



Report No. 12164
Date: 7/2/09

Electricity Reduction Pilot Program

CONDUCTED FOR

NEW JERSEY DEPARTMENT OF
TRANSPORTATION

LOCATED AT

Thiokol Bldg. 9
1035 Parkway Ave., Trenton, NJ 08625

TEST RESULTS
FOR
COMMERCIAL AIR CONDITIONING

A Confidential Report
Prepared by
Intellidyne LLC



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Test Report

Report No. 12164

Date: 07/02/09

Customer:

NEW JERSEY D.O.T.
 1035 Parkway ave., Trenton, NJ 08625

Test Site Location:

NEW JERSEY D.O.T. - THIOKOL Bldg. 9
 1035 Parkway ave., Trenton, NJ 08625

Test Type: HEATING AIR CONDITIONING REFRIGERATION OTHER: _____
 Product Tested: HW LCH LCS CHW CHS AC CAC RU OTHER: _____

Type of Equipment:

Manufacturer: McQuay
 Model: RPS018BY
 Capacity / SetPt: 20 Ton
 Fuel Type: Electric
 Application: Air Conditioning / Dehumidification
 Area Served: Bldg. 9
 Misc. Unit Located on roof of Bldg. 4A

Test Start Date: 05/08/09
 Test End Date: 06/06/09
 No. of Days in Test: 30

COMPRESSOR RUN-TIME: in HRS. in MIN.
 IntelliCon ON-DAYS: 98:36:45
 IntelliCon OFF-DAYS: 89:45:49
 RUN-TIME was reduced by: -9.86%

COMPRESSOR USAGE FACTOR
 IntelliCon On-Days: 27%
 IntelliCon Off-Days: 25%

COOLING DEGREE-DAYS (FOR TEST PERIOD)
 IntelliCon ON-DAYS: 158 It was 23.4% Warmer on the On-Days.
 IntelliCon OFF-DAYS: 128
 Total Degree-Days: 285

USAGE PER DEGREE-DAY
 ON-DAYS: 0:37:33
 OFF-DAYS: 0:42:10

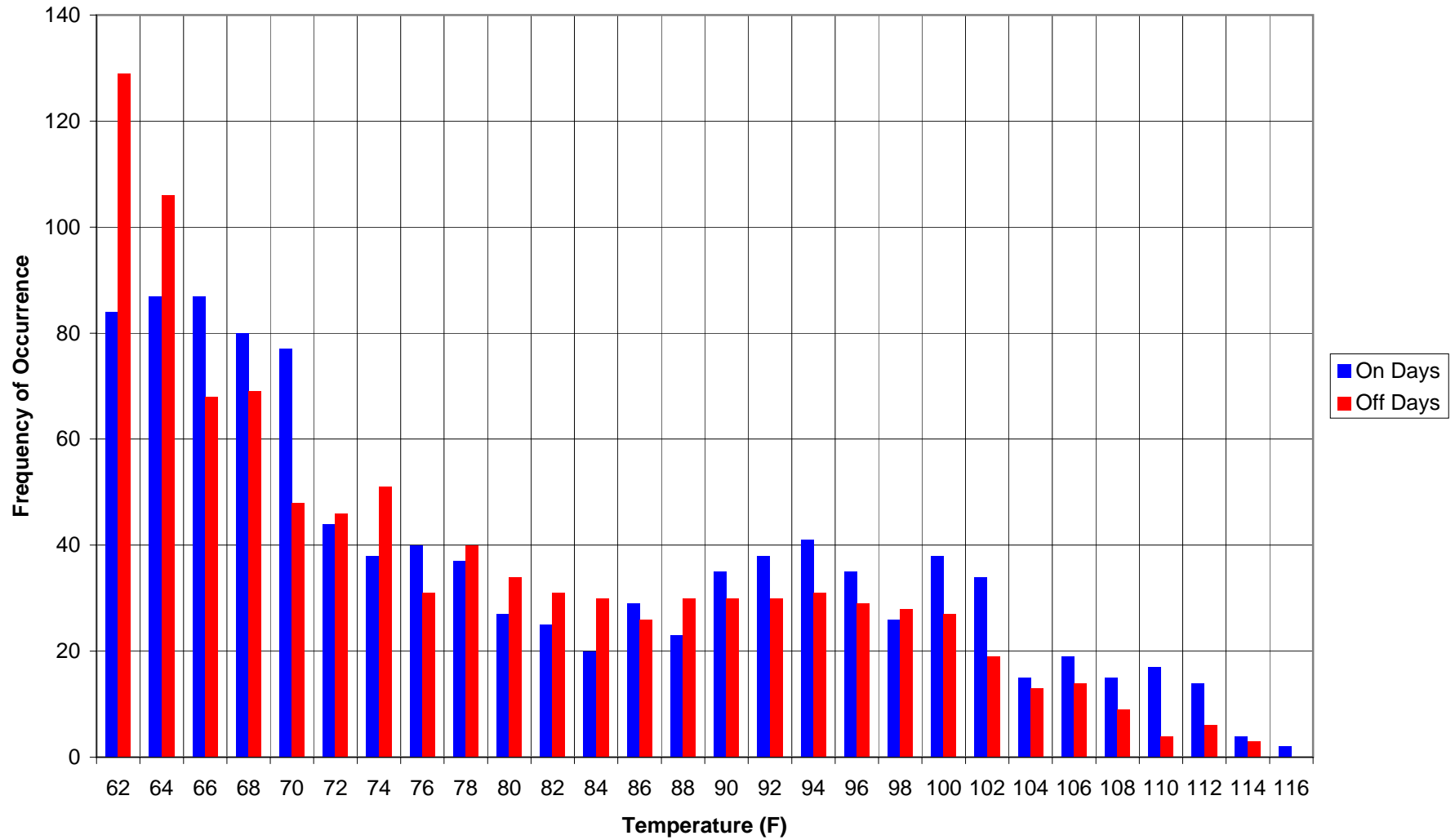
SOLAR LOAD COMPENSATION: (Lumens/Sq. Ft.)
 IntelliCon ON-DAYS: 5596840
 IntelliCon OFF-DAYS: 4969672 It was 12.62% Sunnier on the On-Days.

