

**PACIFIC GAS AND ELECTRIC COMPANY  
San Bruno Gas Transmission Line Incident  
Data Response**

PG&E Data Request No.:	NTSB_080-007		
PG&E File Name:	San Bruno GT Line Incident_DR_NTSB_080-007		
Request Date:	May 23, 2011	Requesting Party:	NTSB
Date Sent:	May 26, 2011	Requestor:	Operations (Chhatre/Shori)

**QUESTION 7**

Were the replacement pipe segments used for the replacement of the 12-foot section of .375-inch wall, and the approximately 40-foot section of 0.500-inch wall, pre-tested before being delivered to the job site? If yes, please provide copies of the pressure test documentation for both sections of pipe.

**ANSWER 7**

Yes. The pressure test for the 12-foot (.375-inch WT) fabricated section and the 40-foot (.500-inch WT) section was conducted in the Martin Service Center on November 3, 1988. Please see attached documentation.

**PG&E**  
**GAS OPERATIONS**  
**STRENGTH TEST PRESSURE REPORT**  
 (FOR PIPE FACILITIES OPERATIONS OVER 100 PSIG)

(USE IN ACCORDANCE WITH  
 GAS STD. A-34 AND GO

SHEET 1 OF 1

**PART I - DESIGN DATA - (TO BE PREPARED BY PROJECT ENGINEER OR GAS SYSTEM DESIGN DEPT.)**

DIST. MAIN OR LINE NO. <b>T.L. 132</b>	DIVISION <b>GOLDEN GATE REGION</b>	DISTRICT <b>PENINSULA</b>	G.M. NO. <b>GM 4701843</b>	DATE W.O. OR GM APPROVE
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DESCRIPTION OF JOB - INCLUDE REFERENCE DRAWING NUMBERS  
**REPLACE 1/2" SECTION OF 30" T.L. 132 DUE TO A LONGITUDINAL WELD DEFECT.**

LOCATION CLASS <b>3</b>	DESIGN FACTOR (F) <b>.5</b>	PRESENT MAOP OF FACILITIES (PSIG) <b>400</b>	MAOP TO BE ESTABLISHED BY THIS TEST <b>400PSIG</b>	DESIGN PRESSURE - THIS SECTION (FUTURE DESIGN PRESSURE) <b>400PSIG</b>
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SPECIAL PROTECTION REQUIRED WHERE COVER OVER PIPE IS LESS THAN SPECIFIED IN PAR. 192.327-G.O. 112 - SEE PAR. 141.2(B) GIVE M.P. & REF. DWG. NO. FOR EACH LOCATION.

STATIC HEAD DUE TO ELEVATION DIFFERENCE (WHERE APPLICABLE)	MAX. ELEVATION _____ FT. MIN. ELEVATION _____ FT. DIFF. _____ FT.	STATIC HEAD CALCULATION FOR WATER $0.433 \times \text{DIFF.} = \text{PSI}$ OTHER (SPECIFY) _____ X DIFF. _____
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PIPE SIZE		PIPE SPECIFICATION			% OF S.M.Y.S.			PRESS. TO GIVE 30% SMYS	FOOTAGE TO BE TESTED	VERIFY IN FIELD
O.D.	W.T.	APL. GR. ERW. DSAW. SEAMLESS	VERIFIED IN FIELD	AT DESIGN PRESS.	AT MIN. TEST PRESS.	AT MAX. TEST PRESS.				
30"	0.375"	API 5LX GRX-52 DSAW	N/D	30.8	<del>110</del> 90	<del>110</del> 95	1170	12'	N/A	
30"	0.500"	API 5LX GRX-60 DSAW	N/A	20.0	65	68.6	1300	40'	N/A	
<p style="text-align:center;">0.500" W.T. PIPE ADDED TO FACILITATE TEST - NOT INSTALLED IN GROUND - ONLY .375 WT. PIPE INSTALLED.</p>										
CHANGED PER GALE SW										

MINIMUM PRESSURE FOR TEST <b>1170</b> PSIG	TEST FLUID TO BE USED. <b>WATER</b>	MINIMUM TEST DURATION UNDER 30% SMYS (1 HR. MIN.) 30% SMYS & OVER (8 HR. MIN.) PREINSTALLATION TEST (SEE 192.505(B) GO 112)	<b>4 8</b> HR
MAXIMUM PERMISSIBLE TEST PRESSURE <b>1235</b> PSIG			

PREPARED BY **ROY MATTON** DATE **10-31-88** FOR INFORMATION OR CHANGES, CALL **626-7437** APPROVED BY: \_\_\_\_\_ DATE **10-31-88**

**PART II - TEST DATA - TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST.** NOTE: MINIMUM TEST PRESSURE AND DURATION ARE NOT TO BE CHANGED WITHOUT WRITTEN APPROVAL.

