



Report No. 12119

Date: 7/30/03

# Circle K Convenience Store

## Reducing KWH Consumption

Energy Savings Analysis Report on the effect of *IntelliCon*<sup>®</sup> Energy Reduction Controls Installed on the Compressors serving a Walk-In Ice Cream Freezer and a *Trane*<sup>®</sup> Split Air Conditioner.

A Confidential Report

*Prepared by*

Intellidyne LLC

## **EXECUTIVE SUMMARY**

The attached report summarizes the Energy Saving Performance of the IntelliCon “RU” and “CAC” energy saving controls installed on one Walk-in commercial freezer and one five ton Trane commercial Air Conditioning system. The IntelliCon® units were installed on July 2<sup>nd</sup>, at the Circle K mini market located at 921 Route 73, Mount Laurel, NJ. These systems are operating on a 24 hours per day, 7 days per week basis. In the 2 separate tests that were performed at this particular store the IntelliCon® Units delivered electric consumption **reductions which ranged from 10.6% to 19.2%** with no significant temperature excursions.

The individual reports contain the documentation that supports the summary results and further defines the length of each test as well as documenting the overall temperature performance and predictability of the temperature range of the units after the IntelliCon® affect.

The statistical analysis concludes that the IntelliCon® units deliver above the minimum guaranteed savings, and should provide the additional benefit of extending the life expectancy of the compressor on those units. This reduced operating cost was achieved while providing more consistent and predictable temperature performance.

These results present a compelling financial benefit resulting from the implementation of the IntelliCon® Energy Saving Controls. When both IntelliCon® technologies are applied in a single store application, the owner should expect a pay-back on the installation investment in less than 12 months. (Assumes electricity costs in the \$.10 per KWH range and no benefit from reduced “Peak Demand Charges” or reduced maintenance costs).

A detailed savings estimate and ROI calculation has been provided as part of this report.

The Intellidyne “RU” and “CAC” controls will deliver the following benefits and come with a 15 year product failure warranty.

**Guaranteed Energy Consumption Reductions**  
**Improved Temperature Performance**  
**Reduced Wear and Tear from excessive on/off cycling**  
**Low upfront costs and High ROI**



Circle K Convenience Store  
921 Rt 73, Mt. Laurel, NJ

**ESTIMATED ENERGY SAVINGS WITH *Intelli Con* "RU"&"CAC"**

Instructions: Fill in the Yellow Boxes	Walk-in Freezer Glass front Merchandiser		Trane Package Unit 5 Ton Single Stage	
1. Actual Compressor Running Amps. (A)	10.2		8.2	
2. KW per Hour @ 219 VAC, 3Phase, Actual Runtime Factor (x) using actual amps: (B)	3.439	89.00%	2.019	65.00%
3. Months of Operation: (C)	12		12	
4. Monthly Hours of Operation: Daily hrs 24 (D)	720		720	
5. Monthly KWH Cost: (E)	\$0.10		\$0.10	
6. Monthly Operating Costs: (B) x (D) x (E) (F)	\$247.64		\$145.40	
7. IntelliCon® Reduction Per Month: (B) x (D) x (actual R T savings) x (E) (G) Actual Run Time Reduction	\$26.25	10.60%	\$27.77	19.10%
8. IntelliCon® Annual Saving: (G) x (C) (H)	\$314.99		\$333.25	
9. IntelliCon® Unit Cost: (I)	\$575.00		\$575.00	
10. 1st Year Return On Investment: (H) ÷ (I)	54.78%		57.96%	
11. 5 Year Return On Investment	273.91%		289.78%	
12. Payback Period Operating Mo. (I) ÷ (G)	21.9		20.7	
<b>Number of units this size</b>	<b>3</b>		<b>3</b>	
Total Cost	\$1,725.00		\$1,725.00	
Average monthly Operating costs	\$742.91		\$436.19	
Monthly Savings Esimated	\$78.75		\$83.31	
Total Annual Savings	\$944.98		\$999.74	
Project Annual Savings	\$1,944.71			
Project Total Cost	\$3,450.00			
Annual ROI	56.37%			
Payback period	21.3 mos. of operation			



90 Pratt Oval  
 Glen Cove, NY 11542  
 Phone:516-676-0777  
 Fax: 516-676-2640

# Test Report

Report No. 12119-1

Date: 07/28/03

**Customer:**

Circle-K  
 Rte 73, Exit 4 - South Jersey  
 Contractor: QBC

**Test Site Location:**

SAME  
 Ice-Cream Freezer

Test Type:  HEATING  AIR CONDITIONING  REFRIGERATION  OTHER: \_\_\_\_\_

Product Tested:  HW  LCH  LCS  CHW  CHS  AC  CAC  RU  OTHER: \_\_\_\_\_

**Type of Equipment:**

Ice-Cream Freezer  
 Setpoint : -10 F.  
 Copeland Compressor 220VAC @ 10.2A 3-phase  
 Approx. 4KW per Hour @ 89% Usage Factor

Test Start Date: 07/08/03  
 Test End Date: 07/13/03  
 No. of Days in Test: 6

**COMPRESSOR RUN-TIME:**

in HRS.  in MIN.

