



U.S. Department
of Transportation

**Maritime
Administration**

Report on Survey of U.S. Shipbuilding and Repair Facilities

1997

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**REPORT ON SURVEY OF U.S.
SHIPBUILDING AND REPAIR FACILITIES
1997**

Prepared By:

Office of Ship Construction

Division of Cost Analysis and Production

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Introduction

In compliance with the Merchant Marine Act of 1936, as amended ^{1/}, the Maritime Administration (MARAD) conducts an annual survey to obtain information from the shipbuilding and ship repair industry to be used primarily to determine if an adequate mobilization base exists for national defense and for use in a national emergency. This report on the 1997 survey of U.S. shipyard facilities was prepared by the Division of Cost Analysis and Production, Office of Ship Construction, and is for general use within the Maritime Administration and other Government agencies.

^{1/} Section 210

"It shall be the duty of the Secretary of Transportation to make a survey of the American merchant marine, as it now exists, to determine what additions and replacements are required to carry forward the national policy declared in Section 101 of this Act, and the Secretary of Transportation is directed to study, perfect, and adopt a long-range program for replacements and additions to the American merchant marine so that as soon as practicable the following objectives may be accomplished: ...Fourth, the creation and maintenance of efficient shipbuilding and repair capacity in the United States with adequate numbers of skilled personnel to provide an adequate mobilization base."

Section 211

"The Secretary of Transportation is authorized and directed to investigate, determine, and keep current records of ... (g) The number, location, and efficiency of the shipyards existing on the date of enactment of this Act or thereafter built in the United States;"

Section 502(f)

"The Secretary of Transportation with the advice of and in coordination with the Secretary of the Navy, shall, at least once each year, as required for purposes of this Act, survey the existing privately owned shipyards capable of merchant ship construction, or review available data on such shipyards if deemed adequate, to determine whether their capabilities for merchant ship construction, including facilities and skilled personnel, provide an adequate mobilization base at strategic points for purposes of national defense and national emergency."

The statistical data accumulated by the survey are a major input into the Shipyard Evaluation Analysis System Model (SEAS), a quantitative assessment of the Nation's ship construction and ship repair capability. This capability is periodically compared with Department of Defense scenarios involving various contingency attrition rates and emergency civilian shipping requirements to assess the adequacy of the shipbuilding mobilization base, including ship repair and reactivation of the Maritime Administration reserve fleet and the U.S. Navy reserve fleet.

The survey also provides a database that is used to evaluate the feasibility of proposed shipbuilding programs. Determinations are made as to which existing shipyards might construct proposed ships consistent with ship size and delivery date requirements. The need for construction of new facilities to meet the demands of proposed shipbuilding programs can be also identified. The data gathered by the annual survey also are used extensively in MARAD responses to queries received from a variety of interests, including members of Congress, the Secretary of Transportation, the Department of Defense, the Office of Management and Budget, and other Government agencies.

Each year in late spring, Standard Form 17, "Facilities Available for the Construction or Repair of Ships," is mailed to about 300 U.S. shipbuilding and ship repair facilities. The survey form was developed jointly by MARAD and the Navy. A completed Standard Form 17 represents a detailed description of a shipbuilding or ship repair facility, which is not available from any other source on a continuing and structured basis. The information requested, and available for official use, can be reviewed on a blank Standard Form 17 shown herein as Appendix A. A graving dock characteristics summary and floating drydock characteristics summary are appended to Standard Form 17 to better identify the characteristics of the facilities.

Upon receipt of a completed Standard Form 17 from a shipyard, MARAD forwards a copy to the Naval Sea Systems Command, Industrial Planning, Surveys and Analysis Branch, which maintains records of available facilities and capacities of various shipyards and repair plants. This would enable the Department of Transportation and the Department of Defense to use such facilities to the best advantage in the event of national emergency.

The annual shipyard survey for 1997 has been completed. The information collected has been organized and condensed in the following narratives, exhibits, and tabulations to focus attention on those elements that are most often requested from this office.

GENERAL

A major shipbuilding and repair facility is defined in this report as one that is open and has the capability to construct, drydock, and/or topside repair vessels with a minimum length overall of 122 meters, provided that water depth in the channel to the facility is at least 3.7 meters. Appendix B is a statistical abstract of data gathered from 87 companies responding to MARAD's annual survey which meet these criteria. It lists the facilities sorted on a coastal basis and displays information with respect to the size and type of each building position, drydock, berth space, employment, and remarks regarding principal shipyard activities.

Table 1 has been prepared to answer the frequent question as to the number of shipbuilding positions available to build a complete specified ship. With the exception of the mobilization ship, the ship types listed in Table 1 are those historically delivered to commercial service. Length overall and beam are given for all ships and, in addition, deadweight tonnage is indicated for the bulk carriers. A single shipway or graving dock may have several building positions depending on the size of the ships being constructed. For example, the 365 meter by 59 meter graving dock at Baltimore Marine Industries, Inc. can accommodate one 265,000-dwt tanker or four of the smaller general cargo ships. The total number of building positions varies from 82 for the small cargo ship to 4 for a huge 265,000-dwt tanker. An important consideration that is not addressed in Table 1 is the common shipbuilding practice of laying a keel on a building position already occupied by another ship. For example, in a 213-meter graving dock, a complete 186-meter containership and the stern section of a second ship could be constructed simultaneously. This production procedure maximizes the use of shipbuilding facilities, minimizes the construction period, and increases the number of ships that can be produced in a given period of time. Table 1 addresses only the number of complete ships that can be constructed simultaneously in each building position.

Table 2 is a somewhat different presentation of shipyard capability. In lieu of actual ships, maximum ship length is used to determine the number of shipways or graving docks available. In this tabulation, the emphasis is on the number of individual facilities available and not on the number of ships that can be constructed. Again, using Baltimore Marine Industries, Inc. as an example, Table 2 lists the 365 meter by 59 meter graving dock as one facility regardless of what type of ship is constructed in it. Table 1 indicates that there are six building positions for a ship 145 meter LOA at Baltimore Marine Industries, whereas Table 2 indicates that the yard has three individual building positions capable of constructing a ship about that length. Exhibit 20 is a histogram displaying the reduction in the number of available building positions as the maximum ship length increases.

MAJOR SHIPBUILDING BASE

The Major Shipbuilding Base (MSB), as identified by the Navy and MARAD, is comprised of 18 privately owned U.S. shipyards that are open, having at least one shipbuilding position capable of accommodating a vessel 122 meters in length or over. In addition, these shipyards must own or have in place a long-term lease (1 year or more) on the facility in which they intend to accomplish the shipbuilding work, there must be no dimensional obstructions in the waterway leading to open water (i.e., locks, bridges), and the water depth in the channel to the facility must be a minimum of 3.7 meters.

As of October 1997, the MSB shipyards employed roughly 65 percent of the U.S. shipbuilding and repair industry's total workforce, as reported by the Bureau of Labor Statistics under SIC 3731. At the same time 43 percent of the production workers in these 18 shipyards were engaged in Navy or Coast Guard ship construction and repair work.

As of year's end, 6 of the 18 shipyards were engaged in construction and/or conversion of major combatant and auxiliary ships for the Navy. Three of the yards were engaged primarily in ship construction work provided by the Navy's T-Ship program. Thirteen yards had repair and overhaul work, smaller Navy vessel orders, and non-ship construction work; ten yards were involved with private new construction; and one yard was constructing vessels for the Coast Guard.

Employment projections for production workers are shown by Exhibit 22 of this report. This data was generated by overlaying the Navy's projected six-year shipbuilding and conversion programs onto the estimated work force required to complete the current orderbook.

The following is a brief description of 18 of the major U.S. privately-owned shipbuilding facilities. Exhibits 1 through 18 are general arrangement drawings of each yard's facilities. Exhibit 19 illustrates the geographical location of these shipyards.

DESCRIPTIONS
AND
GENERAL ARRANGEMENT DRAWINGS
FOR
18 MAJOR U.S. SHIPBUILDING FACILITIES

1. Alabama Shipyard, Inc.

Alabama Shipyard, Inc. (ASI), is a wholly owned subsidiary of Atlantic Marine Holding Company of Jacksonville, FL. Alabama Shipyard, Inc., (formerly ADDSCO's Alabama Maritime Corp.), is a new construction facility located on the Mobile River, across the river from Mobile, AL, about 47 kilometers from the Gulf of Mexico, with no obstructions to open water. The shipyard occupies approximately 61 hectares of the 263 hectares available on Pinto Island. Acquired by Atlantic Marine in 1989, the yard has been in existence since 1916, and has constructed a variety of ships (both commercial and naval), barges, off-shore drill platforms and semi-submersible drill rigs.

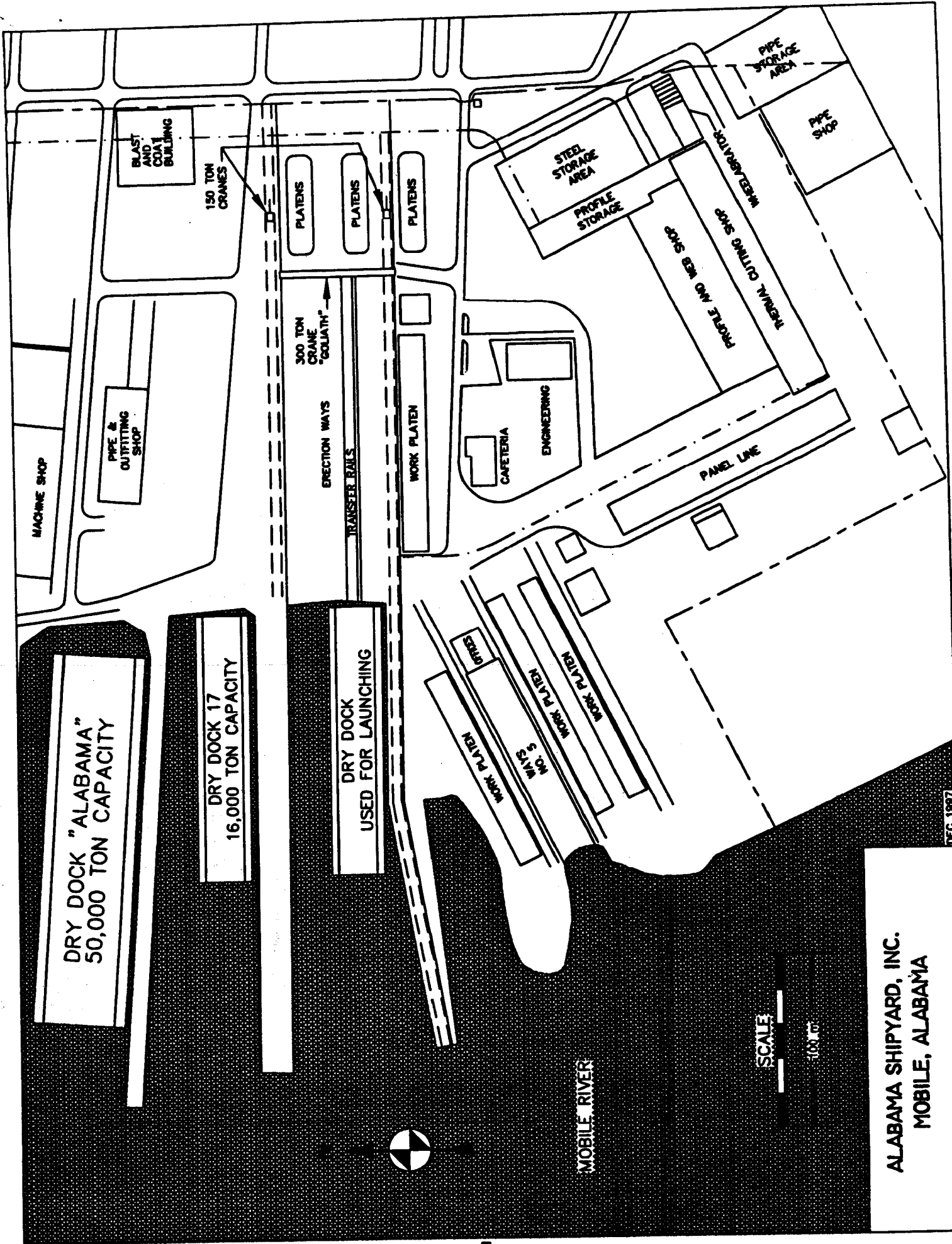
Alabama Shipyard, Inc. is capable of constructing ships up to a maximum size of 290 meters by 50 meters. The shipyard has 46,080 square meters of manufacturing space, 7,043 square meters of covered warehouse space and two finger piers with total usable pier space of 1,218 meters. A 250-metric ton bridge crane and two 136-metric ton gantry cranes service the 335 meter by 69 meter wide erection area.

Alabama's orderbook, as of September 30, 1997, consisted of two 16,000 dwt chemical tankers (in progress), four new generation offshore lift boats, five complete ship accommodation deck houses and a few miscellaneous projects.

Recent additions to the facilities include a 60 meter by 30 meter pipe shop with state-of-the-art CNC pipe cutting and fabricating equipment and a 40 meter by 40 meter environmentally friendly, completely enclosed, blast and coat building. In 1997, a new 200 meter by 35 meter profile and web fabrication shop was constructed. This shop, which houses state-of-the-art equipment for processing plates and profiles, is already in production and will be fully operational by the end of 1997. During the past five years, the shipyard invested \$40 million in facility upgrades, and has budgeted another \$40 million for future expansion.

Future expansion items include a forming shop, panel and block assembly shops, revitalization of the panel line and additional warehouse space.

As of mid-1997, Alabama shipyard's employment totaled 709.



DRY DOCK "ALABAMA"
50,000 TON CAPACITY

DRY DOCK 17
16,000 TON CAPACITY

DRY DOCK
USED FOR LAUNCHING

ALABAMA SHIPYARD, INC.
MOBILE, ALABAMA

SCALE

100' 0"

MOBILE RIVER

DEC 1997

2. AMFELS, Inc.

AMFELS, Inc., a wholly owned subsidiary of Keppel-FELS of Singapore, is located 22 kilometers up the Brownsville Ship Channel from the Gulf of Mexico in Brownsville, TX. AMFELS is a full service shipyard that serves the marine and offshore industry, possessing the necessary capability and experience in the design, engineering, construction, conversion and repair of various types of marine offshore vessels.

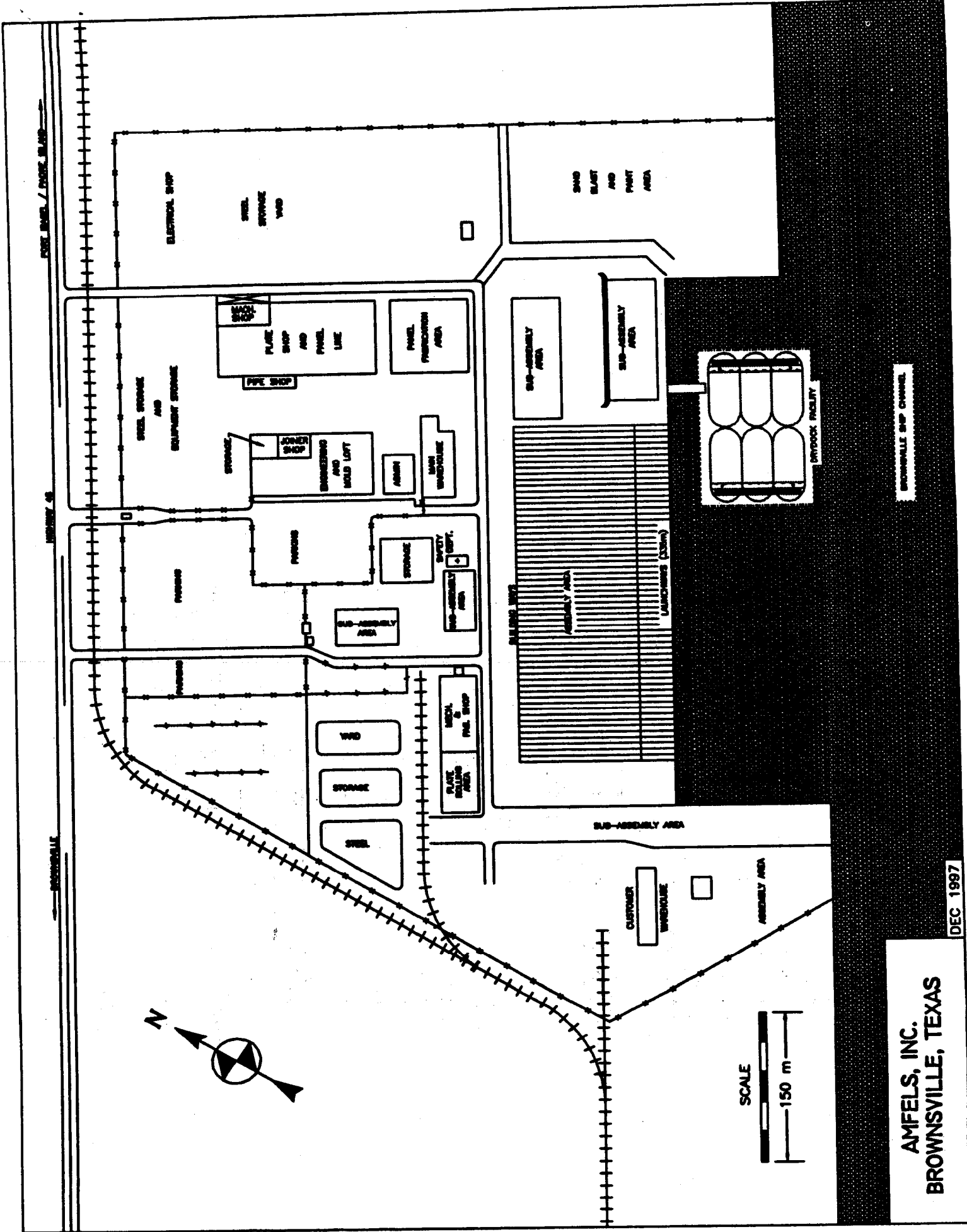
AMFELS operates a variety of marine equipment including a 711-metric ton floating crane and two 135-metric ton derrick barges. A 30,000 ton floating drydock, named SOLOMON P. ORTIZ, has been fully operational since early 1996. This dock is leased from the Port of Brownsville, and is capable of drydocking both marine vessels and offshore oil rigs.

AMFELS operates a 54 hectare facility with a 12,700 square meter steel fabrication shop, a 110 square meter pipe fabrication shop, a 127 square meter machine shop and 73,256 square meters of open space used for assembly and erection. Another major component of the yard is the 335 meter side launchway.

AMFELS orderbook, as of September 30, 1997, included the repair of three semi-submersible vessels and the new construction of a Jackup drilling rig.

Since its inception in 1992, AMFELS has completed a variety of topside repairs, including the deactivation and repair of five MARAD vessels. AMFELS has also been active in the repair, life enhancement programs and conversion of over 50 offshore drilling rigs and platforms. AMFELS' new construction record includes 4 platform rigs, 2 drill barges, a skimmer boat, a 76 MW self-contained power barge facility and a 10,160 metric ton molten sulphur carrier barge.

In mid-1997, AMFELS employed about 838 people.



