B OPERATING REVENUE AND EXPENSE

B-1 Average Operating Revenue

Plant production capacity is in part dependent on the reactivity of process catalysts. For process plant design purposes, catalyst life has been assumed to be three years; catalyst loading in the reaction vessels is such that name plate production capacity is available after three years of catalyst use. At start up, this same volume of catalyst will allow methanol production at 115% of nameplate; second year production may average 107.5% of nameplate. On a three year cycle, operating revenues would be (assumptions as to operating days and selling price as in B-1.1):

1st year	124,000,000	4th year	124,000,000
2nd year	115,900,000	5th year	115,900,000
3rd year	107,809,000	6th year	107,809,000

Reasonable Expectations Revenue (Average) = $115,900,000

B-1.1 Base Case

Annual operating revenue will be a direct reflection of specifics in the "Off-Take" Agreement. For business reasons, details of this are held proprietary. For the purpose of a finding respecting the financial/commercial feasibility of the plantship project, the 'Base Case' revenue projection is based on:

a. operation at name plate capacity (3000 STPD = 880,000 GPD)

b. operation for 350 days/year (annual shutdown for maintenance and repair equal 14 days; annual plant unavailability at 0.3% equals 1 day, i.e., plant availability equals 99.7 percent)

c. methanol selling price equals 35 cents/gallon

Based on the foregoing, annual base case revenues are:

880,000 x 350 x 0.35 = $107,809,000

In Appendix A-6 is derived the debt to be financed and retired by on-going operations; it totals $263,027,000 after equity at the start of operations. The table that follows illustrates projected operations by year.

June 7, 1988

Projected Yearly Operations

OPERATIONS

A. Assumptions:

Selling Price	= $0.35 /gal	Feedstock Price =	$0.044 /gal	Tax Rate =	36.00%
	= $116.55 /MT		$14.50 /MT		
	= $6.16 /MMBtu		$0.50 /MMBtu		
Rev Inflation %	0.00%	MMBtu/Ton Methanol	19		
		Inflation %	0.00%		

B. Operating Results:

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Revenues:											
Output in MT (000s)	308	925	925	925	925	925	925	925	925	925	925
Price in $US/MT	117	117	117	117	117	117	117	117	117	117	117
Total Revenue	35,897	107,809	107,809	107,809	107,809	107,809	107,809	107,809	107,809	107,809	107,809
Expenses:											
Feedstock Cost	4,466	13,413	13,413	13,413	13,413	13,413	13,413	13,413	13,413	13,413	13,413
Catalyst Cost	1,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Subsea Expenses	0	0	0	0	0	0	0	0	0	0	0
Materials	540	540	540	540	540	540	540	540	540	540	540
Site expenses	6,663	6,663	6,663	6,663	6,663	6,663	6,663	6,663	6,663	6,663	6,663
Corporate Overhead	5,795	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350
Other	650	0	0	0	0	0	0	0	0	0	0
Operating Expenses	19,114	28,466	28,466	28,466	28,466	28,466	28,466	28,466	28,466	28,466	28,466
Operating Income	16,783	79,343	79,343	79,343	79,343	79,343	79,343	79,343	79,343	79,343	79,343
Depreciation	10,653	21,306	21,306	21,306	21,306	21,306	21,306	21,306	21,306	21,306	21,306
Interest Exp-Iorean	1,800	3,494	3,176	2,753	2,329	1,271	1,059	847	635	424	0
Interest Exp-US	6,899	13,462	12,116	10,770	9,423	8,077	6,731	5,385	4,039	2,692	1,010
Interest Exp-Bk Loan	4,258	8,728	8,515	7,664	6,812	5,961	5,109	4,258	3,406	2,555	1,703
Excise tax	$639	$1,309	$1,277	$1,150	$1,022	$894	$766	$639	$511	$383	$255
Pre-Tax Income	(7,465)	31,044	32,953	35,702	38,451	41,635	44,372	46,909	49,447	51,984	55,069
Income Taxes	0	11,176	11,863	12,853	13,842	15,061	15,974	16,887	17,801	18,714	19,825
Net Income	(7,465)	19,868	21,090	22,849	24,608	26,774	28,398	30,022	31,646	33,270	35,244

