



Report No. 12167  
Date: 04/06/10

# Fuel Reduction Pilot Program

CONDUCTED AT

HOLLAND TUNNEL TOLL PLAZA

FOR

Port Authority of New York  
&  
New Jersey

TEST RESULTS  
FOR  
HOT-WATER BOILERS

A Confidential Report  
*Prepared by*  
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# Test Report

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Date: 04/06/10

**Customer:**

The Port Authority of NY & NJ  
 225 Park Ave. South  
 New York, NY 10003

**Test Site Location:**

Holland Tunnel Toll Plaza

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

**Type of Equipment:**

Manufacturer: Weil McLain  
 Model: 88 Series 1 (both Boilers)  
 Capacity / SetPt: 2,396MBTU each, #1 - 175F / #2 - 180F  
 Fuel Type: Natural Gas  
 Application: Hydronic and Hydro-Air Space Heating  
 Area Served: Toll Plaza Bldg.- Perimeter & Toll Booth Heating  
 Misc.

Test Start Date: 01/27/10  
 Test End Date: 03/09/10  
 No. of Days in Test: 42

**BURNER RUN-TIME:**     in HRS.     in MIN.  
 IntelliCon ON-DAYS: 198:08:52  
 IntelliCon OFF-DAYS: 228:05:43    RUN-TIME was reduced by: 13.13%

**BURNER USAGE FACTOR:**  
 IntelliCon On-Days: 13%  
 IntelliCon Off-Days: 15%

**HEATING DEGREE-DAYS (FOR TEST PERIOD)**  
 IntelliCon ON-DAYS: 866    It was 2.1% Warmer on the On-Days.  
 IntelliCon OFF-DAYS: 885  
 Total Degree-Days: 1751

**USAGE PER DEGREE-DAY**  
 ON-DAYS: 0:13:44  
 OFF-DAYS: 0:15:28

**SOLAR LOAD COMPENSATION: (Lumens/Sq. Ft.)**  
 IntelliCon ON-DAYS: 1441159  
 IntelliCon OFF-DAYS: 1555520    It was 7.35% Sunnier on the OFF-Days.