AMFELS, INC.
BROWNSVILLE, TEXAS

DEC 1997

3. Avondale Industries, Inc. - Shipyards Division

Avondale's Shipyards Division is located on the west bank of the Mississippi River approximately 22 kilometers upriver from New Orleans, LA. Avondale, previously a wholly owned subsidiary of Ogden Corp., was sold in 1985 to its employees in an Employee Stock Ownership Plan (ESOP). Since 1938, Avondale has constructed a full range of Navy and commercial ships, as well as Coast Guard cutters and offshore drilling rigs, platforms, jackets, and production modules. It has the distinction of being the only American shipyard to have constructed LASH vessels.

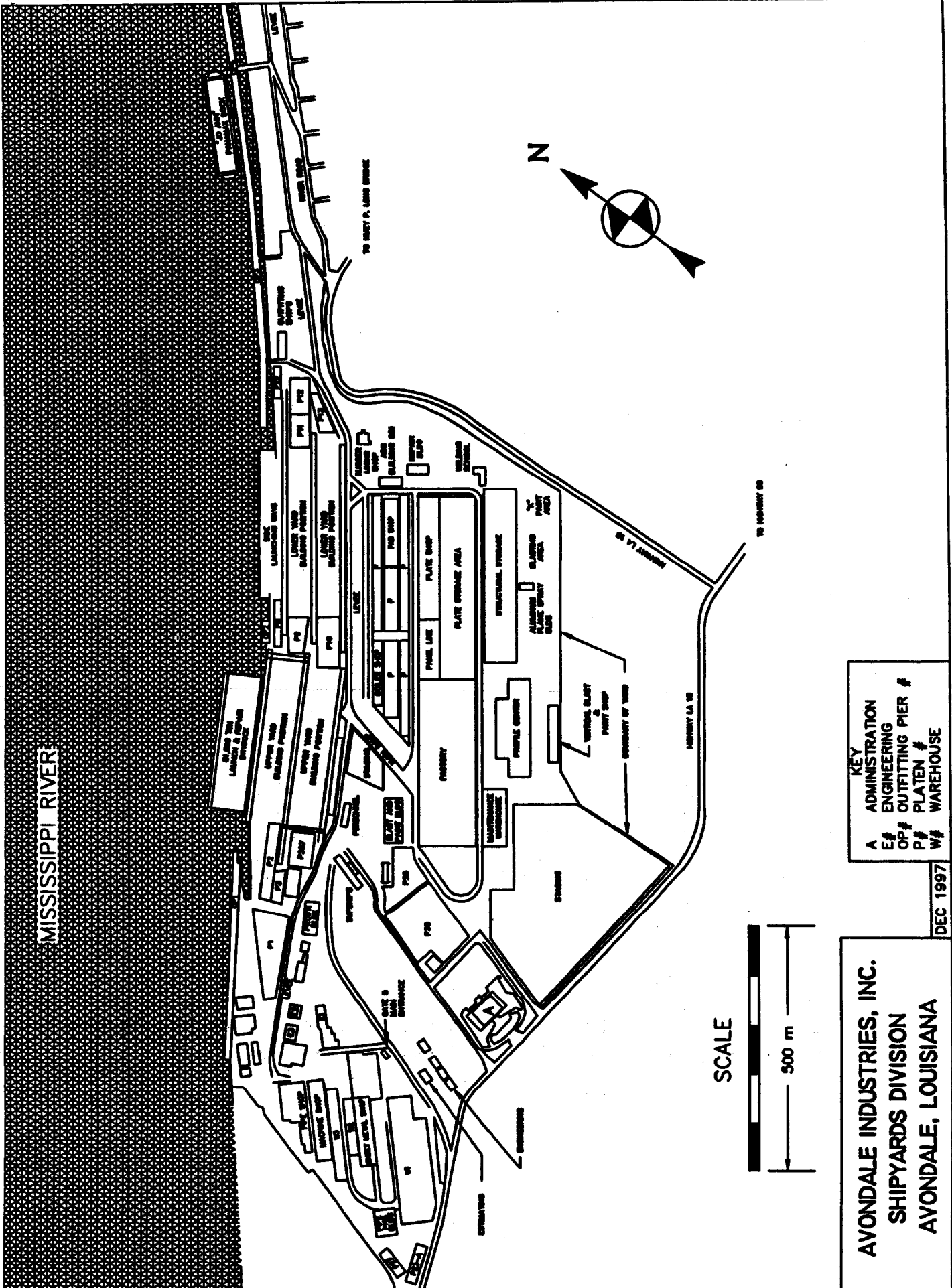
Avondale also maintains an active repair operation for commercial and naval vessels. Ships and offshore drilling rigs are repaired by Avondale's Shipyards Division. Inland waterway and offshore oil vessels are repaired by Avondale's Algiers Yard.

Avondale's orderbook as of September 30, 1997, consisted of one dock landing ship (LSD), one Coast Guard polar icebreaker (WAGB), five Sealift ships (T-AKR's) with options for two more, one amphibious transport dock ship (LPD), and two 125,000 dwt product carriers with options for three more.

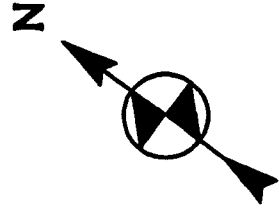
Avondale's Shipyards Division totals 108 hectares and contains three outfitting docks equipped with supporting shops and over 1,431 meters of pier space. The upper yard shipbuilding area has two large positions to accommodate vessels up to 311 meters in length by 53 meters beam. The major part of one ship can be erected along with the stern section of a second ship on position No. 1, while a third hull is being completed on position No. 2. Ships constructed in the upper yard move laterally in three positions for launching in Avondale's 81,000-ton floating drydock, which can accommodate ships as large as 305 meters by 66 meters, with a lifting capacity of 82,296 metric tons. Avondale's lower yard has a side-launching construction area that has three large positions to accommodate ships as large as 366 meters by 38 meters. Ships built in the lower yard move laterally toward the river and parallel to the river in five positions. Up to five large vessels, greater than 213 meters LOA, can be constructed simultaneously in the lower yard. A 20,000-ton Panamax floating drydock, which can accommodate ships up to 229 meters by 35 meters and has a lifting capacity of 20,320 metric tons, is moored down river from this area.

Avondale has a facility located at Gulfport, MS, capable of building vessels 137 meters long by 27 meters beam. In 1988, Avondale executed a long-term lease of the ex-Todd Shipbuilding Corp.'s New Orleans yard, now called the Avondale Algiers Repair and Overhaul Facility, which is used for ship repair, conversion, overhaul and lay berthing.

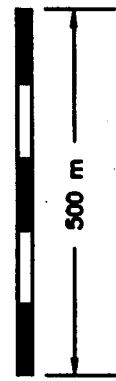
In mid-1997, the total employment was about 5,114.



MISSISSIPPI RIVER



SCALE



KEY

A	ADMINISTRATION
E	ENGINEERING
OP	OUTFITTING PIER
P	PLATEN
W	WAREHOUSE

AVONDALE INDUSTRIES, INC.
 SHIPYARDS DIVISION
 AVONDALE, LOUISIANA

DEC 1997

4. Baltimore Marine Industries, Inc.

The Baltimore Marine Industries, Inc. (BMI) shipyard at Baltimore, MD, is located on the Patapsco River in the port of Baltimore. Established in 1891, the yard became a part of the Bethlehem Steel organization in 1916 and was a major shipbuilder during both World Wars. During World War II, it constructed 101 vessels of 16 different classes. During the 1950's, 1960's and 1970's, the yard was among the most active in the nation, specializing in series construction of standard size tankers up to very large crude carriers (VLCC's), freighters, and containerships.

Since 1981, the yard has constructed six integrated tug barge (ITB) tankers, six offshore drilling rigs, three container feeder barges, and two oceanographic survey ships (T-AG's) for the U.S. Navy. During this same period the yard adapted to changing markets by increased efforts in ship conversion, repair and industrial fabrication. In addition to numerous drydockings and repairs of commercial and naval ships, 3 RO/ROs have been converted to Maritime prepositioning ships, 12 RO/ROs have been reflagged, and tunnel sections for a new Interstate 664 - Hampton Roads tunnel complex and new tunnel sections for the new Interstate 90 project in Boston have been completed.

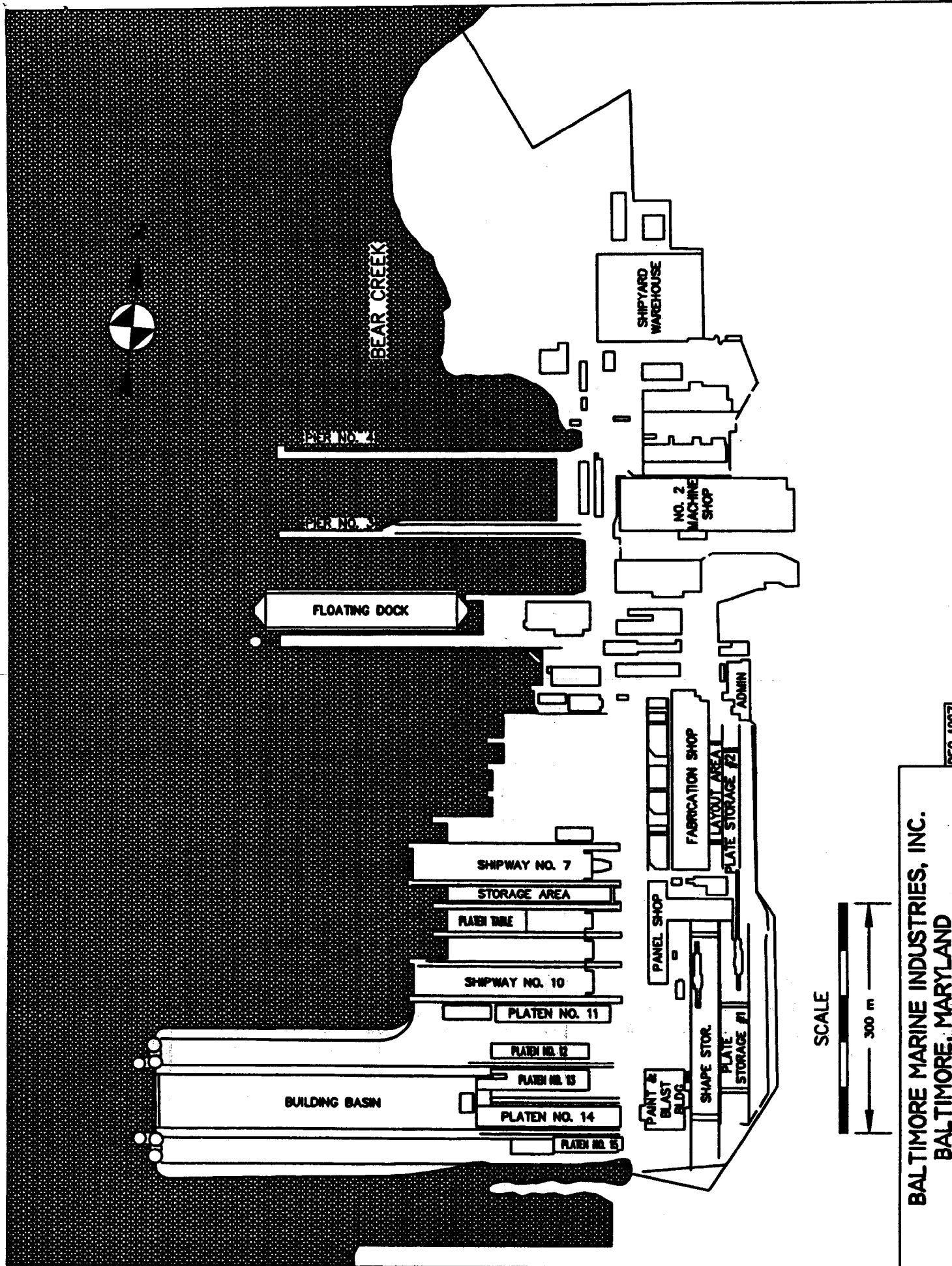
In early October 1997, the assets of the yard were purchased from Bethlehem Steel Corp. by Veritas Capital. L.L.C., of New York. Having succeeded in retaining the yard's management and its workforce, Veritas immediately opened it for business as BMI.

The major component of this shipyard is the graving dock (the second largest in the U.S.) for the construction or repair of ships as large as 365 meters by 59 meters with a maximum weight of about 300,000 dwt. A two-position intermediate gate has been installed to increase the flexibility of the graving dock by dividing it into two sections. In one position the graving dock sections are 274 meters and 91 meters in length. In the second position, the sections are 208 meters and 157 meters in length.

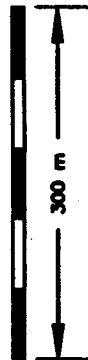
The graving dock gate has been modified to allow "super flooding" of the dock, which permits the docking of deeper draft ships.

Complementing the large graving dock, which is served by four 181-metric ton revolving cranes, the shipyard has a floating drydock capable of lifting 44,735 metric tons. The drydock can accommodate vessels up to 274 meters in length with a maximum beam of 40 meters and a maximum draft of 9 meters. The entry channel to the yard has a depth of 9 meters. Four outfitting berths are available with a combined length of 1,210 meters. The berths are served by four cranes with lifting capacities up to 45 metric tons. Several mobile cranes of various capacities are also available.

At mid-1997, Baltimore Marine Industries employed 857 people.



SCALE



BALTIMORE MARINE INDUSTRIES, INC.
BALTIMORE, MARYLAND

DEC 1997

5. Bath Iron Works Corporation

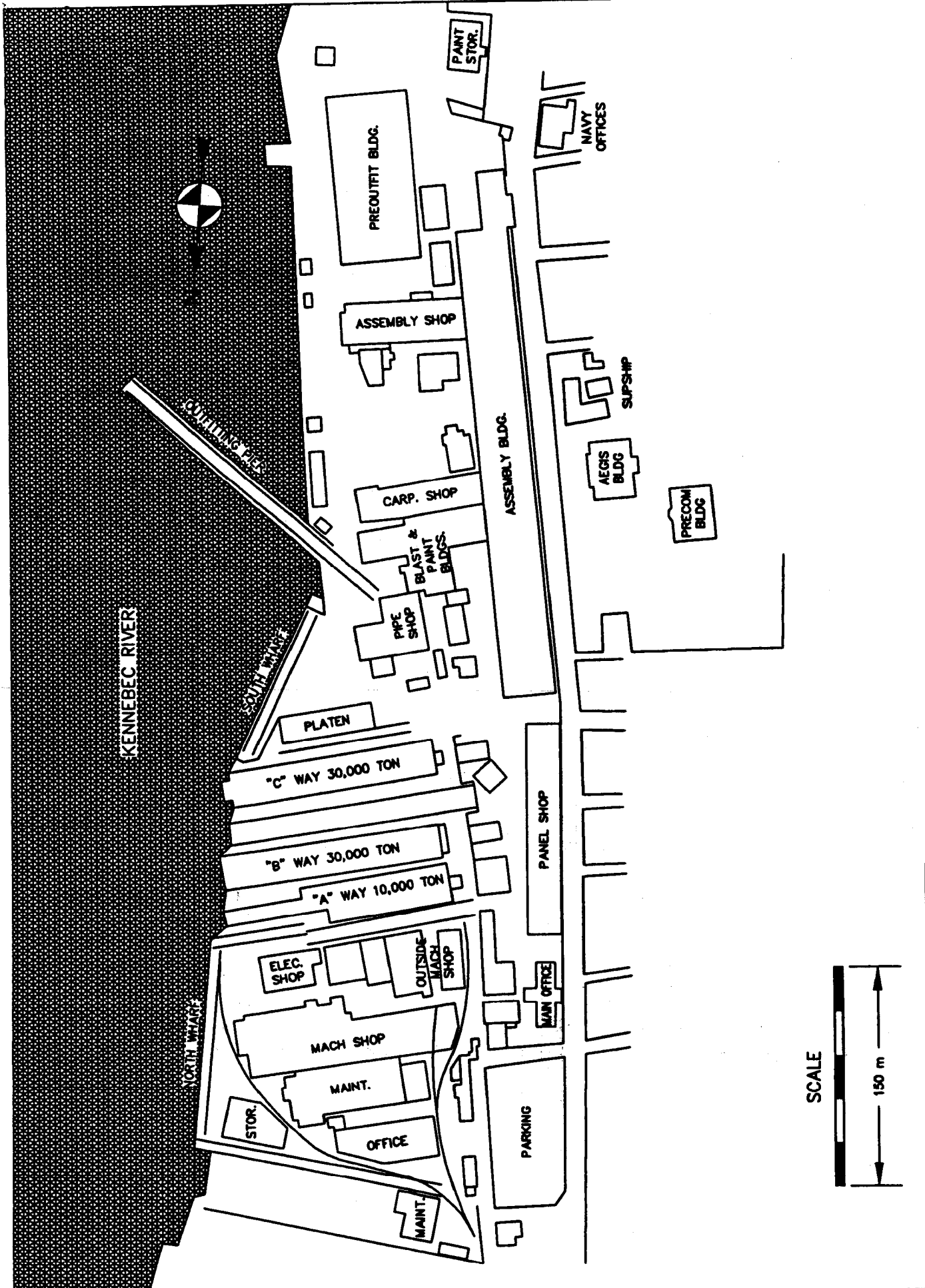
Bath Iron Works Corporation (BIW) is located on the Kennebec River in Bath, ME. The original iron foundry was established in 1826; it became Bath Iron Works Ltd in 1884, and the first ship was delivered in 1890. Since then, this shipyard has built over 240 U.S. Navy surface combatants and more than 160 commercial ships, including product tankers, containerships, roll-on/roll-off ships, private yachts and fishing vessels. BIW became a wholly owned subsidiary of General Dynamics Corporation in September 1995.

Since 1968, BIW has delivered 22 commercial ships and 40 U.S. Navy warships. In 1973, BIW became the lead yard for the FFG-7 PERRY class frigate and has delivered 24 of these ships. In 1982, the Navy selected BIW as the second-source shipbuilder for the AEGIS cruiser program. The company built eight CG-47 TICONDEROGA class cruisers and delivered the last one in 1993. In 1985, BIW won the competition for the design and construction of the DDG-51 ARLEIGH BURKE class AEGIS destroyers, the U.S. Navy's newest surface combatant. The lead ship and 11 follow-on ships have been delivered since 1991. As of September 30, 1997, nine DDG's were under contract with the last delivery scheduled for 2002. In 1996, BIW was part of the team that was awarded the design and construction contract for the first three amphibious transport dock ships (LPD). BIW is slated to construct the third ship of the series.

The facilities for new construction programs at the main shipyard feature three shipways; two can accommodate ships of 220 meters in length, one with a maximum beam of 34 meters and the other a maximum beam of 39 meters. These ways are serviced by a 200-metric ton level-luffing crane capable of erecting maximum weight units on both shipways. The third shipway, which can handle a 210 meter ship with a beam of 26 meters, is serviced by a 270-metric ton crane. Two principal structural assembly buildings have 28 work stations; the larger building, which also houses the panel line, is 390 by 40 meters and the smaller one is 135 by 28 meters. The 130 by 65 meter pre-outfit building has 18 work stations and is used for equipment installation after units are blasted and painted. Three piers have an overall waterfront length of 680 meters.

BIW also operates three other industrial facilities. Two are located 5 kilometers away in East Brunswick, ME. The Hardings Fabrication Plant, covering 15 hectares with 18,000 square meters of covered area, houses structural fabrication and sub-assembly operations. The adjacent East Brunswick facility has a total area of 24 hectares and includes two main buildings. One is a 113,000 cubic meter, climate-controlled, high-bay pallet-stacking warehouse. The other is a combination pipe and sheet metal fabrication center, with over 11,000 square meters of covered work space. The BIW operated Portland, ME overhaul and repair facility is 50 kilometers from Bath and has a 61,000-metric ton floating dry dock which can accommodate a vessel up to 257 meters by 41 meters.