COMPRESSOR CYCLING REDUCTION:
 IntelliCon ON-DAYS: 586
 IntelliCon OFF-DAYS: 1040 Cycling was reduced by: 43.7%

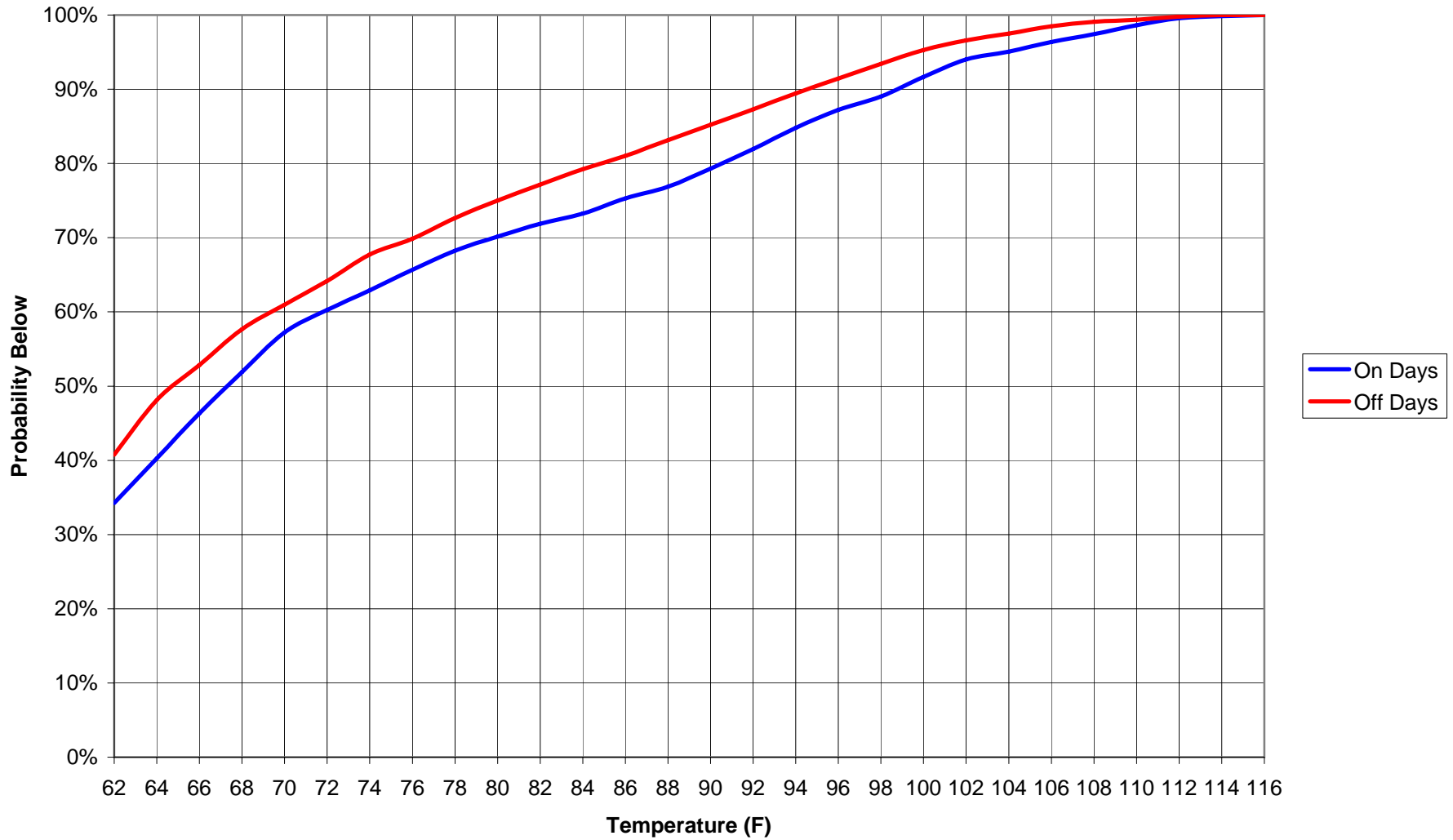
Adj. Savings = 12.31%

COMMENTS: The control scenario is such that the air-condition unit is providing conditioned air to Bldg. 9, the temperature of the space is controlled by the BAS via a space heater being used to reheat the space. Analysis of space temperature data shows poor temperature maintenance, whether the IntelliCon controller is On or Off. The unit, while only providing conditioned air to one location, is bearing the additional temperature and humidity load of air being returned from Bldg. 4A as well. Histograms and Probability curves have been provided. They demonstrate the conditions both when the IntelliCon control is in-circuit and out. Cooling degree days was determined by using 65F as the balance point, and demonstrates that it was more than 23% warmer on the days when the IntelliCon was in-circuit. Data was normalized for that.

