

**New Folder Name** Leak Tests

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LIGO-T940017-00-B

## \* \* \* \* \* FACSIMILE MESSAGE \* \* \* \* \*

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FAX NUMBER IS: 815 439 6010  
VERIFY NUMBER IS: 815 439 6000

PAGE: 1 OF: 6

DATE: February 21, 1994TO: LARRY JONES  
CALTECHFAX NO.: 818/304-9834FROM: Warren A. Carpenter  
Process Design Department  
CBI Technical Services Co.RE: MODULE LEAK TESTS  
LIGO QUALIFICATION TEST  
FACILITY  
930212 File #4.5.1

Attached is our current thinking on the module leak checking. I have attached a leak detection decision tree and four pumpdown curves. The first curve shows a pumpdown prior to the bakeout with an approximate net pumping speed for 7 10" LN2 pumps. This also shows what CBI would consider best and worst case outgassing rates which are at a best and worst case pumpdown rates. The second figure again shows a pumpdown prior to the bake but with twice the pumping speed.

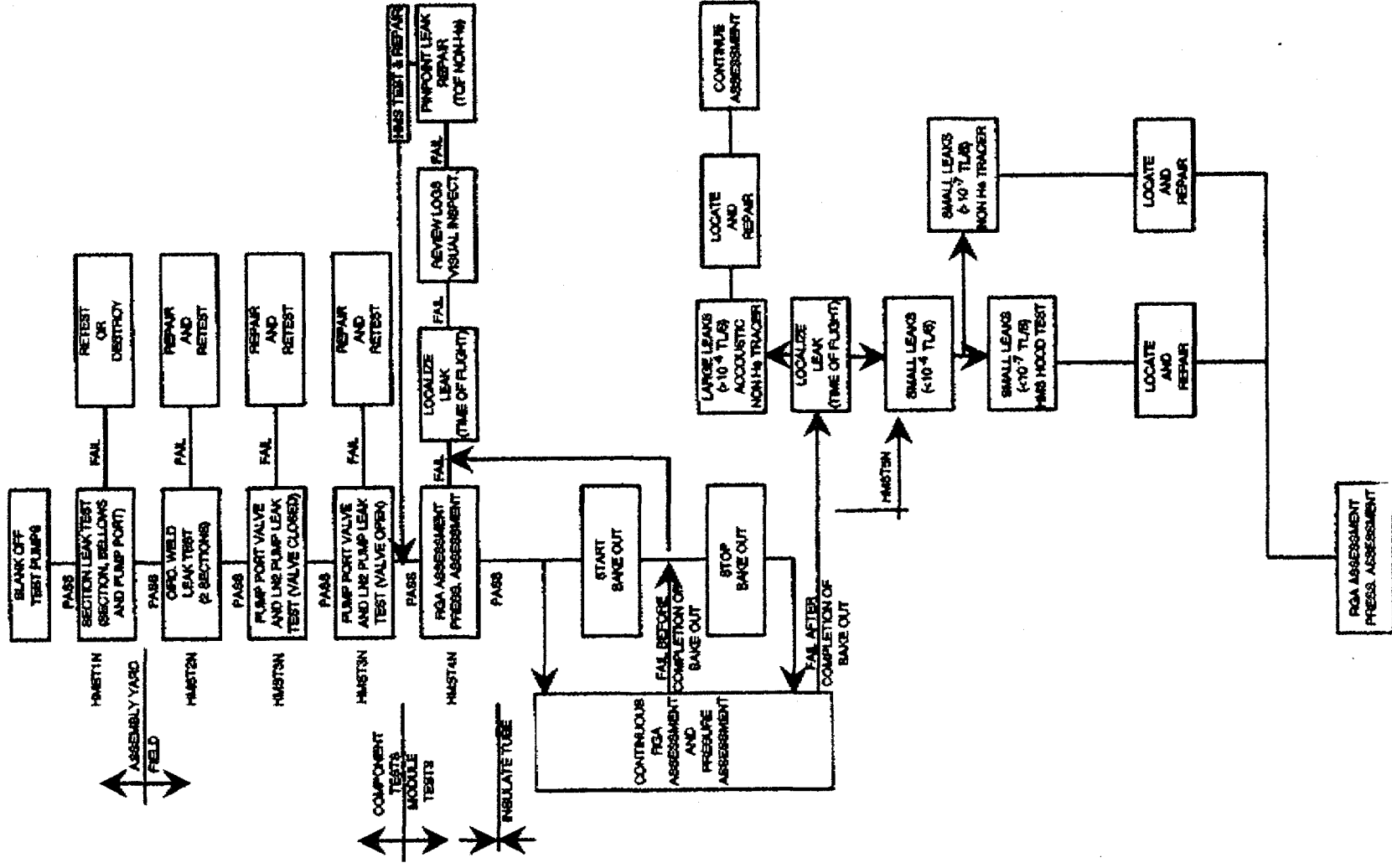
Figures three and four show post bake pumpdowns with two different outgassing rates. The third figure uses 2000 L/S net hydrogen pumping speed and the fourth figure shows 4000 L/S net H2 pump speed.