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B-2 OTHER EXPENSE ELEMENTS

B-2.1 Feedstock

As a Base Case, the natural gas cost rates inclusive of the royalty paid GOTT is assumed to be 50 cents/MMBTU. At 27.83 MMBTU/ST times 3000 STPD, gas cost/day is $41,745. Gas cost for 350 operating days is 13,413,000;

B.2.2 Personnel

Personnel are those associated with operating the vessel, plant and gas field (Operating Personnel) and those associated with managing the Project (Owner Personnel). The former have associated with them expenses paid for travel to and from the plantship; the latter have associated with them certain benefits and general and administrative costs. Annual personnel and associated expenses, unescalated for inflation or merit increases are:

Operating Personnel	$4,901,000	
Transportation Expense	562,000	
		5,463,000
Owner Personnel	930,000	
General & Adm	598,000	
		$1,528,000

B.2.3 Insurance

Insurance coverage is for:

a) physical loss and damages to the plantship/process plant, etc.

b) cargo protection in transfer to the purchaser

c) loss of revenue coverage after 30 day interruption

Insurance coverage for personnel is assumed included in the expenses of B.3.2. Insurance coverage on the utility boat is assumed included in the lease rate of $4,500/day.

Annual Costs for insurance coverage are:

a) rate x plantship value =

0.0075 x 226,000,000 = $2,659,800

b) cargo value/trip x trips/year x rate trip =

$6,000,000 x 24 x 0.000925 = $90,000

c) rate x production value = (very sensitive to deductibles; subject to major change)

0.045 x $400,000/day x 100 day = $1,822,200

TOTAL ANNUAL COST = $4,572,000

B.2.4 SPARES/MAINTENANCE AND REPAIR SUPPLIES

The recurrent annualized expenses for spares and for maintenance and repairs, supplies and services are as follows:

Plantship:	
Catalysts	1,500,000
Materials and Services	540,000
Inspections	250,000