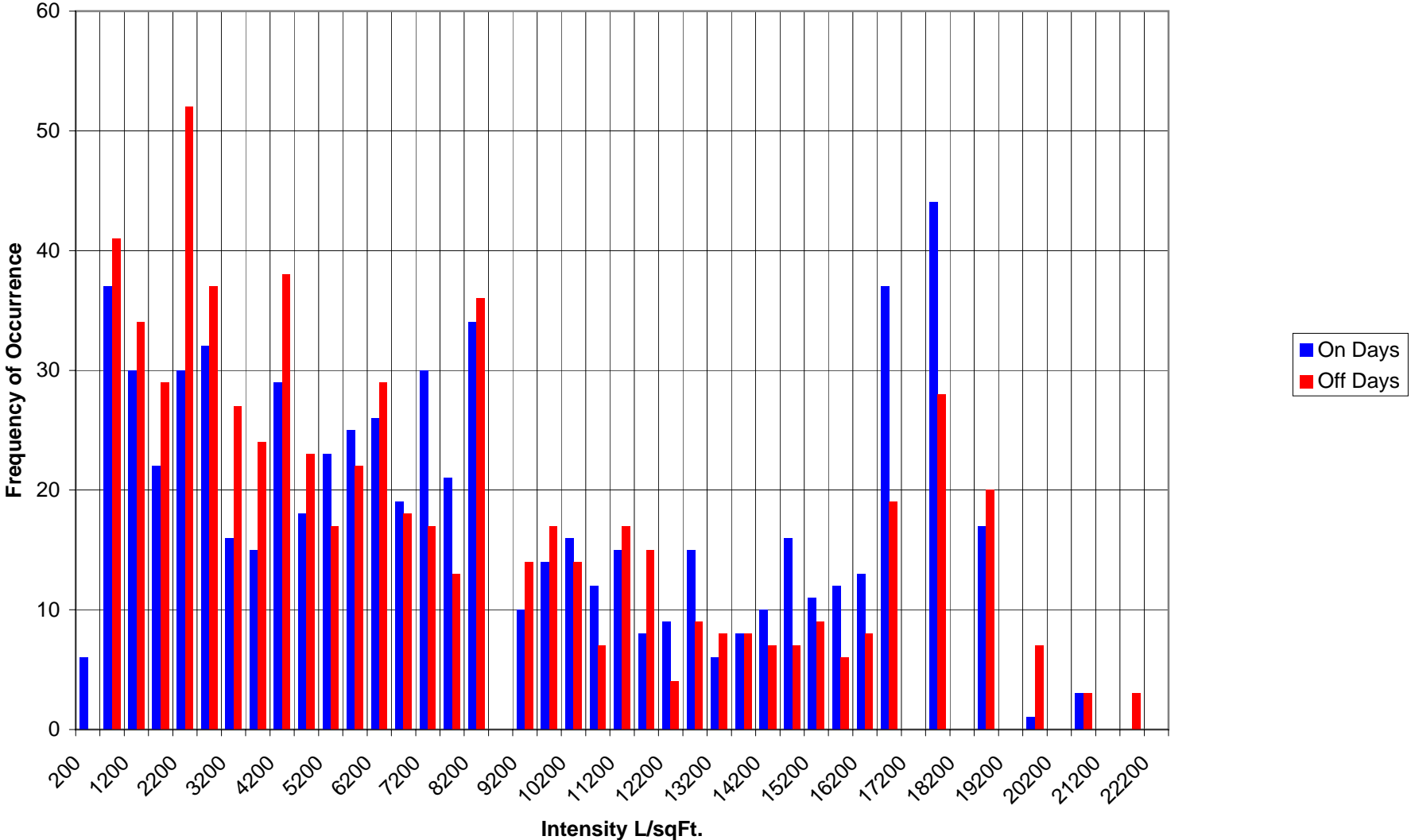
NJ DOT - THIOKOL Bldg. 9
Outside Air Temp Histogram (5/8/09 -- 6/6/09)



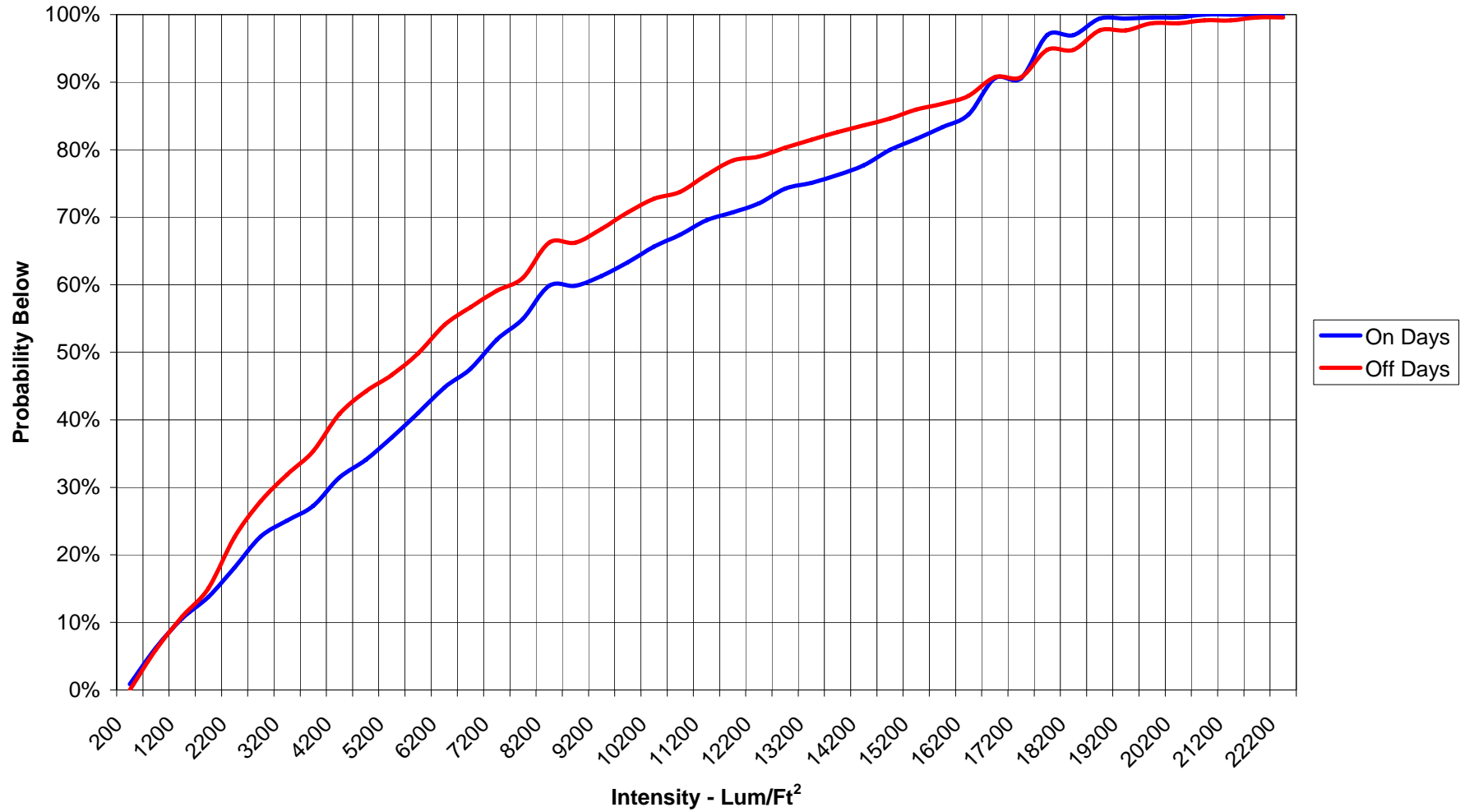
NJ DOT - THIOKOL Bldg. 9
OAT Temperature Probabilities (5/8/09 -- 6/6/09)