Regards,

A handwritten signature in dark ink, appearing to read "Warren A. Carpenter".

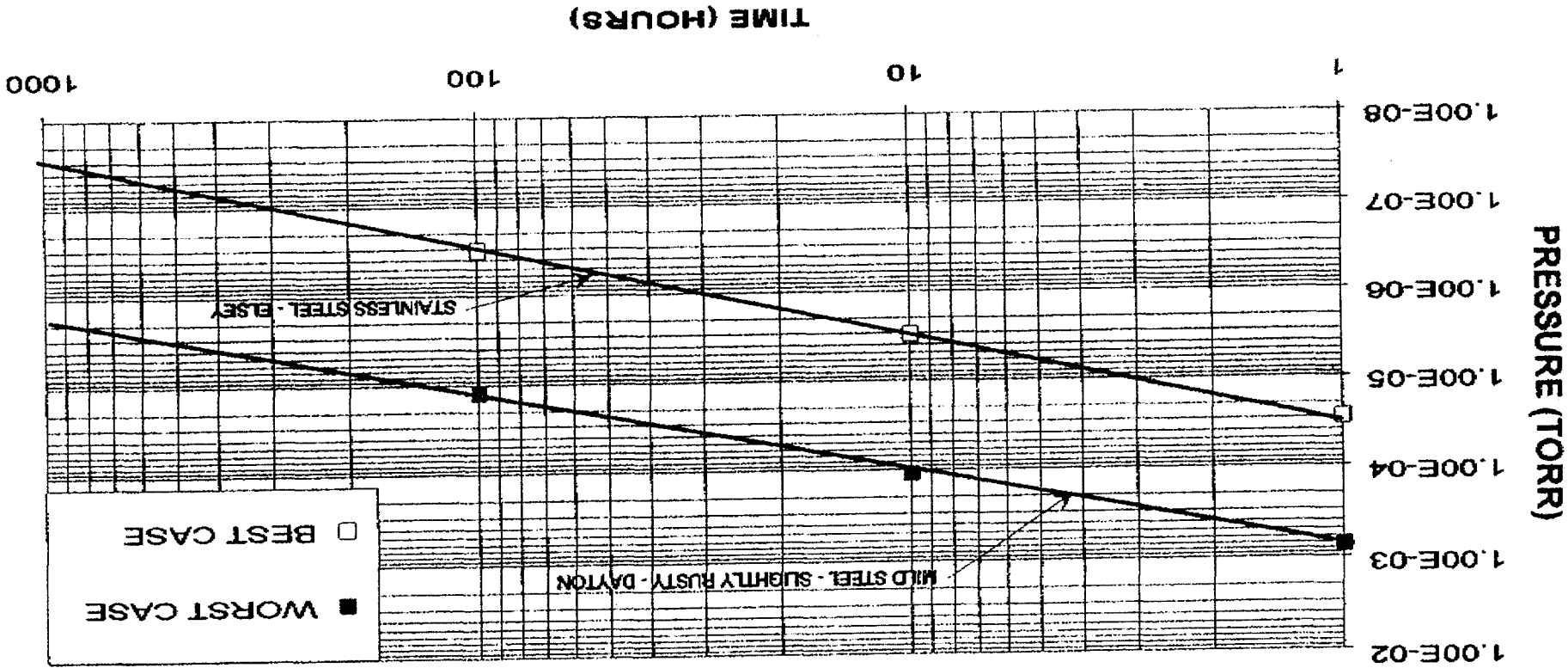
Warren A. Carpenter  
Senior Engineer

# LEAK DETECTION DECISION TREE

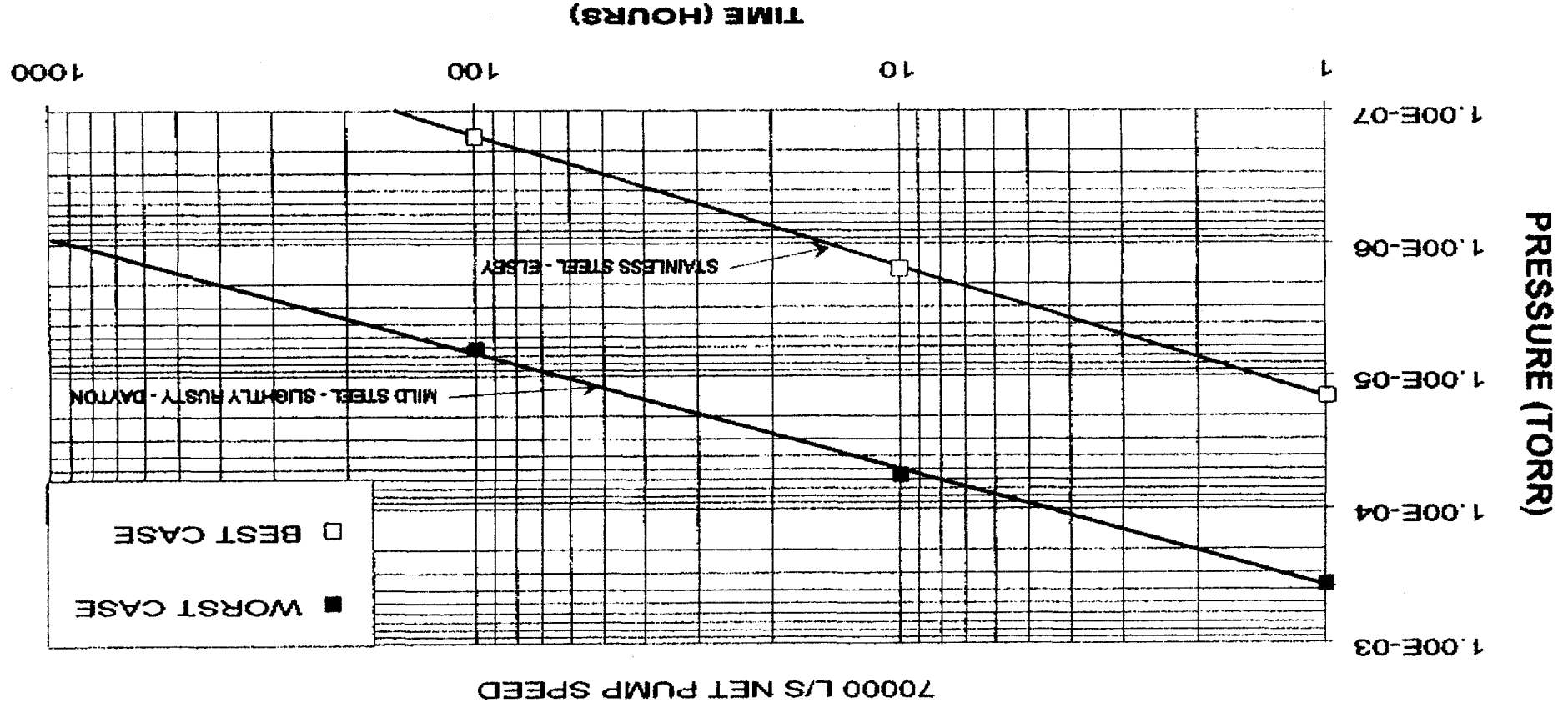