As of mid-1997, the company had about 7,236 employees.



BATH IRON WORKS CORPORATION
 BATH, MAINE

DEC 1997

6. Electric Boat Corporation

Electric Boat Corporation (EB) is located on the Thames River in Groton, CT. Electric Boat is the primary design, construction, and life cycle support shipyard for U.S. Navy nuclear-powered submarines. A part of General Dynamics Corporation since 1952, the company was founded in 1899 to sell the Navy its first submarine, the HOLLAND. Since then, Electric Boat has delivered over half of all U.S. Navy submarines including: 85 Fleet-type boats during World War II; the USS NAUTILUS - the first nuclear submarine - in 1954; and the USS GEORGE WASHINGTON - the first ballistic missile submarine - in 1959.

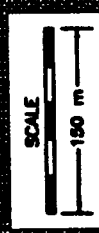
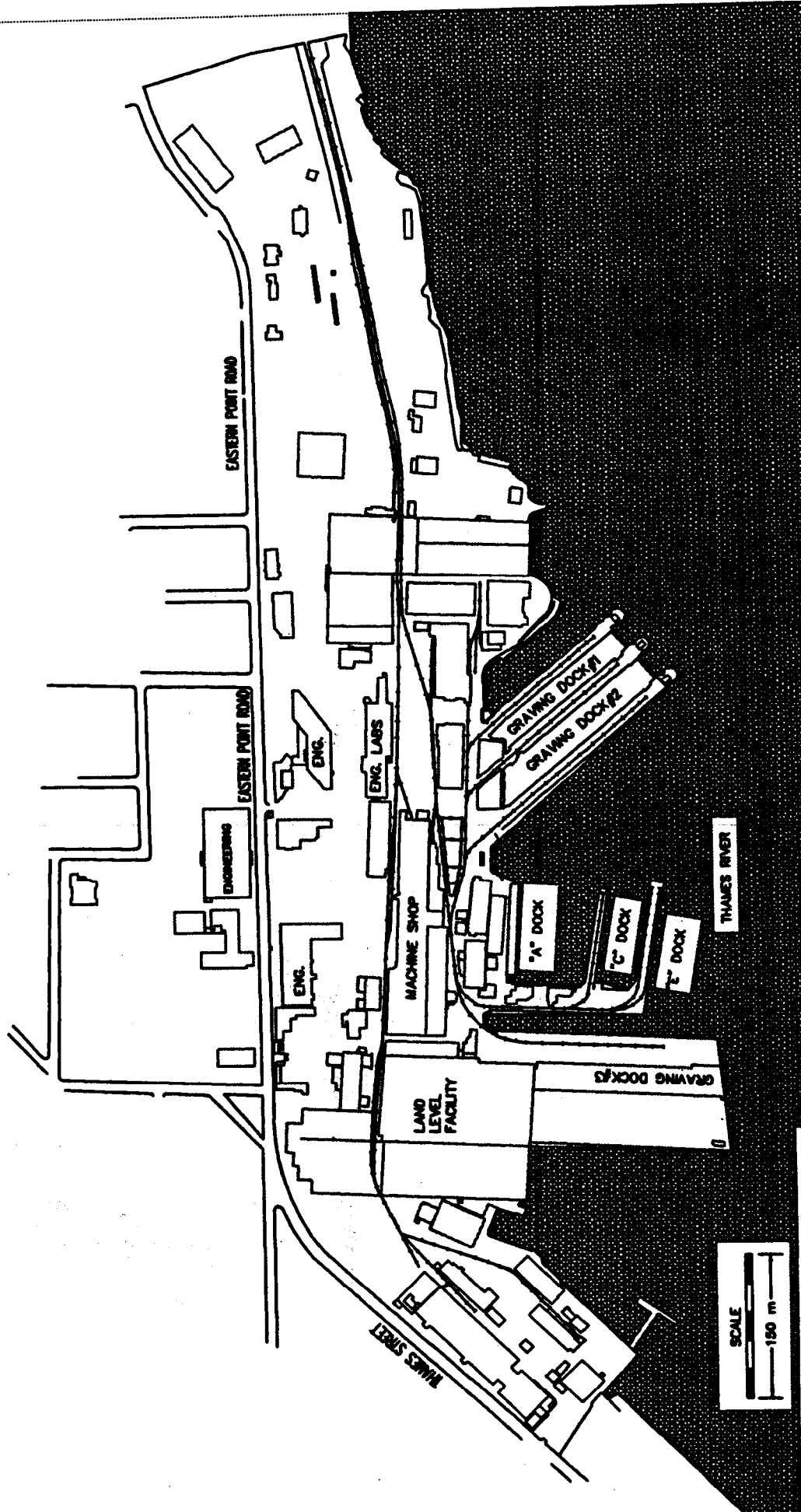
As of September 30, 1997, Electric Boat had under construction the second and third SSN-21 SEAWOLF class attack submarines. Electric Boat is the lead design yard for the New Attack Submarine (NSSN) which is scheduled to begin construction at EB during FY 1998. The company is also engaged in the repair of nuclear submarines both in Groton and at other Naval homeports.

Electric Boat operates three major construction and manufacturing sites - the 292 hectare shipyard facility on the Thames River in Groton, CT, a 245 hectare modular construction facility in Quonset Point, RI, fronting on Narragansett Bay, and the 67 hectare Electro-Dynamic facility in Avenel, NJ, specializing in quiet motors, fans, and generators. Completely outfitted submarine sections weighing up to 1,540 metric tons are shipped from Quonset Point to Groton via a heavy lift system consisting of multi-wheeled transporters and a unique jack-up barge. Electric Boat also has major engineering support offices in Bangor, WA, Kings Bay, GA, and Washington, DC, and prototype reactor service activities in West Milton, NY and Windsor, CT.

The Quonset Point facilities include an Automated Frame and Cylinder Facility, where 24 automated fixtures are used to produce thick-walled submarine sections to demanding dimensional tolerances, and extensive steel fabrication, machine, pipe, electrical, and HVAC shops which support the modular outfitting of these sections.

The Groton facilities include the principal research, engineering, and design activities, as well as shipyard operations centered around the land level submarine construction facility (LLSCF), which is capable of producing up to three submarines per year, and is served by heavy-lift cranes capable of combined lifts up to 616 metric tons. There are three graving docks: GD1 and GD2 are used primarily for submarine repair and postsea trial dockings; and, GD3 is used to launch ships, up to 197 meters in length and 19,250 metric tons, from the LLSCF. Seven wetberth positions with portal cranes ranging from 75 to 300 tons can accommodate vessels up to 229 meters long and drawing 12 meters. During 1997, as part of ongoing consolidation efforts, the Groton facility demolished 6 major and 41 minor obsolete structures.

As of mid-1997 Electric Boat had approximately 10,300 employees.



**ELECTRIC BOAT CORPORATION
GROTON, CONNECTICUT**

DEC 1987

7. Fraser Shipyards, Inc.

Fraser Shipyards, the only major American shipyard and drydock operation on the western end of the Great Lakes, is located on Howards Bay in Superior, WI. From 1900 to 1926, Superior Shipbuilding Co. operated the yard and built more than 50 large Great Lakes ore carriers. The yard became a repair facility for the American Ship Building Co. from 1926 to 1945 and then became known as Knudsen Brothers Shipbuilding and Dry Dock Co. Fraser-Nelson Shipbuilding and Dry Dock Co. took over the yard in 1955, and the present name was adopted in 1964. In August 1977, the yard was sold to Reuben Johnson & Son, Inc., a Superior, WI, contracting and construction firm, but business continues under the Fraser name.

Since World War II, Fraser Shipyards, a complete shipbuilding and ship repair facility, has specialized in vessel repair and ship modernization. In the past 25 years, Fraser has performed most of the major ship lengthening work on the Great Lakes. In recent years, however, general ship repair has been its primary source of revenue.

In the early 1980's, Fraser instituted a major renovation of its fabrication capabilities, including a 40 percent increase in its platen table capacity and extension of its railroad trackage to increase steel unloading capabilities by 300 percent. An all-new steel cutting process with hydraulic loading and unloading tables was installed, as well as major repowering of the shipyard to support the expanding facilities and to improve existing capacity. New automated welding equipment and related modern techniques were also introduced to increase productivity. In 1990 Fraser installed a new metal-forming brake as well as a new shear.

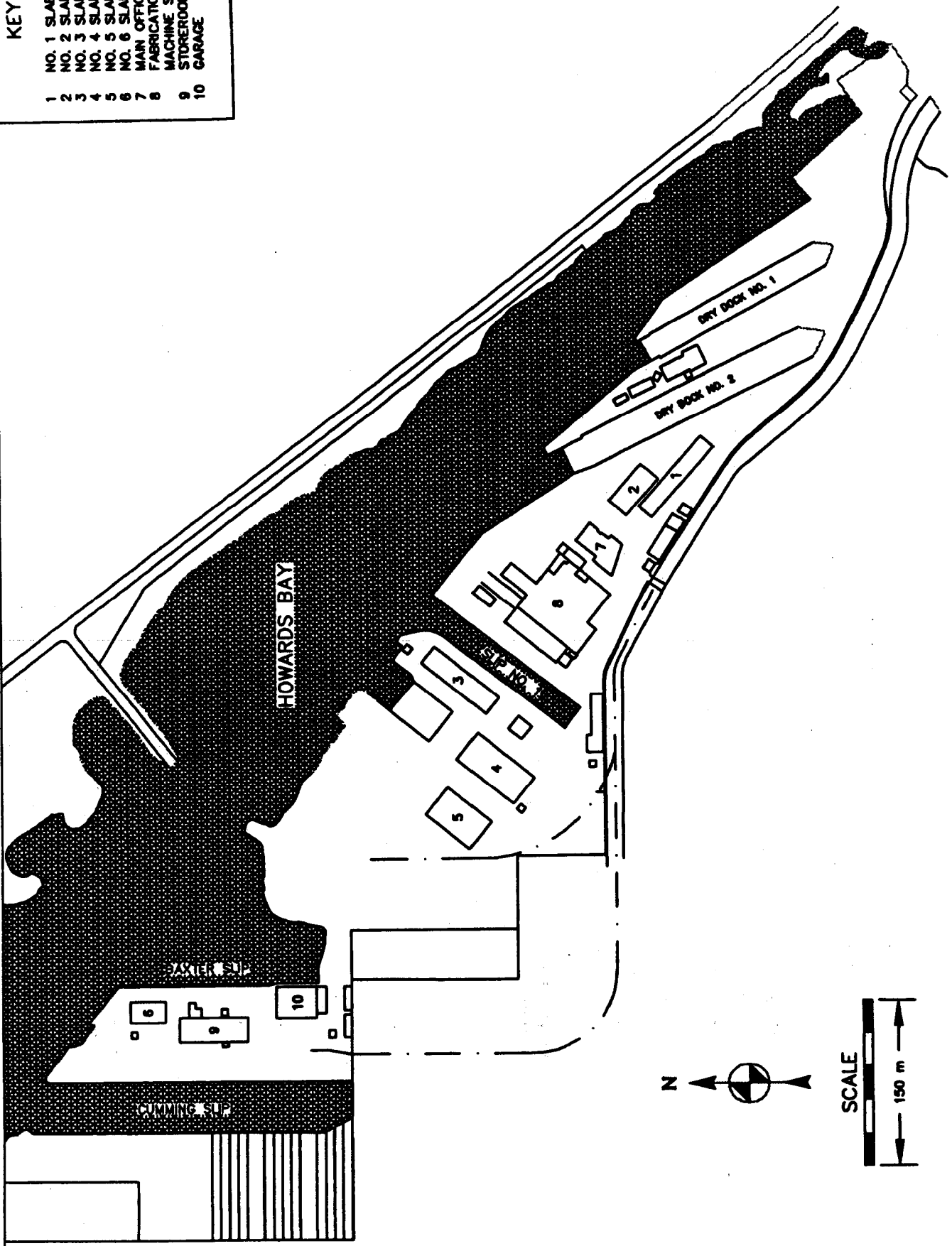
Fraser maintains two graving docks suitable for ship construction, repair, and conversion work. One basin can accommodate a vessel 252 meters by 23 meters, and the other a vessel 189 meters by 17 meters. A small graving-type dock was added in 1973 to build new midbody sections for the lengthening of bulk-ore freighters under contract at that time. Fraser's 10 mobile cranes, ranging from 14 to 136 metric tons can service all building docks, as well as outfitting and repair berths, and also can be floated on a crane lighter for work afloat. The company also operates an "outside" repair fleet totaling 12 units -- tugs, work launches, and barges -- capable of performing repairs on vessels while they are loading or unloading cargoes in Duluth-Superior harbor and adjacent ports.

Current work includes converting a small fishing vessel to a research vessel.

In mid-1997, Fraser's employment was about 32 people.

KEY

1	NO. 1 SLAB
2	NO. 2 SLAB
3	NO. 3 SLAB
4	NO. 4 SLAB
5	NO. 5 SLAB
6	NO. 6 SLAB
7	MAIN OFFICE BLDG
8	FABRICATION AND STORAGE
9	MACHINE SHOP BLDG
10	GARAGE



FRASER SHIPYARDS, INC.
SUPERIOR, WISCONSIN
DEC 1987

8. Gunderson, Inc.

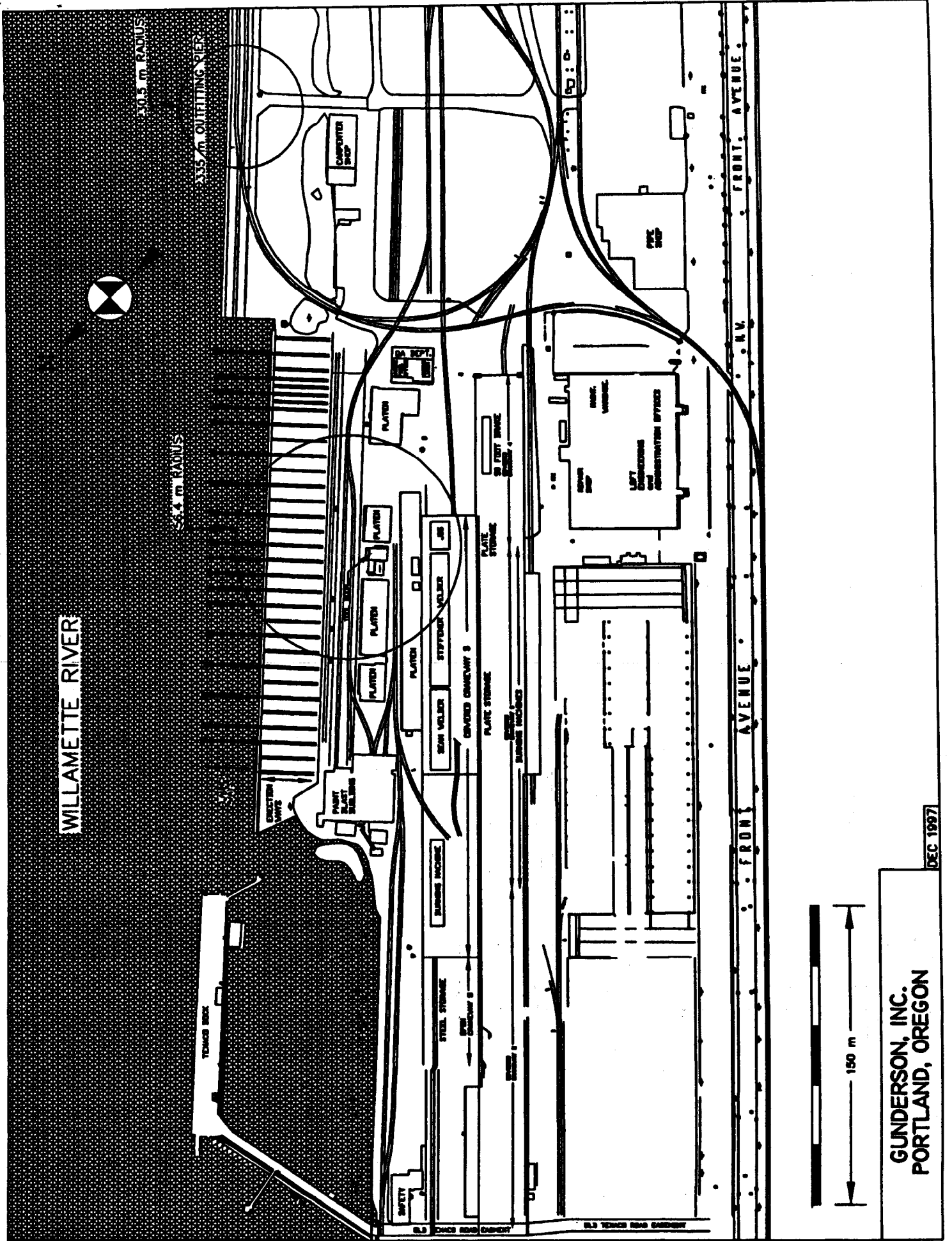
Established in 1919 as a steel fabricator, Gunderson has been a ship and barge builder since 1942. Since the 1970's, the primary marine work at Gunderson has been building oceangoing barges. From 1973-1977, the company built five double-hull, gas turbine-electric drive oil tankers for Chevron Shipping Company, San Francisco, CA. After those tank ships, 38 oceangoing barges, most exceeding 122 meters in length, were built. They included four of the world's largest triple-deck RO/RO barges, 177 meters by 32 meters, several 32 meter by 122 meter deck cargo and tank barges, four 76 meter split hull hopper barges, and a 128 meter crane barge equipped with a 500-ton helipad. Gunderson has also built military boats, landing craft, lifeboats, tugs, deckhouses, hopper and tank barges and a variety of other specialized marine craft.

From 1965 to 1985, Gunderson was owned by FMC Corporation, now based in Chicago, IL, and operated under the name of the Marine and Rail Equipment Division of FMC until The Greenbrier Companies bought the facility in February 1985. In February 1995, the new Gunderson returned to the barge building business after a 10 year shut down. Gunderson's yard is located on a 30 hectare parcel with approximately 0.8 kilometers of frontage on the west bank of the Willamette River, about 3.2 kilometers downstream of the downtown Portland, OR waterfront. As such, Gunderson has access to all three drydocks available at Portland Ship Yard/Cascade General and the services of the ship repair and outfitting contractors who regularly utilize this facility.

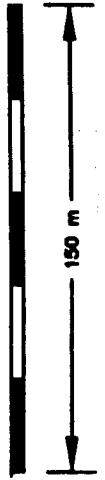
Gunderson's facilities and production workforce, which averages some 1,200 skilled and semi-skilled workers, can be and are utilized to build both marine equipment and railroad freight cars, including the most advanced designs in double-stack railcars. Capable of launching vessels up to 229 meters in length, 32 meters in breadth and weighing as much as 9,000 tons, Gunderson is currently seeking work in the construction of large oceangoing deck cargo (open and closed) hopper barges, deckhouses, cranes and double hulled petroleum tank barges up to 20,000 dwt capacity. Gunderson's launch capacity can be readily increased to accommodate vessels weighing as much as 10,000 metric tons and its steel throughput capacity for all products is currently 1,016 metric tons per month. Gunderson also has a 335 meter, crane served, outfitting dock.

