
05:23:00	1:21:00	14-0083	1.35	12413.16	5625.23
05:24:00	1:22:00	14-0084	-1.22	12411.94	5625.29
05:25:00	1:23:00	14-0085	.57	12412.51	5624.97
05:26:00	1:24:00	14-0086	-.76	12411.75	5625.36
05:27:00	1:25:00	14-0087	1.14	12412.89	5625.69
05:28:00	1:26:00	14-0088	-.76	12412.13	5625.29
05:29:00	1:27:00	14-0089	.91	12413.04	5625.34
05:30:00	1:28:00	14-0090	-.88	12412.16	5625.30
05:31:00	1:29:00	14-0091	-.25	12411.91	5625.24
05:32:00	1:30:00	14-0092	-.25	12411.66	5624.80
05:33:00	1:31:00	14-0093	.57	1241..23	5625.17
05:34:00	1:32:00	14-0094	-.35	12411.88	5624.97
05:35:00	1:33:00	14-0095	-.43	12411.45	5624.82
05:36:00	1:34:00	14-0096	.73	12412.18	5625.07
05:37:00	1:35:00	14-0097	-.15	12412.03	5625.10
05:38:00	1:36:00	14-0098	-.20	12411.83	5625.00
05:39:00	1:37:00	14-0099	-.43	12411.40	5625.08
05:40:00	1:38:00	14-0100	-.13	12411.27	5624.86
05:41:00	1:39:00	14-0101	.24	12411.51	5625.06
05:42:00	1:40:00	14-0102	.02	12411.53	5624.80
05:43:00	1:41:00	14-0103	1.82	12413.35	5625.14
05:44:00	1:42:00	14-0104	-1.94	12411.41	5625.03
05:45:00	1:43:00	14-0105	1.28	12412.69	5625.31
05:46:00	1:44000	14-0106	-1.60	12411.09	5625.02
05:47:00	1:45:00	14-0107	2.12	12413.21	5624.99
05:48:00	1:46:00	14-0108	-1.32	12411.89	5624.77
05:49:00	1:47:00	14-0109	.41	12412.30	5625.14
05:50:00	1:48:00	14-0110	-.49	12411.81	5624.80

05:51:00	1:49:00	14-0111	.30	12412.11	5625.22
05:52:00	1:50:00	14-0112	.98	12413.09	5625.16
05:53:00	1:51:00	14-0113	-.73	12412.36	5624.81
05:54:00	1:52:00	14-0114	-.21	12412.15	5624.70

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
05:55:00	1:53:00	14-0115	-.70	12411.45	5624.90
05:56:00	1:54:00	14-0116	1.12	12412.57	5625.08
05:57:00	1:55:00	14-0117	-.20	12412.37	5625.21
05:58:00	1:56:00	14-0118	.02	12412.39	5625.03
05:59:00	1:57:00	14-0119	-.28	12412.11	5624.78
06:00:00	1:58:00	14-0120	-.83	12411.28	5624.85
06:01:00	1:59:00	14-0121	-.17	12411.11	5625.21
06:02:00	2:00:00	14-0122	.58	12411.69	5625.11
06:03:00	2:01:00	14-0123	.32	12412.01	5624.57
06:04:0	2:02:00	14-0124	-.33	12411.68	5624.37
06:05:00	2:03:00	14-0125	.22	12411.90	5625.01
06:06:00	2:04:00	14-0126	-.36	12411.54	5624.87
06:07:00	2:05:00	14-0127	.29	12411.83	5624.57
06:08:00	2:06:00	14-0128	-.34	12411.49	5624.60
06:09:00	2:07:00	14-0129	-.12	12411.37	5625.22
06:10:00	2:08:00	14-0130	-.47	12410.90	5624.78
06:11:00	2:09:00	14-0131	.49	12411.39	5624.93
06:12:00	2:10:00	14-0132	.18	12411.57	5625.07
06:13:00	2:11:00	14-0133	.25	12411.82	5644.94
06:14:00	2:12:00	14-0134	-.44	12411.38	5624.64
06:15:00	2:13:00	14-0135	-.41	12410.97	5624.65
06:16:00	2:14:00	14-0136	.76	12411.73	5624.84
06:17:00	2:15:00	14-0137	-.45	12411.28	5624.76
06:18:00	2:16:00	14-0138	1.41	12412.69	5624.66
06:19:00	2:17:00	14-0139	-.68	12412.01	5624.97
06:20:00	2:18:00	14-0140	.24	12412.25	5624.79
06:21:00	2:19:00	14-0141	.54	12412.79	5624.72
06:22:00	2:20:00	14-0142	-.50	12412.99	5624.70
06:23:00	2:21:00	14-0143	-1.00	12411.29	5624.42
06:24:00	2:22:00	14-0144	.16	12411.45	5624.56
06:25:00	2:23:00	14-0145	-.58	12410.87	5624.80
06:26:00	2:24:00	14-0146	.76	12411.63	5624.46
06:27:00	2:25:00	14-0147	-.02	12411.61	5625.00
66:28:00	2:26:00	14-0148	.54	12412.15	5624.64
06:29:00	2:27:00	14-0149	.79	12412.94	5624.84
06:30:00	2:28:00	14-0150	-2.10	12410.84	5624.55
06:31:00	2:29:00	14-0151	.69	12411.53	5624.54
06:32:00	2:30:00	14-0152	.53	12412.06	5624.81
06:33:00	2:31:00	14-0153	-.87	12411.19	5624.76
06:34:00	2:32:00	14-0154	.87	12412.06	5624.72
06:35:00	2:33:00	14-0155	-.74	12411.32	5624.64
06:36:00	2:34:00	14-0156	-.72	12410.60	5624.28
06:37:00	2:35:00	14-0157	2.14	12412.74	5624.82
06:38:00	2:36:00	14-0158	-2.09	12410.65	5624.65
06:39:00	2:37:00	14-0159	1.15	12411.80	5624.53
06:40:00	2:38:00	14-0160	-.09	12411.71	5624.51
06:41:00	2:39:00	14-0161	-.63	12411.08	5624.61
06:42:00	2:40:00	14-0162	.20	12411.28	5624.52
06:43:00	2:41:00	14-0163	-.27	12411.01	5624.18
06:44:00	2:42:00	14-0164	.56	12411.57	5624.20
06:45:00	2:43:00	14-0165	-.72	12410.85	5624.21

06:46:00	2:44:00	14-0166	1.20	12412.05	5624.83
06:47:00	2:45:00	14-0167	-1.03	12411.02	5624.49
06:48:00	2:46:00	14-0168	.40	12411.42	5624.44
06:49:00	2:47:00	14-0169	-.05	12411.37	5623.04
06:50:00	2:48:00	14-0170	1.48	12412.85	5624.72
06:51:00	2:49:00	14-0171	-1.84	12411.01	5624.60
06:52:00	2:50:00	14-0172	-.09	12410.92	5624.02
06:53:00	2:51:00	14-0173	1.41	12412.33	5624.46
06:54:00	2:52:00	14-0174	-1.12	12411.21	5624.13
06:55:00	2:53:00	14-0175	.06	12411.27	5624.29

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
06:56:00	2:54:00	14-0176	.89	12412.16	5624.11
06:57:00	2:55:00	14-0177	-1.44	12410.72	5623.94
06:58:00	2:56:00	14-0178	.73	12411.45	5624.29
06:59:00	2:57:00	14-0179	-.76	12410.69	5624.54
07:00:00	2:58:00	14-0180	.68	12411.37	5624.04
07:01:00	2:59:00	14-0181	.54	12411.91	5624.58
07:02:00	3:00:00	14-0182	-.25	12411.66	5624.22
07:03:00	3:01:00	14-0183	-.30	12411.36	5624.14
07:04:00	3:02:00	14-0184	-.18	12411.18	5623.95
07:05:00	3:03:00	14-0185	-.01	12411.17	5624.38
07:06:00	3:04:00	14-0186	.50	12411.67	5624.06
07:07:00	3:05:00	14-0187	.34	12412.01	5624.11
07:08:00	3:06:00	14-0188	.24	12412.25	5623.92
07:09:00	3:07:00	14-0189	-.48	12411.77	5623.92
07:10:00	3:08:00	14-0190	-.60	12411.17	5624.50
07:11:00	3:09:00	14-0191	.90	12412.07	5624.33
07:12:00	3:10:00	14-0192	-1.26	12410.81	5623.67
07:13:00	3:11:00	14-0193	1.03	12411.84	5624.10
07:14:00	3:12:00	14-0194	-1.00	12410.84	5624.03
07:15:00	3:13:00	14-0195	-.22	12410.62	5624.08
07:16:00	3:14:00	14-0196	.25	12410.87	5623.79
07:17:00	3:15:00	14-0197	.37	12411.24	5623.74
07:18:00	3:16:00	14-0198	.94	12412.18	5624.17
07:19:00	3:17:00	14-0199	-1.31	12410.87	5623.54
07:20:00	3:18:00	14-0200	.19	12411.06	5623.71
07:21:00	3:19:00	14-0201	.61	12411.67	5623.79
07:22:00	3:20:00	14-0202	-.61	12411.06	5624.07
07:23:00	3:21:00	14-0203	-.50	12410.56	5623.89
07:24:00	3:22:00	14-0204	.68	12411.24	5624.31
07:25:00	3:23:00	14-0205	.17	12411.41	5624.03
07:26:00	3:24:00	14-0206	-.49	12410.92	5623.85
07:27:00	3:25:00	14-0207	1.12	12412.04	5624.37
07:28:00	3:26:00	14-0208	-1.24	12410.80	5623.75
07:29:00	3:27:00	14-0209	1.09	12411.89	5624.00
07:30:00	3:28:00	14-0210	-.89	12411.00	5624.18
07:31:00	3:29:00	14-0211	1.24	12412.24	5624.01
07:32:00	3:30:00	14-0212	-1.60	12410.64	5623.84
07:40:00	3:38:00	14-0213	.07	12410.71	5623.73
07:50:00	3:48:00	14-0214	.21	12410.92	5623.78
08:00:00	3:58:00	14-0215	.31	12411.23	5623.92
08:10:00	4:08:00	14-0216	.69	12411.92	5623.84
08:20:00	4:18:00	14-2217	-.40	12411.52	5623.56
08:30:00	4:28:00	14-0218	-.41	12411.11	5623.18
08:40:00	4:38:00	14-0219	.07	12411.18	5623.37
08:50:00	4:48:00	14-0220	.1	12411.30	5623.62

09:00:00	4:58:00	14-0221	-.41	12410.87	5624.18
09:10:00	5:08:00	14-0222	-.28	12410.61	5623.94
09:20:00	5:18:00	14-0223	-.64	12409.97	5624.01
09:30:00	5:28:00	14-0224	.90	12410.87	5623.57
09:40:00	5:38:00	14-0225	-.71	12410.16	5623.70
09:50:00	5:48:00	14-0226	.56	12410.72	5624.00
10:00:00	5:58:00	14-0227	-.47	12410.25	5623.61
10:10:00	6:08:00	14-0228	-.39	12409.86	5623.29
10:20:00	6:18:00	14-0229	.31	12410.17	5623.32
10:30:00	6:28:00	14-0230	-.09	12410.08	5623.75
10:40:00	6:38:00	14-0231	1.09	12411.17	5623.94
10:50:00	6:48:00	14-0232	-1.31	12409.86	5623.53
11:00:00	6:58:00	14-0233	-.46	12409.40	5623.87
11:10:00	7:08:00	14-0234	-.26	12409.14	5622.83
11:20:00	7:18:00	14-0235	.95	12410.09	5622.59
11:30:00	7:28000	14-0236	-.11	12409.98	5622.33

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
11:40:00	7:38:00	14-0237	.22	12410.20	5623.05
11:50:00	7:48:00	14-0238	-.18	12410.02	5623.16
12:00:00	7:58:00	14-0239	-.94	12409.08	5623.34
12:10:00	8:08:00	14-0240	.73	12409.81	5623.73
12:20:00	8:18:00	14-0241	-.05	12409.76	5623.81
12:30:00	8:28:00	14-0242	.31	12410.07	5623.37
12:40:00	8:38:00	14-0243	-.32	12409.75	5623.09
12:50:00	8:48:00	14-0244	.1	12409.89	5623.11
13:00:00	8:58:00	14-0245	-.65	12409.24	5623.07
13:10:00	9:08:00	14-0246	.20	12409.44	5623.46
13:20:00	9:18:00	14-0247	-.60	12408.84	5623.08
13:30:00	9:28:00	14-0248	1.00	12409.84	5623.70
13:40:00	9:38:00	14-0249	-1.43	12408.41	5623.40
13:50:00	9:48:00	14-0250	.95	12409.36	5623.37
14:00:00	9:58:00	14-0251	-.40	12408.96	5623.41
14:10:00	10:08:00	14-0252	-.08	12408.88	5622.81
14:20:00	10:18:00	14-0253	-.14	12408.74	5622.68
14:30:00	10:28:00	14-0254	.73	12409.47	5622.78
14:40:00	10:38:00	14-0255	-.61	12408.86	5622.68
14:50:00	10:48:00	14-0256	-.64	12408.22	5622.78
15:00:00	10:58:00	14-0257	.33	12408.55	5622.01
15:10:00	11:08:00	14-0258	-.53	12408.02	5622.08
15:20:00	11:18:00	14-0259	.12	12408.14	5622.06
15:30:00	11:28:00	14-0260	1.00	12409.14	5622.25
15:40:00	11:38:00	14-0261	-1.12	12408.02	5621.86
15:50:00	11:48:00	14-0262	-.58	12407.44	5621.48
16:00:00	11:58:00	14-0263	.33	12407.77	5621.49
16:10:00	12:08:00	14-0264	-.08	12407.69	5621.41
16:20:00	12:18:00	14-0265	.43	12408.12	5621.38
16:30:00	12:28:00	14-0266	-.03	12408.09	5621.20
16:40:00	12:38:00	14-0267	.03	12408.12	5621.72
16:50:00	12:48:00	14-0268	.20	12408.32	5621.35
17:00:00	12:58:00	14-0269	-.70	12407.62	5621.69
17:10:00	13:08:00	14-0270	-.25	12407.37	5621.59
17:20:00	13:18:00	14-0271	.84	12408.21	5621.51
17:30:00	13:28:00	14-0272	-1.02	12407.19	5621.04
17440:00	13:38:00	14-0273	.56	12407.75	5621.05
17:50:00	13:48:00	14-0274	.39	12408.14	5621.09
18:00:00	13:58:00	14-0275	-.69	12407.45	5619.87
18:10:00	14:08:00	14-0276	.36	12407.81	5619.74

18:20:00	14:18:00	14-0277	.33	12408.14	5620.12
18:30:00	14:28:00	14-0278	-.54	12407.60	5620.91
18:40:00	14:38:00	14-0279	-.47	12407.13	5621.36
18:50:00	14:48:00	14-0280	.65	12407.78	5622.38
19:00:00	14:58:00	14-0281	-.60	12407.18	5622.37
19:10:00	15:08:00	14-0282	1.21	12408.39	5622.71
19:20:00	15:18:00	14-0283	-1.98	12406.41	5622.77
19:30:00	15:28:00	14-0284	1.37	12407.78	5622.40
19:40:00	15:38:00	14-0285	.41	12408.19	5622.65
19:50:00	15:48:00	14-0286	-1.71	12406.48	5622.51
20:00:00	15:58:00	14-0287	1.49	12407.97	5622.75
20:10:00	16:08:00	14-0288	-1.03	12406.94	5623.81
20:20:00	16:18:00	14-0289	.58	12407.52	5624.06
20:30:00	16:28:00	14-0290	-.90	12406.62	5623.60
20:40:00	16:38:00	14-0291	.94	12407.56	5623.24
20:50:00	16:48:00	14-0292	-1.39	12406.17	5623.12
21:00:00	16:58:00	14-0293	-.09	12406.08	5622.59
21:10:00	17:08:00	14-0294	.10	12406.18	5622.07
21:20:00	17:18:00	14-0295	-.05	12406.13	5622.30
21:30:00	17:28:00	14-0296	.14	12406.27	5622.38
21:40:00	17:38:00	14-0297	.03	12406.30	5622.66

Lesse: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
21:50:00	17:48:00	14-0298	.16	12406.46	5622.46
22:00:00	17:58:00	14-0299	-.76	12405.70	5621.45
22:10:00	18:08:00	14-0300	.40	12406.10	562..99
22:20:00	18:18:00	14-0301	.46	12406.56	5620.62
22:30:00	18:28:00	14-0302	-.14	12406.42	5620.67
22:40:00	18:38:00	14-0303	-.38	12406.04	5621.48
22:50:00	18:48:00	14-0304	.48	12406.52	5621.80
23:00:00	18:58:00	14-0305	-1.34	12405.18	5621.08
23:10:00	19:08:00	14-0306	1.84	12407.02	5621.81
23:20:00	19:18:00	14-0307	-1.03	12405.99	5621.72
23:30:00	19:28:00	14-0308	.38	12406.37	5620.82
23:40:00	19:38:00	14-0309	.04	12406.41	5620.39
23:50:00	19:48:00	14-0307	-1.79	12404.62	5619.53
00:00:00	19:58:00	14-0313	-.28	12404.34	5618.94
00:10:00	20:08:00	14-0314	.48	12404.82	5619.50
00:20:00	20:18:00	14-0315	1.65	12406.47	5619.29
00:30:00	20:28:00	14-0316	-.64	12405.83	5618.75
00:40:00	20:38:00	14-0317	-.97	12404.86	5618.70
00:50:00	20:48:00	14-0318	-.54	12404.32	5619.04
01:00:00	20:58:00	14-0319	-.09	12404.23	5618.61
01:10:00	21:08:00	14-0320	.51	12404.74	5618.48
01:20:00	21:18:00	14-0321	.40	12405.14	5618.71
01:30:00	21:28:00	14-0322	-.19	22404.95	5618.67
01:40:00	21:38:00	14-0323	.21	12405.16	5618.45
01:50:00	21:48:00	14-0324	-1.12	12404.04	5617.98
02:00:00	21:58:00	14-0325	.37	12404.41	5618.38
02:10:00	22:08:00	14-0326	.80	12405.01	5619.82
02:20:00	22:18:00	14-0327	-.66	12404.35	5617.73
22:30:00	22:28:00	14-0328	.78	12405.13	5617.49
02:40:00	22:38:00	14-0329	-.41	12404.72	5618.09
02:50:00	22:48:00	14-0330	-.79	12403.93	5617.79
03:00:00	22:58:00	14-0331	.19	12404.12	5617.59
03:10:00	23:08:00	14-0332	1.52	12405.64	5617.87
03:20:00	23:18:00	14-0333	-1.49	12404.15	5617.45
03:30:00	23:28:00	14-0334	-.43	12403.72	5617.02

03:40:00	23:38:00	14-0335	1.15	12404.87	5616.99
03:50:00	23:48:00	14-0336	-.38	12404.49	5616.79
04:00:00	23:58:00	14-0337	-.66	12403883	5616.19
04:10:00	24:08:00	14-0338	-1.12	12402.71	5615.72
04:20:00	24:18:00	14-0339	1.17	12403.88	5615.79
04:30:00	24:28:00	14-0340	-1.02	12402.86	5615.47
04:40:00	24:38:00	14-0341	1.32	12404.18	5615.41
04:50:00	24:48:00	14-0342	-.83	12403.35	5615.56
05:00:00	24:58:00	14-0343	.17	12403.52	5614.96
05:10:00	25:08:00	14-0344	.67	12404.19	5615.47
05:20:00	25:18:00	14-0345	-.97	12403.22	5614.66
05:30:00	25:28:00	14-0346	.44	12403.66	5614.69
05:40:00	25:38:00	14-0347	-.01	12403.65	5614.63
05:50:00	25:48:00	14-0348	-1.02	12402.63	5614.10
06:00:00	25:58:00	14-0349	.43	12403.06	5613.89
06:10:00	26:08:00	14-0350	-.46	12402.60	5614.03
06:20:00	26:18:00	14-0351	-.03	12402.57	5614.08
06:30:00	26:28:00	14-0352	.63	12403.20	5613.98
06:40:00	26:38:00	14-0353	.47	12403.67	5612.67
06:50:00	26:48:00	14-0354	-.82	12402.85	5613.11
07:00:00	26:58:00	14-0355	-.28	12402.57	5613.44
07:10:00	27:08:00	14-0356	-.08	12402.49	5614.15
07:20:00	27:18:00	14-0357	-.47	12402.02	5614.18
07:30:00	27:28:00	14-0358	.36	12402.38	5614.03
07:40:00	27:38:00	14-0359	-.49	12401.89	5613.96
07:50:00	27:48:00	14-0360	.40	12402.29	5613.44

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	WHP
08:00:00	27:58:00	14-0361	-.41	12401.88	5613.33
08:10:00	28:08:00	14-0362	1.24	12403.12	5613.40
08:20:00	28:18:00	14-0363	.79	12403.91	5614.10
08:30:00	28:28:00	14-0364	-1.71	12402.20	5613.96
08:40:00	28:38:00	14-0365	-1.11	12401.09	5613.55
08:50:00	28:48:00	14-0366	.31	12401.40	5613.99
09:00:00	28:58:00	14-0367	-.10	12401.30	5613.56
09:10:00	29:08:00	14-0368	.56	12401.86	5613.82
09:20:00	29:18:00	14-0369	.27	12402.13	5613.64
09:30:00	29:28:00	14-0370	.85	12402.98	5612.75
09:40:00	29:38:00	14-0371	-1.62	12401.36	5612.86
09:50:00	29:48:00	14-0372	1.01	12402.37	5613.64
10:00:00	99:58:00	14-0373	-1.70	12400.67	5612.94
10:10:00	30:08:00	14-0374	.95	12401.62	5612.75
10:20:00	30:18:00	14-0375	-.20	12401.42	5614.08
10:30:00	30:28:00	14-0376	-.21	12401.21	5614.86
10:40:00	30:38:00	14-0377	-.24	12400.97	5614.51
10:50:00	30:48:00	14-0378	.06	12401.03	5614.35
11:00:00	30:58:00	14-0379	.26	12401.29	5614.20
11:10:00	31:08:00	14-0380	.35	12401.64	5614.40
11:20:00	31:18:00	14-0381	-.81	12400.83	5613.73
11:30:00	31:28:00	14-0382	-.19	12400.64	5613.26
11:40:00	31:38:00	14-0383	.74	12401.38	5613.38
11:50:00	31:48:00	14-0384	-.56	12400.82	5613.53
12:00:00	31:58:00	14-0382	-432.25	11968.57	5614.16
12:10:00	32:08:00	14-0392	-17321.00	-5352.43	5613.67
12:20:00	32:18:00	14-0393	0.00	-5352.43	5613.67
12:30:00	32:28:00	14-0395	.08	-5352.35	5613.29
[illegible]	[illegible]	[illegible]	81.72	-5270.63	5615.70

12:40:00	32:38:00	14-0393	[illegible]	[illegible]	[illegible]
12:50:00	32:48:00	14-0394	0.00	-5270.63	5615.70

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
22:20:00	0:00:00	15-0001	5570.36	5570.36	227.0	5615.66	4189.00	4206.00
INSTALLED FANEX BOTTOM HOLE								
00:40:00	2:20:00	15-0004	6829.53	12399.89	298.1	5613.18	1178.00	4117.00
00:40:30	2:20:30	15-0005	.02	12399.91	298.1	5612.91	4173.00	4120.00
00:40:40	2:20:40	15-0006	-.21	12399.70	298.2	5612.78	4193.00	4119.00
00:40:50	2:20:50	15-0007	-2.25	12397.45	298.1	5612.71	4179.00	4112.00
00:50:00	2:30:00	15-0008	1.09	12398.54	298.2	5612.71	4186.00	4199.00
01:00:00	2:40:00	15-0009	.22	12398.76	298.1	5612.24	4201.00	4119.00
01:10:00	2:50:00	15-0010	-.30	12398.46	298.1	5612.51	4210.00	4197.00
01:20:00	3:00:00	15-0011	-.17	12398.29	298.2	5612.44	4196.00	4131.00
01:30:00	3:10:00	15-0012	-.11	12398.18	298.2	5612.81	4180.00	4192.00
01:40:00	3:20:00	15-0013	.19	12398.37	298.1	5612.72	4158.00	4128.00
01:50:00	3:30:00	15-0014	.08	12398.45	298.1	5612.32	4212.00	4184.00
02:00:00	3:40:00	15-0015	-.25	12398.20	298.1	5612.27	4195.00	4129.00
02:10:00	3:50:00	15-0016	-.21	12397.99	298.1	5612.23	4212.00	4185.00
02:20:00	4:00:00	15-0017	-.04	12397.95	298.1	5612.41	4182.00	4182.00
02:30:00	4:10:00	15-0018	-.40	12397.55	298.1	5611.96	4219.00	4130.00
02:40:00	4:20:00	15-0019	.24	12397.79	298.1	5612.09	4212.00	4180.00
02:50:00	4:30:00	15-0020	.13	12397.92	298.2	5612.44	4161.00	4121.00
03:00:00	4:40:00	15-0021	-.22	12397.70	298.1	5612.25	4193.00	4176.00
03:10:00	4:50:00	15-0022	-.23	12397.47	298.1	5612.36	4186.00	4174.00
03:20:00	5:00:00	15-0023	.06	12397.53	298.1	5611.64	4195.00	4139.00
03:30:00	5:10:00	15-0024	0.00	12397.53	298.1	5612.26	4173.00	4132.00
03:40:00	5:20:00	15-0025	.07	12397.60	298.1	5612.41	4164.00	4182.00
03:50:00	5:30:00	15-0026	.06	12397.66	298.2	5612.03	4178.00	4128.00
04:00:00	5:40:00	15-0027	-.50	12397.16	298.1	5611.87	4205.00	4184.00
04:10:00	5:50:00	15-0028	-.09	12397.07	298.1	5611.70	4225.00	4187.00
04:20:00	6:00:00	15-0029	.18	12397.25	298.2	5611.59	4230.00	4132.00
04:30:00	6:10:00	15-0030	.07	12397.32	298.1	5611.48	4198.00	4186.00
04:40:00	6:20:00	15-0031	-.08	13397.24	298.1	5611.64	4208.00	4134.00
04:50:00	6:30:00	15-0032	-.29	12396.95	298.1	5611.33	4195.00	4154.00
05:00:00	6:40:00	15-0033	0.00	12396.95	298.2	5611.05	4206.00	4185.00
05:10:00	6:50:00	15-0034	-.07	12396.88	298.1	5611.00	4207.00	4166.00
05:20:00	7:00:00	15-0035	-.04	12396.84	298.1	5610.76	4216.00	4139.00
05:30:00	7:10:00	15-0036	.15	12396.99	298.1	5610.87	4213.00	4194.00
05:40:00	7:20:00	15-0037	-.25	12396.74	298.1	5611.02	4225.00	4137.00
05:50:00	7:30:00	15-0038	-.06	12396.68	298.1	5611.27	4198.00	4186.00
06:00:00	7:40:00	15-0039	-.03	12396.65	298.2	5610.38	4223.00	4124.00
06:10:00	7:50:00	15-0040	0000	12396.65	298.1	5610.57	4192.00	4199.00
06:20:00	8:00:00	15-0041	-.43	12396.22	298.1	5610.16	4231.00	4190.00
06:30:00	8:10:00	15-0042	.66	12396.88	298.1	5609.78	4238.00	4155.00
06:40:00	8:20:00	15-0043	-.45	12396.43	298.1	5609.39	4232.00	4190.00
06:50:00	8:30:00	15-0044	-.22	12396.21	298.1	5608.77	4208.00	4129.00
07:00:00	8:40:00	15-0045	.11	12396.32	298.1	5609.03	4208.00	4192.00
07:10:00	8:50:00	15-0046	.07	12396.39	298.1	5609.14	4220.00	4129.00
07:20:00	9:00:00	15-0047	-.20	12396.19	298.1	5609.50	4239.00	4183.00
07:30:00	9:10:00	15-0048	-.04	12396.15	298.1	5609.44	4242.00	4182.00
07:40:00	9:20:00	15-0049	.29	12396.44	298.2	5609.83	4226.00	4120.00
07:50:00	9:30:00	15-0050	-.42	12396.02	298.0	5609.59	4203.00	4185.00
08:00:00	9:40:00	15-0051	.20	12396.22	298.2	5609.61	4239.00	4134.00
08:10:00	9:00:00	15-0052	-.39	12395.83	298.0	5609.44	4195.00	4178.00
08:20:00	10:00:00	15-0053	.12	12395.95	298.1	5608.88	4229.00	4186.00
08:30:00	10:10:00	15-0054	-.29	12395.66	298.1	5609.14	4201.0	4121.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
08:40:00	10:20:00	15-0055	.33	12395.99	298.1	5609.10	4228.00	4182.00
08:50:00	10:30:00	15-0056	-.29	12395.70	298.1	5609.22	4224.00	4186.00
09:00:00	10:40:00	15-0057	.05	12395.75	298.1	5609.06	4241.00	4119.00
09:10:00	10:50:00	15-0058	.02	12395.77	298.1	5608.80	4226.00	4184.00
09:20:00	11:00:00	15-0059	-.06	12395.71	298.1	5608.98	4216.00	3511.00
09:30:00	11:10:00	15-0060	-.19	12395.52	298.1	5609.05	4241.00	4156.00
09:40:00	11:20:00	15-0061	-.25	12395.27	298.2	5608.76	4233.00	4225.00
09:50:00	11:30:00	15-0062	.35	12395.62	298.2	5608.65	4207.00	4522.00
10:00:00	11:40:00	15-0063	-.20	12395.42	298.1	5608.60	4261.00	4199.00
10:10:00	11:50:00	15-0064	.02	12395.44	298.1	5608.20	4250.00	4267.00
10:20:00	12:00:00	15-0065	-.43	12395.01	298.1	5607.97	4232.00	4096.00
10:30:00	12:10:00	15-0066	.25	12395.26	298.1	5609.01	4247.00	3962.00
10:40:00	12:20:00	15-0067	-.08	12395.18	298.1	5609.14	4232.00	3960.00
10:50:00	12:30:00	15-0068	-.09	12395.09	298.0	5609.03	4209.00	3955.00
11:00:00	12:40:00	15-0069	-.14	12394.95	298.1	5609.21	4191.00	4173.00
11:10:00	12:50:00	15-0070	.10	12395.05	298.2	5608.87	4239.00	4026.00
11:20:00	13:00:00	15-0071	-.16	12394.89	298.2	5608.97	4239.00	4164.00
11:30:00	13:10:00	15-0072	.10	12394.99	298.1	5608.71	4208.00	8889.00
11:40:00	13:20:00	15-0073	.06	12395.05	298.1	5608.65	4194.00	4099.00
11:50:00	13:30:00	15-0074	-.55	12394.50	298.2	5608.34	4200.00	4141.00
12:00:00	13:40:00	15-0075	-.10	12394.40	298.1	5608.88	4181.00	4108.00
12:10:00	13:50:00	15-0076	.01	12394.41	298.1	5609.08	4175.00	4058.00
12:20:00	14:00:00	15-0077	.20	12394.61	298.1	5608.04	4208.00	4147.00
12:30:00	14:10:00	15-0078	.21	12394.82	298.1	5608.32	4222.00	3634.00
12:40:00	14:20:00	15-0079	-.41	12394.41	298.1	5608.02	4232.00	4126.00
12:50:00	14:30:00	15-0080	-.11	12394.30	298.1	5608.26	4203.00	4178.00
13:00:00	14:40:00	15-0081	-.03	12394.27	298.0	5607.80	4191.00	4198.00
13:10:00	14:50:00	15-0082	-.02	12394.25	298.1	5607.72	4234.00	4203.00
13:20:00	15:00:00	15-0083	.20	12394.45	298.1	5608.01	4228.00	4121.00
13:30:00	15:10:00	15-0084	-.19	12394.26	298.0	5608.15	4205.00	4711.00
13:40:00	15:20:00	15-0085	-.19	12394.07	297.9	5608.05	4238.00	4696.00
13:50:00	15:30:00	15-0086	-.19	12393.88	298.1	5607.89	4219.00	4122.00
14:00:00	15:40:00	15-0087	.11	12393.99	298.0	5607.79	4243.00	4169.00
14:10:00	15:50:00	15-0088	.05	12394.04	298.1	5608.03	4244.00	4159.00
14:20:00	16:00:00	15-0089	.06	12394.10	298.2	5608.15	4246.00	4157.00
14:30:00	16:10:00	15-0090	-.02	12394.08	298.2	5607.89	4240.00	4140.00
14:40:00	16:20:00	15-0091	-.20	12393.88	298.1	5608.26	4216.00	4147.00
14:50:00	16:30:00	15-0092	.07	12393.95	298.1	5607.76	4255.00	4144.00
15:00:00	16:40:00	15-0093	-.10	12393.85	298.1	5607.31	4255.00	4207.00
15:10:00	16:50:00	15-0094	-.09	12393.76	298.1	5608.23	4187.00	4131.00
15:20:00	17:00:00	15-0095	-.04	12393.72	298.1	5607.39	4220.00	4170.00
15:30:00	17:10:00	15-0096	-.20	12393.52	298.1	5607.53	4217.00	4170.00
15:40:00	17:20:00	15-0097	.13	12393.65	298.1	5607.99	4208.00	4125.00
15:50:00	17:30:00	15-0098	-.26	12393.39	298.1	5607.20	4214.00	4198.00
16:00:00	17:40:00	15-0099	-.01	12393.38	298.1	5608.12	4180.00	4136.00
16:10:00	17:50:00	15-0100	-.18	12393.20	298.1	5607.17	4243.00	4187.00
16:20:00	18:00:00	15-0101	.15	12393.35	298.1	5607.17	4220.00	4174.00
16:30:00	18:10:00	15-0102	.17	12393.52	298.1	5607.18	4198.00	4189.00
16:40:00	18:20:00	15-0103	-.30	12393.22	298.1	5606.69	4155.00	4139.00
16:50:00	18:30:00	15-0104	-.08	12393.14	298.1	5606.49	4217.00	4139.00
17:00:00	18:40:00	15-0105	-.04	12393.10	298.1	5606.87	4203.00	4184.00
17:10:00	18:50:00	15-0106	.17	12393.27	298.1	5607.50	4184.00	4104.00
17:20:00	19:00:00	15-0107	-.28	12392.99	298.1	5607.29	4178.00	4188.00
17:30:00	19:10:00	15-0108	.21	12393.20	298.1	5607.06	4154.00	4120.00
17:40:00	19:20:00	15-0109	-.23	12392.97	298.1	5607.72	4220.00	4167.00
17:50:00	19:30:00	15-0110	-.26	12392.71	298.1	5607.37	4230.00	4140.00
18:00:00	19:40:00	15-0111	.07	12392.78	298.1	5607.34	4229.00	4173.00
18:10:00	19:50:00	15-0112	-.21	12392.57	298.1	5607.17	4244.00	4126.00
18:20:00	20:00:00	15-0113	.42	12392.99	298.1	5607.21	4274.00	4194.00

18:30:00	20:10:00	15-0114	-.19	12392.80	298.1	5607.32	4236.00	4139.00
18:40:00	20:20:00	15-0115	-.21	12392.59	298.1	5607.21	4265.00	4142.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
18:50:00	20:30:00	15-0116	-.07	12392.52	298.1	5607.20	4210.00	4142.00
19:00:00	20:40:00	15-0117	.11	12392.63	298.2	5606.91	4239.00	4142.00
19:10:00	20:50:00	15-0118	-.33	12392.30	298.1	5606.56	4286.00	44187.00
19:20:00	21:00:00	15-0119	-.03	12392.27	298.1	5606.76	4255.00	4131.00
19:30:00	21:10:00	15-0120	-.22	12392.05	298.1	5607.29	4180.00	4142.00
19:40:00	21:20:00	15-0121	.30	12392.35	298.1	5606.22	4254.00	4187.00
19:50:00	21:30:00	15-0122	-.29	12392.06	298.1	5606.15	4207.00	4130.00
20:00:00	21:40:00	15-0123	.02	12392.08	298.1	5606.29	4281.00	4182.00
20:10:00	21:50:00	15-0124	.41	12392.49	298.1	5606.49	4252.00	4139.00
20:20:00	22:00:00	15-0125	-.54	12391.95	298.2	5606.25	4271.00	4776.00
20:30:00	22:10:00	15-0126	-.20	12391.75	298.1	5606.07	4272.00	4171.00
20:40:00	22:20:00	15-0127	.07	12391.82	298.1	5606.34	4254.00	4127.00
20:50:00	22:30:00	15-0128	.09	12391.91	298.1	5606.65	4246.00	4179.00
21:00:00	22:40:00	15-0129	-.03	12391.88	298.0	5606.3	4194.00	4132.00
21:10:00	22:50:00	15-0130	.10	12391.98	298.1	5606.23	4264.00	4138.00
21:20:00	23:00:00	15-0131	-.44	12391.54	298.1	5605.96	4261.00	4180.00
21:30:00	23:10:00	15-0132	.11	12391.65	298.1	5606.56	4230.00	4152.00
21:40:00	23:20:00	15-0133	.03	12391.68	298.0	5605.90	4255.00	4146.00
21:50:00	23:30:00	15-0134	.05	12391.73	298.0	5605.97	4247.00	4135.00
22:00:00	23:40:00	15-0135	-.28	12391.45	298.1	5605.77	4232.00	4177.00
22:10:00	23:50:00	15-0136	-.16	12391.29	298.1	5606113	4213.00	4175.00
22:20:00	24:00:00	15-0137	.16	12391.45	298.1	5605.99	4246.00	4165.00
22:30:00	24:10:00	15-0138	-.03	12391.42	298.1	5605.69	4260.00	4135.00
22:40:00	24:20:00	15-0139	-.42	12391.00	298.2	5601.41	4261.00	4174.00
22:50:00	24:30:00	15-0140	.30	12391.30	298.2	5605.46	4245.00	4173.00
23:00:00	24:40:00	15-0141	-.18	12391.12	298.0	5605.38	4242.00	4166.00
23:10:00	24:50:00	15-0142	.06	12391.18	298.1	5605.35	4255.00	4154.00
23:20:00	25:00:00	15-0143	.08	12391.26	298.1	5605.40	4259.00	4177.00
23:30:00	25:10:00	15-0144	-.24	12391.02	298.1	5605.14	4183.00	4171.00
23:40:00	25:20:00	15-0145	.37	12391.39	298.1	5605.18	4218.00	4119.00
23:50:00	25:30:00	1--0146	-.51	12390.88	298.1	5605.28	4163.00	4189.00
00:00:00	25:40:00	15-0148	.25	12391.13	298.1	5605.27	4173.00	4129.00
00:10:00	25:50:00	15-0149	-.10	12391.03	298.1	5605.23	4229.00	4126.00
00:20:00	26:00:00	15-0150	-.25	12390.78	298.1	5605.03	4262.00	4186.00
00:30:00	26:10:00	15-0151	.17	12390.95	298.1	5604.96	4257.00	4117.00
00:40:00	26:20:00	15-0152	-.34	12390.61	298.1	5604.91	4283.00	4188.00
00:50:00	26:30:00	1--0153	.21	12390.82	298.1	5605.34	4241.00	4100.00
01:00:00	26:40:00	15-0154	-.26	12390.56	298.1	5605.22	4223.00	4176.00
01:10:00	26:50:00	15-0155	.25	12390.81	298.1	5605.01	4292.00	4187.00
01:20:00	27:00:00	15-0156	-.30	12390.51	298.1	5604.44	4260.00	4126.00
01:30:00	27:10:00	15-0157	-.28	12390.23	298.1	5604.54	4255.00	4178.00
01:40:00	27:20:00	15-0158	.40	12390.63	298.1	5604.82	4264.00	4174.00
01:50:00	27:30:00	15-0159	-.26	12390.37	298.1	5604.44	4248.00	4129.00
02:00:00	27:40:00	15-0160	-.05	12390.32	298.1	5604.37	4277.00	4193.00
02:10:00	27:50:00	15-0161	-.06	12390.26	298.1	5604.59	4288.00	4173.00
02:20:00	28:00:00	15-0162	-.10	12390.16	298.1	5604.38	4301.00	4135.00
02:30:00	28:10:00	15-0163	-.11	12390.05	298.1	5604.53	4263.00	4188.00
02:40:00	28:20:00	15-0164	.02	12390.07	298.1	5604.39	4285.00	4146.00
02:50:00	28:30:00	15-0165	.12	12390.19	298.1	5604.24	4286.00	4133.00
03:00:00	28:40:00	15-0166	-.04	12390.15	298.1	5603.94	4323.00	4174.00
03:10:00	28:50:00	15-0167	-.11	12390.04	298.1	5604.09	4301.00	4172.00
03:20:00	29:00:00	15-0168	-.25	12389.79	298.1	5604.27	4290.00	4138.00
03:30:00	29:10:00	15-0169	-.20	12389.59	298.1	5603.85	4196.00	4177.00

03:40:00	29:20:00	15-0170	-.05	12389.54	298.1	5604.02	4219.00	4182.00
03:50:00	29:30:00	15-0171	.20	12389.74	298.1	5603.90	4231.00	4135.00
04:00:00	29:40:00	15-0172	-.15	12389.59	298.1	5603.68	4217.00	4193.00
04:10:00	29:50:00	15-0173	0.00	12389.59	298.1	5603.59	4266.00	4136.00
04:20:00	30:00:00	15-0174	-.27	12389.32	298.1	5603.82	4201.00	4141.00
04:30:00	30:10:00	15-0175	-.24	12389.08	298.1	5603.80	4188.00	4183.00
04:50:00	30:30:00	15-0176	.29	12389.37	298.1	5603.77	4224.00	4149.00
05:00:00	30:40:00	15-0177	-.17	12389.20	298.2	5602.93	4271.00	4193.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
05:10:00	30:50:00	15-0178	-.12	12389.08	298.2	5603.22	4259.00	4116.00
05:20:00	31:00:00	15-0179	-.32	12388.76	298.1	5603.04	4265.00	4180.00
05:30:00	31:10:00	15-0180	.43	12389.19	298.0	5603.27	4250.00	4190.00
05:40:00	31:20:00	15-0181	-.15	12389.04	298.1	5602.58	4241.00	4127.00
05:50:00	31:30:00	15-0182	-.07	12388.97	298.2	5602.85	4269.00	4159.00
06:00:00	31:40:00	15-0183	-.03	12388.94	298.1	5602.33	4284.00	4176.00
06:10:00	31:50:00	15-0184	-.39	12388.55	298.0	5602.20	4275.00	4170.00
06:20:00	32:00:00	15-0185	.29	12388.84	298.1	5602.23	4297.00	4131.00
06:30:00	32:10:00	15-0186	.39	12389.23	298.2	5602.48	4285.00	4166.00
06:40:00	32:20:00	15-0187	-.16	12389.07	298.1	5601.67	4287.00	4194.00
06:50:00	32:30:00	15-0188	-.46	12388.61	298.1	5600.43	4266.00	4124.00
07:00:00	32:40:00	15-0189	-.16	12388.45	298.0	5600.78	4257.00	4191.00
07:10:00	32:50:00	15-0190	.06	12388.51	298.2	5601.92	4276.00	4185.00
07:20:00	33:00:00	15-0191	-.25	12388.26	298.1	5602.93	4270.00	4128.00
07:30:00	33:10:00	15-0192	.09	12388.35	298.1	5602.05	4277.00	4179.00
07:40:00	33:20:00	15-0193	.09	12388.44	298.1	5601.99	4272.00	4151.00
07:50:00	33:30:00	15-0194	-.07	12388.37	298.1	5602.09	4269.00	4125.00
08:00:00	33:40:00	15-0195	-.18	12388.19	298.1	5602.02	4258.00	4189.00
08:10:00	33:50:00	15-0196	.07	12388.26	298.1	5601.79	4215.00	4138.00
08:20:00	34:00:00	15-0197	-.29	12387.97	298.1	5601.59	4246.00	4133.00
08:30:00	34:10:00	15-0198	.17	12388.14	298.1	5601.21	4222.00	4182.00
08:40:00	34:20:00	15-0199	.06	12388.20	298.0	5601.29	4203.00	4109.00
08:50:00	34:30:00	15-0200	-.48	12387.72	298.1	5600.78	4235.00	4183.00
09:00:00	34:40:00	15-0201	.20	12387.92	298.1	5601.52	4197.00	4175.00
09:10:00	34:50:00	15-0202	-.01	12387.91	298.1	5601.82	4183.00	4127.00
09:20:00	35:00:00	15-0203	-.06	12387.85	298.1	5601.29	4252.00	4172.00
09:30:00	35:10:00	15-0204	-.14	12387.71	298.2	5601.09	4271.00	4143.00
09:40:00	35:20:00	15-0205	-.19	12387.52	298.2	5600.43	4255.00	4137.00
09:50:00	35:30:00	15-0206	-.29	12387.23	298.0	5601.31	4184.00	4180.00
10:00:00	35:40:00	15-0207	.54	12387.77	298.1	5601.95	4166.00	4150.0
10:10:00	35:50:00	15-0208	-.46	12387.31	298.1	5600.72	4220.00	4144.00
10:20:00	36:00:00	15-0209	.05	12387.36	298.1	5600.92	4174.00	4184.00
10:30:00	36:10:00	15-0210	-.13	12387.23	298.1	5601.46	4201.00	4189.00
10:40:00	36:20:00	15-0211	.11	12387.34	298.0	5601.73	4229.00	4131.00
10:50:00	36:30:00	15-0212	-.49	12386.85	298.1	5601.63	4242.00	4181.00
11:00:00	36:40:00	15-0213	.23	12387.08	298.1	5600.26	4259.00	4194.00
11:10:00	36:50:00	15-0214	-.20	12386.88	298.2	5601.19	4259.00	4133.00
11:20:00	37:00:00	15-0215	.17	12387.05	298.1	5601.54	4181.00	4189.00
11:30:00	37:10:00	15-0216	-.12	12386.93	298.1	5601.07	4223.00	4182.00
11:40:00	37:20:00	15-0217	.11	12387.04	298.1	5600.80	4225.00	4131.00
11:50:00	37:30:00	15-0218	-.06	12386.98	298.1	5600.84	4178.00	4158.00
12:00:00	37:40:00	15-0219	-.09	12386.89	298.1	5601.35	4235.00	4173.00
12:10:00	37:50:00	15-0220	-.07	12386.82	298.1	5602.36	4194.00	4172.00
12:20:00	38:00:00	15-0221	-.36	12386.46	298.1	5600.29	4243.00	4126.00
12:30:00	38:10:00	15-0222	.58	12387.04	298.3	5601.01	4254.00	4170.00
12:40:00	38:20:00	15-0223	-.34	12386.70	298.	5600.85	4214.00	4175.00
12:50:00	38:30:00	15-0224	.01	12386.71	298.1	5600.99	4228.00	4166.00

13:00:00	38:40:00	15-0225	.12	12386.83	298.1	5601.39	4286.00	4127.00
13:10:00	38:50:00	15-0226	-.16	12386.67	298.1	5600.42	4265.00	4172.00
13:20:00	39:00:00	15-0227	-.01	12386.66	298.1	5601.13	4237.00	4188.00
13:30:00	39:10:00	15-0228	-.25	12386.41	298.2	5601.06	4231.00	4168.00
13:40:00	39:20:00	15-0229	.33	12386.74	298.1	5601.46	4261.00	4118.00
13:50:00	39:30:00	15-0230	-.37	12386.37	298.1	5601.04	4245.00	4173.00
14:00:00	39:40:00	15-0231	.13	12386.50	298.1	5600.87	4223.00	4186.00
14:10:00	39:50:00	15-0232	-.26	12386.24	298.1	5600.94	4221.00	4119.00
14:20:00	40:00:00	15-0233	-.11	12386.13	298.1	5601.12	4160.00	4195.00
14:30:00	40:10:00	15-0234	.05	12386.18	298.1	5600.67	4249.00	4127.00
14:40:00	40:20:00	15-0235	-.12	12386.06	298.1	5600.85	4232.00	4137.00
14:50:00	40:30:00	15-0236	.10	12386.16	298.1	5600.78	4215.00	4192.00
15:00:00	40:40:00	15-0237	-.20	12385.96	298.1	5600.77	4231.00	4145.00
15:10:00	40:50:00	15-0238	.06	12386.02	298.1	5600.37	4263.00	4181.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
15:20:00	41:00:00	15-0239	-.19	12385.83	298.1	5600.59	4243.00	4180.00
15:30:00	41:10:00	15-0240	.06	12385.89	298.1	5601.10	4227.00	4147.00
15:40:00	41:20:00	15-0241	-.13	12385.76	298.2	5600.62	4188.00	4125.00
15:50:00	41:30:00	15-0242	.15	12385.91	298.1	5600.56	4216.00	4179.00
16:00:00	41:40:00	15-0243	-.35	12385.56	298.1	5600.29	4212.00	4185.00
16:10:00	41:50:00	15-0244	.18	12385.74	298.1	5600.16	4241.00	4147.00
16:20:00	42:00:00	15-0245	-.04	12385.70	298.1	5599.83	4202.00	4150.00
16:30:00	42:10:00	15-0246	-.21	12385.49	298.1	5588.94	4236.00	4180.00
16:40:00	42:20:00	15-0247	.15	12385.64	298.1	5599.80	4221.00	4131.00
16:50:00	42:30:00	15-0248	.27	12385.91	298.1	5600.98	4257.00	4131.00
17:00:00	42:40:00	15-0249	-.62	12385.29	298.1	5600.80	2237.00	4181.00
17:10:00	42:50:00	15-0250	-.08	12385.21	298.1	5601.26	4212.00	4144.00
17:20000	43:00:00	15-0251	-.03	12385.18	298.1	5600.89	4216.00	4127.00
17:30:00	43:11:00	15-0252	.18	12385.36	298.2	5601.22	4217.00	4183.00
17:40:00	43:20:00	15-0253	-.25	12385.11	298.1	5600.90	4239.00	4172.00
17:50:00	43:30:00	15-0254	.16	12385.27	298.1	5600.77	4194.00	4138.00
18:00:00	43:40:00	15-0255	-.29	12384.98	298.1	5600.49	4242.00	4172.00
18:10:00	43:50:00	15-0256	.04	12385.02	298.2	5600.64	4193.00	4190.00
18:20:00	44:00:00	15-0257	-.29	12384.73	298.2	5600.65	4232.00	4124.00
18:30:00	44:10:00	15-0258	.35	12385.08	298.2	5600.55	4220.00	4175.00
18:40:00	44:20:00	15-0259	-.02	12385.06	298.1	5600.63	4269.00	4171.00
18:50:00	44:30:00	15-0260	-.15	12384.91	298.2	5600.18	4236.00	4113.00
19:00:00	44:40:00	15-0261	-.33	12384.58	298.1	5599.78	4264.00	4174.00
19:10:00	44:50:00	15-0262	-.08	12384.50	298.1	5599.48	4294.00	4175.00
19:20:00	45:00:00	15-0263	-.32	12384.18	298.1	5599.32	4277.00	4155.00
19:30:00	45:10:00	15-0264	.51	12384.69	298.1	5599.23	4270.00	4128.00
19:00:00	45:20:00	15-0265	-.10	12384.59	298.2	5599.25	4268.00	4164.00
19:50:00	45:30:00	15-0266	-.15	12384.44	298.1	5599.26	4281.00	4175.00
20:00:00	45:40:00	15-0267	.01	12384.45	298.2	5599.28	4242.00	4135.00
20:10:00	45:50:00	15-0268	-.10	12384.35	298.1	5598.73	4286.00	4134.00
20:20:00	46:00:00	15-0269	-.26	12384.09	298.1	5599.18	4256.00	4181.00
20:30:00	46:10:00	15-0270	.12	12384.21	298.1	5598.92	4250.00	4167.00
20:40:00	46:20:00	15-0271	-.01	12384.20	298.1	5599.70	4199.00	4136.00
20:50:00	46:30:00	15-0272	0.00	12384.20	298.1	5599.03	4232.00	4150.00
21:00:00	46:40:00	15-0273	-.31	12383.89	298.1	5598.74	4263.00	4173.00
21:10:00	46:50:00	15-0274	-.18	12383.71	298.1	5598.51	4242.00	4152.00
21:20:00	47:00:00	15-0275	-.03	12383.68	298.2	5599.02	4230.00	4132.00
21:30:00	47:10:00	15-0276	.04	12383.72	298.1	5598.45	4236.00	4168.00
21:40:00	47:20:00	15-0277	.22	12383.94	298.1	5598.37	4230.00	4174.00
21:50:00	47:30:00	15-0278	-.28	12383.66	298.1	5598.12	4246.00	4166.00
22:00:00	47:40:00	15-0279	-.23	12383.43	298.1	5598.41	4244.00	4125.00

22:10:00	47:50:00	15-0280	.27	12383.70	298.2	5598.47	4200.00	4157.00
22:20:00	48:00:00	15-0281	-.13	12383.57	298.1	5598.52	4222.00	4185.00
22:30:00	48:10:00	15-0282	-.30	12383.27	298.1	5598.20	4242.00	4139.00
22:40:00	48:20:00	15-0283	.31	12383.58	298.1	5598.39	4252.00	4127.00
22:50:00	48:30:00	15-0284	-.24	12383.34	298.1	5597.97	4224.00	4178.00
23:00:00	48:40:00	15-0285	.15	12383.49	298.1	5597.79	4253.00	4178.00
23:10:00	48:50:00	15-0286	-.30	12383.19	298.1	5597.43	4301.00	4131.00
23:20:00	49:00:00	15-0287	-.10	12383.09	298.1	5597.60	4244.00	4137.00
23:30:00	49:10:00	15-0288	.13	12383.22	298.2	5598.15	4233.00	4169.00
23:40:00	49:20:00	15-0289	-.49	12382.73	298.1	5597.70	4271.00	4164.00
23:50:00	49:30:00	15-0290	.20	12382.93	298.2	5597.21	4270.00	4165.00
00:00:00	49:40:00	15-0292	.13	12383.06	298.1	5597.87	4193.00	4139.00
00:10:00	49:50:00	15-0293	.04	12383.10	298.2	5597.83	4216.00	4144.00
00:20:00	50:00:00	15-0294	-.20	12382.90	298.1	5597.88	4256.00	4171.00
00:30:00	50:10:00	15-0295	0.00	12382.90	298.1	5597.32	4253.00	4151.00
00:41:00	50:20:00	15-0296	-.16	12382.74	298.2	5597.14	4220.00	4130.00
00:50:00	50:30:00	15-0297	.11	12382.85	298.2	5597.70	4233.00	4170.00
01:00:00	50:40:00	15-0298	-.18	12382.67	298.1	5597.24	4227.00	4176.00
01:10:00	50:50:00	15-0299	.15	12382.82	298.1	5597.36	4256.00	4134.00
01:20:00	51:00:00	15-0300	-.22	12382.60	298.1	5596.79	4252.00	4130000