**Individual Boiler Data**

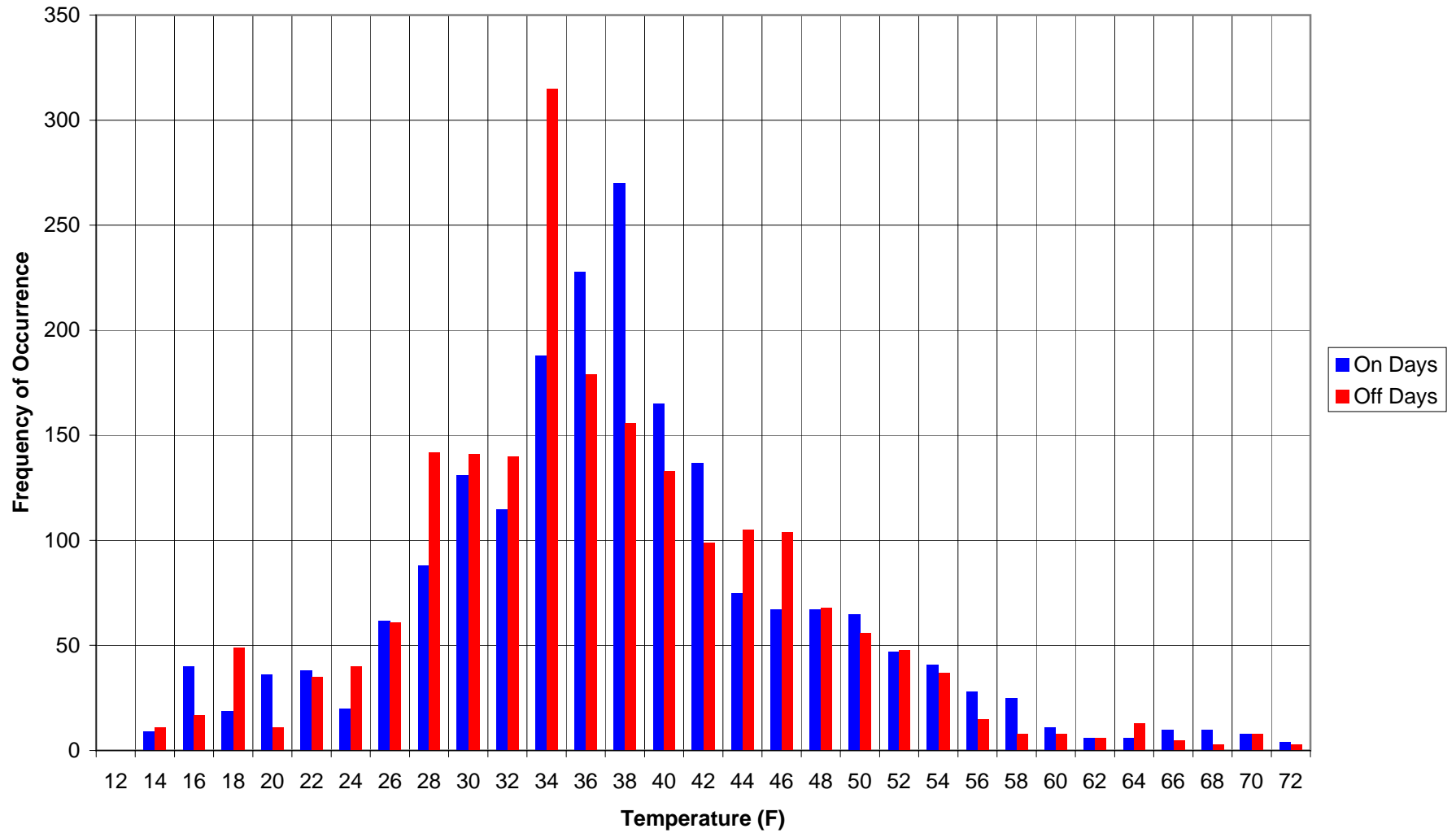
	ON-DAY	OFF-DAY
<b>Boiler #1</b>		
RT:	73:09:42	95:28:13
CYCLES:	932	1591
<b>Boiler #2</b>		
RT:	124:59:10	132:37:30
CYCLES:	1133	1591