The September 30, 1997 backlog is one 91 meter by 26 meter, 6,100 cubic meter aggregate barge and one 67 meter by 16 meter suction dredge.

As of mid-1997, total employment at Gunderson Shipyard averaged 1,100 people, with approximately 132 of these producing marine equipment. The remainder of the workforce was involved in the construction of railroad cars.



GUNDERSON, INC.
 PORTLAND, OREGON



DEC 1997

9. Halter Moss Point Shipyard

The Halter Moss Point (HMP) facility is located on the Escatawpa River in Moss Point, MS, a short distance from the Gulf of Mexico and Interstate 10. Significant features of the HMP yard include: a protected, deep-water location; large module fabrication and assembly platens; two launchways; significant lift capacity; full range of outfitting services; and full-service warehousing facilities. The original 30 acres of developed land was substantially increased in 1995 by the acquisition of approximately 10 acres of adjacent property, which included existing marine fabrication shops, platens and offices, and a 60 meter launchway.

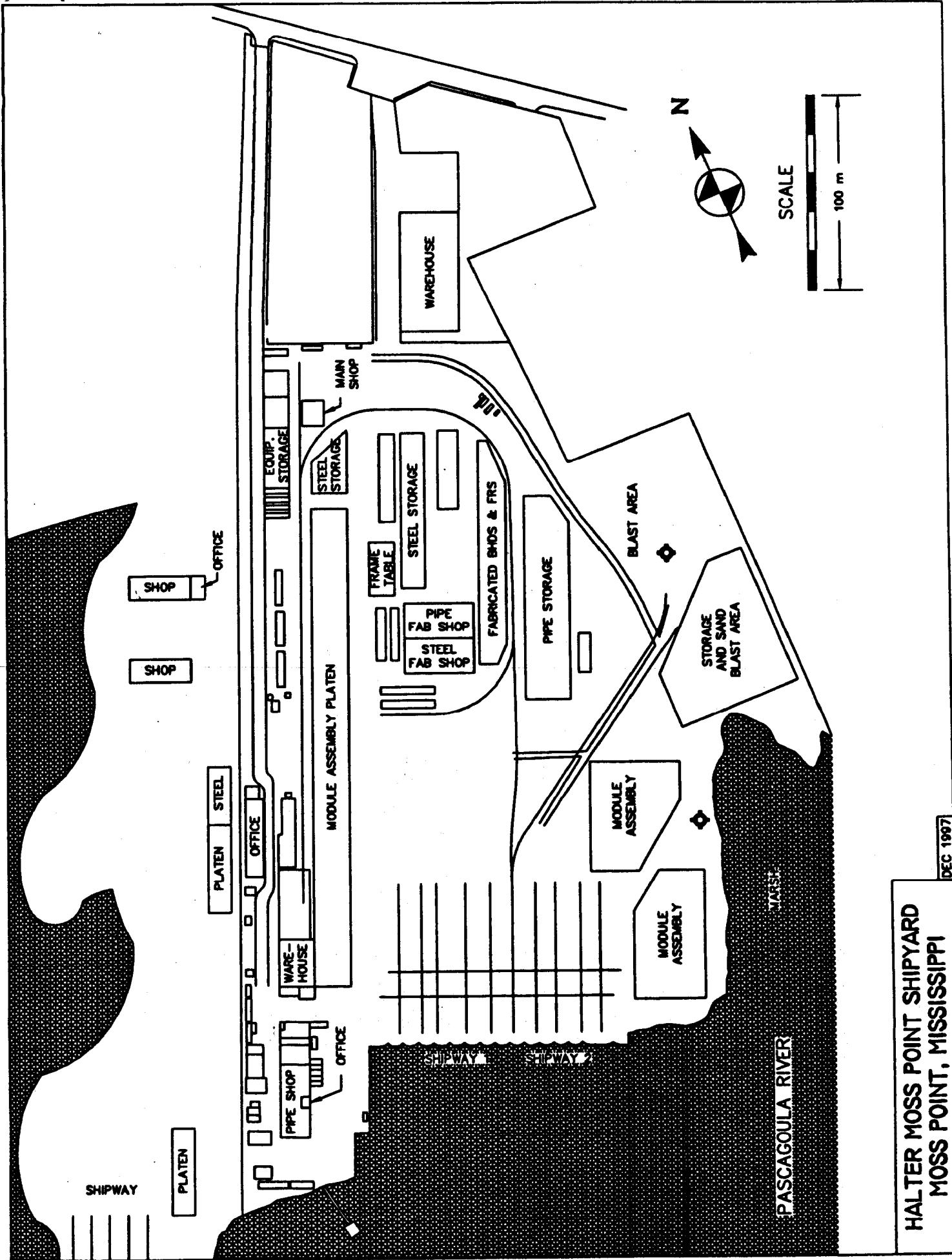
HMP is currently constructing the T-AGS 63 and T-AGS 64 Oceanographic Survey ships and a 116 meter RO/RO passenger ferry for the Alaskan Marine Highway System, a 69 meter Anchor Handling Tug Supply (AHTS) vessel and four 63 meter Offshore Supply (OSV) boats. HMP recently has delivered an AGOR, Oceanographic Research Ship to the National Oceanographic and Atmospheric Administration (NOAA).

The Halter Moss Point facility is equipped and staffed to handle fabrication, assembly and delivery of complex ships up to 146 meters in length by 20 meter beam. The shipyard maintains moveable heavy-lift crane capacity of up to 272 metric tons.

The four-story main fabrication shop contains 929 square meters and is fitted with a five-metric ton overhead crane serving its entire length plus an extension at each end, and a nine-metric ton gantry crane. The pipe shop covers 855 square meters. The building is serviced by four one-ton jibs and a five-metric ton overhead crane and contains a standard outfit of pipe fabrication tools and equipment, including six pipefitter work stations. The combined carpenter shop and electric shop contains 465 square meters. The carpenter shop and electric shop carry a full range of standard tools and equipment necessary to support the production effort. The main warehouse contains 1,858 square meters of modern receiving and weatherproof storage space. Environmentally controlled warehouse space for the stowage and test of sensitive equipment is available.

The HMP yard has a steel fabrication throughput capacity of 400 tons per month and a pipe shop capacity to provide up to 22,859 meters of pipe per year. These capacities will increase as activation of the newly acquired adjacent facility takes place. HMP recently acquired a 217 hectare facility a short distance from HMP which features 335 meters of protected bulkhead mooring, along with the standard marine fabrication shops, equipment and offices that will be available to provide production support as well as a final new construction outfitting site.

As of mid-1997, employment at Halter Moss Point was 452.



HALTER MOSS POINT SHIPYARD
MOSS POINT, MISSISSIPPI

DEC 1997

10. Ingalls Shipbuilding, Inc.

Ingalls Shipbuilding, Inc., a division of Litton Industries, Inc., is located on the Gulf of Mexico in Pascagoula, MS. Ingalls is a diversified shipbuilding facility experienced in the design, engineering, construction, modernization, conversion, overhaul and fleet support of Navy warships and auxiliaries, as well as commercial ships and mobile offshore drilling rigs. Since 1975, Ingalls has delivered to the U.S. Navy 74 major surface combatant ships. Ingalls has also delivered three SAAR 5 corvettes to the Government of Israel.

As of September 30, 1997, the company held orders for two multi-purpose amphibious assault ships (LHDs) for the Navy, as well as seven new DDG-5 AEGIS class guided missile destroyers. The orderbook also included commercial contracts for 20 offshore supply vessels.

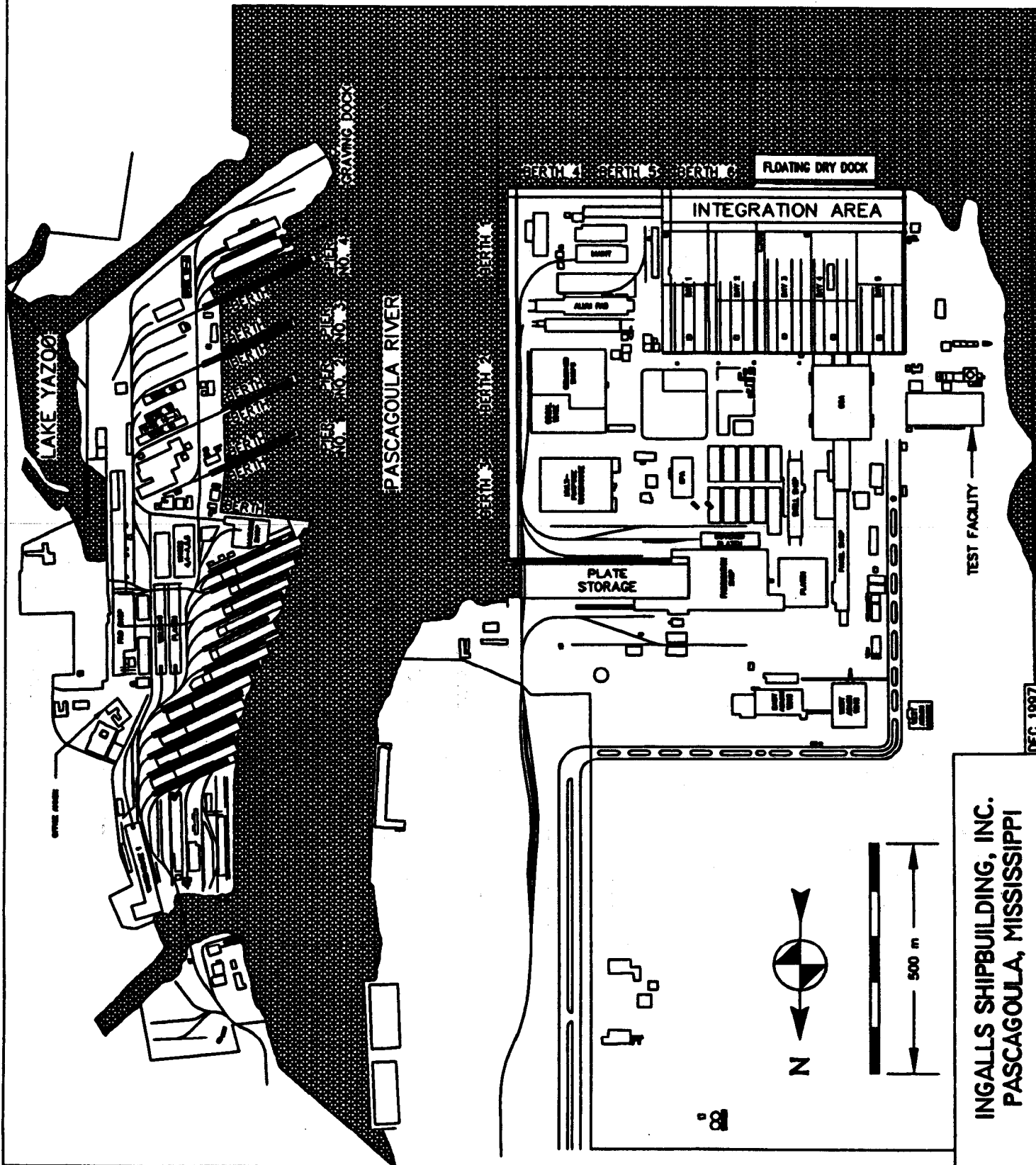
Ingalls' 243 hectare West Bank facility, completed in 1970, is geared to assembly-line construction, in lieu of conventional inclined shipbuilding ways. Fabricated steel and subassemblies are brought from the various shops to the subassembly area where they are erected and pre-outfitted, then moved to the module assembly area. These areas are divided into five major bays or processing lines, each of which can produce 5,447 metric ton modules. After assembly and outfitting, the modules are moved to an integration area where they are erected into a complete ship. The ship is then moved to a floating drydock (resting on a submerged grid) which is subsequently floated and moved to a deep-water area where it is ballasted and the ship launched. The drydock can launch or recover a maximum ship size of 259 meters by 53 meters. Approximately 1,432 meters of berthing space, serviced by cranes up to 272 metric tons, are available for outfitting. In August 1988, about 16,721 square meters of the shipyard's slab area was brought under roof to increase the amount of early outfitting performed. Improved pipe production facilities, a machinery packaging facility, and a new blast and paint station in the steel fabrication complex have been added. Ingalls' current facility and technology improvements include a new robotics welding capability and a composite facility. In August 1997, Ingalls announced plans to invest \$25 million in a major facilities program to enhance capacity for both military and commercial work.

Ingalls' older East Bank facility has been in operation since 1938. Although there are six inclined shipways and a graving dock at East Bank, they were all taken out of service in 1989, along with three piers. Refurbishment of these facilities is anticipated to take at least two years. One pier remains providing 457 meters of berthing space serviced by cranes with up to 54 metric tons of capacity for outfitting and topside repair.

As of mid-1997, Ingalls employed a total labor force of about 9,420.

EAST BANK YARD

WEST BANK YARD



DEC 1997

INGALLS SHIPBUILDING, INC.
PASCAGOULA, MISSISSIPPI

11. Intermarine USA

Intermarine USA was established in 1987 following a U.S. Navy contract to build large minehunters using composite materials. Intermarine completely renovated a shipyard in Savannah, GA, and converted it into a modern composite manufacturing facility.

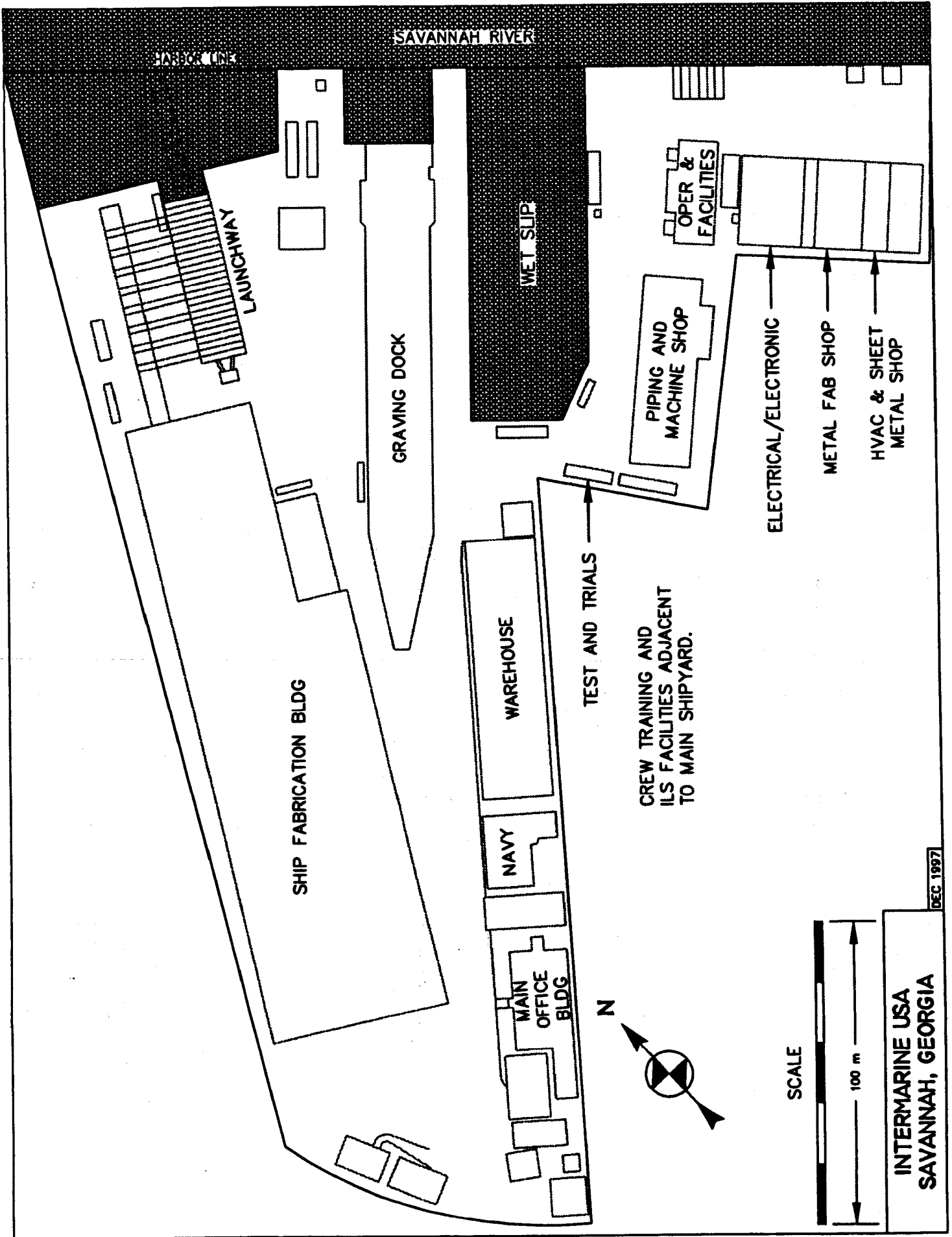
Intermarine USA started construction of OSPREY, lead ship of the MHC-51 Coastal Minehunter class, in May 1988, only one year after the original contract award. The class is 57 meters in length with a full load displacement of 900 metric tons. OSPREY was launched in March 1991 and delivered in August 1993. Seven additional MHC-51 class vessels have been awarded to Intermarine since 1987. These awards ensure continuous ship production through 1998. Through 1997, five coastal mine hunters have been delivered.

The company continues to contribute to U.S. Navy advanced composite materials studies in support of marine structural designs up to 73 meters in length. Intermarine also constructed a 20 meter catamaran yacht tender for service in the America's Cup competition. In addition, Intermarine has continuous ongoing naval and commercial ship repair work and is entering the super yacht market.

Intermarine USA has all the facilities necessary for military and commercial ship construction, including a certified 162 meter long graving dock and a 1,016 metric ton marine railway. The composite materials fabrication building has an area of over 14,860 square meters and is equipped with six semi-automatic resin/glass impregnators on fully-articulated bridge cranes. Materials storage areas and environmental controls have been specifically designed to meet all composite materials storage and manufacturing requirements. The facility is large enough to house six minehunter vessels or molds, all under cover, simultaneously. There are 4,180 square meters of shop space, in addition to the composite materials fabrication areas, and ample warehouse space on-site.

In support of the ongoing construction programs, Intermarine has established technical and integrated logistics support departments staffed with experienced engineers, designers and logisticians.

As of mid-1997, Intermarine USA employment totaled 429.



12. Marinette Marine Corporation

Marinette Marine Corporation (MMC), located in Marinette, WI, on Green Bay, which is part of Lake Michigan. is a privately-owned shipbuilding company that was founded in 1942. Since inception, the yard has built nearly 1,300 vessels, including tugs, ferries, buoy tenders, research vessels, torpedo weapon retrievers, mine counter-measure ships, yard patrol craft and a variety of landing craft.

As of September 30, 1997, MMC was engaged in the construction phases of two contracts with the U.S. Coast Guard. One contract is to design and construct five 69 meter oceangoing buoy tenders and the other to design and construct fourteen 53 meter coastal buoy tenders. During 1997, MMC completed construction and delivery of one oceangoing buoy tender and three coastal buoy tenders.

