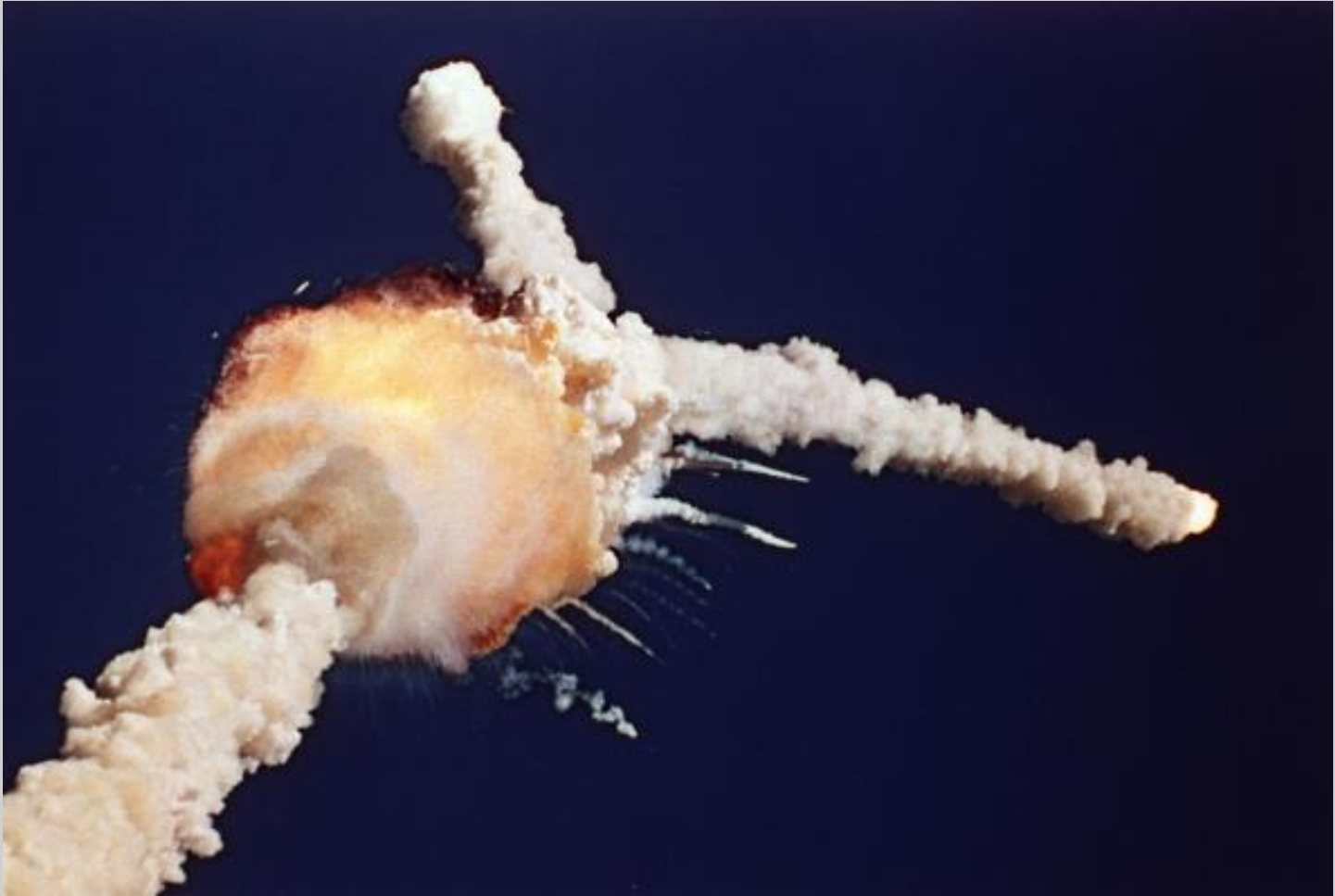




Data, Data, Everywhere:

“If we have all this data, why don't I know anything?”





