

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

Computer Inventoried

Drill-Stem Test Data

Well Name BOOMHOWER #1 Test No. 1 Date 9/8/91
Company CASTLE RESOURCES Zone Tested LKC
Address BANK IV SUITE 3 HAYS KS Elevation 2679
Co. Rep./Geo. MR JERRY GREEN Cont. EMPHASIS RIG #5 Est. Ft. of Pay _____
Location: Sec. 23 Twp. 18S Rge. 28W Co. LANE State KS

Interval Tested 4160-4189 Drill Pipe Size 4.5 XH
Anchor Length 29 Wt. Pipe I.D. - 2.7 Ft. Run 636
Top Packer Depth 4155 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4160
Total Depth 4189

Mud Wt. 9.1 lb / gal. Viscosity 45 Filtrate 10

Tool Open @ 8:00 PM Initial Blow OFF BOTTOM IN 9 MINUTES

Final Blow OFF BOTTOM IN 17 MINUTES

Recovery — Total Feet 797 Flush Tool? NO

Rec. 70 Feet of GAS IN PIPE

Rec. 40 Feet of GASSY OIL-1%GAS/99%OIL

Rec. 240 Feet of GSY OIL & MUD CUT WATER-1%GAS/2%OIL/92%WTR/5%MUD

Rec. 517 Feet of MUD CUT WATER-95%WTR/5%MUD

Rec. _____ Feet of _____

BHT 124 °F Gravity 42 °API @ 80 °F Corrected Gravity 40 °API

RW 0.13 @ 78 °F Chlorides 45000 ppm Recovery Chlorides 5400 ppm System

(A) Initial Hydrostatic Mud 2020.3 PSI Ak1 Recorder No. 13308 Range 4700

(B) First Initial Flow Pressure 40.6 PSI @ (depth) 4162 w/Clock No. 27573

(C) First Final Flow Pressure 220.1 PSI Ak1 Recorder No. 2023 Range 4000

(D) Initial Shut-in Pressure 780.4 PSI @ (depth) 4184 w/Clock No. 8376

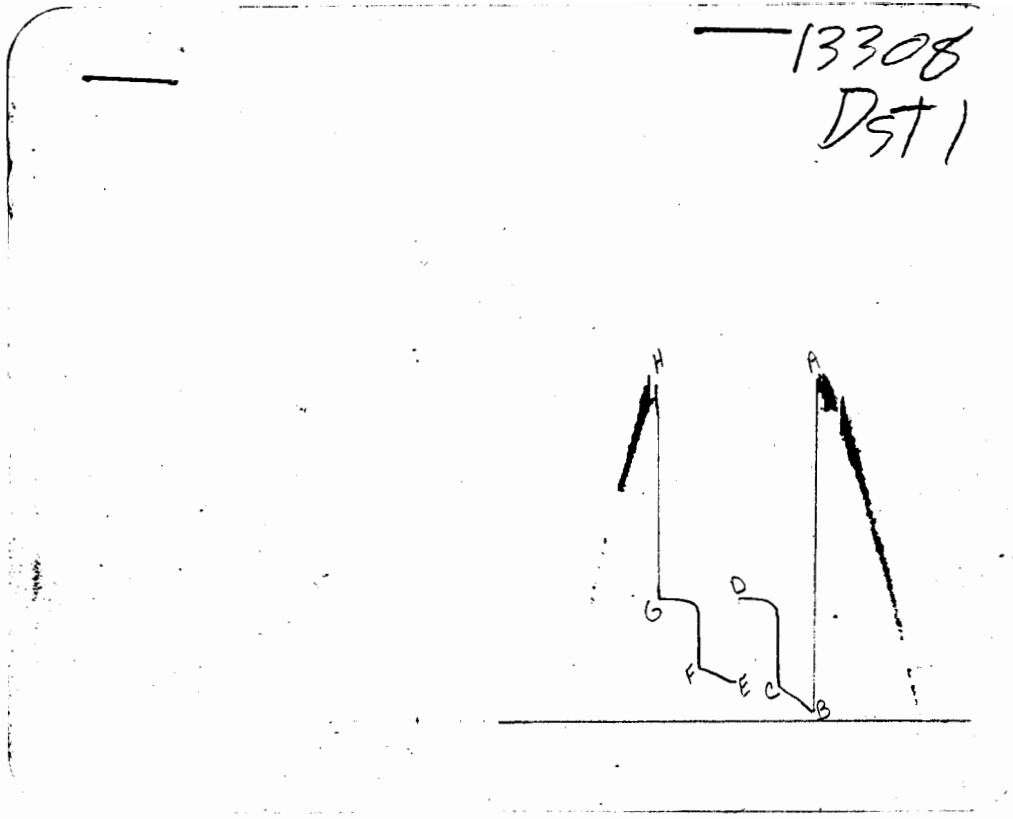
(E) Second Initial Flow Pressure 240.6 PSI Ak1 Recorder No. _____ Range _____