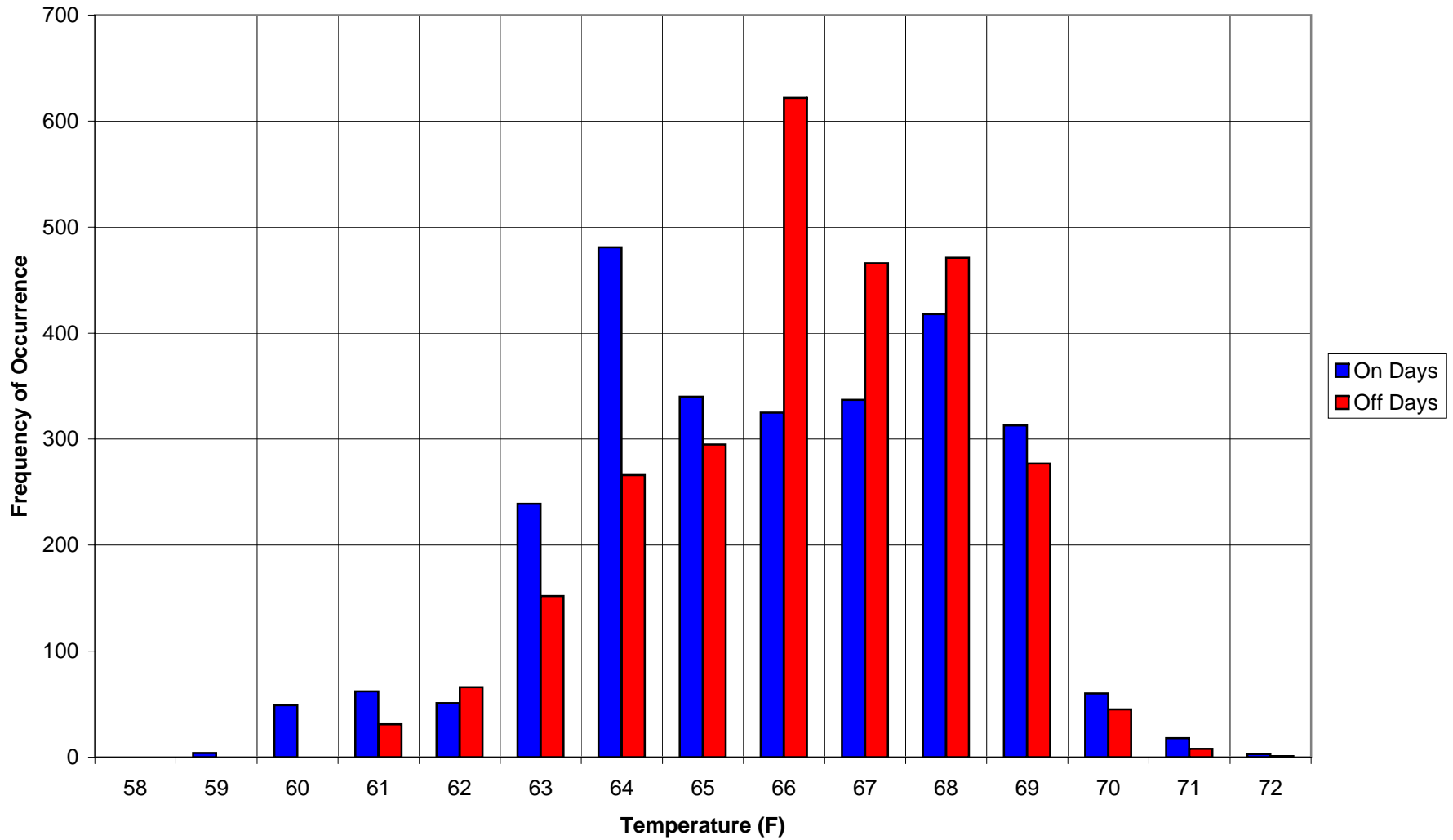
NJ DOT - THIOKOL Bldg. 9
Solar Influence Histogram (5/8/09 -- 6/6/09)