MTI ASSESSMENT OF TEMPERATURE CONCERN ON SRM-25 (51L) LAUNCH

- 0 CALCULATIONS SHOW THAT SRM-25 O-RINGS WILL BE 20° COLDER THAN SRM-15 O-RINGS
- 0 TEMPERATURE DATA NOT CONCLUSIVE ON PREDICTING PRIMARY O-RING BLOW-BY
- 0 ENGINEERING ASSESSMENT IS THAT:
 - 0 COLDER O-RINGS WILL HAVE INCREASED EFFECTIVE DUROMETER ("HARDER")
 - 0 "HARDER" O-RINGS WILL TAKE LONGER TO "SEAT"
 - 0 MORE GAS MAY PASS PRIMARY O-RING BEFORE THE PRIMARY SEAL SEATS (RELATIVE TO SRM-15)
 - 0 DEMONSTRATED SEALING THRESHOLD IS 3 TIMES GREATER THAN 0.038" EROSION EXPERIENCED ON SRM-15
 - 0 IF THE PRIMARY SEAL DOES NOT SEAT, THE SECONDARY SEAL WILL SEAT
 - 0 PRESSURE WILL GET TO SECONDARY SEAL BEFORE THE METAL PARTS ROTATE
 - 0 O-RING PRESSURE LEAK CHECK PLACES SECONDARY SEAL IN OUTBOARD POSITION WHICH MINIMIZES SEALING TIME
- 0 MTI RECOMMENDS STS-51L LAUNCH PROCEED ON 28 JANUARY 1986
 - 0 SRM-25 WILL NOT BE SIGNIFICANTLY DIFFERENT FROM SRM-15