TIME AND DATE REACHED TEST PRESSURE <b>1353 HR - 11/3/88</b>	ELEVATION AT TEST POINT <b>N/A</b> FT.	INDICATED TEST PRESSURE (1) <b>1228</b> PSIG
TIME AND DATE TEST ENDED <b>1815 HR - 11/3/88</b>	MAX. ELEVATION IN TEST SECTION <b>N/A</b> FT.	TEST PRESSURE AT MAX. ELEVATION (2) <b>N/A</b> PSIG
ACTUAL DURATION OF TEST <b>4 HR - 22 MIN</b>	MIN. ELEVATION IN TEST SECTION <b>N/A</b> FT.	TEST PRESSURE AT MIN. ELEVATION (3) <b>N/A</b> PSIG

TEST FLUID USED **WATER** PIPE SPEC. VERIFIED (SEE PART I) \_\_\_\_\_ PIPE FOOTAGE VERIFIED (SEE PART I) \_\_\_\_\_

MAKE, RANGE & SERIAL NO. OF RECORDING GAUGE <b>MERCURY 0-2000 S/N 8603146</b>	DATE LAST CALIBRATION <b>10/17/85</b>	MAKE, RANGE & SERIAL NO. OF DEAD WEIGHT TESTER <b>CHANDLER 0-2000 S/N 6000</b>	DATE LAST CALIBRATION <b>10/1/85</b>
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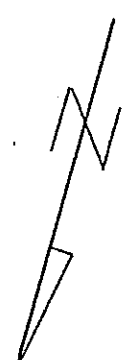
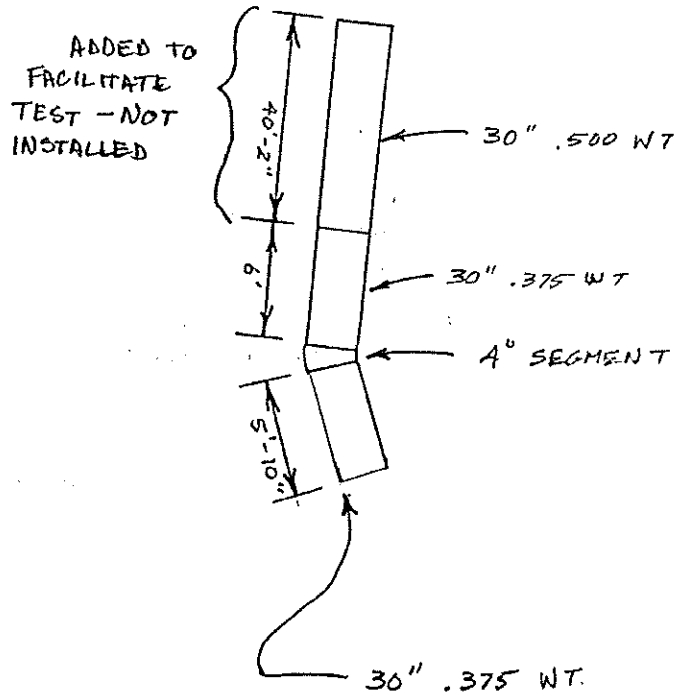
TEST SUPERVISED BY: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_ DATE: **11/4/88**

**PUT SCHEMATIC SKETCH ON BACK OF THIS SHEET:**  
 SHOW LOCATION OF FACILITY TESTED, MIN. & MAX. ELEVATION IN FEET, MILE POINTS, VALVE NUMBERS AND INCORPORATED AREAS. USE AN ADDITIONAL SHEET IF NECESSARY (SHOW REFERENCE NUMBERS ON FACE OF ALL DRAWINGS AND ATTACHMENTS). FOR STATION PIPING, FABRICATED UNITS AND SHORT SECTION OF PIPE, ALSO SHOW A DETAILED SKETCH OF EACH ASSEMBLY TESTED.

