# Computer Inventorted

# JOHNSTON TESTERS, INC.

#### SURFACE INFORMATION

### TOOL, HOLE & MUD DATA

| Well Flowed  |  | Amount   |  | Type Test CONVENTIONAL   |  |  |  |
|--|--|--|--|--|--|--|--|
| GAS  |  | 998,000 GF/DAY   |  | Formation Tested CHESTER   |  |  |  |
|  |  | **************************************   |  | Elevation  | 2731.60  | rionateronappanamentonia   |  |
|  | The restriction of the Management Appellished the production regions   |  |  | _   All Depths Measured  | J From KELL  | Y BUSHING.   |  |
|  | MANAGER THE SECRETARY SECRETARY SECRETARY SECRETARY  | M segmente de de reconstruction de de la construction de de la construction de la constru | and depending the propagation and the resource and another the first project described   | TO   | OL SEQUENCE  | er various consistençais recommendament de desirio de ser de la consistencia de la consis |  |
|  | etti airkolungus – Pen ettäväätäätäätäätäätäätäänen epyryöjätäväväysestäätäätää kei en dessauli  | Process and the second  | e wid großegen) genomente des Stades august genomente d'autre de la palla d'app  | Tool   | Size/Type  | Depth/Length/  |  |
| Reversed Out   |  | **************************************   | innippionaryanatusatepennessyoniamatajautatususaysyo   | DRILL PIPE   | HZO FH   | 5546, 3.8  |  |
|  |  | Amount   |  | DRILL COLLARS  | 4년· H-90   | 180 1 211  |  |
| NO   |  | Materials according to the contract of the con |  | DOUBLE PIN SUB   |  |  |  |
| A protection of the desiration of the second |  | And department of the State of  |  | CIRCULATING SU   |  |  |  |
|  |  | The property of the second   | energia de la composición del composición de la  | 4-STAGE SHUT-I   | N 35"  |  |  |
|  |  |  |  | HYDRAULIC TOOL   | 3½"shuт-   | LN   |  |
| Recovered  | [  | A 20   | en e i en d  | JAR  | 35" HS-1   |  |  |
| GAS OUT DRILLING MUD   |  | Amount<br>51   |  | PACKER-BOB TAI   |  | 5760°  |  |
| GAS GOT DRILLING MOD   |  | Face god   | , <u>a</u>   | PERF. ANGHOR   | 32"HVY.  | 30 * 21 **   |  |
| No. of the state o | the first common and a set of the contract of  | Enterprise to the desired a property recognism of a sumprise summary of  |  | RECORDER CARRI   | ER 4 7/8" T  | 6*   |  |
|  |  | May the Control of Marine Control of the Control of |  | RECORDER GARRI   | ER 4 7/8" L  | 14.6   |  |
| Assessment to the state of the  | The second section of the section of  |  |  |  |  |  |  |
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|  |  | Annual and a second sec | an and the sales of the production and the parties of the sales of the |  |  |  |  |
| A proposition of the contract  | Эн МАТРИ Которо тайраарыны органда бөөөрөөгө үр Материал онгу органда  | entrensionarise; seprensionaris (proprio de la compansionario de la compansionario de la compansionario de la c  | Каралияның көптектерінен каралында каралында жалында жалында жалында жалында жалында жалында жалында жалында ж   |  | profession of the design of the second contract of the second contra |  |  |
| Blow VERY STRONG.  | descriptions and advantages are an incident or burning solven grands are man   |  | Salaran and the salaran and th |  | NO STATE OF THE PROPERTY OF TH |  |  |
| Security (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)   | Art Workform process recommended and an artist of the basic contents proceedings are as  |  |  |  |  |  |  |
|  | and the same of th | And the property of the second | ages per adoption to the contract and the first between the contract and t |  |  |  |  |