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
01:30:00	51:10:00	15-0301	.19	12382.79	298.1	5597.20	4245.00	4176.00
01:40:00	51:20:00	15-0302	-.27	12382.52	298.1	5596.96	4248.00	4173.00
01:50:00	51:30:00	15-0303	.13	12382.65	298.1	5596.77	4250.00	4169.00
02:00:00	51:40:00	15-0304	-.19	12382.46	298.1	5597.10	4208.00	4143.00
02:10:00	51:50:00	15-0305	-.14	12382.32	298.2	5596.68	4252.00	4142.00
02:20:00	52:00:00	15-0006	.24	12382.56	298.2	5596.75	4277.00	4171.00
02:30:00	52:10:00	15-0307	-.34	12382.22	298.1	5596.85	4260.00	4167.00
02:40:00	52:20:00	15-0308	-.19	12382.03	298.2	5596.94	4212.00	4166.00
02:50:00	52:30:00	15-0309	.09	12382.12	298.0	5596.84	4224.00	4143.00
03:00:00	52:40:00	15-0310	.07	12382.19	298.1	5596.45	4261.00	4163.00
03:10:00	52:50:00	15-0311	-.20	12381.99	298.2	5596.47	4250.00	4176.00
03:20:00	53:00:00	15-0312	-.18	12381.81	298.2	5596.07	4259.00	4175.00
03:30:00	53:10:00	15-0313	.08	12381.89	298.1	5596.03	4244.00	4153.00
03:40:00	53:20:00	15-0314	.01	12381.90	298.1	5596.02	4286.00	4141.00
03:50:00	53:30:00	15-0315	-.13	12381.77	298.1	5596.48	4223.00	4173.00
04:00:00	53:40:00	15-0316	.03	12381.80	298.1	5596.19	4251.00	4172.00
04:10:00	53:50:00	15-0317	.12	12381.92	298.2	5596.01	4226.00	4171.00
04:20:00	54:00:00	15-0318	-.01	12381.91	298.0	5596.80	4247.00	4142.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
04:30:00	0:00:00	16-0001	12381.34	12381.34	298.1	5596.22	4213.00	4142.00
04:40:00	0:10:00	16-0002	.46	12381.80	298.1	5597.14	4157.00	4179.00
04:50:00	0:20:00	16-0003	-.62	12381.18	298.3	5596.31	4225.00	4182.00
05:00:00	0:30:00	16-0004	.48	12381.66	288.2	5596.50	4243.00	4172.00
05:10:00	0:40:00	16-0005	0.00	12381.66	298.2	5596.37	4264.00	4152.00
05:20:00	0:50:00	16-0006	.01	12381.67	298.1	5596.41	4290.00	4145.00
05:30:00	1:00:00	16-0007	-.59	12381.08	298.1	5595.63	4237.00	4170.00
05:40:00	1:10:00	16-0008	.09	22381.17	298.1	5595.81	4261.00	4169.00
05:50:00	1:20:00	16-0009	.06	12381.23	298.2	5595.70	4194.00	4169.00
06:00:00	1:30:00	16-0010	.48	12381.71	298.3	5595.60	4260.00	4140.00
06:10:00	1:40:00	16-0011	-.46	12381.25	298.2	5595.51	4236.00	4145.00
06:20:00	1:50:00	16-0012	-.15	12381.10	298.1	5595.20	4262.00	4171.00
06:30:00	2:00:00	16-0013	-.38	12380.72	298.1	5595.15	4215.00	4188.00
06:40:00	2:10:00	16-0014	.56	12381.28	298.0	5594.62	4276.00	4178.00
06:50:00	2:20:00	16-0015	-.47	12380.81	298.2	5594.13	4255.00	4168.00
07:00:00	2:30:00	16-0016	.01	12380.82	298.2	5594.20	4268.00	4134.00
07:10:00	2:40:00	16-0017	-.37	12380.45	298.1	5595.11	4234.00	4156.00
07:20:00	2:50:00	16-0018	.41	12380.86	298.1	5594.91	4282.00	4169.00
07:30:00	3:00:00	16-0019	.07	12380.93	298.2	5595.28	4214.00	4170.00
07:40:00	3:10:00	16-0020	-.32	12380.61	298.2	5594.96	4260.00	4172.00
07:50:00	3:20:00	16-0021	-.21	12380.40	298.2	5594.54	4256.00	4151.00
08:00:00	3:30:00	16-0022	-.13	12380.27	298.1	5594.08	4255.00	4163.00
08:10:00	3:40:00	16-0023	.04	12380.31	298.2	5594.05	4259.00	4179.00
08:20:00	3:50:00	16-0024	.34	12380.65	298.1	5594.40	4239.00	4139.00
08:30:00	4:00:00	16-0025	-.70	12379.95	298.1	5593.75	4256.00	4137.00
08:40:00	4:10:00	16-0026	.12	12380.07	298.1	5593.41	4146.00	4178.00
08:50:00	4:20:00	16-0027	-.09	12379.98	298.1	5593.73	4227.00	4177.00
09:00:00	4:30:00	16-0028	-.05	12379.93	298.1	5593.62	4248.00	4155.00
09:10:00	4:40:00	16-0029	.02	12379.95	298.2	5594.33	4210.00	4145.00
09:20:00	4:50:00	16-0030	-.30	12379.65	298.0	5594.27	4214.00	4143.00
09:30:00	5:00:00	16-0031	.49	12380.14	298.1	5594.58	4258.00	4170.00
09:40:00	5:10:00	16-0032	-551	12379.63	298.2	5594.35	4204.00	4184.00
09:50:00	5:20:00	16-0033	-.11	12379.52	298.2	5594.23	4187.00	4146.00
10:00:00	5:30:00	16-0034	.36	12379.88	298.2	5593.68	4240.00	4146.00
10:10:00	5:40:00	16-0035	-.32	12379.56	298.2	5593.52	4292.00	4167.00
10:20:00	5:50:00	16-0036	0.00	12379.56	298.2	5593.33	4228.00	4176.00
10:30:00	6:00:00	16-0037	.09	12379.65	298.1	5593.56	4278.00	4169.00
10:40:00	6:10:00	16-0038	-.25	12379.40	298.2	5593.70	4296.00	4183.00
10:50:00	6:20:00	16-0039	.10	12379.50	298.1	5594.15	4308.00	4146.00
11:00:00	6:30:00	16-0040	.08	12379.58	298.1	5594.49	4249.00	4179.00
11:10:00	6:40:00	16-0041	0.00	12379.58	298.2	5594.04	4165.00	4173.00
11:20:00	6:50:00	16-0042	-.30	12379.28	298.2	5593.73	4275.00	4163.00
11:30:00	7:00:00	16-0043	-.29	12378.99	298.1	5594.20	4177.00	4165.00
11:40:00	7:10:00	16-0044	.49	12379.48	298.0	5593.61	4329.00	4160.00
11:50:00	7:20:00	16-0045	-.23	12379.25	298.0	5593.27	4296.00	4162.00
12:00:00	7:30:00	16-0046	-.11	12379.14	298.1	5593.04	4276.00	4173.00
12:10:00	7:40:00	16-0047	-.26	12378.88	298.3	5593.70	4235.00	4161.00
12:20:00	7:50:00	16-0048	.11	12378.99	298.2	5593.37	4254.00	4155.00
12:30:00	8:00:00	16-0049	-.25	12378.74	298.2	5592.75	4269.00	4158.00
12:40:00	8:10:00	16-0050	.05	12378.79	298.2	5592.52	4222.00	4164.00
12:50:00	8:20:00	16-0051	-.17	12378.62	298.3	5593.04	4172.00	4129.00
13:00:00	8:30:00	16-0052	.06	12378.68	298.1	5593.39	4157.00	4136.00
13:10:00	8:40:00	16-0053	-.11	12378.57	298.2	5593.76	4209.00	4118.00
13:20:00	8:50:00	16-0054	-.07	12378.50	298.2	5593.65	4199.00	4207.00
13:30:00	9:00:00	16-0055	.08	12378.58	298.1	5592.99	4244.00	4122.00

Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
13:40:00	9:10:00	16-0056	.01	12378.59	298.2	5592.65	4256.00	4145.00
13:50:00	9:20:00	16-0057	-.28	12378.31	298.1	5592.91	4249.00	4186.00
14:00:00	9:30:00	16-0058	.17	12378.48	298.2	5593.57	4250.00	4165.00
14:10:00	9:40:00	16-0059	-.31	12378.17	298.1	5593.49	4148.00	4126.00
14:20:00	9:50:00	16-0060	.12	12378.29	298.1	5593.22	4254.00	4198.00
14:30:00	10:00:00	16-0061	-.25	12378.04	298.2	5593.29	4144.00	4139.00
14:40:00	10:10:00	16-0062	0.00	12378.04	298.1	5593.32	4186.00	4141.00
14:50:00	10:20:00	16-0063	.01	12378.05	298.2	5592.52	4208.00	4196.00
15:00:00	10:30:00	16-0064	.17	12378.22	298.3	5592.85	4165.00	4142.00
15:10:00	10:40:00	16-0065	-.45	12377.77	298.2	5592.47	4149.00	4149.00
15:20:00	10:50:00	16-0066	.19	12377.96	298.1	5592.58	4294.00	4138.00
15:30:00	11:00:00	16-0067	-.22	12377.74	298.1	5593.11	4145.00	4184.00
15:40:00	11:10:00	16-0068	.09	12377.83	298.1	5592.91	3919.00	4178.00
15:50:00	11:20:00	16-0069	.03	12377.86	298.1	5593.19	3903.00	4137.00
16:00:00	11:30:00	16-0070	.03	12377.89	298.1	5592.44	3902.00	4178.00
16:10:00	11:40:00	16-0071	-.40	12377.49	298.2	5592.83	3823.00	4181.00
16:20:00	11:50:00	66-0072	.28	12377.77	298.2	5592.64	3901.00	4144.00
16:30:00	12:00:00	16-0073	-.48	12377.29	298.2	5592.42	3911.00	4148.00
16:40:00	12:10:00	16-0074	.28	12377.57	298.2	5592.64	3943.00	4145.00
16:50:00	12:20:00	16-0075	-.21	12377.36	298.2	5592.36	3961.00	4186.00
17:00:00	12:30:00	16-0076	.02	12377.38	298.2	5592.33	3985.00	4141.00
17:10:00	12:40:00	16-0077	-.02	12377.36	298.2	5592.59	3986.00	4141.00
17:20:00	12:50:00	16-0078	.11	12377.47	298.2	5592.68	3998.00	4153.00
17:30:00	13:00:00	16-0079	-.33	12377.14	298.2	5591.88	4039.00	4177.00
17:40:00	13:10:00	16-0080	-.04	12377.10	298.1	5592.14	4006.00	4136.00
17:50:00	13:20:00	16-0081	.24	12377.34	298.2	5592.21	4024.00	4148.00
18:00:00	13:30:00	16-0082	-.23	12377.11	298.1	5592.10	4020.00	4186.00
18:10:00	13:40:00	16-0083	-.11	12377.00	298.2	5592.08	4047.00	4178.00
18:20:00	13:50:00	16-0084	.22	12377.22	298.2	5592.16	3950.00	4141.00
18:30:00	14:00:00	16-0085	-.36	12376.86	298.2	5592.44	3952.00	4149.00
18:40:00	14:10:00	16-0086	-.15	12376.71	298.1	5591.92	3952.00	4181.00
18:50:00	14:20:00	16-0087	-.02	12376.69	298.1	5591.33	3991.00	4145.00
19:00:00	14:30:00	16-0088	-.20	12376.49	298.2	5591.22	3929.00	4142.00
19:10:00	14:40:00	16-0089	.21	12376.70	298.2	5591.63	3986.00	4162.00
19:20:00	14:50:00	16-0090	-.42	12376.28	298.1	5591.62	3938.00	4175.00
19:30:00	15:00:00	16-0091	.26	12376.54	298.2	5591.26	4030.00	4146.00
19:40:00	15:10:00	16-0092	-.17	12376.37	298.2	5591.84	4001.00	4137.00
19:50:00	15:20:00	16-0093	-.02	12376.35	298.2	5591.64	4013.00	4183.00
20:00:00	15:30:00	16-0094	-.15	12376.20	298.2	5591.03	4029.00	4177.00
20:10:00	15:40:00	16-0055	-.14	12376.06	298.1	5591.13	4064.00	4143.00
20:20:00	15:50:00	16-0096	.31	12376.37	298.2	5592.20	4035.00	4140.00
20:30:00	16:00:00	16-0097	-.07	12376.30	298.2	5591.87	4048.00	4174.00
20:40:00	16:10000	16-0098	.09	12376.39	298.2	5591.49	4006.00	4160.00
20:50:00	16:20:00	16-0099	-.31	12376.08	298.2	5590.82	4028.00	4125.00
21:00:00	16:30:00	16-0100	-.27	12375.81	298.2	5590.97	4022.00	4174.00
21:10:00	16:40:00	16-0101	.18	12375.99	298.2	5590.70	4046.00	4172.00
21:20:00	16:50:00	16-0102	-.10	12375.89	298.1	5590.79	4012.00	4139.00
21:30:00	17:00:00	16-0103	-.01	12375.88	298.2	5590.89	4027.00	4141.00
21:40:00	17:10:00	16-0104	-.32	12375.56	298.2	5590.74	4002.00	4163.00
21:50:00	17:20:00	16-0105	.22	12375.78	298.2	5591.42	4031.00	4180.00
22:00:00	17:30:00	16-0106	-.17	12375.61	298.2	5590.78	4033.00	4152.00
22:10:00	17:40:00	16-0107	.15	12375.76	298.1	5590.65	3980.00	4136.00
22:20:00	17:50:00	16-0108	-.31	12375.45	298.2	5590.82	4037.00	4179.00
22:30:00	18:00:00	16-0109	.06	12375.51	298.2	5590.82	3974.00	4176.00
22:40:00	18:10:00	16-0110	.02	12375.53	298.2	5590.25	4043.00	4137.00
22:50:00	18:20:00	16-0111	-.27	12375.26	298.2	5589.71	4014.00	4137.00
23:00:00	18:30:00	16-0112	.10	12375.36	298.2	5590.39	4019.00	4169.00
23:10:00	18:40:00	16-0113	-.13	12375.23	298.2	5590.01	4037.00	4179.00
23:20:00	18:50:00	16-0114	-.15	12375.08	298.2	5590.58	3996.00	4164.00

23:30:00	19:00:00	16-0115	.18	12375.26	298.2	5590.39	4029.00	4141.00
23:40:00	19:10:00	16-0116	-.10	12375.16	298.2	5590.32	4019.00	4142.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
23:50:00	19:20:00	16-0117	-.05	12375.11	298.2	5590.31	3990.00	4177.00
00:00:00	19:30:00	16-0118	-.18	12374.93	298.2	5590.04	4047.00	4175.00
00:10:00	19:40:00	16-0119	-.10	12374.83	298.2	5590.02	4021.00	4151.00
00:20:00	19:50:00	16-0120	-.01	12374.82	298.2	5590.53	4027.00	4142.00
00:30:00	20:00:00	16-0121	-.01	12374.81	298.2	5589.73	4016.00	4173.00
00:40:00	20:10:00	16-0122	-.02	12374.79	298.1	5589.74	4052.00	4177.00
00:50:00	20:20:00	16-0123	.15	12374.94	298.2	5590.65	4024.00	4177.00
01:00:00	20:30:00	16-0124	-.24	12374.70	298.1	5590.21	4010.00	4145.00
01:10:00	20:40:00	16-0125	-.08	12374.62	298.2	5590.17	4017.00	4142.00
01:20:00	20:50:00	16-0126	.09	12374.71	298.2	5590.07	4044.00	4170.00
01:30:00	21:00:00	16-0127	.11	12374.82	298.2	5589.56	4061.00	4183.00
01:40:00	21:10:00	16-0128	-.25	12374.57	298.2	5589.33	4050.00	4176.00
01:50:00	21:20:00	16-0129	-.14	12374.43	298.2	5590.01	4002.00	4140.00
02:00:00	21:30:00	16-0130	-.22	12374.21	298.1	5589.79	4046.00	4132.00
02:10:00	21:40:00	16-0131	.33	12374.54	298.2	5589.32	4035.00	4178.00
02:20:00	21:50:00	16-0132	-.32	12374.22	298.2	5589.58	4046.00	4172.00
02:30:00	22:00:00	16-0133	.11	12374.33	298.3	5589.87	4044.00	4142.00
02:40:00	22:10:00	16-0134	-.19	12374.14	298.1	5589.75	4027.00	4146.00
02:50:00	22:20:00	16-0135	.07	12374.21	298.2	5589.85	4078.00	4181.00
03:00:00	22:30:00	16-0136	-.36	12373.85	298.2	5589.53	4010.00	4100.00
03:10:00	22:40:00	16-0137	.22	12374.07	298.2	5589.43	4001.00	4137.00
03:20:00	22:50:00	16-0138	-.20	12373.87	298.2	5588.99	4019.00	4138.00
03:30:00	23:00:00	16-0139	.07	12373.94	298.1	5589.09	4067.00	4186.00
03:40:00	23:10:00	16-0140	-.01	12373.93	298.2	5588.98	4092.00	4170.00
03:50:00	23:20:00	16-0141	.03	12373.96	298.1	5588.89	4084.00	4134.00
04:00:00	23:30:00	16-0142	-.33	12373.63	298.2	5588.84	4047.00	4151.00
04:10:00	23:40:00	16-0143	.05	12373.68	298.1	5588.89	4110.00	4177.00
04:20:00	23:50:00	16-0144	-.24	12373.44	298.2	5588.83	4050.00	4183.00
04:30:00	24:00:00	16-0145	-.06	12373.38	298.2	5588.93	4067.00	4170.00
04:40:00	24:10:00	16-0146	.26	12373.64	2298.2	5589.31	4080.00	4143.00
04:50:00	24:20:00	16-0147	-.19	12373.45	298.2	5589.05	4093.00	4189.00
05:00:00	24:30:00	16-0148	-.33	12373.12	298.2	5588.64	4035.00	4177.00
05:10:00	24:40:00	16-0149	-.04	12373.08	298.2	5589.19	4079.00	4174.00
05:20:00	24:50:00	16-0150	.08	12373.16	298.2	5588.57	4113.00	4144.00
05:30:00	25:00:00	16-0151	.08	12373.24	298.3	5588.46	4101.00	4146.00
05:40:00	25:10:00	16-0152	-.11	12373.13	298.2	5588.49	4063.00	4183.00
05:50:00	25:20:00	16-0153	.06	12373.19	298.2	5588.59	4065.00	4175.00
06:00:00	25:30:00	16-0154	-.26	12372.93	298.2	5588.39	4074.00	4155.00
06:10:00	25:40:00	16-0155	-.15	12372.78	298.2	5588.07	4091.00	4138.00
06:20:00	25:50:00	16-0156	.05	12372.83	298.2	5588.03	4047.00	4170.00
06:30:00	26:00:00	16-0157	.01	12372.84	298.2	5587.79	4101.00	4183.00
06:40:00	26:10:00	16-0158	0.00	12372.84	298.2	5588.53	4041.00	4158.00
06:50:00	26:20:00	16-0159	-.14	12372.70	298.2	5588.42	3966.00	4140.00
07:00:00	26:30:00	16-0160	-.02	12372.68	298.2	5587.57	4082.00	4165.00
07:10:00	26:40:00	16-0161	.08	12372.76	298.1	5588.61	4031.00	4189.00
07:20:00	26:50:00	16-0162	-.03	12372.73	298.1	5588.41	4037.00	4154.00
07:30:00	27:00:00	16-0163	-.22	12372.51	298.3	5587.89	4008.00	4143.00
07:40:00	27:10:00	16-0164	-.01	12372.50	298.2	5587.76	3975.00	4186.00
07:50:00	27:20:00	16-0165	-.18	12372.32	298.1	5587.05	4051.00	4190.00
08:00:00	27:30:00	16-0166	.37	12372.69	298.2	5587.69	4034.00	4165.00
08:10:00	27:40:00	16-0167	-.16	12372.53	298.2	5587.48	4016.00	4150.00
08:20:00	27:50:00	16-0168	-.53	12372.00	298.1	5588.01	4016.00	4169.00
08:30:00	28:00:00	16-0169	.23	12372.23	298.3	5587.62	4038.00	4187.00

08:40:00	28:10:00	16-0170	.10	12372.33	298.2	5587.31	4031.00	4164.00
08:50:00	28:20:00	16-0171	-.26	12372.07	298.3	5587.40	4026.00	4132.00
09:00:00	28:30:00	16-0172	-.33	12371.74	298.2	5587.11	4010.00	4187.00
09:10:00	28:40:00	16-0173	.42	12372.16	298.3	5587.38	3964.00	4185.00
09:20:00	28:50:00	16-0174	-.33	12371.83	298.2	5587.39	4009.00	4188.00
09:30:00	29:00:00	16-0175	.19	12372.02	298.2	5586.88	3997.00	4139.00
09:40:00	29:10:00	16-0176	-.34	12371.68	298.2	5586.85	3996.00	4156.00
09:50:00	29:20:00	16-0177	-.07	12371.61	298.2	5586.88	4007.00	4198.00

Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLD IN	FLD OUT
10:00:00	29:30:00	16-0178	-.08	12371.53	298.1	5587.12	3974.00	4168.00
10:10:00	29:40:00	16-0179	-.22	12371.31	298.3	5586.87	3957.00	4138.00
10:20:00	29:50:00	16-0180	.19	12371.50	298.3	5587.02	3937.00	4177.00
10:30:00	30:00:00	16-0181	-.34	12371.16	298.2	5587.01	3995.00	4185.00
10:40:00	30:10:00	16-0182	.21	12371.37	298.1	5587.48	3956.00	4151.00
10:50:00	30:20:00	16-0183	-.10	12371.27	298.1	5587.34	3958.00	4153.00
11:00:00	30:30:00	16-0184	-.32	12370.95	298.2	5587.16	3912.00	4187.00
11:10:00	30:40:00	16-0185	.14	12371.09	298.2	5586.98	3985.00	4172.00
11:20:00	30:50:00	16-0186	.22	12371.31	298.1	5587.12	3938.00	4157.00
11:30:00	31:00:00	16-0187	-.25	12371.06	298.1	5586.64	4010.00	4164.00
11:40:00	31:10:00	16-0188	.09	12371.15	298.1	5586.18	3976.00	4180.00
11:50:00	31:20:00	16-0189	-.50	12370.65	298.2	5585.98	3984.00	4177.00
12:00:00	31:30:00	16-0190	.28	12370.93	298.1	5586.26	3985.00	4141.00
12:10:00	31:40:00	16-0191	-.25	12370.68	298.2	5586.33	3884.00	4177.00
12:20:00	31:50:00	16-0192	.15	12370.83	298.2	5587.25	3941.00	4187.00
12:30:00	32:00:00	16-0193	-.46	12370.37	298.2	5586.48	3973.00	4138.00
12:40:00	32:10:00	16-0194	.18	12370.55	298.2	5586.50	3925.00	4151000
12:50:00	32:20:00	16-0195	-.13	12370.42	298.1	5586.24	3991.00	4177.00
13:00:00	32:30:00	16-0196	.14	12370.56	298.2	5585.84	4041.00	4187.00
13:10:00	32:40:00	16-0197	-.23	12370.33	298.2	5585.55	4060.00	4155.00
13:20:00	32:50:00	16-0198	-.24	12370.09	298.2	5585.93	4007.00	4144.00
13:30:00	33:00:00	16-0199	.23	12370.32	298.2	5585.82	3961.00	4186.00
13:40:00	33:10:00	16-0200	-.04	12370.28	298.2	5586.08	4026.00	4175.00
13:50:00	33:20:00	16-0201	-.14	12370.14	298.2	5586.86	4009.00	4144.00
14:00:00	33:30:00	16-0202	-.32	12369.82	298.2	5586.48	4031.00	4135.00
14:10:00	33:40:00	16-0203	-.01	12369.81	298.2	5585.80	4046.00	4183.00
14:20:00	33:50:00	16-0204	.26	12370.07	298.3	5585.70	4035.00	4168.00
14:30:00	34:00:00	16-0205	.02	12370.09	298.2	5586.01	4005.00	4152.00
14:40:00	34:10:00	16-0206	-.34	12369.75	298.2	5585.97	4029.00	4150.00
14:50:00	34:20:00	16-0207	.30	12370.05	298.1	5586.27	4032.00	4171.00
15:00:00	34:30:00	16-0208	-.46	12369.59	298.2	5586.09	3950.00	4179.00
15:10:00	34:40:00	16-0209	.11	12369.70	298.2	5586.06	3965.00	4138.00
15:20:00	34:50:00	16-0210	-.13	12369.57	298.2	5586.88	3996.00	4139.00
15:30:00	35:00:00	16-0211	.07	12369.64	298.3	5585.95	4014.00	4195.00
15:40:00	35:10:00	16-0212	.16	12369.80	298.3	5585.88	4006.00	4175.00
15:50:00	35:20:00	16-0213	-.15	12369.65	298.2	5585.48	4023.00	4144.00
16:00:00	35:30:00	16-0214	-.02	12369.63	298.2	5586.17	3994.00	4149.00
16:10:00	35:40:00	16-0215	-.08	12369.55	298.2	5586.16	3993.00	4181.00
16:20:00	35:50:00	16-0216	.14	12369.69	298.2	5585.54	3995.00	4176.00
16:30:00	36:00:00	16-0217	-.25	12369.44	298.3	5585.71	4013.00	4174.00
16:40:00	36:10:00	16-0218	-.05	12369.39	298.2	5585.87	3966.00	4145.00
16:50:00	36:20:00	16-0219	-.07	12369.32	298.2	5585.86	3979.00	4154.00
17:00:00	36:30:00	16-0220	-.15	12369.17	298.2	5586.07	3945.00	4187.00
17:10:00	36:40:00	16-0221	-.17	12369.00	298.2	5585.32	3960.00	4179.00
17:20:00	36:50:00	16-0222	.05	12369.05	298.2	5585.17	4019.00	4169.00
17:30:00	37:00:00	16-0223	-.33	12368.72	298.2	5585.50	3992.00	4144.00
17:40:00	37:10:00	16-0224	-.09	12368.63	298.2	5585.13	3997.00	4164.00

17:50:00	37:20:00	16-0225	.25	12368.88	298.2	5584.68	4001.00	4176.00
18:00:00	37:30:00	16-0226	0.00	12368.88	298.2	5585.68	3945.00	4179.00
18:10:00	37:40:00	16-0227	-.17	12368.71	298.2	5584.79	3982.00	4176.00
18:20:00	37:50:00	16-0228	-.23	12368.48	298.2	5584.84	4020.00	4142.00
18:30:00	38:00:00	16-0229	.18	12368.66	298.3	5585.32	3986.00	4162.00
18:40:00	38:10:00	16-0230	-.09	12368.57	298.2	5585.13	4007.00	4175.00
18:50:00	38:20:00	16-0231	-.25	12368.32	298.3	5585.62	4004.00	4184.00
19:00:00	38:30:00	16-0232	-.06	12368.26	298.2	5585.51	3955.00	4180.00
19:10:00	38:40:00	16-0233	.18	12368.44	298.3	5585.34	3989.00	4137.00
19:20:00	38:50:00	16-0234	-.10	12368.34	298.2	5585.26	3969.00	4178.00
19:30:00	39:00:00	16-0235	-.31	12368.03	298.3	5585.16	3982.00	4178.00
19:40:00	39:10:00	16-0236	-.02	12368.01	298.2	5584.97	3973.00	4170.00
19:50:00	39:20:00	16-0237	.14	12368.15	298.3	5584.49	3961.00	4144.00
20:00:00	39:30:00	16-0238	-.16	12367.99	298.2	5584.84	3971.00	4164.00

Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
20:10:00	39:40:00	16-0239	.07	12368.06	298.2	5584.75	3945.00	4188.00
20:20:00	39:50:00	16-0240	-.19	12367.87	298.2	5584.34	3949.00	4186.00
20:30:00	40:00:00	16-0241	-.30	12367.57	29..2	5583.99	3907.00	4153.00
20:40:00	40:10:00	16-0242	.18	12367.75	298.2	5584.27	3966.00	4142.00
20:50:00	40:20:00	16-0243	-.04	12367.71	298.2	5584.28	3967.00	4172.00
21:00:00	40:30:00	16-0244	.01	12367.72	298.2	5584.48	3906.00	4166.00
21:10:00	40:40:00	16-0245	.01	12367.73	298.2	5583.76	3924.00	4197.00
21:20:00	40:50:00	16-0246	-.19	12367.54	298.3	5584.53	3852.00	4135.00
21:30:00	41:00:00	16-0247	-.02	12367.52	298.2	5584.26	3875.00	4171.00
21:40:00	41:10:00	16-0248	.25	12367.77	298.2	5583.76	3864.00	4169.00
21:50:00	41:20:00	16-0249	-.59	12367.18	298.2	5583.54	3852.00	4167.00
22:00:00	41:30:00	16-0250	.04	12367.22	298.2	5584.13	3777.00	4145.00
22:10:00	41:40:00	16-0251	.08	12367.30	298.2	5583.68	3925.00	4184.00
22:20:00	41:50:00	16-0252	-.40	12366.90	298.3	5583.82	3896.00	4181.00
22:30:00	42:00:00	16-0253	.63	12367.53	298.2	5583.76	3936.00	4145.00
22:40:00	42:10:00	16-0254	-.58	12366.95	298.2	5583.56	3938.00	4158.00
22:50:00	42:20:00	16-0255	-.26	12366.69	298.2	5582.87	3913.00	4186.00
23:00:00	42:30:00	16-0256	.36	12367.05	298.2	5583.44	3943.00	4165.00
23:10:00	42:40:00	16-0257	-.03	12367.02	298.3	5583.11	3893.00	4145.00
23:20:00	42:50:00	16-0258	-.01	12367.01	298.2	5583.38	3900.00	4146.00
23:30:00	43:00:00	16-0259	-.26	12366.75	298.3	5583.22	3892.00	4177.00
23:40:00	43:10:00	16-0260	-.20	12366.55	298.2	5583.13	3894.00	4181.00
23:5::00	43:20:00	16-0261	.07	12366.62	298.2	5583.65	3790.00	4153.00
00:00:00	43:30:00	16-0262	-.04	12366.58	298.2	5583.56	3754.00	4157.00
00:10:00	43:40:00	16-0263	.04	12366.62	298.2	5583.30	3874.00	4181.00
00:20:00	43:50:00	16-0264	-.22	12366.40	298.2	5583.08	3845.00	4184.00
00:30:00	44:00:00	16-0265	.09	12366.49	298.3	5582.43	3914.00	4149.00
00:40:00	44:10:00	16-0266	-.32	12366.17	298.2	5582.54	3916.00	4142.00
00:50:00	44:20:00	16-0267	.19	12366.36	298.3	5582.37	3923.00	4176.00
01:00:00	44:30:00	16-0268	.25	12366.61	298.3	5582.58	3906.00	4175.00
01:10:00	44:40:00	16-0269	-.33	12366.28	298.2	5582.21	3890.00	4164.00
01:20:00	44:50:00	1600270	-.42	12365.86	298.3	5581.94	3886.00	4141.00
01:30:00	45:00:00	16-0271	.12	12365.98	298.2	5582.53	3901.00	4155.00
01:40:00	45:10:00	16-0272	-.23	12365.75	298.3	5582.54	3916.00	4190.00
01:50:00	45:20:00	16-0273	-.08	12365.67	298.2	5582.55	3891.00	4172.00
02:00:00	45:30:00	16-0274	.03	12365.70	298.3	5582.90	3846.00	4143.00
02:10:00	45:40:00	16-0275	-.08	12365.62	298.3	5582.02	3847.00	4174.00
02:20:00	45:50:00	16-0276	0.00	12365.62	298.2	5582.11	3928.00	4185.00
02:30:00	46:00:00	16-0277	-.16	12365.59	298.2	5582.54	3974.00	4147.00
02:50:00	46:20:00	16-0279	.03	12365.62	298.2	5582.21	3971.00	4182.00
03:00:00	46:30:00	16-0280	-.26	12365.3	298.2	5581.46	3944.00	4167.00

03:10:00	46:40:00	16-0281	.03	12365.29	298.3	5582.13	3877.00	4136.00
03:20:00	46:50:00	16-0282	-.22	12365.07	298.2	5580.56	3911.00	4184.00
03:30:00	47:00:00	16-0283	-.05	12365.02	298.2	5580.92	3958.00	4180.00
03:40:00	47:10:00	16-0284	-.14	12364.88	298.2	5581.53	3895.00	4156.00
03:50:00	47:20:00	16-0285	-.08	12364.80	298.3	5581.47	3924.00	4164.00
04:00:00	47:30:00	16-0286	.88	12365.68	298.3	5581.06	4047.00	4177.00
04:10:00	47:40:00	16-0287	-.95	12364.73	298.3	5580.99	3943.00	4140.00
04:20:00	47:50:00	16-0288	.07	12364.80	298.2	5581.57	3955.00	4154.00
04:30:00	48:00:00	16-0289	-.15	12364.65	298.2	5580.91	4018.00	4177.00
04:40:00	48:10:00	16-0290	-.23	12364.42	298.3	5581.31	4046.00	4185.00
04:50:00	48:20:00	16-0291	.60	12365.02	298.3	5580.47	4101.00	4152 00
05:00:00	48:30:00	16-0292	-.86	12364.16	298.2	5580.88	4113.00	4133.00
05:10:00	48:40:00	16-0293	0.00	12364.16	298.3	5581.41	4131.00	4192.00
05:20:00	48:50:00	16-0294	.20	12364.36	298.2	5581.76	4060.00	4181.00
05:30:00	49:00:00	16-0295	-.29	12364.07	298.3	5582.79	4074.00	4111.00
05:40:00	49:10:00	16-0296	.11	12364.18	298.2	5581.37	4081.00	4151.00
05:50:00	49:20:00	16-0297	.09	12364.27	298.3	5581.56	4053.00	4176.00
06:00:00	49:30:00	16-0298	-.12	12364.15	298.3	5580.67	4127.00	4164.00
06:10:00	49:40:00	16-0299	.22	12364.37	298.2	5580.63	4995.00	4139.00

Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
06:20:00	49:50:00	16-0300	-.18	12364.19	298.2	5580.40	4162.00	4144.00
06:30:00	50:00:00	16-0301	-.50	12363.69	298.3	5580.11	4081.00	4166.00
06:40:00	50:10:00	16-0302	.05	12363.74	298.2	5580.40	4209.00	4174.00
06:50:00	50:20:00	16-0303	-.09	12363.65	298.2	5579.45	4129.00	4173.00
07:00:00	50:30:00	16-0304	-.49	12363.66	298.2	5579.03	4130.00	4151.00
07:10:00	50:40:00	16-0305	.51	12363.67	298.3	5580.33	4193.00	4147.00
07:20:00	50:50:00	16-0306	-.29	12363.38	298.2	5579.24	4254.00	4186.00
07:30:00	51:00:00	16-0307	-.03	12363.35	298.3	5579.29	4310.00	4164.00
07:40:00	51:10:00	16-0308	-.08	12363.27	298.3	5578.80	4243.00	4139.00
07:50:00	51:20:00	16-0309	-.18	12363.09	298.3	5578.78	4176.00	4140.00
08:00:00	51:30:00	16-0310	-.12	12362.97	298.3	5579.28	4172.00	4184.00
08:10:00	51:40:00	16-0311	.12	12363.09	298.3	5579.50	4225.00	4160.00
08:20:00	51:50:00	16-0312	.22	12363.31	298.3	5580.21	4260.00	4130.00
08:30:00	52:00:00	16-0313	-.33	12362.98	298.3	5580.99	4204.00	3795.00
08:40:00	52:10:00	16-0314	-.21	12362.77	298.3	5580.51	4207.00	4221.00
08:50:00	52:20:00	16-0315	-.02	12362.75	298.3	5580.74	4222.00	3865.00
09:00:00	52:30:00	16-0316	.08	12362.83	298.3	5579.60	4271.00	4454.00
09:10:00	52:40:00	16-0317	-.07	12362.76	298.3	5579.74	4223.00	4131.00
09:20:00	52:50:00	16-0318	-.19	12362.57	298.2	5579.67	4150.00	4197.00
09:30:00	53:00:00	16-0319	-.22	12362.35	298.2	5579.94	4114.00	4098.00
09:40:00	53:10:00	16-0320	.06	12362.41	298.3	5580.11	4216.00	4193.00
09:50:00	53:20:00	16-0321	-.45	12361.96	298.3	5579.47	4148.00	4120.00
10:00:00	53:30:00	16-0322	.24	12362.20	298.3	5579.79	4118.00	4175.00
10:10:00	53:40:00	16-0323	-.11	12362.09	298.2	5579.59	4173.00	4162.00
10:20:00	53:50:00	16-0324	.21	12362.30	298.3	5579.27	4154.00	3696.00
10:30:00	54:00:00	16-0325	-.30	12362.00	298.3	5580.01	4097.00	4081.00
10:40:00	54:10:00	16-0326	-.13	12361.87	298.3	5580.35	4097.00	6520.00
10:50:00	54:20:00	16-0327	-.08	12361.79	29..3	5579.77	4174.00	4172.00
11:00:00	54:30:00	16-0328	.08	12361.87	298.3	5580.09	4144.00	3360.00
11:10:00	54:40:00	16-0329	-.28	12361.59	298.3	5579.97	4186.00	4123.00
11:20:00	54:50:00	16-0330	-.03	12361.56	298.3	5579.82	4147.00	4106.00
11:30:00	55:00:00	16-0331	.07	12361.63	298.3	5579.63	4122.00	4101.00
11:40:00	55:10:00	16-0332	-.08	12361.55	298.3	5579.08	4156.00	4047.00
11:50:00	55:20:00	16-0333	-.12	12361.43	298.3	5579.40	4073.00	1514.00
12:00:00	55:30:00	16-0334	-.22	12361.21	298.3	5579.51	4052.00	3907.00

12:10:00	55:40:00	16-0335	-.06	12361.13	298.3	5579.14	[illegible]	[illegible]
12:20:00	55:50:00	16-0336	-.16	12360.99	298.3	5578.24	4183.00	4637.00
12:30:00	56:00:00	16-0337	.01	12361.00	298.3	5578.91	4215.00	4345.00
12:40:00	56:10:00	16-0338	-.18	12360.82	298.3	5578.59	4249.00	4313.00
12:50:00	56:20:00	16-0339	.09	12360.91	298.3	5578.70	4206.00	4047.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
START BUILD UP								
12:54:50	0:00:00	17-0002	12360.87	12360.87	298.3	5579.03	4171.00	4479.00
12:55:00	0:00:10	17-0003	.04	12360.91	298.3	5579.18	4129.00	4482.00
12:55:10	0:00:20	17-0004	.13	12361.04	298.3	5579.22	4191.00	4471.00
12:55:20	0:00:30	17-0005	-.10	12360.94	298.3	5578.92	4176.00	4472.00
12:55:30	0:00:40	17-0006	-.03	12360.91	298.3	5579.29	4138.00	4475.00
12:55:40	0:00:50	17-0007	-.12	12360.79	298.2	5578.89	4134.00	4477.00
12:55:50	0:01:00	17-0008	.16	12360.95	298.3	5578.59	4205.00	4463.00
12:56:00	0:01:10	17-0009	.04	12360.99	298.3	5579.14	4212.00	4456.00
12:56:10	0:01:20	17-0010	-.06	12360.93	298.3	5578.95	4209.00	4468.00
12:56:20	0:01:30	17-0011	-.06	12360.87	298.3	5578.83	4195.00	4461.00
12:56:30	0:01:40	17-0012	.04	12360.91	298.3	5579.14	4166.00	4473.00
12:56:40	0:01:50	17-0013	.44	12361.35	298.3	5586.89	3285.00	4463.00
12:56:50	0:02:00	17-0014	10.01	12371.36	298.3	5615.13	2410.00	4444.00
12:57:00	0:02:10	17-0015	11.69	12383.05	298.3	5631.67	2432.00	4423.00
12:57:10	0:02:20	17-0016	7.31	12390.36	298.3	5638.85	2407.00	4414.00
12:57:20	0:02:30	17-0017	4.53	12394.89	298.3	5644.80	2070.00	4397.00
12:57:30	0:02:40	17-0018	9.13	12404.02	298.3	5669.31	40.00	4369.00
12:57:40	0:02:50	17-0019	15.20	12419.22	298.3	5686.13	11.00	4353.00
12:57:50	0:03:00	17-0020	9.61	12428.83	298.3	5695.10	9.00	4333.00
12:58:00	0:03:10	17-0021	6.03	12434.86	298.3	5700.09	8.00	4309.00
12:58:10	0:03:20	17-0022	6.67	12441.53	298.3	5713.38	7.00	4290.00
12:58:20	0:03:30	17-0023	10.04	12451.57	298.3	5723.89	6.00	4262.00
12:58:30	0:03:40	17-0024	0.00	12451.57	298.3	5723.89	6.00	4262.00
12:58:40	0:03:50	17-0025	18.08	12469.65	298.3	5739.10	6.00	3623.00
12:58:50	0:04:00	17-0026	4.85	12474.50	298.3	5742.25	6.00	3588.00
12:59:00	0:04:10	17-0027	4.48	12478.98	298.3	5745.25	6.00	3571.00
12:59:10	0:04:20	17-0028	3.29	12482.27	298.3	5747.37	6.00	3544.00
12:59:20	0:04:30	17-0029	2.64	12484.91	298.3	5748.94	6.00	3521.00
12:59:30	0:04:40	17-0030	2.10	12487.01	298.3	5750.19	6.00	3511.00
12:59:40	0:04:50	17-0031	1.65	12488.66	298.3	5751.20	6.00	3492.00
12:59:50	0:05:00	17-0032	1.39	12490.05	298.3	5752.08	6.00	3463.00
13:00:00	0:05:10	17-0033	1.10	12491.15	298.3	5752.73	6.00	3436.00
13:00:10	0:05:20	17-0034	1.20	12492.35	298.3	5753.51	6.00	3420.00
13:00:20	0:05:30	17-0035	.75	12493.10	298.3	5754.02	6.00	3404.00
13:00:30	0:05:40	17-0036	.81	12493.91	298.3	5754.57	6.00	3387.00
13:00:40	0:05:50	17-0037	.97	12494.88	298.3	5755.22	5.00	3364.00
13:00:50	0:06:00	17-0038	.60	12495.48	298.3	5755.59	6.00	3348.00
13:01:00	0:06:10	17-0039	.65	12496.13	298.3	5756.03	6.00	3317.00
13:01:10	0:06:20	17-0040	.61	12496.74	298.3	5756.44	5.00	3294.00
13:01:20	0:06:30	17-0041	.46	12497.20	298.3	5756.78	6.00	3279.00
13:01:30	0:06:40	17-0042	.50	12497.70	298.3	5757.16	6.00	3251.00
13:01:40	0:06:50	17-0043	.61	12498.31	298.4	5757.55	5.00	3241.00
13:01:50	0:07:00	17-0044	.41	12498.72	298.3	5757.79	6.00	3218.00
13:02:10	0:07:20	17-0045	.95	12499.67	298.3	5758.41	6.00	3127.00
13:02:20	0:07:30	17-0046	.47	12500.14	298.3	5758.64	6.00	3099.00
13:02:30	0:07:40	17-0047	.37	12500.51	298.3	5758.88	5.00	3076.00
13:02:40	0:07:50	17-0048	.37	12500.88	298.3	5759.10	5.00	3054.00
13:02:50	0:08:00	17-0049	.47	12501.35	298.3	5759.34	6.00	3013.00
13:03:00	0:08:10	17-0050	.31	12501.66	298.3	5759.53	5.00	2986.00
13:03:10	0:08:20	17-0051	.36	12502.02	298.3	5759.77	5.00	2966.00
13:03:20	0:08:30	17-0052	.29	12502.31	298.4	5759.93	6.00	2955.00
13:03:30	0:08:40	17-0053	.35	12502.66	298.3	5760.12	5.00	2929.00

Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
13:03:40	0:08:50	17-0054	.33	12502.99	298.3	5760.31	5.00	2913.00
13:03:50	0:09:00	17-0055	.35	12503.34	298.3	5760.51	5.00	2902.00
13:04:00	0:09:10	17-0056	.20	12503.54	298.4	5760.66	5.00	2889.00
13:04:10	0:09:20	17-0057	.27	12503.81	298.3	5760.83	6.00	2878.00
13:04:20	0:09:30	17-0058	.29	12504.10	298.3	5761.03	5.00	2857.00
13:04:30	0:09:40	17-0059	.28	12504.38	298.4	5761.16	5.00	2854.00
13:04:40	0:09:50	17-0060	.20	12504.58	298.3	5761.33	6.00	2846.00
13:04:50	0:10:00	17-0061	.19	12504.77	298.3	5761.50	6.00	2839.00
13:05:00	0:10:10	17-0062	.22	12504.99	298.4	5761.65	6.00	2826.00
13:05:10	0:10:20	17-0063	.30	12505.29	298.3	5761.78	5.00	2812.00
13:05:20	0:10:30	17-0064	.20	12505.49	298.4	5761.93	6.00	2810.00
13:05:30	0:10:40	17-0065	.24	12505.73	298.3	5762.05	5.00	2799.00
13:05:40	0:10:50	17-0066	.32	12506.05	298.4	5762.22	5.00	2787.00
13:05:50	0:11:00	17-0067	.29	12506.34	298.3	5762.33	5.00	2775.00
13:06:00	0:11:10	17-0068	.15	12506.49	298.4	5762.46	5.00	2772.00
13:06:10	0:11:20	17-0069	.25	12506.74	298.4	5762.59	5.00	2773.00
13:06:20	0:11:30	17-0070	.20	12506.94	298.4	5762.70	5.00	2755.00
13:06:30	0:11:40	17-0071	.11	12507.05	298.4	5762.81	5.00	2735.00
13:06:40	0:11:50	17-0072	.24	12507.29	298.4	5762.90	5.00	2745.00
13:06:50	0:12:00	17-0073	.23	12507.52	298.4	5763.01	5.00	2737.00
13:07:00	0:12:10	17-0074	.14	12507.66	298.4	5763.11	6.00	2720.00
13:07:10	0:12:20	17-0075	.20	12507.86	298.3	5763.19	5.00	2718.00
13:07:20	0:12:30	17-0076	.13	12507.99	298.4	5763.28	5.00	2711.00
13:07:30	0:12:40	17-0077	.18	12508.17	298.4	5763.37	5.00	2714.00
13:07:40	0:12:50	17-0078	.22	12508.39	298.3	5763.45	5.00	2731.00
13:07:50	0:13:00	17-0079	.27	12508.66	298.3	5763.56	5.00	2722.00
13:08:00	0:13:10	17-0080	.10	12508.76	298.4	5763.61	5.00	2731.00
13:08:10	0:13:20	17-0081	0.00	12508.76	298.4	5763.61	5.00	2731.00
13:08:20	0:13:30	17-0082	.42	12509.18	298.4	5763.79	5.00	2718.00
13:08:30	0:13:40	17-0083	.19	12509.37	298.3	5763.86	5.00	2718.00
13:08:40	0:13:50	17-0084	.41	12509.78	298.3	5763.92	6.00	2710.00
13:08:50	0:14:00	17-0085	.04	12509.82	298.3	5763.97	5.00	2701.00
13:09:00	0:14:10	17-0086	.01	12509.83	298.3	5764.00	5.00	2693.00
13:09:10	0:14:20	17-0087	.15	12509.98	298.3	5764.05	5.00	2692.00
13:09:20	0:14:30	17-0088	.16	12510.14	298.4	5764.09	6.00	2681.00
13:09:30	0:14:40	17-0089	.18	12510.32	298.3	5764.14	5.00	2672.00
13:09:40	0:14:50	17-0090	.13	12510.45	298.3	5764.20	5.00	2654.00
13:09:50	0:15:00	17-0091	.12	12510.57	298.3	5764.26	5.00	2641.00
13:10:30	0:15:40	17-0092	.5	12511.15	298.3	5764.46	5.00	66.00
13:11:00	0:16:10	17-0093	.34	12511.49	298.4	5764.56	5.0	9.00
13:11:30	0:16:40	17-0094	.40	12511.89	298.4	5764.65	5.00	9.00
13:12:00	0:17:10	17-0095	.30	12512.19	298.3	5764.69	5.00	9.00
13:12:30	0:17:40	17-0096	.40	12512.59	298.4	5764.71	5.00	9.00
13:13:00	0:18:10	17-0097	.39	12512.98	298.3	5764.73	5.00	9.00
13:13:30	0:18:40	17-0098	.35	12513.33	298.3	5764.73	6.00	9.00
13:14:00	0:19:10	17-0099	.46	12513.79	298.3	5764.74	6.00	9.00
13:14:30	0:19:40	17-0100	.36	12514.15	298.3	5764.73	4.00	9.00
13:15:00	0:20:10	17-0101	.20	12514.35	298.3	5764.75	4.00	9.00
13:15:30	0:20:40	17-0102	.31	12514.66	298.4	5764.80	6.00	9.00
13:16:00	0:21:10	17-0103	.22	12514.88	298.3	5764.86	5.00	9.00
13:16:30	0:21:40	17-0104	.27	12515.15	298.3	5764.97	5.00	9.00
13:17:00	0:22:10	17-0105	.28	12515.43	298.3	5765.07	5.00	9.00
13:17:30	0:22:40	17-0106	.32	12515.75	298.4	5765.22	5.00	9.00
13:18:00	0:23:10	17-0107	.26	12516.01	298.3	5765.31	5.00	9.00
13:18:30	0:23:40	17-0108	.32	12516.33	298.3	5765.34	5.00	9.00
13:19:00	0:24:10	17-0109	.27	12516.60	298.4	5765.34	5.00	9.00
13:19:30	0:24:40	17-0110	.23	12516.83	298.3	5765.30	5.00	9.00
13:20:00	0:25:10	17-0111	.27	12517.10	298.3	5765.28	5.00	9.00
13:20:30	0:25:40	17-0112	.27	12517.37	298.3	5765.22	4.00	9.00
13:21:00	0:26:10	17-0113	.29	12517.66	298.3	5765.15	5.00	9.00

13:21:30	0:26:40	17-0114	.20	12517.86	298.3	5765.07	5.00	9.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
13:22:00	0:27:10	17-0115	.25	12518.11	298.4	5764.99	4.00	9.00
13:22:30	0:27:40	17-0116	.22	12518.33	298.3	5764.92	5.00	9.00
13:23:00	0:28:10	17-0117	.25	12518.58	298.3	5764.84	5.00	9.00
13:23:30	0:28:40	17-0118	.26	12518.84	298.3	5764.80	5.00	9.00
13:24:00	0:29:10	17-0119	.14	12518.98	298.2	5764.79	5.00	9.00
13:24:30	0:29:40	17-0120	.22	12519.20	298.3	5764.80	4.00	9.00
13:25:00	0:30:10	17-0121	.10	12519.30	298.3	5764.75	5.00	9.00
13:25:30	0:30:40	17-0122	.23	12519.53	298.3	5764.67	5.00	9.00
13:26:00	0:31:10	17-0123	.14	12519.67	298.2	5764.60	5.00	9.00
13:26:30	0:31:40	17-0124	.16	12519.83	298.3	5764.54	5.00	9.00
13:27:00	0:32:10	17-0125	.11	12519.94	298.2	5764.51	5.00	9.00
13:27:30	0:32:40	17-0126	.29	12520.23	298.3	5764.51	5.00	253.00
13:28:00	0:33:10	17-0127	.25	12520.48	298.3	5764.50	5.00	3207.00
13:28:30	0:33:40	17-0128	.30	12520.78	298.3	5764.49	5.00	5119.00
13:29:00	0:34:10	17-0129	.16	12520.94	298.2	5764.49	5.00	6481.00
13:29:30	0:34:40	17-0130	.11	12521.05	298.3	5764.48	5.00	6542.00
13:30:00	0:35:10	17-0131	.05	12521.00	298.2	5764.45	5.00	5257.00
13:30:30	0:35:40	17-0132	.16	12521.26	298.3	5764.36	6.00	5232.00
13:31:00	0:36:10	17-0133	.16	12521.42	298.3	5764.28	6.00	7438.00
13:31:30	0:36:40	17-0134	.29	12521.71	298.3	5764.19	6.00	7626.00
13:32:00	0:37:10	17-0135	.10	12521.81	298.3	5764.15	6.00	7627.00
13:32:30	0:37:40	17-0136	.14	12521.95	298.2	5764.14	6.00	7628.00
13:33:00	0:38:10	17-0137	.08	12522.03	298.4	5764.17	6.00	7628.00
13:33:30	0:38:40	17-0138	.31	12522.34	298.3	5764.21	6.00	7628.00
13:34:00	0:39:10	17-0139	.12	12522.46	298.3	5764.23	6.00	7628.00
13:34:30	0:39:40	17-0140	.03	12522.49	298.3	5764.23	6.00	5752.00
13:35:00	0:40:10	17-0141	.13	12522.62	298.4	5764.19	6.00	5695.00
13:35:30	0:40:40	17-0142	.17	12522.79	298.3	5764.13	6.00	6660.00
13:36:00	0:41:00	1--0143	.21	12523.00	298.2	5764.10	5.00	6044.00
13:36:30	0:41:40	17-0144	.02	12523.02	298.3	5764.05	5.00	5982.00
13:37:00	0:42:10	17-0145	.27	12523.29	298.3	5764.04	5.00	7017.00
13:37:30	0:42:40	17-0146	.12	12523.41	298.3	5764.20	5.00	7201.00
13:38:00	0:43:10	17-0147	.15	12523.56	298.3	5764.53	5.00	7631.00
13:38:30	0:43:40	17-0148	.06	12523.62	298.3	5764.85	5.00	7631.00
13:39:00	0:44:10	17-0149	.17	12523.79	298.4	5765.05	5.00	7630.00
13:39:30	0:44:40	17-0150	.23	12524.02	298.3	5765.08	5.00	7631.00
13:40:00	0:45:10	17-0151	.07	12524.09	298.3	5764.89	5.00	7624.00
13:40:30	0:45:40	17-0152	.15	12524.24	298.3	5764.60	4.00	7631.00
13:41:00	0:46:10	17-0153	.04	12524.28	298.4	5764.29	5.00	7421.00
13:41:30	0:46:40	17-0154	.02	12524.30	298.3	5763.98	5.00	7247.00
13:42:00	0:47:10	17-0155	.19	12524.49	298.3	5763.70	5.00	7134.00
13:42:30	0:47:40	17-0156	.15	12524.64	298.3	5763.51	5.00	6980.00
13:43:00	0:48:10	17-0157	.29	12524.93	298.3	5763.39	4.00	6827.00
13:43:30	0:48:40	17-0158	-.02	12524.91	298.4	5763.38	5.00	6701.00
13:44:00	0:49:10	17-0159	-.11	12524.80	298.3	5763.54	5.00	6437.00
13:44:30	0:49:40	17-0160	.24	12525.04	298.4	5763.75	4.00	6193.00
13:45:00	0:50:10	17-0161	.41	12525.45	298.4	5763.88	5.00	6141.00
13:45:30	0:50:40	17-0162	.09	12525.54	298.3	5763.81	5.00	6080.00
13:46:00	0:51:10	17-0163	-.07	12525.47	298.3	5763.59	5.00	7047.00
13:46:30	0:51:40	17-0164	-.07	12525.40	298.3	5763.28	5.00	7631.00
13:47:00	0:52:10	17-0165	.15	12525.55	298.3	5763.02	5.00	7631.00
13:47:30	0:52:40	17-0166	.22	12525.77	298.3	5762.83	5.00	6789.00
13:48:00	0:53:10	17-0167	.22	12525.99	298.3	5762.68	5.00	6695.00
13:48:30	0:53:40	17-0168	-.08	12525.91	298.3	5762.58	5.00	5989.00