IntelliCon ON-DAYS: 3402.5

IntelliCon OFF-DAYS: 3805.8

RUN-TIME was reduced by: 10.60%

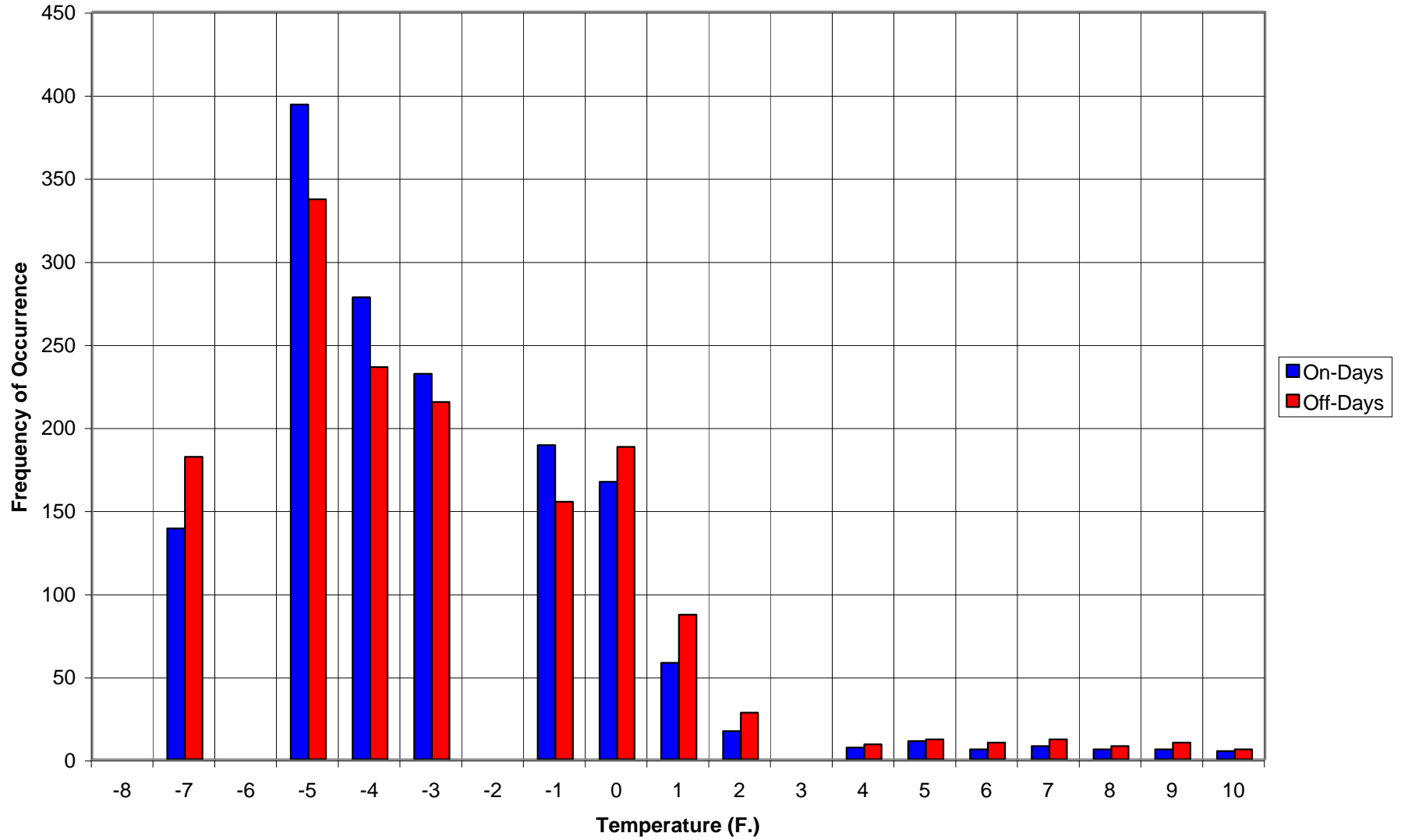
**Savings = 10.60%**

COMMENTS: Compressor usage was reduced from approx. 89% to 78%. Actual Freezer Set-Point was between -3 to -5 Degrees.