|  | 20#  | inningrational-amenican reconstraints to the properties of the pro | Analogues on security of character south Traces  | NECOSO NO SERVICIO DE LA PROPRIATA DE LA PROPR | e-service and service experience of the service of  | MANUA MANANAMENTALISMAN AND AND AND AND AND AND AND AND AND A  |  |
| Maximum Surface Pressure   | 1 40 ff  |  | The state of the s | **************************************   |  |  |  |
| Description (Rate of Flow)   | Time   | Pressure<br>(P.S.I.G.)   | Surface<br>Choke   |  |  |  |  |
| Opened Tool  | 2:13 AM  | COCO   | 1 88   | Work for All Control   | And had no more recommendation and an annual section of the property of the pr |  |  |
| CLOSED FOR INITIAL SHUT-IN   | 2:15 AM  | CHILD.   | 88   | The state of the s | Angly Claims in Angle of Mark to Assess the Company of the Company |  |  |
| GAS TO SURFACE   | 2:20 AM  | 0  | 68   |  | mandag-1/bak (arinaa 100 kilo-2-dii 990/da) badaada aasaaana ahaaya ta'a, arinagaya  | PAR STORM TO A STORM TO  |  |
| RESOPENED TOOL   | 2:45 AM  | GASE   | 66   |  |  | The second secon |  |
| 998 MCF GAS/DAY  | 3:00 AM  | 20   | 88   |  |  |  |  |
| 943 MCF GAS/DAY  | 3:15 AM  |  | 89   | The second of the second or the second contract of the second or the sec |  |  |  |
| 887 MCF GAS/DAY  | 3:30 AM  | OKO  | 88   | and the second state of th | ATOMOTERATE AND  |  |  |
| 824 MCF GAS/DAY  | 3:45 AM  |  | 68   | Total Depth  | l company and a second control of the second | 5800 Ft.   |  |
| 734 MCF GAS/DAY  | 4:00 AM  | #900   | 99   | Main Hole Size 7   | 7/8 <sup>99</sup> Rat Hole   | Size   |  |
| 734 MCF GAS/DAY  | 4:15 AM  | Que  | 99   |  |  |  |  |
| CLOSED TOOL  | 4:15 AM  | ***************************************  | 89   | Casing Size<br>Bottom Choke Size_  | 3/4" Mud 7   | ype CHEM.  |  |
|  |  | and the same of th | 41, 1  | .   Mud. Wt  | 2. L Mud Visco   | sity60   |  |
| можения при  | этуу меранулган авинул бүйн болгол малардындай тараалурган ка жагынах  | CONTRACTOR  | COLUMN CONTRACTOR CONT | Air Chamber Length   | 1000 April Ft  | an   |  |
| Remarks:   | and the second s |  |  | Cushion Type   | A para in a set to   | Pressure   |  |
|  |  | and the state of t | ely e producero conference qui conference que conference de la compansión de la compansión de la compansión de   | - Usasiion type  | N-2511/1/0311/   | ressure  |  |
|  |  | de de sente anno esta esta esta esta esta esta esta esta   | The state of the s | 7007 7503<br>************************************  | # 400mb langth digital defeates include his philadelphia (historial defeates reference representatives of the control of the c | ner er en en er er en er en  |  |
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|  | and the second s | for the communication of the agreement that the description of the contract of |  | - Initial Shut-in  |  |  |  |
|  |  |  |  | Flow Period  |  |  |  |
|  |  |  | ***************************************  | Final Shut-in  | Hrs  | 30Mins.  |  |
|  | THE COLUMN TWO IS A SECURE OF THE COLUMN TO  |  | жүнүнүн карыматын карып карына карып түрүү карып к<br>Карып карып кар  | 01559 — Венектовая контиченто объемонняю населенняю населенняю составленняю объемонняю составлению населению о<br>В точето на контической поставлению населению населению населению почет почет в почет ставлению и населению на   |  | en e   |  |
| Company CABOT CORPORATION  | BOX  | 101; PAMP.   | A, TEXAS   |  | Date   | 9-3-61   |  |
| Vell HANDY #1  |  |  | IN S. KIS  |  |  | 330-21W  |  |