JOE C. KILMINSTER, VICE PRESIDENT
SPACE BOOSTER PROGRAMS

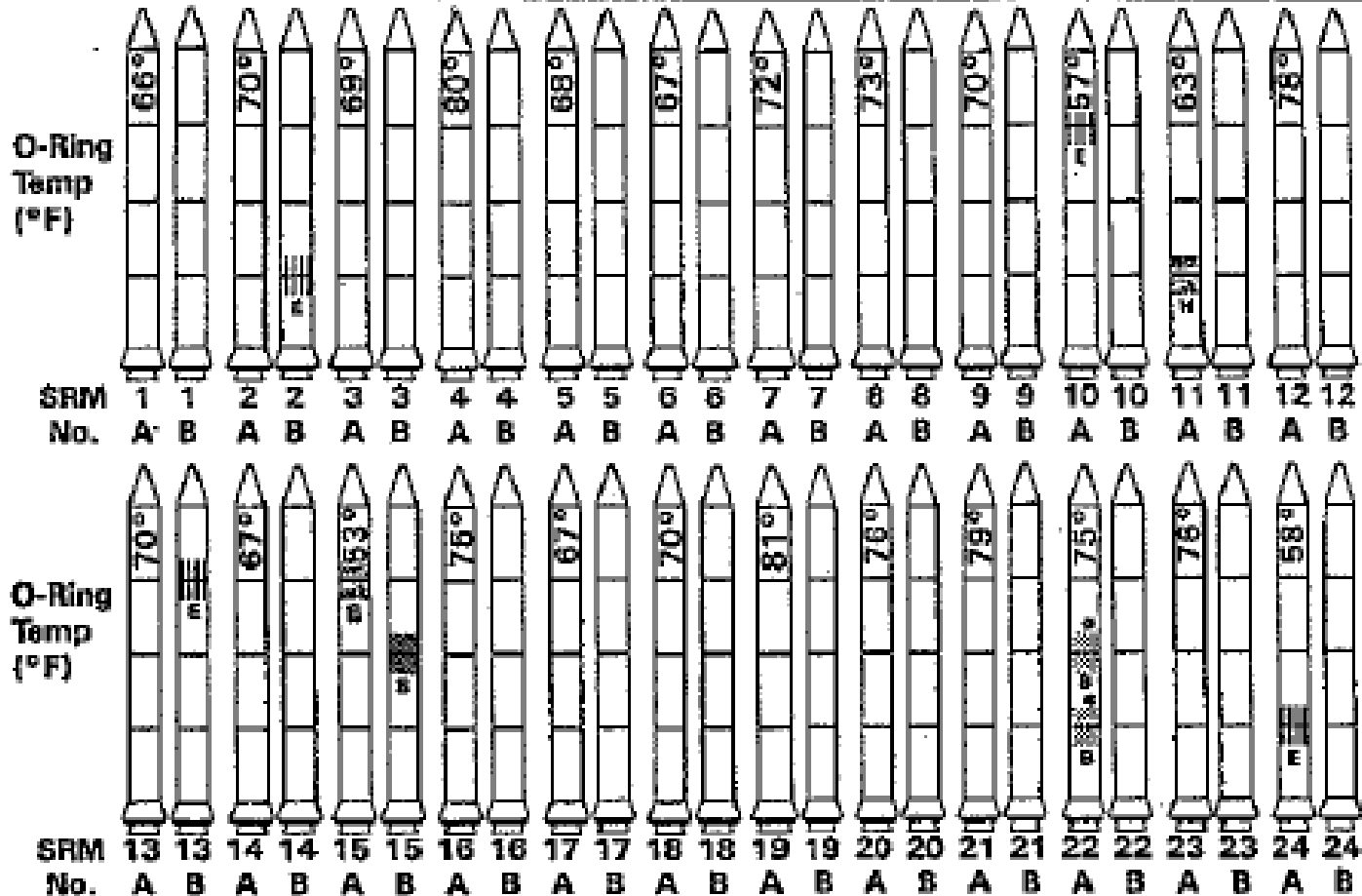
MORTON THIKOL INC.
Wasatch Division

INFORMATION ON THIS PAGE WAS PREPARED TO SUPPORT AN ORAL PRESENTATION
AND CANNOT BE CONSIDERED COMPLETE WITHOUT THE ORAL DISCUSSION

The final approval and rationale for the launch of the space shuttle Challenger, faxed by the rocket-maker to NASA the night before the launch. The rocket blew up 12 hours later as a result of cold temperatures.



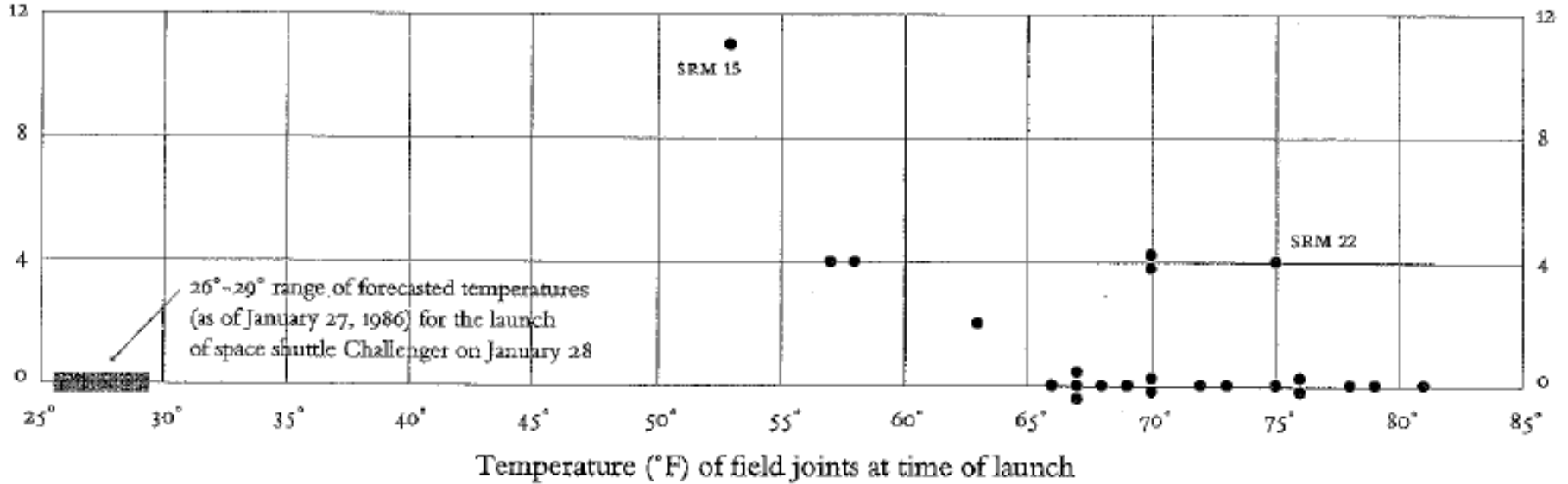
History of O-Ring Damage in Field Joints (Cont)