- DISTRIBUTION**
- DIST. GAS SUPT. JOB FILE
  - DIV. GAS SUPT.
  - GC GAS - ASSIGNED JOBS
  - GAS SYSTEM DESIGN (2)
  - PLANT ACCTG. (WITH FOREMAN'S COPY OF JOB)
  - PIPELINE HISTORY FILE
  - REPORT FAILURES UNDER TEST TO GAS SYSTEM DESIGN AND GAS DISTRIBUTION DEPT'S.

(1) LOWEST PRESSURE ON TEST GAUGE AT ANY TIME DURING TEST.  
 (2) SUBTRACT STATIC HEAD DUE TO ELEVATION DIFFERENCE (BETWEEN TEST PT AND MAX. ELEVATION) FROM INDICATED TEST PRESSURE.  
 (3) ADD STATIC HEAD DUE TO ELEVATION DIFFERENCE (BETWEEN TEST PT AND MIN. ELEVATION) TO INDICATED TEST PRESSURE.

11-3-88  
MARTIN SERVICE CENTER  
LOWER YARD - BRISBANE  
BUNKER HILL EMERGENCY REPAIR  
TL - 0132  
LOWEST PRESSURE - 1223  
NO ELEV. VARIATION



11-3-88

N. SCHWAB

BUNKER HIL 0132 EMERGENCY  
REPAIR

0-

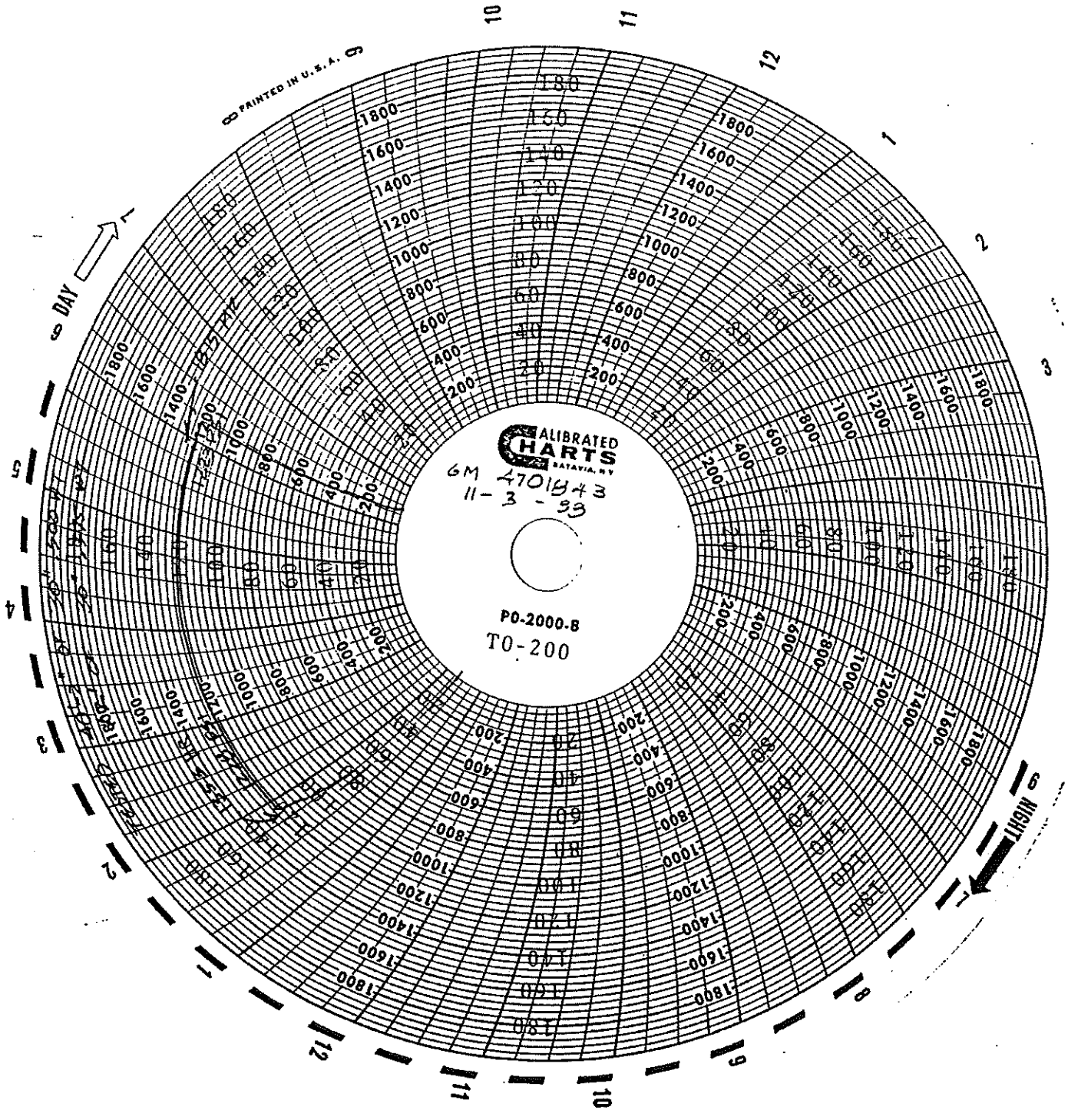
MIN - 1170 MAX - 1235

TIME	PRESSURE
0353 HRS 1:53 PM	1228
1400 HRS 2:00	1228
1415 HRS 2:15	1228
1430	1228
1450	1228
1534	1228
1559	1228
1633	1227
1704	1225
1732	1223
1800	1223
1815	1223

SUN WENT DOWN (TEMP. DROP)

REWATERED

PRINTED IN U.S.A.



CALIBRATED  
**HARTS**  
BATAVIA, N.Y.

6M 4701843  
11-3-33

PO-2000-8  
TO-200

STRENGTH TEST INFORMATION

1. JOB GM 4701843  
2. LOCATION MARTIN SERVICE CENTER; BRISBANE  
3. DATE 11-3-88 PRESSURE 1228-1223  
4. TIME 1353 HR - 1815 HR DURATION 4 HR - 22 MIN.  
5. LENGTH 40'-2" / 12' SIZE 30" / 30" W.T. .500 / .375  