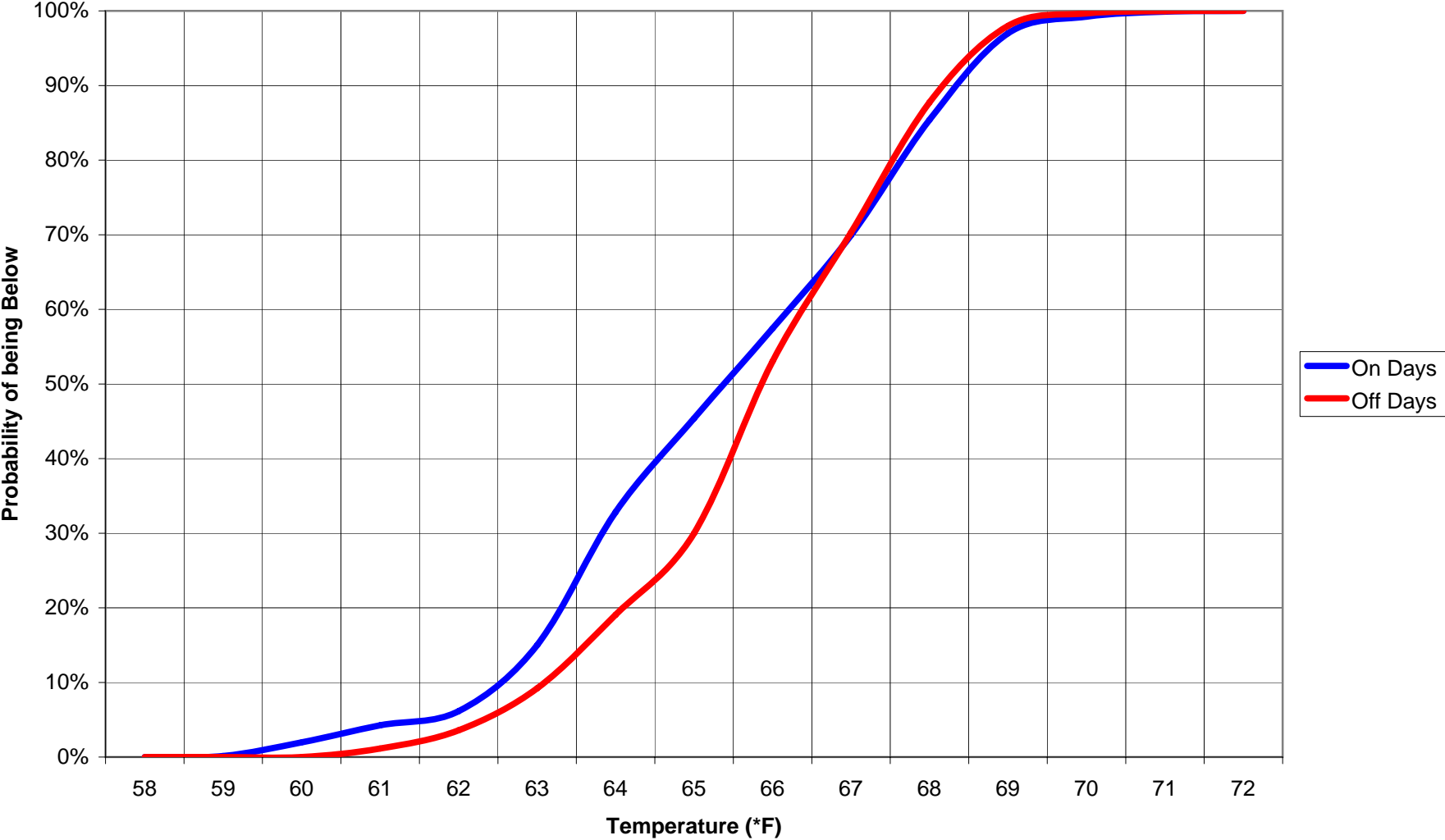
NJ DOT - THIOKOL Bldg. 9
Solar Influence Probabilities (5/8/09 -- 6/6/09)



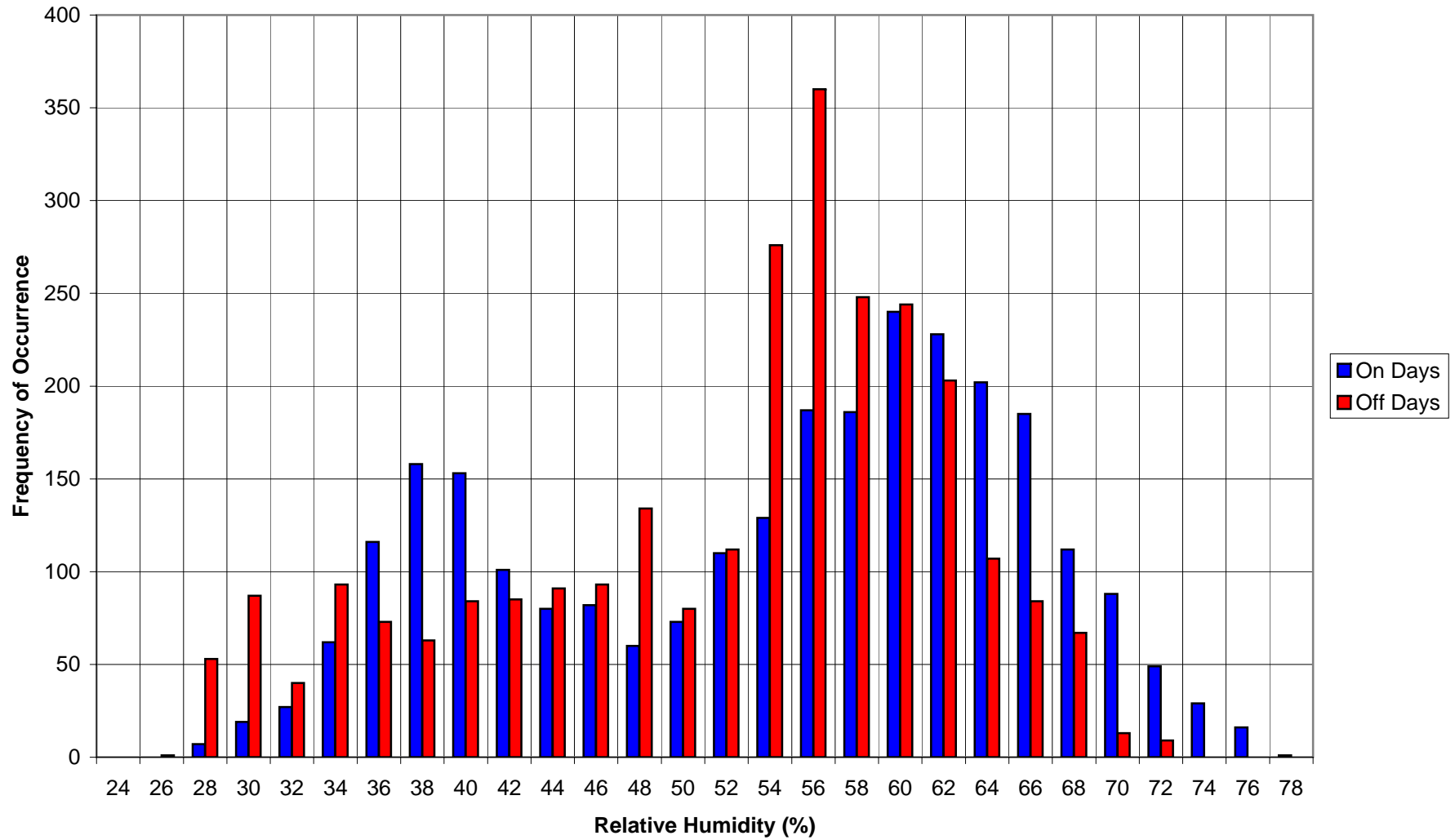
NJ DOT - THIOKOL Bldg. 9
Space Temperature Histogram (5/8/09 -- 6/6/09)



