PARTIAL LIST OF PROJECTS

INTERPROVINCIAL COOP – Regina Canada
Stanfield Chemical – Henderson NV
PBC – Long Beach CA
Kerr McGee – Grants NM
Anza Copper – Twin Buttes AZ

MOHIL OIL – San Anselmo CA
Shell USA – Santa Maria
Chevron USA – California Locales
Tenneco – Taft CA
Exxon – off shore off Barge

United Technology – Industry CA
Northrup – (Aircraft Locales)
Dibble Electronics – San Diego CA
Sargent Fletcher – El Monte CA
Cherry Tecnico – Santa Ana CA
Deutsch Fasteners – El Segundo CA
Jasco Corp – Burbank CA
Lumintron Tech. – Santa Ana CA
West Coast Coatings – Santa Ana CA

Platers – Camarillo CA
LACO – El Segundo CA

St. Vincent Jewelry – Los Angeles
JTB – Los Angeles
Crosby Foods – Fontana CA
El Cuadritos Dairy – Guaniguato, Mexico
Sunkist Growers – Corona CA

Crosby Foods – Fontana CA
Kellogg Co. – Queretaro Mexico
La Pasteurizadora – Celaya Mexico
JTB – Los Angeles

JEWELRY - CYANIDE TREATMENT
Western Jewelry – Los Angeles CA
Jewelry Mart – Los Angeles CA

FOOD PROCESS
Kellogg Co. – Queretaro Mexico
Sunlight Growers – Corona CA

MUNICIPAL & MISCELLANEOUS
Bass Lake Water District – CA
EMP Dist. – Renolet CA
Bolgercrest WD – CA
Princess Cruise Lines
MRCO Carbon – Long Beach CA
Japanese Deer Park – Ruesta Park CA
Norwegian Cruiselines

American Cyanamid – Savannah GA
Parker Chemicals – Ruesta Park CA
Kemosteel Copper – Kemonte AZ
Blackbird Copper – Globe AZ
U.S. Steel – George West TX

Exxon – Seal Beach CA
Champlin Petroleum – Long Beach CA
Strategic Oil Reserve – Louisiana
JRB – Long Beach CA
Shell Canyon Lumber – Burbank CA

Easton Aluminum – Van Nuys CA
Lilik Didsen – San Leandro CA
Vos Van Nuts CA
BBM – Santa Ana CA
Knape and Vogt – Ruesta Park CA
U.S. Navy Reserve – Ell Hills CA
Electrosy – El Segundo CA
Air Research Corp – Torrance CA
Flying J – Bakersfield CA

Thay’s – Compton CA
Santa Fe Dys – Santa Fe Sprigs CA

OM – Los Angeles

TEXTILE
IDO Industries – Ruesta CA
El Quadrito – Puebla, Mexico

LATENT HEAT, THE GREATEST ENERGY POTENTIAL, IS STORED IN AND DURING THE EVAPORATION PROCESS. THE FACT THAT THIS HEAT, ABOUT 8,000 BTU/GAL (1,570 KW/CU. M) CAN ONLY BE EXTRACTED UNDER CONSTANT TEMPERATURE CHALLENGES RECOVERY METHODOLOGIES.

MALONEY PROCESS DISTILLATION

VAPOCO is a Vapor Compression technology to extract both Sensible Heat and the Latent Heat to produce distilled water. We estimate the energy cost at about 0.3c/gal. (based on 2005 California rates). The Vapco system is unique in that its modified Vapor Compression System uses more effective heat transfer elements and media fluid.

The economics of this evaporation and condensation technique is enhanced by both the compression of and recovery of the Latent Heat component.
HIGH PURITY WATER THROUGH A VAPOR COMPRESSION PROCESS

FEATURES
- Skid mounted and factory tested modules
- The main process skid has two separate enclosures that thermally isolate the evaporator, and condenser sections
- The mechanical skid has a separate enclosure
- These enclosures can be strengthened for security reasons
- Tamper-proof enclosure design available
- Each enclosure can be separately removed for inspection purposes
- Each 17,000-gpd (190 cu.m) evaporator/condenser combination can be separately operated
- Evaporators and condensers are housed in separate insulated towers
- Quick disconnect features allow access to tower internals and to mechanical skid
- Distillation process skid is self-contained (piping, electrical etc.)
- The 50,000-gpd module has three (3) of the towers evaporate 17,000 gpd (190 cu.m/d) each, and three (3) towers condense 17,000 gpd (190 cu.m.) each
- Towers are 24” W x 4’ L x 8’ H (600cm W x 120cm L x 240cm H)
- High towers operate under slight vacuum
- System operates on a binary fluid heat transfer principle
- System can evaporate and/or concentrate wastestreams
- System is designed for seawater desalinization
- Pumps, compressors, automated valves, electricals and Controls, are located on a separate mechanical skid
- Removable mechanical skid enclosure has thermal and noise insulation
- Motor control center for the compressor and pumps are on the mechanical skid
- All skids are designed for ocean containers and/or mobile rigging
- Binary fluid pumps are 18-8 stainless steel
- Waste brine pumps are titanium at liquid contact points in seawater applications
- Standby compressors and pumps are optional

