Case Study #3
Regional Airline / Airport

Josh Nice – Horizon Air
About Horizon

- Est. 1981
- 48 Destinations
- 65 Aircraft
- 4000 Employees
Horizon Deicing

- Type I: Lyondell Arctic Plus
- Type IV: Lyondell Arctic Shield
- Other fluid brands used by vendors
- Deicing operations in 45 of 48 cities
- Mostly frost deicing (1786 of 2774 since 22Jan08)
- Challenge: warmer-wx cities: maintaining quality training by seasoned individuals
Horizon Deicing, cont.

- Avg fluid use
  - Q200 frost: 10-20 gal, Lt snow by itself: 30-50 gal, Type IV: 25-35 gal
  - Q400/CRJ frost 15-20 gal, Lt snow by itself: 60-80 gal, Type IV: 40
  - +500 gal in any condition where ice exists and more precip is falling
Horizon Deicing, cont.

Of 37 cities surveyed:

- 26 have 9 or fewer Horizon departures/day
- Gallons per station per season (more data available) range from Type I: 0-60K (avg 5200), Type IV: 0-3500 (avg 742)
- 26 have an industrial stormwater general permit
- 8 utilize a deice pad
- 32 normally deice at the gate
Horizon Deicing, cont.

Of 37 cities surveyed, cont:
- 16 airports manage deice fluid runoff
- Of those 16, 7 use collection ponds, 5 GRV, 2 treatment system
- 7 clean up dry weather deicing fluid
- Of those 7, 4 use loose absorbent, 3 vacuum
- 20 discharge stormwater to water, 16 to the ground
Tri-Cities Airport (PSC)

- Typical small airport (6 Horizon flights/day)
- One deice truck (Superior deicer)
- Employed deice pad in 2007-08 season
- Single engine ops most efficient, not as fuel economical
- Served by Horizon, Skywest (UA/DL), and Allegiant
- Max Type I used in a season: 1800
- Max Type IV used in a season: 0
Tri-Cities Airport (PSC)

- Climate

<table>
<thead>
<tr>
<th>Month</th>
<th>Average Max Temp (F)</th>
<th>Average Min Temp (F)</th>
<th>Average Total Precipitation (in.)</th>
<th>Average Total Snowfall (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>40.5</td>
<td>26.2</td>
<td>1.01</td>
<td>3.0</td>
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<tr>
<td>Feb</td>
<td>48.5</td>
<td>30.4</td>
<td>0.72</td>
<td>1.6</td>
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<td>Mar</td>
<td>57.9</td>
<td>35.1</td>
<td>0.60</td>
<td>0.3</td>
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<td>Apr</td>
<td>66.6</td>
<td>40.9</td>
<td>0.50</td>
<td>0.0</td>
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<tr>
<td>May</td>
<td>75.3</td>
<td>48.2</td>
<td>0.54</td>
<td>0.0</td>
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<td>Jun</td>
<td>82.6</td>
<td>54.8</td>
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<td>Jul</td>
<td>90.3</td>
<td>59.5</td>
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<td>Aug</td>
<td>89.3</td>
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<td>Sep</td>
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<td>Oct</td>
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<td>40.9</td>
<td>0.51</td>
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<tr>
<td>Nov</td>
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<td>33.8</td>
<td>0.95</td>
<td>0.7</td>
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<td>Dec</td>
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<td>28.6</td>
<td>1.04</td>
<td>2.5</td>
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<td>Annual</td>
<td>65.9</td>
<td>42.3</td>
<td>7.10</td>
<td>8.1</td>
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</table>

Source: About.com (http://gonw.about.com/library/climate/blrichland.htm)
Tri-Cities Airport (PSC)

- Aircraft type(s) (Q200 and Q400)
- # of Deicing Events (22Jan08-9Apr08)
  - 48 events
  - 47 frost events
  - 1 freezing fog event
- $9M, approx 200x300 ft 2 a/c pad piped to oil/water separator to 30,000 gal tank.
- Filled 3 times already, only about 1/10 glycol
- Goal: pipe to Pasco sanitary system, currently discharging to drain field
- $4.50 PFCs, $2M AIP are being used to finance, should be paid next year
In Closing – High Level Horizon Concerns

- Cost concerns – Departing cities
- Operational Planning concerns (pad planning involvement (engines running/ground power, parking into wind), seasonal flight time adjustments, flight ops involvement, etc)
- Climate considerations (lots of frost deicing)
- Aircraft type differences (share of traffic in relation to share in glycol may not be consistent)
- Training challenges – remove, but don’t overuse
- Equipment differences
- Be Proactive – New city example
End