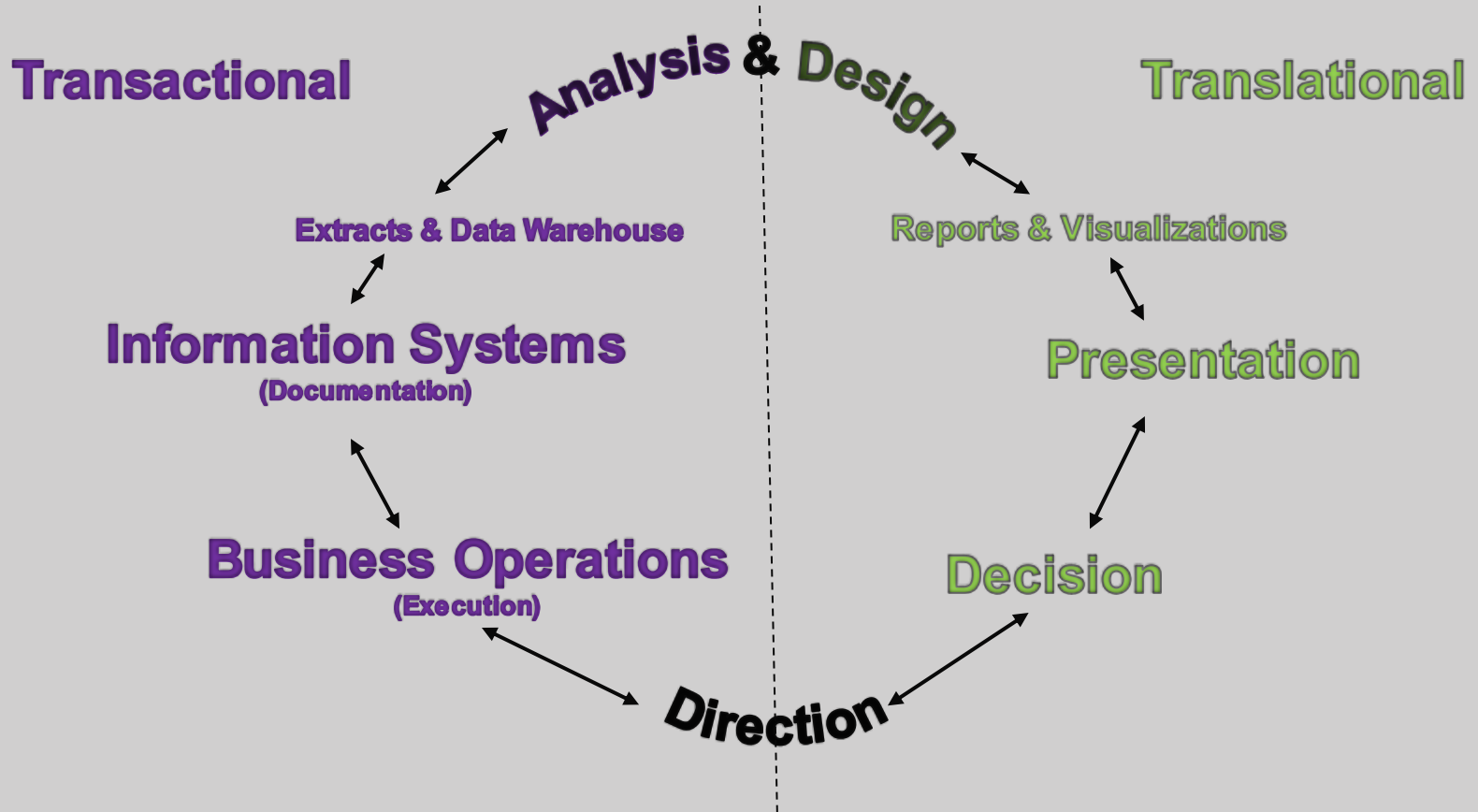


MOATCH THORSON, INC.
Wrench Operators

* No Erosion

O-ring damage index, each launch





T. Hank Robinson, Ph.D.

Director-UNO Institutional Effectiveness

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