Test Interval 5760° to 5800° Formation Test # 2 Casing Test # - -

County SEWARD State KANSAS Test Ticket # 62913 L

Tester R. W. RINE Test Approved By MR. J. C. ROSS No. DST Reports Requested 12-xxxx

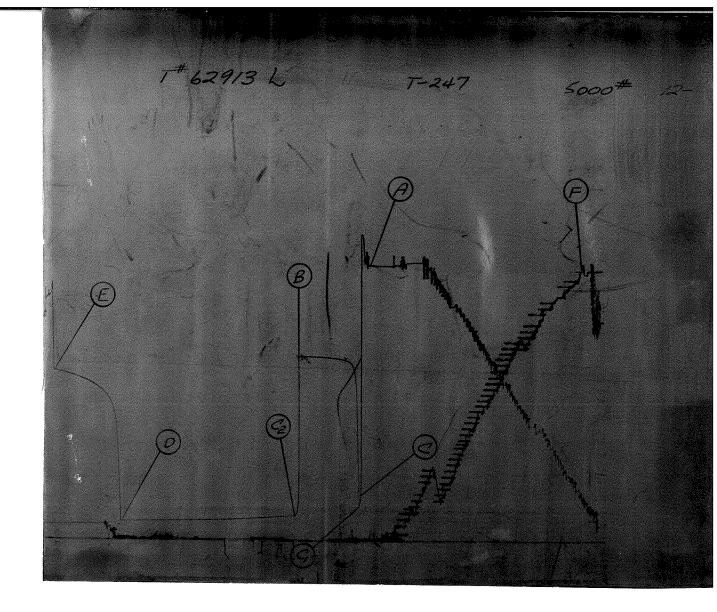
## JOHNSTON TESTERS, INC.

Pressure Data

Test Ticket No. 62913 L

|  | -post-o-do-   |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|
| Recorder No.   | T-247   | The state of the s | geological sport publication of the Control of the  | de la prime la prese de la prime de la Colonia de Prime de la prime del la prime del la prime del la prime de la prime de la prime de la prime del la prim |  |  |  |  |
| Capacity (P.S.I.G.)  | 5000  | The second section of the content of | engalikang ayan it kahan panak ayang mahanina ang an Mahaning and and and an ang an ang an ang an ang an ang a<br>Ang ang ang ang ang ang ang ang ang ang a  | ару укуртун — помого и буулу убираниям и мануно пур равны може и може је и гула им. ју гууну ју дора уу, т г   | and a tree of any displaying period of the responsible of the second relationship to the second relati |  |  |  |
| Recorder Depth   | 57951   |  | is the state of th | er felse fortunen berde von die 19jaar 1950 van der Material der 1960 van der der Steinberg (die bestehe der S   |  |  |  |  |
| Pressure Gradient P.S.I./Ft.   | ромон (1-) на било робот на то подов пот довето, на постоя замот на настроине ромо (рокульто в 16), на на посто, то ме  |  | о на при на при водина и поделна и поделна на при на пр  |  |  |  |  |  |
| Well Temperature °F.   | 130   | The state of the s | and the second section of the second section of the second section of the second section is the second section of the section  | Josephine regione Alimento in mineral contrata del forte quant francesca e Alimento destinación del servolus se Alimento se esta del consecuención del servolus se Alimento se esta del servolus se Alimento del servolus se Alimento del servolus se esta del se esta del servolus se est | MATERIA SECTION SECTION OF A CONTROL OF THE SECTION |  |  |  |
| A Initial Hydrostatic Mud<br>B Initial Shut-in   | 2829<br>*1888   |  |  |  |  |  |  |  |
| C Initial Flow   | 458   | о дом на примера на применения на применени  |  |  | 1985 (17.0 p.) T Pilatrik Mitaliani alpuna arawa, ki inanana kakumanya pipipipaninga araya, daga arawa katamana  |  |  |  |
| D Final Flow   | 180   | от ответствення и от постоя пост приходя отверством (породостирования и в весь выпорадору доругородо   | efective frame, and any enterest as in him family design and with the second proper should be depended and deploy who can be be a design and a second and design and the second and design an | основания в наменя во в тимо по приняти в в приняти до в под приняти по под сторить по на да приняту в надавления в надавл | ан ай-ма ад-19 од не полочи од 11-4 оста од 100 ост голого од 100 оста од 100 оста оста оста оста оста оста ост  |  |  |  |
| E Final Shut-in  | *1730   | the contract and a second and contract of the  |  | мания над наконя поля боле в водени одна одна на над населения на  | A P P  |  |  |  |
| F Final Hydrostatic Mud  | 2792  |  |  |  |  |  |  |  |
| Remarks: C∞1 3444  |   |  |  |  |  |  |  |  |
| C-2 241  |   |  |  |  |  |  |  |  |
|  |   |  |  |  |  |  |  |  |
|  |   |  |  |  |  |  |  |  |
| DISTRIBUTION FOR ALL TESTS RUN ON THIS WELL LISTED UNDERNEATH CHART:   |   |  |  |  |  |  |  |  |
|  |   |  |  |  |  |  |  |  |
|  | a ninakjeri'', hin, aki, distronis suskir stragor k kolinina ka ni je s terit samin ka manakir na goranopor, 4. asri qu   |  | annings som ett finnster for tregtere til plemen staten som linge linger i staten state søkke se det velske  | ti sidi 15 til 160 dels i 160 seensilla sidi haadiyiriin faadishaa dahaay daa sidi sisi sisi aa aadaa da dabaysa a   |  |  |  |  |
|  | очения менеральную (учубы в мужения менеральных выпользования и в выбластивный на ответствующего учений в населения учений в мужений в населений в мужений в населений в мужений в населений в населе |  |  |  | Annide Constant of the Constan |  |  |  |
|  | and and some state for a security of the company dependence of paragraphs that constant according to a company  | managas anadadnis danish (m. 1.011. N. 1.01. m.   | ody character, and reference with a settle representation and an addition and of remaind a construction and employed   |  |  |  |  |  |
| *Shut in pressure did not reach static reservoir pressure.   |   |  |  |  |  |  |  |  |
| Analysis and contractions depolicy on the contraction of a first security of the contraction of the contract |   | неводильно морто проделения по большо денности и построи на дострои построи и построи по построи и построи на<br>Построи по пответствия по построи  |  |  |  |  |  |  |