**BURNER CYCLING REDUCTION:**  
 IntelliCon ON-DAYS: 2065  
 IntelliCon OFF-DAYS: 3182    Cycling was reduced by: 35.1%

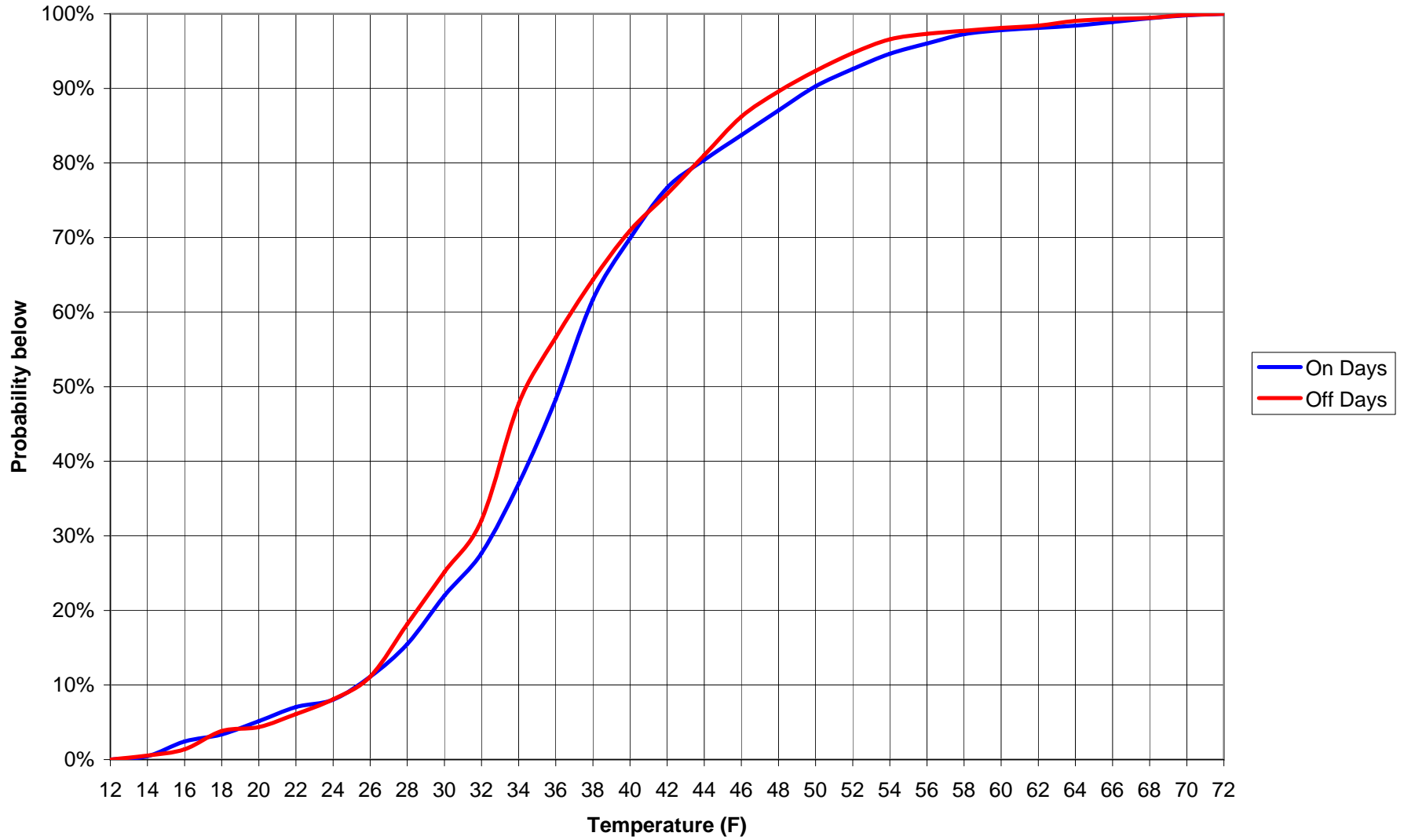
**Adj. Savings = 11.23%**

**COMMENTS:** Note: Heating Degree-Day and Solar influence data was gathered with on-site instrumentation and agrees closely with publicly available data. Even though it was 7.35% sunnier on the OFF-Days, analysis of the data resulted in very little correlation between Solar influence and Runtime. Thus, Solar influence was not compensated for. If it was, and since it was sunnier on the "OFF" days, compensation would have yielded increased savings. Temperature maintenance is documented and depicted through the use of the histogram and probability charts. These charts demonstrate very little change in temperature maintenance while achieving in excess of 11% savings.

