2011 South Central Texas Regional Water Plan

Study 3 – Condensate Collection

Status Report

South Central Texas Regional Water Planning Group

August 7, 2008

Study 3 – Task 2: Condensate Collection

- Prepare preliminary cost estimates to install air-conditioning systems with condensate collection facilities and plumbing to deliver the water for use either as landscape irrigation or for other uses, such as toilet flushing and sanitation.

Topics for Discussion

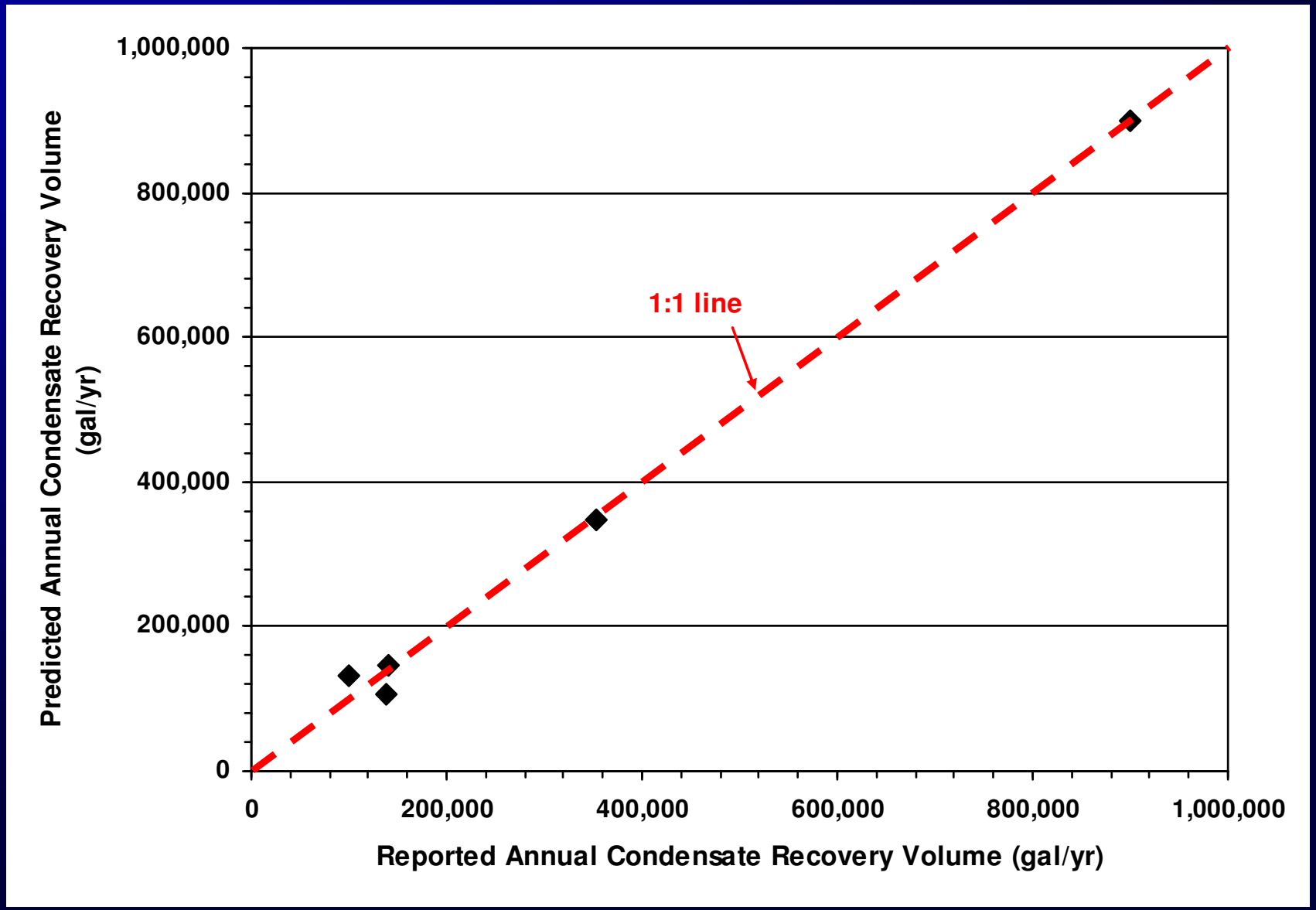
- Data Available
- Correlation Equation Development
- Cost Estimates
- Potential Concerns

Condensation Collection Facility Data

Condensate Collection Project	Location	Building Area (ft^2)	Average Summer Afternoon Humidity	Average High Summer Temperature (degrees F)	Annual Condensate Recovery Volume (gal/yr)
Sea World Game Center	San Antonio, TX	28,000	57%	91	140,000
Houston EPA Laboratory	Houston, TX	39,408	62%	88	138,333
EPA Gulf Ecology Division Laboratories	Gulf Breeze, FL	79,450	62%	85	100,000
Emory University Winship Cancer Institute	Atlanta, GA	200,000	57%	80	900,000
Fulton County Health Center	Wauseon, OH	281,500	56%	73	353,000
Duke University Gross Chemistry Center and Levine Science Resource Center	Durham, NC	430,000	57%	80	7,000,000

Condensate Volume vs Area, Humidity, & Temperature

Condensate Volume = (33.3*Area) + (21,273,464.4*Humidity) + (436,169.7*Temperature) – 52,778,292.9



Cost Estimates

- Very limited data available on costs for new construction installation
  - ~$45,000 in Capital Costs for a 200,000 sq ft facility and included piping to cooling towers only
- Hypothetical "Big Box" store in Bexar County
  - 130,000 sq ft Example
  - Could produce about 11 acft/yr of water, of which about 5 acft/yr could be used on-site (additional costs necessary for storage, plumbing, and/or connection to other potential users)
- Assuming information above and amortizing over 30 years, Unit costs = ~$950/acft/yr

Potential Concerns

- Dust and Algae Problems
  - Clogged Drains
  - Condensation Pump Motor Failure
  - Overflows
  - Quality problems with collected water
  - Potential risk of mold problems

- Reduces peak water use, but not a conventional firm supply as air condition use is limited in cooler months (November – March)