Air Tower LLC

Reversed cooling tower patent

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Management

Dirk F. Eyermann
- **Manager**

Manfred Weichsel
- **Senior Sales Manager**

Ownership

Siegrun Eyermann

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Air Tower Offering - Heating Tower Process

- Primary goal is to market the LNG Air Tower Vaporization process
- This patented process enables builders of LNG Receiving Terminals to heat the LNG by using the heat of the ambient air via a Heating Tower
- The proprietary process
  1. Creates substantial cost savings with high ROI
  2. Reduces emissions
  3. Has no impact on marine environment
- The process is being used on production scale at the LNG Receiving Terminal in Freeport, Texas. Operation has started in June 2008.
- Conservative estimates show that the anual fuel gas consumption can be reduced by 70% compared to a regular fuel gas vaporizing processes under weather conditions in the Gulf Coast area

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Advantages for LNG Receiving Terminal Developers

Cost Savings:

- Reduced fuel gas consumption compared to fuel gas heating systems (e.g. Submerged Combustion Vaporizers or Direct Fired Heaters). How high the cost savings are, depends heavily on location of the LNG Terminal.
- Reduced NO_X emissions compared to fuel gas heating processes (e.g. 140 ton/BCF) -> air permits for NO_X emissions are expensive

Other Advantages

- Less environmentally harmfull emissions
  ➡ advantage for environmental permit
- The process will produce large quantities of pure water through the condensation of moisture from the air
  ➡ no issues when releasing back to the environment
- For a capacity of 1 BCF/d several million litres of pure water per day are produced
  ➡ possible additional income, if sold to community
- No harm to marine life - sea water is not used like in Open Rack Vaporizers (ORV)
- First facility to use the proprietary process has started operation in June 2008
- Many standard equipment parts can be used