13:49:00	0:54:10	17-0169	.25	12526.16	298.3	5762.56	5.00	5043.00
13:49:30	0:54:40	17-0170	-.05	12526.11	298.3	5762.62	5.00	5801.00
13:50:00	0:55:10	17-0171	.33	12526.44	298.3	5762.52	5.00	5866.00
13:50:30	0:55:40	17-0172	-.05	12526.39	298.4	5762.31	5.00	4881.00
13:51:00	0:56:10	17-0173	.11	12526.50	298.3	5762.05	5.00	5843.00
13:51:30	0:56:40	17-0174	.04	12526.54	298.2	5761.85	5.00	6121.00
13:52:00	0:57:10	17-0175	.02	12526.56	298.3	5761.70	4.00	7631.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
13:52:30	0:57:40	17-0176	.12	12526.68	298.3	5761.50	5.00	7067.00
13:53:00	0:58:10	17-0177	.06	12526.74	298.3	5761.29	4.00	6124.00
13:53:30	0:58:40	17-0178	.06	12526.80	298.3	5761.07	4.00	5361.00
13:54:00	0:59:10	17-0179	.01	12526.81	298.3	5760.92	4.00	4597.00
13:54:30	0:59:40	17-0180	.13	12526.94	298.3	5760.79	5.00	4031.00
13:55:00	1:00:10	17-0181	.10	12527.04	298.3	5760.66	5.00	3451.00
13:55:30	1:00:40	17-0182	.14	12527.18	298.4	5760.55	5.00	2832.00
13:56:00	1:01:10	17-0183	.04	12527.22	298.2	5760.51	4.00	2495.00
13:56:30	1:01:40	17-0184	.15	12527.37	298.4	5760.50	4.00	2201.00
13:57:00	1:02:10	17-0185	.15	12527.52	298.3	5760.50	5.00	1996.00
13:57:30	1:02:40	17-0186	-.16	12527.36	298.2	5760.49	5.00	1881.00
13:58:00	1:03:10	17-0187	.19	12527.55	298.3	5760.45	4.00	1394.00
13:58:30	1:03:40	17-0188	.05	12527.60	298.3	5760.41	5.00	1043.00
13:59:00	1:04:10	17-0189	.15	12527.75	298.3	5760.35	4.00	672.00
13:59:30	1:04:40	17-0190	.05	12527.80	298.2	5760.27	5.00	329.00
14:00:00	1:05:10	17-0191	.03	12527.83	298.4	5760.16	5.00	9.00
14:01:00	1:06:10	17-0192	.30	12528.13	298.3	5759.98	4.00	9.00
14:02:00	1:07:10	17-0193	.12	12528.25	298.3	5759.87	4.00	9.00
14:03:00	1:08:10	17-0194	.16	12528.41	298.3	5759.76	4.00	9.00
14:04:00	1:09:10	17-0195	.16	12528.57	298.3	5759.70	4.00	9.00
14:05:00	1:10:10	17-0196	.14	12528.71	298.4	5759.47	4.00	9.00
14:06:00	1:11:10	17-0197	.27	12588.98	298.3	5759.28	4.00	9.00
14:07:00	1:12:10	17-0198	.20	12529.18	298.3	5759.12	4.00	9.00
14:08:00	1:13:10	17-0199	.11	12529.29	298.3	5758.98	4.00	9.00
14:09:00	1:14:10	17-0200	.03	12529.32	298.4	5758.95	4.00	9.00
14:10:00	1:15:10	17-0201	.18	12529.50	298.2	5759.05	5.00	9.00
14:11:00	1:16:1	17-0202	.12	12529.62	298.2	5758.82	4.00	9.00
14:12:00	1:17:10	17-0203	.24	12529.86	298.3	5758.60	4.00	9.00
14:13:00	1:18:10	17-0204	.17	12530.0	298.4	5758.46	4.00	9.00
14:14:00	1:19:10	17-0205	-.18	12529.85	298.4	5758.41	5.00	9.00
14:15:00	1:20:10	17-0206	.10	12529.95	298.3	5758.31	5.00	9.00
14:16:00	1:21:10	17-0207	.33	12530.28	298.3	5758.08	4.00	9.00
14:17:00	1:22:10	17-0208	.08	12530.36	298.3	5757.88	4.00	9.00
14:18:00	1:23:10	17-0209	.29	12530.65	298.3	5757.70	5.00	9.00
14:19:00	1:24:10	17-0210	.21	12530.86	298.3	5757.66	5.00	9.00
14:20:00	1:25:10	17-0211	.05	12530.91	298.4	5757.63	5.00	9.00
14:21:00	1:26:10	17-0212	.16	12531.07	298.3	5757.56	4.00	9.00
14:22:00	1:27:10	17-0213	.03	12531.10	998.3	5757.42	4.00	9.00
14:23:00	1:28:10	17-0214	.14	12531.24	298.3	5757.20	4.00	9.00
14:24:00	1:29:10	17-0215	.25	12531.49	298.3	5756.91	5.00	9.00
14:25:00	1:30:10	17-0216	.07	12531.56	298.3	5756.74	4.00	9.00
14:26:00	1:31:10	17-0217	.03	12531.59	298.3	5756.61	4.00	9.00
14:27:00	1:32:10	17-0218	.21	12531.80	298.3	5756.36	4.00	9.00
14:28:00	1:33:10	17-0219	.14	12531.94	298.3	5756.13	5.00	9.00
14:29:00	1:34:10	17-0220	-.12	12531.82	298.3	5755.94	4.00	9.00
14:30:00	1:35:10	17-0221	.39	12532.21	298.3	5755.71	5.00	9.00
14:31:00	1:36:10	17-0222	-.07	12532.14	298.4	5755.54	4.00	9.00
14:32:00	1:37:10	17-0223	.21	12532.35	298.3	5755.27	4.00	9.00

14:33:00	1:38:10	17-0224	.03	12532.38	298.3	5755.01	4.00	9.00
14:34:00	1:39:10	17-0225	.15	12532.53	298.3	5754.91	4.00	9.00
14:35:00	1:40:10	17-0226	.06	12532.59	298.3	5754.73	4.00	9.00
14:36:00	1:41:10	17-0227	.20	12532.79	298.3	5754.60	5.00	9.00
14:37:00	1:42:10	17-0228	.09	12532.88	298.3	5754.67	4.00	9.00
14:38:00	1:43:10	17-0229	.11	12532.99	298.2	5754.73	4.00	9.00
14:39:00	1:44:10	17-0230	.08	12533.07	298.3	5754.77	3.00	9.00
14:40:00	1:45:10	17-0231	.21	12533.28	298.3	5754.77	3.00	9.00
14:41:00	1:46:10	17-0232	.06	12533.34	298.3	5754.68	4.00	9.00
14:42:00	1:47:10	17-0233	.12	12533.46	298.3	5754.62	4.00	9.00
14:43:00	1:48:10	17-0234	-.05	12533.41	298.3	5754.73	3.00	9.00
14:44:00	1:49:10	17-0235	.13	12533.54	298.3	5754.56	4.00	9.00
14:45:00	1:50:10	17-0236	.18	12533.72	298.3	5754.32	4.00	9.00

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Lease: GLADYS McCALL Well #: 1 State: LA

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
14:46:00	1:51:10	17-0237	.03	12533.75	298.3	5754.12	4.00	9.00
14:47:00	1:52:10	17-0238	.04	12533.79	298.3	5753.87	3.00	9.00
14:48:00	1:53:10	17-0239	.07	12533.86	298.2	5753.65	4.00	9.00
14:49:00	1:54:10	17-0240	.30	12534.16	298.3	5753.53	3.00	9.00
14:50:00	1:55:10	17-0241	.09	12534.25	298.3	5753.30	3.00	9.00
14:51:00	1:56:10	17-0242	-.05	12534.20	288.3	5753.00	3.00	9.00
14:52:00	1:57:10	17-0243	.07	12534.27	298.3	5752.82	4.00	9.00
14:53:00	1:58:10	17-0244	.15	12534.42	298.3	5752.76	3.00	9.00
14:54:00	1:59:10	17-0245	.12	12534.54	298.3	5752.64	3.00	9.00
14:55:00	2:00:10	17-0246	.19	12534.73	298.3	5752.49	3.00	9.00
14:56:00	2:01:10	17-0247	.07	12534.80	298.3	5752.48	3.00	9.00
14:57:00	2:02:10	17-0248	.08	12534.88	298.3	5752.72	3.00	9.00
14:58:00	2:03:10	17-0249	.07	12534.95	298.3	5752.60	3.00	9.00
14:59:00	2:04:10	17-0250	.08	12535.03	298.3	5752.35	3.00	9.00
15:00:00	2:05:10	17-0251	.04	12535.07	298.3	5752.65	3.00	9.00
15:05:00	2:10:10	17-0252	.37	12535.44	298.3	5752.75	2.00	9.00
15:10:00	2:15:10	17-0253	.53	12535.97	298.3	5751.58	2.00	9.00
15:15:00	2:20:10	17-0254	.49	12536.46	298.3	5750.21	2.00	9.00
15:20:00	2:25:10	17-0255	.38	12536.84	298.3	5748.93	2.00	9.00
15:25:00	2:30:10	17-0256	.11	12536.95	298.3	5748.01	2.00	9.00
15:30:00	2:35:10	17-0257	.41	12537.36	298.2	5747.57	2.00	9.00
15:35:00	2:40:10	17-0256	.38	12537.74	298.2	5747.12	2.00	9.00
15:40:00	2:45:10	17-0259	.23	12537.97	298.3	5746.90	1.00	9.00
15:45:00	2:50:10	17-0260	.55	12538.52	298.3	5746.62	2.00	9.00
15:50:00	2:55:10	17-0261	.32	12538.84	298.3	5746.39	2.00	9.00
15:55:00	3:00:10	17-0262	.25	12539.09	298.2	5745.64	1.00	9.00
16:00:00	3:05:10	17-0263	.28	12539.37	298.2	5744.92	1.00	9.00
16:05:00	3:10:10	17-0264	.27	12539.64	298.3	5744.31	1.00	9.00
16:10:00	3:15:10	17-0265	.32	12539.96	298.3	5743.54	1.00	9.00
16:15:00	3:20:10	17-0266	.17	12540.13	298.1	5743.18	1.00	9.00
16:20:00	3:25:10	17-0267	.30	12540.43	298.4	5742.74	1.00	9.00
16:25:00	3:30:10	17-0268	.14	12540.57	298.3	5741.52	1.00	9.00
16:30:00	3:35:10	17-0269	.36	12540.93	298.4	5741.75	1.00	9.00
16:35:00	3:40:10	17-0270	.38	12541.31	298.2	5741.47	0.00	9.00
16:40:00	3:45:10	17-0271	.14	12541.45	298.3	5740.97	0.00	9.00
16:45:00	3:50:10	17-0272	-.24	12541.21	298.3	5740.41	0.00	9.00
16:50:00	3:55:10	17-0273	.75	12541.96	298.3	5739.59	0.00	9.00
16:55:00	4:00:10	17-0274	.11	12542.07	298.3	5738.76	0.00	9.00
17:00:00	4:05:10	17-0275	.19	12542.26	298.3	5738.13	0.00	9.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
17:05:00	0:00:00	18-0001	12542.84	12542.84	298.2	5737.67	0.00	9.00
17:10:00	0:05:00	18-0002	.20	12543.04	298.3	5737.03	0.00	9.00
17:15:00	0:10:00	18-0003	-.07	12542.97	298.3	5736.69	0.00	9.00
17:20:00	0:15:00	18-0004	.44	12543.41	298.2	5736.21	0.00	9.00
17:25:00	0:20:00	18-0005	.14	12543.55	298.2	5735.62	0.00	9.00
17:30:00	0:25:00	18-0006	-.04	12543.51	298.3	5735.09	0.00	9.00
17:35:00	0:30:00	18-0007	.29	12543.80	298.2	5734.87	0.00	9.00
17:40:00	0:35:00	18-0008	.39	12544.19	298.2	5734.67	0.00	9.00
17:45:00	0:40:00	18-0009	.17	12544.36	298.3	5734.29	0.00	9.00
17:50:00	0:45:00	18-0010	.17	12544.53	298.4	5734.07	0.00	9.00
17:55:00	0:50:00	18-0011	.40	12544.93	298.2	5733.74	0.00	9.00
18:00:00	0:55:00	18-0012	-.01	12544.92	298.3	5733.43	0.00	9.00
18:05:00	1:00:00	18-0013	-.06	12544.86	298.2	5733.07	0.00	9.00
18:10:00	1:05:00	18-0014	.38	12545.24	298.3	5732.73	0.00	9.00
18:15:00	1:10:00	18-0015	.11	12545.35	298.2	5732.54	0.00	9.00
18:20:00	1:15:00	18-0016	.15	12545.50	298.3	5732.35	0.00	9.00
18:25:00	1:20:00	18-0017	.13	12545.63	298.2	5732.04	0.00	9.00
18:30:00	1:25:00	18-0018	.12	12545.75	298.3	5731.78	0.00	9.00
18:35:00	1:30:00	18-0019	.11	12545.86	298.3	5731.49	0.00	9.00
18:40:00	1:35:00	18-0020	.41	12546.27	298.2	5731.15	0.00	9.00
18:45:00	1:40:00	18-0021	0.00	12546.27	298.3	5730.72	0.00	9.00
18:50:00	1:45:00	18-0022	.22	12546.49	298.2	5730.28	0.00	9.00
18:55:00	1:50:00	18-0023	.06	12546.55	298.2	5729.86	0.00	9.00
19:00:00	1:55:00	18-0024	.08	12546.63	298.3	5729.43	0.00	9.00
19:05:00	2:00:00	18-0025	.28	12546.91	298.3	5728.99	0.00	9.00
19:10:00	2:05:00	18-0026	.06	12546.97	298.3	5728.56	0.00	9.00
19:15:00	2:10:00	18-0027	.10	12547.07	298.2	5728.14	0.00	9.00
19:20:00	2:15:00	18-0028	.23	12547.30	298.2	5727.74	0.00	9.00
19:25:00	2:20:00	18-0029	.15	12547.45	298.2	5727.35	0.00	9.00
19:30:00	2:25:00	18-0030	.02	12547.47	298.2	5726.99	0.00	9.00
19:35:00	2:30:00	18-0031	.27	12547.74	298.3	5726.60	0.00	9.00
19:40:00	2:35:00	18-0032	-.04	12547.70	298.3	5726.27	0.00	11.00
19:45:00	2:40:00	18-0033	.46	12548.16	298.2	5725.93	0.00	9.00
19:50:00	2:45:00	18-0034	.08	12548.24	298.2	5725.56	0.00	9.00
19:55:00	2:50:00	18-0035	.10	12548.34	298.2	5725.27	0.00	9.00
20:00:00	2:55:00	18-0036	.12	12548.46	298.2	5724.90	0.00	52.00
20:05:00	3:00:00	18-0037	.02	12548.48	298.3	5724.60	0.00	9.00
20:10:00	3:05:00	18-0038	.16	12548.64	298.2	5724.23	0.00	9.00
20:15:00	3:10:00	18-0039	.02	12548.66	298.2	5723.77	0.00	9.00
20:20:00	3:15:00	18-0040	.19	12548.85	298.2	5723.39	0.00	9.00
20:25:00	3:20:00	18-0041	.25	12549.10	298.3	5723.08	0.00	9.00
20:30:00	3:25:00	18-0042	-.04	12549.06	298.3	5722.83	0.00	9.00
20:35:00	3:30:00	18-0043	.31	12549.37	298.2	5722.65	0.00	9.00
20:40:00	3:35:00	18-0044	-.03	12549.34	298.2	5722.47	0.00	9.00
20:45:00	3:40:00	18-0045	.27	12549.61	298.2	5722.32	0.00	9.00
20:50:00	3:45:00	18-0046	.19	12549.80	298.3	5722.14	0.00	9.00
20:55:00	3:50:00	18-0047	.04	12549.84	298.2	5721.98	0.00	9.00
21:00:00	3:55:00	18-0048	.12	12549.96	298.3	5721.66	0.00	9.00
21:05:00	4:00:00	18-0049	.25	12550.21	298.2	5721.26	0.00	9.00
21:10:00	4:05:00	18-0050	.18	12550.39	298.2	5721.02	0.00	9.00
21:15:00	4:10:00	18-0051	-.32	12550.07	298.3	5720.76	0.00	9.00
21:20:00	4:15:00	18-0052	.17	12550.24	298.2	5720.53	0.00	9.00
21:25:00	4:20:00	18-0053	.44	12550.68	298.2	5720.28	0.00	9.00
21:30:00	4:25:00	18-0054	.04	12550.72	298.3	5720.03	0.00	9.00
21:35:00	4:30:00	18-0055	0.00	12550.72	298.2	5719.83	0.00	9.00

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
21:40:00	4:35:00	18-0056	-.03	12550.69	298.4	5719.51	0.00	9.00
21:45:00	4:40:00	18-0057	.18	12550.87	298.2	5719.35	0.00	9.00
21:50:00	4:45:00	18-0058	.18	12551.05	298.4	5719.11	0.00	9.00
21:55:00	4:50:00	18-0059	.01	12551.06	298.3	5718.85	0.00	9.00
22:00:00	4:55:00	18-0060	.08	12551.14	298.3	5718.42	0.00	9.00
22:10:00	5:05:00	18-0061	.22	12551.36	298.3	5717.81	0.00	9.00
22:20:00	5:15:00	18-0062	.24	12551.60	298.3	5717.19	0.00	71.00
22:30:00	5:25:00	18-0063	.36	12551.96	298.3	5716.68	0.00	59.00
22:40:00	5:35:00	18-0064	-.19	12551.77	298.3	5716.20	0.00	9.00
22:50:00	5:45:00	18-0065	.56	12552.33	298.2	5715.72	0.00	9.00
23:00:00	5:55:00	18-0066	-.19	12552.14	298.2	5715.13	0.00	9.00
23:10:00	6:05:00	18-0067	.91	12553.05	298.2	5714.59	0.00	9.00
23:20:00	6:15:00	18-0068	-.48	12552.57	298.1	5714.10	0.00	9.00
23:30:00	6:25:00	18-0069	.19	12552.76	298.1	5713.76	0.00	9.00
23:40:00	6:35:00	18-0070	.13	12552.89	298.2	5713.32	0.00	9.00
23:50:00	6:45:00	18-0071	.13	12553.02	298.2	5712.83	0.00	9.00
00:00:00	6:55:00	18-0073	-.08	12552.94	298.3	5712.35	0.00	9.00
00:10:00	7:05:00	18-0074	.54	1255..48	298.3	5711.96	0.00	44.00
00:20:00	7:15:00	18-0075	.12	12553.60	298.3	5711.54	0.00	243.00
00:30:00	7:25:00	18-0076	.42	12554.02	298.3	5711.12	0.00	44.00
00:40:00	7:35:00	18-0077	.27	12554.29	298.2	5710.63	0.00	18.00
00:50:00	7:45:00	18-0078	-.13	12554.16	298.3	5710.28	0.00	192.00
01:00:00	7:55:00	18-0079	-.05	12554.11	298.2	5709.81	0.00	9.00
01:10:00	8:05:00	18-0080	.11	12554.22	298.3	5709.32	0.00	9.00
01:20:00	8:15:00	18-0081	.10	12554.32	298.2	5708.91	0.00	48.00
01:30:00	8:25:00	18-0082	.55	12554.87	298.4	5708.57	0.00	9.00
01:40:00	8:35:00	18-0083	-.17	12554.70	298.2	5708.28	0.00	9.00
01:50:00	8:45:00	18-0084	.28	12554.98	298.3	5707.96	0.00	9.00
02:00:00	8:55:00	18-0085	.04	12555.02	298.3	5707.58	0.00	55.00
02:10:00	9:05:00	18-0086	.21	12555.23	298.3	5707.18	0.00	9.00
02:20:00	9:15:00	18-0087	.38	12555.61	298.4	5706.76	0.00	9.00
02:30:00	9:25:00	18-0088	-.08	12555.53	298.3	5706.42	0.00	9.00
02:40:00	9:35:00	18-0089	-.01	12555.52	298.3	5705.96	0.00	9.00
02:50:00	9:45:00	18-0090	.17	12555.69	298.1	5705.58	0.00	9.00
03:00:00	9:55:00	18-0091	.18	12555.87	298.2	5705.23	0.00	9.00
03:10:00	10:05:00	18-0092	-.20	12555.67	298.3	5704.87	0.00	9.00
03:20:00	10:15:00	18-0093	.43	12556.10	298.3	5704.49	0.00	9.00
03:30:00	10:25:00	18-0094	-.14	12555.96	298.3	5704.13	0.00	9.00
03:40:00	10:35:00	18-0095	.19	12556.15	298.3	5703.86	0.00	9.00
03:50:00	10:45:00	18-0096	.12	12556.27	298.3	5703.54	0.00	9.00
04:00:00	10:55:00	18-0097	.17	12556.44	298.2	5703.14	0.00	9.00
04:10:00	11:05:00	18-0098	.09	12556.53	298.5	5702.82	0.00	9.00
04:20:00	11:15:00	18-0099	-.21	12556.32	298.3	5702.48	0.00	9.00
04:30:00	11:25:00	18-0100	.10	12556.42	298.4	5702.11	0.00	9.00
04:40:00	11:35:00	18-0101	.34	12556.76	298.3	5701.79	0.00	9.00
04:50:00	11:45:00	18-0102	-.32	12556.44	298.2	5701.57	0.00	9.00
05:00:00	11:55:00	18-0103	.42	12556.86	298.3	5701.32	0.00	9.00
05:10:00	12:05:00	18-0104	.08	12556.94	298.4	5700.99	0.00	9.00
05:20:00	12:15:00	18-0105	-.06	12556.88	298.3	5700.78	0.00	9.00
05:30:00	12:25:00	18-0106	.40	12557.28	298.3	5700.48	0.00	9.00
05:40:00	12:35:00	18-0107	-.19	12557.09	298.3	5700.11	0.00	9.00
05:50:00	12:45:00	18-0108	.16	12557.25	298.2	5699.64	0.00	9.00
06:00:00	12:55:00	18-0109	.49	12557.74	298.3	5699.31	0.00	9.00
06:10:00	13:05:00	18-0110	-.37	12557.37	298.4	5699.48	0.00	9.00
06:20:00	13:15:00	18-0111	.25	12557.62	298.4	5699.10	0.00	9.00
06:30:00	13:25:00	18-0112	-.03	12557.59	298.4	5698.68	0.00	9.00
06:40:00	13:35:00	18-0113	.14	12557.73	298.3	5697.83	0.00	289.00
06:50:00	13:45:00	18-0114	-.06	12557.67	298.3	5696.61	0.00	344.00
07:00:00	[illegible]	18-0115	.02	12557.69	298.4	5695.94	0.00	194.00
07:10:00	[illegible]	18-0116	[illegible]	12558.02	298.3	5697.36	0.00	35.00

SET REAL TIME

SET REAL TIME

07:30:00	14:25:00	18-0119	-.03	12557.99	298.5	5698.86	0.00	9.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
07:40:00	14:35:00	18-0120	-.27	12557.72	298.3	5698.00	0.00	9.00
07:50:00	14:45:00	18-0118	.29	12558.01	298.2	5698.74	0.00	9.00
08:00:00	14:55:00	18-0125	.10	12558.11	298.3	5698.19	0.00	9.00
08:10:00	15:05:00	18-0126	.08	12558.19	298.3	5698.37	0.00	9.00
08:20:00	15:15:00	18-0127	-.13	12558.06	298.5	5698.30	0.00	9.00
08:30:00	15:25:00	18-0128	.25	12558.31	298.4	5698.72	0.00	9.00
08:40:00	15:35:00	18-0129	.48	12558.79	298.4	5698.25	0.00	9.00
08:50:00	15:45:00	18-0130	-.69	12558.10	298.4	5698.73	0.00	9.00
09:00:00	15:55:00	18-0131	.36	12558.46	298.4	5698.98	0.00	9.00
09:10:00	16:05:00	18-0132	-.03	12558.43	298.5	5698.70	0.00	9.00
09:20:00	16:15:00	18-0133	-.03	12558.40	298.4	5698.95	0.00	9.00
09:30:00	16:25:00	18-0134	-.20	12558.20	298.4	5699.10	0.00	9.00
09:40:00	16:35:00	18-0135	.29	12558.49	298.4	5699.06	0.00	9.00
09:50:00	:- :00	18-0136	-.01	12558.48	298.4	5699.08	0.00	9.00

SET REAL TIME

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
10:00:00	0:00:00	19-0001	12558.61	12558.61	298.4	5699.00	0.00	9.00
10:10:00	0:10:00	19-0002	.13	12558.74	298.4	5698.99	0.00	9.00
10:20:00	0:20:00	19-0003	-.24	12558.50	298.3	5698.46	0.00	9.00
10:30:00	0:30:00	19-0004	.12	12558.62	298.4	5698.62	0.00	9.00
10:40:00	0:40:00	19-0005	.03	12558.65	298.4	5699.70	0.00	9.00
10:50:00	0:50:00	19-0006	.07	12558.72	298.3	5700.66	0.00	9.00
11:00:00	1:00:00	19-0007	-.27	12558.45	298.3	5699.69	0.00	9.00
11:10:00	1:10:00	19-0008	.22	12558.67	298.4	5699.68	0.00	9.00
11:20:00	1:20:00	19-0009	-.66	12558.61	298.4	5699.45	0.00	9.00
11:30:00	1:30:00	19-0010	-.14	12558.47	298.3	5699.19	0.00	9.00
11:40:00	1:40:00	19-0011	.10	12558.57	298.3	5699.31	0.00	9.00
11:50:00	1:50:00	19-0012	-.02	12558.55	298.3	5698.49	0.00	9.00
12:00:00	2:00:00	19-0013	-.07	12558.48	298.4	5699.34	0.00	9.00
12:10:00	2:10:00	19-0014	.06	12558.54	298.3	5699.15	0.00	9.00
12:20:00	2:20:00	19-0015	-.02	12558.52	298.3	5698.91	0.00	9.00
12:30:00	2:30:00	19-0016	-.14	12558.38	298.3	5698.83	0.00	9.00
12:40:00	2:40:00	19-0017	.13	12558.51	298.4	5698.88	0.00	9.00
12:50:00	2:50:00	19-0018	-.29	12558.22	298.4	5698.82	0.00	9.00
13:00:00	3:00:00	19-0019	.15	12558.37	298.4	5698.59	0.00	9.00
13:10:00	3:10:00	19-0020	-.11	12558.26	298.4	5698.30	0.00	9.00
13:20:00	3:20:00	19-0021	.17	12558.43	298.4	5698.41	0.00	9.00
13:30:00	3:30:00	19-0022	-.12	12558.31	298.4	5698.93	0.00	9.00
13:40:00	3:40:00	19-0023	.11	12558.42	298.3	5698.71	0.00	9.00
13:50:00	3:50:00	19-0024	-.15	12558.27	298.4	5698.59	0.00	9.00
14:00:00	4:00:00	19-0025	-.13	12558.14	298.4	5698.40	0.00	9.00
14:10:00	4:10:00	19-0026	.23	12558.37	298.3	5698.43	0.00	9.00
14:20:00	4:20:00	19-0027	.42	12558.79	298.4	5697.99	0.00	9.00
14:30:00	4:30:00	19-0028	-.26	12558.53	298.4	5697.84	0.00	9.00
14:40:00	4:40:00	19-0029	.01	12558.54	298.3	5697.89	0.00	9.00
14:50:00	4:50:00	19-0030	.21	12558.75	298.3	5698.55	0.00	9.00
15:00:00	5:00:00	19-0031	.08	12558.83	298.4	5698.73	0.00	9.00
15:10:00	5:10:00	19-0032	.15	12558.98	298.4	5698.43	0.00	9.00
15:20:00	5:20:00	19-0033	.17	12559.15	298.3	5698.05	0.00	9.00
15:30:00	5:30:00	19-0034	-.05	12559.10	298.4	5697.94	0.00	9.00
15:40:00	5:40:00	19-0035	.04	12559.14	298.4	5698.06	0.00	9.00
15:50:00	5:50:00	19-0036	-.15	12558.99	298.3	5697.76	0.00	9.00
16:00:00	6:00:00	19-0037	.07	12559.06	298.3	5697.94	0.00	9.00
16:10:00	6:10:00	19-0038	.53	12559.59	298.3	5697.88	0.00	9.00
16:20:00	6:20:00	19-0039	-.34	12559.25	298.4	5697.78	0.00	9.00
16:30:00	6:30:00	19-0040	-.01	12559.24	298.4	5696.93	0.00	9.00
16:40:00	6:40:00	19-0041	.53	12559.77	298.4	5696.80	0.00	9.00
16:50:00	6:50:00	19-0042	-.10	12559.67	298.4	5696.86	0.00	9.00
17:00:00	7:00:00	19-0043	.04	12559.71	298.4	5697.32	0.00	9.00
17:10:00	7:10:00	19-0044	-.02	12559.69	298.3	5698.00	0.00	9.00
17:20:00	7:20:00	19-0045	-.06	12559.63	298.3	5697.83	0.00	9.00
17:30:00	7:30:00	19-0046	.12	12559.75	298.3	5698.25	0.00	9.00
17:40:00	7:40:00	19-0047	.10	12559.85	298.4	5697.80	0.00	9.00
17:50:00	7:50:00	19-0048	-.12	12559.73	298.4	5697.98	0.00	9.00
18:00:00	8:00:00	19-0049	.07	12559.80	298.4	5698.13	0.00	9.00
18:10:00	8:10:00	19-0050	.29	12560.09	298.4	5698.14	0.00	9.00
18:20:00	8:20:00	19-0051	.23	12560.32	298.4	5698.24	0.00	9.00
18:30:00	8:30:00	19-0052	-.03	12560.29	298.4	5698.17	0.00	9.00
18:40:00	8:40:00	19-0053	.05	12560.34	298.4	5697.80	0.00	9.00
18:50:00	8:50:00	19-0054	0.00	12560.34	298.4	5697.45	0.00	9.00
19:00:00	9:00:00	19-0055	.16	12560.50	298.4	5697.01	0.00	9.00

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Lease: GLADYS McCALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
19:10:00	9:10:00	19-0056	-.07	12560.43	298.4	5696.51	0.00	9.00
19:20:00	9:20:00	19-0057	.23	12560.66	298.4	5695.98	0.00	9.00
19:30:00	9:30:00	19-0058	-.26	12560.40	298.4	5695.72	0.00	9.00
19:40:00	9:40:00	19-0059	.10	12560.50	298.3	5695.37	0.00	9.00
19:50:00	9:50:00	19-0060	.21	12560.71	298.4	5695.02	0.00	9.00
20:00:00	10:00:00	19-0061	-.12	12560.59	298.4	5694.98	0.00	9.00
20:10:00	10:10:00	19-0062	.31	12560.90	298.3	5694.46	0.00	9.00
20:20:00	10:20:00	19-0063	-.14	12560.76	298.4	5694.95	0.00	9.00
20:30:00	10:30:00	19-0064	.32	12561.08	298.4	5694.16	0.00	9.00
20:40:00	10:40:00	19-0065	-.05	12561.03	298.3	5693.67	0.00	9.00
20:50:00	10:50:00	19-0066	0.00	12561.03	298.5	5693.88	0.00	9.00
21:00:00	11:00:00	19-0067	.34	12561.37	298.5	5693.66	0.00	9.00
21:10:00	11:10:00	19-0068	-.29	12561.08	298.3	5693.05	0.00	9.00
21:20:00	11:20:00	19-0069	.49	12561.57	298.4	5693.44	0.00	9.00
21:30:00	11:30:00	19-0070	-.30	12561.27	298.4	5693.58	0.00	9.00
21:00:00	11:40:00	19-0071	.24	12561.51	298.5	5693.15	0.00	9.00
21:50:00	11:50:00	19-0072	.20	12561.71	298.4	5691.76	0.00	9.00
22:00:00	12:00:00	19-0073	-.09	12561.62	298.5	5692.89	0.00	9.00
22:10:00	12:10:00	19-0074	.12	12561.74	298.4	5693.02	0.00	9.00
22:20:00	12:20:00	19-0075	.29	12562.03	298.4	5692.03	0.00	9.00
22:30:00	12:30:00	19-0076	.01	12562.04	298.4	5692.10	0.00	9.00
22:40:00	12:40:00	19-0077	.11	12562.15	296.5	5692.10	0.00	9.00
22:50:00	12:50:00	19-0078	-.03	12562.12	298.4	5691.62	0.00	9.00
23:00:00	13:00:00	19-0079	.74	12562.86	298.4	5691.18	0.00	9.00
23:10:00	13:10:00	19-0080	-.08	12562.78	298.4	5690.97	0.00	9.00
23:20:00	13:20:00	19-0081	.13	12562.91	296.4	5691.14	0.00	9.00
23:30:00	13:30:00	19-0082	-.49	12562.42	298.5	5690.64	0.00	9.00
23:40:00	13:40:00	19-0083	.64	12563.06	298.3	5689.80	0.00	9.00
23:50:00	13:50:00	19-0084	.20	12563.26	298.3	5689.43	0.00	9.00
00:00:00	14:00:00	19-0085	-.32	12562.94	298.4	5688.91	0.00	9.00
00:10:00	14:10:00	19-0086	-.05	12562.89	298.4	5688.71	0.00	9.00
00:20:00	14:20:00	19-0087	.21	12563.10	298.4	5688.31	0.00	9.00
00:30:00	14:30:00	19-0088	.73	12563.83	298.3	5688.70	0.00	9.00
00:40:00	14:40:00	19-0089	-.46	12563.37	298.4	5688.42	0.00	9.00
00:50:00	14:50:00	19-0090	-.15	12563.22	298.4	5688.26	0.00	9.00
01:00:00	15:00:00	19-0091	.54	12563.76	298.5	5687.45	0.00	9.00
01:10:00	15:10:00	19-0092	.24	12564.00	298.4	5687.61	0.00	9.00
01:20:00	15:20:00	19-0093	-.34	12563.66	298.3	5687.79	0.00	9.00
01:30:00	15:30:00	19-0094	.24	12563.90	298.4	5687.74	0.00	9.00
01:40:00	15:40:00	19-0095	0.00	12563.90	298.4	5687.67	0.00	9.00
01:50:00	15:50:00	19-0096	.17	12564.07	298.4	5688.14	0.00	9.00
02:00:00	16:00:00	19-0097	-.11	12563.96	298.4	5688.08	0.00	9.00
02:10:00	16:10:00	19-0098	.27	12564.23	298.4	5687.60	0.00	9.00
02:20:00	16:20:00	19-0099	-.21	12564.02	298.5	5687.39	0.00	9.00
02:30:00	16:30:00	19-0100	-.05	12563.97	298.3	5687.02	0.00	9.00
02:40:00	16:40:00	19-0101	.23	12564.20	298.4	5686.90	0.00	9.00
02:50:00	16:50:00	19-0102	.23	12564.43	298.5	5686.65	0.00	9.00
03:00:00	17:00:00	19-0103	-.25	12564.18	298.4	5686.21	0.00	9.00
03:10:00	17:10:00	19-0104	.28	12564.46	298.3	5685.47	0.00	9.00
03:20:00	17:20:00	19-0105	-.01	12564.45	298.4	5685.77	0.00	9.00
03:30:00	17:30:00	19-0106	.09	12564.54	298.3	5685.92	0.00	9.00
03:40:00	17:40:00	19-0107	-.38	12564.16	298.4	5686.04	0.00	9.00
03:50:00	17:51:00	19-0108	.68	12564.84	298.4	5686.20	0.00	9.00
04:00:00	18:00:00	19-0109	.05	12564.89	298.4	5685.81	0.00	9.00
04:10:00	18:10:00	19-0110	.56	12565.45	298.5	5685.85	0.00	9.00
04:20:00	18:20:00	19-0111	-.91	12564.54	298.4	5685.65	0.00	9.00
04:30:00	18:30:00	19-0112	.86	12565.40	298.4	5685.61	0.00	9.00
04:40:00	18:40:00	19-0113	.44	12565.84	298.5	5685.35	0.00	9.00
04:50:00	18:50:00	19-0114	-.10	12565.74	298.4	5685.44	0.00	9.00

05:00:00	19:00:00	19-0115	-.16	12565.58	298.3	5686.04	0.00	9.00
05:10:00	19:10:00	19-0116	.17	12565.75	298.4	5685.34	0.00	9.00

04/16/1983 RSERVOIR DYNAMICS INC. Page: 3

Lease: GLADYS McCALL Well #: 1 State: LA.

Real	EElapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
05:20:00	19:20:00	19-0117	0.00	12565.55	298.4	5684.43	0.00	9.00
05:30:00	19:30:00	19-0118	.25	12566.00	298.4	5684.04	0.00	9.00
05:40:00	19:40:00	19-0119	-.10	12565.90	298.4	5684.07	0.00	9.00
05:50:00	19:50:00	19-0120	-.03	12565.87	298.4	5684.88	0.00	9.00
06:00:00	20:00:00	19-0121	-.06	12565.81	29855	5685.12	0.00	9.00
06:10:00	20:10:00	19-0122	.33	12566.14	298.5	5685.08	0.00	9.00
06:20:00	20:20:00	19-0123	-.29	12565.85	298.4	5685.67	0.00	10.00
06:30:00	20:30:00	19-0124	.17	12566.02	298.3	5686.03	0.00	9.00
06:40:00	20:40:00	19-0125	.54	12566.56	298.5	5686.14	0.00	9.00
06:50:00	20:50:00	19-0126	.04	12566.60	298.5	5687.02	0.00	9.00
07:00:00	21:00:00	19-0127	-.29	12566.31	298.5	5685.60	0.00	9.00
07:10:00	21:10:00	19-0128	.28	12566.59	298.5	5686.01	0.00	9.00
07:20:00	21:20:00	19-0129	-.06	12566.53	298.5	5686.94	0.00	9.00
07:30:00	21:30:00	19-0130	.06	12566.59	298.5	5688.30	0.00	9.00
07:40:00	21:40:00	19-0131	-.07	12566.52	298.5	5688.53	0.00	9.00
07:50:00	21:50:00	19-0132	.46	12566.98	298.5	5690.26	0.00	9.00
08:00:00	22:00:00	19-0133	-.41	12566.57	298.4	5688.90	0.00	9.00
08:10:00	22:10:00	19-0134	.17	12566.74	298.5	5691.02	0.00	9.00
08:20:00	22:20:00	19-0135	.09	12566.83	298.5	5690.10	0.00	9.00
08:30:00	22:30:00	19-0136	.34	12567.17	298.4	5690.93	0.00	9.00
08:40:00	22:40:00	19-0137	.12	12567.29	298.4	5690.79	0.00	9.00
08:50:00	22:50:00	19-0138	.10	12567.39	298.4	5691.00	0.00	9.00
09:00:00	23:00:00	19-0139	.55	12567.44	298.5	5690.97	0.00	9.00
09:10:00	23:10:00	19-0140	.23	12567.67	298.4	5691.17	0.00	9.00
09:20:00	23:20:00	19-0141	.11	12567.78	298.4	5691.57	0.00	9.00
09:30:00	23:30:00	19-0142	-.33	12567.45	298.5	5691.55	0.00	9.00
09:40:00	23:40:00	19-0143	.19	12567.64	298.4	5691.56	0.00	9.00
009:50:00	23:50:00	19-0144	.25	12567.89	298.5	5692.10	0.00	9.0
10:00:00	24:00:00	19-0145	-.06	12567.83	298.4	5691.93	0.00	9.00
10:10:00	24:10:00	19-0146	.30	12568.13	298.4	5691.52	0.00	9.00
10:20:00	24:20:00	19-0147	.01	12568.14	298.4	5691.49	0.00	9.00
10:30:00	24:30:00	19-0148	.02	12568.16	298.5	5691.90	0.00	9.00
10:40:00	24:40:00	19-0149	.74	12568.90	298.5	5692.53	0.00	9.00
10:50:00	24:50:00	19-0150	-.45	12568.45	298.4	5693.69	0.00	9.00
11:00:00	25:00:00	19-0151	-.36	12568.09	298.4	5691.73	0.00	9.00
11:10:00	25:10:00	19-0152	.55	12568.64	298.5	5691.35	0.00	9.00
11:20:00	25:20:00	19-0153	.25	12568.89	298.4	5692.04	0.00	9.00
11:30:00	25:30:00	19-0154	-.14	12568.75	298.4	5691.46	0.00	9.00
11:40:00	25:40:00	19-0155	.70	12569.45	298.5	5691.85	0.00	9.00
11:50:00	25:50:00	19-0156	-.39	12569.06	298.5	5691.04	0.00	9.00
12:00:00	26:00:00	19-0157	.30	12569.36	298.4	5691.82	0.00	9.00
12:10:00	26:10:00	19-0158	.11	12569.47	298.4	5692.32	0.00	9.00
12:20:00	26:20:00	19-0159	.66	12570.13	298.5	5691.99	0.00	9.00
12:30:00	26:30:00	19-0160	-.40	12569.73	298.5	5692.28	0.00	9.00
12:40:00	26:40:00	19-0161	.31	12570.04	298.5	5691.62	0.00	9.00
12:50:00	26:50:00	19-0162	-.59	12569.45	298.4	5691.62	0.00	9.00
13:00:00	27:00:00	19-0163	.45	12569.90	298.5	5691.07	0.00	9.00
13:10:00	27:10:00	19-0164	-.53	12569.37	298.5	5690.99	0.00	9.00
13:20:00	27:20:00	19-0165	.79	12570.16	298.4	5691.07	0.00	9.00
13:30:00	27:30:00	19-0166	.12	12570.28	298.4	5692.02	0.00	9.00
13:40:00	27:40:00	19-0167	-.36	12569.92	298.4	5692.07	0.00	9.00
13:50:00	27:50:00	19-0168	-.20	12569.72	298.5	5692.12	0.00	9.00
14:00:00	28:00:00	19-0169	.35	12570.07	298.4	5691.33	0.00	9.00

14:10:00	28:10:00	19-0170	.18	12570.25	298.5	5691.21	0.00	9.00
14:20:00	28:20:00	19-0171	-.28	12569.97	298.5	5691.16	0.00	9.00
14:30:00	28:30:00	19-0172	.39	12570.36	298.4	5691.63	0.00	9.00
14:40:00	28:40:00	19-0173	.01	12570.37	298.4	5691.85	0.00	9.00
14:50:00	28:50:00	19-0174	-.04	12570.33	298.4	5692.94	0.00	9.00
15:00:00	29:00:00	19-0175	.11	12570.44	298.5	5691.84	0.00	28.00
15:10:00	29:10:00	19-0176	.11	12570.55	298.5	5691.87	0.00	84.00
15:20:00	29:20:00	19-0177	-.03	12570.52	298.5	5692.66	0.00	23.00

Lease: GLADYS McAALL Well #: 1 State: LA.

Real	Elapse	Rec #	delta	BHP	BHT	WHP	FLO IN	FLO OUT
15:30:00	29:30:00	19-0178	.67	12571.19	298.5	5692.71	0.00	9.00
15:40:00	29:40:00	19-0179	.36	12571.55	298.5	5692.56	0.00	9.00
15:50:00	29:50:00	19-0180	-.62	12570.93	298.4	5692.79	0.00	9.00
16:00:00	30:00:00	19-0181	.31	12571.24	298.5	5692.28	0.00	9.00
16:10:00	30:10:00	19-0182	.39	12571.63	298.5	5692.29	0.00	9.00
16:20:00	30:20:00	19-0183	.23	12571.86	298.5	5692.28	0.00	9.00
16:30:00	30:30:00	19-0184	.13	12571.99	298.5	5690.86	0.00	9.00
16:40:00	30:40:00	19-0185	.02	12572.01	298.5	5692.11	0.00	9.00
16:50:00	30:50:00	19-0186	.17	12572.18	298.5	5693.40	0.00	9.00
17:00:00	31:00:00	19-0187	-.34	12571.84	298.5	5693.58	0.00	9.00
17:10:00	31:10:00	19-0188	.28	12572.12	298.5	5693.88	0.00	9.00
17:20:00	31:20:00	19-0189	-.41	12571.71	298.5	5693.78	0.00	9.00
17:30:00	31:30:00	19-0190	.53	12572.24	298.5	5693.91	0.00	9.00
17:40:00	31:40:00	19-0191	.29	12572.53	298.5	5693868	0.00	9.00
17:50:00	31:50:00	19-0192	-.17	12572.36	298.5	5694.06	0.00	9.00
18:00:00	32:00:00	19-0193	.43	12572.79	298.5	5694.13	0.00	9.00
18:10:00	32:10:00	19-0194	.03	12572.82	298.5	5694.11	0.00	9.00
18:20:00	32:20:00	19-0195	-.15	12572.67	298.5	5694.32	0.00	9.00
18:30:00	32:30:00	19-0196	.54	12573.21	298.5	5694.50	0.00	9.00
18:40:00	32:40:00	19-0197	-.03	12573.18	298.4	5694.52	0.00	9.00
18:50:00	32:50:00	19-0198	-.20	12572.98	298.5	5694.21	0.00	9.00
19:00:00	33:00:00	19-0199	.33	12573.31	298.5	5693.74	0.00	9.00
19:10:00	33:10:00	19-0200	0.00	12573.31	298.4	5693.17	0.00	9.00
19:20:00	33:20:00	19-0201	.26	12573.57	298.5	5692.60	0.00	9.00
19:30:00	33:30:00	19-0202	.24	12573.81	298.5	5692.21	0.00	9.00
19:40:00	33:40:00	19-0203	-.49	12573.32	298.6	5691.83	0.00	9.00
19:50:00	33:50:00	19-0204	.66	12573.98	298.4	5691.34	0.00	9.00
20:00:00	34:00:00	19-0205	.07	12574.05	298.5	5691.15	0.00	9.00
20:10:00	34:10:00	19-0206	-.43	12573.62	298.5	5691.19	0.00	9.00
20:20:00	34:20:00	19-0207	.14	12573.76	298.5	5690.89	0.00	9.00
20:30:00	34:30:00	19-0208	.54	12574.30	298.5	5690.76	0.00	9.00
20:40:00	34:40:00	19-0209	-.15	12574.15	298.6	5688.08	0.00	9.00
20:50:00	34:50:00	19-0210	.95	12575.10	298.5	5689.16	0.00	9.00
21:00:00	35:00:00	19-0211	-.19	12574.91	298.6	5688.41	0.00	9.00
21:10:00	35:10:00	19-0212	.61	12575.52	298.5	5689.29	0.00	9.00
21:20:00	35:20:00	19-0213	-.10	12575.42	298.5	5688.53	0.00	9.00
21:30:00	35:30:00	19-0214	-.17	12575.25	298.5	5689.90	0.00	9.00
21:40:00	35:40:00	19-0215	.48	12575.73	298.5	5689.55	0.00	9.00
21:50:00	35:50:00	19-0216	-.36	12575.37	298.5	5689.71	0.00	9.00
22:00:00	36:00:00	19-0217	-.05	12575.32	298.5	5689.65	0.00	9.00
22:10:00	36:10:00	19-0218	.47	12575.79	298.5	5689.59	0.00	9.00
22:20:00	36:20:00	19-0219	-.63	12575.16	298.5	5688.41	0.00	9.00
22:30:00	36:30:00	19-0220	1.06	12576.22	298.4	5689.91	0.00	9.00
22:40:00	36:40:00	19-0221	-.01	12576.21	298.6	5689.29	0.00	9.00
22:50:00	36:50:00	19-0222	-.25	12575.96	298.5	5689.00	0.00	9.00
23:00:00	37:00:00	19-0223	-.07	12575.89	298.5	5689.10	0.00	9.00
23:10:00	37:10:00	19-0224	.74	12576.63	298.5	5689.88	0.00	9.00

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23:20:00	37:20:00	19-0225	.30	12576.53	298.5	5689.39	0.00	9.00
23:30:00	37:30:00	19-0226	.76	12577.29	298.5	5689.58	0.00	9.00
23:40:00	37:40:00	19-0227	.32	12577.61	298.5	5689.68	0.00	9.00
23:50:00	37:50:00	19-0228	.72	12578.33	298.5	5689.65	0.00	9.00
00:00:00	38:00:00	19-0229	3.01	12581.34	298.5	5688.97	0.00	9.00
00:10:00	38:10:00	19-0230	4.36	12585.70	298.5	5689.37	0.00	9.00
00:20:00	38:20:00	19-0231	10.80	12596.50	298.5	5689.49	0.00	9.00
00:30:00	38:30:00	19-0232	-7.84	12588.66	298.4	5689.31	0.00	16.00
00:40:00	38:40:00	19-0233	0.00	12588.66	298.4	5689.20	0.00	9.00
00:50:00	38:50:00	19-0234	0.00	12588.66	298.4	5689.20	0.00	377.00
01:00:00	39:00:00	19-0232	0.00	12588.66	298.4	5689.20	0.00	377.00

APPENDIX V

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
WELL WORKOVER AND PRODUCTION TESTING
FOR
PERIOD FEB. 1982 TO OCT. 1985

FOR:
U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
CONTRACT NO. DE-AC07-80ET27217

RESERVOIR FLUID ANALYSIS

FOR

TECHNADRIL-FENIX & SCISSON, INC.

GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD
CAMERON PARISH, LOUISIANA

APPENDIX V

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
WELL WORKOVER AND PRODUCTION TESTING
FOR
PERIOD FEB. 1982 TO OCT. 1985

FOR:
U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
CONTRACT NO. DE-AC07-80ET27217

WEATHERLY LABORATORIES, INC.

WEATHERLY LABORATORIES, INC.

E. WEATHERLY, JR.
CHAIRMAN

223 GEORGETTE LAFAYETTE, LA 70506
PHONE (318) 232-4877

JOHN D. NEAL
PRESIDENT
BRYAN SONNIER
VICE PRESIDENT

APRIL 30, 1983

TECHNADRIL-FENIX & SCISSON, INC.
3 NORTHPOINT DRIVE
SUITE 200
HOUSTON, TEXAS 77060

ATTENTION: MR. LARRY DURRETT

RE: RESERVOIR FLUID STUDY
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD
CAMERON PARISH, LOUISIANA

GENTLEMEN:

ATTACHED ARE THE RESULTS OF THE ANALYSES OF THE CHEMICAL AND PHYSICAL CHARACTERISTICS OF A RECOMBINED RESERVOIR FLUID SAMPLE FROM THE SUBJECT WELL. SURFACE SEPARATOR SAMPLES WERE COLLECTED FROM THIS WELL BY A REPRESENTATIVE OF WEATHERLY LABORATORIES, INC. ON MARCH 23, 1983. THE GAS-WATER RATIO (GWR) MEASURED ON THIS TEST, 24.66 CUBIC FEET OF SEPARATOR GAS PER BARREL OF SEPARATOR LIQUID, WAS USED AS THE BASIS FOR ONE RECOMBINATION. THE RESULTANT RESERVOIR FLUID EXHIBITED A BUBBLE POINT OF 10,030 PSIA AT THE RESERVOIR TEMPERATURE 298 DEGREES FAHRENHEIT.

OTHER RECOMBINATIONS WERE DONE TO DETERMINE A BUBBLE POINT -VS- GWR RELATIONSHIP. A DIFFERENTIAL LIBERATION AND VISCOSITY MEASUREMENTS WERE PERFORMED USING RESERVOIR FLUID RECOMBINED TO THE PRODUCED GWR AT THE TIME OF SAMPLING.

WE WISH TO THANK YOU FOR THIS OPPORTUNITY OF SERVING YOU. SHOULD THERE BE ANY QUESTIONS CONCERNING THIS REPORT, PLEASE CONTACT US.