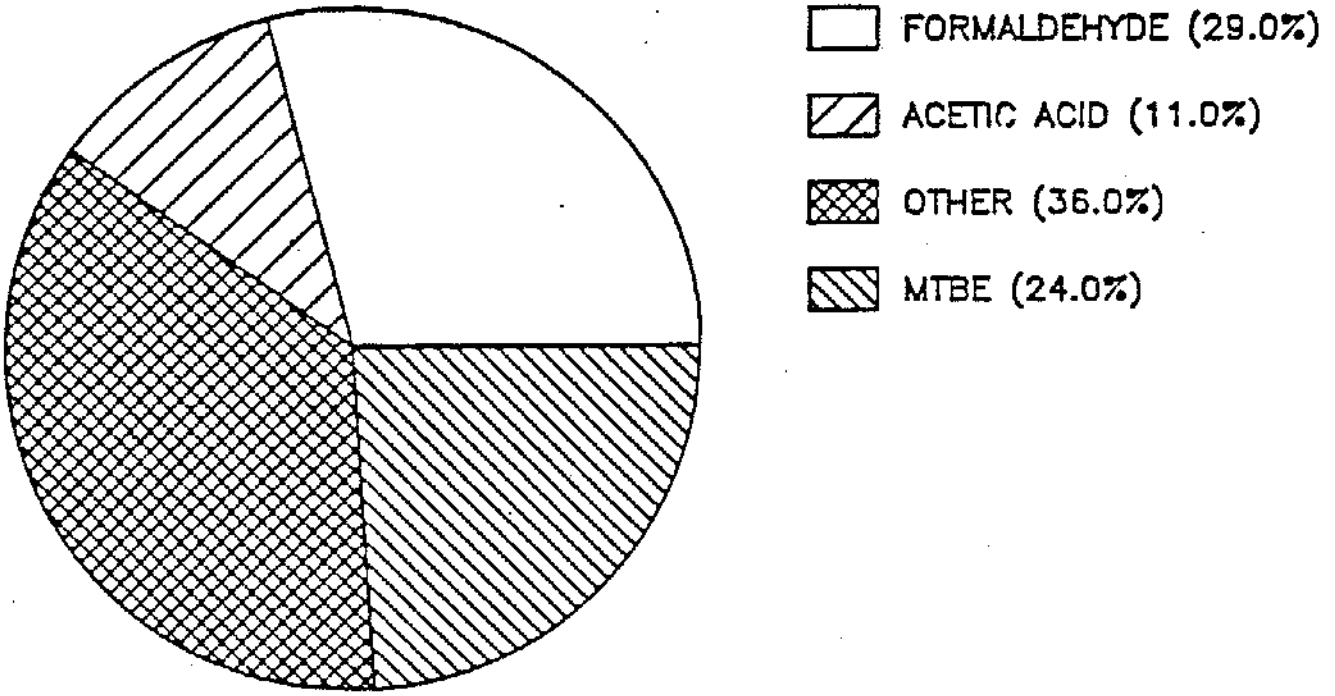
C. METHANOL MARKETS

The entire output of the plantship will have an export orientation to the U.S. The plantship production volume will be nominally one million tons per year.

Two markets are targeted for the methanol product. The first target is an established market as a chemical feedstock; the figure below illustrates how this chemical feedstock market is distributed in the U.S.

US METHANOL CONSUMPTION

% OF TOTAL 1987 US DEMAND



The objective will be to negotiate one or more take or pay contracts for all of the plant output. The plantship's total output is between 23% and 27% of the 1990 chemical feedstock U.S. market.

The second target will be the stationary fuel market. New government initiatives toward an increasing usage of alternative fuels are at the forefront of DOE's efforts to lessen U.S. dependence on foreign oil and EPA's efforts at achieving a significant reduction in the level of NOx emissions and improving ozone conditions.

The 1990 estimates of the stationary fuel market for methanol range from 0.5 to 3 million tons per day as a function of changes in world oil prices. A single stationary power plant of 250MW would take all of the plantship's output.

Neither of the markets targeted for plantship methanol will require new distribution channels. Importantly, methanol from a plantship in Trinidad waters is not subject to any U.S. import restrictions nor is it subject to any U.S. tariffs.

Future competition in supply of methanol will come from overseas production facilities (such as Chile) where it is either more economical to process inexpensive gas that is now flared in association with oil production or, as in the case of Trinidad, where a plantship can access shut in dry gas that is not economically produced via pipeline. There is no other market for this non-associated gas (except possibly LNG), therefore, conversion into methanol is the best available solution to "monetize" this energy resource. Both remote flared gas and shut-in subsea gas have the common advantage of a gas price considerably cheaper than for comparable gas relatively close to its market, such as gas of the U.S. Gulf of Mexico with its existing pipeline grid.

C-1 METHANOL SUPPLY

Worldwide methanol capacity, about 4.75 billion gallons at the end of 1982, has been increasing dramatically; almost 3 billion gallons was installed during 1983-1986. Much of the new production is sited in countries with captive, cheap natural gas; these governments have offered subsidies to encourage development of their otherwise unusable, frequently flared, gas resources.

The cost advantages enjoyed by some of the new producers over their U.S. counterparts is quite significant. In the case of producers in Trinidad and Saudi Arabia, they are said to benefit from a feedstock cost differential of at least $1.30/thousand cubic feet, $0.50 versus a domestic $1.80 in August of 1987.

On a full cost basis, many U.S. plants are unprofitable. At current levels of demand, competition and methanol selling prices ($.40/gallon, 10/87), many domestic units are operating at or near distress price levels and they are facing the risk of shutting down; it is reasonable to expect that no new plants will be built in the U.S. throughout the 1980s, and probably in the 1990s. The two most critical variables, the cost of natural gas feedstock and the selling price of methanol, coupled with the onslaught of new foreign competition, has taken a toll on all U.S. producers. Even though they have facilities of recent vintage, profits from methanol sales have been nil to nonexistent. In fact, it is reported that in the case of certain domestic methanol manufacturers who have internal use for their product, facilities are operated not as a least cost supply alternative but rather in the interest of security of supply.