6. PIPE SPEC. X60 DSAW P.T.W. 01-0501 / API 5LX GR. X-52 DSAW  
7. RECORDING GAUGE MERCURY SER. 8603148  
8. RANGE 0-2000 LAST CALIBRATED 10-17-88  
DEAD WGT. CHAUDLER 7000  
TEST FLUID WATER DATE 11-3-88  
SUPERVISED BY N. SCHWAB DATE 11-4-88  
APPROVED [REDACTED]

**PG&E**  
**GAS OPERATIONS**  
**STRENGTH TEST PRESSURE REPORT**  
 (FOR PIPE FACILITIES OPERATIONS OVER 100 PSIG)

REVISED  
3/13/89

(USE IN ACCORDANCE W/ GAS STD. A-34 AND GO 11.)

SHEET 1 OF 1

**PART I - DESIGN DATA - (TO BE PREPARED BY PROJECT ENGINEER OR GAS SYSTEM DESIGN DEPT.)**

DIST. MAIN OR LINE NO. <b>T.L. 132</b>	DIVISION <b>GOLDEN GATE REGION</b>	DISTRICT <b>PENINSULA</b>	G.M. NO. <b>GM 4701843</b>	DATE W.O. OR GM APPROVED
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DESCRIPTION OF JOB - INCLUDE REFERENCE DRAWING NUMBERS

**REPLACE 6' SECTION OF 30" T.L. 132 DUE TO A LONGITUDINAL WELD DEFECT.**

LOCATION CLASS <b>3</b>	DESIGN FACTOR (F) <b>.5</b>	PRESENT MAOP OF FACILITIES (PSIG) <b>400</b>	MAOP TO BE ESTABLISHED BY THIS TEST <b>400PSIG</b>	DESIGN PRESSURE - THIS SECTION (FUTURE DESIGN PRESSURE) <b>400PSIG</b>
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SPECIAL PROTECTION REQUIRED WHERE COVER OVER PIPE IS LESS THAN SPECIFIED IN PAR. 192.327 - G. O. 112 - SEE PAR. 141.2(B) GIVE M.P. & REF. DWG. NO. FOR EACH LOCATION.