YOURS VERY TRULY

John Neal

JOHN NEAL

CC: MR. JONNE BERNING
TECHNADRIL-FENIX & SCISSON, INC.
P. O. BOX 231
GRAND CHENIER, LA 70643

LAB. NO. N1901-10224

GEOPRESSURE/GEOTHERMAL PROJECT SAMPLING AND LABORATORY PROCEDURE

1) WATER VAPOR CONTENT OF SEPARATOR GAS WAS DETERMINED BY FLOWING GAS FROM A METERING VALVE ON THE SEPARATOR GAS METER RUN THROUGH A WEIGHING TUBE (INDICATOR DRIERITE ($CaSO_4$) WEIGHED TO 0.1 MILLIGRAM) TO A G.C.A./PRECISION SCIENTIFIC WET TEST METER. SEPARATOR GAS SAMPLES WERE TAKEN FROM THE SAME PLACE INTO EVACUATED 1 GALLON STAINLESS STEEL (S.S.) CYLINDERS AFTER THOROUGH PURGING OF TRANSFER LINE AT SEPARATOR PRESSURE. SEPARATOR LIQUID SAMPLE CYLINDERS (500 ML. S.S.) WERE FIRST CHARGED WITH SEPARATOR GAS TO FULL SEPARATOR PRESSURE. THE LIQUID CYLINDERS WERE THEN CONNECTED TO THE SEPARATOR WATER SAMPLING POINT BY A S.S. TUBE LONG ENOUGH TO LOOP THROUGH A COOLING BATH. THE WATER TRANSFER LINE WAS THEN SLOWLY AND THOROUGHLY PURGED AT THE CYLINDER. SEPARATOR WATER WAS LET INTO THE CYLINDER BY SLOWLY BLEEDING GAS FROM THE TOP VALVE. AT NO TIME WAS THE WATER CAUGHT IN THE CYLINDER ALLOWED TO DROP BELOW SEPARATOR PRESSURE.

2) FLASH LIBERATION OF GAS FROM SEPARATOR WATER WAS ACCOMPLISHED BY USING A WEIGHED SEPARATOR FLASK. THIS SEPARATOR FLASK WAS CONNECTED TO THE OUTLET OF A SEPARATOR WATER CYLINDER BY A SHORT CAPILLARY LINE. GAS FROM THE SEPARATOR FLASK PASSED THROUGH A WEIGHED DRYING TUBE THROUGH A GLASS CYLINDER (~ 300 ML.) TO A RUSKA GASOMETER. A VACUUM VALVE AND A MERCURY MANOMETER WAS CONNECTED TO THE GAS MANIFOLD BETWEEN THE DRYING TUBE AND THE GASOMETER. BEFORE COMMENCING THE FLASH, THE ENTIRE FLASH GAS MANIFOLD WAS EVACUATED AND THEN FILLED WITH HELIUM TO ATMOSPHERIC PRESSURE. A KNOWN VOLUME OF SEPARATOR WATER WAS PUSHED OUT OF THE SAMPLE CYLINDER AT A PRESSURE SLIGHTLY ABOVE FIELD SEPARATOR PRESSURE BY USE OF A CALIBRATED MERCURY PUMP. THE VOLUME OF STOCK TANK WATER PRODUCED WAS DETERMINED BY ITS WEIGHT AND DENSITY. THE VOLUME OF DRY GAS EVOLVED WAS DETERMINED WITH THE GASOMETER. THIS GAS VOLUME WAS SUBJECT TO $\pm$ 2 % ERROR DUE TO THE VERY SMALL AMOUNTS MEASURED. THE GAS WAS CHARGED TO A CHROMOTOGRAPH FOR ANALYSIS FROM THE GLASS CYLINDER.

3) PHYSICAL RECOMBINATION OF SEPARATOR EFFLUENTS:
   SEPARATOR GAS WAS CHARGED INTO A TEMPERATURE CONTROLLED CELL. THE VOLUME OF THIS WINDOWED CELL IS KNOWN FOR ANY PRESSURE AND TEMPERATURE. THE PRESSURE OF THE GAS IN THE CELL WAS MEASURED WITH A MERCURY MANOMETER AND A BAROMETER. THIS CALCULATED GAS VOLUME WAS SUBJECT TO A $\pm$ 1 % ERROR DUE TO THE SMALL AMOUNT CHARGED TO THE CELL. A VOLUME OF SEPARATOR WATER WAS CHARGED INTO THE WINDOWED CELL BY USE OF A CALIBRATED MERCURY PUMP. THE WATER WAS METERED AND MEASURED AT A PRESSURE SLIGHTLY ABOVE FIELD SEPARATOR PRESSURE. FOUR RECOMBINATIONS WERE DONE IN ORDER TO PRODUCE A SATURATION PRESSURE-VS-GAS WATER RATIO CURVE. RESERVOIR FLUID RESULTING FROM RECOMBINATION OF THE PRODUCED GWR (FIFTH RECOMBINATION) WAS USED TO PERFORM A DIFFERENTIAL LIBERATION AND VISCOSITY MEASUREMENT.

4) PRESSURE-VOLUME RELATIONS OF RECOMBINED RESERVOIR FLUID AT RESERVOIR TEMPERATURE:
EACH DATUM OF PRESSURE-VOLUME RELATIONS WAS CORRECTED FOR MERCURY PUMP CALIBRATION, MANIFOLD EXPANSION, CELL EXPANSION, MERCURY COMPRESSIBILITY AND MERCURY THERMAL EXPANSION. LIQUID VOLUME PERCENT WAS DETERMINED BY CALIBRATED CATHETOMETER AND BY DATA INTERPRETATION.

5) DIFFERENTIAL LIBERATION OF RESERVOIR FLUID AT RESERVOIR TEMPERATURE:
GAS FROM EACH PRESSURE DECREMENT OF THE DIFFERENTIAL LIBERATION WAS ANALYZED IN THE SAME MANNER AS DESCRIBED IN 2), (FLASH LIBERATION). DIFFERENTIAL LIQUID CHANGES WERE NOTED.

6) VISCOSITY OF RESERVOIR FLUID WAS MEASURED BY MR. J. R. COMEAU OF WEATHERLY LABORATORIES. A DESCRIPTION OF MR. COMEAU'S EXPERIMENTAL PROCEDURES IS GIVEN BELOW:
GEOTHERMAL WATER VISCOSITIES WERE MEASURED USING AN E.L.I. ROLLING BALL VISCOMETER WITH AN ELECTRONIC DETECTION SYSTEM TO PREVENT ELECTROLYSIS. THE DETECTION SYSTEM CONSISTS OF A SENSITIVE AUDIO AMPLIFIER WITH POSITIVE FEEDBACK ADJUSTED JUST BELOW OSCILLATION. FEEDBACK WAS TURNED ON BY AN AUTOMATIC SWITCH AS THE VISCOMETER WAS INVERTED AT THE BEGINNING OF THE CYCLE AND TURNED OFF WHEN THE BALL MADE CONTACT. PART OF THE SIGNAL WAS USED TO TURN THE DIGITAL TIMER ON AND OFF. TIMES WERE MEASURED TO 1/100TH OF A SECOND AND AVERAGED. THE VISCOMETER WAS CALIBRATED AT EACH OF THREE ANGLES USING SEVERAL KNOWN VISCOSITY STANDARDS WHICH WERE CHECKED AGAINST CANNON-FENSKE VISCOMETERS AND THE RESULTS ($t\Delta p$ vs. μ) PLOTTED. THE VISCOMETER WAS RECALIBRATED USING DISTILLED WATER AT SEVERAL TEMPERATURES. THESE RESULTS WERE USED ALONG WITH PREVIOUS RESULTS TO OBTAIN NEW CALIBRATION CURVES.

t = ROLL TIME, (SECONDS)

Δp = DENSITY DIFFERENCE BETWEEN BALL AND RESERVOIR FLUID, (gm./ml.)

μ = VISCOSITY, (CENTIPOISE)

THE VISCOMETER WAS CHARGED WITH RESERVOIR FLUID AND RUN AT 298°F AT 1000 LB. INTERVALS. THE VISCOSITIES HAD A PROBABLE ERROR OF $\pm$ 0.007 CENTIPOISE.

NOTE: ALL DATA FOR PRESSURES GREATER THAN 11,000 PSI WERE OBTAINED BY EXTRAPOLATION.

FIELD DATA FOR WEATHERLY LABORATORY INVESTIGATION

WELL RECORD

COMPANY	TECHNADRIL-FENIX & SCISSON, INC.
WELL	GLADYS MCCALL NO. 1
FIELD	EAST CRAB LAKE
PARISH AND STATE	CAMERON, LOUISIANA

FIELD CHARACTERISTICS

FORMATION NAME
SAND NAME AND DESIGNATION
DATE COMPLETED
ORIGINAL RESERVOIR PRESSURE

WELL CHARACTERISTICS

ORIGINAL PRODUCED GAS-LIQUID RATIO

PERFORATIONS		
ELEVATIONS		
TOTAL DEPTH		
LAST RESERVOIR PRESSURE	12,936	PSIA
RESERVOIR TEMPERATURE	298	DEGREES F

SAMPLING CONDITIONS

DATE SAMPLED	1000 TO 1523 HOURS,	3-23-83	
TUBING PRESSURE, FLOWING		5835	PSIG
PRIMARY SEPARATOR TEMPERATURE	(METER RUN)	72	DEGREES F, (SEP.) 212'F
PRIMARY SEPARATOR PRESSURE		700	PSIG
PRIMARY SEPARATOR GAS RATE	(WET GAS)	102.1	MCF/DAY
SEPARATOR LIQUID RATE		4140	BBLS./DAY
GAS-LIQUID RATIO (SEPARATOR)		24.66	SCF/BBL.SEP.WATER
SHRINKAGE FACTOR (VOL.S.T.WATER @ 60'F/VOL.SEP.WATER)		0.9637	
GAS-LIQUID RATIO (STOCK TANK)		25.59	SCF/BBL.S.T.WATER
PRESSURE BASE		15.025	PSIA @ 60 DEGREES F

NOTE: FOR DRY GAS, 24.63 SCF/BBL. SEP. WATER @ SEP. CONDITIONS.
25.56 SCF/BBL. S.T. WATER @ 60'F.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

CALCULATION OF GAS RATE, 3-23-83 TEST

(Factors from GPSA Engineering Data Book)

$\sqrt{Hw\ Pf}$ =	268.4890	Hw =	100.82 "H2O ,	Pf =	715 psia
Fb =	12.7121	D =	2.626 " ,	d =	0.250 "
Fpb =	0.9804		15.025 psia		
Fr =	1.0004	b =	0.0979		
Y2 =	1.0009	Hw/Pf =	0.141 ,	d/D =	0.095
Fg =	1.2121	Gravity =	0.6807 ,	Fg =	$\sqrt{1 / 0.6807}$
Ftf =	0.9837	Temp. =	72 degrees F ,	Ftf =	$\sqrt{520 / 532}$
Fpv =	1.0597	pTr' =	1.471 ,	pPr' =	1.049
		Z =	0.8905 ,	Fpv =	$\sqrt{1 / Z}$

$$Q = \sqrt{Hw\ Pf} \times Fb \times Fpb \times Fr \times Y2 \times Fg \times Ftf \times Fpv \times 24$$

Q = 102.1 MCF/day @ 15.025 PSIA @ 60 Degrees F (WET)

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

RESERVOIR FLUID SUMMARY

Reservoir Temperature, Degrees F		298
Saturation Pressure at 298 Degrees, Psia		10030
Compressibility of Reservoir Oil at 298 Degrees F		
Vol. per Vol. per Psi x 10 6		
From 10030 Psia to 10500 Psia		2.98
From 10500 Psia to 11000 Psia		2.80
From 11000 Psia to 12936 Psia		2.75
		DIFF. LIB.
Saturated Oil at 10030 Psia, 298 Degrees F		
Density, Gms. per Ml.		1.01318
Lbs. per Bbl.		355.1
Specific Volume, Cu.Ft. per Lb.		0.015810
Viscosity, Centipoise		0.375
Formation Volume Factor, Bbls. per Bbl.		
"Equivalent Stock Tank Oil" at 60 Degrees F	1.0565 * ,	1.0567
Solution Gas-Oil Ratio, Cu.Ft. per Bbl.	31.09 * ,	32.92 WET
"Equivalent Stock Tank Oil" at 60 Degrees F	30.91 * ,	31.14 DRY
Reservoir Oil at 12936 Psia 298 Degrees F		
Density, Gms. per Ml.		1.02242
Lbs. per Bbl.		358.4
Specfic Volume, Cu.Ft. per Lb.		0.015667
Viscosity, Centipoise		0.388
Formation Volume Factor, Bbl. per Bbl.		
"Equivalent Stock Tank Oil" at 60 Degrees F	1.0479 * ,	1.0481

NOTE: REFERENCES TO 'OIL' ABOVE SHOULD READ 'WATER'.

* BASED ON SEPARATOR WATER FLASH.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (1) 20.00 SCF SEP. GAS @ 15.025 PSIA & 60'F/BBL. SEP. WATER @ SEP. CONDITIONS.

PRESSURE PSIA	PRESSURE VOLUME RELATIONS: RELATIVE VOLUME V/Vsat Bt	PRESSURE VOLUME RELATIONS: SPECIFIC VOLUME cu. ft. per Pound	LIQUID VOLUME PERCENT	OIL VISCOSITY CENTIPOISES	FORMATION VOLUME FACTOR Bo **	RELATIVE OIL VOLUME	SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60'F DRY **	SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60'F WET **
12936 RES.	0.9853	0.015684			1.0467		26.08	26.25
11000	0.9908	0.015772			1.0525		26.08	26.25
10000	0.9935	0.015815			1.0554		26.08	26.25
9000	0.9962	0.015858			1.0583		26.08	26.25
8000	0.9992	0.015905			1.0614		26.08	26.25
7720 B.P.	1.0000	0.015918	100.00		1.0623		26.08	26.25
7000	1.0024	0.015956	99.97					
6000	1.0065	0.016021	99.86					
5000	1.0110	0.016093	99.70					
4000	1.0163	0.016177	99.47					
3000	1.0240	0.016300	99.00					
2000	1.0395	0.016547	97.82					
1000	1.0877	0.017314	93.75					
500	1.2034	0.019156	84.86					
143	2.1269	0.033856	48.06					
96	3.3600	0.053484	30.43					

NOMENCLATURE:

V/VSAT. IS THE VOLUME OF FLUIDS (OIL AND GAS) AT THE INDICATED TEMPERATURE AND PRESSURE RELATIVE TO THE VOLUME OF SATURATED OIL AT BUBBLE-POINT PRESSURE AND INDICATED TEMPERATURE.

Bo IS THE VOLUME OF OIL AT RESERVOIR TEMPERATURE AND INDICATED PRESSURE RELATIVE TO THE VOLUME OF EQUIVALENT STOCK TANK OIL MEASURED AT 60 DEGREES F.

GAS-OIL RATIO, IS CUBIC FEET OF GAS AT 15.025 PSIA AND 60 DEGREES F, PER BARREL OF STOCK TANK OIL AT 60 DEGREES F.

NOTE: ** BASED ON SEPARATOR WATER FLASH.
REF. TO 'OIL' ABOVE SHOULD READ 'WATER'.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (2) 18.00 SCF SEP. GAS @ 15.025 PSIA & 60'F/BBL. SEP. WATER @ SEP. CONDITIONS.

PRESSURE PSIA	PRESSURE VOLUME RELATIONS: RELATIVE VOLUME V/Vsat Bt	SPECIFIC VOLUME cu. ft. per Pound	LIQUID VOLUME PERCENT	OIL VISCOSITY CENTIPOISES	FORMATION VOLUME FACTOR Bo **	RELATIVE OIL VOLUME	SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60'F DRY **	WET **
12936 RES.	0.9826	0.015683			1.0463		24.01	24.18
11000	0.9879	0.015768			1.0519		24.01	24.18
10000	0.9907	0.015813			1.0549		24.01	24.18
8000	0.9964	0.015904			1.0579		24.01	24.18
7000	0.9993	0.015950			1.0610		24.01	24.18
9000	0.9935	0.015857			1.0641		24.01	24.18
6755 B.P.	1.0000	0.015961	100.00		1.0648		24.01	24.18
6000	1.0023	0.015998	99.99					
5000	1.0060	0.016057	99.91					
4000	1.0102	0.016124	99.78					
3000	1.0179	0.016247	99.31					
2000	1.0316	0.016465	98.27					
1000	1.0755	0.017166	94.53					
963	1.0793	0.017227	94.21					

NOMENCLATURE:

V/VSAT. IS THE VOLUME OF FLUIDS (OIL AND GAS) AT THE INDICATED TEMPERATURE AND PRESSURE RELATIVE TO THE VOLUME OF SATURATED OIL AT BUBBLE-POINT PRESSURE AND INDICATED TEMPERATURE.

Bo IS THE VOLUME OF OIL AT RESERVOIR TEMPERATURE AND INDICATED PRESSURE RELATIVE TO THE VOLUME OF EQUIVALENT STOCK TANK OIL MEASURED AT 60 DEGREES F.

GAS-OIL RATIO, IS CUBIC FEET OF GAS AT 15.025 PSIA AND 60 DEGREES F, PER BARREL OF STOCK TANK OIL AT 60 DEGREES F.

NOTE: ** BASED ON SEPARATOR WATER FLASH.
REF. TO 'OIL' ABOVE SHOULD READ 'WATER'.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (3) 15.00 SCF SEP. GAS @ 15.025 PSIA & 60'F/BBL. SEP. WATER @ SEP. CONDITIONS.

PRESSURE PSIA	PRESSURE VOLUME RELATIONS: RELATIVE VOLUME V/Vsat Bt	SPECIFIC VOLUME cu. ft. per Pound	LIQUID VOLUME PERCENT	OIL VISCOSITY CENTIPOISES	FORMATION VOLUME FACTOR Bo **	RELATIVE OIL VOLUME	SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60'F DRY **	WET **
12936 RES.	0.9788	0.015678			1.0456		20.90	21.07
11000	0.9841	0.015763			1.0512		20.90	21.07
10000	0.9869	0.015808			1.0542		20.90	21.07
9000	0.9896	0.015851			1.0571		20.90	21.07
8000	0.9925	0.015898			1.0602		20.90	21.07
7000	0.9954	0.015944			1.0633		20.90	21.07
6000	0.9983	0.015991			1.0664		20.90	21.07
5425 B.P.	1.0000	0.016018	100.00		1.0682		20.90	21.07
5000	1.0016	0.016044	99.96					
4000	1.0055	0.016106	99.86					
3000	1.0117	0.016205	99.54					
2000	1.0234	0.016393	98.69					
1000	1.0610	0.016995	95.47					
892	1.0706	0.017149	94.64					

NOMENCLATURE:

V/VSAT. IS THE VOLUME OF FLUIDS (OIL AND GAS) AT THE INDICATED TEMPERATURE AND PRESSURE RELATIVE TO THE VOLUME OF SATURATED OIL AT BUBBLE-POINT PRESSURE AND INDICATED TEMPERATURE.

Bo IS THE VOLUME OF OIL AT RESERVOIR TEMPERATURE AND INDICATED PRESSURE RELATIVE TO THE VOLUME OF EQUIVALENT STOCK TANK OIL MEASURED AT 60 DEGREES F.

GAS-OIL RATIO, IS CUBIC FEET OF GAS AT 15.025 PSIA AND 60 DEGREES F, PER BARREL OF STOCK TANK OIL AT 60 DEGREES F.

NOTE: ** BASED ON SEPARATOR WATER FLASH.
REF. TO 'OIL' ABOVE SHOULD READ 'WATER'.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (4) 10.00 SCF SEP. GAS @ 15.025 PSIA & 60'F/BBL. SEP. WATER @ SEP. CONDITIONS.

PRESSURE	PRESSURE VOLUME RELATIONS						SOLUTION GAS-OIL RATIO	
	RELATIVE VOLUME	SPECIFIC VOLUME	LIQUID VOLUME	OIL VISCOSITY	FORMATION VOLUME FACTOR	RELATIVE OIL VOLUME	PER BARREL STOCK TANK OIL AT 60'F	
PSIA	V/Vsat Bt	cu. ft. per Pound	PERCENT	CENTIPOISES	Bo **		DRY **	WET **
12936 RES.	0.9734	0.015668			1.0441		15.72	15.88
11000	0.9787	0.015753			1.0498		15.72	15.88
10000	0.9815	0.015798			1.0528		15.72	15.88
9000	0.9843	0.015843			1.0558		15.72	15.88
8000	0.9871	0.015888			1.0587		15.72	15.88
7000	0.9899	0.015933			1.0618		15.72	15.88
6000	0.9928	0.015980			1.0649		15.72	15.88
5000	0.9957	0.016027			1.0680		15.72	15.88
4000	0.9987	0.016075			1.0712		15.72	15.88
3575 P.B.	1.0000	0.016096	100.00		1.0726		15.72	15.88
3000	1.0022	0.016131	99.95					
2000	1.0104	0.016263	99.44					
1000	1.0372	0.016695	97.15					
738	1.0582	0.017033	95.29					

NOMENCLATURE:

V/VSAT. IS THE VOLUME OF FLUIDS (OIL AND GAS) AT THE INDICATED TEMPERATURE AND PRESSURE RELATIVE TO THE VOLUME OF SATURATED OIL AT BUBBLE-POINT PRESSURE AND INDICATED TEMPERATURE.

Bo IS THE VOLUME OF OIL AT RESERVOIR TEMPERATURE AND INDICATED PRESSURE RELATIVE TO THE VOLUME OF EQUIVALENT STOCK TANK OIL MEASURED AT 60 DEGREES F.

GAS-OIL RATIO, IS CUBIC FEET OF GAS AT 15.025 PSIA AND 60 DEGREES F, PER BARREL OF STOCK TANK OIL AT 60 DEGREES F.

NOTE: ** BASED ON SEPARATOR WATER FLASH.
REF. TO 'OIL' ABOVE SHOULD READ 'WATER'.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (5) PRODUCED 24.66 SCF SEP. GAS @ 15.025 PSIA & 60°F/BBL. SEP. WATER @ SEP. CONDITIONS.

PRESSURE PSIA	PRESSURE VOLUME RELATIONS: RELATIVE VOLUME V/Vsat Bt	PRESSURE VOLUME RELATIONS: SPECIFIC VOLUME cu. ft. per Pound	LIQUID VOLUME PERCENT	OIL VISCOSITY CENTIPOISES	FORMATION VOLUME FACTOR Bo **	DIFFERENTIAL LIBERATION: FORMATION VOLUME FACTOR Bo	DIFFERENTIAL LIBERATION: SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60°F DRY	DIFFERENTIAL LIBERATION: SOLUTION GAS-OIL RATIO PER BARREL STOCK TANK OIL AT 60°F WET
12936 RES.	0.9919	0.015682		0.388	1.0479	1.0481	31.14	32.92
11000	0.9972	0.015766		0.379	1.0535	1.0537	31.14	32.92
10500	0.9986	0.015788		0.377	1.0550	1.0552	31.14	32.92
10030 B.P.	1.0000	0.015810	100.00	0.375	1.0565	1.0567	31.14	32.92
9500	1.0017	0.015837	99.99					
9000	1.0034	0.015864	99.96	0.370				
8000	1.0069	0.015919	99.91	0.366				
7000	1.0109	0.015982	99.81	0.362				
6000	1.0152	0.016050	99.67	0.359		1.0678	26.76	28.45
5000	1.0199	0.016125	99.50	0.355				
4000	1.0260	0.016221	99.20	0.353		1.0721	22.30	23.88
3000	1.0351	0.016365	98.60	0.354				
2000	1.0530	0.016648	97.20	0.357		1.0755	15.30	16.63
1000	1.1109	0.017563	92.41	0.364				
500	1.2462	0.019702	82.49	0.368				
170	2.0134	0.031832	51.11					
15								
15*						1.0000	0.00	0.00

NOMENCLATURE:

V/VSAT. IS THE VOLUME OF FLUIDS (OIL AND GAS) AT THE INDICATED TEMPERATURE AND PRESSURE RELATIVE TO THE VOLUME OF SATURATED OIL AT BUBBLE-POINT PRESSURE AND INDICATED TEMPERATURE.

Bo IS THE VOLUME OF OIL AT RESERVOIR TEMPERATURE AND INDICATED PRESSURE RELATIVE TO THE VOLUME OF EQUIVALENT STOCK TANK OIL MEASURED AT 60 DEGREES F.

GAS-OIL RATIO, IS CUBIC FEET OF GAS AT 14.65 PSIA AND 60 DEGREES F, PER BARREL OF STOCK TANK OIL AT 60 DEGREES F.

NOTE: * INDICATES VALUE MEASURED @ 60°F
** BASED ON SEPARATOR WATER FLASH. ALSO BASED ON SEP. WATER FLASH: SOLUTION GAS IN RESERVOIR FLUID IS 30.91 SCF DRY GAS/BBL. S.T. WATER @ 60°F. (31.09 SCF WET GAS/BBL.)
REF. TO 'OIL' ABOVE SHOULD READ 'WATER'.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

EFFECT OF GAS-WATER RATIO UPON BUBBLE POINT PRESSURES @ 298'F

GAS-WATER RATIO (SCF SEP. GAS @ 15.025 PSIA 7 60'F) / (BBL. SEP. WATER @ 700 PSIG & 212)	BUBBLE POINT (PSIA)
~ 30.4 EXTRAPOLATED	12936 RES. PRESSURE
24.66 (PRODUCED)	10030
20.00	7720
18.00	6755
15.00	5425
10.00	3575

SEPARATOR WATER FLASH TO 0 PSIG & 72'F

SOLUTION GAS-WATER RATIO, DRY = 5.35

, WET = 5.50 $\frac{\text{SCF GAS @ 15.025 PSIA \& 60'F}}{\text{BBL. WATER @ 0 PSIG \& 60 'F}}$

SHRINKAGE = 0.9637 $\frac{\text{VOL. S.T. WATER @ 60'F}}{\text{VOL. SEP. H20 @ 700 PSIG \& 212'F}}$

STOCK TANK WATER DENSITY = 1.0646 Gm/Ml. @ 60'F

GAS GRAVITY , DRY = 0.9684 (SEE ANALYSIS)

, WET = 0.9593

PRODUCED MARCH 23, 1983:

GWR = 25.56 + 5.35 = 30.91 $\frac{\text{SCF TOTAL DRY GAS @ 15.025 PSIA \& 60'F}}{\text{BBL. STOCK TANK WATER @ 60'F}}$

GWR = 25.59 + 5.50 = 31.09 $\frac{\text{SCF TOTAL WET GAS @ 15.025 PSIA \& 60'F}}{\text{BBL. STOCK TANK WATER @ 60'F}}$

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

SEPARATOR GAS SAMPLED:
MARCH 23, 1983 @
700 PSIG & 72°F

CHROMATOGRAPHIC ANALYSIS

	DRY	WET
	MOLE %	
WATER		0.10 ± .04
CARBON DIOXIDE	8.94	8.93
NITROGEN	0.26	0.26
METHANE	86.93	86.84
ETHANE	2.43	2.43
PROPANE	0.55	0.55
ISO-BUTANE	0.08	0.08
N-BUTANE	0.08	0.08
ISO-PENTANE	0.04	0.04
N-PENTANE	0.03	0.03
HEXANES	0.51	0.51
HEPTANES PLUS	0.15	0.15
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.6805	0.6807

NOTE: WATER VAPOR MEASURED ON SITE, AVERAGE 6 RUNS.

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

SOLUTION GAS FROM
SEPARATOR WATER FLASH
@ 0 PSIG & 72'F
(CALCULATED NITROGEN FREE)

CHROMATOGRAPHIC ANALYSIS

	DRY	WET
	MOLE %	
WATER		2.65
CARBON DIOXIDE	41.00	39.91
NITROGEN	----	----
METHANE	57.03	55.53
ETHANE	1.38	1.34
PROPANE	0.24	0.23
ISO-BUTANE	0.02	0.02
N-BUTANE	0.03	0.03
ISO-PENTANE	0.00	0.00
N-PENTANE	0.00	0.00
HEXANES	0.07	0.07
HEPTANES PLUS	0.23	0.22
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.9684	0.9593

LAB. NO. N1901-10224

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

SOLUTION GAS FROM
6000 PSIA SAMPLE -
DIFFERENITAL LIBERATION
(CALCULATED NITROGEN FREE)

CHROMATOGRAPHIC ANALYSIS

	DRY	WET
	MOLE %	
WATER		2.00
CARBON DIOXIDE	2.82	2.76
NITROGEN	----	----
METHANE	89.56	87.77
ETHANE	4.00	3.92
PROPANE	1.37	1.34
ISO-BUTANE	0.26	0.25
N-BUTANE	0.25	0.25
ISO-PENTANE	0.10	0.10
N-PENTANE	0.07	0.07
HEXANES	1.24	1.22
HEPTANES PLUS	0.33	0.32
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.6648	0.6640

GAS DEVIATION FACTOR (Z) = 1.107 @ 6000 PSIA & 298'F

BBLS. GAS IN RES./MMSCF (Bg) = 720 @ 6000 PSIA & 298'F

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

SOLUTION GAS FROM
4000 PSIA SAMPLE -
DIFFERENITAL LIBERATION
(CALCULATED NITROGEN FREE)

CHROMATOGRAPHIC ANALYSIS

	DRY	WET
	MOLE %	
WATER		2.50
CARBON DIOXIDE	3.37	3.29
NITROGEN	----	----
METHANE	91.25	88.96
ETHANE	3.18	3.10
PROPANE	0.84	0.82
ISO-BUTANE	0.14	0.14
N-BUTANE	0.14	0.14
ISO-PENTANE	0.06	0.06
N-PENTANE	0.04	0.04
HEXANES	0.75	0.73
HEPTANES PLUS	0.23	0.22
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.6413	0.6408

GAS DEVIATION FACTOR (Z) = 0.997 @ 4000 PSIA & 298'F

BBLS. GAS IN RES./MMSCF (Bg) = 972 @ 4000 PSIA & 298'F

TECHNADRIL-FENIX & SCISSON, INC.
GLADYS MCCALL WELL NO. 1
EAST CRAB LAKE FIELD

SOLUTION GAS FROM
2000 PSIA SAMPLE -
DIFFERENITAL LIBERATION
(CALCULATED NITROGEN FREE)

CHROMATOGRAPHIC ANALYSIS

	DRY	WET
	MOLE %	
WATER		3.40
CARBON DIOXIDE	9.00	8.69
NITROGEN	----	----
METHANE	86.51	83.57
ETHANE	3.16	3.05
PROPANE	0.56	0.54
ISO-BUTANE	0.04	0.04
N-BUTANE	0.06	0.06
ISO-PENTANE	0.03	0.03
N-PENTANE	0.02	0.02
HEXANES	0.48	0.46
HEPTANES PLUS	0.14	0.14
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.6799	0.6780

GAS DEVIATION FACTOR (Z) = 0.942 @ 2000 PSIA & 298'F

BBLS. GAS IN RES./MMSCF (Bg) = 1837 @ 2000 PSIA & 298'F

LAB. NO. N1901-10224

SOLUTION GAS FROM
15 PSIA SAMPLE -
DIFFERENITAL LIBERATION
(CALCULATED NITROGEN FREE)

CHROMATOGRAPHIC ANALYSIS

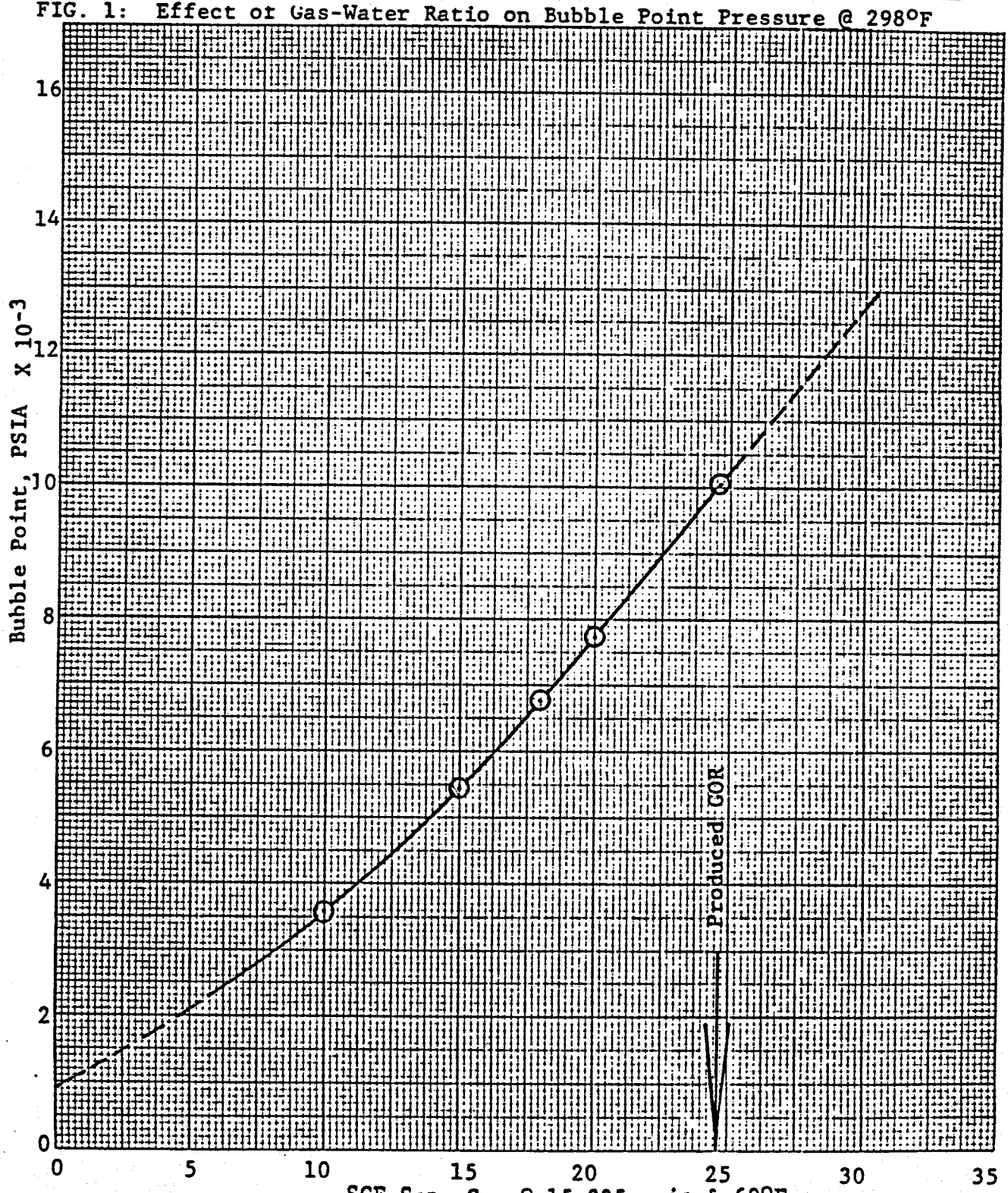
	DRY	WET
	MOLE %	
WATER		8.00
CARBON DIOXIDE	23.58	21.69
NITROGEN	----	----
METHANE	75.05	69.04
ETHANE	1.06	0.98
PROPANE	0.10	0.09
ISO-BUTANE	0.01	0.01
N-BUTANE	0.02	0.02
ISO-PENTANE	0.00	0.00
N-PENTANE	0.00	0.00
HEXANES	0.08	0.07
HEPTANES PLUS	0.10	0.09
TOTAL	100.00	100.00
GRAVITY (AIR = 1.00)	0.7932	0.7795

GAS DEVIATION FACTOR (Z) = 1.000 @ 15 PSIA & 298'F

BBLS. GAS IN RES./MMSCF (Bg) = 259,633 @ 15.025 PSIA & 298'F

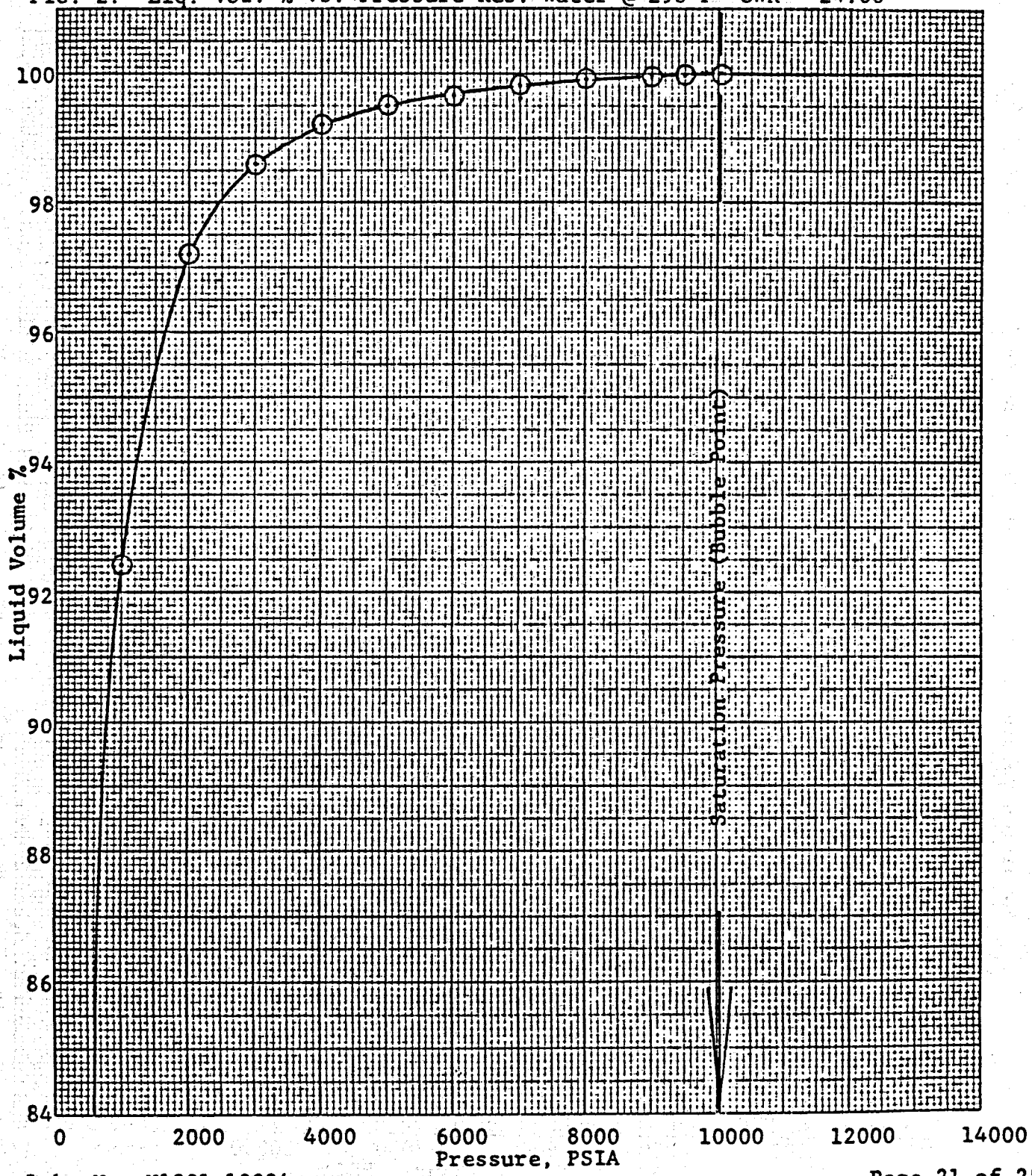
Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir _____ Field East Crab Lake

FIG. 1: Effect of Gas-Water Ratio on Bubble Point Pressure @ 298°F



Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir Field East Crab Lake

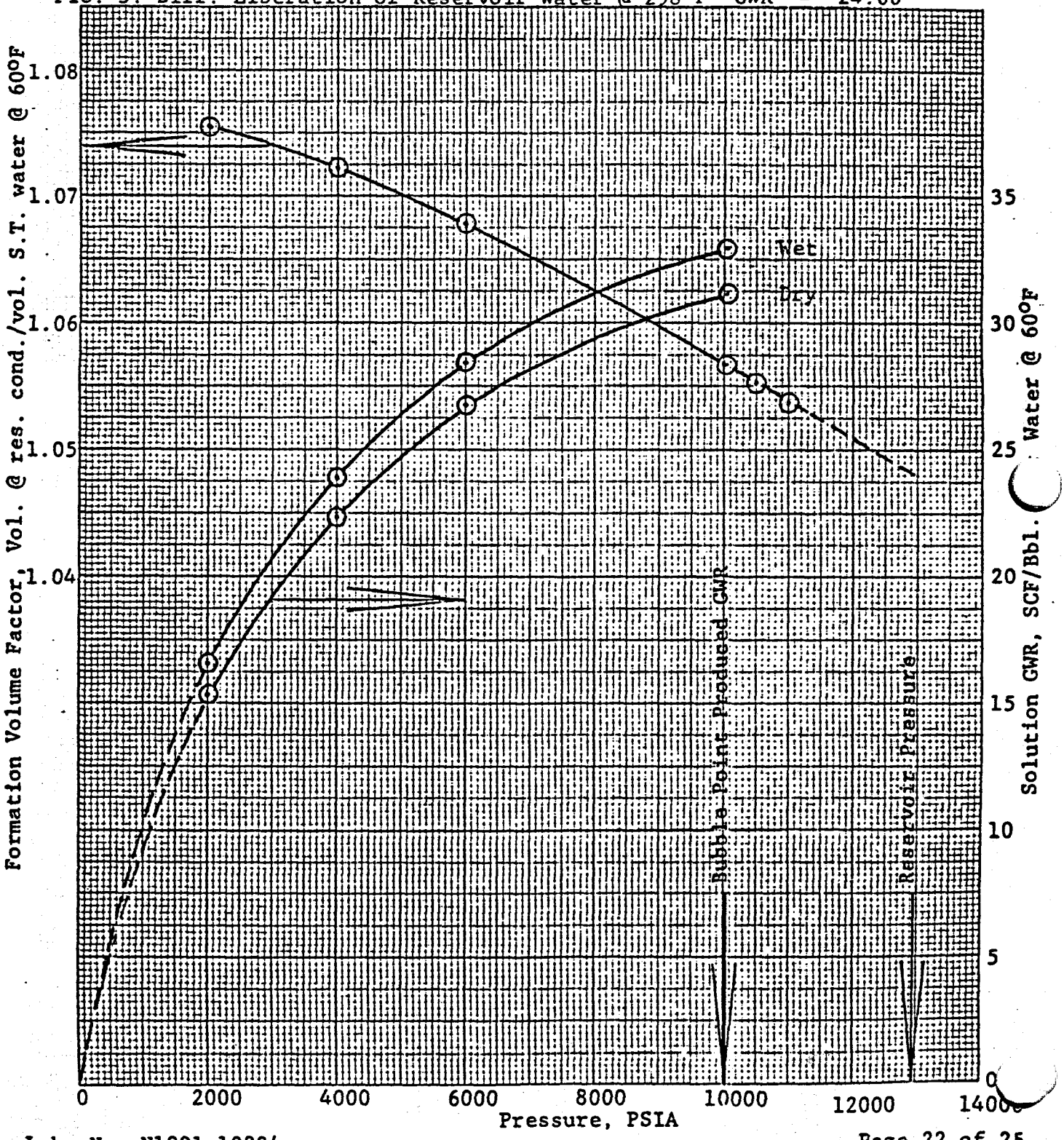
FIG. 2: Liq. Vol. % vs. Pressure-Res. Water @ 298°F GWR = 24.66



Lab. No. N1901-10224

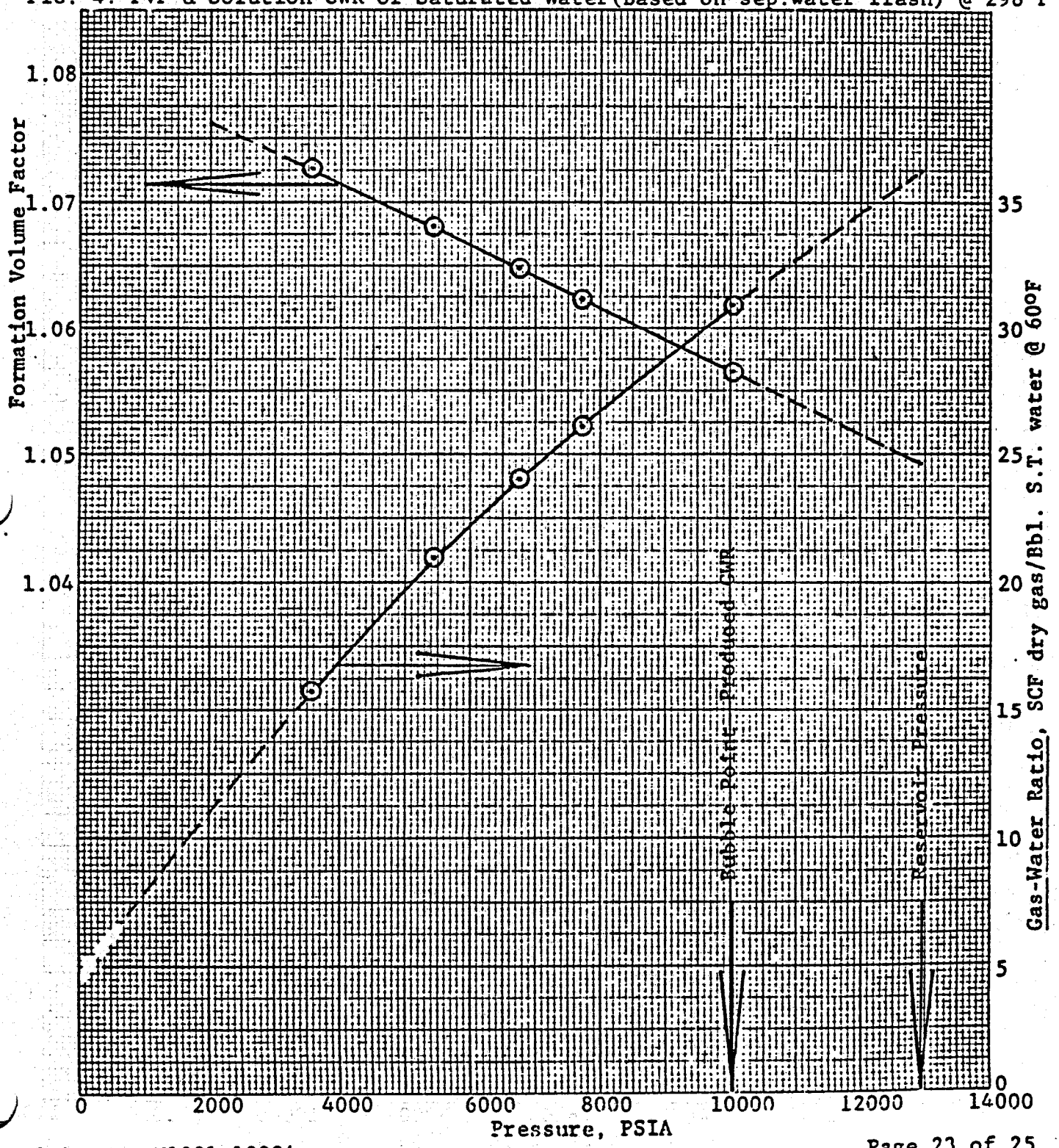
Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir Field East Crab Lake

FIG. 3: Diff. Liberation of Reservoir Water @ 298°F GWR = 24.66



Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir Field East Crab Lake

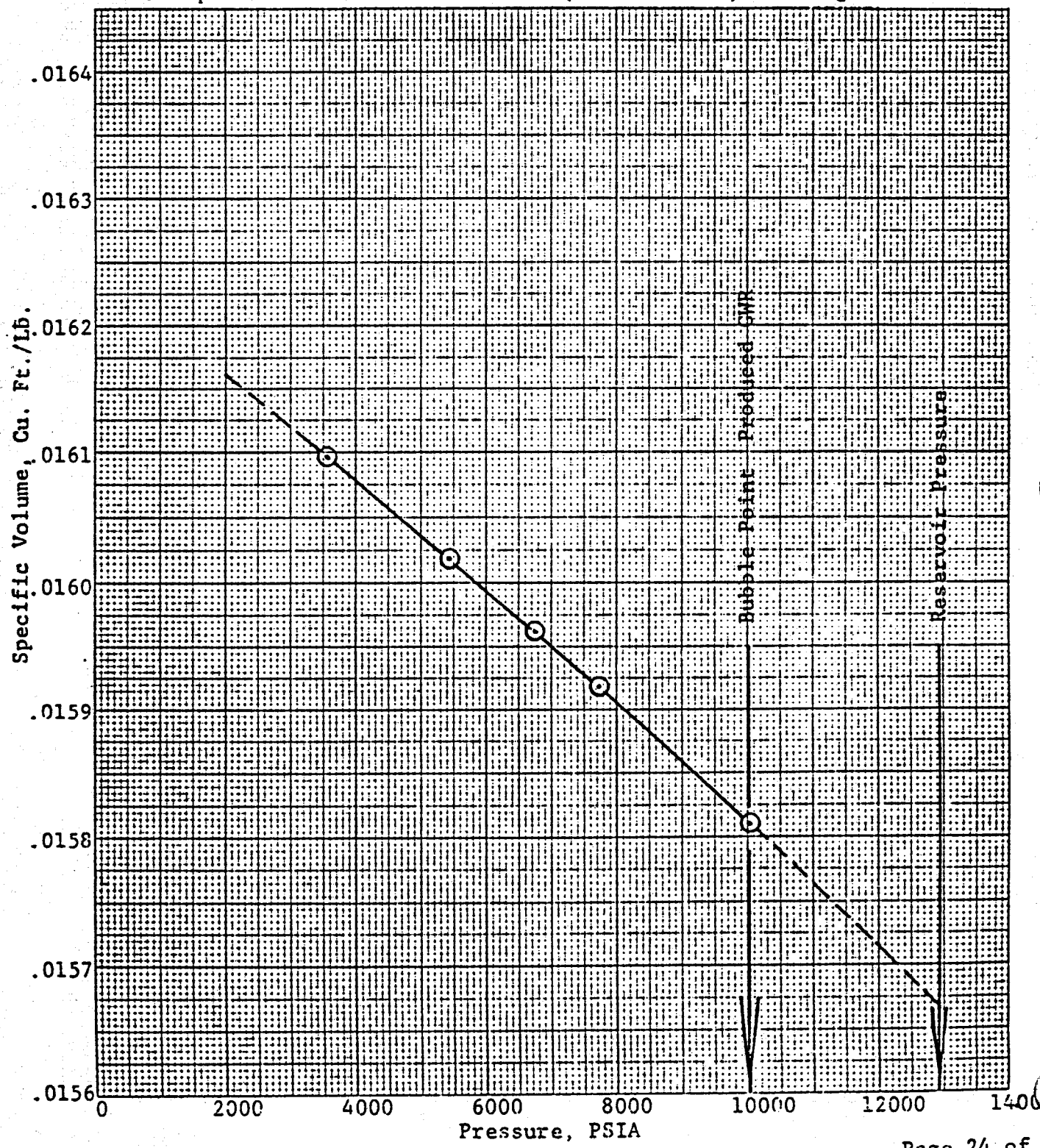
FIG. 4: FVF & Solution GWR of Saturated Water(Based on sep.water flash) @ 298°F



Lab. No. N1901-10224

Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir Field East Crab Lake

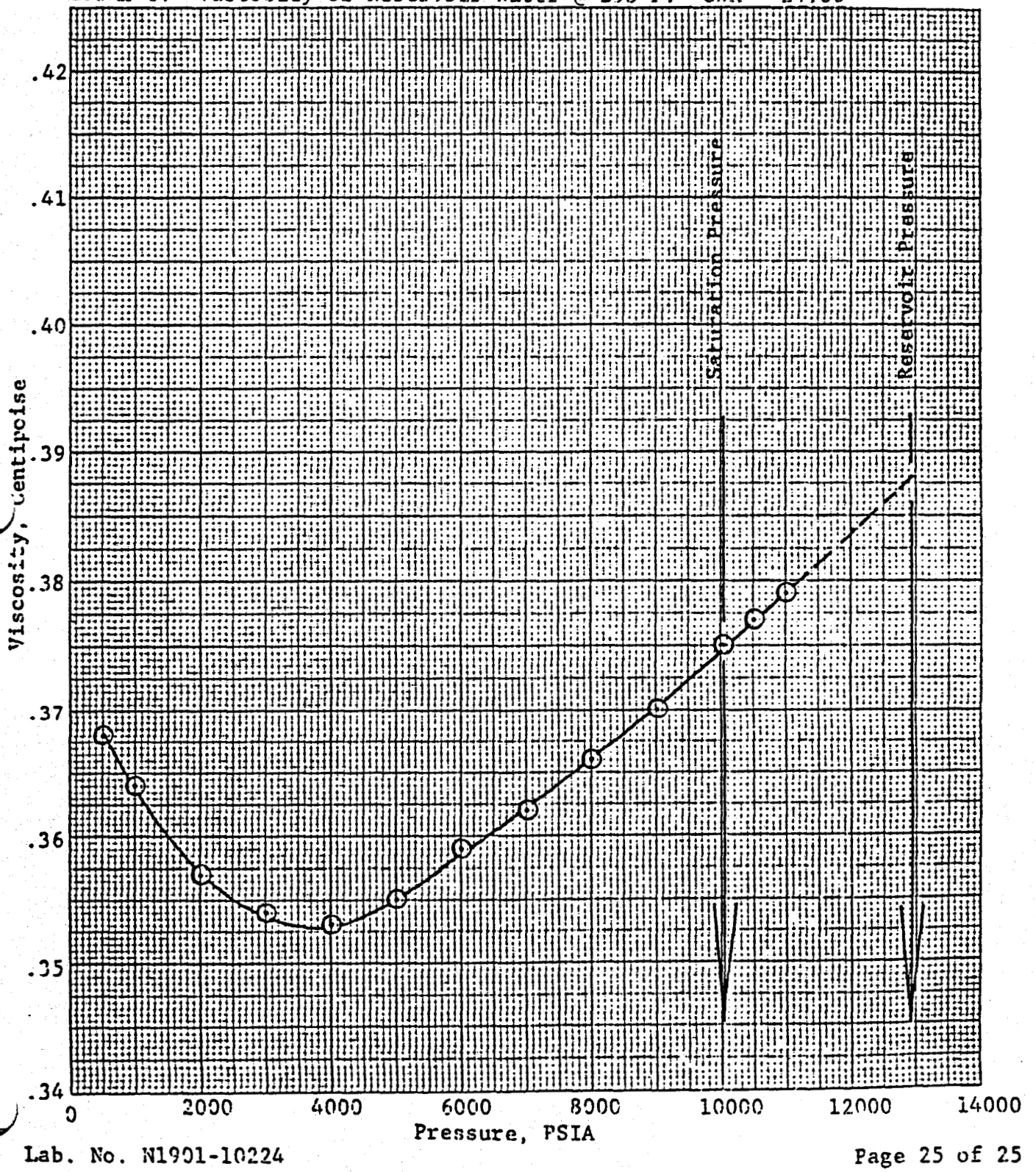
FIG. 5: Specific Volume of Saturated (Bubble Point) Water @ 298°F



Lab. No. N1901-10224

Company Technadril-Fenix & Scisson Well Gladys McCall No. 1
Reservoir Field East Crab Lake

FIGURE 6: Viscosity of Reservoir Water @ 298°F. GWR = 24.66



APPENDIX VI

GEOPRESSURED - GEOTHERMAL WELL REPORT

VOLUME II

WELL WORKOVER AND PRODUCTION TESTING

FOR

PERIOD FEB. 1982 TO OCT. 1985

FOR:

U.S. DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE

CONTRACT NO. DE-AC07-80ET27217

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Engineering Interpretation Of Exploration Drawdown Tests
Lower Miocene Geopressured-Brine Reservoirs
TF&S/DOE Gladys McCall No. 1 Well
Cameron Parish, Louisiana
October 1, 1984

J. Donald Clark, P. E.
Consulting Petroleum Engineer
5959 West Loop South, Suite 232
Bellaire, Texas 77401

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Engineering Interpretation Of Exploration Drawdown Tests
Lower Miocene Geopressure Brine Reservoirs
TF&S/DOE Gladys McCall No. 1 Well
Cameron Parish, Louisiana

Abstract

The TF&S/DOE Gladys McCall No. 1 well was drilled and completed under the originally awarded four well "DOE Design Well Program". The wells were selected to test various known geopressured-geothermal Gulf Coast deep zone geologic basins. The purpose of these tests was to evaluate the energy potential of gas in solution as well as the hydraulic and geothermal possibilities. This report presents the engineering interpretation of two of the lower miocene sand zones that have been tested in the Gladys McCall No. 1 Well.