- 4: CABOT CORP.
  BOX | 10|
  PAMPA, TEXAS
- 2: GULF OIL CORP.
  316 UNION CENTER BLOG.
  WICHITA, KANSAS
  ATTN: MR. K. W. BUMGARNER
- 2: THE ATLANTIC REFINING Co.
  Box 9048
  AMARILLO, TEXAS
  ATTN: MR. E. C HARPSTRITE
- 2: GULF OIL CORP.
  600 BRANIFF BLDG.
  OKLAHOMA CITY 2, OKLA.
- 2: THE ATLANTIC REFINING CO. 2915 CLASSEN BLVD. OKLAHOMA CITY I, OKLAHOMA ATTN: Mr. B. J. SMITH



# JOHNSTON TESTERS, INC.

# Pressure Breakdown Data

|  |   |  | Press  | iure Brec         | ıkdown Data  |  |   |  |  |
|--|---|--|--|-------------------|--|--|---|--|--|
| Date   | 9-3-61  | - NORMAN BARNING NEW YORK OF THE STANK OF TH       |  | ÷                 |  | Test Tic   | cket                                    | No. 629  | 13 L   |
| Recorder N                                       | 10. 7. 247  | ы адаб катыр Байдагы түтүндө жазы тергашынун кетиги жасышка такылык катырын калып жа   | Capacity   | 5000              | )#   | Recorder   | . Dep                                   | oth579   | 5 *  |
| Clock No.  | 2062  | Clock  | k travel   | 0.02076           | inches pe  |  |   |  |  |
| / Point  |   |  | Pre  | essure            |  |  |   | ime Given  |  |
| A Initial  | Hydrostatic N   | Inq  | 28   | 329               | Registro en la such la comprenenta en la registra de la comprenenta del comprenenta del comprenenta de la comprenenta de la comprenenta del comprenent |  | Consultrojani                           | Processor and the second secon |  |
| B Initial :                                      | Shut-in   |  |  | 888               | Opened Tool  | R  | · marine a marquarda                    | 2:13 A . 1   | ۸.   |
|  |   |  | and the control of th | 158<br>80         | Initial Shut-in  | E  |   | <u>30</u> Min  | s. $\frac{31}{99}$ Mins  |
|  |   |  | e reconstruire de la companya de la<br>Propositione de la companya de la c   | 730               | Flow   | 5  | *************************************** | 92 Min   | s. <u>88</u> Mins<br>s. 33 Mins  |
| ł  |   | ud   | Orania ropina con contrata de la contrata del contrata del contrata de la contrata del la contrata de la contrata del la contrata de la contr | 92                | Final Shut-in  |  | ranana meripakang                       | <u>30</u> Min  | s33Mins  |
|  |   |  |  | PRESSURE II       | NCREMENTS  |  |   |  |  |
| Филиповичания подпроводствення не насис          | TIAL SHUT   |  | nganekun ngangan manahalan si kanananan angan angan kalaman  | LOW PER           | resolvent and the contract of  | ataunakan ka makaka sistema karangan karangan karangan karangan karangan karangan karangan karangan karangan k   | uponean meneral percen                  | IAL SHUT-II  | KODO, WINDLES CALLO CALLO CALLO CONTRACA   |
| Breakdown: 10increments<br>of_3mins. and a final |   | Breakdown: 17 increments of 5 mins, and a final  |  |                   | Breakdown:Lincrements of3mins. and a final   |  |   |  |  |
|  | crement of  | L mins.  | in in  | crement of.       | <u> 3</u> mins.  |  | inc                                     | rement of  | mins.  |
| Point<br>Minutes                                 | Pressure  | <u>T + \( \Delta t \) \</u> | Point<br>Minutes   | Pressure          | <u> </u>   | Point<br>Minut   |   | Pressure   | <u> </u>   |
| <u>c-10</u>                                      | 344   |  | c 0  | 458               |  | D  | 0                                       | 180  |  |