(F) Second Final Flow Pressure 350.9 PSI @ (depth) _____ w/Clock No. _____

(G) Final Shut-in Pressure 780.4 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 1987.6 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative MARK HERSKOWITZ TOTAL PRICE \$ 550



POINT This is an actual photograph of recorder chart PRESSURE

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2018	2020.3
(B) FIRST INITIAL FLOW PRESSURE	33	40.6
(C) FIRST FINAL FLOW PRESSURE	215	220.1
(D) INITIAL CLOSED-IN PRESSURE	761	780.4
(E) SECOND INITIAL FLOW PRESSURE	225	240.6
(F) SECOND FINAL FLOW PRESSURE	328	350.9
(G) FINAL CLOSED-IN PRESSURE	761	780.4
(H) FINAL HYDROSTATIC MUD	1988	1987.6

TRILOBITE TESTING COMPANY

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Drill-Stem Test Data

Well Name BOOMHOWER #1 Test No. 2 Date 9/9/91
Company CASTLE RESOURCES Zone Tested LKC
Address BANK IV SUITE 3 HAYS KS Elevation 2679
Co. Rep./Geo. MR JERRY GREEN Cont. EMPHASIS RIG #5 Est. Ft. of Pay _____
Location: Sec. 23 Twp. 18S Rge. 28W Co. LANE State KS

Interval Tested 4195-4255 Drill Pipe Size 4.5 XH
Anchor Length 60 Wt. Pipe I.D. - 2.7 Ft. Run 636
Top Packer Depth 4190 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4195
Total Depth 4255