C-2 METHANOL DEMAND FORECASTS

The following is a summary of methanol demand for three methanol market sectors. Forecasts are for years 1990, 1995, 2000.

C-2.1 CHEMICAL FEEDSTOCK SECTOR DEMAND

The chemical feedstock market is a stable, mature sector not closely linked to energy prices; rather, it is linked to the level of activity in the construction sector (methanol is a feedstock for the manufacture of glues and resins used to produce building materials). The construction sector is driven by the level of economic activity as measured by the Gross National Product (GNP). Based upon communication with industry experts and upon a recent U.S. Department of Commerce study examining competition in the U.S. methanol industry, projections of chemical feedstock methanol demands were developed as a function of high, medium, and low GNP growth rates through the year 2000. The following values result from projections prepared by Yankee Energy Corporation and Chem Systems Inc.

PROJECTION OF METHANOL AS A CHEMICAL FEEDSTOCK
(1,000 METRIC TONS)
(YANKEE ENERGY CORP. ESTIMATES)

	1990	1995	2000
High GNP Growth	4,800	6,100	7,800
Medium GNP Growth	4,800	5,800	6,900
Low GNP Growth	4,200	4,800	5,500

The expected demand for chemical grade methanol including feedstock from MTBE as estimated recently by Chem Systems Inc. for the American Gas Association is summarized in the table below.

	1990	1995	2000
Chemicals	3,590	4,024	4,444
MTBE	1,050	1,351	1,950
Total	4,640	5,375	6,394

An analysis has been made of the impacts which will result from importing to the U.S. market all of the plantship output of 960,000 MT per year. These other production assumptions have been made for the years 1990 to 2000:

1. 50% of the existing Trinidad methanol plant capacity of 390,000 MT per year will continue to be exported to the USA; the other 50% is expected to be shipped to Venezuela.

2. The entire output from the Signal Companies, Chile Plant, will be imported to the USA representing 800,000 MT per year.

3. U.S. plants now shut down are expected to remain shut down because of gradually increasing natural gas prices. The 1987 current operating

capacity, Figure C-1, is almost 3,200,000 MT per year; the expected take or pay contract(s) for the methanol from the plantship is expected to result in the additional shut down of 360,000 MT per year capacity because the buyer will be able to purchase the methanol for a lesser price than he realizes by producing at its own plant. The resulting U.S. operating capacity therefore is not expected to be more than 2,840,000 MT per year.

4. Imports from Canada are not expected to continue after 1991 because the expected higher natural gas prices in the USA will necessitate increases in prices for the Canadian gas. (1987 imports from Canada were about 600,000 MT)

In summary the expected supply situation from 1991 and beyond will be:

Expected U.S. production	2,840,000 MT
Import Trinidad (Yankee)	960,000 MT
Import Trinidad (existing)	195,000 MT
Import Chile	800,000 MT
Total	4,795,000 MT

The following table was prepared to show the ratio of supply and demand for the U.S. chemical market with 100% of the plantship production dedicated to that market. Presumably the indicated supply shortfalls in 1995 and thereafter will be met by additional plantships or by imports from methanol plants in the Middle East.