MODULE SHUTDOWN PRIOR TO BAKE OUT

35000 L/S PUMP SPEED

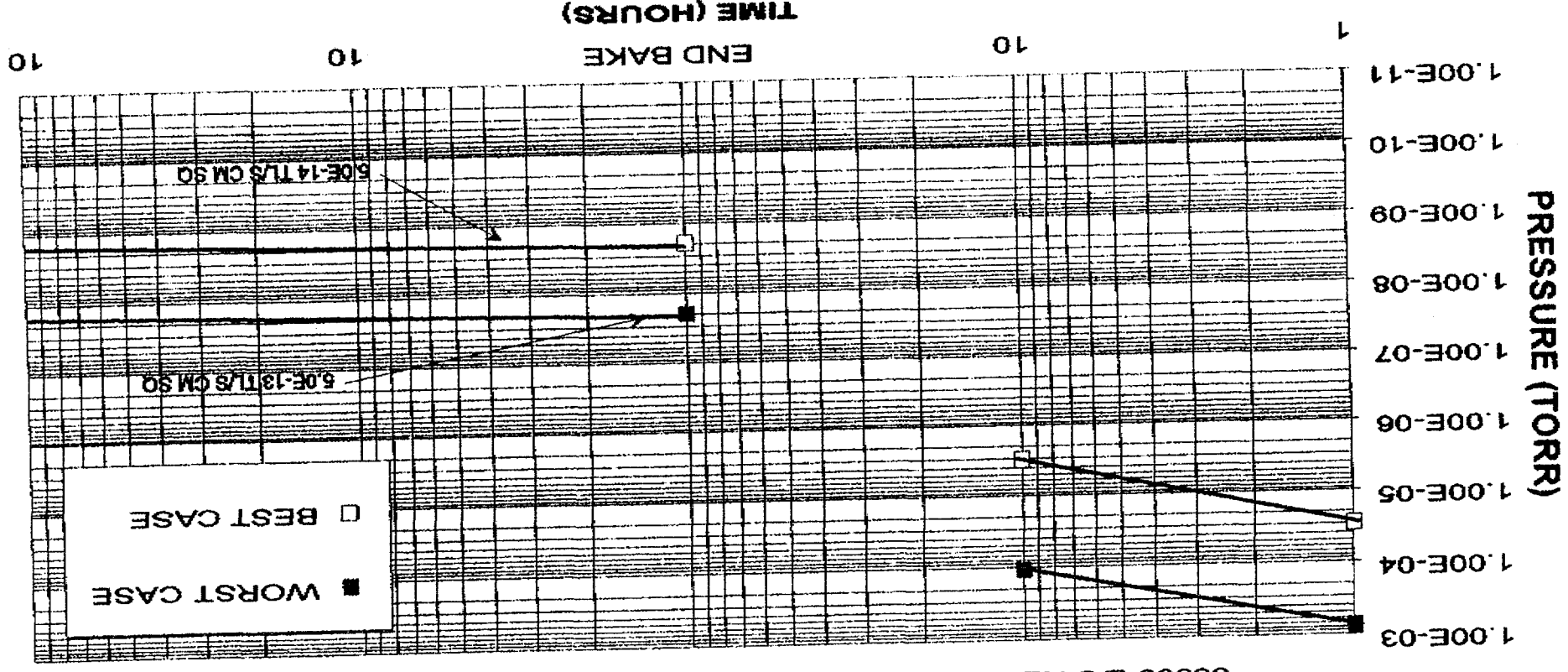


MODULE PUMPDOWN PRIOR TO BAKE OUT



MODULE PUMPDOWN WITH BAKE OUT

35000 L/S NET H2O PUMP SPEED, 2000 L/S NET H2 PUMP SPEED



10

10

END BAKE

10

1

PRESSURE (TORR)

1.00E-11  
1.00E-10  
1.00E-09  
1.00E-08  
1.00E-07  
1.00E-06  
1.00E-05  
1.00E-04  
1.00E-03

MODULE PUMPDOWN WITH BAKE OUT

7000 L/S NET H2O PUMP SPEED, 4000 L/S NET H2 PUMP SPEED