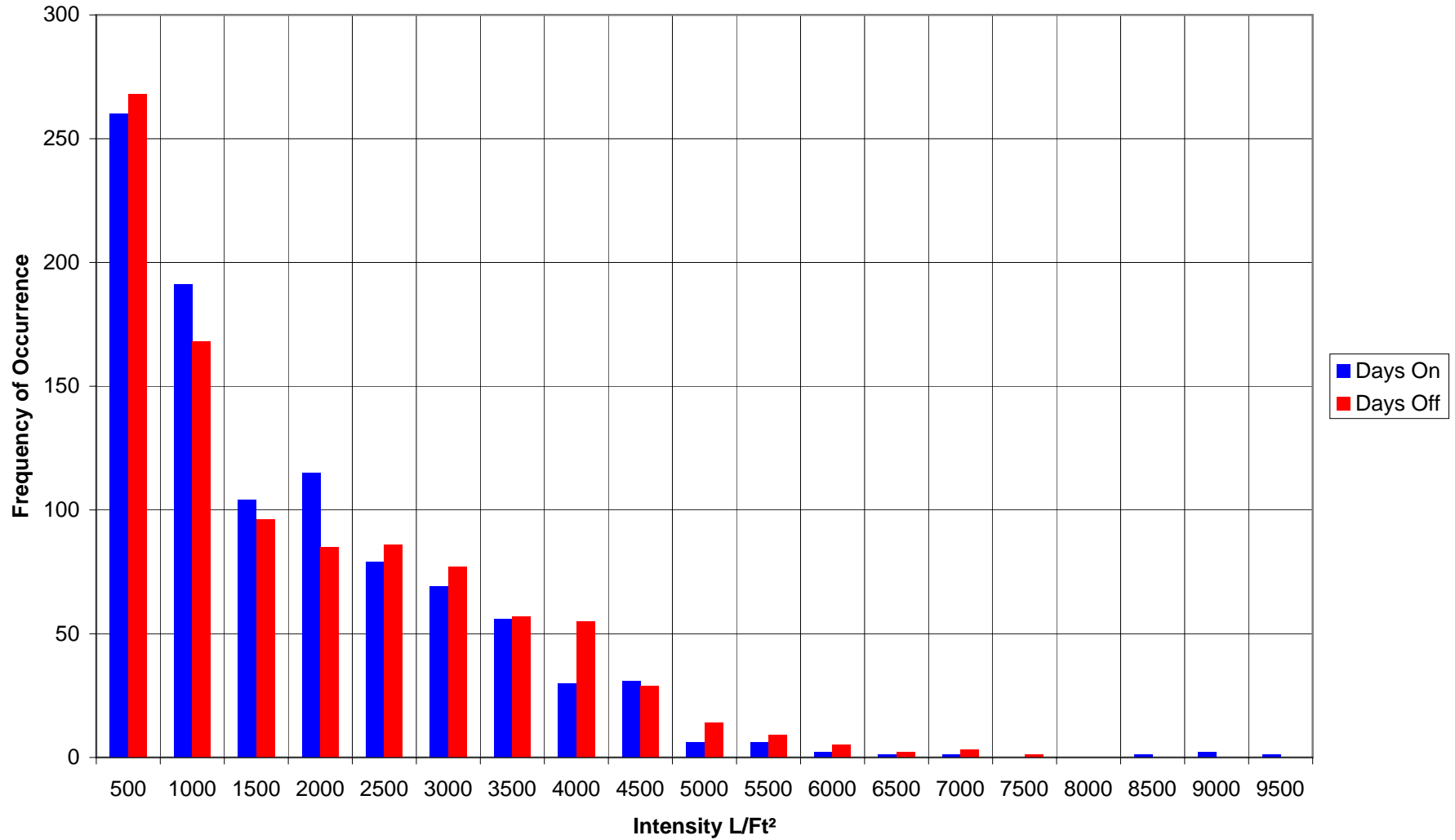
### The Port Authority of NY & NJ Holland Tunnel Toll Plaza Outside Air Temperature Histogram (1/27/10 - 3/09/10)