Supply/Demand Ratio

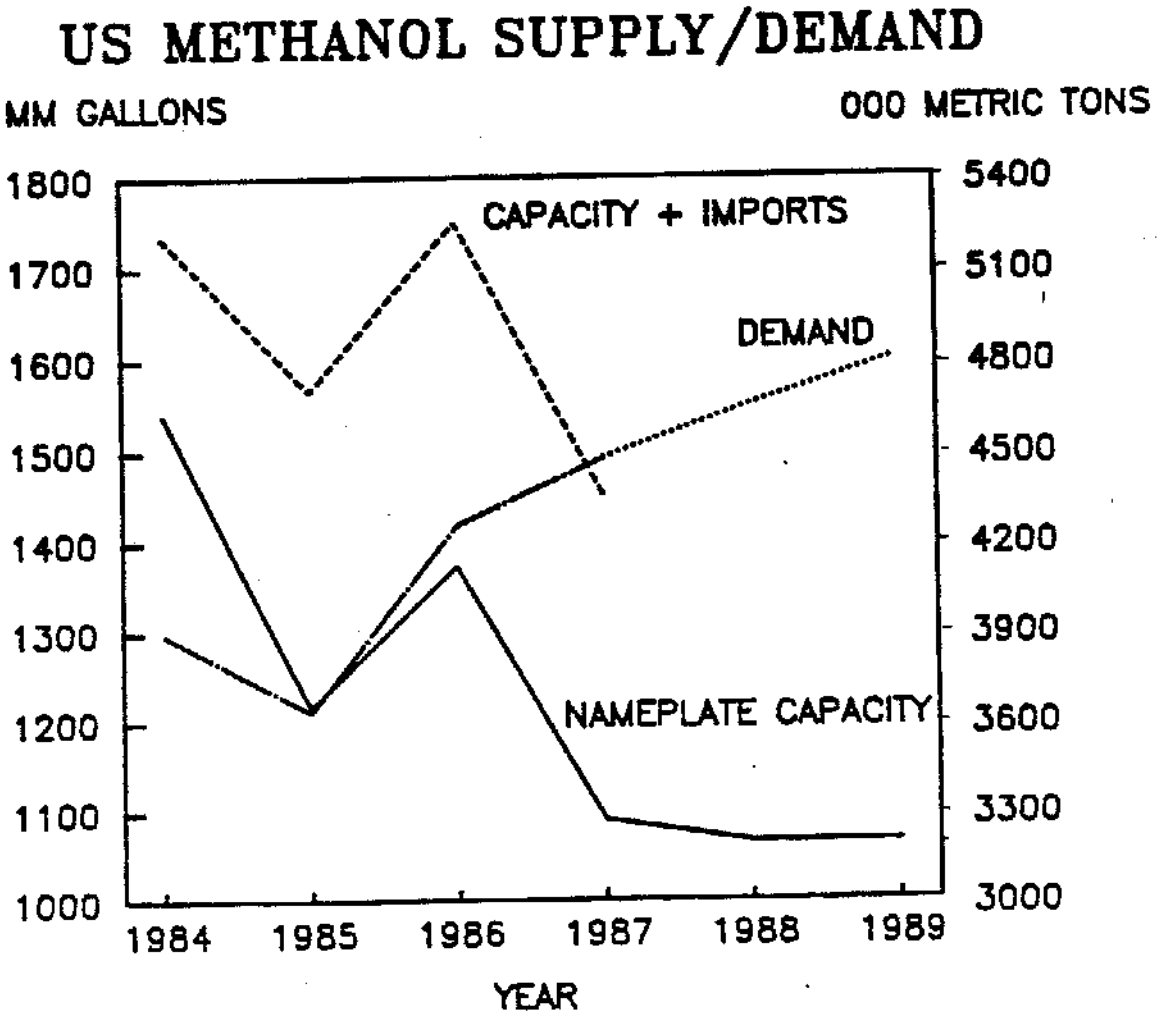
Demand Estimated by	1990	1995	2000
Chem Systems	1.033	0.89	0.75
Yankee Energy (Based on medium GNP growth)	1.00	0.83	0.69

The Chem Systems report presents estimates that the United States will import almost 5 million metric tons of methanol by the year 2000; this corresponds to a domestic total demand of slightly over 7 million MT in the same year. (Total demand includes chemical, MTBE and power generation). The implication of this is that Chem Systems expects domestic production of methanol to be only 2 million MT in that year, well under the present production of 3.2 million tons Yankee has used in its estimates. This import prediction by Chem Systems corresponds to a projected requirement for the production capacity of five Yankee Energy plantships.

C-2.2 STATIONARY NEAT FUEL DEMAND

To deal with the use of methanol as a neat stationary powerplant fuel, three broad scenarios of overall market demand were developed to provide a structure

Figure C-1


US METHANOL SUPPLY/DEMAND
MM GALLONS
000 METRIC TONS
1800
1700
1600
1500
1400
1300
1200
1100
1000
5400
5100
4800
4500
4200
3900
3600
3300
3000
CAPACITY + IMPORTS
DEMAND
NAMEPLATE CAPACITY
1984
1985
1986
1987
1988
1989
YEAR

within which alternative demand projections could be made. They are defined, with respect to methanol demand, as optimistic, nominal, and conservative.