An enormous amount of basic production and pressure drawdown data was accumulated for engineering interpretation. Only a small portion of this data, even though pertinent, is contained in this report. The report goes into considerable detail to explain factors that would effect any interpretation of the data. It is believed that data to support the conclusions is more important than the theoretocal derivation of equations which can be found in numerous publications.

Two sands have been tested in the Gladys McCall No. 1 Well. The first sand was a 120 foot zone occurring at 15,510 feet. The sand was interpreted as being a lenticular sand, containing around 150 million barrels of reservoir brine. The brine was undersaturated, having 31.14 cubic feet of dry gas in solution. The original reservoir pressure was 12,958 psia at a temperature of 298.4°F. The salinty of the brine, was about 95,500 PPM total solids, with a bubble point pressure of 10,030 psi. The productivity was 10,153 md.-ft., with 84.6 mds. average permeability to reservoir brine.

The second sand occurred at 15,158 feet with a gross interval of 322 feet. The original pressure in this sand, was 12,893 psia, with 291°F. temperature at the center of perforations at 15,315 feet. This sand proved to be very prolific with 39,500 md.-ft. of productivity. The permeability was estimated at 132 mds. to the reservoir fluid. The reservoir brine contained around 168,500 PPM of total solids with a reservoir viscosity of 0.31 centipoises. The solution gas water ratio, was 30.19 cubic feet of dry gas per barrel of brine, with a bubble point pressure of 9200 psia. The sand was a lenticular type deposition with no linear type permeability barriers detected. The reservoir contained around 550 million barrels of brine. The reservoir brine compressibility is 2.76 barrels per million barrels per psi at original reservoir conditions. The well produced some 269,091 total barrels of brine during the test period.

Engineering Interpretation Of Exploration Drawdown Tests
Lower Miocene Geopressure Brine Reservoirs
TF&S/DOE Gladys McCall No. 1 Well
Cameron Parish, Louisiana

Introduction

The TF&S/DOE Gladys McCall No. 1 Well, was drilled and completed in the lower (Marginulina ascensionensis) Miocene geopressured sandstones. The well is located about 8 miles southeast of Grand Chenier, Louisiana. The specific location, is 2718 feet south and 1646 feet west of the Northeast corner of Section 27, T15S R5W, Cameron Parish, Louisiana. The location is depicted on Figure No. 2, which is a generalized geological map contoured on the top of the No. 1 sand (or A Zone).

The purpose of the program is to determine the economic feasibility of developing these geopressured reservoirs for the utilization of the gas in solution, hydraulic and geothermal energy for the future. The fundamental support needed is the well and reservoir productivity, the size of the geopressured aquifer, the amount of gas and thermal energy available. Past tests performed have noted that all geopressured brine aquifers are not fully gas saturated. They do comprise a closed or volmetric reservoir system, therefore, are of limited size. The salinity of the reservoirs appear to vary over a wide range and this effects the amount of solution gas the brine can hold.

The test is designed to gather as much reservoir data as possible to allow a reasonable engineering evaluation of the energy avialable. The primary energy for production will be the expandibility of the reservoir fluid, and the physical capability of the reservoir to transmit the flow of the expanding fluid to the well bore.

Preliminary Reservoir Data

The lower Miocene No. 9 Sand, in the Gladys McCall No. 1 well, just above the Siphonina davisi shales at a measured depth between 15,505 feet and 15,635 feet. This brine aquifer zone was perforated from 15,511 feet to 15,541 feet, and from 15,567 feet to 15,627 feet, (Figure No. 1) for a production exploration drawdown test. Two Schlumberger sidewall cores, were recovered and analyzed from this interval. A core from 15,520 feet was described as a very fine grained sand, slightly shaly, with a very silty texture. An analysis indicated 22.8% porosity, 20 mds. air permeability, with a show of oil and gas. The second core was taken at 15,550 feet, and was described as a very fine-grained, very shaly and silty sand. The analysis gave 25.3% porosity, 78 mds. permeability to air, and a show of oil and gas. The average 24.05% porosity of the cores was used in basic calculations.

The Panex surface recording downhole pressure and temperature instruments were run into the well bore to a datum test depth of 15,460 feet. The instruments were located 51 feet above the top and 109 feet above the center of the perforated interval from 15,111 feet to 15,627 feet. The measured pressure at 15,460 feet at 6:18:20 P.M. on March 21, 1984, was 12,911.38 psia at a temperature of 297.6°F. This pressure corrected to a mid-perforation depth of 15,569 feet, was estimated to be 12,958.35 psia at a corrected temperature of 298.4°F. This is considered to be the mean original pressure and temperature for the No. 9 sand. Interpretation will be made using the recordings at the datum depth, since most pertinent caculations use only the differential change in pressure.

Reservoir Fluid Analyses, No. 9 Sand

Surface separator sample of the produced reservoir fluids were collected by a representative of Weatherly Laboratories, Inc. on March 23, 1983, after the well had been flowing for about 2 days. The Gas-Water ratio was measured at 24.66 cubic feet of separator gas per barrel of separator liquid. This was then recombined for reservoir fluid analysis. The resultant reservoir fluid exhibited a bubble point pressure of 10,303 psia at estimated reservoir temperature of 298°F.

The composite analysis of the reservoir fluid is found in Table No. 1 and summarized in Table No. 2. There were 32.92 cubic feet of wet gas and 31.14 cubic feet of dry gas in solution in one standard barrel of reservoir brine. Viscosity of the originally saturated reservoir brine (fluid) was 0.388 centipoise (cps). The formation factor used for converting a standard barrel of brine and its originally disolved gas to its original reservoir volume, is 1.0481 barrel per barrel. Revervoir fluid compressibility is 2.75 barrels per million barrels per psi. The total disolved solids measured in the brine, is in the order of 95,500 PPM, with chlorides around 58,600 PPM. Carbon dioxide was estimated to be about 9.9 mole % in the separator gas. Separator gas gravity averaged about 9.68, with reference to air as one. Creater details of the fluid analysis will be found in the Weatherly Lab report No. N1901-10224.

Exploration Drawdown Test, No. 9 Sand

The Gladys McCall No. 1 Well, was opened to flow at 18:18:20 P.M. (24 hour clock) on March 21, 1983. The initial metered flow rate varied from 5000 to

5500 barrels of brine per day. Graph No. 1 plots metered flow rate and datum flowing pressure as a function of the log of flowing time. Pressure and flow rates were averaged over a 10 second period and recorded on tape as well as a printed record. The first pressure and production rate plottings were at 10 second intervals. The early recorded flow rates were nearly 25% high until the meter was adjusted for proper calibration after about 3 days of flow. The first metered readings, of 5200 barrels per day, were adjusted and corrected to 3808 standard barrels of brine per day.

Rates were maintained relative constant for the 23.7765 days of flow testing. The production rate ranged from a low of 3598 standard barrels of brine per day to a high of 4165 SBPD. Graph No. 1, plot "B", depicts the computer read values of the flow meter taken the instant the flowing bottom hole pressure was recorded by the Panex equipment. It will be noted that major changes in production rates correlate with major changes in flowing sand face pressure. Graph No. 1 has been reduced by about 65% from a 20 psi per inch scale work graph for this report. Detailed interpretations for early drawdown are on this graph.

Graph No. 1 depicts 5 possible straight line semi-log slopes, going from 24.8 psi per cycle, to 45.2 psi per cycle by the end of the first 24 hours on flow. None of these slopes reach the 2 to 1 value of the radial flow slope depicted as 24.8. This is a good example of what is expected when kh is reduced by lenticular type sand deposition. Permeability barriers are sands pinching out, and not straight line (fault) type barriers to fluid flow. The 24.8 slope occurred between .006 and .029 days (8.64 to 4.76 minutes) of flow time. This slope occurred from pressure transients reaching out to a radius of 455 feet around the well bore. The sand to this distance appears relative uniform in net thickness and permeability and was used to make fundamental reservoir calculations.

Figures No. 3 and No. 3A are basic data calculation sheets for the No. 9 sand. The reservoir sand productivity, or kh, is 10,153.14 md.-ft. The 120 feet of net effective sand gives an average permeability to the reservoir fluid of 84.6 mds. This is a relatively prolific brine producing sandstone. The skin factor was determined to be a positive 1.98 with a pressure loss due to skin damage, of 42.7 psi. This computes to a very good completion efficiency of 92.85%. The productivity index was 6.379 barrels per day per psi.

The prductive limits of this lenticular sand body seemed to occur after about one week of flow. This was noticeable, at on site calculations in the field, by a rather constant rate of pressure drop per barrel of reservoir fluid produced. The aquifer size appeared to be slightly over 100 million barrels.

A more detailed method of exploration drawdown calculations was attempted from the first flow to the final flow period. This information is contained in Table No. 1, and graphically presented on Graph No. 5. This plot, of the calculation of explored brine as a function of time, is plotted on a log-log graph. Linear permeability barriers would have lined the points up in a 45 degree angle straight line. Continuously changing permeability barriers, such as lenticular type sand, create a curving type plot as depicted on Graph No. 5.

When all limits have been reached, the inplace value becomes relatively constant. This is a good example of a lenticular type sand having around 150 million barrels of brine originally in place.

The well produced a total of 99,416 barrels of brine with 31.14 cubic feet of dry gas in solution. The average metered wet gas from the separator averaged between 27 and 30 cubic feet per barrel. The average production rate forthe 23.7765 days, was 4181 barrels of brine per day, and some 119 MCF of separator gas per day was flared. The reservoir size will not allow prolonged high production rates, and would not fit the requirements for a high rate twenty year life reservoir needed to meet economical status.

Graph No. 2 is a plot showing pressure decline for the total flow time. You will note, the curving drawdown plot which suggests a steady state condition. The graph also has the short pressure buildup data needed for early time comparison.

Pressure Buildup Test for the No. 9 Sand

The well was shut in at 12:56:30 P.M. on April 14, 1983, for a pressure buildup test. The pressure buildup plot is presented on Graph No. 2. The Horner psuedo time type semi-log plot, is depicted on Graph No. 3.

Final flowing pressure of 12,360.91 psia at 298.3°F. temperature was recorded at 12:56:30 P.M. on April 14, 1983. The flowing well head pressure was 5579.14 psia at about 245°F. surface temperature. An average flow rate during the final 3 days was 3700 standard barrels of brine per day. The radial flow buildup slope was 25 psi per cycle, and occurred as a straight line between .009 to .79 days. Calculated kh value is 9,786.3 md.-ft., and gives an average permeability of 81.6 mds. This can be reasonable compared to the 84.6 mds arrived at from the drawdown test. The pressure buildup plot tends to smooth out any effect of lithological variation close to the well bore. The skin effect was calculated as a positive 0.13 which gives only 2.8 psi pressure loss due to skin.

Problems developed in the Panex downhole pressure element after 2.5 days on the pressure buildup test. The last pressure reading was 12,588.66 psia at 01:00 A.M. on April 17, 1983. This is 322.72 psi below the initial datum pressure of 12,911.38 psi. The pressure element was pulled from the well, and a reserve instrument was installed as a replacement. The tool was being lowered into the well bore, when it was noted that a splice in the wire cable was beinning to fray, creating a short. The cable was then pulled out of well and sent to be repaired. This is a special cable that will resist CO_2 at high well bore temperatures.

The wire line crew returned to the well at 6:15 A.M. on April 21st with repaired wire line and Panex Instrument. At noon, after getting the instrument to pressure datum, the mast locking lugs failed to engage and allowed the mask to collapse. The MP-35M wireline was severed at the top of the lubricator and 15,500 feet of wireline and pressure element were lost in the well bore.

"Fishing" operations took until April 26th to retrieve the wire line and pressure elements. It was decided to move in a workover rig to cement and seal off the No. 9 sand zone.

Lower Miocene No. 9 Sand Test Conclusions

The Lower Miocene No. 9 Sand is above average for deep sand production in this area. Productivity of 10,153 md.-ft., is well above the range needed for producing rates in excess of 20,000 barrels of reservoir brine per day. The lenticular or sand bar type deposition was sufficient in size for only 150 million barrels of reservoir brine. Flow restrictions, due to sands pinching out, and loss in permeability around the well, would not allow high rates of flow for any sustained period. The well averaged 4181 barrels of brine per day for 23.78 days and drew the sand face flowing pressure down 550 psi from 12,911.38 psia to 12,361 psia. The steady state rate of drawdown was about 8.114 psi per day at around 3800 barrels of standard brine per day. A flow rate of 20,000 barrels per day, would increase the steady state drawdown to 42.7 psi per day.

The laboratory recombination of reservoir fluids indicated a bubble point pressure of 10,030 psia at 298°F., with 31.14 cubic feet of dry gas in solution. This is 2,928 psi below the original reservoir pressure. The drawdown test did not detect any free gas zone during the 23.78 days of measure flow testing. This was as expected for an undersaturated aquifer.

The pressure gradient for this sand zone is about 0.832 psi per foot. The temperature gradient, using a ground mean temperature of 70°F., is 1.467 degrees per 100 feet. The dry gas in solution is 31.14 cubic feet per standard barrel for a brine having 95,500 PPM total solids. The productivity around the well bore, or kh, is 10,153 md.-ft., with average permeability to the reservoir brine of 84.6 mds. The original reservoir pressure was measured at 12,958 psia with a reservoir temperature of 298°F. The viscosity of the reservoir fluid was 0.388 centipoises with 2.75×10^{-6} bbl. per bbl., compressibility at original reservoir conditions. The reservoir area is difficult to determine, but if the net effective sand thickness averaged 60 feet, it would occupy some 1400 acres. The shape of the exploration drawdown plot, suggests a smaller average sand thickness and a greater area being occupied.

Lower Miocene No. 8 Sand

Preliminary Reservoir Data

The Lower Miocene No. 8 Sand occurs between 15,158 feet and 15,490 feet with gross section of 322 feet. The estimated net effective sand is approximately 300 feet. The seven side wall cores taken between 15,285 feet and 15,470 feet, were described in general as very fine grained slightly shaly, very silty sand. The average air permeability was 64 mds. with an average porosity of 23.8%.

The interval between 15,167 feet and 15,375 feet, was conventionally cored and recovered about 39.5 feet of sand. This recovery represents about 12.3% of the 322 foot section. The average porosity of the 18 cores analyzed was 15.5% with an average air permeability of 118.2 mds. Porosity varied from a high of 20.8% to a low of 10.4%. The highest permeability was 545 mds. with the lowest at 7.4 mds. The convential cores were described as clean, fine grained sand. There were 1.5 feet of core described as fine grained, silty and very calcareous sand, with no analyses presented.

The sand zone was perforated for production with 10.1 pounds per gallon calcium chloride fluid in the well bore. Eleven runs of the perforation tool was required to perforate from 15,470 feet to 15,160 feet for a total of 310 feet.

Well cleanup operations were conducted during September 20 and 21, 1983. The cleanup production was conducted with the Panex surface recording bottom hole pressure element at a datum of 15,160 feet. The pressure, prior to flowing the well, was 12,799.30 psia, at a measured temperature of 286.8°F. at datum. Surface well head pressure was 4895.43 psia. The well was opened to flow at 22:00 hours at a metered producing rate of approximately 3400 barrels of completion brine per day. The final flowing datum pressure was 12,767.70 psia at a temperature of 288.0°F. and flowing tubing pressure of 6052.82 psia. The well was shut in after flowing about 24 hours and 50 minutes. The estimated production for this cleaning test was 3,230 barrels.

The pressure at datum rose to 12,795.00 psia within 5 minutes after being shut in. The pressure continued to rise slowly and reached 12,800 psia by 1:00 A.M. on September 22, 1983. Pressure remained relatively constant for the next 10 hours and the pressure element was removed from the well bore. Surface pressure decreased from a high of 6121.00 psia to 5996.48 psia due to the cooling effect of the water in the well bore.

First Exploration Drawdown Test No. 8 Sand

An exploration drawdown test was planned to start September 27, 1983 at a producing rate of approximately 14,000 barrels of reservoir brine per day. This rate was established after reviewing the early cleaning flow test which had a maximum pressure loss of only 31.6 psi in the approximate 25 hour period.

The Panex guage was at the 15,100 foot datum at 21:55:00 P.M. on September 26th, with pressure reading 12,789.21 psia at 286.5°F., and a surface pressure

of 5947.12 psia. The pressure gradually increased to 12,795.18 psia, at 286.8°F., with 5950.80 psia surface pressure at 9:30:20 A.M. on September 27th, when the flow test was started. The presure element at 15,100 feet is 215 feet above the center of perforations. The starting pressure corrected to center of perforations would be 12,893 psia, which is probably the original mean reservoir pressure for the No. 8 sand.

The well was opened at 9:30:20 A.M. to a metered rate of approximately 14,000 barrels of brine per day. The flow test is graphically depicted on Graph No. 6. The test rate is supposed to be as constant as possible. The measured meter rate constantly increases due to the increasing flowing-fluid temperature at the surface metering instruments. It takes nearly 24 hours for this temperature to level off at the surface. There will also be a minor effect as the temperature slowly increases as the mean well bore temperature gradually goes up.

The flow test continued until around 18:45:00 P.M. on September 27th, when a malfunction was noted in the downhole pressure element. The instrument was being brought up the well bore, and was 3000 feet at the surface when the valve stem packing blew out of the top master valve. The disposal well also increased in well head pressure to 425 psig, and some brine was diverted to the blowdown tanks. The well was shut in as soon as the wire line was out of the well head, and the test was aborted.

Drawdown pressures and production rates were recorded for 9 hours and 15 minutes, and did provide data for early interpretation. The early metered production rate of 14,520 barrels of brine per day, was reduced to 13,703 standard barrels per day. The drawdown slope of 18.2 psi per cycle, gave a productivity of 39,568 md.-ft. The 300 feet of net effective sand gave a permeability to brine of 132 mds. The skin factor was a positive 1.05 giving only 17 psi loss in pressure due to skin. The total sand section was not perforated which is a small part of this damage factor. The completion efficiency was 88.28%. The last measured flowing pressure was 12,630.70 psia at 18:40:00 P.M. The well productivity index was 94.503 barrels per day per pound pressure drop. The area explored was approximately 507 acres, with an aquifer volume of 175 million barrels. Those calculations are found on Figure No's 5 and 5A. Graph No. 6 depicts the flowing down hole datum pressure, surface pressure and metered brine production rate for this test.

A restart of the exploration drawdown test, was rescheduled for Wednesday, October 5th. This gives sufficient shut in time for the sand face pressure to build back to the approximate original static reservoir pressure. This also allows time to repair the master valve and recheck surface equipment. Minor problems that developed on October 5th, delayed the start of the next flow period to October 7, 1983

Twenty One Day Exploration Drawdown Test

Previous testing gave good reservoir data, but a long flow test is needed to determine the probable aquifer size. Other tests were aborted prior to the final flow test. The cumulative water produced to this time, is 12,284.5

barrels. Pressure at the start of the test was still building very slightly, and at 13:14:30 P.M. on October 7, 1983, the pressure at the datum of 15,100 feet, was 12,783.59 psia at 289.2°F. Well head pressure was 5948.95 psia. The well was opened to a rate of about 13,407 metered barrels of brine per day.

Graph No. 7 is a computer lot of the bottom hole datum pressure, meter flow rate in barrels of brine per day, and the surface flowing pressure. These data are averaged over about a 10 second interval, and each point plotted. The 10 second measurements were continued for 15 minutes, and then readings were switched to 1 minute readings for the next 2 hours and 49 minutes. Thereafter, all readings were recorded at five minute intervals. This allows a very precise intergration of pressure drop and flow rate for exploration drawdown calculations.

Graph No. 7 depicts a relatively uniform flow rate of about 13,407 BWPD between .023 days and .330 days. The pressure drawdown rate was very straight at about 19.1 psi per log cycle. Thereafter, you will note, there was a continuous downward curving slope. This curve approaches a steady state decline. Graph No. 8 depicts this same pressure on a linear plot, giving a slight hyperbolic curve upward rather than the straight line steady state. Graph No. 9 is a log-log plot of the intergrated water explored as a function of time. None of these three graphs depict even one linear type. The graphical configuration is an excellent example of lenticular type sand deposition. Normally as the sand thins, a reduction in permeability also occurs. Therefore it is difficult to separate the effect of, k, permeability, or h, the net effective sand thickness as a function of flow time. A linear permeability barrier might be present after a day or two of flow, and would be completely masked by kh reduction from sand pinching out.

The productivity calculated from the semi-log drawdown slope of 18.1 psi per cycle, is 37,057.3 mds. This is relatively close to the value from the prior testing. An exact value was not expected since there was a minor amount of pressure buildup going on in the reservoir when this flow test started. Permeability to the brine, using 300 feet of net effective sand, was 123.5 mds. The prior test calculated 132 mds., which is a reasonable comparison.

The skin factor was calculated as 0.2003 with a pressure loss of 3.2 psi due to skin. This results in a completion efficiency of 97.56%. It does not mean that all the improvement over the previous test was caused by additional cleaning of the sand around the resevoir with additional production. The basic reservoir calculations are included in Figures No. 6 and No. 6A.

Exploration drawdown calculations are contained in Table No. 6. Only a portion of these calculations are shown in the table. The calculated explored volumes of brine as a function of flow time, are plotted on the log-log Graph No. 9. The plotted values of water explored become constant, or nearly constant when all reservoir limits are reached and steady state flow exists. This graph would indicate a reservoir size at just above 550 million barrels of water.

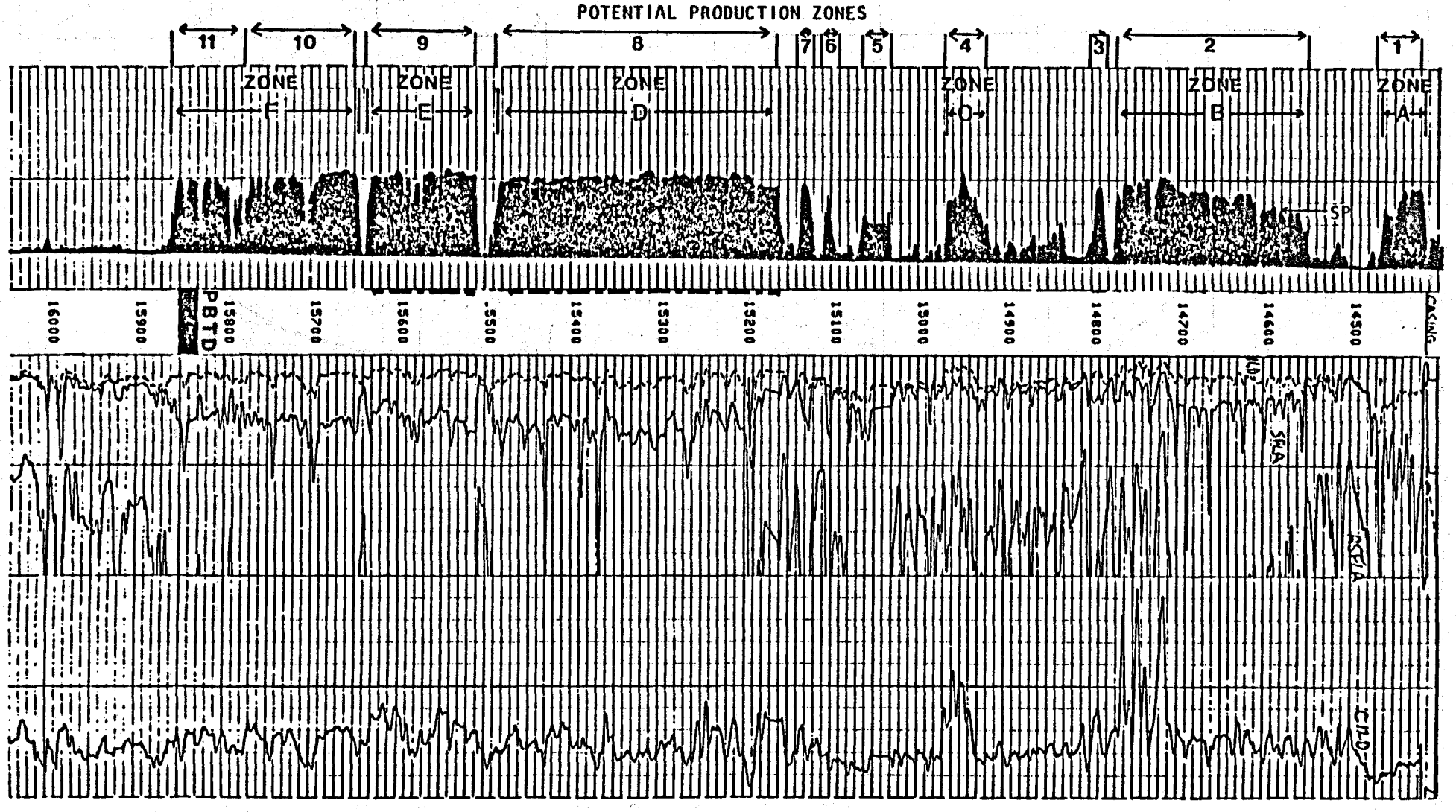
The pressure buildup plot allows a productivity, or kh, calculation of 39,752 md.-ft. and average permeability of 132.5 mds. (Figure No. 7). This is approximately the same as the first drawdown test within 93% of the extended flow test calculation. The skin factor was 1.892 which gives a pressure loss due to skin of 26.7 psi. The diffusivity rate was 5,352,681 square feet per day, or nearly the same as the first drawdown test data. The well was shut in for 32.8 days, and final pressure was not reached.

Lower Miocene No. 8 Sand Test Conclusion

The Lower Miocene No. 8 sand is a highly prolific sand with productivity over 39,500 md.-ft. and average permeability to the reservoir fluid of some 132 mds. The reservoir was found at a geopressure of 12,800 psia at a temperature of 291°F. There is some 300 feet of net effective sand at the well bore. The reservoir has been interpreted, from the testing, as being a lenticular type sand deposition with no noticeable linear permeability barriers. The reservoir has around 550 million barrels of brine within the sand body. The reservoir fluid appears to be undersaturated with natural hydrocarbon gases of about 31.6 cubic feet of dry gas per standard barrel of brine. The brine contains about 168,500 PPM total solids.

FIGURE NO. 1

T-F&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana
ELECTRIC LOG OF GEOPRESSURED ZONES



PERFORATED INTERVAL

FIGURE NO. 2

STRUCTURE MAP - TOP OF GEOPRESSURED NO. 1 SAND TF&S/DOE GLADYS McCALL NO. 1

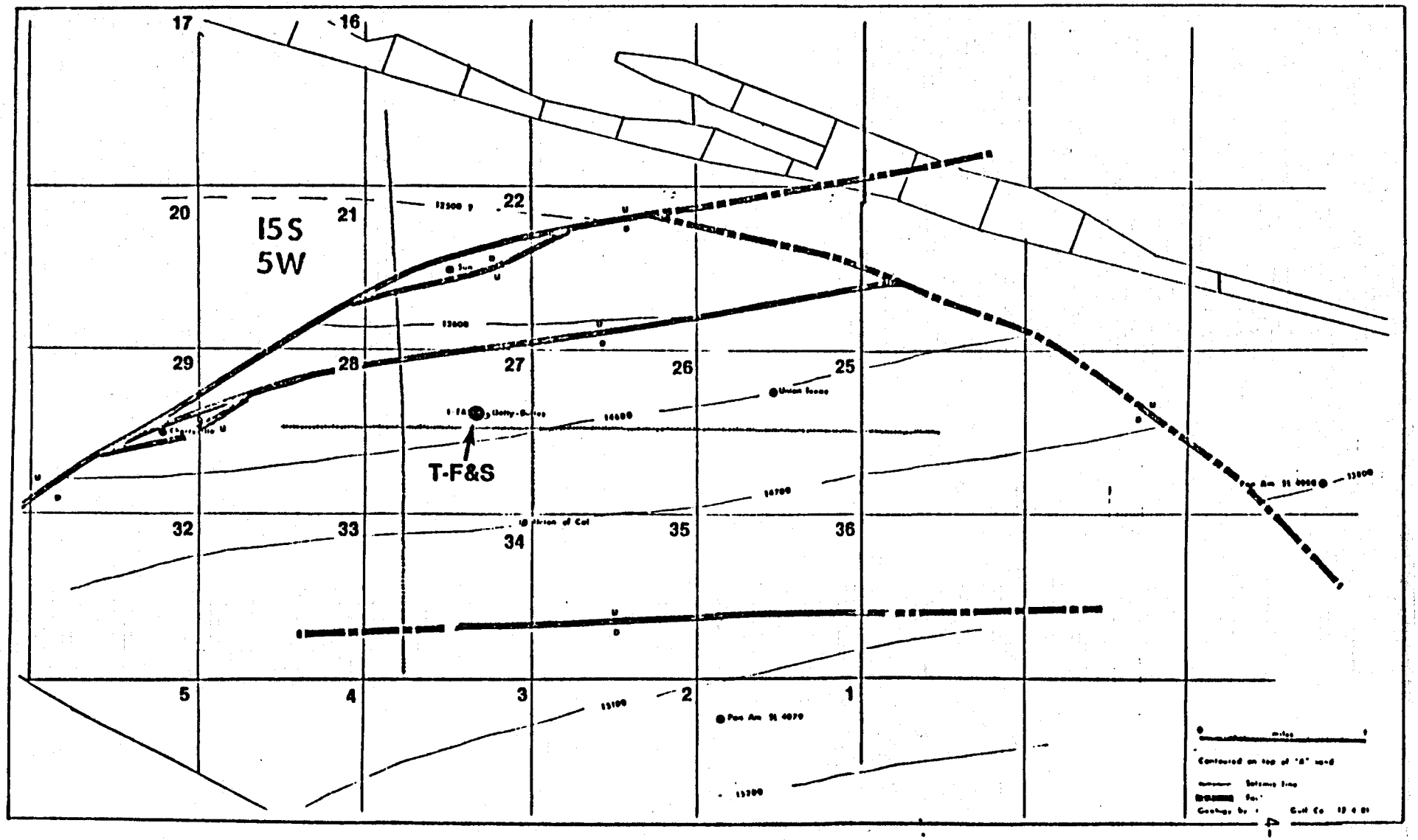


FIGURE 3

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST

FOR

GEOTHERMAL-GEOPRESSURED WELL

Exploration

Test date: March 21-April 14, '83 Type Test: Drawdown Lease and Well No. Gladys McCall No. 1

Producing Formation: Lower Miocene Sand Zone No. 9 Field: Cameron Parish

Hole size: _____ Casing Size: _____ Tubing Size: 5" State: Louisiana

Cumulative Production: 99,416 Bbls. Gas Gravity: .6807 Z: 1.59

Constant Rate Production: 4181.3 (bbls/day) Water Salinity: 95,500 PPM Total Solids

Total Production Life: 23.7765 days Porosity, ϕ: .2405 Gas-Water Ratio: 31.14 ft^3/bbl

Reservoir Temperature: 298.4°F Net Pay: 120 ft. Perforations: 15,511 to 15,627 ft

μg _____ cps μw .388 cps Bw 1.0481 R.B./B. Bg 0.4792 R.B./MCF

C_T 3.22 $X10^{-6}$ Cg _____ $X10^{-6}$ Cw 2.75 $X10^{-6}$ C_r 0.47 $X10^{-6}$

m 24.8 psi/cycle P at 1 hour: 12,752 Sg 0 Sw 100% Pi 12,958.35 psia

Pf 12,360.91 psia

I. Calculation of kh (md-ft) and k (md):

kh = 162.6 (Q)(B)(μ)/(md)

kh = 162.6 (3808) (1.0481) (.388) / (24.8) = 10,153.14 md-ft

k = (10,153.14) md-ft / (120)ft = 84.6 mds

II. Bg = (Pb)(Tf)(Z)(1000)/(5.61)(520)(P_R) =

Bg = (15.025) (759.4) (1.59) .34279/(12,958.36) = .4792 Res. bbl/ MCF

III. Calculation of Skin Effect, s, and Pressure Loss Due to Skin, ΔP skin

$$s = 1.151\left[\left(\frac{Pi - P_{1hr}}{m}\right) - \log\left(\frac{K}{\phi\mu C_t r_w^2}\right) + 3.23\right]$$

$$s = 1.151\left[\left(\frac{(12,958)-(12,752)}{(24.8)}\right) - \log\left(\frac{(84.6)10^{-6}}{(.2405)(.388)(3.22)(.0434)}\right) + 3.23\right] = +1.98$$

ΔP skin = (0.87)(s)(m) = psi

ΔP skin = (0.87)(1.98)(24.8) = 42.7 psi

IV. Diffusivity, η

η = .006328 (k) /$\phi\mu$ C_T =

η = .006328 (84.6) / (.2405)(.388)(3.22)10^{-6} = 1,781,698 ft^2/day

FIGURE 3A

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST (CONT'D)

Exploration

Test Date: March 21-April 14, '83 Type Test: Drawdown Lease and Well No. Gladys McCall No. 1

Calculation of Productivity Index (B/D-psi) and Completion Efficiency, CE

$$J\ (\text{actual}) = \frac{Qw}{P_i - P_f} = \frac{(\ 3808\ )}{(12{,}958 - 12{,}361)} = \underline{\ 6.379\ } \text{ bbls/D-psi}$$

$$J\ (\text{ideal}) = \frac{Qw}{(P_i - P_f) - \Delta P\ \text{skin}} = \frac{(\ 3808\ )}{(12{,}958 - 12{,}361) - (42.7\ )} = \underline{\ 6.870\ } \text{ bbls/D-psi}$$

$$CE = \frac{J\ (\text{actual})}{J\ (\text{ideal})} = \frac{(\ 6.379\ )}{(\ 6.870\ )} = \underline{\ 0.9285\ } \quad \text{or } \underline{\ 92.85\ } \%$$

Distance to Barriers or Discontinuities, d $\quad d = 2\sqrt{\kappa t}$

$$d = 2\sqrt{(1{,}781{,}698\ )} \times \sqrt{t} = (\ 2670\ )\sqrt{t}$$

time, days	Qw	d, ft.	(psi/cycle)	Flow Angle	Jones Y Function	Bbls of Aquifer Explored or Tested
.006	3808	207	24.8	360°	.450356	0.771×10^{-6}
.029	3808	455	24.8	360°	.093177	3.724
.031	3670	470	16.7		.060903	5.698
.049	3670	591	16.7		.038531	9.006
.087	3808	786	24.8	360	.031059	11.173
.170	3808	1101	24.8	360	.0158949	21.832
.170	3808	1101	36.4		.0233296	14.874
.310	3808	1487	36.4		.0127937	27.124
.960	4165	2616	45.2		.0046903	73.985
2.07	3598	2841			3.15554×10^{-3}	109.970×10^{-6}
3.49	3659	4988			6.25934	55.440
3.74	3703	5164			3.11598	112.212
4.50	3703	5664			3.47904	99.744
5.15-5.74	3659	6397			4.17289	83.159
5.74-6.24	3638	6670			5.77060	60.140
6.24-6.57	3689	6844			5.43290	63.879
10.78	3676	8765			3.05280	113.667
11.78	3686	9164			2.92030	118.827
12.78	3666	9545			2.89050	135.000
April 10to 14		13,019 ft.	8.11428 psi/day		1.910	171.000
	3826 to 4054		Steady State		2.030	181.000

FIGURE No. 4

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR BUILDUP TEST

FOR

GEOTHERMAL-GEOPRESSURED WELL

Test date: April 14-17, 1983 Type Test: Buildup Lease and Well No. Gladys McCall No. 1

Producing Formation: Lower Miocene Sand Zone No.9 Field: Cameron Parish

Hole size: _____ Casing Size: _____ Tubing Size: 5" State: Louisiana

Cumulative Production: 99,416 Bbls. Gas Gravity: .6807 Z: 1.59

Constant Rate Production: 3700 (bbls/day) Water Salinity: 95,500 PPM Total Solids

Total Production Life: 23.7765 days Porosity, ϕ: .2405 Gas-Water Ratio: 31.14 ft^3/bbl

Reservoir Temperature: 298.4°F Net Pay: 120 ft. Perforations: 15,511 = 15,627 ft

μg _____ cps μw .388 cps Bw 1.0481 R.B./B. Bg .4792 R.B./MCF

C_T 3.22 $X10^{-6}$ Cg _____ $X10^{-6}$ Cw 2.75 $X10^{-6}$ C_r .47 $X10^{-6}$

m 25 psi/cycle P at 1 hour: 12,528 Sg 0.00 Sw 100% Pi 12,958.35 psia

Pf 12,360.91 psia

I. Calculation of kh (md-ft) and k (md):

kh = 162.6 (Q)(B)(μ)/(md)

kh = 162.6 (3700) (1.0481) (.388) / (25) = 9,786.3 md-ft

k = (9,786.3) md-ft / (120)ft = 81.6 mds

II. Bg = (Pb)(Tf)(Z)(1000)/(5.61)(520)(P_R) =

Bg = (15.025) (758.4) (1.59) .34279/(12,958.35) = .4792 Res. bbl/ MCF

III. Calculation of Skin Effect, s, and Pressure Loss Due to Skin, ΔP skin

$$s = 1.151\left[\left(\frac{P_{1hr} - P_f}{m}\right) - \log\left(\frac{K}{\phi\mu C_t r_w^2}\right) + 3.23\right]$$

$$s = 1.151\left[\left(\frac{(12,528)-(12,361)}{(25)}\right) - \log\left(\frac{(81.6)10^6}{(.2405)(.388)(3.22)(.0434)}\right) + 3.23\right] = +.13$$

ΔP skin = (0.87)(s)(m) = psi

ΔP skin = (0.87)(.13)(25) = 2.8 psi

IV. Diffusivity, η

η = .006328 (k) /$\phi\mu$ C_T =

η = .006328 (81.6) / (.2405)(.388)(3.22)10^{-6} = 1,718,517 ft^2/day

TABLE NO. 1

DOE/ Technadril-Fenix & Scisson, Inc.
Gladys McCall No. 1 Well, Sand No. 9
Cameron Parish, Louisiana

RESERVOIR FLUID SUMMARY

Reservoir Temperature, Degrees F.	298
Saturation Pressure at 298° F, Psia	10030
Compressibility of Reservoir Water @ 298° F Vol. per Vol. per Psi X 10^{-6}	
From 10030 psia to 10500 psia	2.98
From 10500 psia to 11000 psia	2.80
From 10000 psia to 12936 psia	2.75
	DIFF. LIB.
Saturated Water at 10030 Psia, 298° F.	
Density, Grms. per Ml.	1.01318
Lbs. per Bbl.	355.1
Specific Volume, Cu. Ft. per Bbl.	0.015810
Viscosity, Centipoise	0.375
Formation Volume Factor, Bbls. per Bbl. "Equivalent Standard Bbl. of Water at 60° F"	1.0567
Solution Gas- Water Ratio, Cu. Ft. per Bbl.	32.92 Wet
"Equivalent Standard Bbls. of Water at 60° F"	31.60 Dry
Reservoir Water (Brine) at 12936 Psia, 298° F	
Density, Gms. per Ml.	1.02242
Lbs. per Bbl.	358.4
Specific Volume, Cu. Ft. per Lb.	0.015667
Viscosity, Centipoise	0.388
Formation Volume Factor, Bbl. per Bbl. "Equivalent Standard Bbls. of Water at 60° F.	1.0481

LAB NO. N1901-10224

TABLE NO. 2

DOE/Technadril-Fenix & Scisson, Inc.
Gladys Mc Call No. 1 Well Sand No 9
Cameron Parish, Louisiana

COMPOSITE LABORATORY DATA 298 DEGREES F

RECOMBINATION (5) PRODUCED 24.66 SCF SEP. GAS @ 15.025 PSIA & 60°F/BBL. SEP. WATER & SEP. CONDITIONS.

PRESSURE VOLUME RELATION					DIFFERENTIAL LIBERATION		
PRESSURE PSIA	RELATIVE VOLUME V/V SAT Bt	SPECIFIC VOLUME Cu. Ft./Lb	LIQUID VOLUME PERCENT	FORMATION VOLUME FACTOR Bw	OIL VISCOSITY CENTIPOISE	SOLUTION GAS-WATER RATIO PER BBL. STD. WATER @ 60°F DRY	WET
12936 RES	0.9919	0.015682		1.0481	0.388	31.14	32.92
11000	0.9972	0.015766		1.0537	0.379	31.14	32.92
10500	0.9986	0.015788		1.0552	0.377	31.14	32.92
10030 B.P.	1.0000	0.015810	100.00	1.0567	0.375	31.14	32.92
9500	1.0017	0.015837	99.99				
9000	1.0034	0.015864	99.96		0.370		
8000	1.0069	0.015919	99.91		0.366		
7000	1.0109	0.015982	99.81		0.362		
6000	1.0152	0.016050	99.67	1.0678	0.359	26.76	28.45
5000	1.0199	0.016125	99.50		0.355		
4000	1.0260	0.016221	99.20	1.0721	0.353	22.30	23.88
3000	1.0351	0.016365	98.60		0.354		
2000	1.0530	0.016648	97.20		0.357		
1000	1.1109	0.017563	92.41		0.364		
500	1.2462	0.019702	82.49		0.368		
170	2.0134	0.031832	51.11				
15*				1.0000		0.00	0.00

NOMENCLATURE:
V/VSAT is the volume of fluids, water and Gas, at the indicated temperature and pressure relative to the volume of saturated water at bubble-point pressure and indicated temperature.

Bw is the volume of water at reservoir temperature and indicated pressure relative to the volume of equivalent standard water volume measured at 60° F.

Note: * Indicates value measured at 60° F.

LAB. NO. N1901-10224

Table No. 3
Exploration Drawdown Calculations
Lower Miocene Sand Zone No. 9 (15,517 Ft to 15,567 Ft)
TF&S/DOE Gladys McCall No. 1 Well, Cameron Parish, Louisiana
March 21 through April 14, 1983

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explored Million Bbls
3-21-83					
18:18:20	0	12,911.37	0	-	-
18:26:40	.005787	12,773.27	3,808	.466843	0.743
18:30	.008102	12,770.06	3,808	.333451	1.040
18:40	.015046	12,763.10	3,808	.178372	1.945
18:50	.021991	12,759.09	3,808	.122851	2.824
19:00	.028935	12,756.08	3,808	.093369	3.716
19:10	.029629	12,762.50	3,914	-	-
19:20	.030324	12,761.18	3,722	.048726	7.120
19:30	.031018	12,760.71	3,710	.017405	19.933
19:40		12,757.05	3,657	.137504	2.523
19:50	.03935	12,753.03	3,722	.148392	2.338
20:00	.0498	12,751.58	3,762	.052955	6.552
20:10	.0602	12,750.37	3,825	.042139	8.233
20:20	.0706	12,749.17	3,834	.041693	8.321
20:30	.0810	12,749.01	3,758	.0057245	60.608
20:40	.0914	12,748.18	3,783	.029227	11.871
20:50	.1019	12,749.45	3,687	-	-
21:00	.1123	12,747.19	3,723	.083402	4.160
21:15	.1227	12,746.48	3,691	.017619	19.692
21:30	.1331	12,745.14	3,682	.033334	10.408
21:45	.1435	12,744.31	3,704	.0294906	11.765
22:00	.1539	12,743.22	3,740	.0266946	12.997
22:30	.1748	12,736.55	3,758	.0812845	4.268
23:00	.1956	12,734.25	3,801	.027712	12.520
23:30	.2164	12,722.73	3,829	.137786	2.518
24:00	.2373	12,731.26	3,549	-	-
3-22-83					
0:30	.2581	12,730.31	3,514	.012381	28.022
1:00	.2789	12,729.27	3,540	.013454	25.787
2:00	.3206	12,721.67	3,759	.046297	7.494
3:00	.3623	11,718.55	3,732	.019144	18.123
4:00	.4039	12,717.06	3,730	.009147	37.929
5:00	.4456	12,715.03	3,724	.012482	27.795
6:00	.4873	12,713.35	3,746	.010269	33.784
7:00	.5289	12,711.79	3,812	.009371	37.024
8:00	.5706	12,710.80	3,821	.005933	55.791
9:00	.6122	12,708.83	3,722	.012120	28.626
10:00	.6539	12,707.23	3,712	.009870	35.151
11:00	.6956	12,706.21	3,761	.006211	55.860
12:00	.7373	12,704.90	3,779	.007938	43.708
13:00	.7789	12,702.91	3,758	.012126	28.613

Table No. 3 (cont'd)

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	dp/dt / Qw BwC = Y	Water Explore Million Bbls
3-22-83 (cont'd)					
14:00	.8206	12,701.94	3,577	.0062095	55.873
15:00	.8623	12,701.09	3,613	.005387	64.402
16:00	.9039	12,659.92	3,637	.007366	47.099
17:00	.9456	12,698.78	3,652	.007148	48.538
18:00	.9873	12,699.78	3,621	-	-
20:00	1.071	12,697.77	3,629	.002124	163.320
22:00	1.154	12,695.77	3,563	.006427	53.980
24:00	1.237	12,693.62	3,615	.006809	50.952
3-23-83					
2:00	1.321	12,691.17	3,611	.007768	44.663
4:00	1.404	12,689.33	3,573	.005768	60.151
6:00	1.487	12,686.75	3,689	.008007	43.328
8:00	1.571	12,684.97	3,734	.005479	63.568
10:00	1.654	12,682.81	3,697	.006689	51.866
12:00	1.737	12,681.27	3,711	.004751	73.022
14:00	1.821	12,679.16	3,698	.006533	53.109
16:00	1.9039	12,676.80	3,610	.007484	46.356
18:00	1.9873	12,674.48	3,642	.007293	47.570
20:00	2.071	12,671.00	3,653	.010907	31.809
22:00	2.154	12,669.51	3,609	.004727	73.398
24:00	2.237	12,657.54	3,796	.005942	58.391
3-24-83					
2:00	2.321	12,653.82	3,920	.010864	31.935
4:00	2.404	12,652.22	3,909	.004686	74.034
6:00	2.487	12,658.18	3,730	Pressure going up	
8:00	2.571	12,687.66	3,713	rate going down	
10:00	2.654	12,688.97	3,748		
12:00	2.737	12,688.44	3,799		
14:00	2.821	12,687.71	3.745		
16:00	2.904	12,493.32	(Well shut in Automatically (Safety))		
18:00	2.987	12,646.87	(Opened on larger Choke Temporarily)		
20:00	3.071	12,646.11	3,477		
22:00	3.154	12,645.44	3,505	.002189	158.524
24:00	3.237	12,644.38	3,506	.003462	100.228
3-25-83					
2:00	3.321	12,642.42	3,490	.006430	53.958
4:00	3.404	12,641.14	3,497	.004191	82.788
6:00	3.487	12,639.22	3,478	.006320	54.892
8:00	3.571	12,637.81	3,467	.004656	74.511
10:00	3.654	12,636.11	3,474	.005603	61.925
12:00	3.737	12,634.58	3,479	.005035	68.904
14:00	3.821	12,633.25	3,476	.004381	79.198
16:00	3.904	12,631.36	3,695*	.005856	59.243
18:00	3.987	12,630.40	3,695	.002975	116.634
20:00	4.071	12,625.01	3,772	.016360	21.206
22:00	4.154	12,623.05	3,823	.005870	59.106
24:00	4.237	12,621.53	3,773	.004612	75.219

* Flow meter recalibrated. Constant to correct to standard bbls of water, C, equals ± .906

Table No. 3 (cont'd)

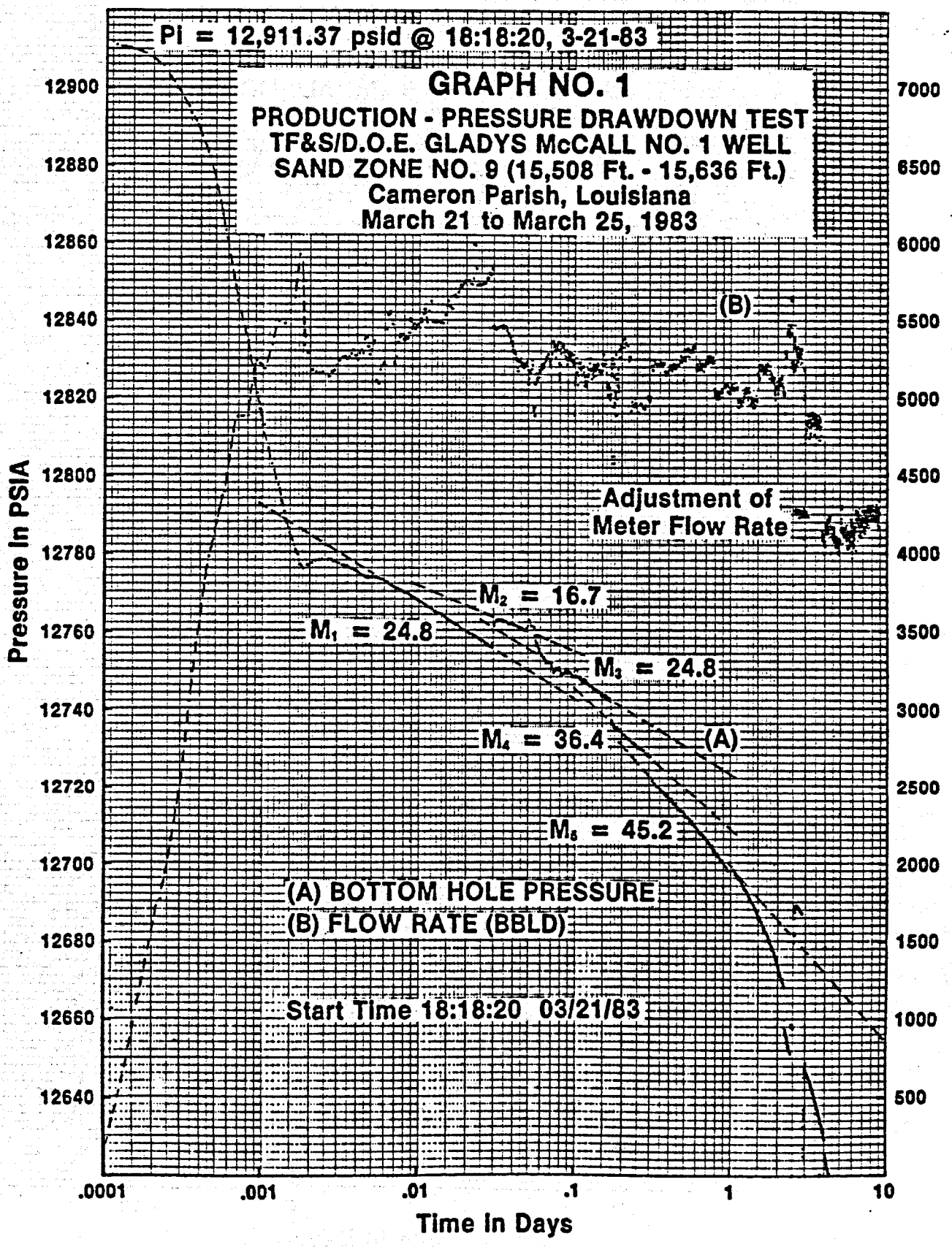
Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explored Million Bbls
3-26-83					
2:00	4.321	12,619.71	3,791	.005761	60.218
4:00	4.404	12,619.39	3,762	.000974	356.221
6:00	4.487	12,618.42	3,724	.002982	116.327
8:00	4.571	12,616.45	3,768	.005986	57.960
10:00	4.654	12,614.66	3,687	.005559	62.417
12:00	4.737	12,613.70	3,704	.002967	116.918
14:00	4.821	12,611.90	3,715	.005548	62.534
16:00	4.904	12,610.01	3,707	.005837	59.441
18:00	4.987	12,606.91	3,687	.009626	36.041
20:00	5.071	12,604.86	3,765	.006234	55.654
22:00	5.154	12,610.16	3,771	-	-
24:00	5.237	12,609.14	3.733	.003067	113.121
3-27-83					
2:00	5.321	12,607.80	3,764	.004076	85.119
4:00	5.404	12,606.49	3,776	.003972	87.346
6:00	5.487	12,605.49	3,740	.003061	113.333
8:00	5.571	12,604.02	3,716	.004493	77.221
10:00	5.654	12,602.91	3,750	.003389	102.374
12:00	5.737	12,601.41	3,670	.004680	74.141
14:00	5.821	12,597.94	3.754	.010583	32.782
16:00	5.904	12,596.52	3,728	.004361	79.556
18:00	5.987	12,595.07	3,692	.004497	77.158
20:00	6.071	12,594.19	3,760	.002680	129.476
22:00	6.154	12,592.42	3,760	.005390	64.372
24:00	6.237	12,587.57	3,804	.014598	23,767
3-28-83					
2:00	6.321	12,585.93	3,772	.014084	24.634
4:00	6.404	12,584.47	3,834	.004360	79.581
6:00	6.487	12,582.97	3,852	.007431	46.691
8:00	6.571	12,581.58	3,791	.004198	82.647
10:00	6.654	12,580.29	3,799	.003888	89.241
12:00	6.737	12,579.20	3,823	.003264	106.283
14:00	6.821	12,577.75	3,754	.004422	78.453
16:00	6.904	12,576.46	3,863	.003727	93.094
18:00	6.987	12,575.24	3,783	.003692	93.964
20:00	7.071	12,573.86	3,802	.004156	83.487
22:00	7.154	12,572.62	3,763	.003773	91.960
24:00	7.237	12,571.48	3,802	.003418	101.508
3-29-83					
2:00	7.321	12,570.35	3,873	.003355	103.404
4:00	7.404	12,568.98	3,842	.004083	84.981
6:00	7.487	12,568.08	3,847	.002679	129.528
8:00	7.571	12,566.49	3,887	.004683	73.080
10:00	7.654	12,565.33	3,823	.003474	99.869