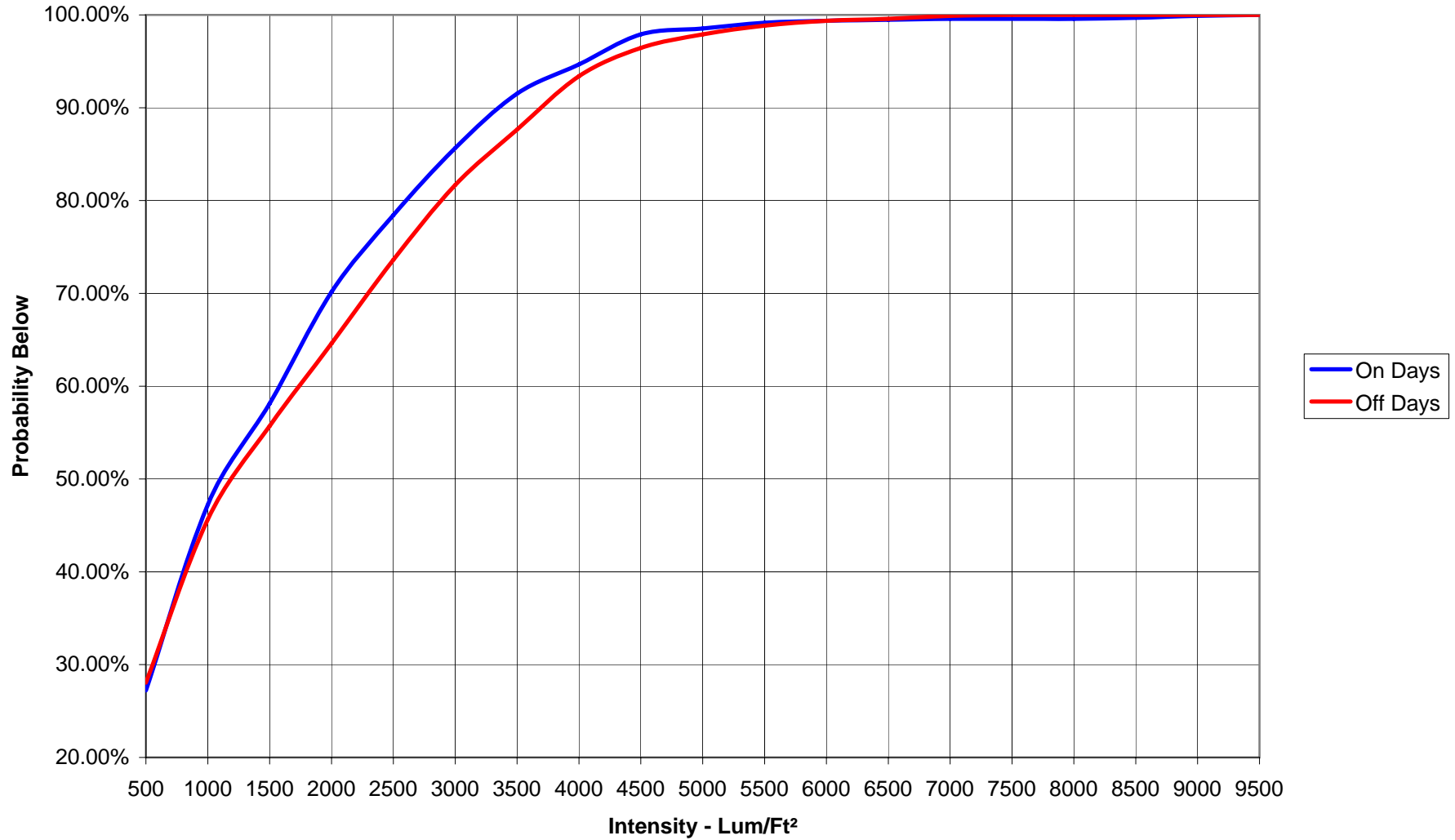
### The Port Authority of NY & NJ Holland Tunnel Toll Plaza Outside Air Temperature Probabilities (1/27/10 - 3/09/10)