| 3  | 1753  |  | <u>                                    </u>  | 344               | Charles for the field with the transmitted between the advance of the contract | Marine Ma | 31                                      | 1251   | akkainak di makamba ja hali ay kabunatti aka kan basa sing aping a ay ay ay masa sinasanya ay ay   |
| 9  | 1838<br>1857  |  | G-2  | 241               |  | hand and the second sec | 6                                       | 1438<br>1513   |  |
| 12   | 1867  | меняння пересона меняння две приреднерую порторя фрадация для инфигительного и исполнения поточность по  | 5  | 236               | era and est a large and established the control of  | 4  | 9                                       | 1563   |  |
| 15   | 1873  | markanannan maragan ajaray kapan (1964) dibi dibi dibi dibi dibi dibi da ana kalimanan arawan sa sa sa sa sa s   | 10   | 229               |  |  | 5                                       | 1602   |  |
| 18   | 1877  | The state of the s       | 15   | 218               | ero anticomortina ero espera per un proportina a al especia de propos a desenva da especia de la composição de establica de especia  |  | 8                                       | 1633   | this collection of Athendelic and Athendelic consists of the angle of the commence of the action of the angle of the action of t |
| 21   | 1880  |  | 20   | 211               | Annual Institution of the Control of Control |  | 31                                      | 1658   |  |
| 24   | 1883  |  | 25   | 206               | THE FIRST CONTROL TO A STREET CONTROL TO A STR |  | 24                                      | 1679   |  |
| 27   | 1886  |  | 30   | 201               |  |  | 27                                      | 1695   | en ervije remonste groot make provincija suranis unidakliki inkour oranjaka aktus suurija groot suranis surani   |
| 30   | 1887<br>1888  |  | 35   | 198               | and the first state of the first state of the state of th |  | 30                                      | 1713   |  |
| в 31   | 1000  |  | 40 45  | 195               |  | LE S   | 33                                      | 1730   |  |
|  |   |  | 50   | 193               |  |  |   |  |  |
|  |   |  | 55   | <u>190</u><br>189 |  |  |   |  |  |
|  |   |  | 60   | 187               |  |  | $\dashv$                                |  |  |
|  |   |  | 65   | 186               |  |  | 1                                       |  |  |
|  |   |  | 70   | 184               |  |  |   |  |  |
|  |   |  | 75   | 1 <u>8</u> 3      |  |  |   |  |  |
| 1  | atinas kankan kanan kanan kakan 18. ka kilo kalah dalah di kanki kali kilo 1864 kan kan di kilo kan da kan da k |  | _  80  | 181               | t en   |  | _                                       |  |  |
|  |   |  | 85   | 180               |  |  |   | . A. i.  |  |

### GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

A. Initial Hyd. Mud B. Initial shut-in C. Initial flow D. Final Flow E. Final shut-in F. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings, (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures

B-1, B-2, B-3, etc. The Initial Shut-in Pressures

C-1, C-2, C-3, etc. Flowing Pressures

D-1, D-2, D-3, etc. The Final Flow Pressures

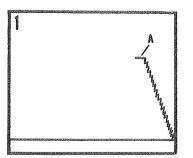
or Final Shut-in Pressures

E-1, E-2, E-3, etc. The Final Shut-in Pressures

F-1, F-2, F-3, etc. Final Hyd. Mud Pressures

Z - Special pressure points such as pumping

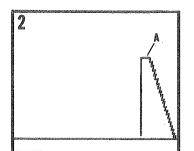
pressure recorded for formation breakdown.