Mud Wt. 9.1 lb / gal. Viscosity 41 Filtrate 12.8

Tool Open @ 2:02 PM Initial Blow WEAK BLOW FOR 18 MINUTES-THEN DIED

Final Blow WEAK SURFACE BLOW IN 3 MINUTES-DIED-FLUSHED TOOL
WEAK BLOW IN 4 MINUTES-DIED

Recovery - Total Feet 30 Flush Tool? YES

Rec. 30 Feet of OIL STAINED MUD-5%OIL/95%MUD

Rec. _____ Feet of _____

Rec. _____ Feet of _____

Rec. _____ Feet of _____

Rec. _____ Feet of _____

BHT 119 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 5200 ppm System

(A) Initial Hydrostatic Mud 2041.5 PSI Ak1 Recorder No. 13308 Range 4700

(B) First Initial Flow Pressure 14.5 PSI @ (depth) 4197 w/Clock No. 27573

(C) First Final Flow Pressure 14.5 PSI AK1 Recorder No. 2023 Range 4000

(D) Initial Shut-In Pressure 126.3 PSI @ (depth) 4220 w/Clock No. 8376

(E) Second Initial Flow Pressure 14.5 PSI AK1 Recorder No. _____ Range _____

(F) Second Final Flow Pressure 14.5 PSI @ (depth) _____ w/Clock No. _____

(G) Final Shut-in Pressure _____ PSI Initial Opening 20 Final Flow 10

(H) Final Hydrostatic Mud 2010.3 PSI Initial Shut-In 20 Final Shut-In _____

Our Representative MARK HERSKOWITZ TOTAL PRICE \$ 550

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

N° 3865

Test Ticket

Well Name & No. BOOMHOWER 1st Test No. 2 Date 9-9-91
 Company CASTLE RES INC Zone Tested LAN - KC
 Address BANK IV SUITE C HAYS Elevation 2679
 Co. Rep./Geo. JERRY GREEN cont. EMPHASIS Bldg 5 Est. Ft. of Pay _____
 Location: Sec. 23 Twp. 18S Rge. 28W Co. LANE State Ks
 No. of Copies _____ Distribution Sheet _____ Yes _____ No _____ Turnkey _____ Yes _____ No _____ Evaluation _____

Interval Tested 4195 - 4255 Drill Pipe Size 4 1/2 XH
 Anchor Length 60 Top Choke - 1" _____ Bottom Choke - 1/4" _____
 Top Packer Depth 4190 Hole Size - 7 7/8" _____ Rubber Size - 6 3/4" _____
 Bottom Packer Depth 4095 Wt. Pipe I.D. - 2.7 Ft. Run 636
 Total Depth 4255 Drill Collar - 2.25 Ft. Run _____
 Mud Wt. 9.1 LCM 1st lb/gal. Viscosity 41 Filtrate 12.8
 Tool Open @ 2:02 PM Initial Blow WEAK Blow 18 MIN DIES

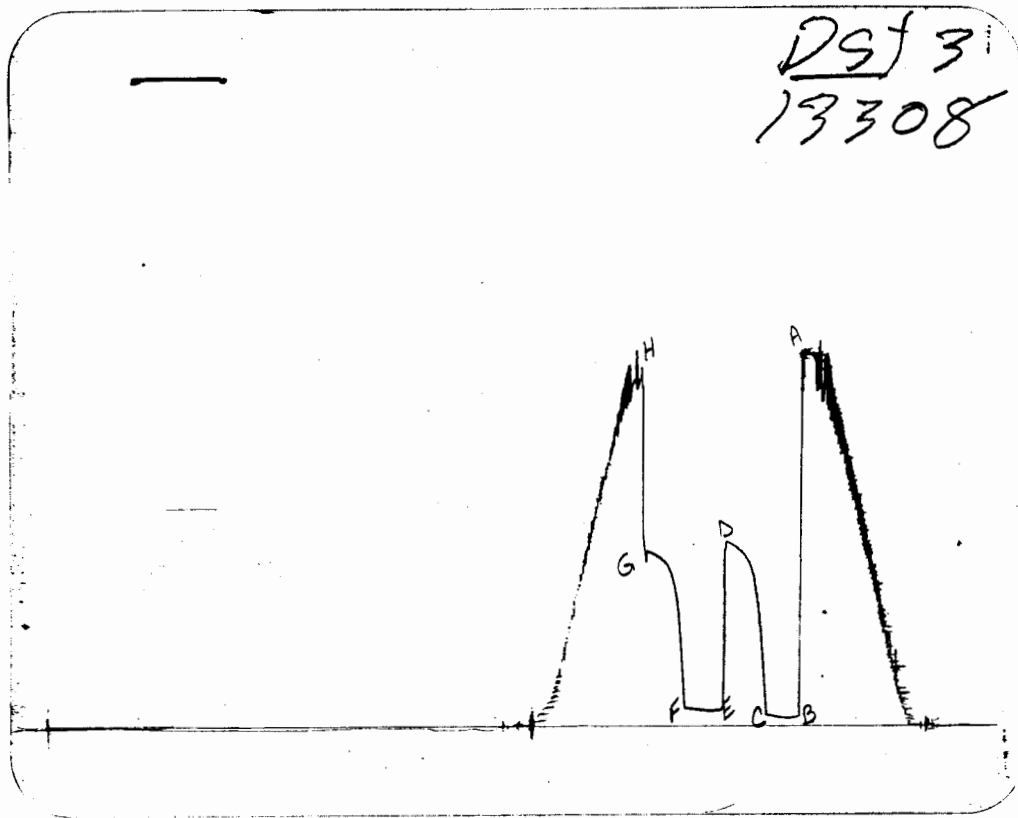
Final Blow WEAK SWP Blow 3 MIN DIES Flush Tool WEAK Blow 5 MIN DIES