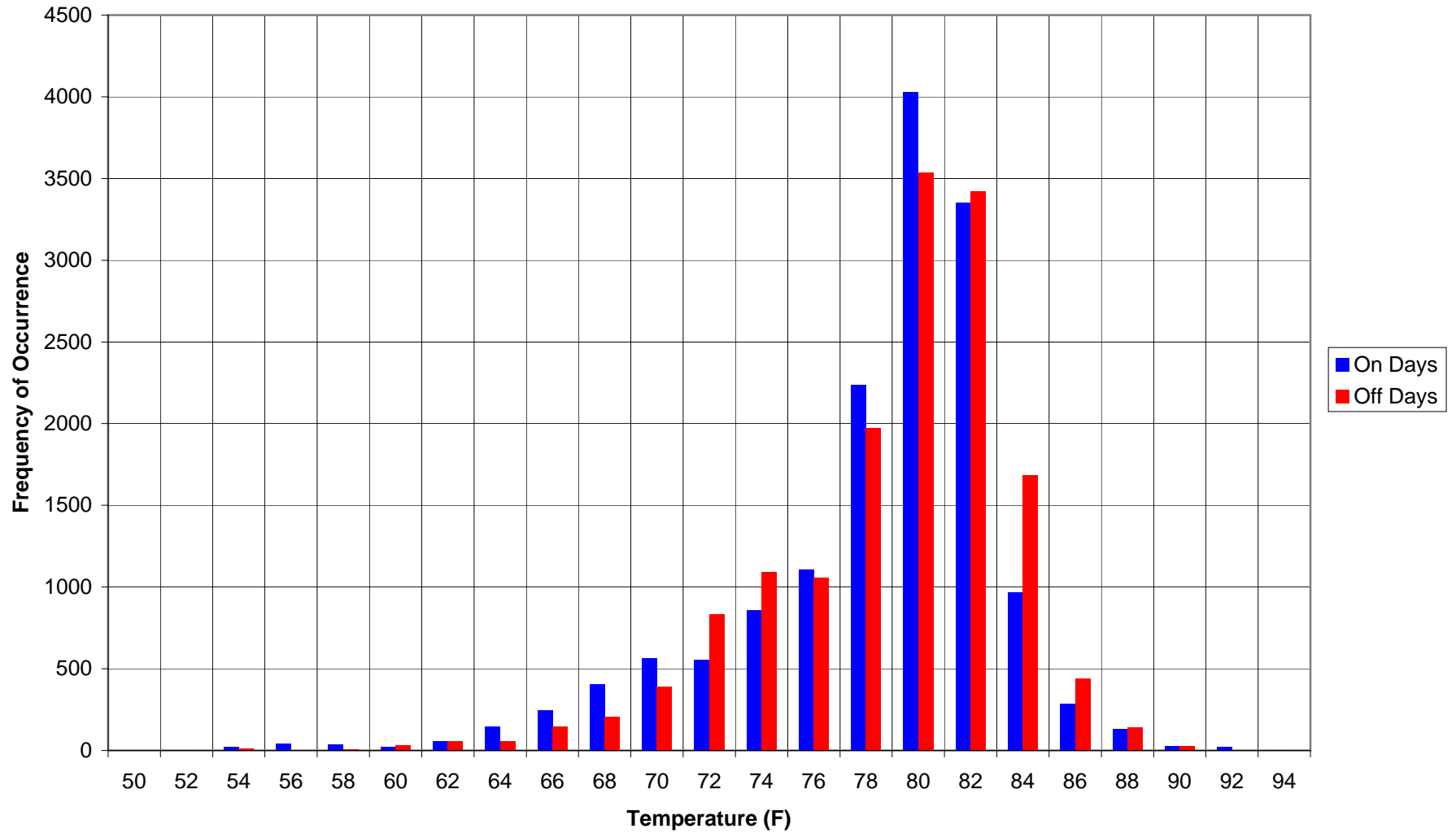
The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Solar Influence Histogram (1/27/10 - 3/09/10)