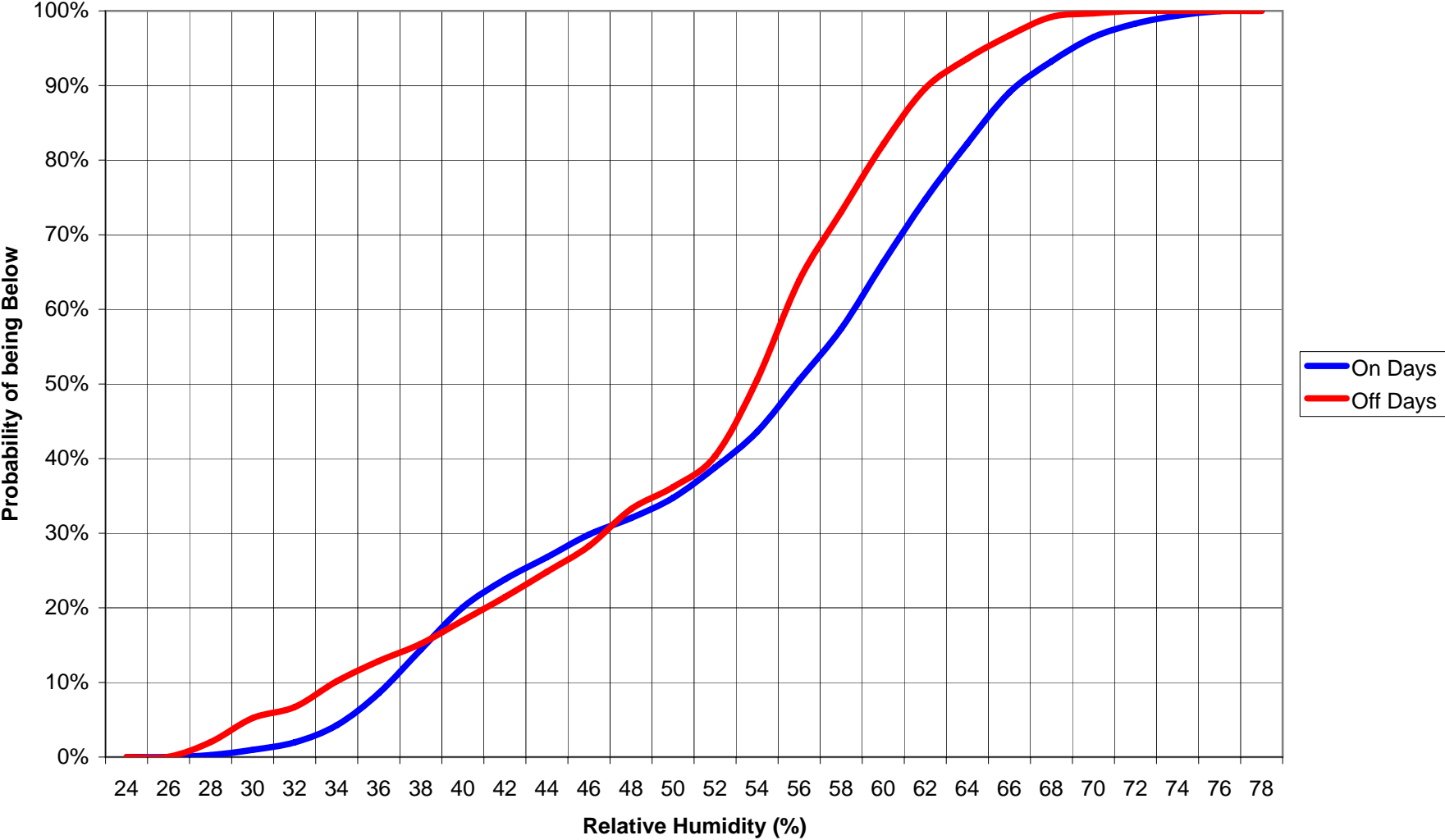
NJ DOT - THIOKOL Bldg. 9
Space Temperature Probabilities (5/8/09 --6/6/09)