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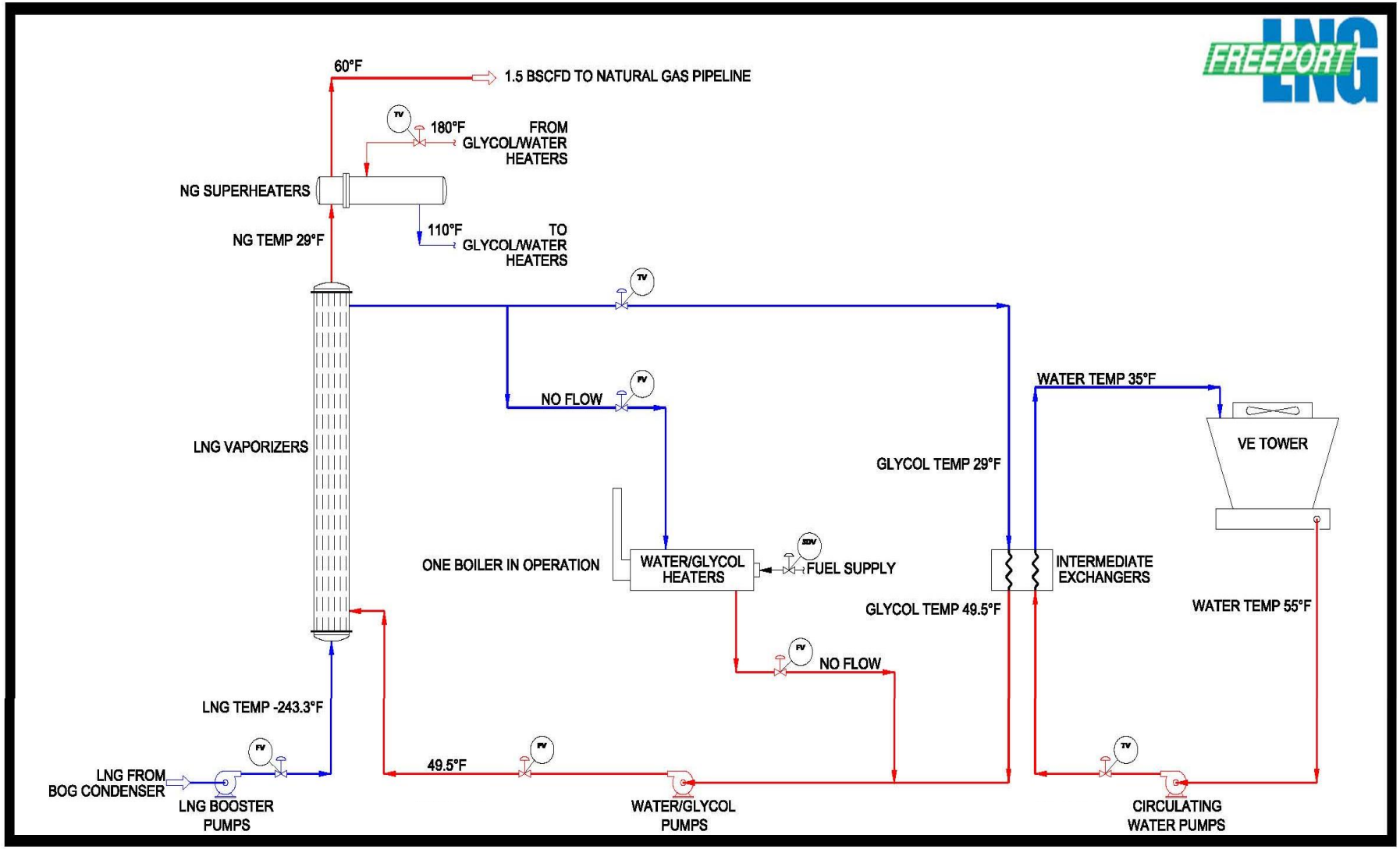
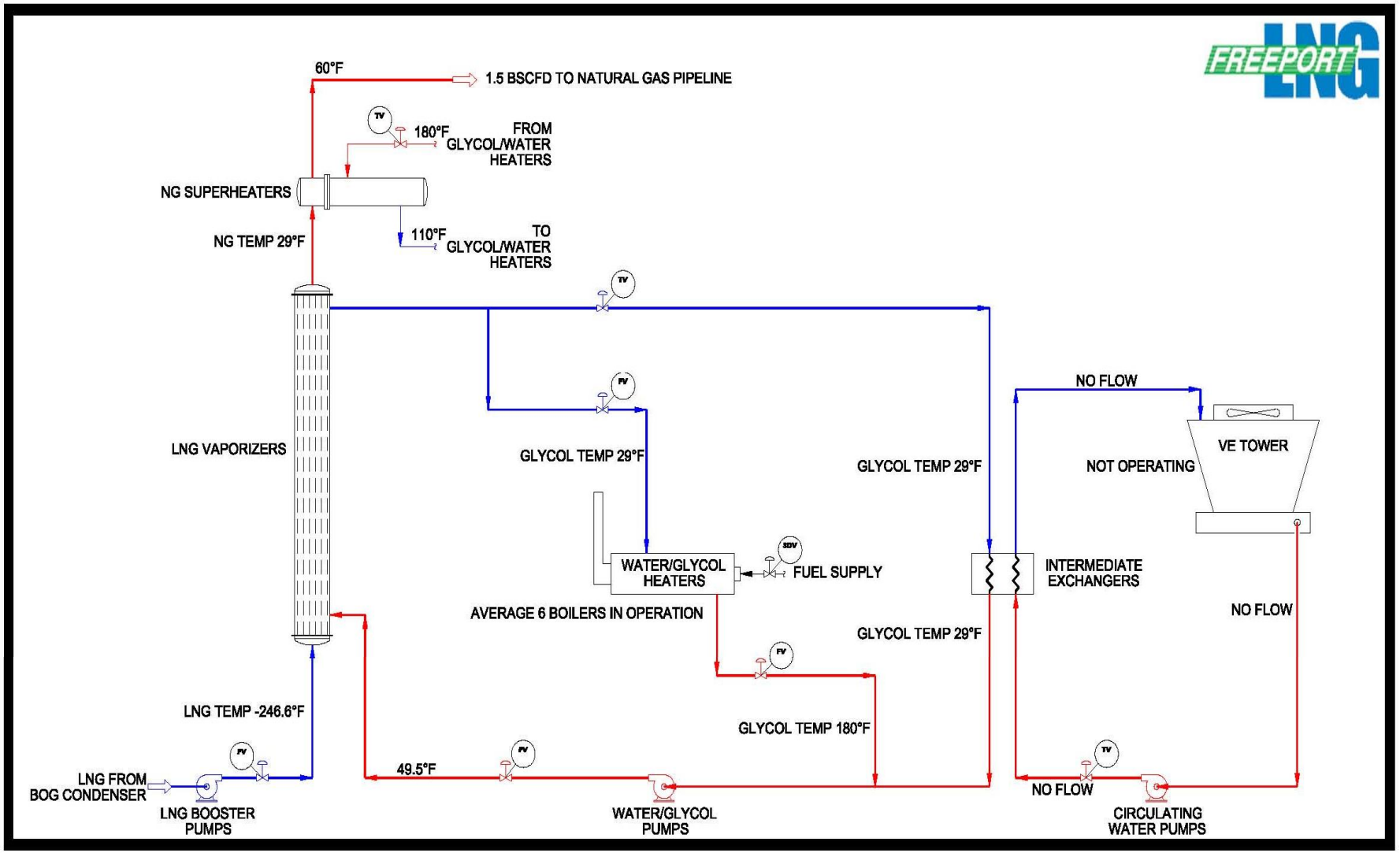
CIRCULATING WATER SYSTEM
WARM WEATHER OPERATIONS