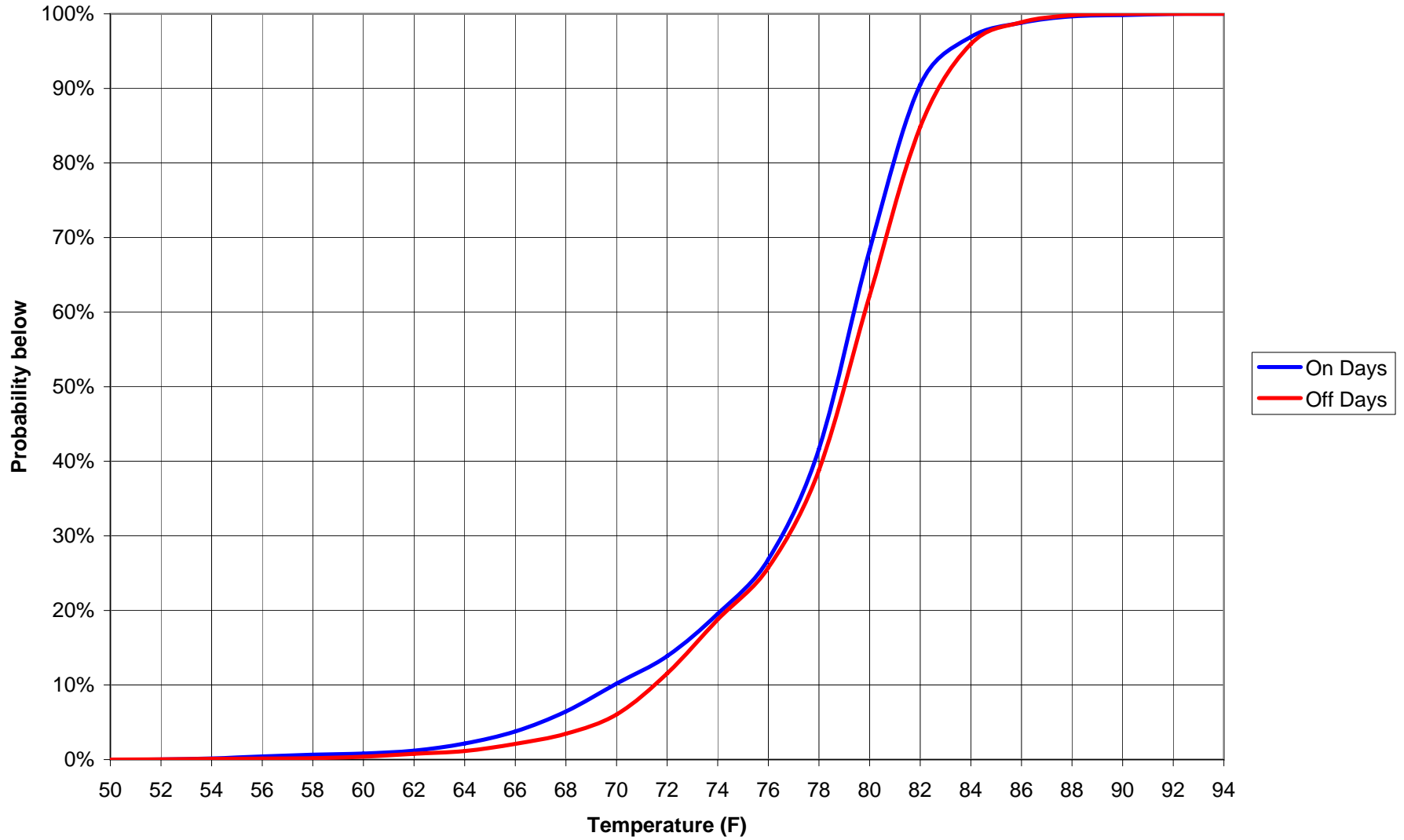
**The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Solar Influence Probabilities (1/27/10 - 3/09/10)**



The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Booth #8 Space Temperature Histogram (1/27/10 - 3/09/10)