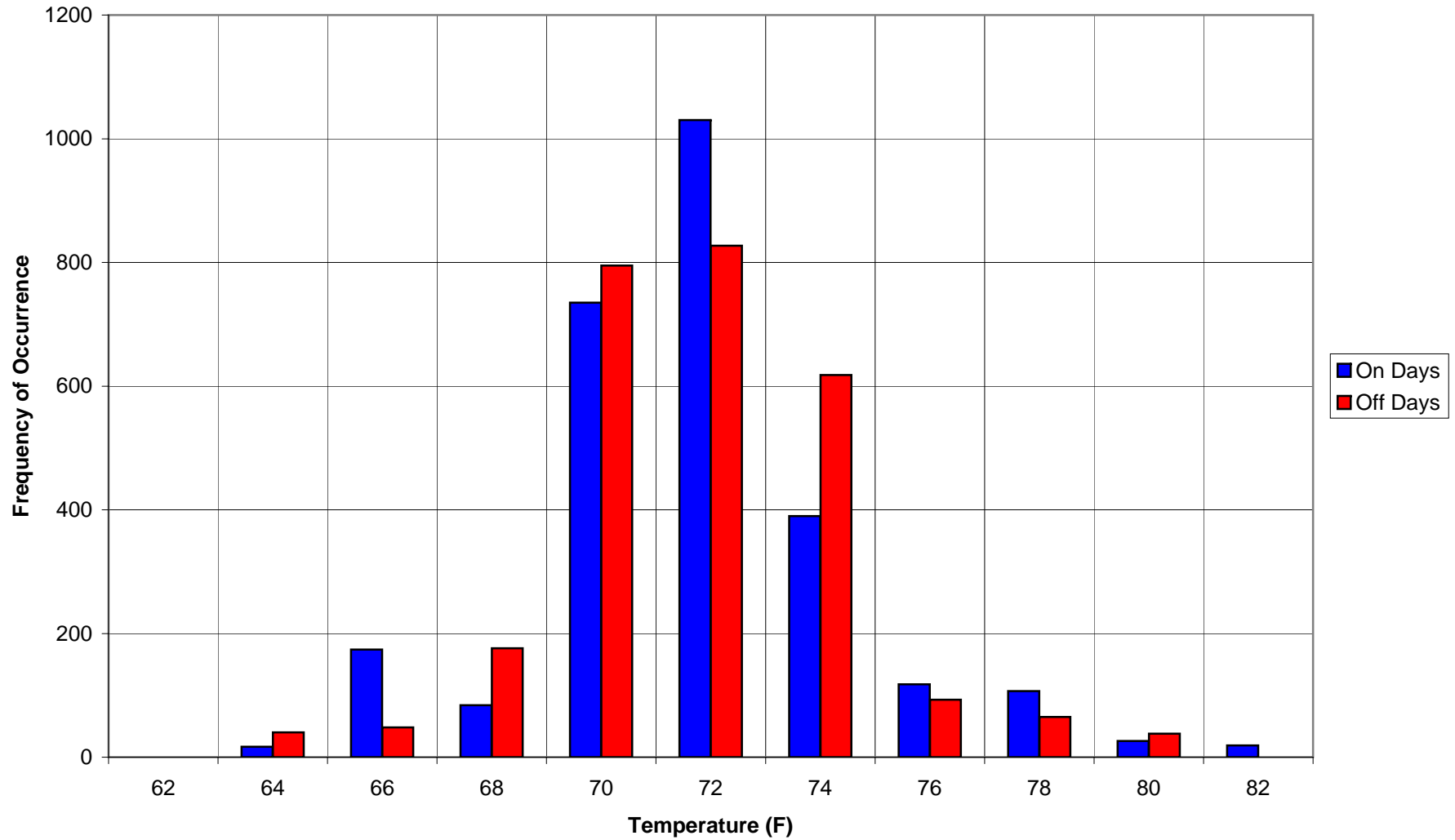
NJ DOT - THIOKOL Bldg. 9
% RH Histogram (5/8/09 -- 6/6/09)



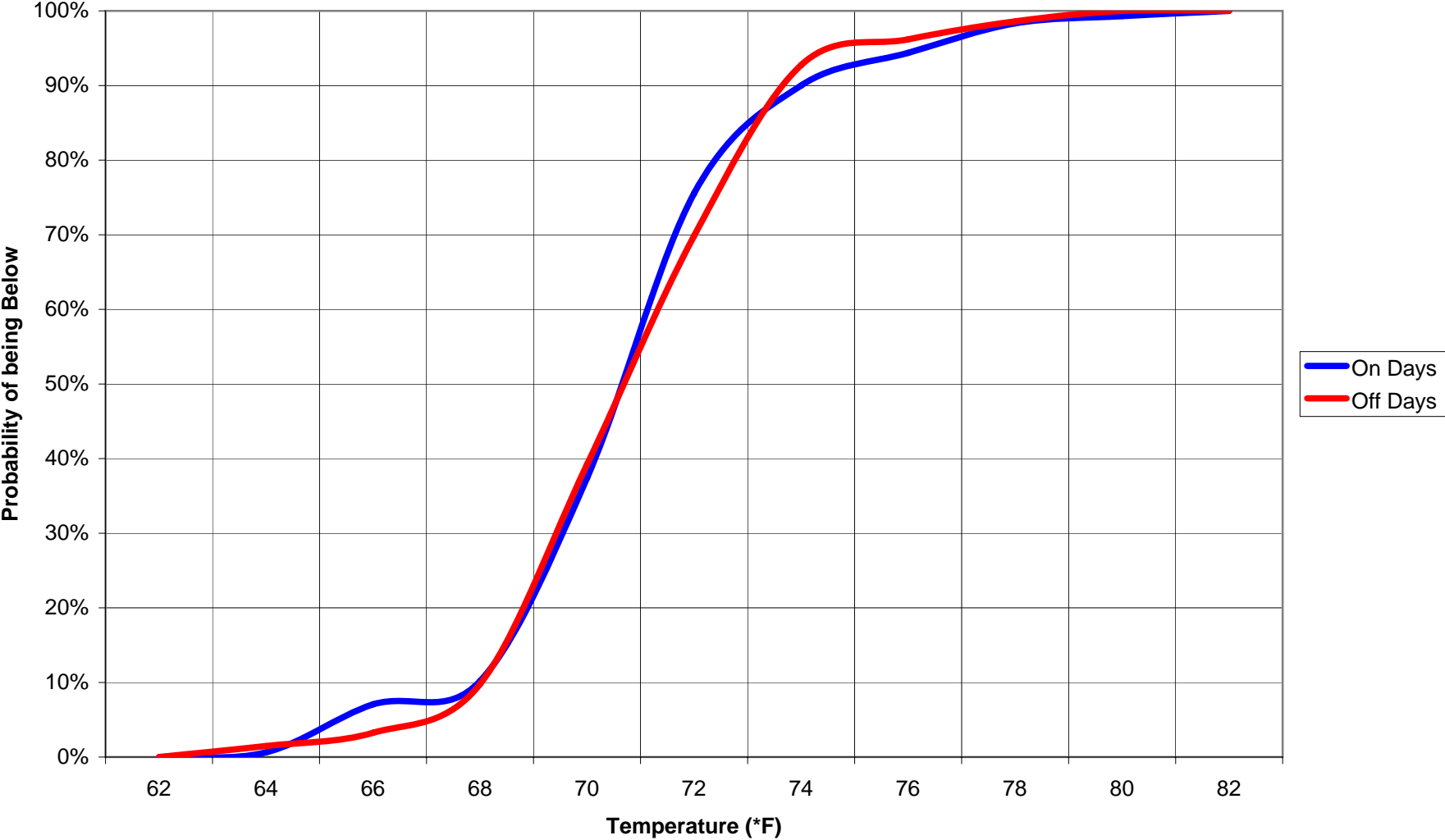
NJ DOT - THIOKOL Bldg. 9
% RH Probabilities (5/8/09 --6/6/09)