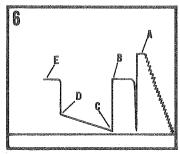
The pressure chart records the buildup in hydrostatic pressure as the testing assembly is lowered into the hole. Upon reaching the testing depth the hydrostatic head or pressure of mud column is recorded.



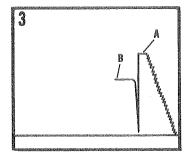
The pressure of fluid flowing from the formation into the well bore, through the perforated anchor, and into the drill pipe, is recorded on the chart.



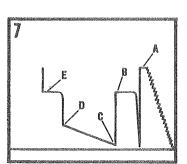
The packer is expanded and set to isolate the test zone. When the test valve is opened, a pressure drop is indicated on the pressure chart. This pressure drop is caused by removal of the hydrostatic mud pressure from the formation, allowing the formation to produce.



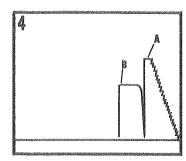
The final shut-in pressure is taken by stopping the flow of formation fluid into the drill pipe. Note the characteristic build-up curve. The well bore pressure is approaching equilibrium with the static reservoir pressure. When the shut-in curve levels-off the static reservoir pressure has been reached.



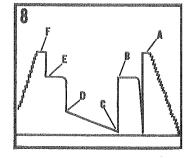
This chart shows the initial shut-in pressure. The methods by which this pressure can be taken allow only a minimum of formation fluid to be produced. This initial shut-in pressure is the best method yet devised for recording the original, undisturbed reservoir pressure of a formation.



The chart shows the equalizing; the bypass ports have been opened permitting the drilling fluid to flow through the packer to the test zone. Thus, pressure is equalized above and below the packer. The equalization of the pressure facilitates easier removal of the packer from the packer seat.

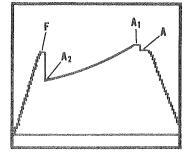


The chart indicates a pressure drop, The test tool has been opened to the surface either by breaking a disc, rotating a shut-in tool open or by reopening the main testing valve to permit the formation to produce.



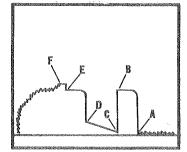
The packer has been unseated. The testing assembly is being removed from the hole.

#### BELOW STRADDLE



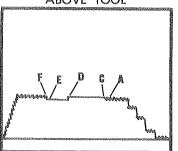
The above is a typical illustration of a chart from a recorder that is run below the bottom packer on a straddle test. Only the hydrostatic mud pressures are recorded. When the tool is opened, there is a pressure differential across the bottom packer. This differential is lessened by the rubber flow of the packer element, which in turn causes a draw-down in pressure. If the below straddle chart reads the same causes a craw-down in pressure. It the below straddle chart reads the same as a chart that is run to record pres-sures of the test zone, then the bottom packer has failed. If this occurs, all zones below the top packer are being tested.

#### AIR CHAMBER



In this case a recorder has been run in an air chamber. The hydrostatic mud pressures are not influencing the recorder while going in or coming out of the hole due to the main tester valve being closed. The flow pressures and shut-in pressures are recorded while the main tester valve is opened.

#### ABOVE TOOL



in this case a recorder has been run above the main tester valve with a fluid cushion used in the drill pipe. No pressure is recorded as the testing tool is being lowered into the hole. Then the fluid cushion pressure is recorded as the drill pipe is filled with fluid. As more stands are run into the hole, the recorder registers the hydrostatic pressures of the cushion. When the main testing valve is opened the pressure of the cushion column or the flowing pressure of the formation, (which ever is greater), is recorded.