Recovery - Total Feet	Feet of Gas In Pipe	Flush Tool?
<u>30</u>	<u>—</u>	<u>2'49"</u>
Rec. <u>30</u> Feet Of <u>OIL S. MUD</u>	%gas <u>5</u> %oil _____ %water <u>95</u> %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	
Rec. _____ Feet Of _____	%gas _____ %oil _____ %water _____ %mud _____	

BHT 119 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
 RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 5200 ppm System
 (A) Initial Hydrostatic Mud 2039 PSI Ak1 Recorder No. 13308 Range 4700
 (B) First Initial Flow Pressure 11 PSI @ (depth) 4197 w/Clock No. 27573
 (C) First Final Flow Pressure 11 PSI Ak1 Recorder No. 2023 Range 4000
 (D) Initial Shut-In Pressure 120 PSI @ (depth) 4220 w/Clock No. 3376
 (E) Second Initial Flow Pressure 11 PSI Ak1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 11 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure _____ PSI Initial Opening 20 Test
 (H) Final Hydrostatic Mud 2008 PSI Initial Shut-In 20 Jars _____
 Final Flow 10 Safety Joint _____
 Final Shut-In _____ Straddle _____
 Circ. Sub NC
 Sampler _____
 Extra Packer _____
 Other _____
 TOTAL PRICE \$ _____

TRILOBITE TESTING COMPANY SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUBSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By _____
 Our Representative Mark Hershey



POINT This is an actual photograph of recorder chart PRESSURE

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2210	2225.6
(B) FIRST INITIAL FLOW PRESSURE	22	25.3
(C) FIRST FINAL FLOW PRESSURE	66	70.8
(D) INITIAL CLOSED-IN PRESSURE	1147	1151.6
(E) SECOND INITIAL FLOW PRESSURE	87	94.5
(F) SECOND FINAL FLOW PRESSURE	120	126.3
(G) FINAL CLOSED-IN PRESSURE	1089	1094.5
(H) FINAL HYDROSTATIC MUD	2170	2177.8

INITIAL FLOW

RECORDER # 13308
DST #3

DT(MIN)	PRESSURE	<>	PRESSURE
0	46.4		46.4
3	46.4		0
6	46.4		0
9	46.4		0
12	46.4		0
15	46.4		0
18	46.4		0
21	54.9		8.5
24	54.9		0
27	54.9		0