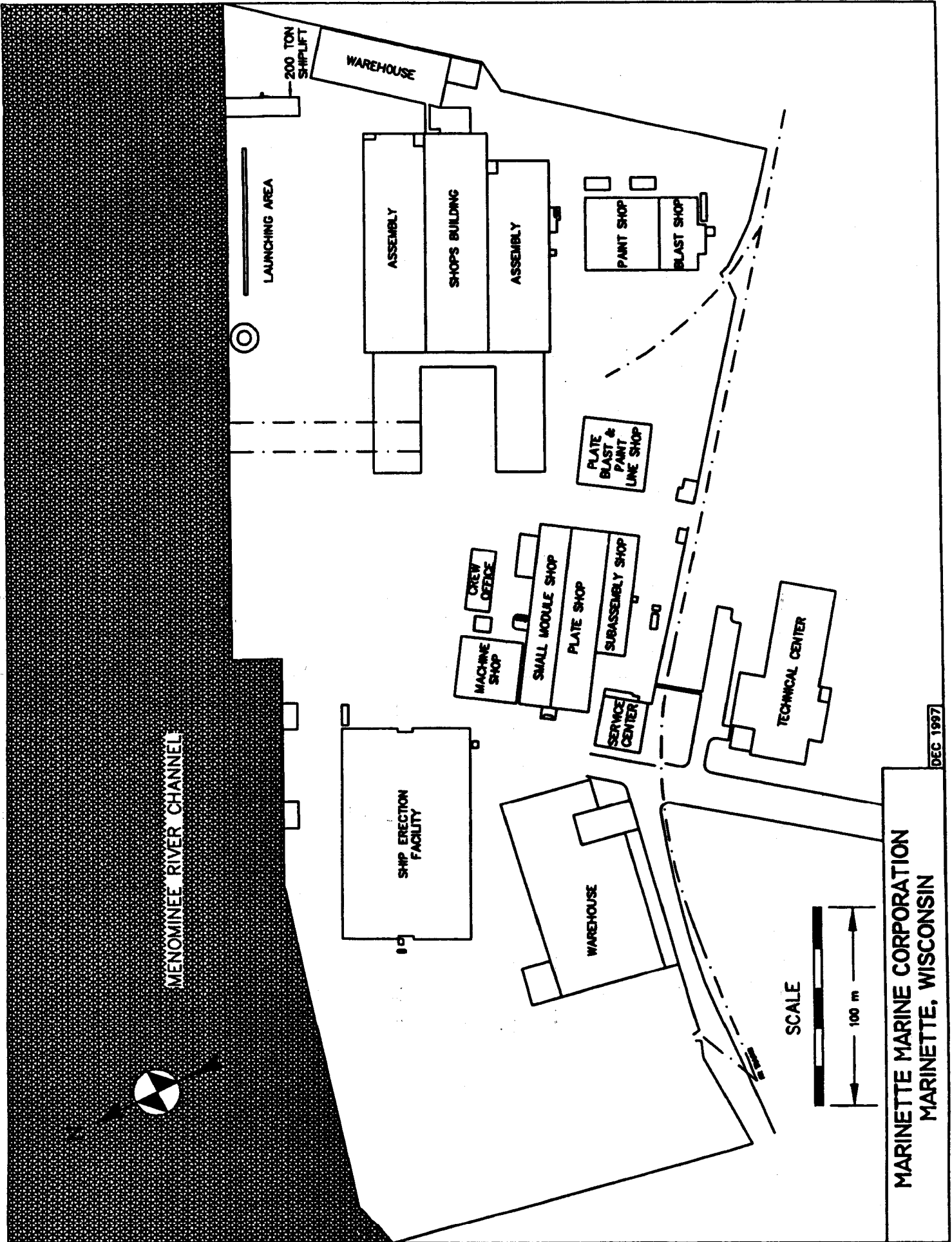
The shipyard covers 23 hectares and has approximately 150,000 square meters of enclosed workspace permitting year-round, uninterrupted construction of vessels. A modern design and administrative building, large fabrication shops and erection areas, a 200 metric ton ship lift, three launchways, and numerous berthing spaces along the 651 meter dockwall provide what is needed to satisfy multiple ship construction projects in assembly line fashion.

Strategically positioned fabricating, assembly and trade shops allow smooth and efficient movement of material, prefabricated components, and small modules through the ship construction process. Most shops are equipped with overhead bridge cranes. Crawler cranes service the outdoor erection areas. Large modules and completed vessels are transferred to erection and launching sites using a dual walking beam ship transfer system that is capable of carrying up to 1,626 metric tons.

Construction of the oceangoing buoy tenders began in late 1993. Construction of the coastal buoy tender commenced in mid-1994.

MMC anticipates an additional eleven seagoing coastal buoy tenders will be contracted for in 1998.

Total employment at the yard in mid-1997 was 546.



DEC 1997

MARINETTE MARINE CORPORATION
MARINETTE, WISCONSIN

13. Metro Machine of Pennsylvania, Inc., Industrial Products Division

Metro Machine of Pennsylvania, Inc. took over the facility formerly operated by Erie Marine Enterprises, Inc. The 18 hectare shipyard was renamed Metro Machine of Pennsylvania, Inc., Industrial Products Division. The shipyard is located on the protected waters of the Presque Isle Bay in Erie, PA. This Great Lakes shipyard has a history of new construction, repair and industrial work. The yard built the first Great Lakes 305 meter self-unloading ore carrier and a second 305 meter self-unloading ore carrier.

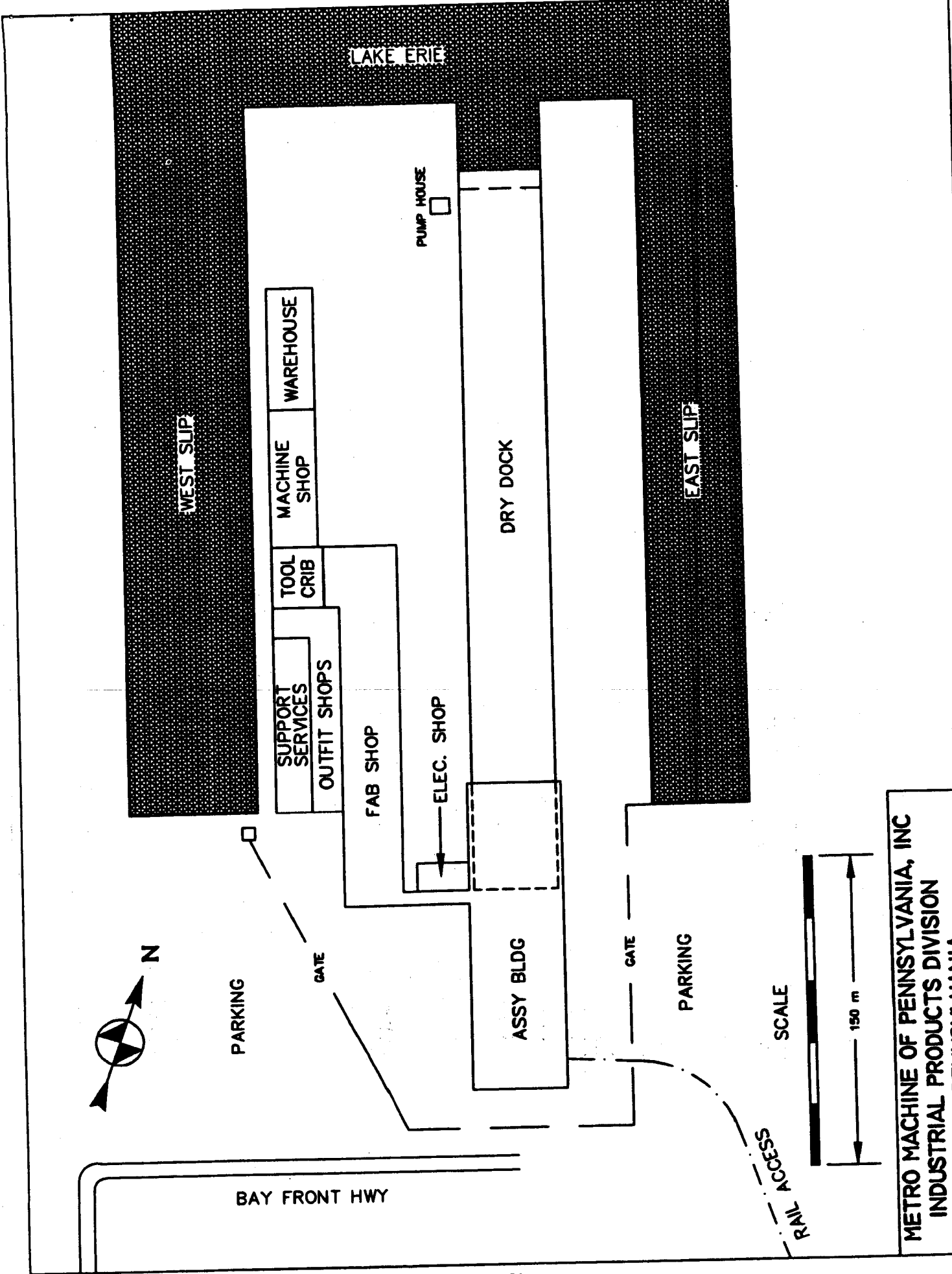
The facility consists of three interconnected buildings containing over 18,581 square meters of production space, enabling raw material coming into the facility to be totally processed in an environmentally controlled production setting. This shipyard has the longest U.S. drydock on the Great Lakes and can accommodate ships up to 375 meters in length with a maximum beam of 35 meters. The drydock extends into a 6,600 square meter assembly building, both of which are served by 91-metric ton and 18-metric ton cranes. The complex contains machine, electrical and outfitting shops with warehouse and office spaces.

Three overhead cranes service the 5,700 square meter fabrication shop. There are 1,129 meters of pier space at the shipyard with full dockside services. Auxiliary pier spaces are available for four additional ships. The shipyard has mobile cranes with capacities up to 113 metric tons. Also, there is a 270-metric ton stationary revolving crane.

In recent years, about \$3.0 million was invested in rehabilitating and upgrading the facility and equipment.

The shipyard has access to and, as needed, uses several industrial companies and subcontractors located in the Erie industrial community.

As of mid-1997, the yard employed a total of 27 people.



DEC 1987

METRO MACHINE OF PENNSYLVANIA, INC
 INDUSTRIAL PRODUCTS DIVISION
 ERIE, PENNSYLVANIA

14. National Steel and Shipbuilding Company

National Steel and Shipbuilding Co. (NASSCO), the largest shipbuilder on the West Coast, participates in both commercial and U.S. Navy shipbuilding, conversion, and repair markets. In the marine business since 1945, the company now occupies 59 hectares on the harbor in San Diego, CA. In 1989, NASSCO became an employee-owned company.

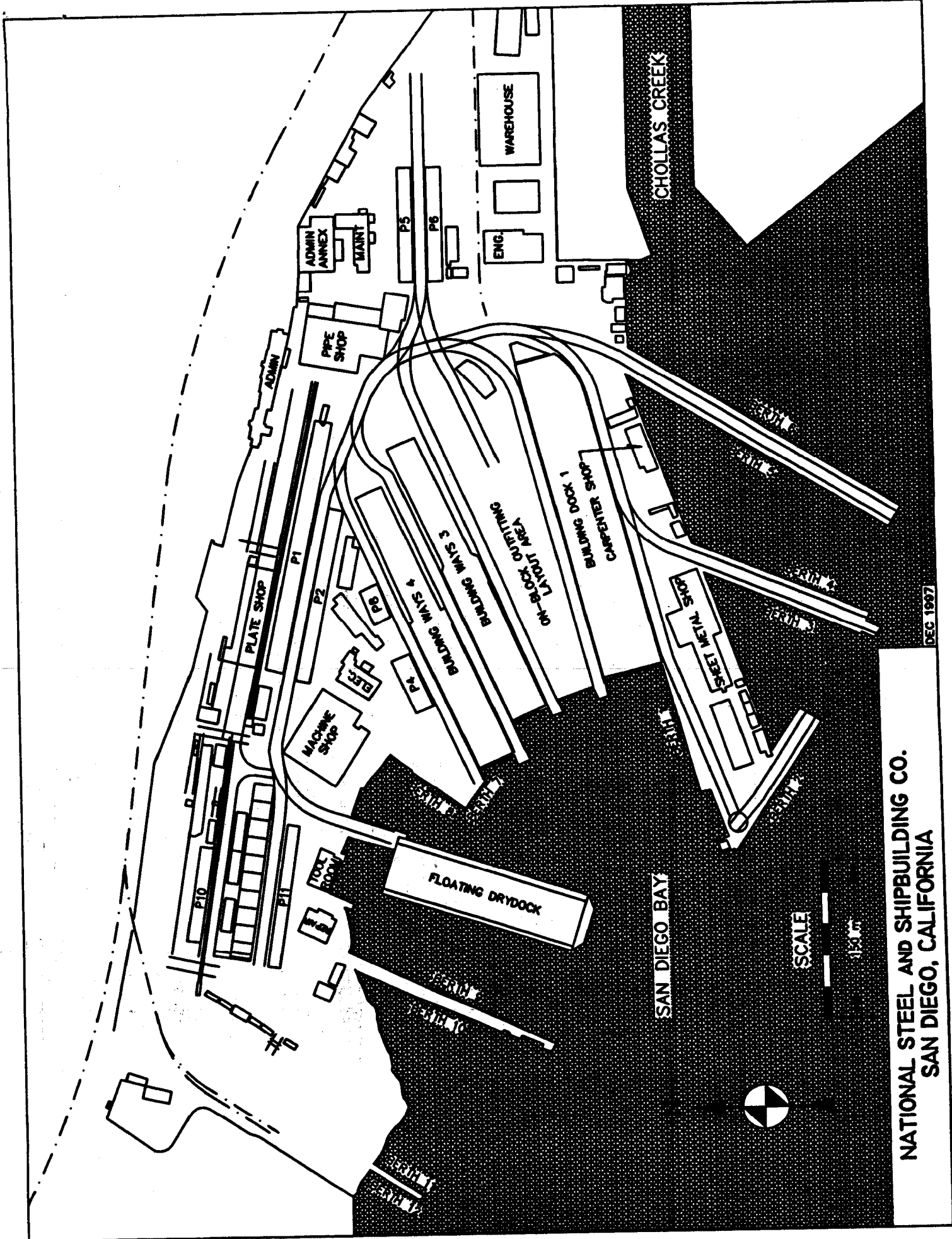
NASSCO has constructed tankers, ore-bulk-oil (OBO) carriers, very large crude carriers (VLCC) up to 209,000 dwt, product carriers, destroyer tenders, a large cable repair ship, a 1,910 TEU containership, special purpose ships and a variety of Navy vessels. NASSCO conversion projects have included the conversion of two 90,000 dwt tankers to 1,000-bed hospital ships (T-AH's), three containerships to Maritime Prepositioning Ships (T-AKX's), and the reconstruction of three former Sea-Land SL-7 containerships to Fast Sealift Ships (T-AKR's) for the Navy. Repair and overhaul work during the past few years consisted principally of Navy contracts.

As of September 30, 1997, NASSCO had contracts to design and construct a series of AOE class Fast Combat Support Ships for the Navy (one is under construction and three have already been delivered). NASSCO also has contracts to convert three containerships to military sealift ships (one is under conversion and two have been delivered) and to design and construct seven new military sealift ships (six under construction and one option) for the Navy.

NASSCO's facilities include a building dock in which ships up to 303 meters by 52 meters can be constructed. In addition, the company operates two inclined building ways. Both can accommodate a maximum size ship of 274 meters by 34 meters. Cranes are available that can provide lifts up to 159 metric tons and multi-lifts up to 236 metric tons. Berthing is available at 8 full-service berths that can accommodate ships with drafts up to 11 meters and lengths up to 305 meters. NASSCO also operates a 25,400-metric ton floating drydock with an inside clear width of 41.5 meters.

NASSCO has a full-service machine shop, carpenter shop, sheet metal shop and pipe shop with an automated pipe silo. The company's steel fabrication and assembly capacity is over 1,800 metric tons per week. There is also an automated line for blasting and priming steel plates and shapes. In addition, NASSCO has two electrical shops: one for electrical work and one for intricate electronics work. NASSCO offers full-service marine engineering and naval architecture, utilizing the latest technology, such as Computervision, Dimension III, Microstation and TRIGON.

As of mid-1997, the total labor force was about 4,293.



NATIONAL STEEL AND SHIPBUILDING CO.
 SAN DIEGO, CALIFORNIA

15. Newport News Shipbuilding

Newport News Shipbuilding, located at the Port of Hampton Roads in Newport News, VA, is the largest shipbuilding complex in the nation. The company, founded in 1886, has recently returned to being a publicly owned corporation. Newport News has delivered 26 aircraft carriers, 53 nuclear-powered submarines, and over 120 other surface ships for the U.S. Navy. Commercial vessels delivered by the yard include 71 cargo ships, 86 tankers, 61 passenger ships, (most notably the famed superliner UNITED STATES), and more than 50 other self-propelled vessels. Newport News was a pioneer in the field of jumboizing ships, and since 1957, has completed 34 such operations.

Newport News is the nation's foremost shipbuilder. As of September 30, 1997, the yard was at work on two Nimitz class aircraft carriers and eight 46,000 dwt product tankers. Newport News and Electric Boat have teamed to design and build the next class of nuclear submarines. Newport News is also involved in the overhaul and repair of nuclear-powered submarines and surface ships for the Navy as well as commercial repair work.

Included in Newport News' major facilities are:

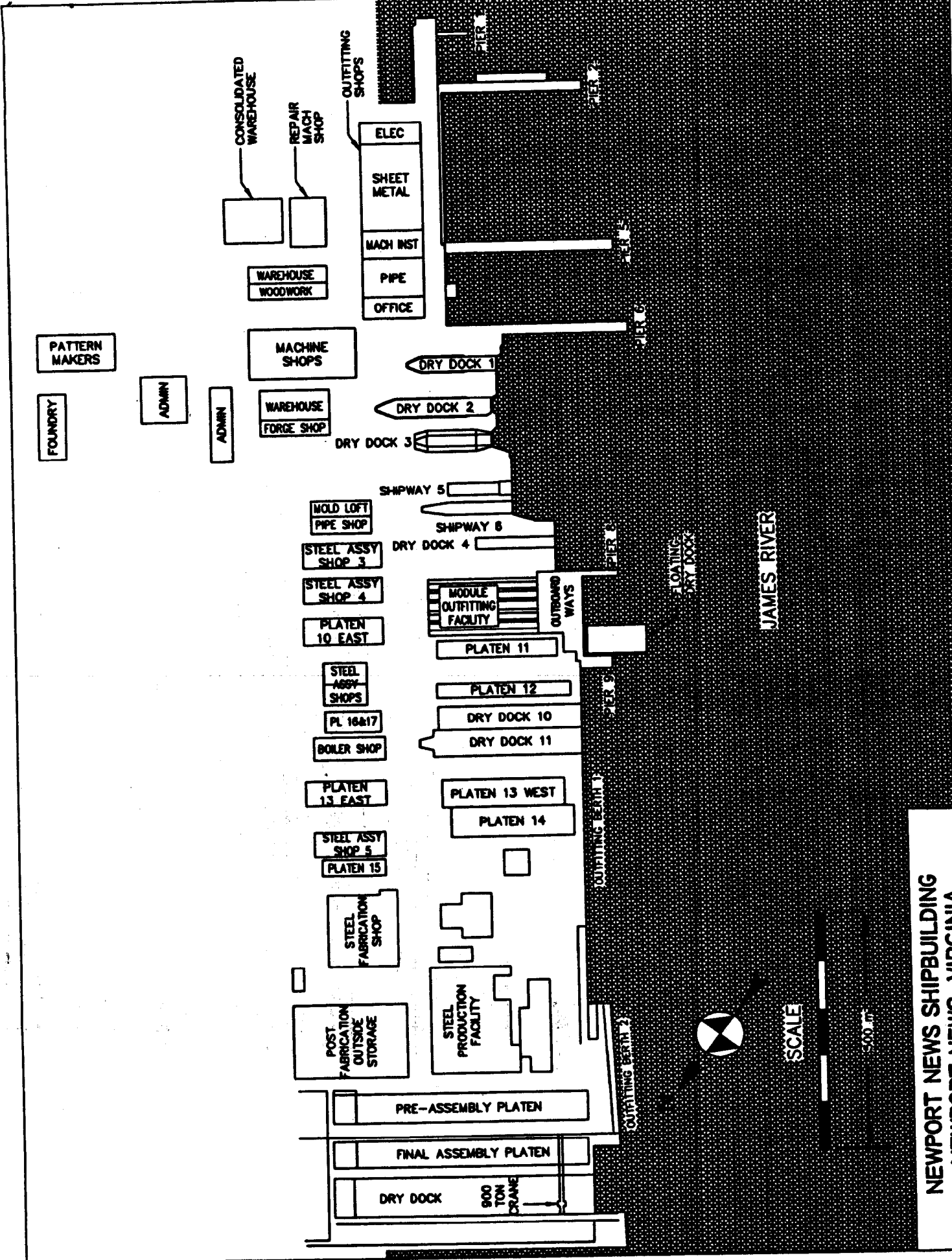
Docks - There are eight docking facilities. Drydock 12, the largest building basin in the nation, can accommodate vessels up to 661 meters in length by 75 meters beam. An intermediate gate will permit the simultaneous construction of two major ships in the dry dock. A 900-metric ton gantry crane, one of the largest in the western hemisphere, can handle completely outfitted assemblies. Dry Docks 10 and 11, which are serviced by a 315-metric ton gantry crane, can be used for construction work, but are used primarily for ship overhaul, repair and deactivation. Dry Docks 1-4 are used mainly for ship repair and overhaul, and the floating dry dock, which is 195 meters by 41, supports ship construction from the module outfitting facility and repair work.