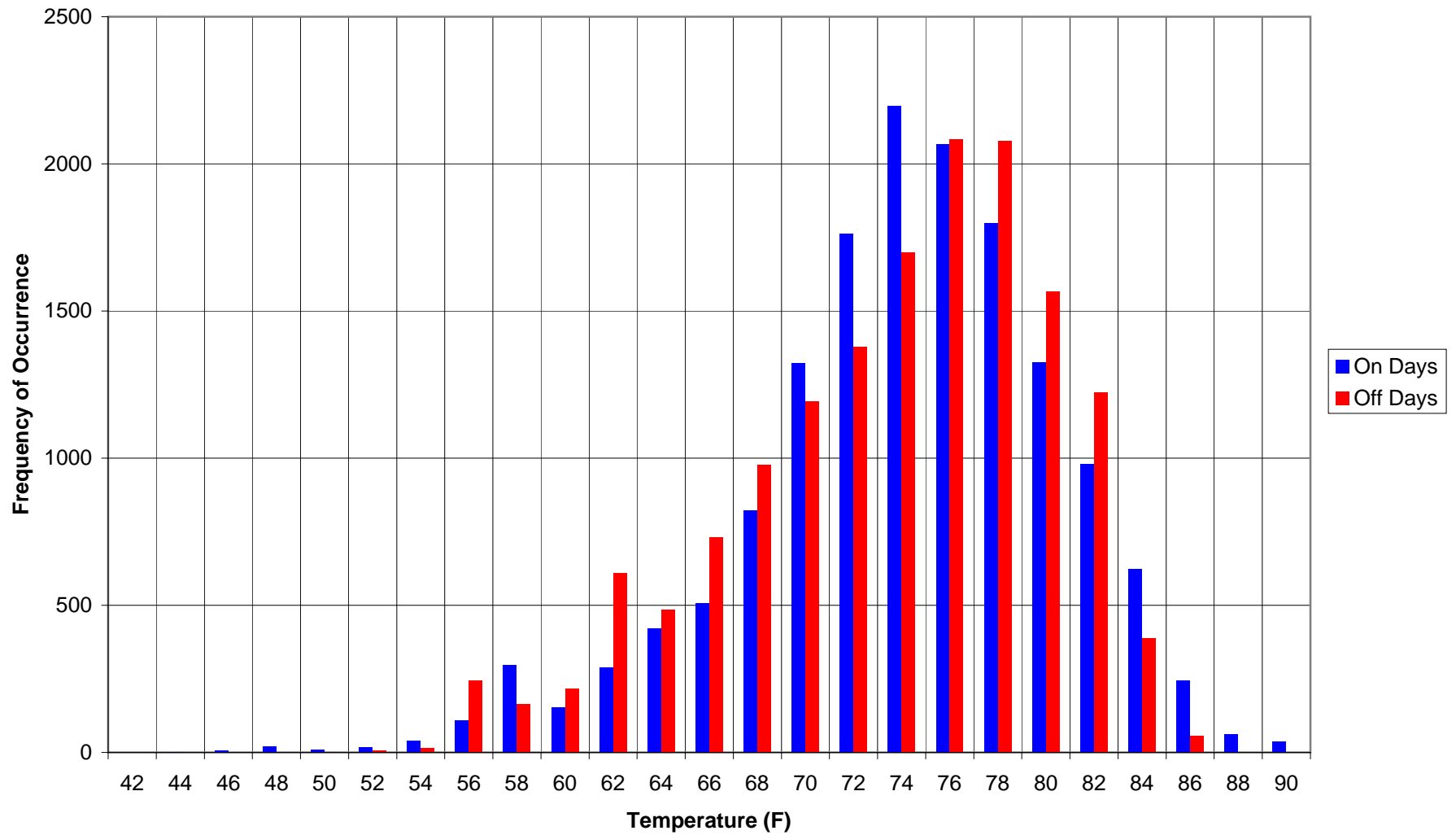


**The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Booth #8 Space Temperature Probabilities (1/27/10 - 3/09/10)**





The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Booth #9 Space Temperature Histogram (1/27/10 - 3/09/10)



**The Port Authority of NY & NJ Holland Tunnel Toll Plaza  
Booth #9 Space Temperature Probabilities (1/27/10 - 3/09/10)**