STATIC HEAD DUE TO ELEVATION DIFFERENCE (WHERE APPLICABLE)	MAX. ELEVATION _____ FT. MIN. ELEVATION _____ FT. DIFF. _____ FT.	STATIC HEAD CALCULATION FOR WATER 0.433 X DIFF. = _____ PSIG	OTHER (SPECIFY) _____ X DIFF. _____
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PIPE SIZE		PIPE SPECIFICATION			% OF S.M.Y.S.			PRESS. TO GIVE 90% SMYS	FOOTAGE TO BE TESTED	VERIFIED IN FIELD	
O.D.	W.T.	APL. GR.	ERW.	DSAW.	SEAMLESS	AT DESIGN PRESS.	AT MIN. TEST PRESS.				AT MAX. TEST PRESS.
30"	0.375"	API 5LX	GRX	52	DSAW	30.8	<del>1170</del>	<del>1170</del>	1170	12'	<del>NO</del>
30"	0.500"	API 5LX	GRX	60	DSAW	20.0	65	68.6	1800	40'	<del>NO</del>

NOTE: TEST WAS REDUCED TO 4 HR SINCE TEST SECTION BEING INSTALLED WAS 12' LONG WITH ONE SEGMENT. THE 40' OF 0.500" WAS ONLY TESTED AS BACKUP PIPE IN CASE MORE THAN 12' OF 375" WALL WAS REQUIRED.

MINIMUM PRESSURE FOR TEST	<b>1170</b>	PSIG	TEST FLUID TO BE USED. <b>WATER</b>	MINIMUM TEST DURATION UNDER 30% SMYS (1 HR. MIN.) 30% SMYS & OVER (8 HR. MIN.) PREINSTALLATION TEST (SEE 192.505(B) GO 112)	<b>2</b>	HRS.
MAXIMUM PERMISSIBLE TEST PRESSURE	<b>1235</b>	PSIG				

PREPARED BY <b>ROY MATTHEWSON</b>	DATE <b>10-31-88</b>	FOR INFORMATION OR CHANGES, CALL <b>626-7437</b>	APPROVED BY: _____ DATE <b>10-31-88</b>
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**PART II - TEST DATA - TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST.**

NOTE: MINIMUM TEST PRESSURE AND DURATION ARE NOT TO BE CHANGED WITHOUT WRITTEN APPROVAL.

TIME AND DATE REACHED TEST PRESSURE	1353 HR - 11/3/88	ELEVATION AT TEST POINT	N/A FT.	INDICATED TEST PRESSURE (1)	1228	PSIG.
TIME AND DATE TEST ENDED	1815 HR - 11/3/88	MAX. ELEVATION IN TEST SECTION	N/A FT.	TEST PRESSURE AT MAX. ELEVATION (2)	N/A	PSIG.
ACTUAL DURATION OF TEST	4 HR - 22 MIN	MIN. ELEVATION IN TEST SECTION	N/A FT.	TEST PRESSURE AT MIN. ELEVATION (3)	N/A	PSIG.

TEST FLUID USED <b>WATER</b>	PIPE SPEC. VERIFIED (SEE PART I)	PIPE FOOTAGE VERIFIED (SEE PART I)
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MAKE, RANGE & SERIAL NO. OF RECORDING GAUGE <b>MERCURY 0-2000 S/N 8603146</b>	DATE LAST CALIBRATION <b>10/17/85</b>	MAKE, RANGE & SERIAL NO. OF DEAD WEIGHT TESTER <b>CHANDLER 0-2000 S/N 6000</b>	DATE LAST CALIBRATION <b>10/1/88</b>
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TEST SUPERVISED BY: <b>NORM SCHWARZ</b>	APPROVED BY: _____	DATE: <b>11/4/88</b>
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**PUT SCHEMATIC SKETCH ON BACK OF THIS SHEET:**