Vessel Berthing - Newport News has two outfitting berths totaling 799 meters each serviced by 30-metric ton cranes. There are three piers totaling 1,944 meters of berthing space and serviced by cranes with capacities of up to 50 metric tons, plus two small piers at the module outfitting facility.

Manufacturing - A \$68 million "World-Class Shipbuilder Project" is currently underway to add robotics and updated computer systems to Newport News fabrication process.

During the past year, Newport News Shipbuilding has been involved in a number of capital projects including drydock extension, crane overhaul, automated steel factory, consolidated refueling facility and carrier innovation center.

As of mid-1997 the labor force at Newport News was about 18,236.



DEC 1997

NEWPORT NEWS SHIPBUILDING
NEWPORT NEWS, VIRGINIA

16. Portland Ship Yard (Cascade General)

This 57-hectare shipbuilding and ship repair facility is located in Portland, OR, on the Willamette River. The yard was developed from the World War II Swan Island Shipbuilding facilities which delivered 1,076 oceangoing ships. Today's facility includes Dry Dock 4, the largest floating drydock in the Americas.

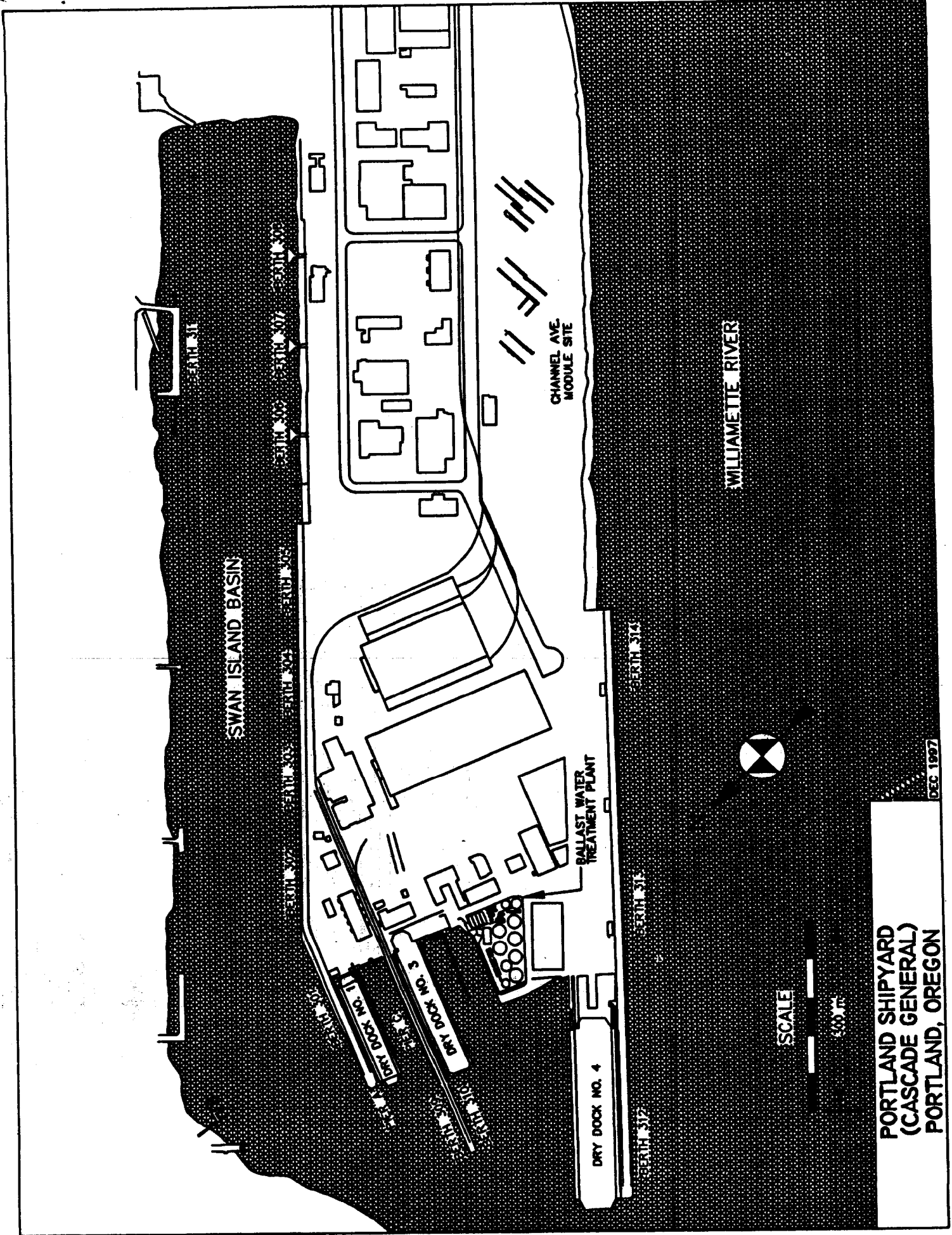
Projects in 1997 included the conversion of the GLOMAL EXPLORER, a 188.7-meter vessel, into a deepwater oil drilling ship. This was one of the most complex projects ever undertaken in the history of the company, involving fabrication of more than 4.5 million pounds of steel and reactivation of virtually every system on the vessel. The conversion, which included a doubling of specified workscope, was completed 15 days ahead of schedule.

The Portland Ship Yard / Cascade General reactivated four vessels as part of the Government's Foreign Military Sales program - USS OUTLETTE (Royal Thai Navy), USS BEAUFORT and the USS BRUNSWICK (Korean Navy) and HMNZS RESOLUTION (New Zealand Navy). Work included drydocking, coating, rebuilding engines and reactivation of systems.

Additional work consisted of extensive repair and overhaul of the USCGC POLAR STAR, CHEVRON LOUISIANA, S/R LONG BEACH, B/T ALASKA, S/R BENICIA, CORNUCOPIA, S/S MARINE CHEMIST, M/V BANEASE, SIERRA MADRE, S/R NORTH SLOPE, S/S DENALI, OVERSEAS CHICAGO, C/S NEXUS, OVERSEAS NEW YORK, TONSINA, CHEVRON MISSISSIPPI, OVERSEAS WASHINGTON, PATHFINDER II, PACPRINCE, RAVEN ARROW and OVERSEAS OHIO. Cruise ship projects included RHAPSODY OF THE SEAS, SKY PRINCESS, SUN PRINCESS, NOORDAM, VIKING SERENADE, S/S INDEPENDENCE, and GREAT RIVERS II.

The Portland Ship Yard / Cascade General operates three drydocks. The largest two (No. 3 and No. 4) can accommodate vessels up to 247 meters by 33 meters, and 351 meters by 55 meters, respectively.

As of mid-1997 the shipyard employed about 986 people.



PORTLAND SHIPYARD
 (CASCADE GENERAL)
 PORTLAND, OREGON

DEC 1997

17. Tampa Bay Shipbuilding & Repair Company

Tampa Bay Shipbuilding & Repair Company (formerly Tampa Shipyards, Inc.) is a full-service new construction, conversion and repair organization located in Tampa, FL. The shipyard is conveniently located in the protected harbors of Tampa Bay directly accessible from the Gulf of Mexico via a 13 meter channel and is the largest, most complete shipyard between Pascagoula, MS and Hampton Roads, VA.

Tampa Bay Shipbuilding & Repair Company fronts on Sparkman Channel, which is 13 meters deep, 152 meters wide with a 213 meter turning basin. Maintenance is performed by the U.S. Army Corps of Engineers. One of the few limitations to ship size is the Skyway Bridge located at the mouth of Tampa Bay. This bridge limits the rise of ships entering Tampa Bay to 55 meters.

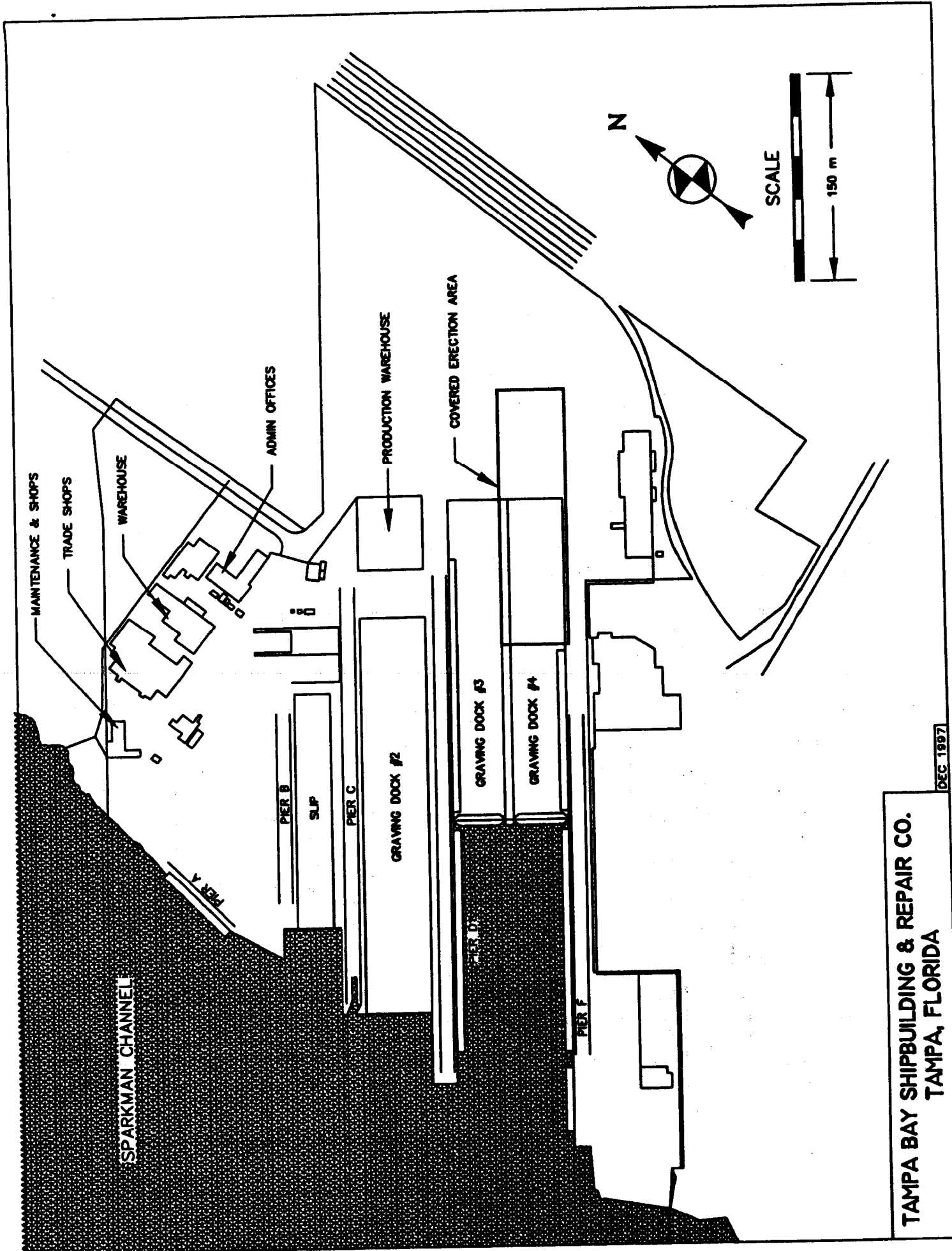
The shipyard covers 25 hectares and features three graving docks with 9 meter draft capabilities for ships up to 227 meters in length and 7 meters draft for ships up to 276 meters in length, and a covered erection building 183 meters by 44 meters by 35 meters high, and is serviced by three overhead bridge cranes. About 107 meters of the erection building straddles one of the graving docks, allowing pre-assembled units weighing in excess of 908 metric tons to be erected in a covered environment. Other major facilities include a concrete pier, two wet berths, a fully equipped warehouse, and machine and fabrication shops.

Tampa Bay Shipbuilding & Repair Company maintains a skilled workforce in all facets of ship repair including design, steel fabrication, pipe fabrication, electrical, piping, machinery, blasting and coating. Its workforce and a network of experienced local subcontractors combine to create the ideal environment for ship repairs, conversion, and new construction projects. A full range of utilities and services necessary for efficient production are provided, including electrical power, compressed air, portable water, fire protection, sanitary sewer, storm drains, steam, oxygen and burning gases, and paved roads.

Tampa Bay Shipbuilding & Repair Company completed nearly 50 repair jobs in 1997. Included in their customer base are Apex Marine's GULF TRADER and GULF BANKER, and Coscol Marine's COASTAL CORPUS CHRISTI and COASTAL NEW YORK. Other jobs include emergency collision repairs to the MARINA, a 244 meter by 42 meter by 19 meter deep vessel. Tampa Bay Shipbuilding & Repair Company was able to drydock the TORM AGNETE, with it's cargo still onboard, and complete repairs in only four days.

The facility is served by the CSX Railway System and is just minutes from Tampa International Airport, Interstate Highways 4, 75, 275 and the Lee Roy Selmon Expressway.

As of mid-1997, Tampa Bay Shipbuilding & Repair Company employed a total of 159 people.



TAMPA BAY SHIPBUILDING & REPAIR CO.
TAMPA, FLORIDA

DEC 1997

18. Todd Pacific Shipyards Corporation

Todd Pacific Shipyards Corporation is located at the Northwest corner of Harbor Island in Elliot Bay, less than 10 minutes from downtown Seattle, WA. The shipyard has been located there since 1916. Todd Pacific has repaired or converted thousands of vessels during this period, while constructing almost 300 new vessels.

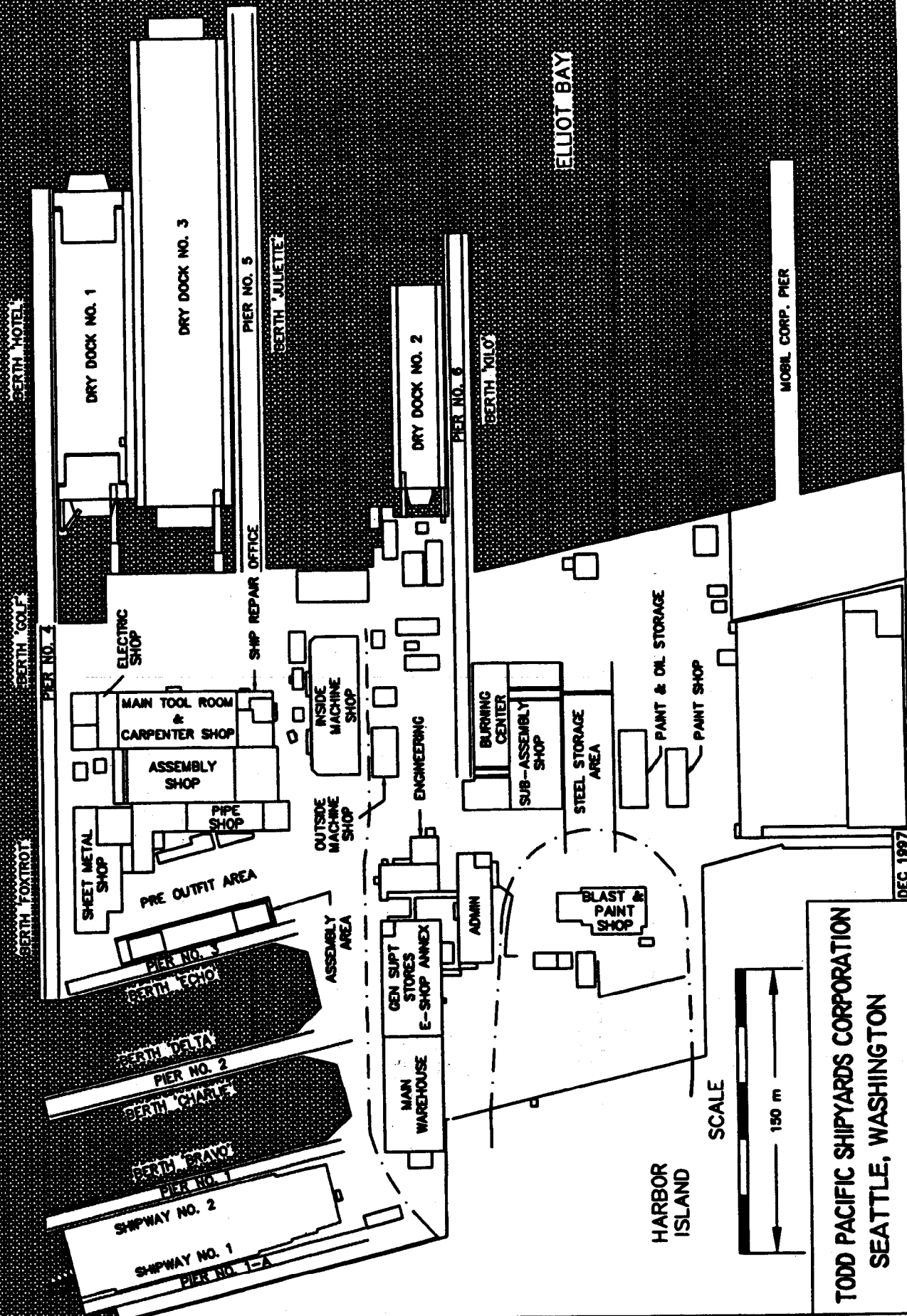
As of September 30, 1997, work in the yard included the construction of the last two ships in a three ship contract, for 150 meter car ferries, for the Washington State Ferry System. This contract was signed in January 1995, with deliveries scheduled between 1997-1999. The first ship was delivered in August 1997. Todd Pacific has used this opportunity to transfer modern shipbuilding methods from Ishikawajima-Harimi Heavy Industries Co., Ltd (IHI) of Japan. In addition, Todd Pacific is currently occupied with the repair and overhaul of numerous factory trawlers, containerships, barges, tugs, and ferries, as well as drydocking at least 100 vessels a year and long-term phased maintenance work on Navy AOE's.