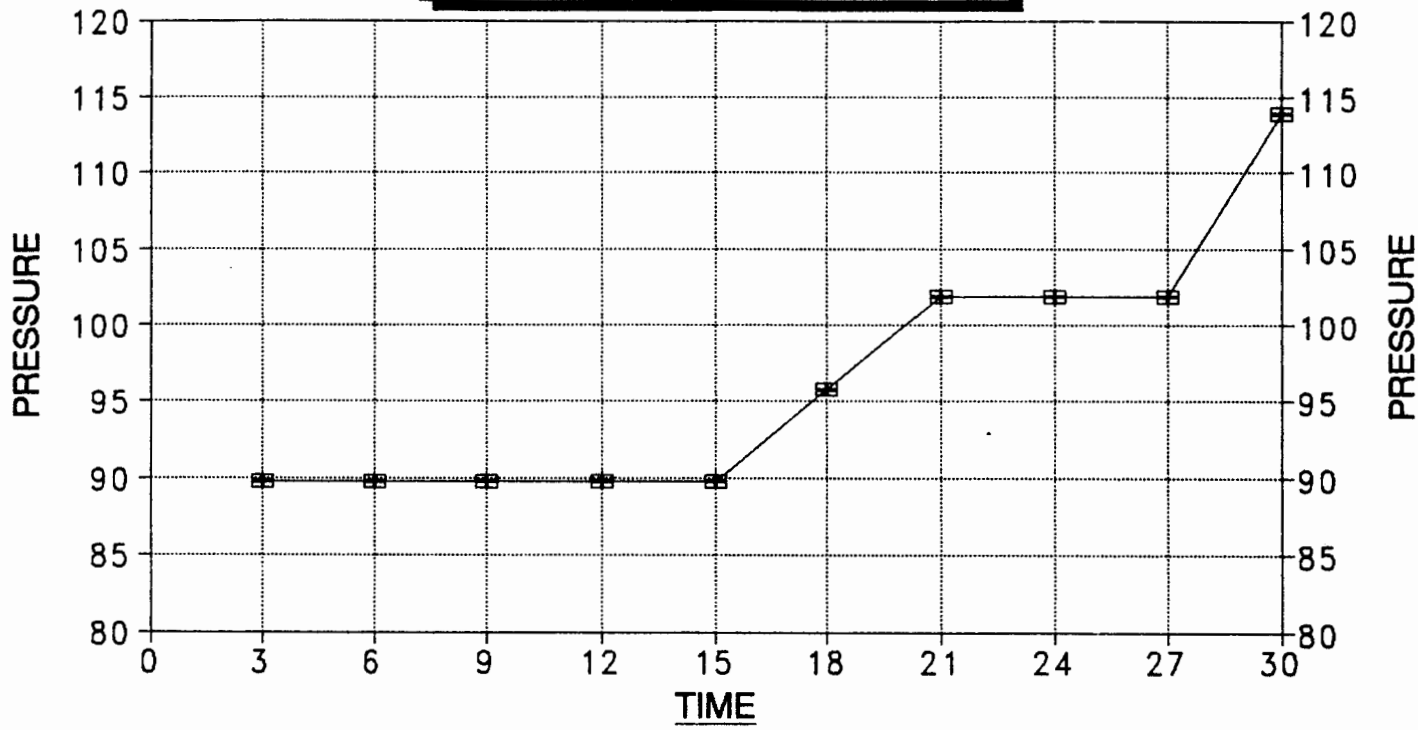
FINAL FLOW

RECORDER # 13308
DST #3

DT(MIN)	PRESSURE	<>	PRESSURE
0	89.8		89.8
3	89.8		0
6	89.8		0
9	89.8		0
12	89.8		0
15	95.8		6
18	101.9		6.099999
21	101.9		0
24	101.9		0
27	113.9		12

DELTA T DELTA P

FINAL FLOW - DST #3



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 28.47458 BBL/DAY

BOOMHOWER #1
INITIAL

DST #3
SHUTIN
30 INITIAL FLOW TIME

Slope -555.90 psi/cycle
P * 1,311 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSURE
	3	405.8	11	1.041	405.8
	6	686.1	6	0.778	280.3
	9	918.2	4	0.637	232.1
	12	995.6	4	0.544	77.4
	15	1047.2	3	0.477	51.6
X	18	1074.1	3	0.426	26.9
	21	1095.3	2	0.385	21.2
	24	1114.1	2	0.352	18.8
X	27	1130.5	2	0.325	16.4