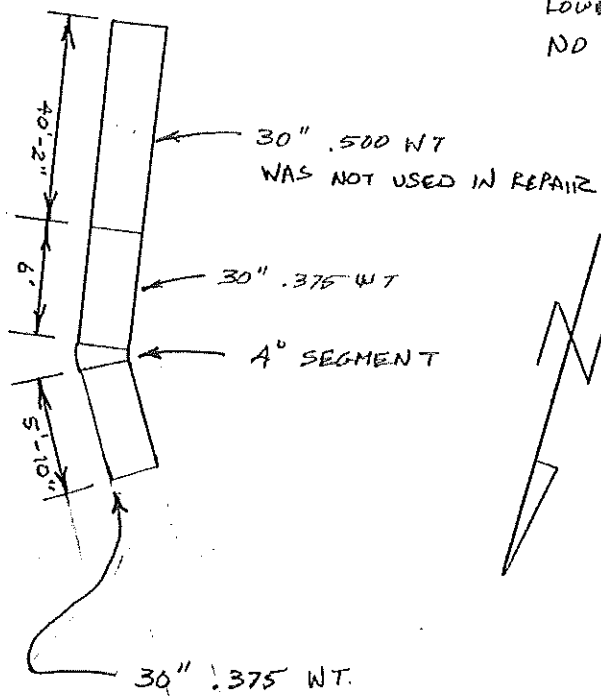
SHOW LOCATION OF FACILITY TESTED, MIN. & MAX. ELEVATION IN FEET, MILE POINTS, VALVE NUMBERS AND INCORPORATED AREAS. USE AN ADDITIONAL SHEET IF NECESSARY (SHOW REFERENCE NUMBERS ON FACE OF ALL DRAWINGS AND ATTACHMENTS). FOR STATION PIPING, FABRICATED UNITS AND SHORT SECTION OF PIPE, ALSO SHOW A DETAILED SKETCH OF EACH ASSEMBLY TESTED.

**DISTRIBUTION**  
 DIST. GAS SUPT. JOB FILE  
 DIV. GAS SUPT.  
 GC GAS - ASSIGNED JOBS  
 GAS SYSTEM DESIGN (2)  
 PLANT ACCTG. (WITH FOREMAN'S COPY OF JOB)  
 PIPELINE HISTORY FILE  
 REPORT FAILURES UNDER TEST TO GAS SYSTEM DESIGN AND GAS DISTRIBUTION DEPT'S.

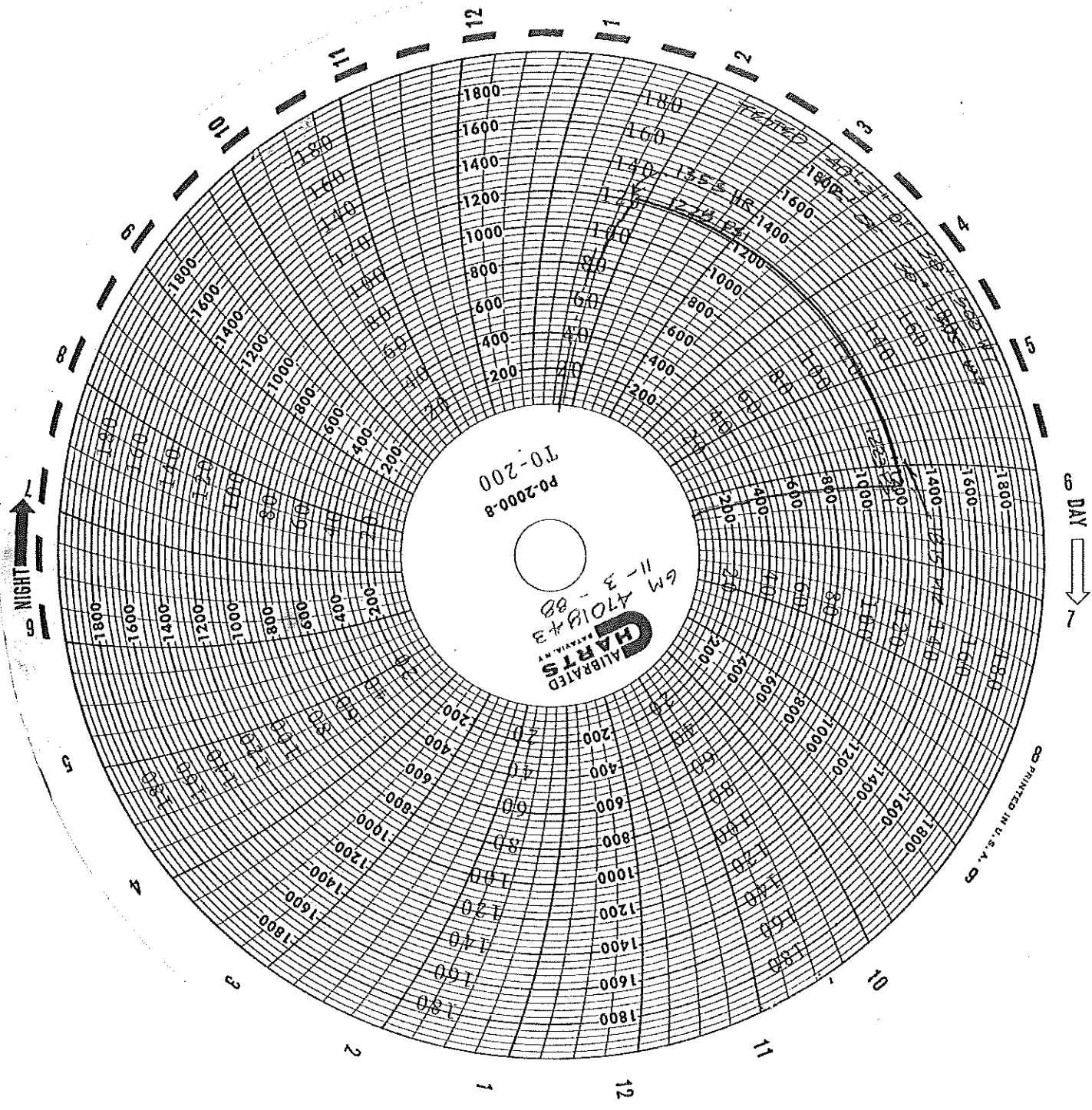
\* REC'D VERBAL OK FROM GALE SIM TO REDUCE TEST DURATION.