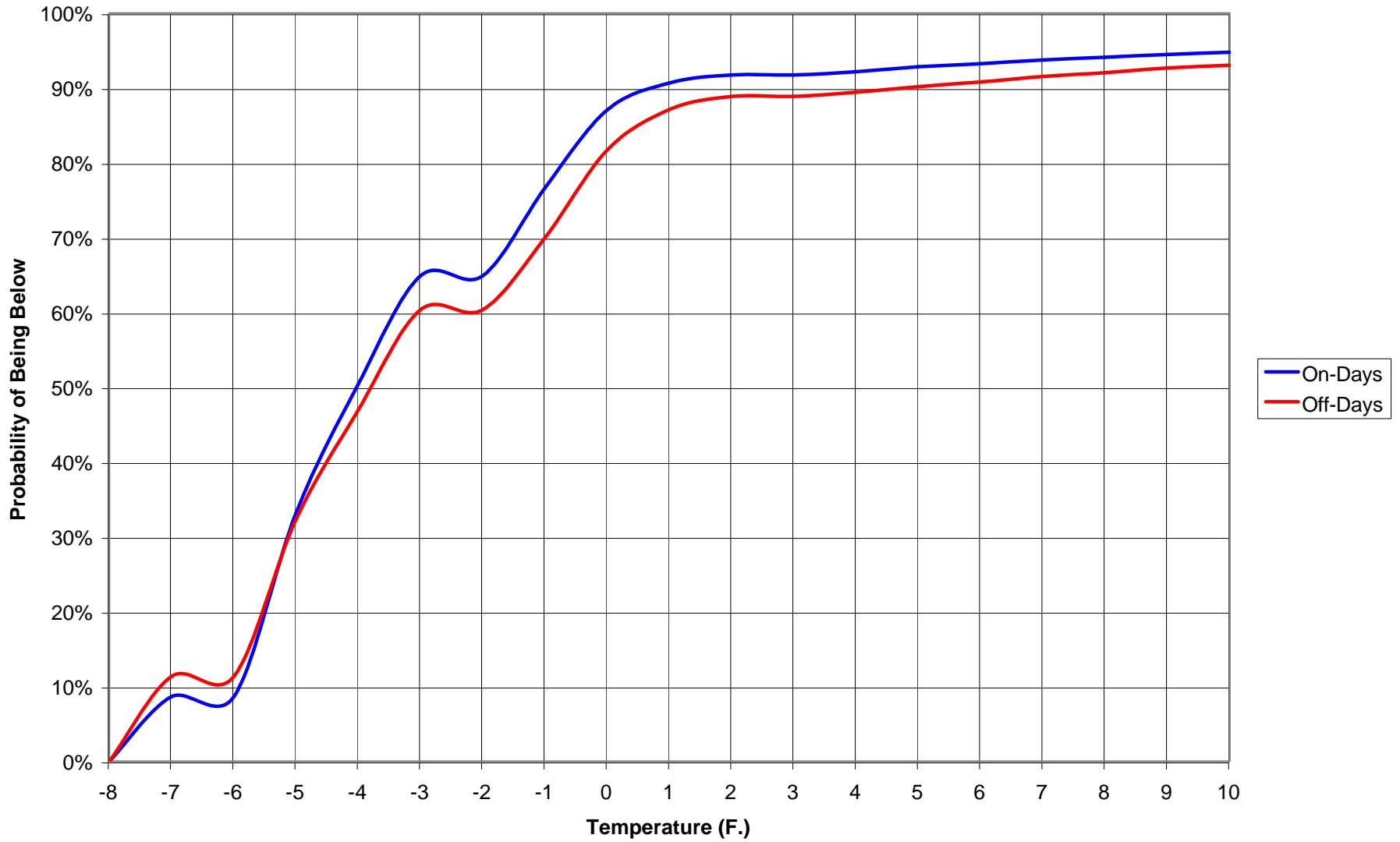
**ATTACHMENTS:**

- EXEC. SUMMARY
- TEMP. HISTOGRAM
- SOLAR HISTOGRAM
- OTHER \_\_\_\_\_
- TEMP. PROBABILITY
- SOLAR PROBABILITY
- OTHER \_\_\_\_\_

Freezer Temperature Histogram



Walk-In Freezer Temperature Variance Probabilities





90 Pratt Oval  
 Glen Cove, NY 11542  
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# Test Report

Report No. 12119-2

Date: 07/28/03

**Customer:**

Circle-K  
 Rte 73, Exit 4 - South Jersey  
  
 Contractor: QBC

**Test Site Location:**

SAME

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

**Type of Equipment:**

Trane 5 Ton Split System w ACCU  
 220V @ 8.2A (actual) 3 phase  
  
 Approx. 3KW per Hour @ 65% Usage Factor

Test Start Date: 07/02/03  
 Test End Date: 07/13/03  
 No. of Days in Test: 12

**COMPRESSOR RUN-TIME:**

in HRS.  in MIN.