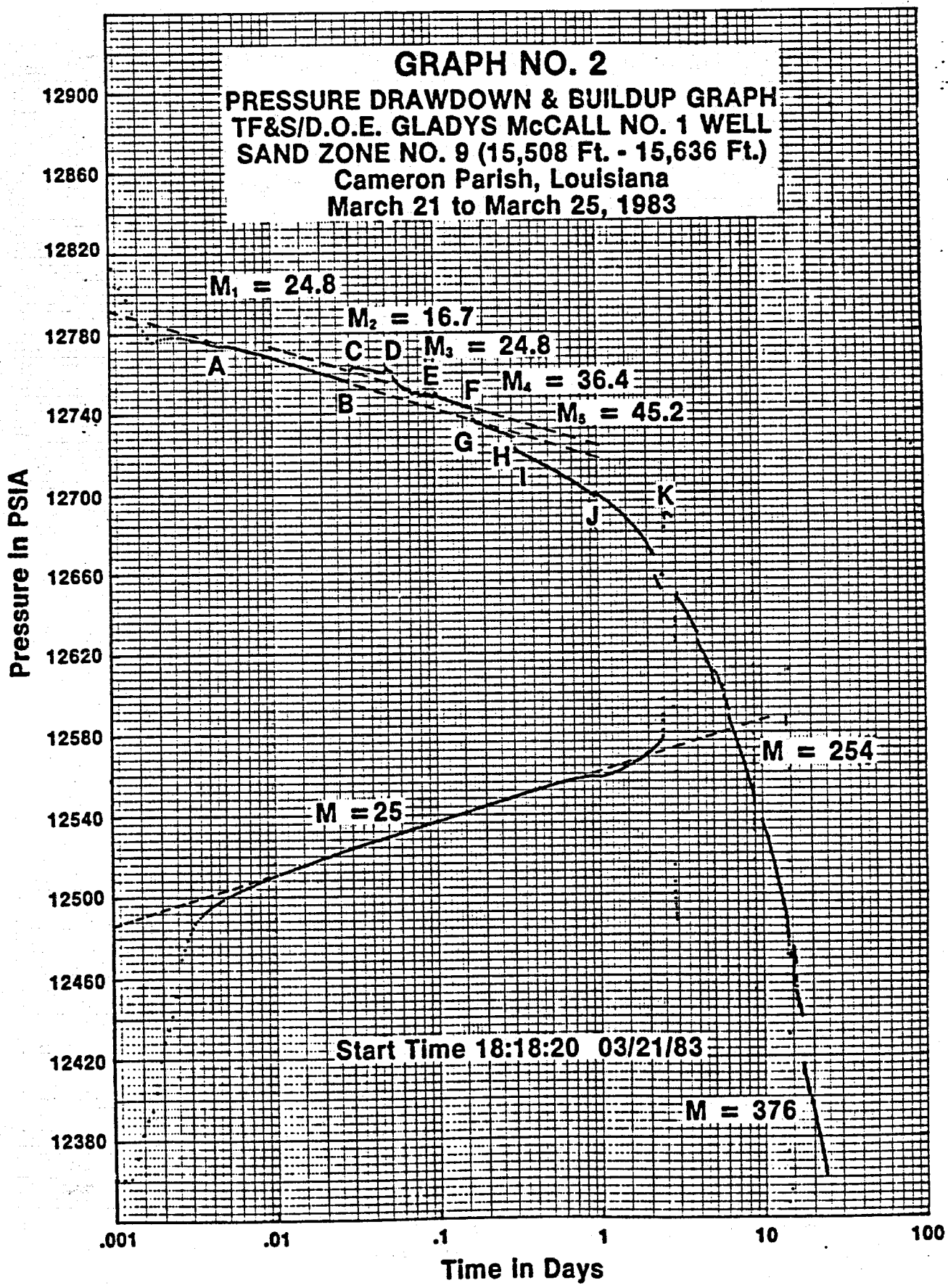
Table No. 3 (cont'd)

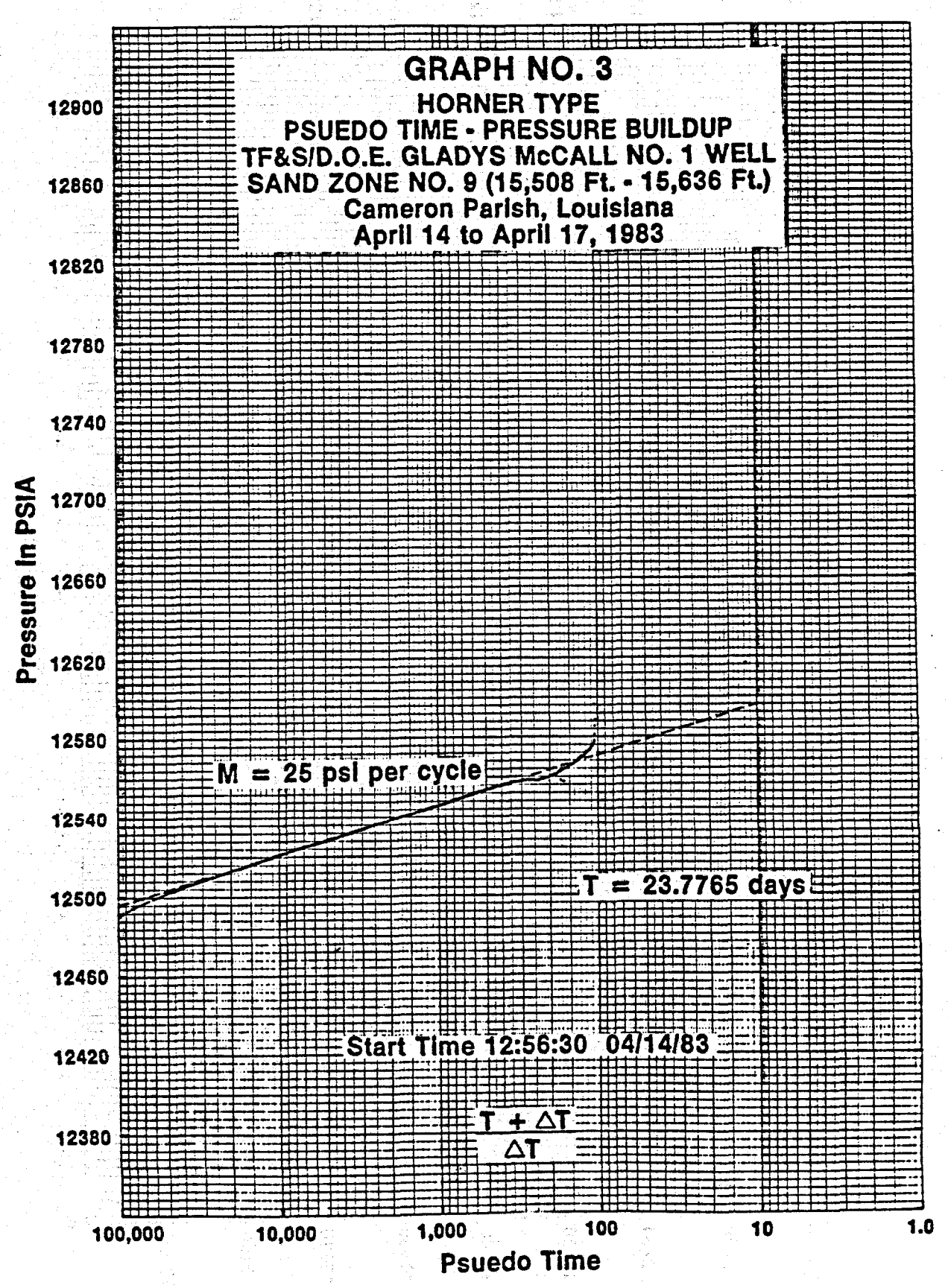
Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explored Million Bbls
3-29-83 (cont'd)					
12:00	7.737	12,564.36	3,858	.002879	120.525
14:00	7.821	12,562.65	3,810	.0051387	67.517
16:00	7.904	12,561.67	3,833	.002927	118.522
18:00	7.987	12,560.43	3,822	.0037146	93.402
20:00	8.081	12,559.44	3,772	.003005	115.458
22:00	8.154	12,558.04	3,190	.004229	82.035
24:00	8.237	12,557.08	3,788	.002902	119.571
3-30-83					
4:00	8.404	12,554.57	3,781	.003800	91.302
8:00	8.571	12,552.27	3,812	.003454	100.448
12:00	8.737	12,550.11	3,801	.003253	106.650
3-31-83		Pressure element problems & Removed			
20:00	10.281	12,533.72	3,817		
24:00	10.237	12,531.97	3,895	.002572	134.892
4- 1-83					
4:00	10.404	12,530.25	3,822	.002576	134.685
8:00	10.571	12,528.63	3,848	.002410	143.958
12:00	10.737	12,526.66	3,821	.002951	117.551
16:00	10.904	12,524.31	3,822	.0035199	98.569
20:00	11.081	12,522.19	3,804	.0031904	108.748
24:00	11.237	12,519.80	3,812	.003589	96.665
4- 2-83					
4:00	11.404	12,518.76	3,816	.002610	132.915
8:00	11.571	12,515.75	3,807	.003474	99.882
12:00	11.737	12,513.47	3,812	.003424	101.329
16:00	11.904	12,511.32	3,794	.003244	106.949
20:00	12.081	12,509.24	3,787	.003144	110.344
24:00	12.237	12,506.83	3,796	.003634	95.461
4- 3-83					
4:00	12.404	12,504.86	3,802	.002966	116.967
8:00	12.571	12,502.36	3,807	.003759	92.291
12:00	12.737	12,500.28	3,809	.003126	110.985
16:00	12.904	12,498.27	3,779	.003045	113.945
20:00	13.081	12,496.51	3,798	.0026528	130.785
24:00	13.237	12,495.08	3,780	.002166	160.203
4- 4-83					
4:00	13.404	12,493.02	3,813	.003093	112.180
8:00	13.571	12,491.23	3,781	.002710	128.018
12:00	13.737	12,488.95	3,773	.003459	100.292
16:00	13.904	12,485.18	3,785	.005701	60.847
20;00	14.081	12,481.23	3,777	.005987	57.952
22:10	14.171	12,478.19	3,789	(Pressure Tool Shorting Out)	
4- 5-83	Instrument Problems				

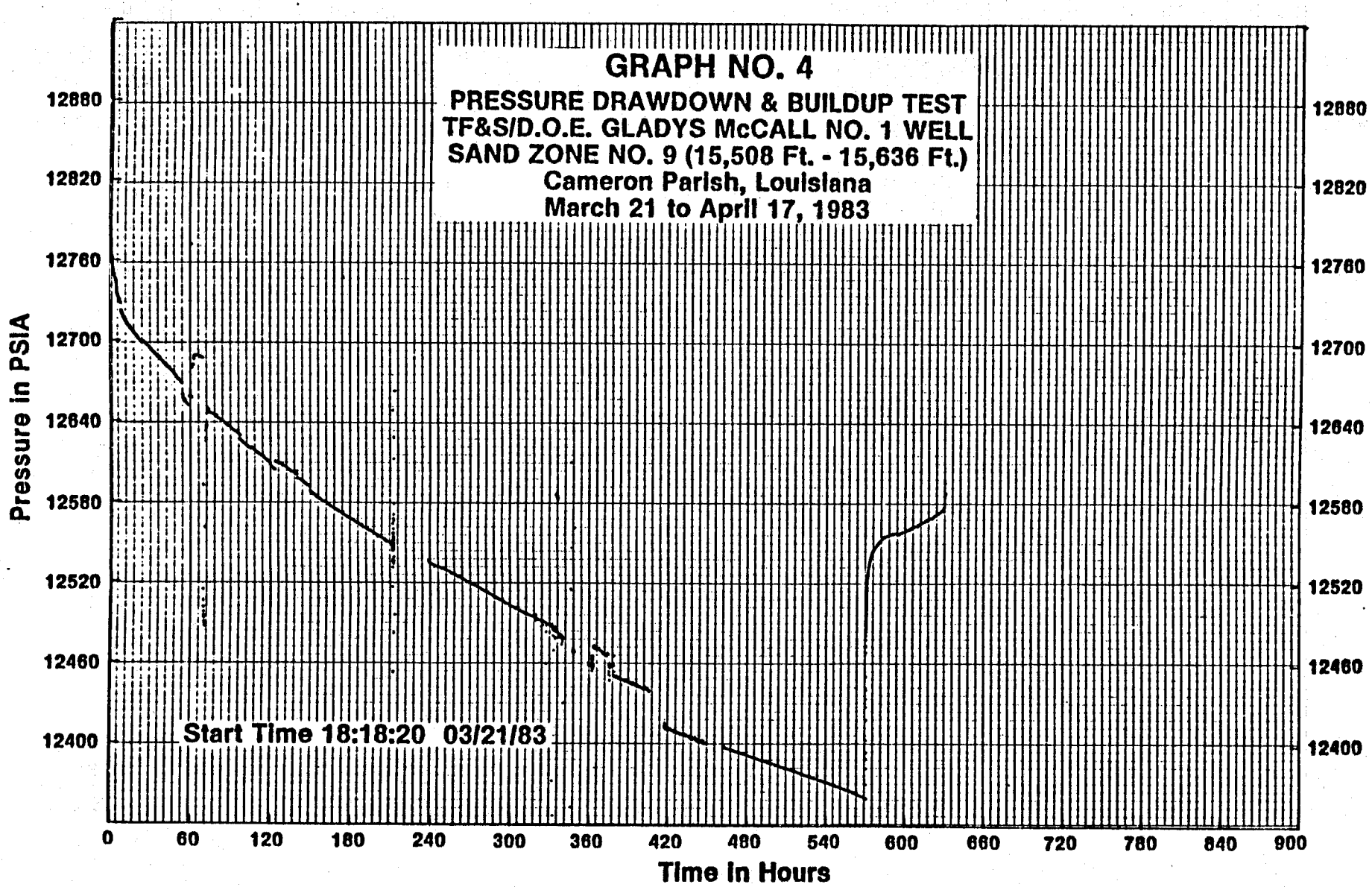
Table No. 3 (cont'd)

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	dp/dt / Qw BwC = Y	Water Explore Million Bbls
4- 6-83					
0:00	15.237	12,471.11	3,676	.003644	95.210
6:00	14.487	12,467.38	3,676	.003872	89.593
12:00	15.737	12,458.88	3,676	.008824	39.315
18:00	15.987	12,449.22	3,673	.015055	23.044
24:00	16.237	12,445.99	3,670	.005038	68.862
4- 7-83					
6:00	16.487	12,444.50			
12:00	16.737	12,441.81	Pressure Tool Problems		
4- 8-83					
4:04		12,414.38			
6:00	17.487	12,411.28	3,676	H.P. Gauge in Well	
12:00	17.737	12,409.08	3,676	.002284	151.900
18:00	17.987	12,407.45	3,676	.001692	205.019
24:00	18.237	12,404.34	3,670	.003234	107.279
4- 9-83					
6:00	18.487	12,403.06			
12:00	19.737	12,400.82	3,670	.002329	148.945
18:00	19.987	H.P. gauge went out			
24:00	19.237				
4-10-83		Returned Panex Gauge to Bottom			
1:00		12,397.16	3,676		
6:00	19.484	12,396.65	3,676	.0006353	546.048
12:00	19.737	12,394.40	3,676	.002336	148.525
18:00	19.987	12,392.78	3,676	.001682	206.285
24:00	20.237	12,391.13	3,676	.001713	202.534
4-11-83					
6:00	20.487	12,388.94	3,704	.0022564	153.757
12:00	20.737	12,386.89	3,701	.0021139	164.124
18:00	20.987	12,384.98	3,701	.001969	176.154
24:00	21.237	12,383.06	3,671	.001996	173.816
4-12-83					
6:00	21.487	12,381.71	3,672	.0014031	247.273
12:00	21.737	12,379.14	3,701	.002650	130.916
18:00	21.987	12,377.11	3,713	.002086	166.278
24:00	22.237	12,374.93	3,703	.002247	154.420
4-13-83					
6:00	22.487	12,372.93	3,685	.0020713	167.500
12:00	22.737	12,370.93	3,673	.002078	166.954
18:00	22.987	12,368.88	3,707	.0021105	164.390
24:00	23.237	12,366.58	3,687	.0025153	137.935
4-14-83					
6:00	23.487	12,364.15	3,693	.002511	138.159
12:00	23.737	12,361.21	3,466	.003237	107.182
12:56:30	23.7765	12,360.91	3,968	.0018384	188.714
		Well Shut In (28.7765 days flowing)			


Pi = 12,911.37 psid @ 18:18:20, 3-21-83
GRAPH NO. 1
PRODUCTION - PRESSURE DRAWDOWN TEST
TF&S/D.O.E. GLADYS McCALL NO. 1 WELL
SAND ZONE NO. 9 (15,508 Ft. - 15,636 Ft.)
Cameron Parish, Louisiana
March 21 to March 25, 1983
(B)
Adjustment of
Meter Flow Rate
M₂ = 16.7
M₁ = 24.8
M₃ = 24.8
M₄ = 36.4
(A)
M₅ = 45.2
(A) BOTTOM HOLE PRESSURE
(B) FLOW RATE (BBLD)
Start Time 18:18:20 03/21/83
Pressure In PSIA
12900
12880
12860
12840
12820
12800
12780
12760
12740
12720
12700
12680
12660
12640
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
.0001
.001
.01
.1
1
10
Time In Days


GRAPH NO. 2
PRESSURE DRAWDOWN & BUILDUP GRAPH
TF&S/D.O.E. GLADYS McCALL NO. 1 WELL
SAND ZONE NO. 9 (15,508 Ft. - 15,636 Ft.)
Cameron Parish, Louisiana
March 21 to March 25, 1983
M1 = 24.8
M2 = 16.7
M3 = 24.8
M4 = 36.4
M5 = 45.2
A
B
C
D
E
F
G
H
I
J
K
M = 254
M = 25
M = 376
Start Time 18:18:20 03/21/83
Pressure In PSIA
12900
12860
12820
12780
12740
12700
12660
12620
12580
12540
12500
12460
12420
12380
.001
.01
.1
1
10
100
Time In Days


GRAPH NO. 3
HORNER TYPE
PSUEDO TIME - PRESSURE BUILDUP
TF&S/D.O.E. GLADYS McCALL NO. 1 WELL
SAND ZONE NO. 9 (15,508 Ft. - 15,636 Ft.)
Cameron Parish, Louisiana
April 14 to April 17, 1983
M = 25 psi per cycle
T = 23.7765 days
Start Time 12:56:30 04/14/83
T + ΔT
ΔT
Pressure In PSIA
12900
12860
12820
12780
12740
12700
12660
12620
12580
12540
12500
12460
12420
12380
100,000
10,000
1,000
100
10
1.0
Psuedo Time


GRAPH NO. 4
PRESSURE DRAWDOWN & BUILDUP TEST
TF&S/D.O.E. GLADYS McCALL NO. 1 WELL
SAND ZONE NO. 9 (15,508 Ft. - 15,636 Ft.)
Cameron Parish, Louisiana
March 21 to April 17, 1983
Start Time 18:18:20 03/21/83
Pressure in PSIA
12880
12820
12760
12700
12640
12580
12520
12460
12400
Time in Hours
0
60
120
180
240
300
360
420
480
540
600
660
720
780
840
900

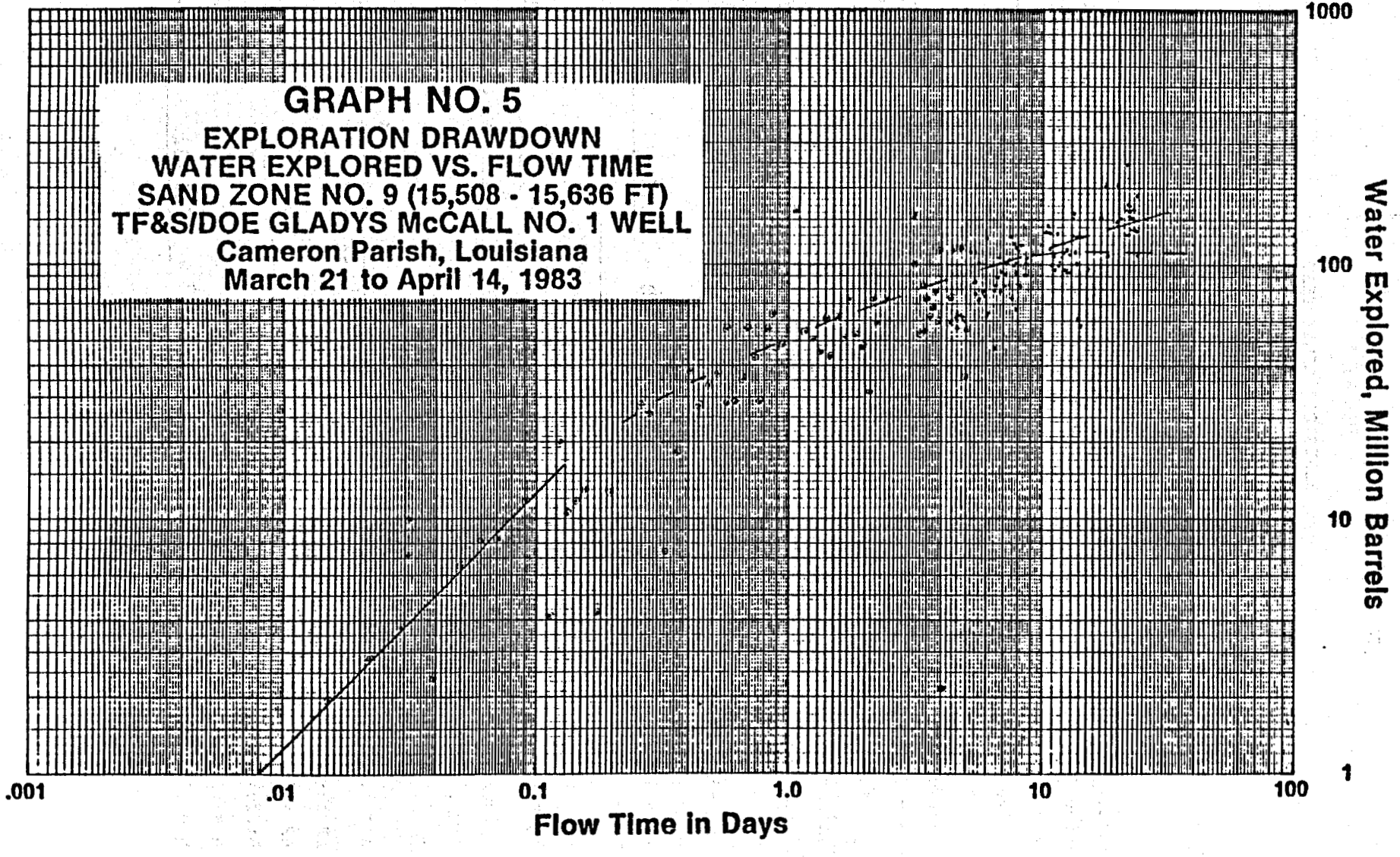

GRAPH NO. 5
EXPLORATION DRAWDOWN
WATER EXPLORED VS. FLOW TIME
SAND ZONE NO. 9 (15,508 - 15,636 FT)
TF&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana
March 21 to April 14, 1983
1000
100
10
1
Water Explored, Million Barrels
.001
.01
0.1
1.0
10
100
Flow Time in Days

FIGURE 5

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST

FOR

GEOTHERMAL-GEOPRESSURED WELL

Test date: September 27, 1983 Type Test: First Drawdown Lease and Well No. Gladys McCall No. 1

Producing Formation: Lower Miocene Sand Zone No. 8 Field: Cameron Parish

Hole size: _____ Casing Size: 5" Tubing Size: 5" State: Louiaiana

Cumulative Production: 3,230 Bbls. Gas Gravity: .6813 Z: 1.525

Constant Rate Production: 14,520 (bbls/day) Water Salinity: 168,500 PPM Total Solids

Total Production Life: 1.5 days Porosity, ϕ: .155 Gas-Water Ratio: 31.6 ft^3/bbl

Reservoir Temperature: 291 °F Net Pay: 300 ft. Perforations: 15,160 to 15,470 ft

μg _____ cps μw 0.310 cps Bw 1.0426 R.B./B. Bg _____ R.B./MCF

C_T 3.26 $X10^{-6}$ Cg _____ $X10^{-6}$ Cw 2.76 $X10^{-6}$ C_r 0.5 $X10^{-6}$

m 18.2 psi/cycle P at 1 hour: 12,650 Sg _____ Sw 100% Pi 12,798.18 psia

Pf 12,630.70 psia

I. Calculation of kh (md-ft) and k (md):

kh = 162.6 (Q)(B)(μ)/(md)

kh = 162.6 (13,703) (1.0426) (0.310) / (18.2) = 39,568 md-ft

k = (39,568) md-ft / (300)ft = 132 mds

II. Bg = (Pb)(Tf)(Z)(1000)/(5.61)(520)(P_R) =

Bg = ( ) ( ) ( ) .34279/( ) = _____ Res. bbl/ MCF

III. Calculation of Skin Effect, s, and Pressure Loss Due to Skin, ΔP skin

$$s = 1.151\left[\left(\frac{Pi - P_{1hr}}{m}\right) - \log\left(\frac{K}{\phi\mu C_t r_w^2}\right) + 3.23\right]$$

$$s = 1.151\left[\left(\frac{(12,795)-(12,650)}{(18.2)}\right) - \log\left(\frac{(132)10^{-6}}{(.155)(.310)(3.26)(.0434)}\right) + 3.23\right] = +1.05$$

ΔP skin = (0.87)(s)(m) = psi

ΔP skin = (0.87)(1.05)(18.2) = 17 psi

IV. Diffusivity, η

η = .006328 (k) /$\phi\mu$ C_T =

η = .006328 (132) / (.155)(.310)(3.26)10^{-6} = 5,332,482 ft^2/day

FIGURE 5A

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST (CONT'D)

Test Date: September 27, 1983 Type Test: First Drawdown Lease and Well No. Gladys McCall No. 1

Calculation of Productivity Index (B/D-psi) and Completion Efficiency, CE

$$J\ (\text{actual}) = \frac{Qw}{P_i - P_f} = \frac{(13,703)}{(12,795 - 12,650)} = 94.503 \text{ bbls/D-psi}$$

$$J\ (\text{ideal}) = \frac{Qw}{(P_i - P_f) - \Delta P\ \text{skin}} = \frac{(13,703)}{(12,795 - 12,650) - (17)} = 107.055 \text{ bbls/D-psi}$$

$$CE = \frac{J\ (\text{actual})}{J\ (\text{ideal})} = \frac{(94.503)}{(107.055)} = 0.8828 \quad \text{or } 88.28\ \%$$

Distance to Barriers or Discontinuities, d $\quad d = 2\sqrt{tn}$

$d = 2\sqrt{(5332482)} \times \sqrt{t} = (4618)\sqrt{t}$

time, days	$\sqrt{t}$	d, ft.	(psi/cycle)	Flow Angle	Jones Y Function	Bbls of Aquifer Explored or Tested
.0025	.0500	231	10	*		
.022	.1483	685	10			
.051	.2280	1,043	18.2	360°	.010860254	31,998,764
.150	.3873	1,789	18.2	360°	.003692486	94,114,011
.280	.5292	2,444	25.2		.00505387	68,809,522
.382	.6181	2,854	25.2		.001983136	175,234,921

* Not radial flow, since the distance is less than the net thickness or + 300 ft.

(7758)(.155)/(1.0426) = 1153 Bbls. per Acre-Foot.

$(1789)^2\pi/(43560) = 230.8$ Acres

(230.8 Ac.)(300 Ft.)(1153 Bbls/Ac.-Ft.) = 79,842,338 Bbls. of Water

$(2,854)^2\pi/(43,560) = 587.4$ Acres

(587.4 Ac.)(300 Ft.) (1153 Bbls/ Ac.Ft.) = 203,181,660 Bbls. of Water

Note: This test was aborted at 18:45 PM on Sept. 27, 1983, when the downhole Panes pressure element failed. Valve stem packing blew out on the top master valve and prevented continuation of this flow test and a pressure buildup test.

FIGURE 6

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST

FOR

GEOTHERMAL-GEOPRESSURED WELL

Test date: Oct. 7-28, 1983 Type Test: Drawdown Lease and Well No. Gladys McCall No. 1

Producing Formation: Lower Miocene Sand Zone No. 8 Field: Cameron Parish

Hole size: _____ Casing Size: 5" Tubing Size: 5" State: Louisiana

Cumulative Production: 12,284.5 Bbls. Gas Gravity: .6813 Z: 1.525

Constant Rate Production: 13,407 (bbls/day) Water Salinity: 168,500 PPM Total Solids

Total Production Life: 1.5 days Porosity, ϕ: .155 Gas-Water Ratio: 30.19 ft^3/bbl

Reservoir Temperature: 291 °F Net Pay: 300 ft. Perforations: 15,160 to 15,470 ft

μg _____ cps μw 0.310 cps Bw 1.0426 R.B./B. Bg _____ R.B./MCF

C_T 3.26 $X10^{-6}$ Cg _____ $X10^{-6}$ Cw 2.76 $X10^{-6}$ C_r 0.50 $X10^{-6}$

m 18.1 psi/cycle P at 1 hour: 12,652.5 Sg 0.0 Sw 100 % Pi 12,800 psia

Pf 12,783.59 psia

I. Calculation of kh (md-ft) and k (md):

kh = 162.6 (Q)(B)(μ)/(md)

kh = 162.6 (12,763) (1.0426) (.310) / (18.1) = 37,057.3 md-ft

k = (37,057.3) md-ft / (300)ft = 123.5 mds

II. Bg = (Pb)(Tf)(Z)(1000)/(5.61)(520)(P_R) =

Bg = ( ) ( ) ( ) .34279/( ) = _____ Res. bbl/ MCF

III. Calculation of Skin Effect, s, and Pressure Loss Due to Skin, ΔP skin

$$s = 1.151\left[\left(\frac{Pi - P_{1hr}}{m}\right) - \log\left(\frac{K}{\phi\mu C_t r_w^2}\right) + 3.23\right]$$

$$s = 1.151\left[\left(\frac{(12,783.8-(12,652.5)}{(18.1)}\right) - \log\left(\frac{(123.5)\,10^6}{(.155)(.310)(3.26)(.0434)}\right) + 3.23\right] = +2.003$$

ΔP skin = (0.87)(s)(m) = psi

ΔP skin = (0.87)(2.003)(18.1) = 3.2 psi

IV. Diffusivity, η

η = .006328 (k) /$\phi\mu$ C_T =

η = .006328 (123.5) / (.155)(.310)(3.26)10^{-6} = 4,989,103 ft^2/day

FIGURE 6A

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR DRAWDOWN TEST (CONT'D)

Test Date: Oct. 7-28, 1983 Type Test: Drawdown Lease and Well No. Gladys McCall No. 1

Calculation of Productivity Index (B/D-psi) and Completion Efficiency, CE

$$J\ (\text{actual}) = \frac{Qw}{P_i - P_f} = \frac{(12,763)}{(12783.6 - 12,652.)} = 97.353 \text{ bbls/D-psi}$$

$$J\ (\text{ideal}) = \frac{Qw}{(P_i - P_f) - \Delta P\ \text{skin}} = \frac{(12,763)}{(12783 - 12653) - (3.2)} = 99.789 \text{ bbls/D-psi}$$

$$CE = \frac{J\ (\text{actual})}{J\ (\text{ideal})} = \frac{(97.353)}{(99.789)} = 0.9756 \quad \text{or } 97.56\ \%$$

Distance to Barriers or Discontinuities, d $\quad d = 2\sqrt{\eta t}$

$$d = 2\sqrt{(4,989,103)} \times \sqrt{t} = (4467)\sqrt{t}$$

time, days	Qw	d, ft.	(psi/cycle)	Flow Angle	Jones Y Function	Bbls of Aquifer Explored or Tested
.005	Variable	315				
.023	"	677				
.023	12763	677	18.1	360°	.02571298	13,515,147
.330	12763	2,071	18.1	360°	.00179212	193,912,984

Qw is in standard barrels of water per day. The rate here is the average of 46 five minute readings. The average was 13,407 metered barrels of water times 0.952 to convert to 12,763 SBWPD at 14.65 psia & 60° F.

$(2566\ \text{ft.})^2 / (43,560) = 474.9$ Acres

$(7758)(.155) / (1.0426) = 1153.4$ SBW/Ac.Ft.

$(474.9\ \text{Ac.})(300\ \text{Ft.})(1153.4\ \text{SWB/Ac.-Ft.}) = 164,324,898$ Std. Bbls. of Aquifer.

$193,912,984\ \text{Bbls.}/(474.9\ \text{Ac.})(1153.4) = 354$ Feet.

This would support that no permeability barrier existed between the well bore and a radial distance of 2,566 feet.

$W = 1/(1.0426)(2.76 \times 10^{-6})(.00179212) = 193,912,984$ Std. Bbls. of Water

$W = 1/(\ \text{"}\ )(3.26 \times 10^{-6})(\ \text{"}\ ) = 164,171,728$ " " " "

FIGURE NO. 7

RESERVOIR LIMIT TEST

(J. DONALD CLARK, P.E.)

RESERVOIR BUILDUP TEST

FOR

GEOTHERMAL-GEOPRESSURED WELL

Test date: Oct. 28 - Nov. 30, '83 Type Test: Buildup Lease and Well No. Gladys McCall No. 1

Producing Formation: Lower Miocene No. 8 Sand Field: Cameron Parish

Hole size: _____ Casing Size: 5" Tubing Size: 5" State: Louisiana

Cumulative Production: 269,091 Bbls. Gas Gravity: .6813 Z: 1.525

Constant Rate Production: 12985 (bbls/day) Water Salinity: 168,500 PPM Total Solids

Total Production Life: 23 days Porosity, ϕ: .155 Gas-Water Ratio: 31.19 ft^3/bbl

Reservoir Temperature: 291 °F Net Pay: 300 ft. Perforations: 15,160 - 15,470 ft

μg _____ cps μw 0.310 cps Bw 1.0426 R.B./B. Bg _____ R.B./MCF

C_T 3.26 $X10^{-6}$ Cg _____ $X10^{-6}$ Cw 2.76 $X10^{-6}$ C_r 0.50 $X10^{-6}$

m 16.2 psi/cycle P at 1 hour: 12,557 Sg 0.0 Sw 100 % Pi 12,800 psia

12,985 MBWPD (.9437) = 12,254 SBWPD

Pf 12,418 psia

I. Calculation of kh (md-ft) and k (md):

kh = 162.6 (Q)(B)(μ)/(md)

kh = 162.6 (12,254) (1.0426) (.310) / (16.2) = 39,752 md-ft

k = (39,752) md-ft / (300)ft = 132.5 mds

II. Bg = (Pb)(Tf)(Z)(1000)/(5.61)(520)(P_R) =

Bg = ( ) ( ) ( ) .34279/( ) = _____ Res. bbl/ MCF

III. Calculation of Skin Effect, s, and Pressure Loss Due to Skin, ΔP skin

$$s = 1.151\left[\left(\frac{P_{1hr} - P_f}{m}\right) - \log\left(\frac{K}{\phi\mu C_t r_w^2}\right) + 3.23\right]$$

$$s = 1.151\left[\left(\frac{(12254)-(12416)}{(16.2)}\right) - \log\left(\frac{(132.5)10^6}{(.155)(.310)(3.26)(.0434)}\right) + 3.23\right] = \underline{+1.892}$$

ΔP skin = (0.87)(s)(m) = psi

ΔP skin = (0.87)(1.892)(16.2) = 26.7 psi

IV. Diffusivity, η

η = .006328 (k) /$\phi\mu$ C_T =

η = .006328 (132.5) / (.155)(.31)(3.26) 10^{-6} = 5,352,681 ft^2/day

TABLE NO. 4

DOE/Technadril-Fenix & Scisson, Inc.
Gladys McCall No. 1 Well, Sand No. 8
Cameron Parish, Louisiana

RESERVOIR FLUID SUMMARY

Reservoir Temperature, Degrees F	290
Saturation Pressure at 290 Degrees, Psia	9200
Compressibility of Reservoir Water at 290 Degrees F	
Vol. per Vol. per Psi X 10^{-6}	
From 9200 Psia to 10000 Psia	3.00
From 10000 Psia to 11000 Psia	2.81
From 11000 Psia to 12783 Psia	2.76
	DIFF. LIB.
Saturated Oil at 9200 Psia, 290 Degrees F	
Density, Gms. per Ml.	1.01221
Lbs. per Bbl.	354.78
Specific Volume, Cu. Ft. per Lb.	0.015825
Viscosity, Centipoise	0.277
Formation Volume Factor, Bbls. per Bbl.	
"Equivalent Standard Bbls. of Water at 60 Degrees F	1.0532
Solution Gas-Water Ratio, Cu. Ft. per Bbl.	
"Equivalent Standard Bbls. of Water at 60 Degrees F	33.51 Wet
	31.60 Dry
Reservoir Water (Brine) at 12783 Psia, 290 Degrees F.	
Density, Gms. per Ml.	1.02255
Lbs. per Bbl.	358.40
Specific Volume, Cu. Ft. per Lb.	0.015665
Viscosity, Centipoise	0.310
Formation Volume Factor, Bbl. per Bbl.	
"Equivalent Standard Bbls. of Water at 60 Degrees F.	1.0426

LAB NO. N2106-10457

TABLE NO. 5

DOE/Technadril-Fenix & Scisson, Inc.
Gladys McCall No. 1 Well, Sand No. 8
Cameron Parish, Louisiana

COMPOSITE LABORATORY DATA 290 DEGREES F

RECOMBINATION (5) 25.01 SCF SEP. GAS @ 15.025 PSIA & 60° f/BBL. SEP. Water @ Sep. Cond.
Produced Gas-Water Ratio

	PRESSURE VOLUME RELATIONS				DIFFERENTIAL LIBERATION		
PRESSURE PSIA	RELATIVE VOLUME V/Vsat Bt	SPECIFIC VOLUME Cu. Ft/Lb	LIQUID VOLUME PERCENT	FORMATION VOLUME FACTOR Bw	OIL Viscosity Centipoise	SOLUTION GAS WATER RATIO PER BARREL STD. WATER AT 60° F DRY	WET
12783 RES	0.9899	0.015665		1.0426	0.310	31.6	33.51
11000	0.9948	0.015743		1.0477	0.293	31.6	33.51
10500	0.9962	0.015765		1.0492		31.6	33.51
10000	0.9976	0.015787		1.0507	0.284	31.6	33.51
9500	0.9991	0.015811		1.0523	0.279	31.6	33.51
9200 B.P.	1.0000	0.015825	100.00	1.0532	0.277	31.6	33.51
9000	1.0007	0.015836	99.99		0.275		
8500	1.0023	0.015861	99.97				
8000	1.0042	0.015891	99.94		0.267		
7500	1.0058	0.015917	99.90				
7000	1.0078	0.015948	99.86		0.260		
6000	1.0115	0.016007	99.79	1.0613	0.254	27.53	29.36
5000	1.0160	0.016078	99.64		0.249		
4000	1.0219	0.016172	99.35	1.0655	0.249	22.89	24.60
3000	1.0309	0.016314	98.76		0.252		
2000	1.0483	0.016589	97.41	1.0692	0.257	15.80	17.23
1000	1.1022	0.017442	92.91		0.262		
500	1.2238	0.019367	83.80		0.263		
250	1.5178	0.024019	67.61				
105	2.7088	0.042867	37.90				
15*				1.0000		0.00	0.00

NOMENCLATURE:
V/VSAT is the volume of fluids Water and Gas, at the indicated temperature and pressure relative to the volume of saturated water at bubble-point pressure and indicated temperature.

Bw is the volume of water at reservoir temperature and indicated pressure relative to the volume of equivalent standard water volume measured at 60 degrees F.

Gas-water ratio, is cubic feet of gas at 15.025 psia and 60°F, per barrel of standard volume water at 60° F.

Table No. 6
Exploration Drawdown Calculations
Lower Miocene Sand Zone No. 8 (15,470 Ft to 15,160 Ft)
TF&S/DOE Gladys McCall No. 1 Well, Cameron Parish, Louisiana
October 7 - 28, 1983

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explore Million Bbls
10-7-83					
13:14:30	0	12,782.61	0	-	-
13:16:30	.0014	12,675.37	13,763	3.341210	0.104
13:24	.0066	12,663.04	13,830	.056793	6.119
13:28	.0094	12,661.29	13,793	.048041	7.234
13:33	.0128	12,659.79	13,760	.031909	10.891
13:38	.0163	12,658.69	13,629	.023625	14.710
13:43	.0198	12,657.79	13,432	.019613	17.719
13:48	.0233	12,657.08	13,292	.015638	22.226
13:53	.0267	12,656.02	13,314	.023322	14.901
13:58	.0302	12,655.00	13,377	.022336	15.559
14:03	.0337	12,654.16	13,776	.018396	18.891
14:08	.0372	12,653.31	13,416	.018559	18.725
14:13	.0406	12,652.65	13,353	.014479	24.002
14:18	.0441	12,652.14	13,320	.011216	30.984
14:23	.0476	12,651.41	13,404	.015953	21.783
14:28	.0510	12,650.80	13,399	.013336	26.059
14:33	.0545	12,650.37	13,387	.009409	36.934
14:38	.0580	12,649.84	13,420	.011569	30.039
14:43	.0615	12,649.34	13,432	.010904	31.870
14:48	.0649	12,648.93	13,443	.008934	38.898
14:53	.0684	12,648.56	13,421	.008076	43.032
14:58	.0719	12,648.18	13,409	.008301	41.862
15:03	.0753	12,647.74	13,391	.009625	36.105
15:08	.0788	12,647.58	13,419	.003493	99.497
15:18	.0858	12,646.89	13,407	.007538	46.102
15:28	.0927	12,646.21	13,441	.007410	46.899
15:38	.1003	12,645.71	13,410	.005461	63.635
15:48	.1080	12,645.11	13,288	.006613	52.547
15:58	.1149	12,644.70	13,415	.004476	77.633
16:08	.1219	12,644.16	13,400	.005902	58.878
16:18	.1288	12,643.71	13,419	.004912	70.753
16:30	.1372	12,643.18	13,409	.004824	72.035
16:40	.1406	12,642.71	13,428	.005126	67.788
16:50	.1510	12,642.30	13,434	.004470	77.743
17:00	.1580	12,641.95	13,407	.003824	90.887
17:10	.1649	12,641.61	13,391	.003719	93.449
17:20	.1719	12,641.25	13,392	.003937	88.264
17:30	.1788	12,640.94	13,427	.003382	102.768
17:40	.1858	12,640.56	13,403	.004153	83.687
17:50	.1927	12,640.33	13,311	.002531	137.316
18:00	.1997	12,639.91	13,473	.004566	76.112
18:10	.2066	12,639.55	13,452	.003920	88.659

Table No. 6 (cont'd)

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explore Million Bbls
10-7-83 (cont'd)					
18:15	0.2087	12,639.59	13,441	.00231932	149.835
18:30	0.2191	12,639.06	13,489	.00384051	90.487
18:45	0.2295	12,638.72	13,351	.00248476	139.858
19:00	0.2399	12,638.28	13,281	.00323252	107.506
19:15	0.2503	12,637.98	13,313	.00219869	158.055
19:30	0.2608	12,637.50	13,345	.00350948	99.022
20:00	0.2816	12,636.92	13,344	.00212047	163.886
20.35	0.3059	12,635.97	13,308	.00298506	116.418
21:00	0.3233	12,635.48	13,301	.00215666	161.135
21:30	0.3441	12,634.85	13,293	.00231210	150.302
22:00	0.3649	12,634.25	13,300	.00220084	157.901
22:30	0.3858	12,633.60	13,310	.00238246	145.864
23:00	0.4066	12,633.02	13,335	.00212190	163.775
23:30	0.4274	12,632.55	13,323	.00172102	201.924
24:00	0.4483	12,631.85	13,375	.00255325	136.107
10-8-83					
01:00	0.4899	12,630.75	13,660	.00196427	176.918
02:00	0.5316	12,630.06	13,711	.00122755	283.096
03:00	0.5733	12,628.93	13,775	.00200100	173.671
04:00	0.6149	12,627.96	13,763	.00171917	202.141
05:00	0.6566	12,627.03	13,755	.00165046	210.557
06:00	0.6983	12,626.08	13,774	.00168362	206.409
07:00	0.7399	12,625.16	13,776	.00163022	213.170
08:00	0.7816	12,624.21	13,800	.00168045	206.798
09:00	0.8233	12,623.29	13,833	.00162350	214.052
10:00	0.8649	12,622.43	13,824	.00151861	228.837
11:00	0.9066				
12:00	0.9483	12,620.68	13,810	.00154666	224.687
13:00	0.9899	12,619.69	13,753	.00140220	247.834
14:00	1.0316	12,619.21	13,773	.00120521	288.344
15:00	1.073264	12,618.31	13,750	.00159864	217.381
16:00	1.11493	12,617.60	13,720	.00126391	274.952
17:00	1.15660	12,616.87	13,733	.00129828	267.672
18:00	1.1983	12,616.03	13,705	.00149697	232.146
19:00	1.2400	12,615.40	13,702	.00112297	309.460
20:00	1.282	12,614.60	13.703	.00142589	243.717
21:00	1.3237	12,613.84	13,738	.00135115	257.200
22:00	1.3654	12,612.98	13,716	.00153138	226.929
23:00	1.4071	12,612.23	13,698	.00133726	259.870
24:00	1.449	12,611.53	13,720	.00124644	278.805
10-9-83					
01:00	1.4907	12,610.87	13,626	.00118301	293.755
02:00	1.5324	12,610.07	13,591	.00143764	241.749
03:00	1.5740	12,609.39	13,580	.00122299	284.153
04:00	1.6157	12,608.81	13,595	.00104198	333.513
05:00	1.657	12,608.06	13,626	.00134433	258.505

Table No. 6 (cont'd)

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explore Million Bbls
10-9-83 (cont'd)					
06:00	1.6987	12,607.50	13,587	.00100665	345.221
07:00	1.74037	12,606.83	13,603	.00120296	288.882
08:00	1.78204	12,606.06	13,593	.00138353	251.180
09:00	1.8237	12,605.43	13,631	.00112882	307.856
10:00	1.86537	12,604.84	13,640	.00105645	328.945
11:00	1.90704	12,604.09	13,598	.00134710	257.973
12:00	1.9487	12,603.49	13,616	.00107625	322.999
13:00	1.99037	12,602.77	13,456	.00130686	265.916
14:00	2.03204	12,602.21	13,590	.00100642	345.297
15:00	2.0737	12,601.58	13,597	.00113164	307.089
16:00	2.11537	12,601.09	13,564	.00088231	393.870
17:00	2.15704	12,600.33	13,544	.00137050	253.568
18:00	2.1987	12,599.86	13,549	.00084723	410.176
19:00	2.24037	12,599.17	13,491	.00124916	278.199
20:00	2.28203	12,598.51	13,561	.00118868	292.354
21:00	2.3237	12,598.01	13,597	.00089813	386.932
22:00	2.3654	12,597.39	13,604	.00111311	312.202
23:00	2.40707	12,596.82	13,622	.00102199	340.038
24:00	2.4487	12,596.15	13,609	.00120243	289.010
10-10-83					
01:00	2.49037	12,595.70	13,271	.00082817	419.616
02:00	2.53204	12,595.08	13,250	.00114285	304.077
03:00	2.5737	12,594.52	13,294	.00102883	337.776
04:00	2.6154	12,593.99	13,319	.00097189	357.566
05:00	2.65703	12,593.22	13,337	.00141008	246.450
06:00	2.6987	12,592.79	13,349	.00078674	441.714
07:00	2.7404	12,592.24	13,343	.00100675	345.185
08:00	2.7820	12,591.76	13,315	.00088047	394.694
09:00	2.8237	12,591.22	13,344	.00098837	351.604
10:00	2.8654	12,590.63	13,302	.00108330	320.794
11:00	2.9070	12,590.11	13,254	.00095823	362.664
12:00	2,9487	12,589.51	13,230	.00110765	313.741
13:00	2.9904	12,588.79	13,259	.00132628	262.023
14:00	3.03203	12,588.30	13,244	.00090363	384.578
15:00	3.0737	12,587.73	13,235	.00105187	330.378
16:00	3.1154	12,587.01	13,264	.00132578	262.122
17:00	3.1571	12,586.32	13,276	.00126939	273.766
18:00	3.1987	12,585.74	13,315	.00106400	326.612
19:00	3.2404	12,585.09	13,477	.00117796	295.013
20:00	3.2821	12,584.31	13,820	.00137847	252.101
21:00	3.3237	12,583.62	13,514	.00124703	278.674
22:00	3.3654	12,582.98	13,596	.00114969	302.268
23:00	2.4071	12,582.21	13,939	.00134918	252.574
24:00	3.4487	12,581.58	13,910	.00110618	314.158

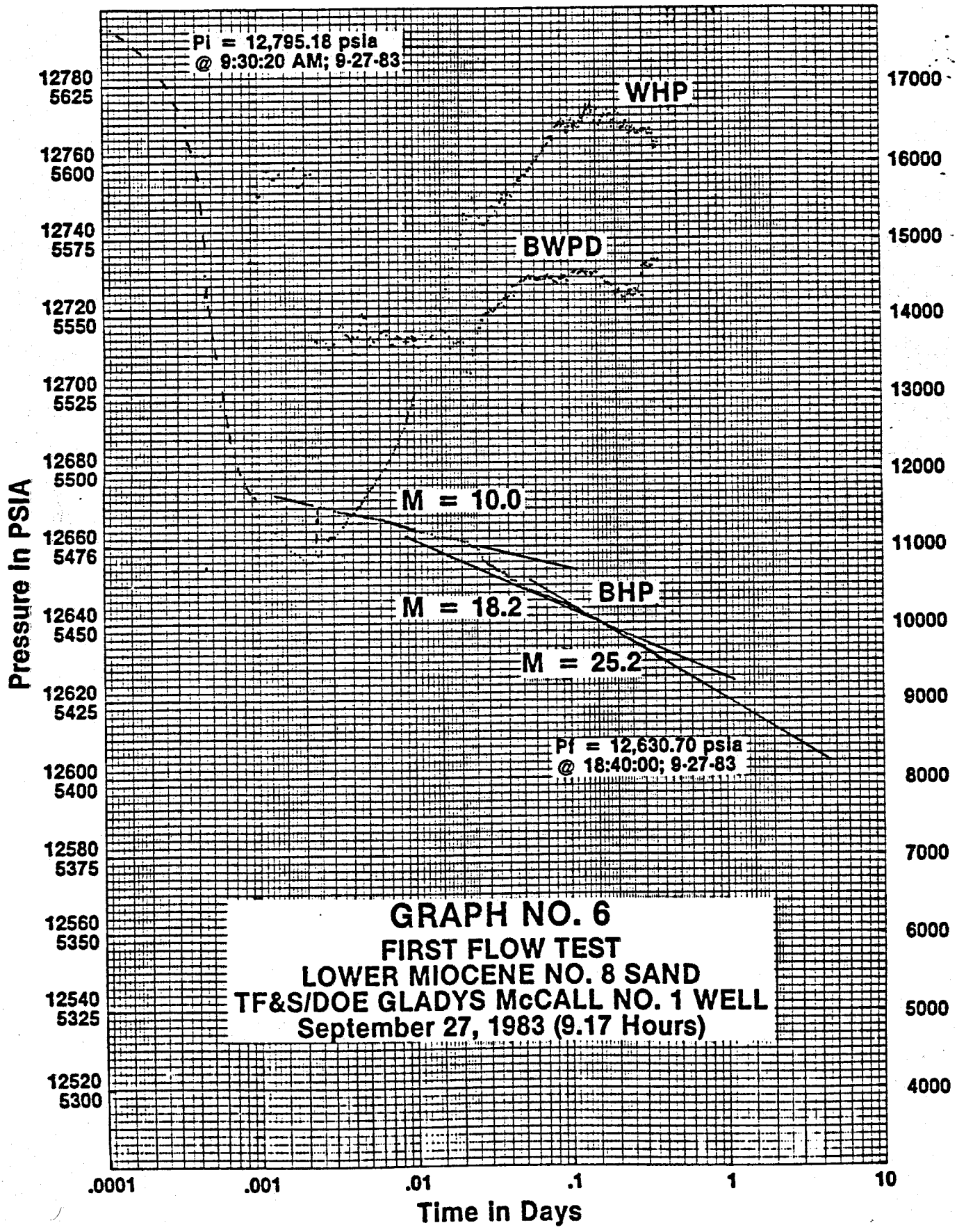
Table No. 6 (cont'd

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explore Million Bbls
10-11-83					
2:00	3.53	12,580.32	14,004	.001098	316.3
4:00	3.62	12,579.03	13,743	.001146	303.2
6:00	3.70	12,577.08	13,462	.001098	316.6
12:00	3.95	12,574.82	13,337	.001058	328.0
18:00	4.20	12,571.81	13,470	.000921	376.6
24:00	4.44	12,569.09	13,411	.000760	444.7
10-12-83					
6:00	4.69	12,566.15	13,813	.000864	401.7
12:00	4.95	12,563.37	13,615	.000751	462.2
18:00	5.20	12,560.44	14,501	.000810	428.6
24:00	5.45	12,557.72	13,587	.000836	415.1
10-13-83					
6:00	5.70	12,555.02	13,571	.000809	426.8
12:00	5.95	12,552.21	13,716	.000942	368.5
18:00	6.20	12,549.65	13,531	.000739	469.6
24:00	6.45	12,547.78	13,769	.000718	446.0
10-14-83					
6:00	6.70	12,544.54	13,478	.000742	467.9
12:00	6.95	12,541.90	13,744	.000768	452.0
18:00	7.20	12,539.39	13.119	.000734	473.0
24:00	7.45	12,536.91	13,626	.000656	529.2
10-15-83					
6:00	7.70	12,534.27	13,412	.000768	451.9
12:00	7.95	12,531.71	13,465	.000787	440.5
24:00	8.45	12,526.89	13,442	.000725	478.5
10-16-83					
12:00	8.95	12,521.95	13,433	.000745	465.7
24:00	9.45	12,517.22	13,094	.000732	474.1
10-17-83					
12:00	9.95	12,512.41	12,597	.000729	476.2
24:00	10.45	12,507.63	12,307	.000741	468.1
10-18-83					
12:00	10.95	12,503.21	12,296	.000686	505.8
24:00	11.45	12,498.55	12,356	.000720	482.1
10-19-83					
18:00	11.78	12,495.60	12,659	.000667	520.1
24:00	12.45	12,489.53	12,635	.000681	509.4
10-20-83					
24:00	13.45	12,480.67	12,426	.000680	510.0
10-21-83					
24:00	14.45	12,471.98	12,189	.000680	510.1
10-22-83					
24:00	15.45	12,463.37	12,018	.000684	507.6