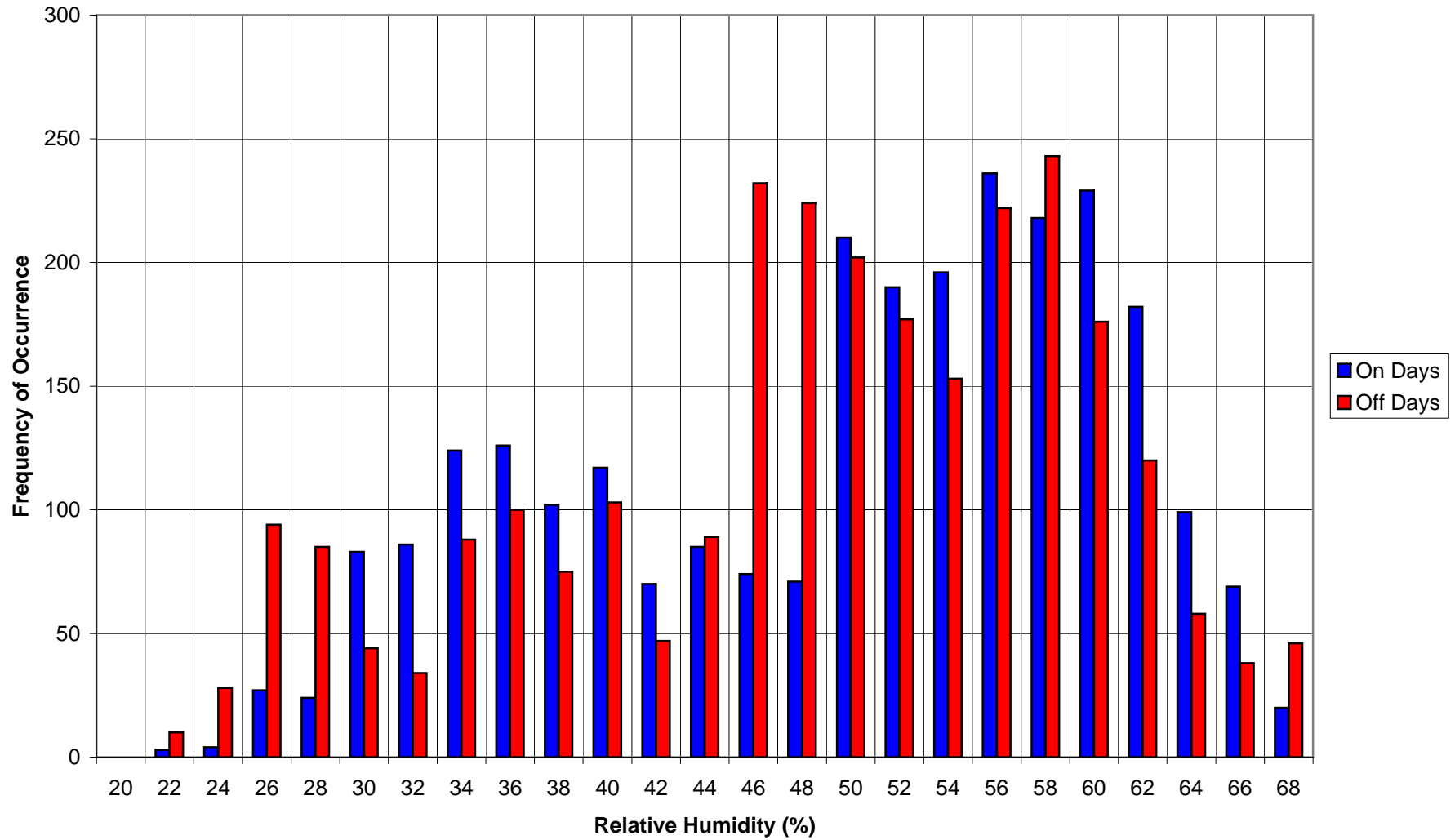
NJ DOT - Bldg. 4A
Space Temperature Histogram (5/8/09 -- 6/6/09)



NJ DOT - Bldg. 4A
Space Temperature Probabilities (5/8/09 --6/6/09)



NJ DOT - Bldg. 4A
% RH Histogram (5/8/09 -- 6/6/09)



NJ DOT - Bldg. 4A
% RH Probabilities (5/8/09 --6/6/09)