IntelliCon ON-DAYS: 4488.3

IntelliCon OFF-DAYS: 5546.4

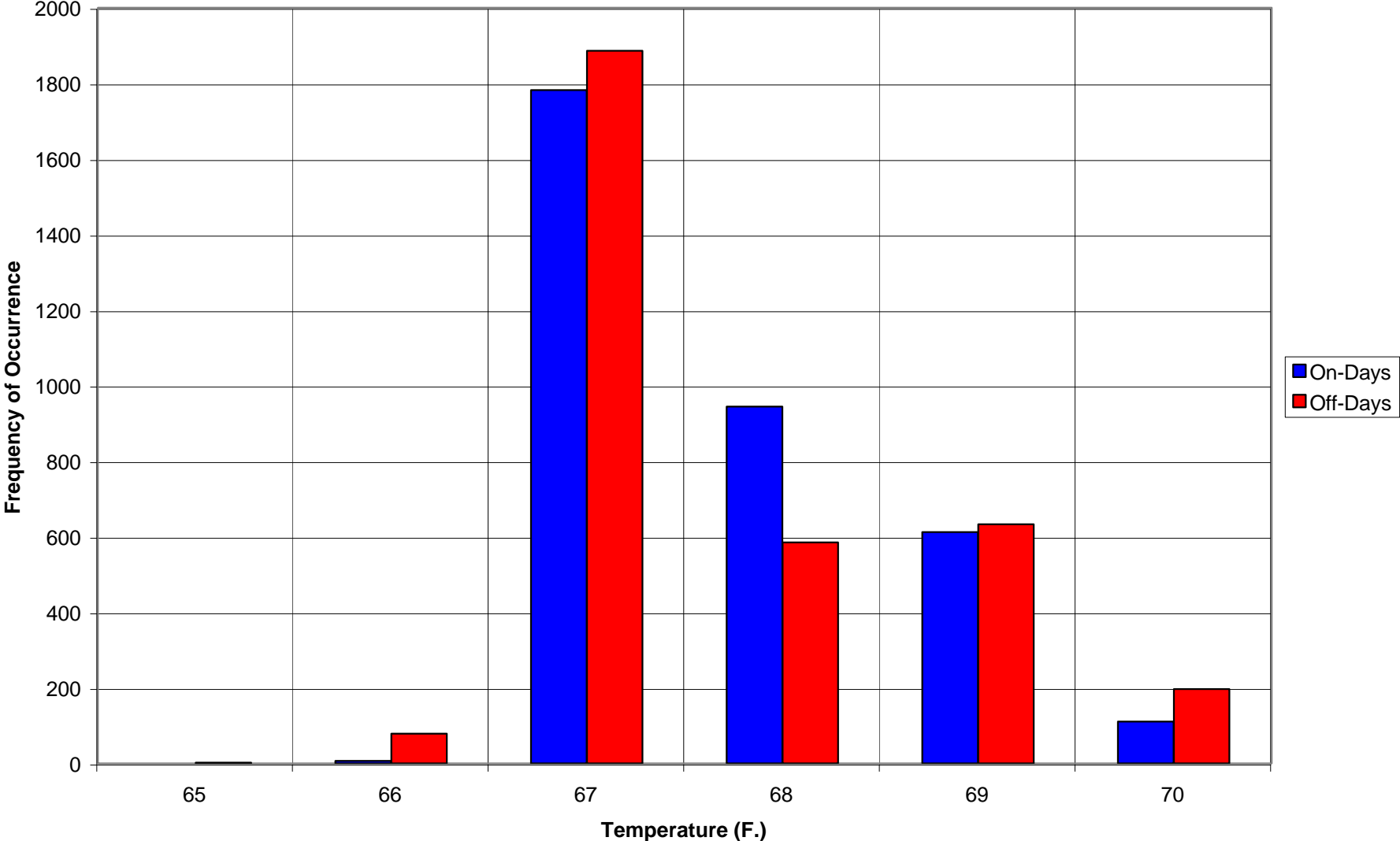
RUN-TIME was reduced by: 19.08%


**Savings = 19.08%**

COMMENTS: Compressor usage was reduced from approx. 65% to 52%. Actual Space Set-Point was between 67 to 69 Degrees.

ATTACHMENTS:  EXEC. SUMMARY  TEMP. HISTOGRAM  SOLAR HISTOGRAM  OTHER \_\_\_\_\_  
 TEMP. PROBABILITY  SOLAR PROBABILITY  OTHER \_\_\_\_\_

AC Space Temperature Histogram





AC Space Temperature Variance Probabilities