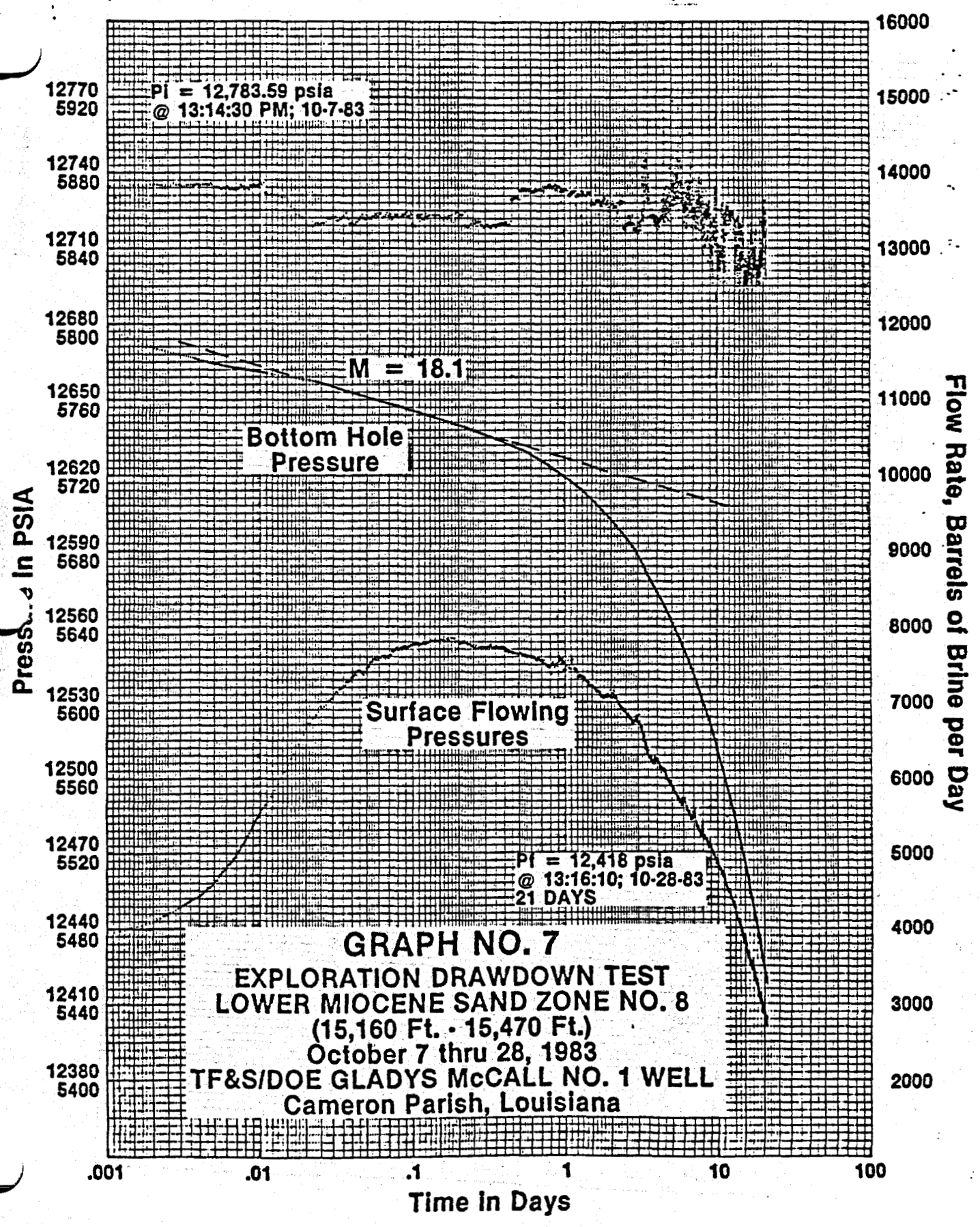
Table No. 6 (cont'd)

Date Time	Cum. Days	B.H.P. psia	Qw BWPD	$\frac{dp/dt}{Qw\ BwC} = Y$	Water Explore Million Bbls
10-23-83 24:00	16.45	12,454.88	11,977	.000676	513.0
10-24-83 24:00	17.45	12,446.60	11,888	.000665	522.1
10-25-83 24:00	18.45	12,438.43	12,026	.000648	535.3
10-26-83 24:00	19.45	12,430.38	12,050	.000638	543.7
10-27-83 24:00	20.45	12,422.55	12,369	.000605	573.8
10-28-83 8:00	20.78	12,419.82	12,181	.000642	540.2

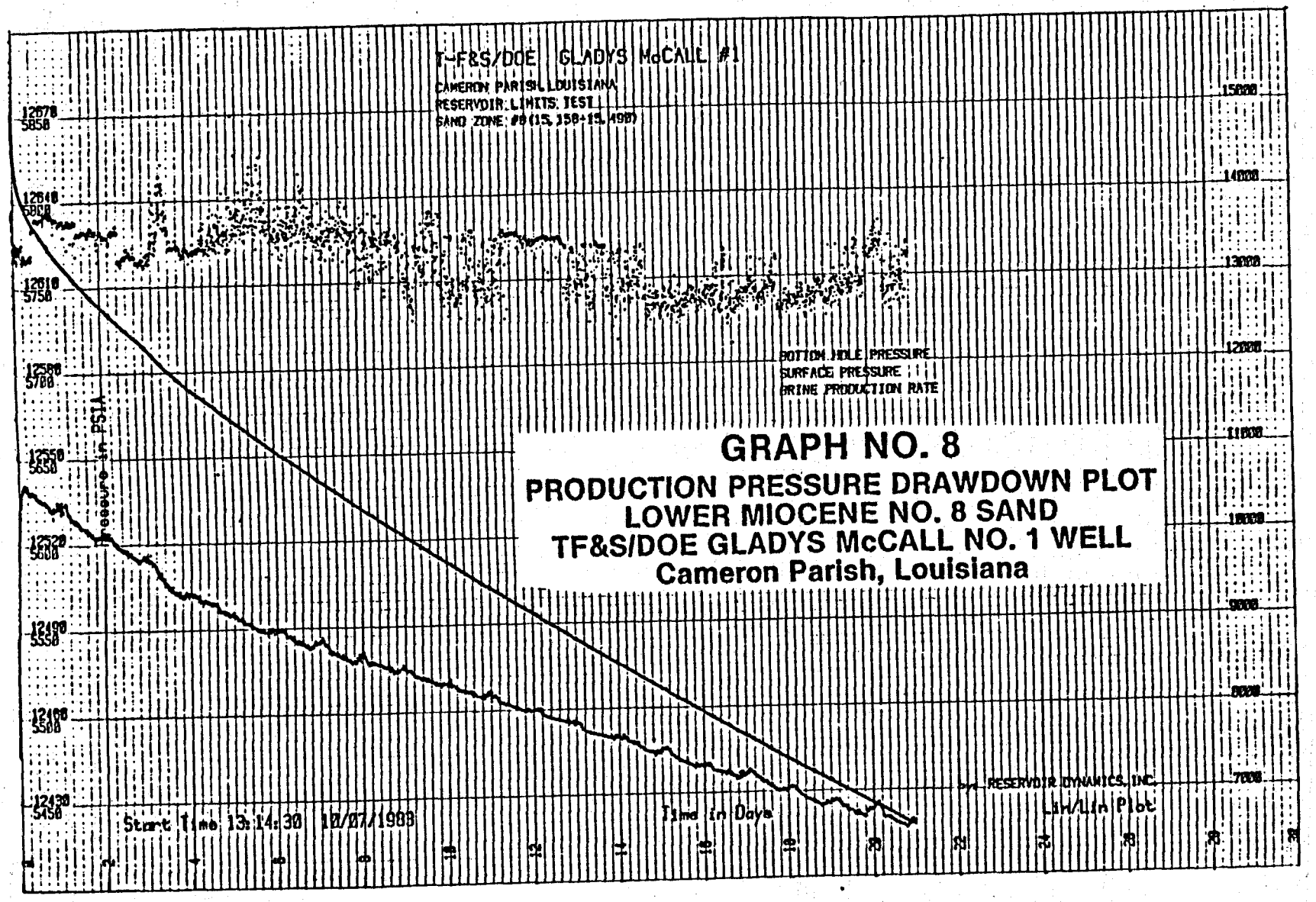
Well Shut In



GRAPH NO. 6
FIRST FLOW TEST
LOWER MIOCENE NO. 8 SAND
TF&S/DOE GLADYS McCALL NO. 1 WELL
September 27, 1983 (9.17 Hours)

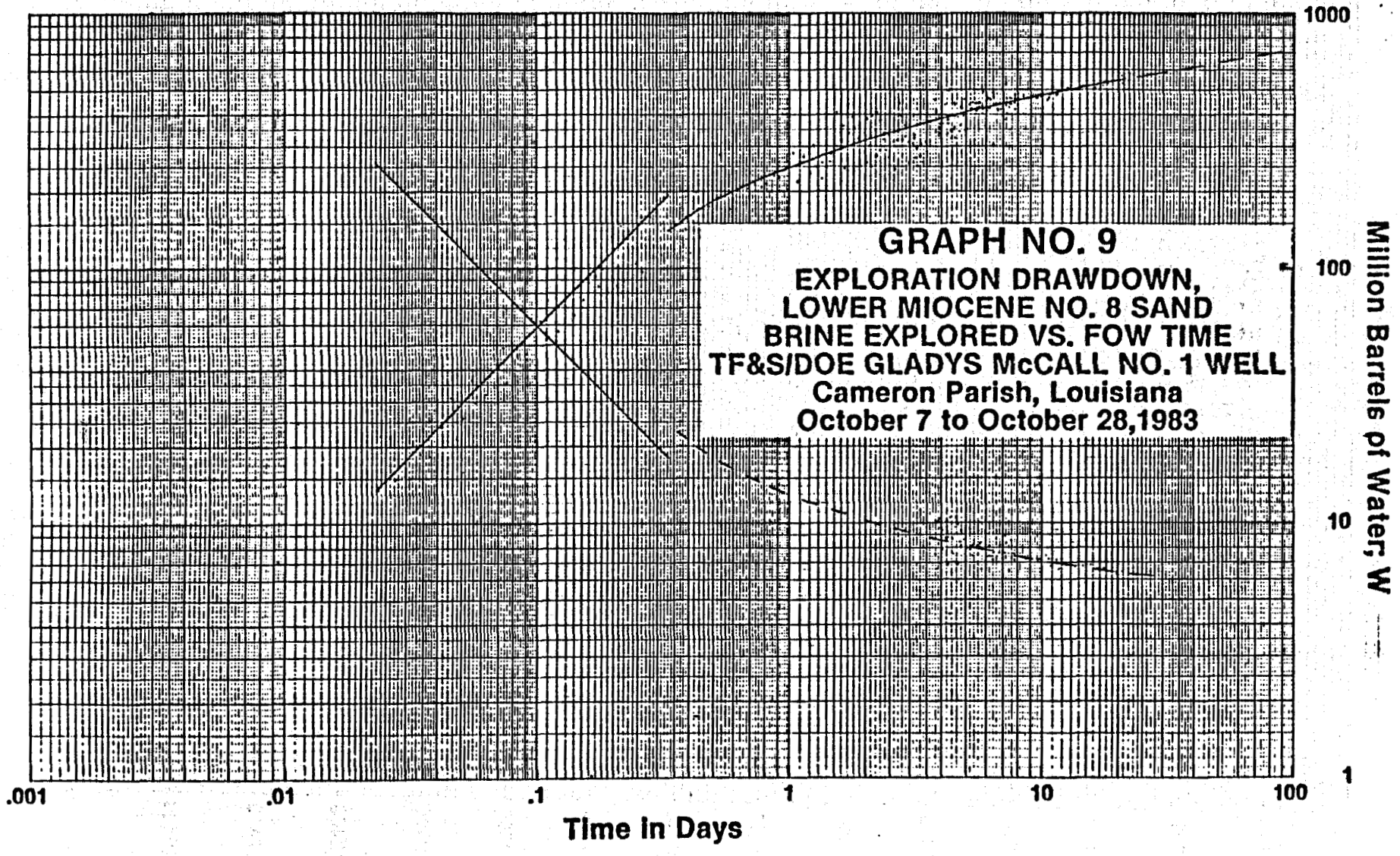


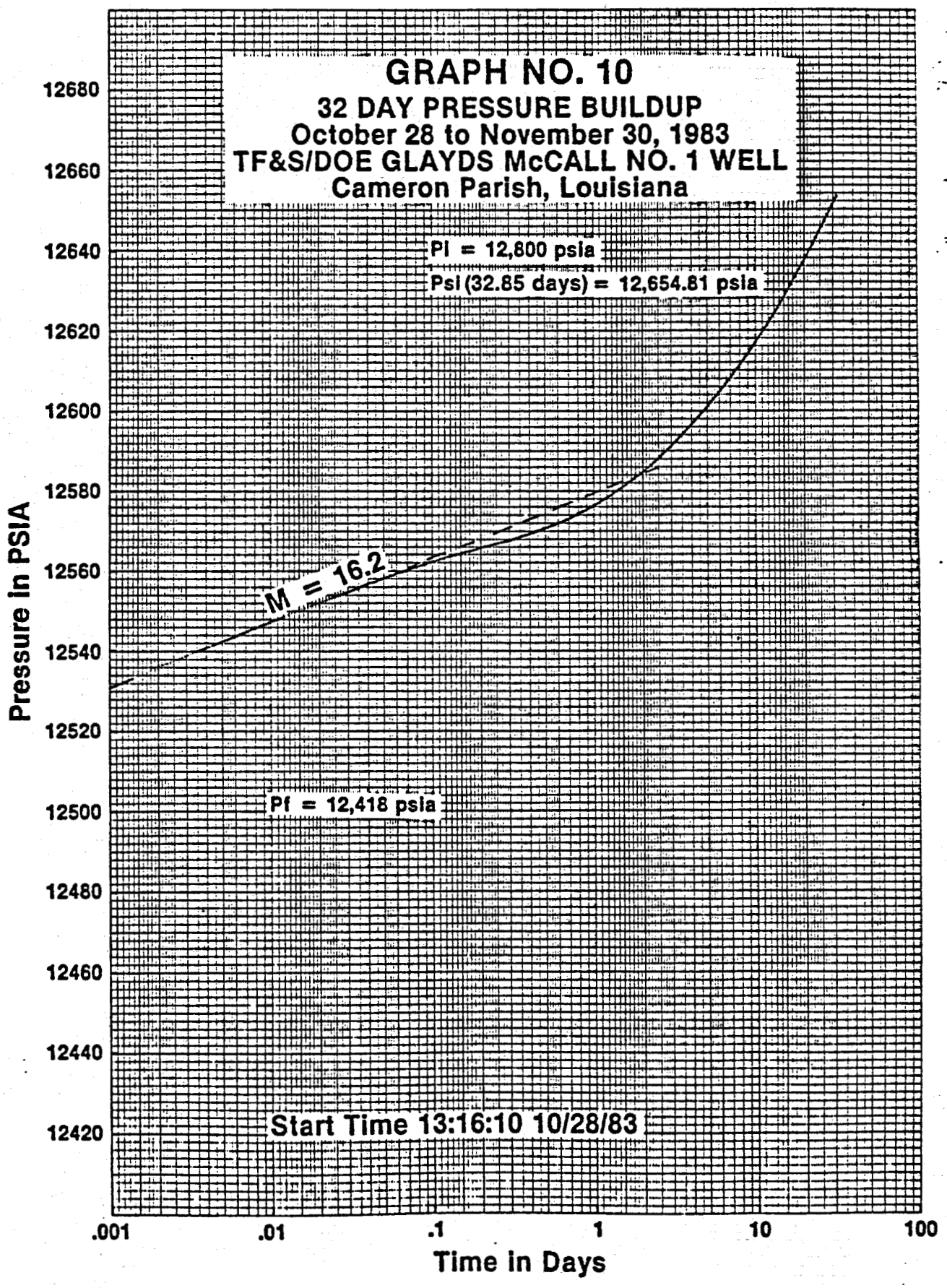
GRAPH NO. 7
EXPLORATION DRAWDOWN TEST
LOWER MIOCENE SAND ZONE NO. 8
(15,160 Ft. - 15,470 Ft.)
October 7 thru 28, 1983
TF&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana

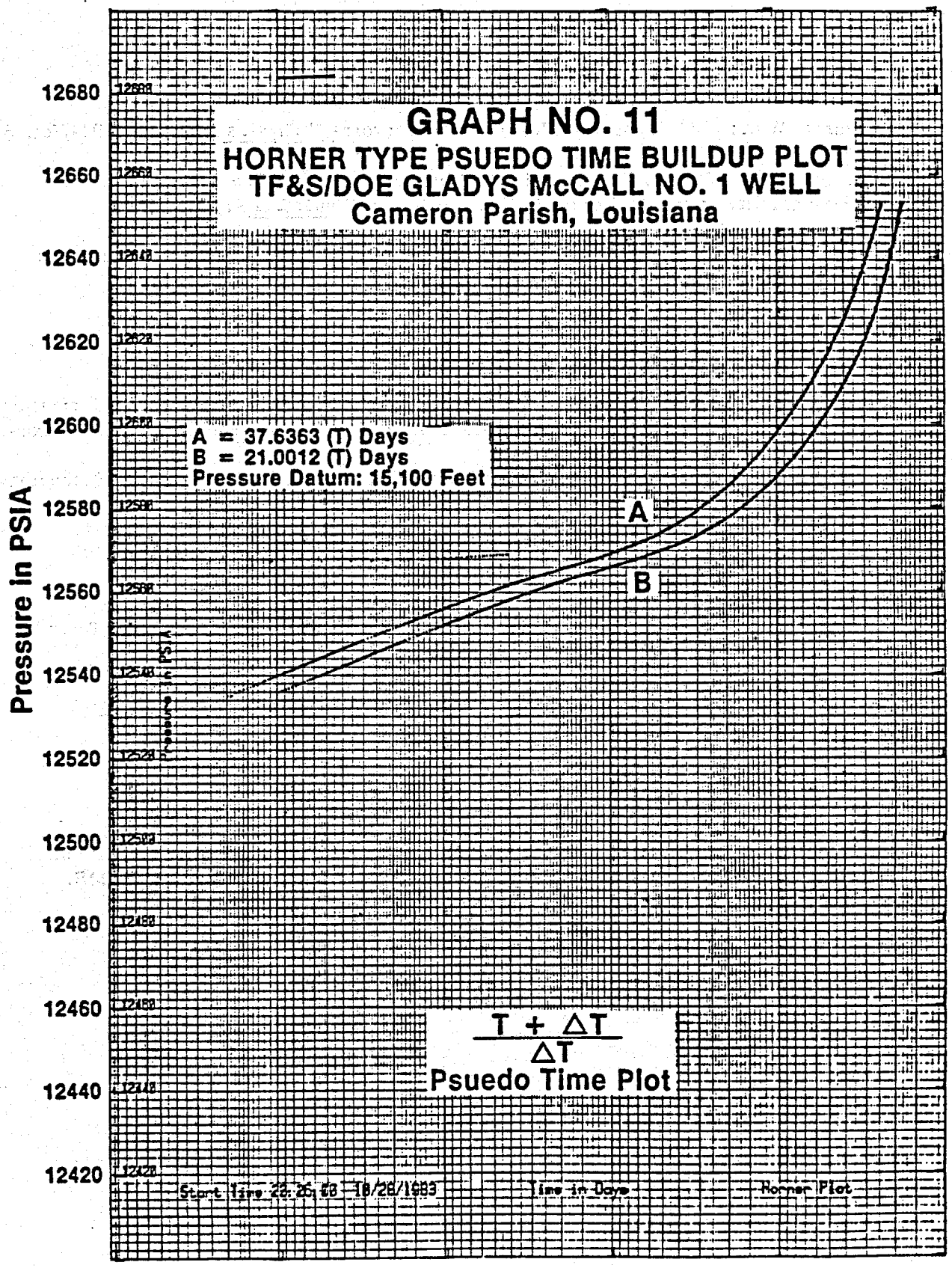


GRAPH NO. 8

PRODUCTION PRESSURE DRAWDOWN PLOT
LOWER MIOCENE NO. 8 SAND
TF&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana


GRAPH NO. 9
EXPLORATION DRAWDOWN,
LOWER MIOCENE NO. 8 SAND
BRINE EXPLORED VS. FOW TIME
TF&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana
October 7 to October 28,1983
1000
100
10
1
Million Barrels of Water, W
.001
.01
.1
1
10
100
Time In Days


GRAPH NO. 10
32 DAY PRESSURE BUILDUP
October 28 to November 30, 1983
TF&S/DOE GLAYDS McCALL NO. 1 WELL
Cameron Parish, Louisiana
Pi = 12,800 psia
Psi (32.85 days) = 12,654.81 psia
M = 16.2
Pf = 12,418 psia
Start Time 13:16:10 10/28/83
Pressure in PSIA
12680
12660
12640
12620
12600
12580
12560
12540
12520
12500
12480
12460
12440
12420
.001
.01
.1
1
10
100
Time in Days


GRAPH NO. 11
HORNER TYPE PSUEDO TIME BUILDUP PLOT
TF&S/DOE GLADYS McCALL NO. 1 WELL
Cameron Parish, Louisiana
A = 37.6363 (T) Days
B = 21.0012 (T) Days
Pressure Datum: 15,100 Feet
A
B
Pressure in PSIA
12680
12660
12640
12620
12600
12580
12560
12540
12520
12500
12480
12460
12440
12420
T + ΔT
ΔT
Psuedo Time Plot
Start Time 22:26:08 10/28/1983
Time in Days
Horner Plot

REFERENCES

1. Hurst, Wm.; 1934 "Unsteady Flow in Oil Reservoirs," Physics, (March, 1934)Vol. 5

2. Hurst, Wm.; Moore, T. V.; and Schilthuis, R. J. 1933. "The Determination of Permeability from Field Data," Proceedings, API Bull. 211 4.

3. Hurst, Wm., 1953 "Establishment of the Skin Effect and Its Impediment to Fluid Flow into a Well Bore," Petroleum Engineer, (October, 1953) 25, B-6.

4. Jones, P. J., 1956. "Gulf Coast Wildcat Verifies Reservoir Limit Test," Oil and Gas Journal, (June, 1956) pp. 54, 184.

5. Jones, P. J., 1957. "Drawdown Exploration, Reservoir Limit, Well and Formation Evalution," Paper 824-G, Permian Basin Oil Recovery Conference, Midland, Texas.

6. Jones, P. J., 1961 "Reservoir Limit Test on Gas Wells," SPE- 24, Gas Technology Symposium, Tyler, Texas.

7. Matthews, C. S., 1960 "Analysis of Pressure Buildup and Flow Test Data," Formation Evaluation Symposium, Houston, Texas.

8. Matthews, C. S., and Russell, D. G. 1967. "Pressure Buildup and Flow Tests in Wells," Monograph Vol. 1, SPE, AIME.

9. Schilthuis, R. J., 1936. "Active Oil and Reservoir Energy," Transactions, SPE, AIME, Vol 118, 33-52.

10. Clark, J. D., and Clark, N. J., "Reservoir Parameters Are Paramount." Petroleum Engineer, (July, 1966) pp. 61-69.

11. Van Everdingen, A. F., and Hurst, Wm., 1949 "The Application of the La Place Transformation to Flow Problems in Reservoirs," Transactions, SPE, AIME, Vol. 186.

APPENDIX VII

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
WELL WORKOVER AND PRODUCTION TESTING
FOR
PERIOD FEB. 1982 TO OCT. 1985

FOR:
U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
CONTRACT NO. DE-AC07-80ET27217

APPENDIX VII

GEOPRESSURED - GEOTHERMAL WELL REPORT
VOLUME II
WELL WORKOVER AND PRODUCTION TESTING
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RESERVOIR ANALYSIS

GLADYS MCCALL NO. 1

May 1984

Prepared for
TECHNADRIL

Prepared by

Dowdle Fairchild & Ancell, Inc.

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GEOLOGICAL SETTING	2
TEST PROCEDURE AND DATA COLLECTION	3
SIMULATOR DESCRIPTION	4
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RESERVOIR ENGINEERING STUDY

TECHNADRIL-FENIX & SCISSON GLADYS MCCALL NO. 1

INTRODUCTION

The Technadril-Fenix & Scisson Gladys McCall No. 1 was drilled in Cameron Parish, Louisiana, as part of the Geopressured-Geothermal Program sponsored by the U. S. Department of Energy. The overall purpose of the well is to determine and demonstrate through long term flow testing the technological and economic feasibility of recovery of methane and thermal energy associated with geopressured-geothermal fluids. This report uses the field measured test data and a reservoir simulator to describe the two reservoirs tested and to predict the performance of these reservoirs under various external conditions.

The well is located in section 27-T15S-R5W in Cameron Parish, about 55 miles southeast of Lake Charles near the town of Grand Chenier. The well was drilled in 1981 to a total depth of 16,510 ft. A 9 5/8 inch casing string was set at 14,426 ft and a 7 inch liner was run to 15,958 ft. The well is equipped with a 5 inch tubing string with special clearance connections.

The well was flow tested in two sands, Sand 9 from 15,508-636 ft and Sand 8 from 15,158-490 ft. The reservoirs were flow tested to determine reservoir limits for periods in excess of twenty days each. This report addresses the results and implications of these two reservoir limit tests.

GEOLOGICAL SETTING

The geology of the area as best it is known is described in "Geopressured-Geothermal Drilling and Testing Plan, Volume II - Testing Plan" prepared by the project. The drill bit found several sandstone reservoirs of the lower Miocene. These sands are massive as can be seen on Figure 1 which is a portion of the log of the Gladys McCall No. 1. This figure shows the log responses over the interval of the two sands tested. Table 1 gives the pertinent data for the ten sands that were found. Coring results both from diamond cores and sidewall cores gave permeabilities that were lower than those derived from test analysis.

Figure 2 is a structure map developed from the available seismic data and subsurface drilling information. The well is bounded by two large growth faults. These faults are placed on this map arbitrarily equidistant from the two wells that determine them respectively. The results of the test analysis locate the boundaries closer to the Gladys McCall No. 1 than is shown here, but this in no way contradicts the map as it is drawn.

TEST PROCEDURE AND DATA COLLECTION

Both reservoir limit tests were run using the same basic procedures. The well was flowed through a surface choke with bottom hole pressure and temperature measured and recorded continuously. In addition separator flow rate, and surface tubing head pressure was recorded continuously. The data from the two tests are shown on Figures 3 and 4. Sand 9 test was run for 24 days followed by a shut in buildup period. Sand 8 was flowed for 21 days followed by a 33 day buildup.

From a mechanical standpoint, the Sand 8 test was far superior to the Sand 9 test. The Sand 9 test had many malfunctions of the electrical equipment and the last of the buildup period was lost because of the electrical problems in the downhole equipment. Sand 8 test on the other hand ran the entire 54 day period without a problem.

The flow rate for the Sand 9 test was about 4000 bpd with several fluctuations. There was some problem with the rate measurement which resulted in the recorded rate being too high during the early portion of the test. The Sand 8 test maintained a fairly constant rate of 13,000 bpd for the entire 21 day period.

Initial pressure for Sand 9 was measured to be 12,911 psia at 15,508 ft. Sand 8 had a pressure of 12,785 psia at 15,158 ft. This results in a gradient of 0.36 psi/ft. This is close to the gradient of the reservoir fluid which means the the two reservoirs are in vertical equilibrium.

SIMULATOR DESCRIPTION

The study was done using a two dimensional, single phase reservoir simulator. The simulator computes the flow of a single fluid in two dimensions, either the areal display of R-θ coordinates or a vertical display of R-Z coordinates. The R-θ coordinates were used for the history matching phase of the simulation and some of the predictions. For the multi-reservoir predictions, the R-θ coordinates were converted to single dimensional radial coordinates. These were stacked into multi layer R-Z stacks to run the cases of multiple sets of perforations.

The pressure functions of water formation volume factor, Bw, water viscosity, μw, are coupled into a potential term, P, where

$$P = \int_{po}^{p} dp/Bw\mu w$$

This potential function is linear with depletion and eliminates the common assumption of constant compressibility and viscosity.

Rock compressibility is accounted for by entering porosity as a function of pressure. The simulator also has the capability of entering the permeability as a function of pressure, but in this study, permeability was held constant.

The wellbore is treated implicitly in the computations such that wellbore recirculation can occur during shut in times if multiple layers are perforated. For water flow, the simulator requires a table of friction pressure loss as a function of flow rate. These pressures were calculated externally and tuned to actual measured data.

RESERVOIR DESCRIPTION

The two reservoirs studied were each analyzed the same way. The thickness and porosity were determined from logs and core data. Permeability was calculated from the early time data of each test. The simulator was run using constant rates and calculating bottom hole pressures. These bottom hole flowing pressures were compared with actual measured pressures. The description was adjusted until the calculated pressures matched the actual pressures. The adjustments necessary were fault boundaries and reservoir thinning at distances of 750 to 1000 ft from the well. The shapes of both reservoirs turned out to be very similar. There are boundaries in both reservoirs. The linear boundaries that would be expected for faults are apparently obscured by the reservoir thinning and becoming lower in permeability at distances away from the well.

The Sand 9 test is shown as a semilog plot on Figure 5. The final history match is shown as the plotted circles. The reservoir properties used to obtain this match are shown in Table 2. The parallel faults shown on Figure 2 were found to be 750 and 1500 ft from the well. The reservoir pinched down significantly at large distances from the well. In the 24 day flow period the pressure wave had "seen" about 20,000 ft into the reservoir.

The coordinate plot of pressure vs. time shown on Figure 3 appears to be a straight line during the last several days of the test. This indicates that all the boundaries of the reservoir have been seen and the reservoir has entered the pseudo steady state flow pattern. This assumes that the flow rate is constant. If it is interpreted that this is the case, the water in place was originally about 98 million bbl. Notice on Figure 3 that at the same time the pressure is a straight line, the flow rate is slowly but continuously increasing. If this is true, then the reservoir is not in true pseudo steady state and the boundaries have not been reached. Regardless, the reservoir is very close to pseudo steady state. If the reservoir is assumed to continue out to the next logrithmic grid block in the radial direction, the water in place is about 184 million barrels. Figure 6 is the plot of bottom hole pressure as a function of time for the flow test rate. When this plot becomes a straight line, the reservoir is in pseudo steady state flow and all boundaries have been found. Both the minimum reservoir size and the maximum size are shown on Figure 6.

The Sand 8 test found the faults at 1000 and 2000 ft, somewhat farther from the well than for Sand 9 reservoir. Again, the reservoir showed to be thinning and to be getting tighter away from the well. This test did not reach the pseudo steady state portion of the flow. Again, the test was able to "see" about 20,000 ft from the well. This is not surprising considering the similarities in flow times and permeability levels. Table 3 shows the reservoir properties and the history match is shown on Figure 7. If we assume that the reservoir was just ready to go into the pseudo steady state flow regime, the reservoir originally contained 505 million bbl of brine. This is the minimum size that the reservoir can be. If we assume that the reservoir continues with the same properties from 20,000 ft to 50,000 ft, the reservoir would contain 1.1 billion bbl. The effect of this increased volume is shown on Figure 8. Again, this figure shows the

time required to reach the pseudo steady state flow portion of the drawdown.

It is important to note everything that is postulated at distances in excess of 10,000 ft is very nebulous. The only effect of the presence or absence of this part of the reservoir is in the last two or three points of the 33 day buildup curve shown on Figure 7. These point toward continued thinning and lower permeabilities. These lead to the conclusion that the reservoir does pinch out at some distance beyond 20,000 ft and the water in place is probably only slightly larger than the 505 million bbl minimum.

Figure 9 was created with the assumption that all pore volume changes were due to changes in reservoir thickness. If that were true, the two reservoirs would look something like those shown. It was found that the permeability - thickness product decreased more than is shown by the reduction in thickness alone. This means that the reservoir is not only getting thinner but is also getting less permeable.

Once the reservoir portion of the data was adequately history matched as shown on Figures 5 and 7, the wellbore was matched using the static gradient of hot water and calculated friction. A static gradient of 0.4372 psi/ft was calculated from the very early shut in times after flow periods. Friction pressures were calculated and compared with actual pressures measured. Figure 10 shows the friction as a function of flow rate as it was used for the subsequent simulator runs. Figure 11 shows the calculated wellhead pressures for the Sand 8 test.

RESERVOIR PREDICTIONS

Several predictions were made for both the Sand 9 and Sand 8 reservoirs. These predictions were made for flow rates of 15,000, 25,000, and 35,000 bpd. This was restricted by a tubing head pressure of 1000 psi. These runs are plotted on Figures 12 and 13. Sand 9 will not sustain a 35,000 bpd rate for more than a few hours while Sand 8 will sustain the 35,000 bpd rate for approximately 50 days. Pressure, both surface flowing and bottom hole flowing, as a function of cumulative production for these same runs are shown on Figures 14 and 15; these plots were terminated at the time the well reached 1000 psi flowing tubing head pressure.

As an additional case, the Sands 1 through 8 as shown on Table 1 were run. This run assumed the same radial size and relative shape as Sand 8. The water in place for this assumption is 1.2 billion barrels. Permeability was assumed to be the average between Sand 8 and Sand 9. The water viscosity as determined for Sand 8 was used. There is significant difference between the Sand 8 and Sand 9 viscosity data. The resulting reservoir performance is shown for Sands 1 through 8 on Figures 16 and 17.

Figure 18 is a plot that may prove to be useful during subsequent testing. This shows the maximun sustained deliverability against a 1000 psia tubing head pressure. If the well is flowed long enough that it is on deliverability against a 1000 psia line, this curve can be plotted to check the water recovery projections.

TESTING DISCUSSION

Additional testing is planned for the Gladys McCall No. 1. The flow is to be a constant flow of 25,000 bpd. There will be no continuously recorded pressures. The question arises as to what data should be collected to yield the best reservoir monitoring information. The best data for the constant rate portion of the drawdown is to monitor the flowing pressure. Once the reservoir is in psuedo steady state flow, the flowing pressures, surface and bottom hole, will decline at a constant rate as shown on Figures 14, 15 and 17. It will take approximately 30 days to reach the pseudo steady state flow period.

The bottom hole flowing pressure can be determined quite accurately by measuring the surface flowing pressure, then shut the well in for just a few minutes and record the surface shut in pressure. The difference between the two is the pressure loss due to skin and friction in the well bore. At a rate of 25,000 bpd the friction is about 2060 psi and the skin for Sand 8 is only about 10 psi, so for the purpose intended the bottom hole flowing pressure will be the surface instantaneous shut in plus the hydrostatic head.

Once the constant rate portion of the flow is over and the well goes on maximum deliverability, a plot like Figure 18 can be plotted. This can simply be the daily production rate metered each day.

For use as resrevoir monitoring these plots should be kept up to date. There will be unscheduled down time due to repairs and maintenance and possibly gas markets. If the well has to be shut in for a period then flowed again, wait at least 1 1/2 times the shut in period before taking any data to be used for these plots. If it is necessary to change the flow rate significantly for a long period of time, the well must flow long enough to reach pseudo steady state flow at the new rate before meaningful data relevant to the plots discussed above.

LIST OF TABLES

No.	Title
1	Gladys McCall No. 1, Sand Reservoirs
2	Gladys McCall No. 1, Sand 9 Reservoir Description
3	Gladys McCall No. 1, Sand 8 Reservoir Description

TABLE 1

GLADYS MCCALL NO. 1
SAND RESERVOIRS

Sand Zone No.	Interval	Net Thickness	Prelim. Est., Ka	Prelim. Est., Kw	Prelim. Kwh	Prelim. % Kwh
1	14,412-14,465	54'	-	-	-	-
2	14,550-14,772	223'	178	34	7,582	37.33
3	14,782-14,800	19'	-	-	-	-
4	14,920-14,969	50'	113	24	1,200	5.91
5	15,031-15,066	36'	-	-	-	-
6	15,098-15,108	11'	-	-	-	-
7	15,120-15,137	18'	-	-	-	-
8	15,158-15,490	333'	109	23	7,659	37.71
9	15,508-15,636	129'	49	12.5	1,612.5	7.94
10	15,642-15,783	142'	44	11	1,562	7.69
11	15,784-15,860	77'	35	9	693	3.41
TOTAL		1,092'			20,308.5	99.99

TABLE 2

GLADYS MCCALL NO. 1
SAND 9 RESERVOIR DESCRIPTION

Reservoir Properties

Porosity	24 %
Permeability	90 md
Thickness	130 ft
Depth	15,508 ft
Rock Compressibility	3×10^{-6} psi^{-1}
Skin Effect	+2.0

Fluid Properties

P, psi	Bw	Vis
7000	1.0651	.3620
8000	1.0625	.3661
9000	1.0596	.3700
10000	1.0568	.3744
11000	1.0537	.3790
12000	1.0509	.3835
13000	1.0480	.3881

TABLE 3

GLADYS MCCALL NO. 1
SAND 8 RESERVOIR DESCRIPTION

Reservoir Properties

Porosity	22 %
Permeability	130 md
Thickness	300 ft
Depth	15,158 ft
Rock Compressibility	3×10^{-6} psi^{-1}
Skin Effect	+2.5

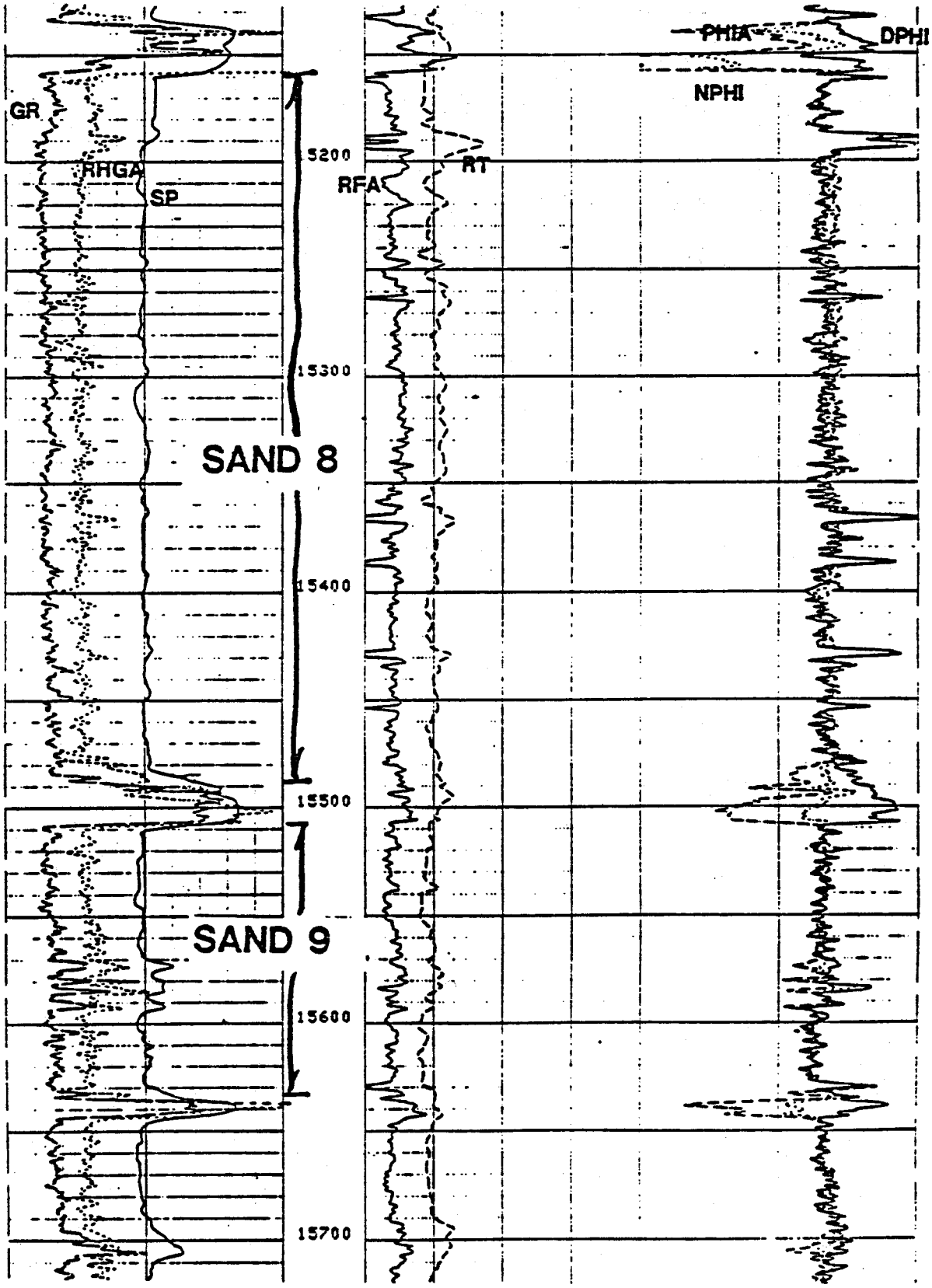
Fluid Properties

P, psi	Bw	Vis
7000	1.0618	.2600
8000	1.0600	.2670
9000	1.0580	.2750
10000	1.0550	.2840
11000	1.0537	.2930
12000	1.0514	.3025
13000	1.0495	.3120

LIST OF FIGURES

No.	Title
1	Gladys McCall No. 1, Log Response
2	Structure Map Top Sand Zone 1
3	Sand Zone 9, Reservoir Limit Test
4	Sand Zone 8, Reservoir Limit Test
5	Sand Zone 9, Reservoir Limit Test
6	Sand Zone 9, Continued Drawdown
7	Sand Zone 8, Reservoir Limit Test
8	Sand Zone 8, Continued Drawdown
9	Reservoir Schematics
10	Friction Pressure
11	Sand Zone 8, Calculated Surface Pressure
12	Sand Zone 9, Deliverability Projections
13	Sand Zone 8, Deliverability Projections
14	Sand Zone 9, Reservoir Performance
15	Sand Zone 8, Reservoir Performance
16	Sand Zones 1-8, Deliverability Projections
17	Sand Zones 1-8, Reservoir Performance
18	Reservoir Deliverability

Figure 1
Gladys McCall No 1
LOG RESPONSE



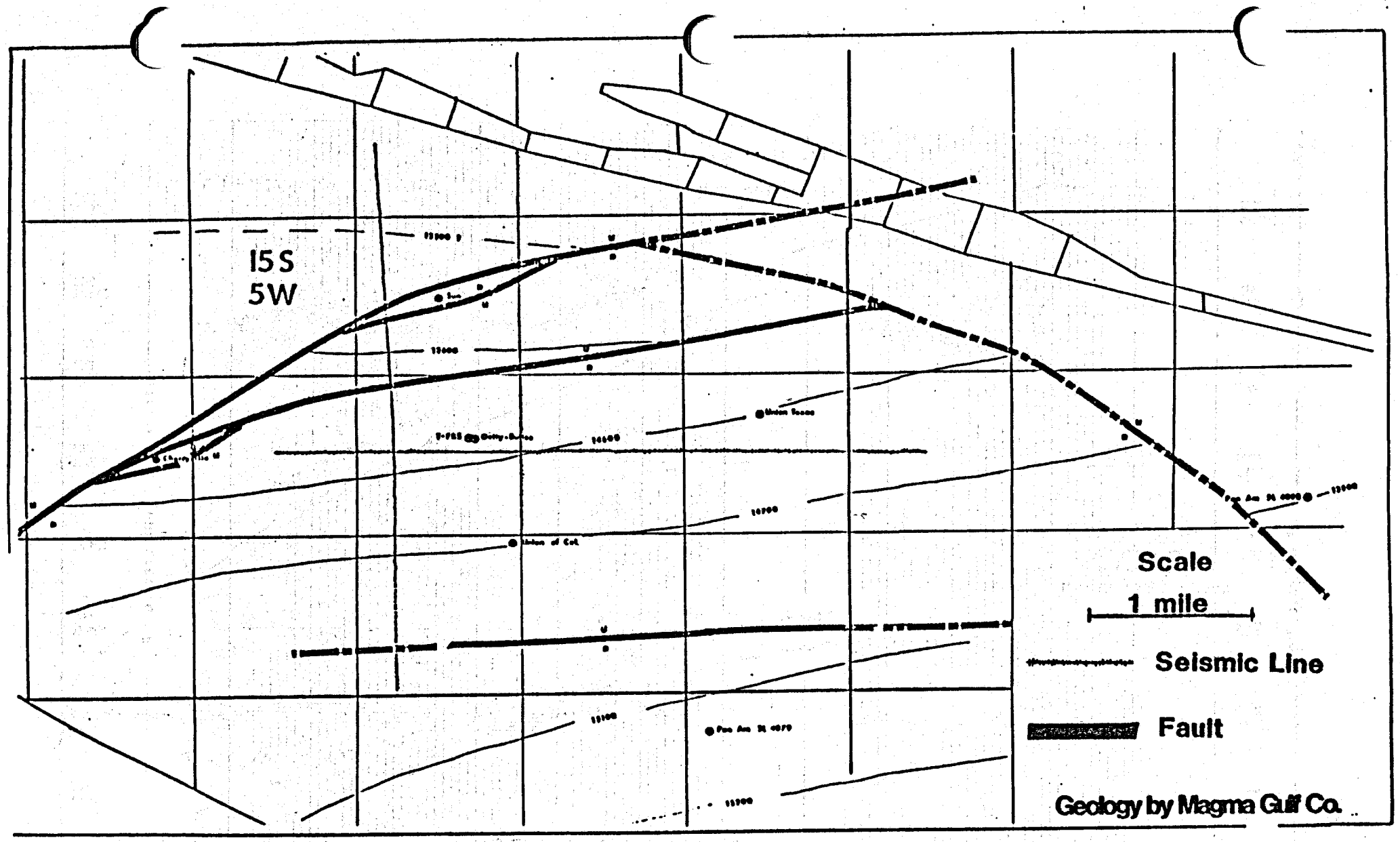


Figure 2

Structure Map Top Sand Zone 1

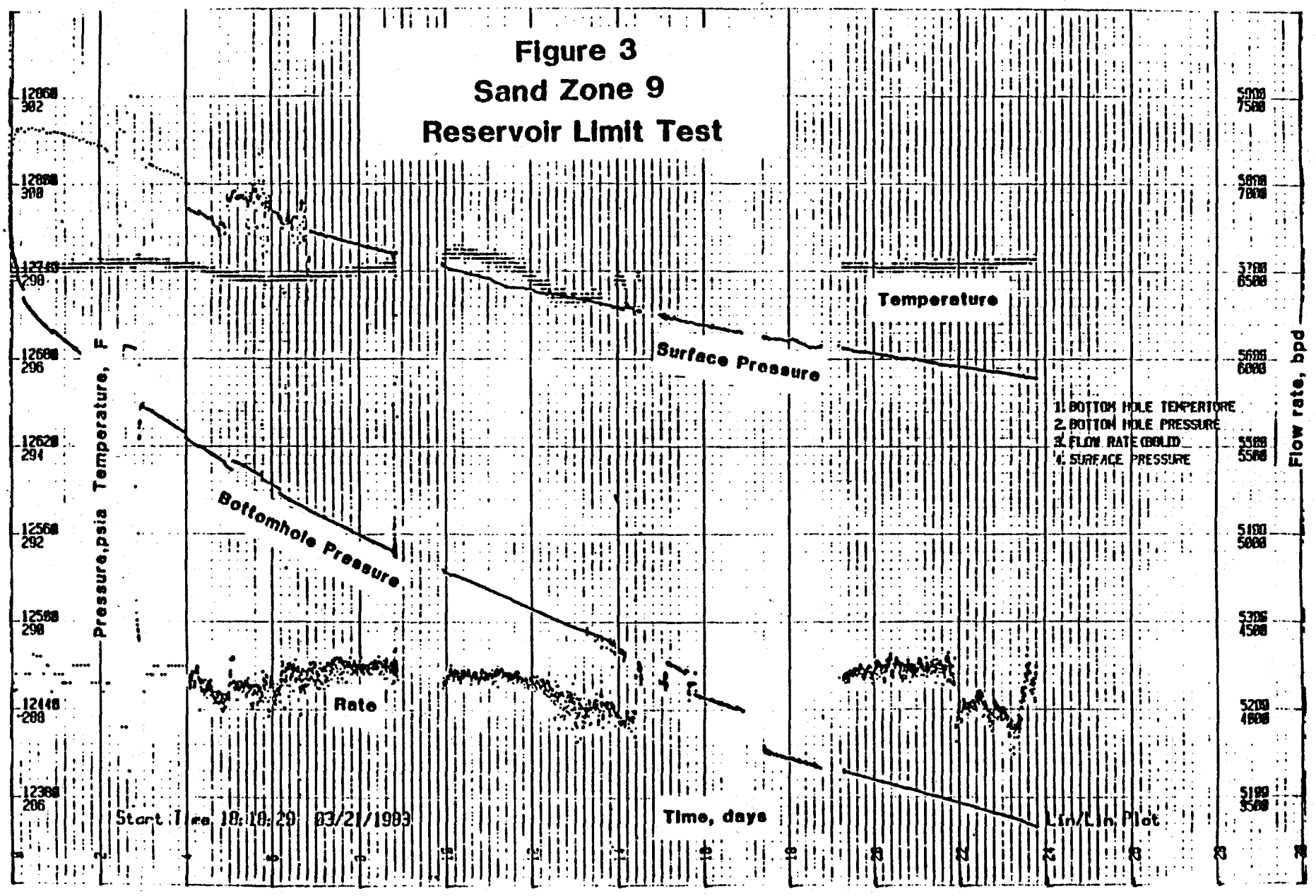


Figure 3
Sand Zone 9
Reservoir Limit Test
Temperature
Surface Pressure
Bottomhole Pressure
Rate
1. BOTTOM HOLE TEMPERTURE
2. BOTTOM HOLE PRESSURE
3. FLOW RATE (BOLID
4. SURFACE PRESSURE
Pressure,psia Temperature, F
Flow rate, bpd
Time, days
Start Time 10:10:20 03/21/1983
Lin/Lin Plot