Todd Pacific has a dual shipway for simultaneous construction of two ships with a maximum length of 168 meters by 18 meter beam. Combining the two shipways, a ship up to 168 meters by 29 meters can be built. Todd Pacific operates three floating drydocks, rated at 41,290, 17,780 and 5,791 metric tons respectively. The largest of the drydocks can accommodate ships up to 287 meters by 41 meters. A fourth floating dock rated at 8,500 metric tons was acquired during the summer of 1997, but is not yet operational.

Two wharves and five piers provide a total of 1,834 meters of berthing space for outfitting and repair. The yard is serviced by 15 whirled traveling cranes with lifting capacities ranging from 23 metric tons to 136 metric tons.

During a two-year period starting in August 1993, the company undertook a major site reorganization and extensive capital improvements focused at improving overall efficiency in new construction and repair. The stores/warehouse function was consolidated into a more central location. Additional facility changes have been made to allow Todd Pacific to adopt a Japanese-style group technology construction process. A Company wide LAN computer system has been installed which is inclusive of AutoCad work stations in both design and lofting. All pipe shop activities have been consolidated in a larger space and restructured to accommodate pipe piece family manufacturing and the palletization of finished pipe pieces. The west steel shop has been outfitted with additional cranes and pin jigs and is now a block assembly shop. A new plasma arc burning machine has been installed. The former east steel shop has been reconfigured as a sub assembly shop. A second enclosed paint facility was added, for pre-outfitted blocks and units, without impacting on capacity for ship repair. The former ordnance building has been converted to a module assembly shop for engine room modules. The area containing the former sheet metal loft has been razed, piped for services and black-topped to provide a block outfitting area.

In mid-1997, total employment at Todd Pacific was 1,050.



TODD PACIFIC SHIPYARDS CORPORATION
SEATTLE, WASHINGTON

DEC 1997

SHIP REPAIR INDUSTRY

While over 200 privately owned firms of varying capabilities are involved in repairing ships in the United States, only 44 yards are capable of drydocking vessels 122 meters in length and over. For ships this size, the U.S. shipbuilding and repair industry is currently operating a total of 48 floating drydocks, 31 graving docks, and 2 marine railways. However, some of these graving docks are committed to new construction. The large organizations which have drydocks generally have extensive waterfront acreage and are capable of all types of ship repair and maintenance. Major shipyards usually combine repair, overhaul, and conversion with shipbuilding capabilities, and employment normally numbers in the thousands. It is difficult to draw a sharp line between shipbuilding yards and ship repair yards, as many of the yards engage in both types of work.

Repair (with Drydocking) Facilities

Major drydocking facilities are defined as those yards having at least one drydocking facility that can accommodate vessels 122 meters in length and over, provided that water depth, in the channel, to the shipyard itself is at least 3.7 meters. These facilities may also be capable of constructing a vessel less than 122 meters in length overall. Exhibit 21 is a histogram displaying the reduction in the number of available floating drydocks as the maximum ship length increases.

Appendix B tabulates information updated for 1997 on 32 of these repair yards by geographical location. Additional information is available in the Office of Ship Construction.

Major Topside Repair Facilities

Major topside repair facilities are those that have sufficient berth/pier space for topside repair of ships 122 meters in length and over, provided that water depth in the channel to the facility itself is at least 3.7 meters. These facilities may also have drydocks and/or construction capability for vessels less than 122 meters in length. Services rendered by these firms vary from a simple repair job to a major topside overhaul, particularly when the work on oceangoing ships can be accomplished without taking the ships out of the water. It is common practice for a shipyard to send its personnel and equipment to provide voyage repairs while the ship is at anchor or working cargo at a commercial marine terminal. There is an increasing trend worldwide to send ship repairers to the ship rather than to bring the ship to the shipyard, thus calling for greater mobility of ship repair personnel.

Appendix B also tabulates information for 1997 on the 37 topside repair yards' facilities (berth/pier space). The yards' building ways, drydocks, marine railways, etc., are not addressed herein as they cannot accommodate vessels 122 meters in length and over. However, detailed data for these facilities were obtained during MARAD's annual shipyard survey and are available in the Office of Ship Construction.

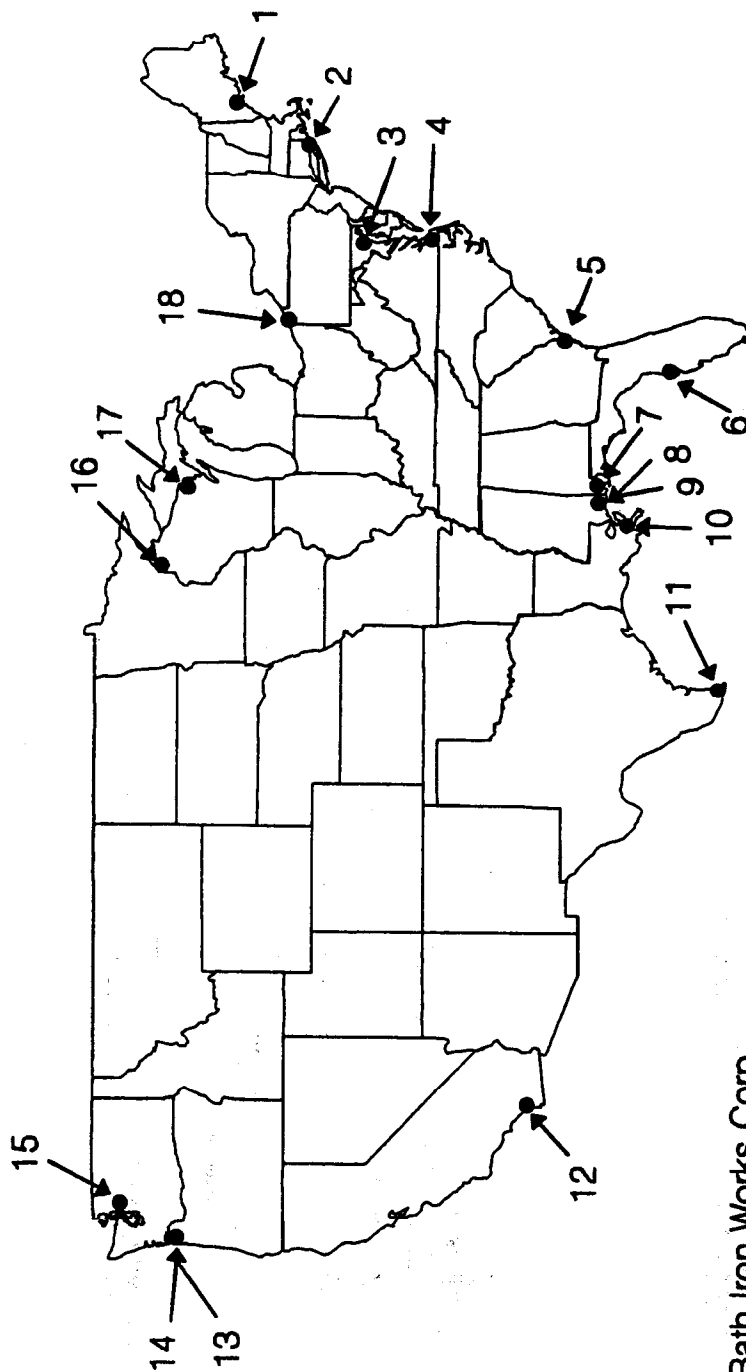
SHIPBUILDING INDUSTRY

AND

ACTIVITIES

1997

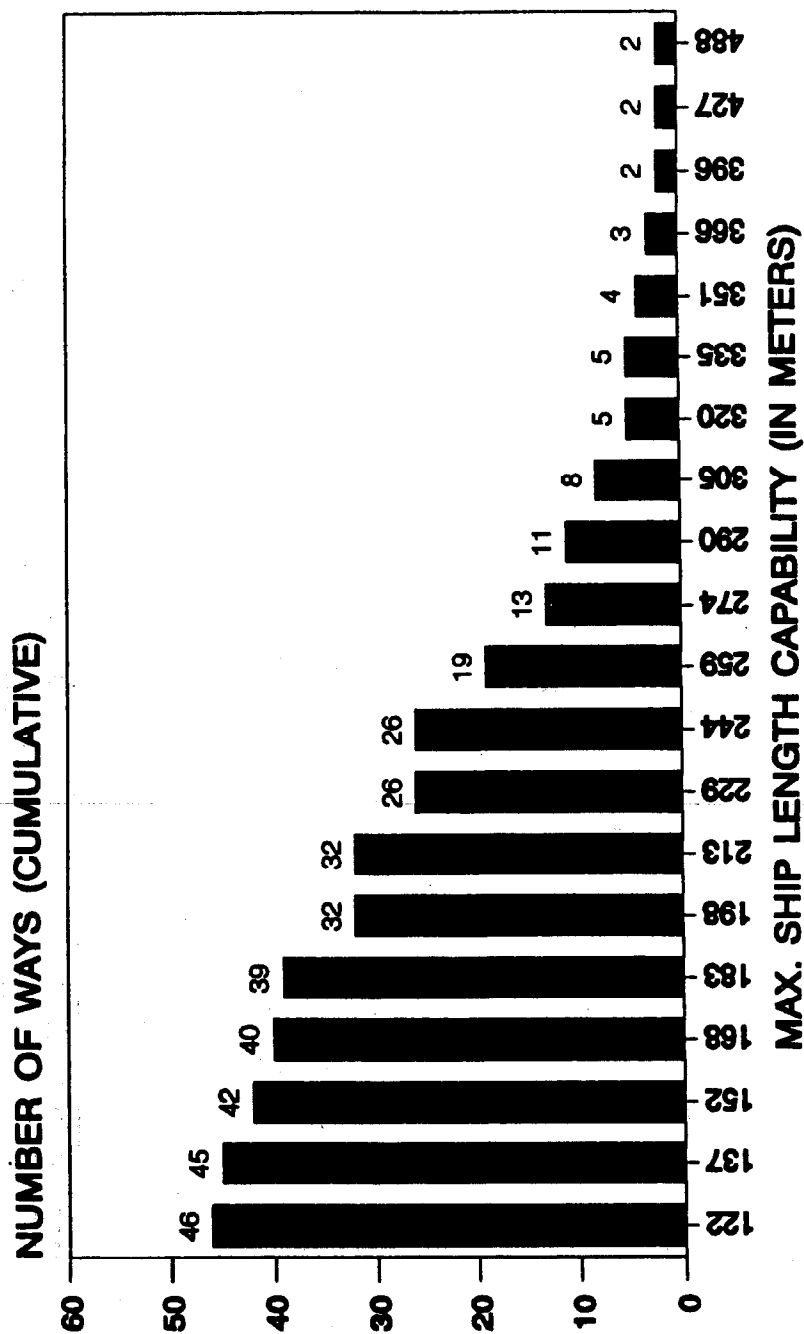
MAJOR SHIPBUILDING FACILITIES IN THE UNITED STATES



- | | |
|--|--|
| 1. Bath Iron Works Corp. | 11. AMFELS, Inc. |
| 2. Electric Boat Corp. | 12. National Steel and Shipbuilding Co. |
| 3. Baltimore Marine Industries, Inc. | 13. Gunderson, Inc. |
| 4. Newport News Shipbuilding | 14. Portland Ship Yard |
| 5. Intermarine USA | 15. Todd Pacific Shipyards Corp. |
| 6. Tampa Bay Shipbuilding & Repair Co. | 16. Fraser Shipyards, Inc. |
| 7. Alabama Shipyard, Inc. | 17. Marinette Marine Corp. |
| 8. Halter Moss Point Shipyard | 18. Metro Machine of Pennsylvania, Inc.,
Industrial Products Division |
| 9. Ingalls Shipbuilding, Inc. | |
| 10. Avondale Industries, Inc. | |