BOOMHOWER #1
FINAL

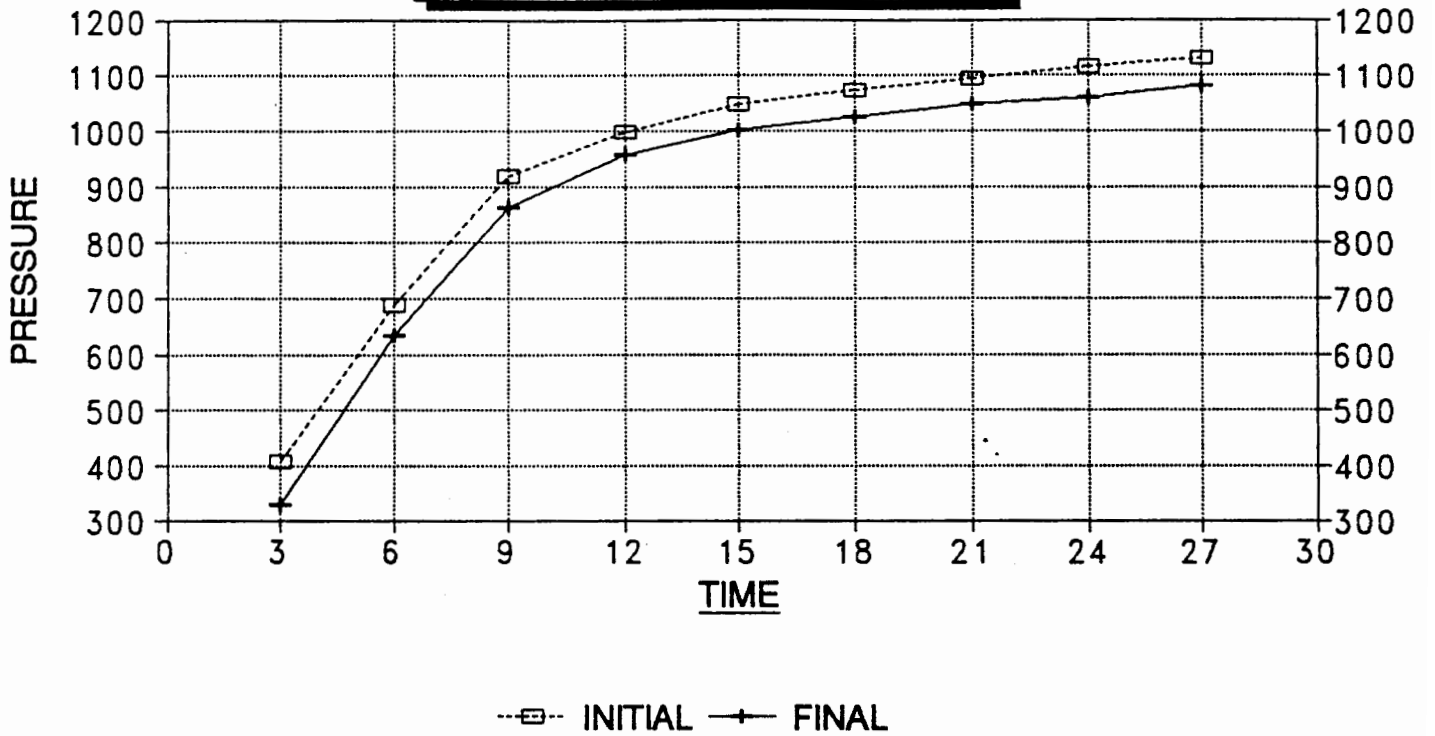
DST #3
SHUTIN
60 TOTAL FLOW TIME

Slope -411.39 psi/cycle
P * 1,289 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSURE
	3	328.9	21	1.322	328.9
	6	634.4	11	1.041	305.5
	9	861.9	8	0.885	227.5
	12	956.9	6	0.778	95.0
X	15	1001.5	5	0.699	44.6
	18	1023.7	4	0.637	22.2
	21	1047.2	4	0.586	23.5
	24	1068.9	4	0.544	21.7
X	27	1080.0	3	0.508	11.1

DELTA T DELTA P

BOOMHOWER #1 / DST #3



HORNER PLOT

BOOMHOWER #1 / DST #3