- (1) LOWEST PRESSURE ON TEST GAUGE AT ANY TIME DURING TEST.
- (2) SUBTRACT STATIC HEAD DUE TO ELEVATION DIFFERENCE (BETWEEN TEST PT AND MAX. ELEVATION) FROM INDICATED TEST PRESSURE.
- (3) ADD STATIC HEAD DUE TO ELEVATION DIFFERENCE (BETWEEN TEST PT AND MIN. ELEVATION) TO INDICATED TEST PRESSURE.

11-3-88  
MARTIN SERVICE CENTER  
LOWER YARD - BRISBANE  
BUNKER HILL EMERGENCY REPAIR  
TL - 0132  
LOWEST PRESSURE - 1223  
NO ELEV. VARIATION







PO-2000-8  
T0-200



CALIBRATED CHARTS  
 GM 11-3-88  
 MADE IN U.S.A.

DAY

NIGHT

PRINTED IN U.S.A.

STRENGTH TEST INFORMATION

1. JOB GM 4701843
  2. LOCATION MARTIN SERVICE CENTER, BRISBANE
  3. DATE 11-3-88
  4. TIME 1353 HR - 1815 HR PRESSURE 1228-1223
  5. LENGTH 40'-2" / 12' DURATION 4 HR - 22 MIN.
  6. PIPE SPEC. X60 DSAW SIZE 30" / 30" W.T. 500 / 375
  7. RECORDING GAUGE MERCURY SER. 8603148 APL 5LX GR X-52 DSAW
  8. RANGE 0-2000 LAST CALIBRATED 10-17-88
  9. DEAD WGT. CHAUDLER SER. 7000 LAST CALIBRATED 10-1-88
  10. TEST FLUID WATER
  11. SUPERVISOR 
  12. APPROVED 
- DATE 11-3-88  
DATE 11-4-88

11-3-33

N. SCHWAB

BUNKER HIL 0132 EMERGENCY  
REPAIR

0-

MIN - 1170

MAX - 1235

TIME	PRESSURE	
1353 HRS 1:53 PM	1228	
1400 HRS 2:00	1228	
1415 HRS 2:15	1228	
1430	1228	
1450	1228	
1534	1228	
1559	1228	
1633	1227	SUN WENT DOWN (TEMP DROP)
1704	1225	
1732	1223	
1800	1223	
1815	1223	REWATERED