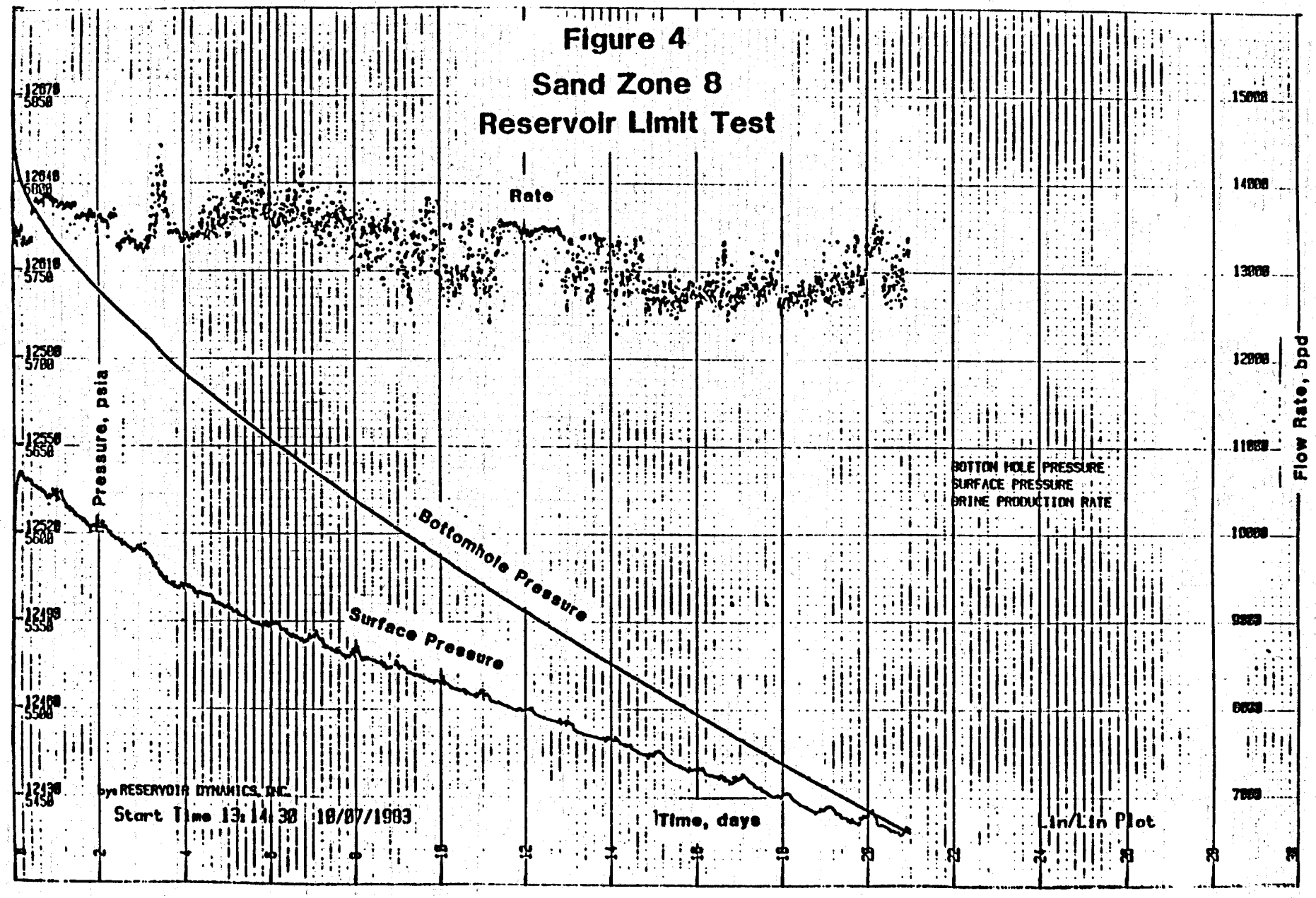


Figure 4
Sand Zone 8
Reservoir Limit Test

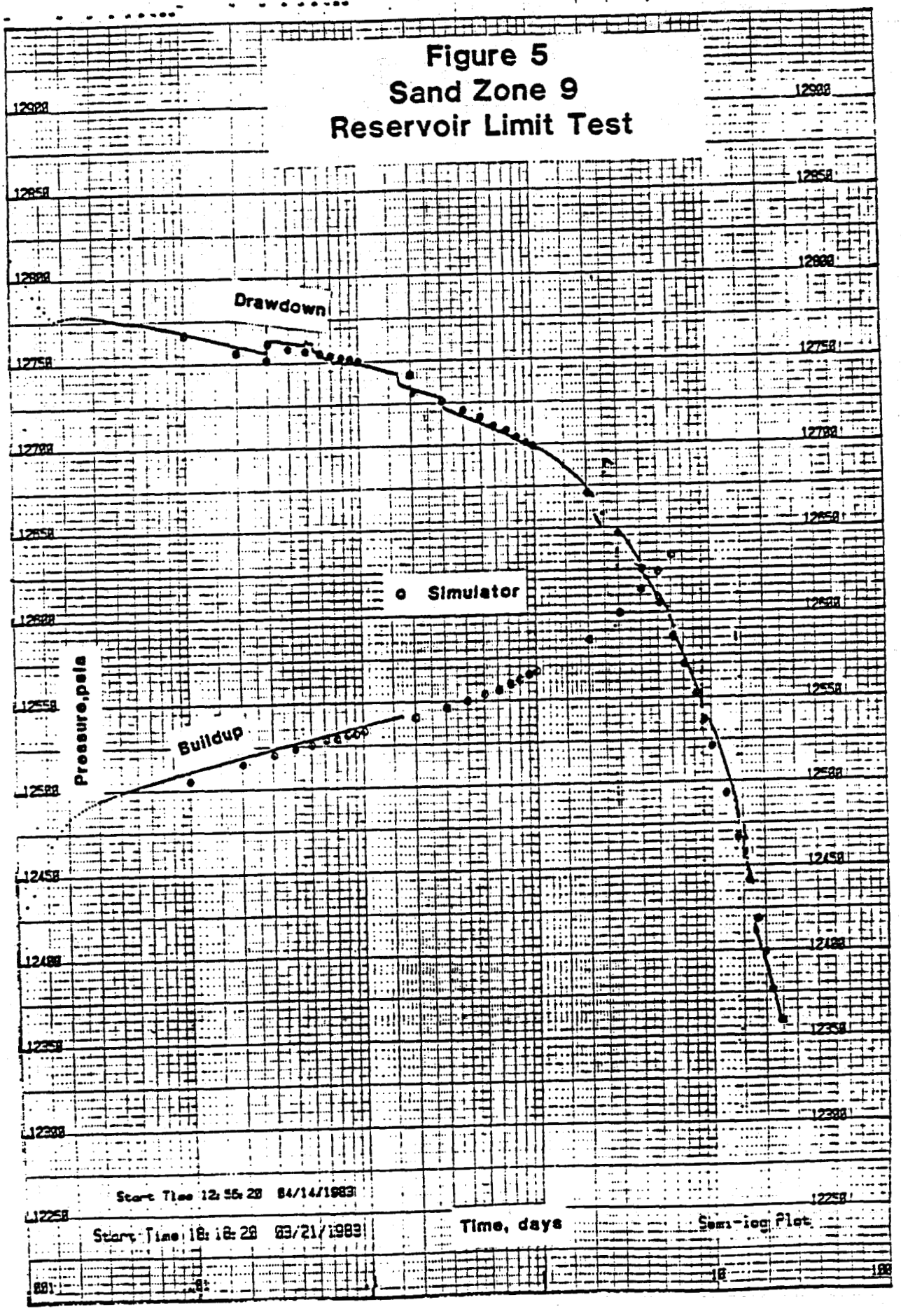


Figure 5
Sand Zone 9
Reservoir Limit Test
Drawdown
Buildup
o Simulator
Pressure,psia
Time, days
Start Time 12:56:20 04/14/1983
Start Time 18:18:20 03/21/1983
Semi-log Plot
12900
12850
12800
12750
12700
12650
12600
12550
12500
12450
12400
12350
12300
12250
1
10
100

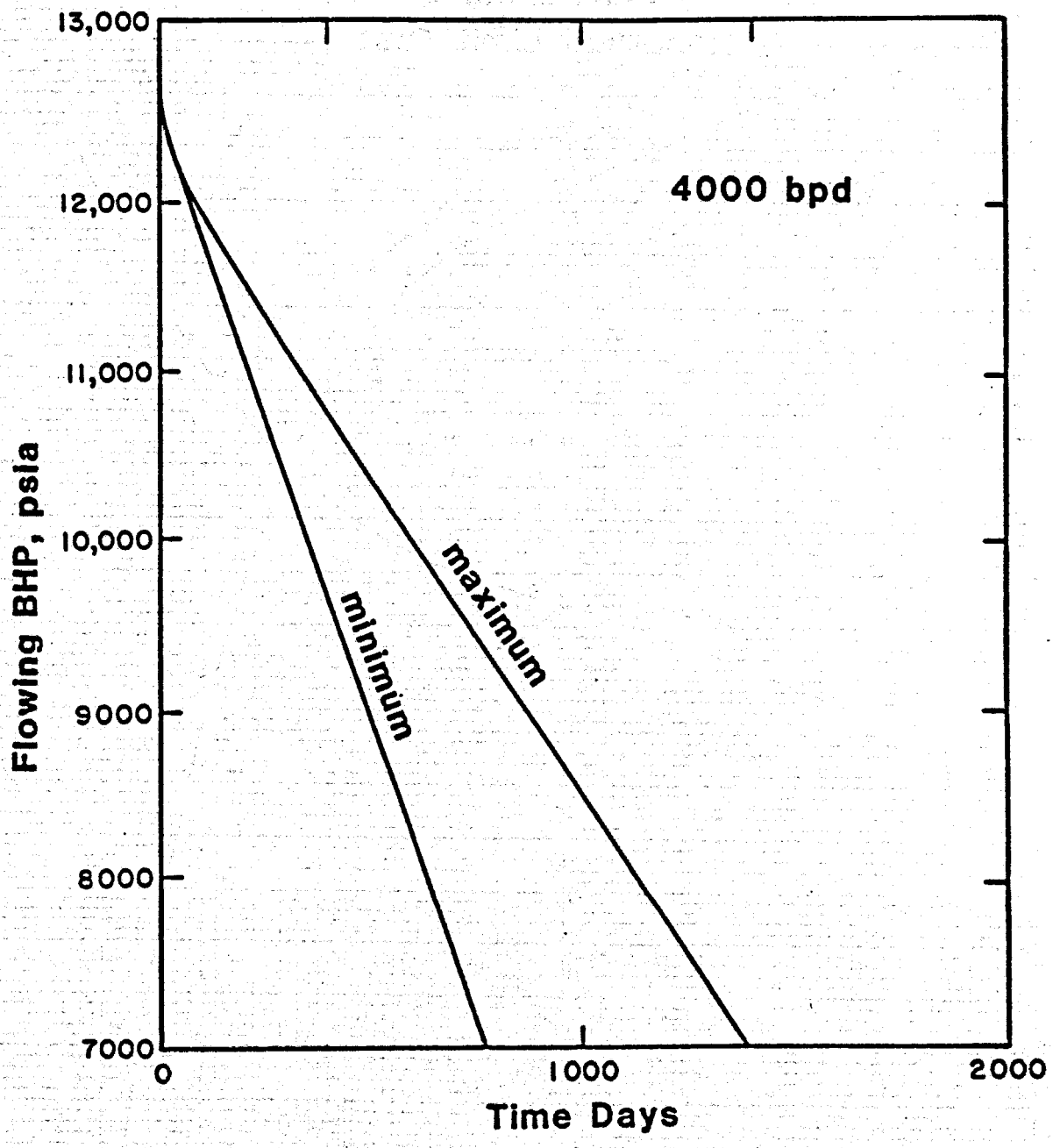


Figure 6
Sand Zone 9
Continued Drawdown

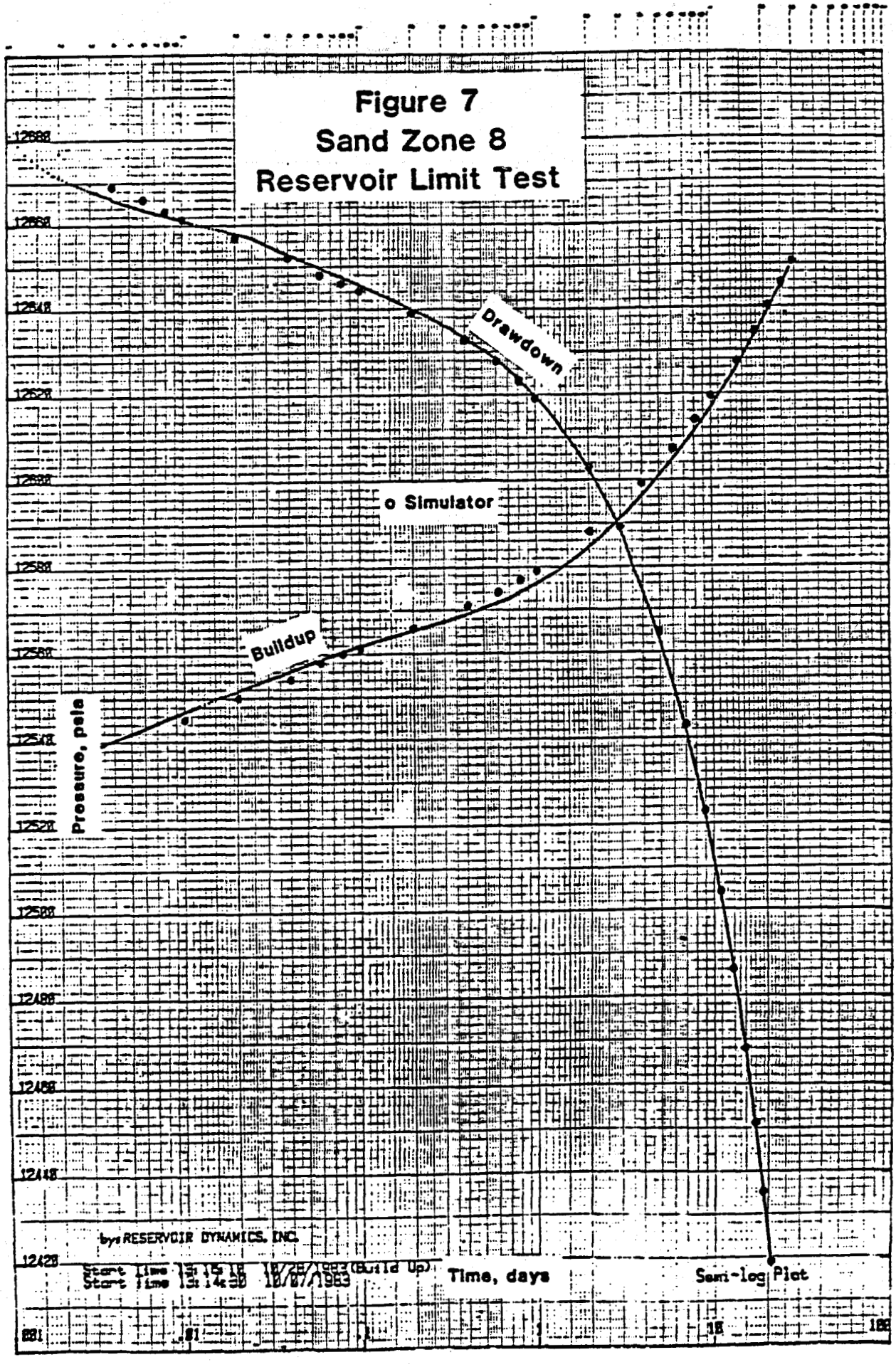


Figure 7
Sand Zone 8
Reservoir Limit Test
Drawdown
o Simulator
Buildup
Pressure, psia
Time, days
Semi-log Plot
by RESERVOIR DYNAMICS, INC.
Start Time 13:15:18 10/28/1983 (Build Up)
Start Time 13:14:30 10/07/1983

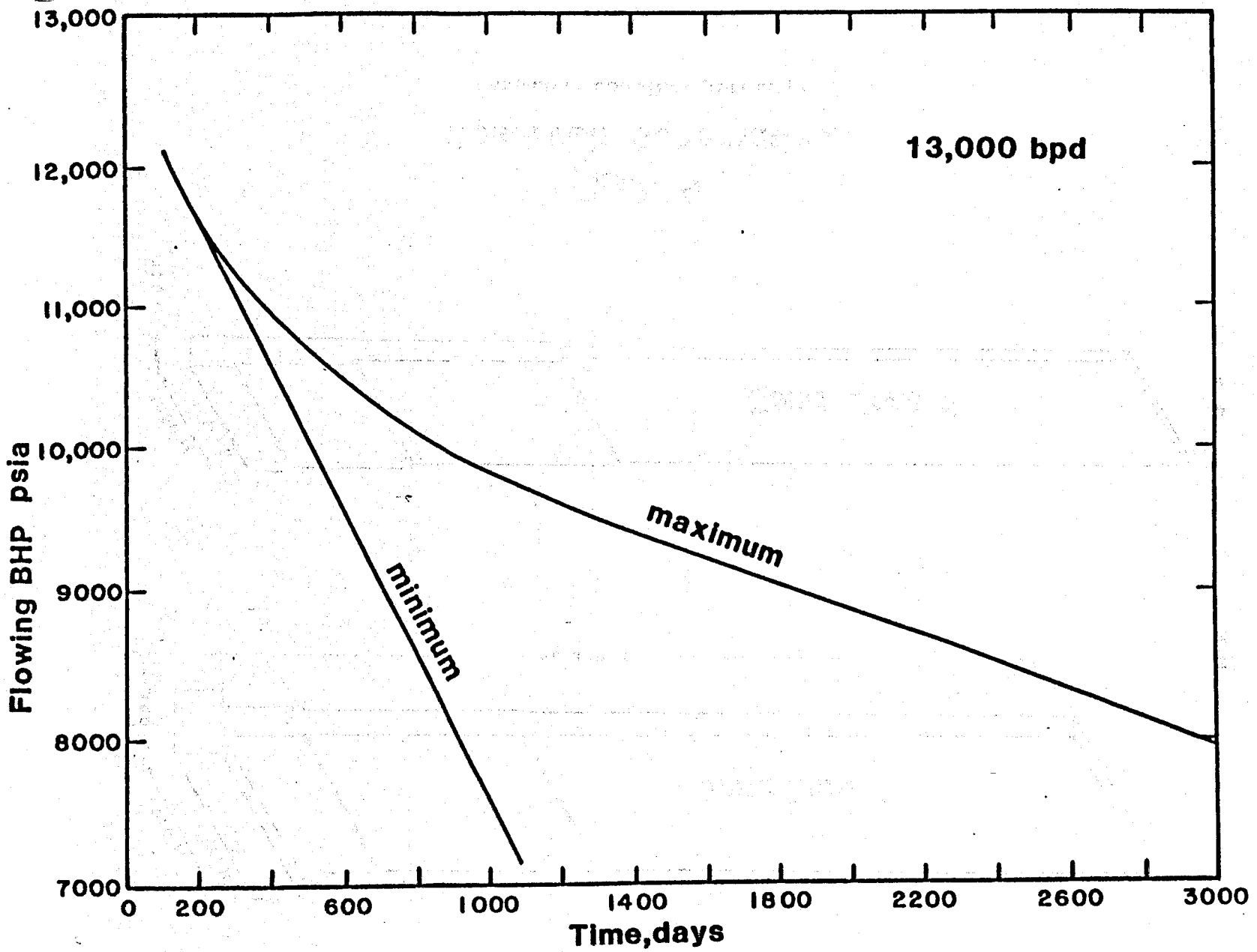
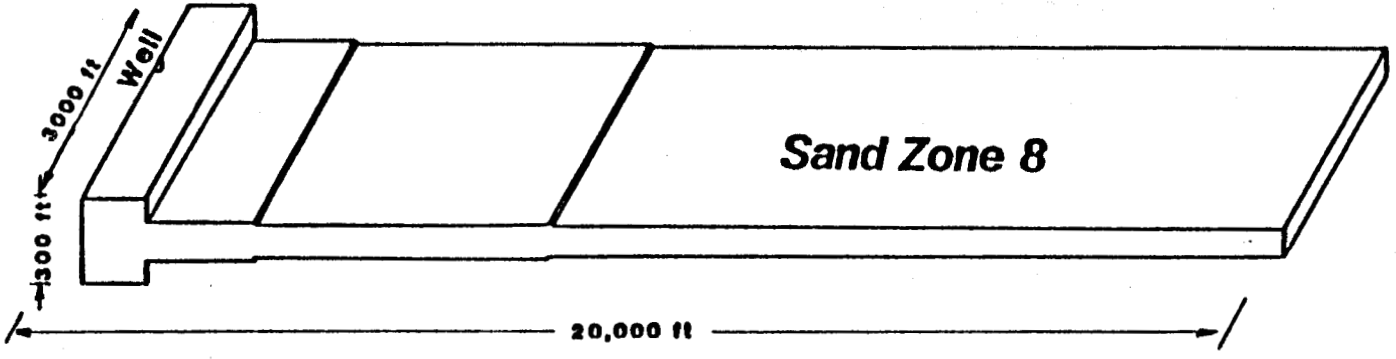


Figure 8

Sand Zone 8
Continued Drawdown



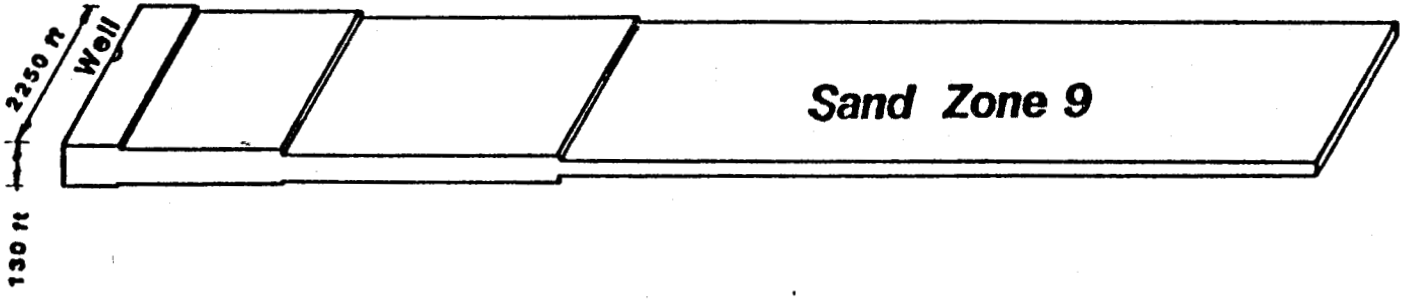


Figure 9
Reservoir Schematics
(Assumes constant porosity)

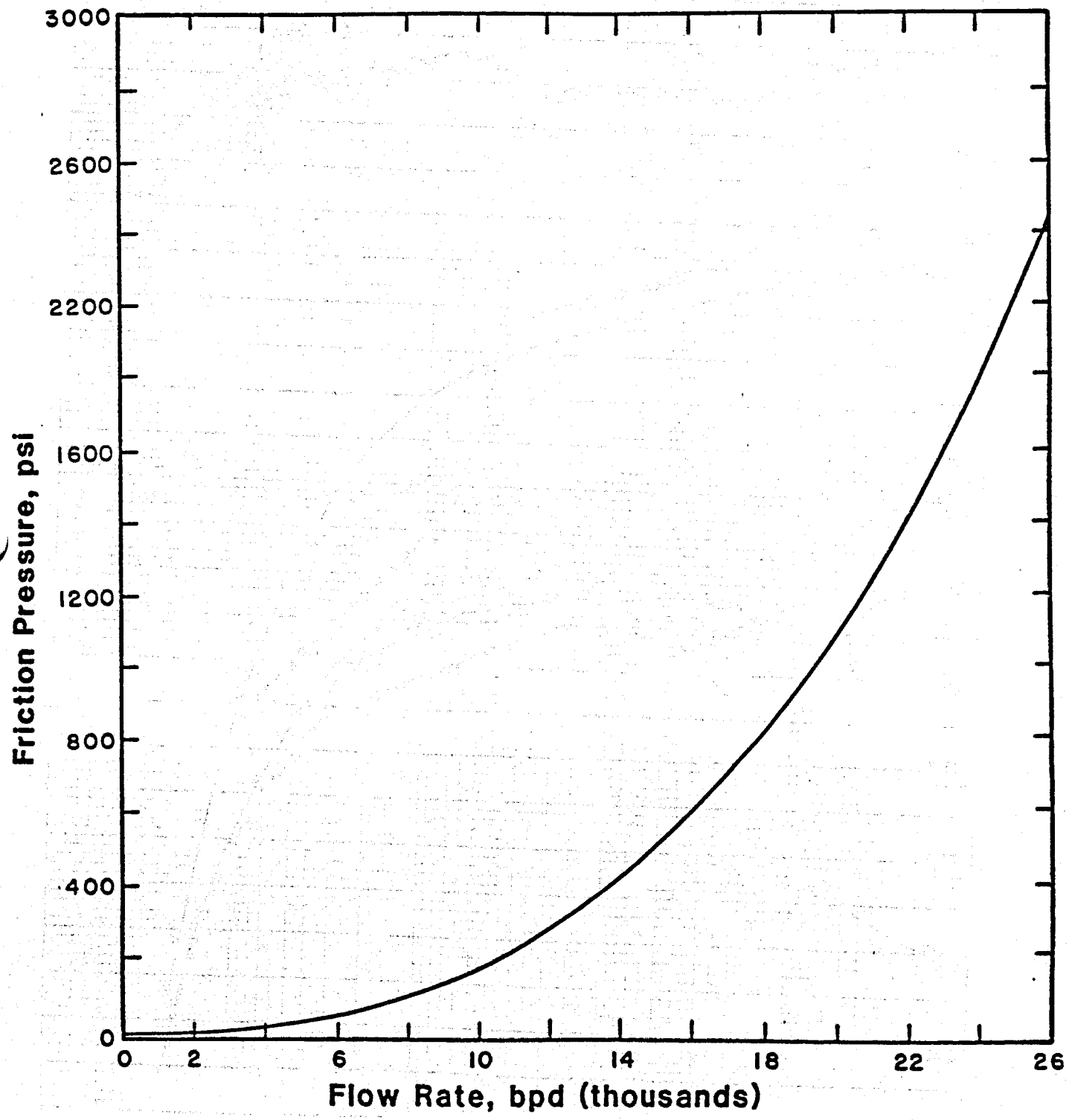


Figure 10

Friction Pressure

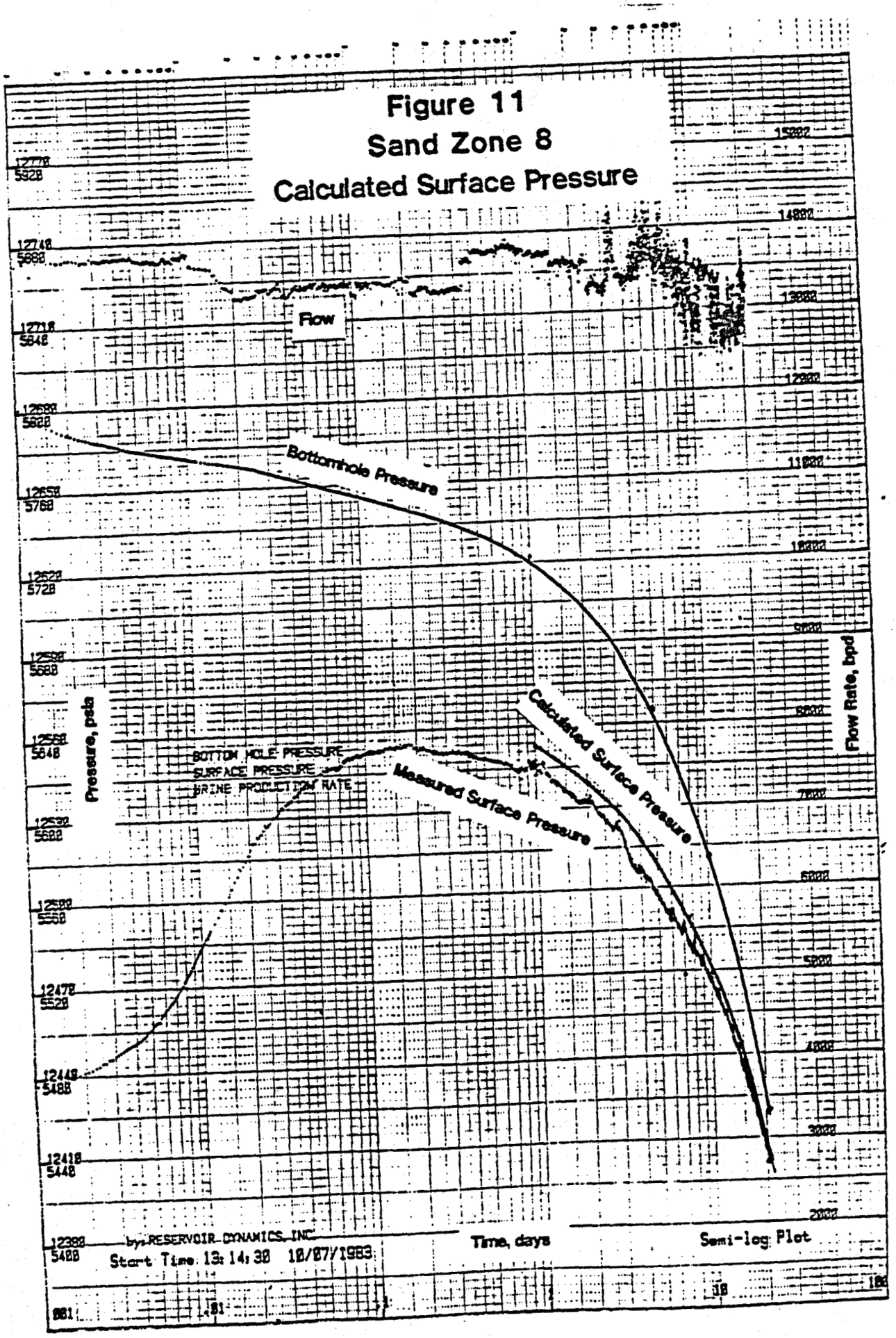


Figure 11
Sand Zone 8
Calculated Surface Pressure
Flow
Bottomhole Pressure
Calculated Surface Pressure
Measured Surface Pressure
BOTTOM HOLE PRESSURE
SURFACE PRESSURE
BRINE PRODUCTION RATE
Pressure, psia
Flow Rate, bpd
Time, days
Semi-log Plot
by RESERVOIR DYNAMICS, INC
Start Time 13:14:30 10/07/1983

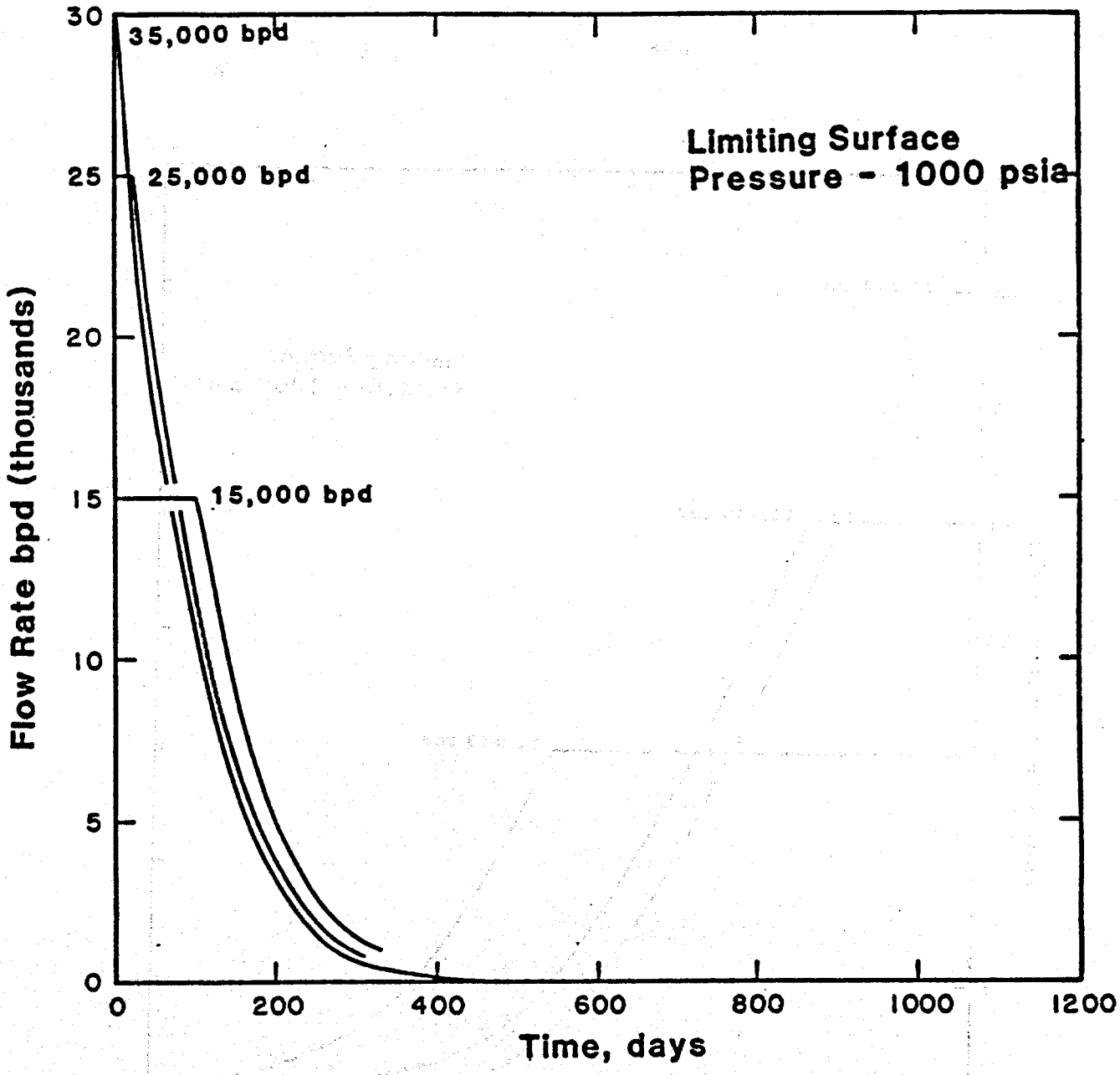


Figure 12
Sand Zone 9
Deliverability Projections

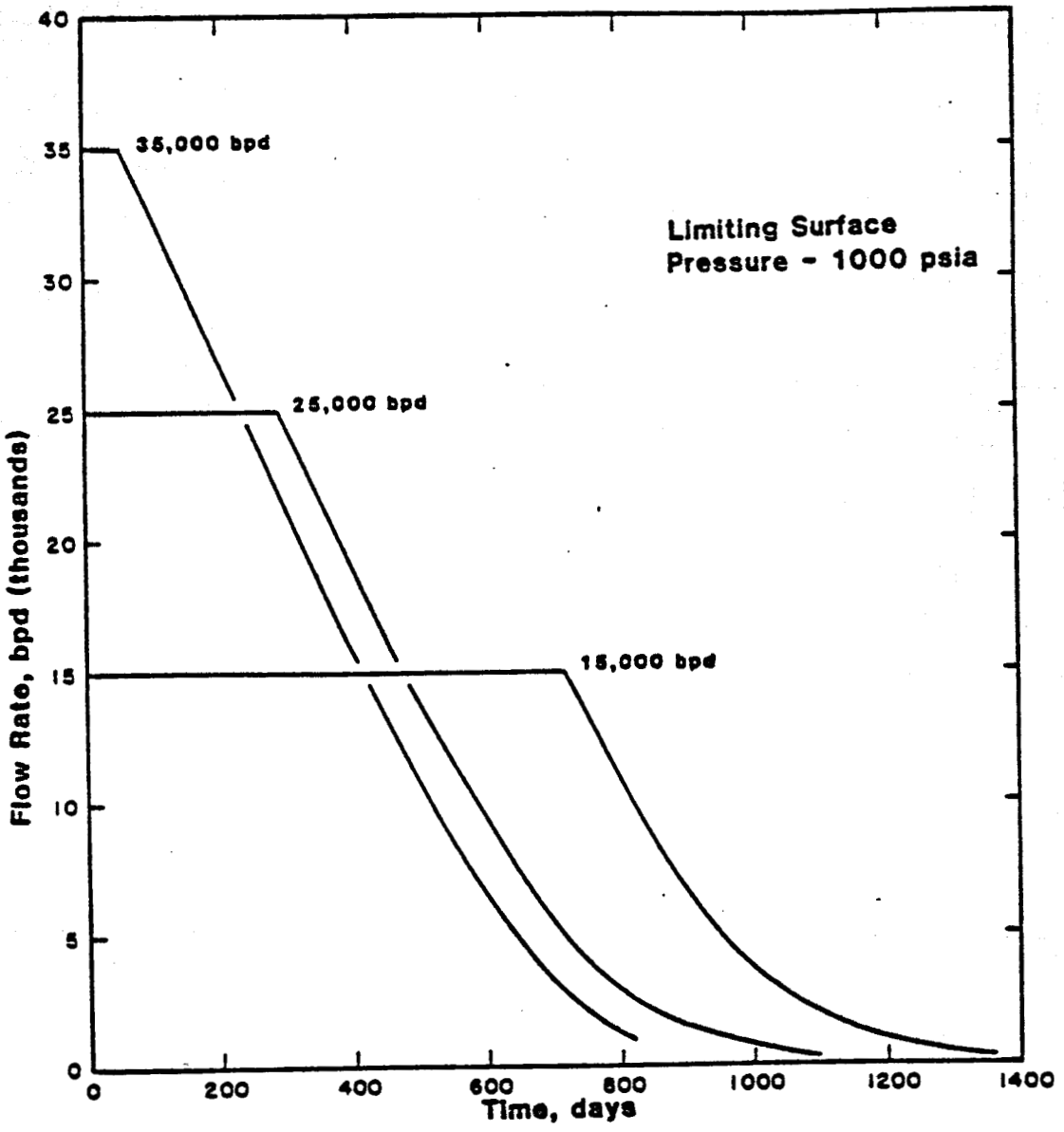


Figure 13
Sand Zone 8
Deliverability Projections

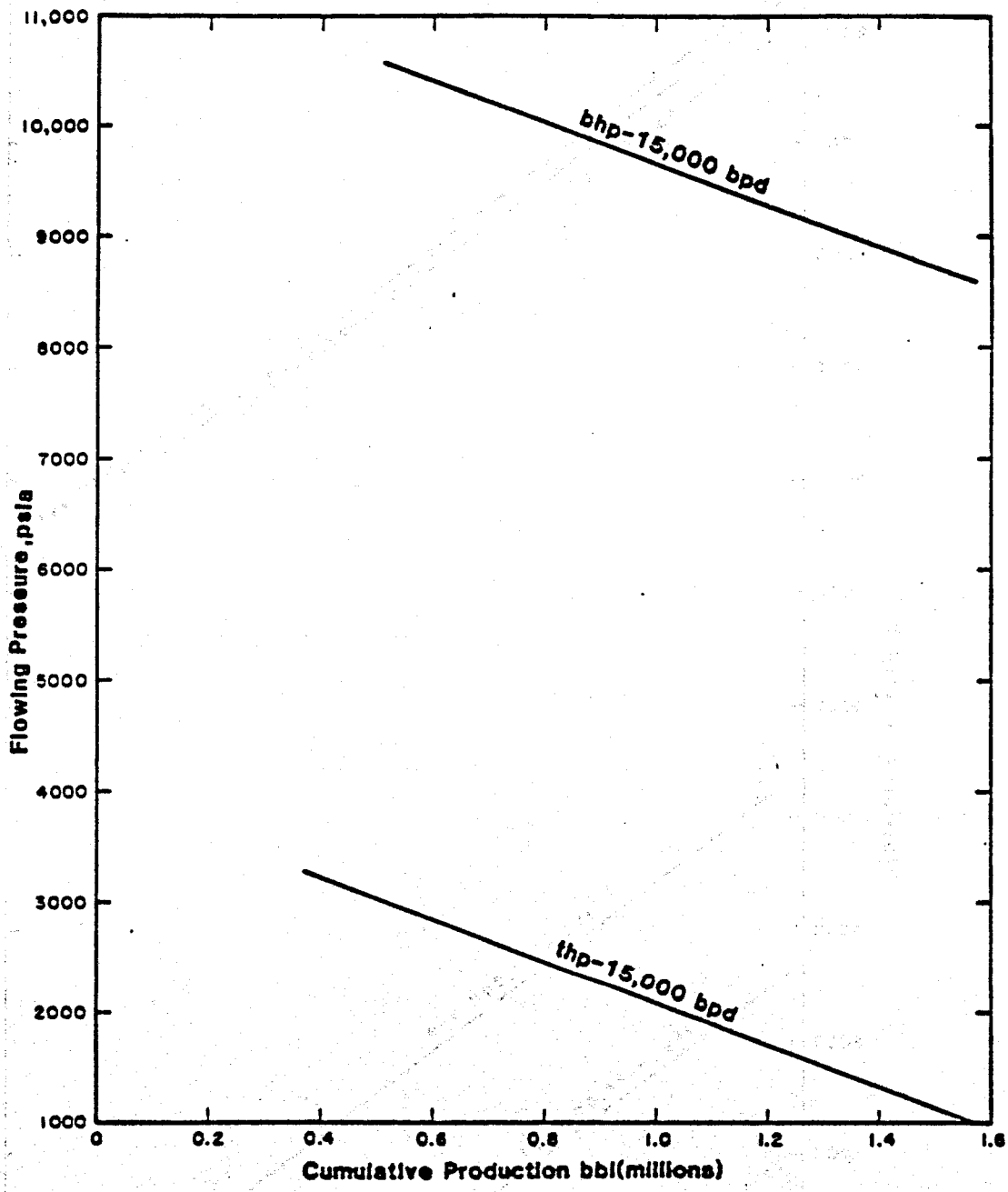


Figure 14
Sand Zone 9
Reservoir Performance

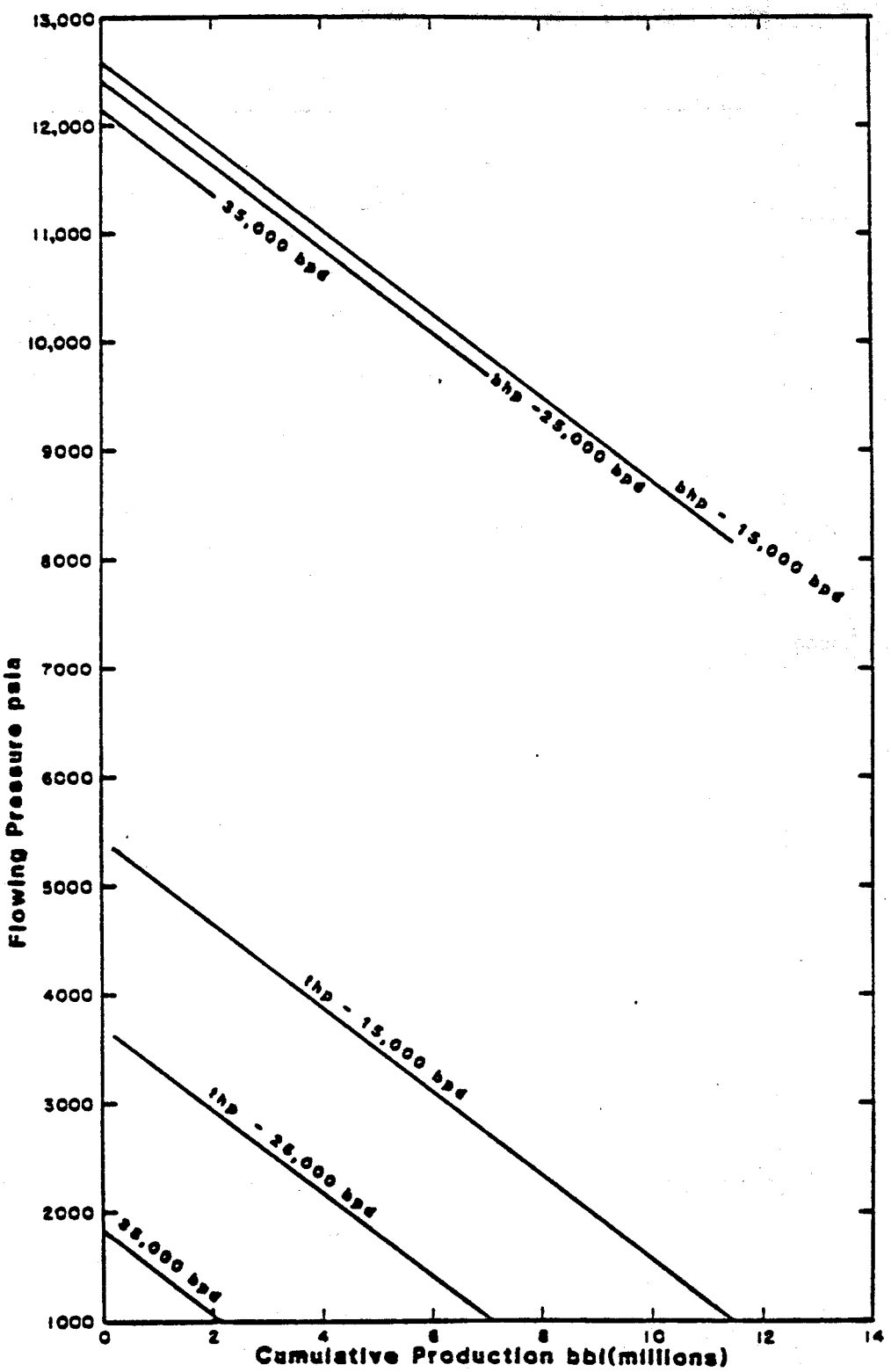


Figure 15
Sand Zone 8
Reservoir Performance

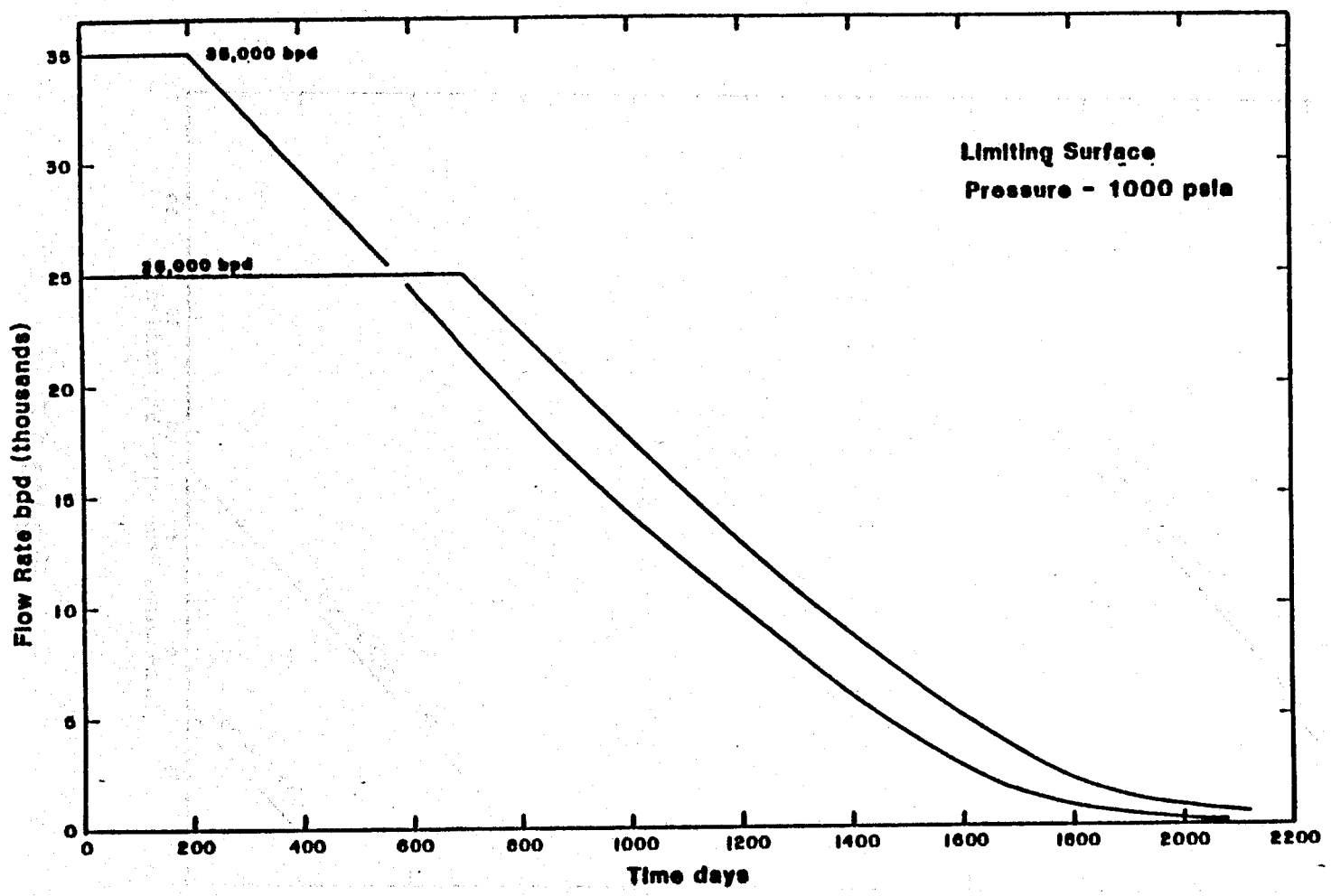


Figure 16
Sand Zones 1 - 8
Deliverability Projections

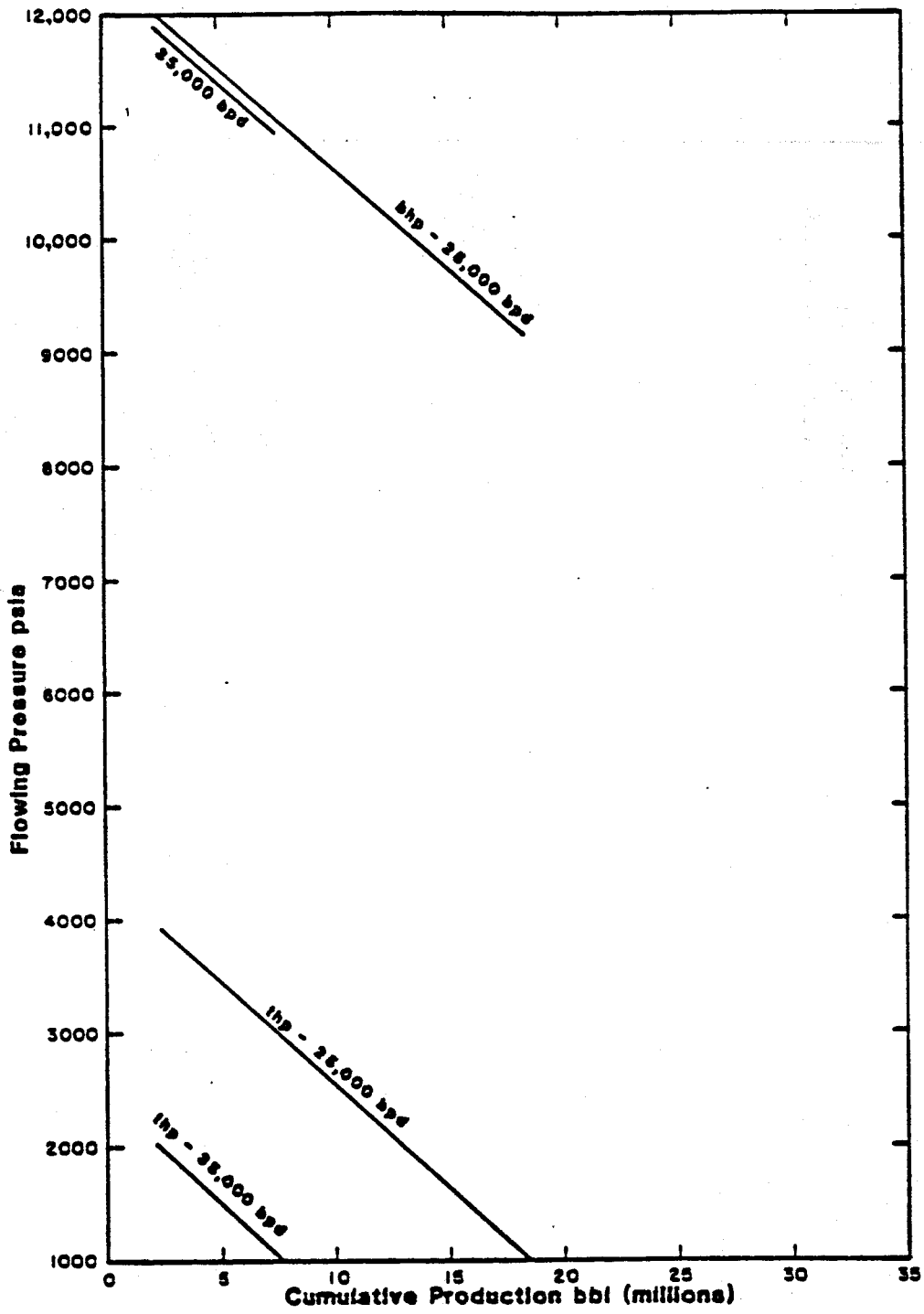


Figure 17

Sand Zones 1-8
Reservoir Performance

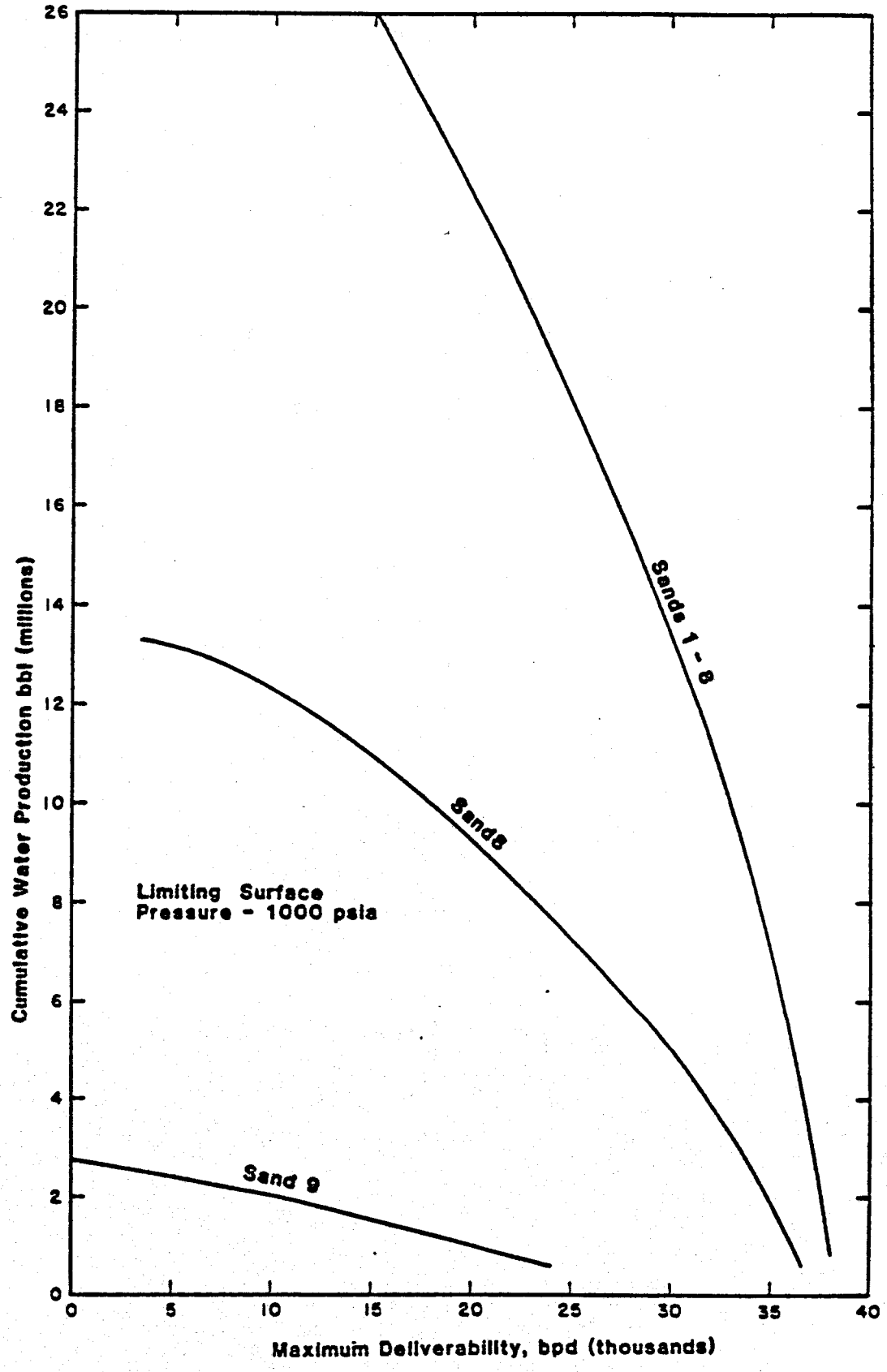


Figure 18
Reservoir Deliverability

(3) Dr. 1789-2

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