Optimistic (High World Oil Price) implies the set of economic conditions that is most favorable to the emergence of significant methanol demand in the transportation and stationary sectors. The major economic factor determining whether or not methanol using technology will be adopted is the relative prices of methanol and the conventional fuels that it could displace. Combining a low or average methanol price with high conventional energy (oil, coal, natural gas) prices for the period, will yield the highest economic advantages for methanol use. The "optimistic" case assumes an average escalation rate in the price of oil of 6.2 percent per year. On the other hand, the methanol price escalation is linked to the refined petroleum product price growth rate by sector and by year. This is based on the assumption that methanol prices tend to track the price behavior of fuels that the methanol may be displacing.

Nominal (Middle World Oil Price) implies medium world oil price projections as a basis for computing potential fuel-related benefits of methanol, and ultimately, the projection of methanol demand for fuel use. The medium world oil price forecast is that produced by DOE. It assumes a composite average annual real growth rate of 3.6 percent per year through 1995, and a 4.4 percent real annual growth thereafter.

Pessimistic (Low World Oil Price) implies energy market conditions that hinder stimulation of new methanol fuel markets. In this scenario energy prices will decrease below prevailing 1985 levels for two to four years; then increase at a rate of approximately 2.3 percent average annual real growth through 2000. Price levels of conventional energy products remain sufficiently low to preclude methanol from competing, on a per million BTU basis, with conventional petroleum-based products.

The penetration of methanol in the stationary fuel market was evaluated by Yankee Energy Corporation for both electric utilities and industries identified as major consumers of stationary boiler fuel. Penetration of methanol in this market is not constrained by the lack of support infrastructure identified for the transportation sector, and, accordingly, may be initiated at any time methanol can be delivered to the market to meet local requirements.

Technical, economic, and fuel consumption chart characteristics of both the electric utility and industrial submarkets are substantially different from the transportation sector. Relatively few units are replaced annually - units exhibit potentially significant capital and operating cost benefits. Relatively minor gains in these submarkets could produce large additional demands for methanol. Levels of methanol demand in stationary markets were determined to be extremely price sensitive and also responsive to the world oil price.

1990: For 1990, requirements range from 0.5 million tons ($0.75/gal methanol; low world oil price) to 3.1 million tons for the optimistic scenario (high world oil price and methanol at the pump at $0.45/gal).

While relatively small, the assumed methanol price spread results in substantially different projections of methanol demand in stationary markets. Even with a high world oil price (optimistic methanol market scenario), methanol demand is reduced by 30 percent when the pump price is increased from $.45 to $.65/gallon; this indicates significant demand responsiveness to varying prices.

1995: Projected levels of stationary market methanol demand in 1995 range between 7.4 and 29 million tons; price sensitivities exhibit tendnecies parallel to those observed for 1990. The cumulative level of market penetration is obviously higher but the level of adoption of methanol-using technology is not yet widespread. With low world oil prices (pessimistic methanol market scenario), market penetration is effectively constrained to demonstration projects.

2000: by the year 2000, significant levels of market penetration are projected under the high world oil price scenario, ranging from 138.6 million to 9.9 million tons, for methanol pump prices of $0.45 to $0.75/gal.

C-2.3 FUEL BLENDING DEMAND

Methanol use as an octane enhancer in motor gasoline will increase over the next three to five years due to the Environmental Protection Agency's decision to decrease, and eventually prohibit, tetraethyl lead gasoline. It is projected that by 1990, demand for methanol in fuel blending markets will reach approximately two million tons. Beyond 1990, the level of demand is less certain, and, accordingly, two scenarios for 1995 were considered; these yielded a low projection of 2.8 million tons and a high of 3.5 million tons annually. In the year 2000, by extrapolation, low and high forecasts of 4 million tons and six million tons annually, respectively, are projected in use as a blending agent.

C-3 CONCLUSION

Domestic methanol demand in the chemicals industry, the fuel blending market, and the stationary fuel market will be such in the post-1990 era that multiple plantships will be required, pessimistically, as few as five by the year 2000, optimistically, as many as one hundred.