APPROXIMATE FOOTPRINT DIMENSIONS

NOTE: The shipping height of all systems is approximately 8 feet (240 cm). The operating height, installed, is about 12 feet (360 cm).

<table>
<thead>
<tr>
<th>MODULE</th>
<th>CAPACITY Cu m/d</th>
<th>SKIDS/S</th>
<th>BLOWER</th>
<th>FLUID PUMPS</th>
<th>MISCELLANEOUS</th>
<th>TOTAL PLANT</th>
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<td>1</td>
<td>9 hp</td>
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<td>50,000</td>
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<td>2</td>
<td>2</td>
<td>12 hp</td>
<td>4</td>
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<tr>
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<td>4</td>
<td>4</td>
<td>18 hp</td>
<td>8</td>
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<tr>
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<td>21 hp</td>
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<tr>
<td>1,000,000</td>
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<td>20</td>
<td>20</td>
<td>31 hp</td>
<td>20</td>
<td>5</td>
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</table>

*Total plant footprint does not include receiving, and storage tanks.

NOTE: Values are approximate.

Makeup heat is supplemented by the blower adiabatic efficiency factor. Makeup heat can also come from waste heat sources.
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Laminator Tech – Santa Ana CA
WestCoastCoatings – Santa Ana CA

Platers – Camarillo CA
LMRC – El Segundo CA

S. Vincent Jewelry – Los Angeles
JBI – Los Angeles
Crosby Foods – Fontana CA
El Cuadritos Dairy – Guanijuato, Mexico

City of Westmoreland – Imperial CA
Iron Springs Water District – AZ
Oui Grover Coop – Oriai CA
NASSCO – San Diego CA
Midland Ross – Santa Ana CA
Petromich Corp – Corpus Christi TX
San Diego Zoo – CA

For more information Call…

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1261J North Lakewest Ave. • Suite 527
Anaheim, CA 92807
Phone: 714.630-3770 • Fax: 909.336-3831

INTERPEOPLEHILC

MALONEY PROCESS DISTILLATION

VAPCO is a Vapor Compression technology to extract both Sensible Heat and the Latent Heat content of the distilled water.

Potable water standards govern its usage for domestic consumption in homes, hotels, commerce, and industry. The VAPCO system now produces distilled potable water that competes favorably with other Treatment Methods and in a purer quality.

Distillation has been with us for centuries. Literature is replete with technical discussion on this process as it relates to higher value products or commodities. However, it has been all but replaced when the demand for supplying potable water became the purview of lower cost and somewhat less efficient methodologies. Advances made by manufacturers of treatment equipment soon accounted for significant operating and capital cost savings. VAPCO advances a technology developed from these sources and basic distillation principles.

CONVENTIONAL DISTILLATION

Simply stated, a liquid boils in an evaporator, cools in a condenser, and produces a pure distillate. In an effort to conserve energy the use of heat exchangers, vacuum and multiple effect evaporator techniques were introduced over time by distillation designers.

These distilling processes consumed an unimpressive 2,000+ Kwh/1000gal. The growing demand for low cost potable water soon excited other technologies, for example reverse osmosis (R.O.) which produces a less pure product but whose 20+ Kwh/1000 gal energy cost is impressive.

The problem of full, effective, energy recovery by the distillation method centered on a need to recapture both heat phases:

- Sensible Heat is energy that goes into raising the water temperature to the boiling point, about 252 btu/gal (49 kw/cu. m) and,
- Latent Heat, the greatest energy potential, is stored in and during the evaporation process. The fact that this heat, about 8,000 btu/gal (1,570 kw/cu. m) can only be extracted under constant temperature challenges recovery methodologies.

MALONEY PROCESS DISTILLATION

VAPCO is a Vapor Compression technology to extract both Sensible Heat and the Latent Heat to produce distilled water. We estimate the energy cost at about 0.36/call (based on 2005 California rates). The Vapco system is unique in that its modified Vapor Compression System uses more effective heat transfer elements and media fluid.

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