CIRCULATING WATER SYSTEM
COLD WEATHER OPERATIONS



Freeport LNG uses Ambient Air Vaporization

- First LNG Receiving Terminal to use the LNG Air Tower Vaporization is situated in Freeport, Texas on the Quintana Island facility www.freeportlng.com
- 1.5 BCF per day
- Construction started in January 2005
- Operation has started in June 2008
- Ownerschip
  - Michael Smith (60%)
  - Cheniere Energy Inc. (30%),
  - Osaka Gas (10%),
- Management
  - Michael Smith (50%)
  - ConocoPhillips (50%),

Picture: VE-Tower June. 2008. Courtesy of Freeport LNG

- Conservative estimates show that 70% of the anual heat needed for vaporization of the LNG is gained from the ambient air
- For air temperatures of over 78°F the LNG is heated solely using the ambient atmosphere – no flue gas needed!
- Below a certain temperature (around 65°F) it will be inefficient to extract heat from ambient air (e.g. electricity for fans & pumps is needed)
- Average yearly ambient temperature for Freeport is: 69.6°F (20.9°C)

Source: Freeport LNG

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Partner for LNG Air Tower Vaporization Process

Technip

take it further.

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APENDIX

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Average Temperature of Freeport, Texas

FREEPORT 2 NW, BRAZORIA COUNTY, TEXAS USA

WorldClimate

Weather station **FREEPORT 2 NW, BRAZORIA COUNTY** is at about 28.98°N 95.38°W. Height about 2m / 6 feet above sea level.

24-hr Average Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	11.4	12.8	16.6	20.8	24.4	27.5	28.8	28.8	26.6	22.2	17.7	13.4	20.9
°F	52.5	55.0	61.9	69.4	75.9	81.5	83.8	83.8	79.9	72.0	63.9	56.1	69.6

Source: FREEPORT 2 NW, BRAZORIA COUNTY data derived from NCDC TD 9641 Clim 81 1961-1990 Normals. 30 years between 1961 and 1990

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