D VENDOR LIST, DOMESTIC SOURCES

In the pricing of equipments and components for outfitting of the plant vessel, for manufacture of the process plant and for construction of the gas collection/delivery system, more than 85 percent of equipments were low priced by vendor sources in the United Sttes. This appendix presents in sections to follow these vendor listings:

D-1 Vendor List, Plant Vessel

D-2 Vendor List, Process Plant

D-3 Vendor List, Gas Collection/Delivery System

E-1 VENDORS LIST, PLANT VESSEL

HULL FITTINGS
Dibert Bancroft & Ross
NABRICO
Schellhorn Albright
Smith Berger Marine Inc.

CATHODIC PROTECTION
Englehart Industries
Belmont Metals Inc.
Wilson Walton International

W. T. DOORS
Julius Mock
Marhill Mfg. Inc.
Juniper Industries Inc.
Cen-Tex Marine Fabricators

WINDOWS
Kearfott Marine Products

BOARDING LADDERS
ACME Enterprises
Rampmaster Inc.
National Specialty Products Inc.

CRANES
Hiab Co.
Trident Marine Cranes
Stothert & Pitt
Appleton

PAINT
International Paint Co.
Devoe Reynolds
Ameron

ANCHOR, CHAINS, ETC.
Baldt Anchor & Chain
Danfort
Crosby Laughlin Co.

WINCHES
New England Trawlers
Smatco
Markey Machinery Co.

GENERATORS
Mirrless Blackstone
G. M. Diesels
Caterpillar

CHOCKING MATERIALS
Philadelphia Resins Corp.

BOW THRUSTERS
The Schotell of America
Omnithruster Inc.
Elliot White Gill Thrusters

PUMPS
Frank Mohn Inc.
Roper
Goulds
Byron Jackson Inc.
Aurora Co.

PURIFIERS
Alpha - Laval
Westfalia Oil Purifier
Microphor

COMPRESSORS
Ingersoll Rand
Quincy
Worthington Compressors

AIR DRYERS
Anderson Industrial
Marine Moisture Control Co.
Indeeco

AIR RECEIVERS
Western
Manchester Tank Co.

SEWAGE TREATMENT
Hamworthy Co.
Red Fox Industries
Envirovac Inc.
Aries Marine & Industrial Sales

FIRE SYSTEM
Texas Fire & Safety
Halon
FENWAL
HEAT EXCHANGERS - PLATE
DeLaval
Maritime Power Corp.
ITT Standard

STRAINERS
Kinney Co.
Riley Baird
Bailey

INERT GAS SYSTEM
Nitrotec Co.
Holec Co.

DISTILLATION PLANT
Aqua-Chem Inc.
Riley-Beaird Inc.

F. W. SYSTEM
Specific Co.
Marine Moisture Control Co.

ELECTRONICS
Furuno
Decca
Raytheon
Sperry
Hose McCann Telephone Co.
Henschel

LIFE SAVING EQUIPMENT
Schat Davits
Zodiac of North America
Revere Supply Co. Inc.
Switliig Co.

HULL VENTILATION
Hartzal Fans
Juniper Registers
Maritime Power Corp.

HOSES - DISCHARGE
Coflexip & Services Inc.
Dunlop Ltd.
Areoquip

GALLEY EQUIPMENT
G. R. Speer Co., Inc.
Gaylord Industries, Inc.
Toastmasetr
Hobart
Foster

VALVES
Crane Co.
Stockham Valve Co.
Young & Cunningham America
Keystone

NAVIGATION LIGHTS, SEARCHLIGHTS
Phoenix Products Co., Inc.
Perko
Carlisle & Finch
Moeller Marine Instruments

HORNS
Kahlenberg
Hose McCann

MOORING EQUIPMENT
IMODCO
Sofec
S.B.M. of America

CONTROLS
Bailey Controls
Matrix Actuators
Young & Cunningham America

FURNITURE
Jamestown
Hopeman Brothers
Bailey

JOINER
Masonite Corp.
Johnson Construction Specialists, Inc.