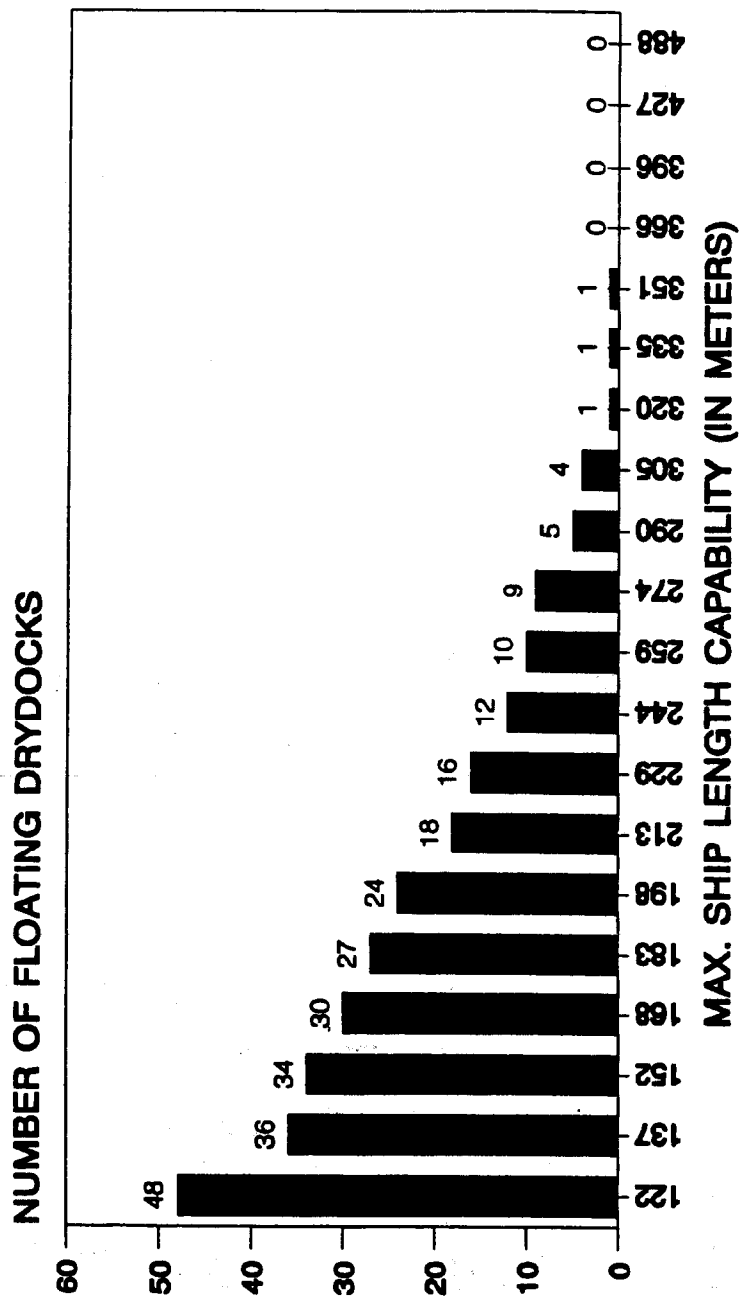
1997

**MAJOR U.S. SHIPBUILDING FACILITIES *
 NUMBER OF BUILDING POSITIONS
 BY MAXIMUM LENGTH CAPABILITY
 (OCTOBER 1, 1997)**



* Shipways, Graving Docks and Land Level Positions

*** MAJOR U.S. SHIP REPAIR FACILITIES *
 NUMBER OF FLOATING DRYDOCKS BY
 MAXIMUM LENGTH CAPABILITY
 (OCTOBER 1, 1997)**

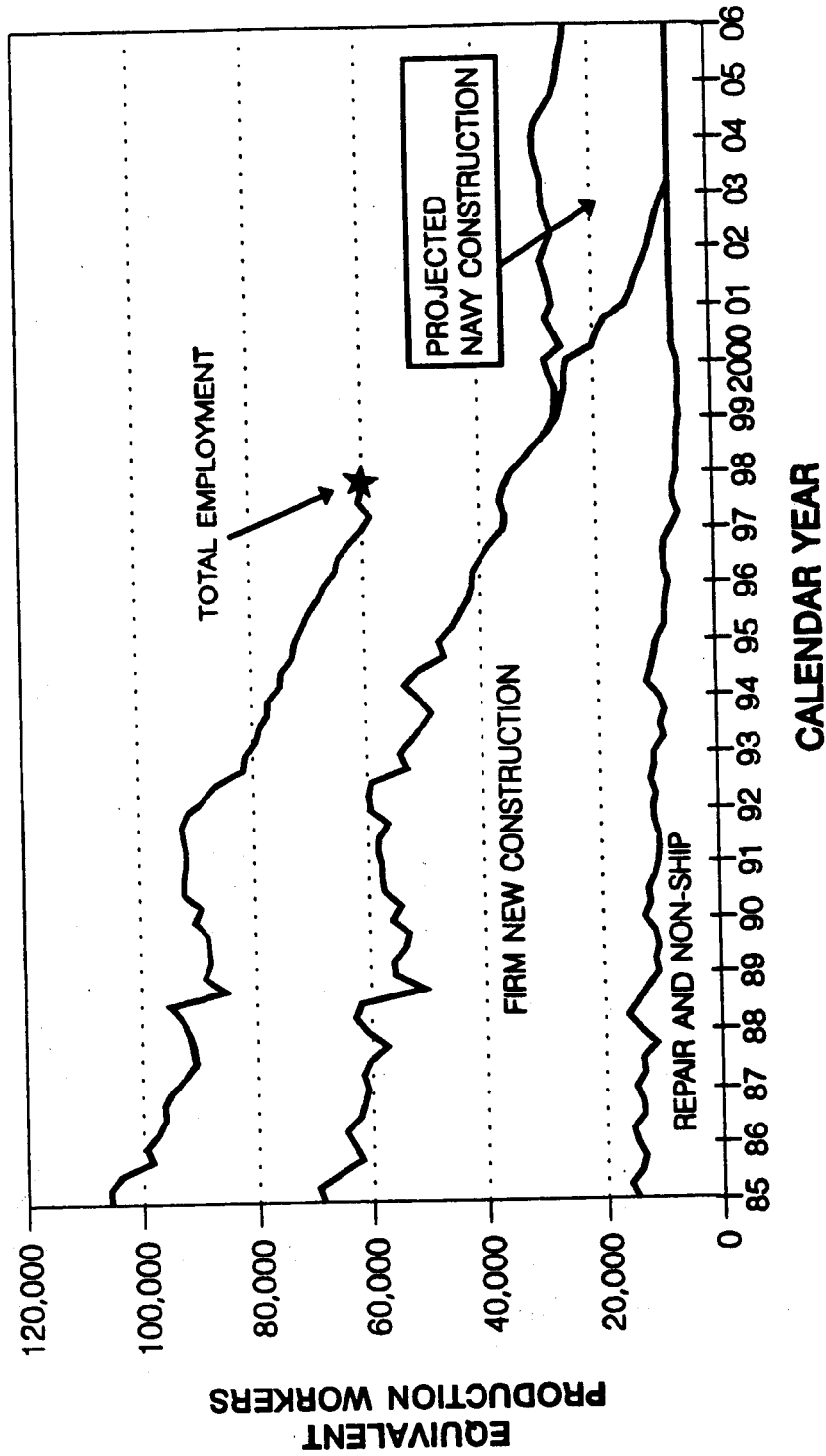


* Includes Major Shipbuilding and Repair Yards with Drydock Facilities

SHIPBUILDING INDUSTRY WORKLOAD PROJECTION

MAJOR SHIPBUILDING BASE SUMMATION

NUMBER OF YARDS = 18



SOURCE: SHIPYARD DATA FROM FORM MAB32 WHEN PROVIDED
OFFICE OF SHIP CONSTRUCTION; MARITIME ADMINISTRATION

OCTOBER 1997

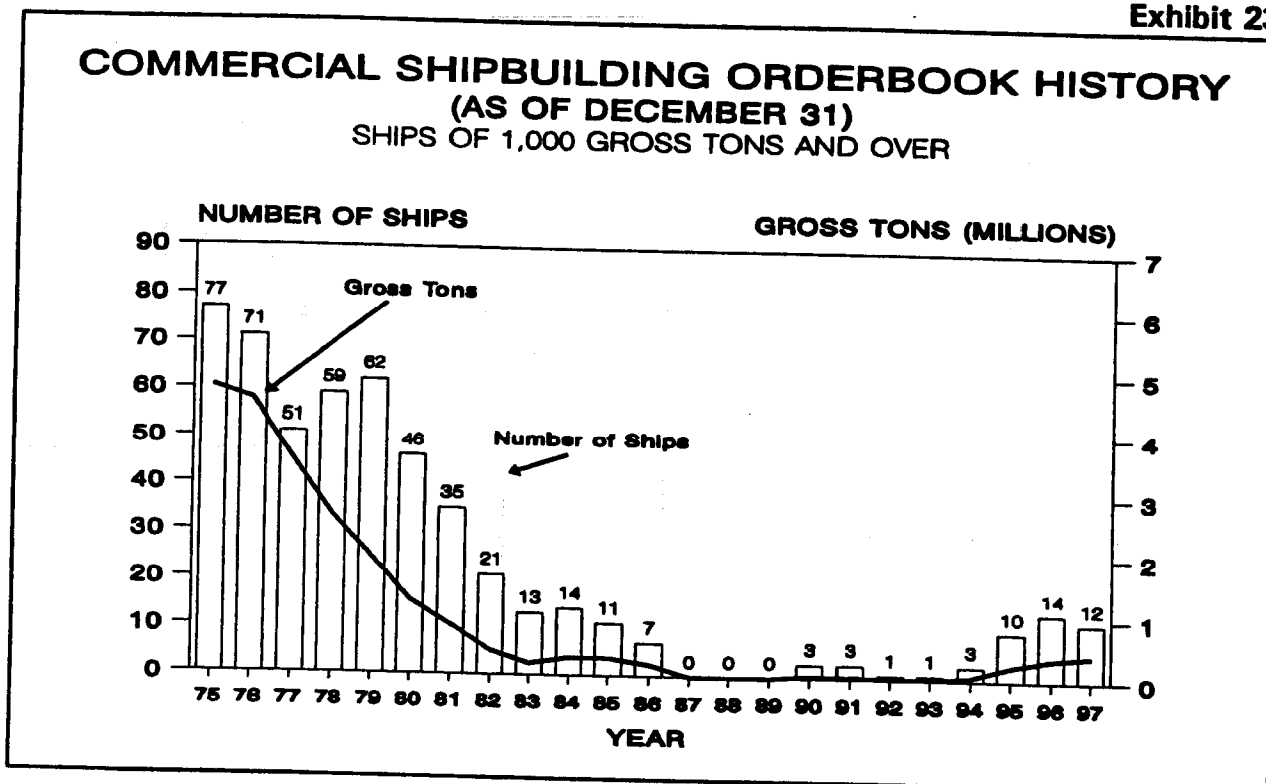
COMMERCIAL SHIP CONSTRUCTION

The U.S. orderbook for commercial shipbuilding, at the end of 1997, consisted of eight 30,415 gross ton (GT) tankers at Newport News Shipbuilding, two 11,000 GT chemical tankers at Alabama Shipyard and two 82,542 GT crude carriers at Avondale Industries.

The tankers at Newport News are being constructed for two different companies. Three tankers, being constructed for the export market, will be owned by Fleves Shipping Corporation of Greece, and five tankers, for the domestic U.S. trade, are under construction, for Hvide Van Ommeron of Miami, FL. Delivery of the tankers is scheduled for 1998 - 2000. The tankers ordered by Fleves Shipping Corporation were the first commercial vessels ordered by a foreign owner since 1957. Alabama Shipyard is constructing two chemical tankers, for export, for Danneborg Rederi AS of Denmark, which are scheduled for delivery in 1998. All of these tanker orders were made feasible with the assistance of the Maritime Administration's Title XI Federal Ship Financing Program. The crude carriers under construction at Avondale Industries for ARCO Marine, Inc., a subsidiary of Atlantic Richfield Company, are being financed with principal payment withdrawals, from its Capital Construction Fund, which is managed by the Maritime Administration.

In addition, there is one 12,904 GT oceangoing ferry on order at Halter Moss Point Shipyard and two 4,350 GT non-oceangoing passenger/car ferries under construction at Todd Pacific's Seattle shipyard. The end year orderbook since 1975 is illustrated in Exhibit 23.

Exhibit 23

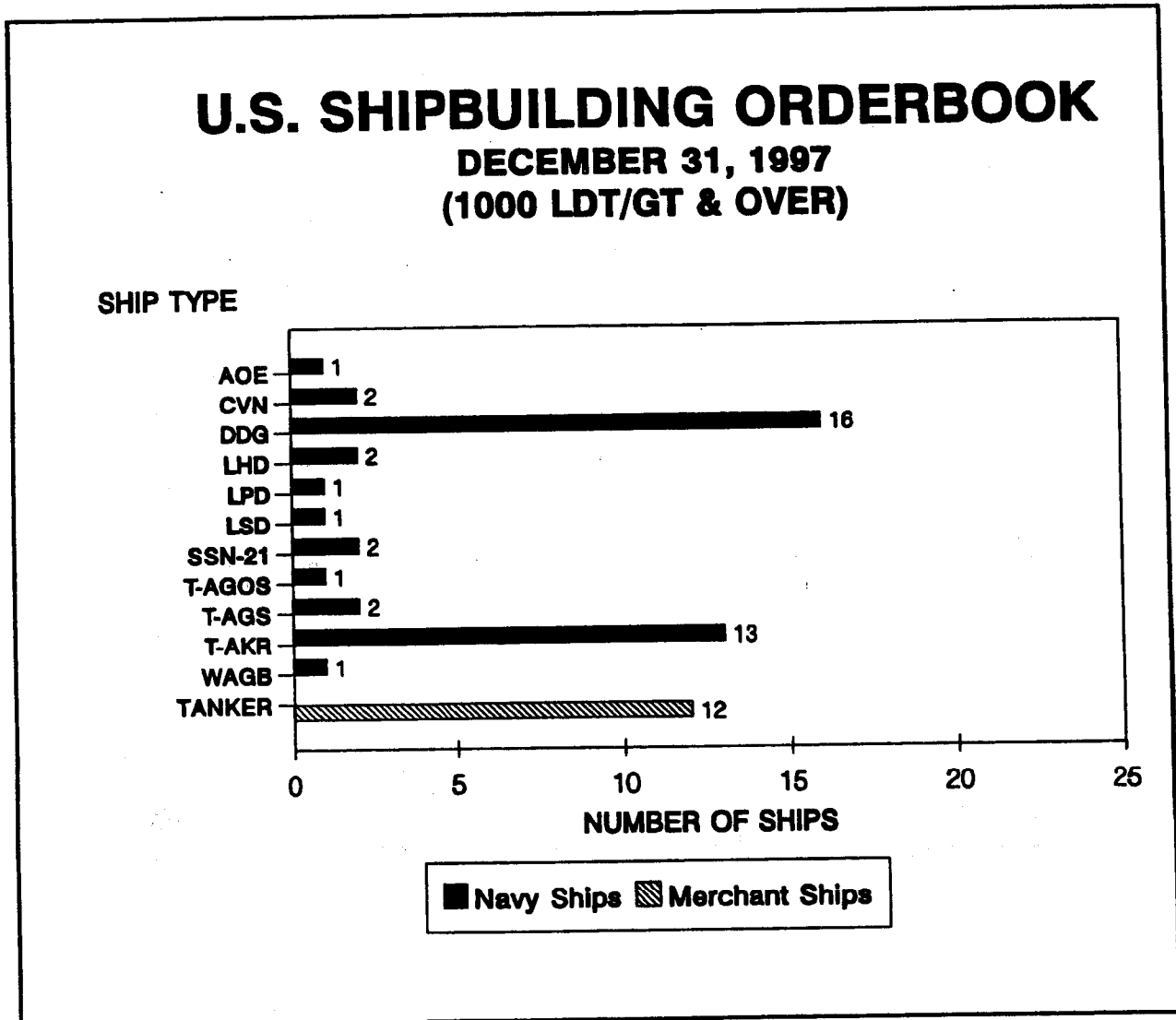


U.S SHIPBUILDING ORDERBOOK

As of December 31, 1997, ships on order or under construction in U.S. private shipyards totaled 42 naval and 12 commercial vessels (Exhibit 24). This orderbook includes naval vessels 1,000 light displacement tons (LDT) and larger and commercial oceangoing ships 1,000 GT and larger.

Eight shipyards had contracts for the construction of naval and commercial vessels. The naval shipbuilding orderbook, which was comprised of 11 different types of vessels, included 28 ships scheduled for delivery in 1999 and later. Three shipyards had orders for a total of 12 commercial ships, 6 of which are scheduled to be delivered during 1998, 2 in 1999 and 4 in 2000.

Exhibit 24



NEW SHIPBUILDING ORDERS - 1997

In 1997, U.S. shipyards received orders for the construction of six new oceangoing commercial and four new naval vessels (Exhibit 25). The commercial vessels ordered included four 1,432 TEU containerships for export for COSCO Line (America), Inc, and two 82,542 GT (125,000 dwt) crude carriers for ARCO Marine. Alabama Shipyards received the order from COSCO on February 10, 1997; unfortunately, the order was terminated on September 29, 1997. On June 30, 1997 Avondale Industries received a \$332 million order from ARCO Marine, Inc. to build two crude carriers. These vessels are the largest ships ordered from a U.S. shipyard since 1984. Contracts were placed for the construction of one military sealift ship (T-AKR) at Avondale Industries, New Orleans, LA; two military sealift ships (T-AKR's) at National Steel and Shipbuilding, San Diego, CA; and one ocean survey ship (T-AGS) at Halter Moss Point Shipyard, Moss Point, MS. The total contract value for these ships was approximately \$684 million.

Exhibit 25

NEW SHIPBUILDING ORDERS - 1997 (1,000 GT or LDT and OVER)

SHIPYARD	SHIP IDENTIFICATION	APPROXIMATE CONTRACT PRICE (in Millions)	ESTIMATED LDT / GT	CONTRACT AWARD DATE	ESTIMATED DELIVERY DATE
COMMERCIAL SHIPS					
Alabama Shipyards	CONTAINERSHIP	\$39.3	16,708 GT	02/10/1997	***
Alabama Shipyards	CONTAINERSHIP	\$39.3	16,708 GT	02/10/1997	***
Alabama Shipyards	CONTAINERSHIP	\$39.3	16,708 GT	02/10/1997	***
Alabama Shipyards	CONTAINERSHIP	\$39.3	16,708 GT	02/10/1997	***
Avondale Industries	CRUDE CARRIER	\$166.0	82,542 GT	06/30/1997	01/28/2000
Avondale Industries	<u>CRUDE CARRIER</u>	<u>\$166.0</u>	<u>82,542 GT</u>	06/30/1997	08/31/2000
	6 Ships	\$489.2	231,916 GT		

*** Terminated on 9/29/97

NAVAL SHIPS

Halter Moss Point Shipyard	T-AGS 64	\$51.7	3,019 LDT	01/13/1997	01/13/2000
National Steel	T-AKR 315	\$227.0	36,114 LDT	05/23/1997	04/27/2001
Avondale Industries	T-AKR 305	\$210.0	34,205 LDT	11/14/1997	10/31/2000
National Steel	<u>T-AKR 316</u>	<u>\$195.0</u>	<u>36,114 LDT</u>	11/14/1997	09/28/2001
	4 Ships	\$683.7	109,452 LDT		

COMMERCIAL SHIP DELIVERIES - 1997

During 1997, U.S. shipyards delivered four commercial oceangoing ships (Exhibit 26). Avondale Industries of New Orleans, LA, delivered one 27,854 GT and two 24,474 GT reconstructed double hulled product tankers, to American Heavy Lift. The reconstruction involved the cutting of the tanker in two, removing the existing forebody of the vessel, construction and attachment of a new 155 meter double hulled forebody.

Newport News delivered the first of nine double hulled product tankers. The 30,340 GT tanker, AMERICAN PROGRESS, originally ordered on October 31, 1994, by Fleves Shipping Corporation, was sold in January 1997 to Mobil Oil.

In addition, Todd Pacific Shipyard, Corp., Seattle WA, delivered one 4,350 GT non-oceangoing passenger/vehicle ferry.

Exhibit 26

COMMERCIAL VESSELS DELIVERED - 1997 (1,000 GT and OVER)

SHIPYARD	DESIGN TYPE	VESSEL NAME	GROSS TONS	DELIVERY DATE	CONTRACT PRICE (In Millions)
OCEANGOING					
Avondale Industries	Product Tanker	ANASAZI	27,854	01/16/1997	\$39.8
Avondale Industries	Product Tanker	NEW RIVER	24,474	06/05/1997	\$39.8
Avondale Industries	Product Tanker	THE MONSEIGNEUR	24,474	09/22/1997	\$39.8
Newport News SB	<u>Product Tanker</u>	AMERICAN PROGRESS	<u>30,415</u>	09/28/1997	<u>\$38.2</u>
	4 Ships		107,217		\$157.6
NON-OCEANGOING					
Todd - Seattle	<u>Ferry</u>	TACOMA	<u>4,350</u>	08/15/1997	<u>\$60.5</u>
	1 Ship		4,350		\$60.5

NAVY SHIP DELIVERIES - 1997

During calendar year 1997, U.S. private shipyards delivered eight new naval vessels, 1,000 LDT and larger. The naval vessels delivered totaled approximately 86,407 LDT and had an initial contract value of approximately \$3.1 billion (Exhibit 27).

By comparison, U.S. shipyards delivered 11 new naval vessels valued at \$2.7 billion in 1996 and 17 new naval vessels valued at approximately \$5.3 billion in 1995.

U.S. shipyards also delivered three converted ships during 1997. These vessels totaled approximately 99,489 LDT and had an initial contract value of approximately \$636.0 million.

Six different types of naval ships were delivered by six shipyards during 1997:
 2 - oceanographic research ship (AGOR); 3 - guided missile destroyers (DDG);
 1 - amphibious assault ship (LHD); 1 - ballistic missile submarine (SSBN); 1 - attack submarine (SSN) and 3 - vehicle cargo ships (T-AKR).

Exhibit 27

NAVY CONSTRUCTION VESSELS DELIVERED - 1997 (1,000 LDT and OVER)

SHIPYARD	SHIP CLASS and HULL NUMBER	VESSEL NAME	ESTIMATED LDT	DELIVERY DATE	APPROXIMATE CONTRACT PRICE (in Millions)
<u>NEW CONSTRUCTION</u>					
Halter Moss Point	AGOR 25	ATLANTIS	3,696	02/25/1997	\$33.7
Bath Iron Works	DDG 70	HOPPER	8,344	04/11/1997	\$250.0
Halter Moss Point	AGOR NOAA	RONALD H. BROWN	3,696	04/18/1997	\$67.2
Ingalls	DDG 71	ROSS	8,344	04/18/1997	\$285.8
Electric Boat Corp.	SSN 21	SEAWOLF	9,150	05/31/1997	\$726.0
Ingalls	LHD 5	BATAAN	28,233	06/23/1997	\$731.3
Electric Boat Corp.	SSBN 743	LOUISIANA	16,600	08/14/1997	\$765.0
Bath Iron Works	<u>DDG 72</u>	MAHAN	<u>8,344</u>	08/22/1997	<u>\$250.0</u>
	8 Ships		86,407		\$3,109.0
<u>CONVERSION</u>					
National Steel	T-AKR 297	YANO	33,163	02/08/1997	\$211.6
Newport News	T-AKR 298	GILLILAND	33,163	05/23/1997	\$212.8
National Steel	<u>T-AKR 299</u>	SODERMAN	<u>33,163</u>	11/17/1997	<u>\$211.6</u>
	3 Ships		99,489		\$636.0
TOTAL	11 Ships		185,896		\$3,745.0

NAVY'S T-SHIP PROGRAM

The Navy's T-ship program continued to be a very important segment of ship construction and conversion activity for U.S. shipyards. T-ships are auxiliary vessels funded by the Navy budget but designed to be civilian-manned and under the control of the Military Sealift Command. Since mid-1979, 16 U.S. private shipyards have been awarded contracts for the construction of 70 new ships and the conversion of 36 existing vessels. The initial contract value for these vessels totaled approximately \$9.9 billion.

During 1997, new construction orders for four new T-ships were placed with U.S. shipyards. Avondale Industries, New Orleans, LA, received an order with an initial contract value of \$210 million to build one military sealift ship (T-AKR) and National Steel Shipbuilding Co., San Diego, CA received two orders with a total initial contract value of \$422 million to build two military sealift ships (T-AKR's). Halter Moss Point Shipyard, Moss Point, MS, also received an order to construct an ocean survey ship (T-AGS), valued at \$51.7 million. There were no T-ship deliveries during 1997.

As of December 31, 1997, 16 T-ships were under construction or on order at three shipyards (Exhibit 28). The value of this orderbook is approximately \$3.0 billion.

Exhibit 28

T-SHIPS ON ORDER OR UNDER CONSTRUCTION

(as of December 31, 1997)

SHIPYARD	SHIP CLASS and HULL NUMBER	VESSEL NAME	ESTIMATED DELIVERY DATE	APPROXIMATE CONTRACT PRICE (In Millions)
Halter Marine	T-AGS 63	HENSON	02/20/1998	\$47.2
Halter Marine	T-AGS 64	- unnamed -	10/13/1999	\$51.7
Halter Marine	T-AGOS 23	IMPECCABLE	12/20/1998	\$60.0
Avondale	T-AKR 300	BOB HOPE	05/29/1998	\$265.2
Avondale	T-AKR 301	FISHER	09/24/1998	\$210.0
Avondale	T-AKR 302	SEAY	04/12/1999	\$210.0
Avondale	T-AKR 303	- unnamed -	10/08/1999	\$206.4
Avondale	T-AKR 304	- unnamed -	04/30/2000	\$211.1
Avondale	T-AKR 305	- unnamed -	10/31/2000	\$210.0
National Steel	T-AKR 310	WATSON	06/29/1998	\$269.1
National Steel	T-AKR 311	SISLER	04/13/1999	\$218.0
National Steel	T-AKR 312	DAHL	10/29/1999	\$218.0
National Steel	T-AKR 313	- unnamed -	04/28/2000	\$218.0
National Steel	T-AKR 314	- unnamed -	10/27/2000	\$200.0
National Steel	T-AKR 315	- unnamed -	04/27/2001	\$227.0
National Steel	<u>T-AKR 316</u>	- unnamed -	09/28/2001	<u>\$195.0</u>
	16 Ships			\$3,016.7

PROJECTED NAVY SHIPBUILDING PLAN

The U.S. Navy shipbuilding plan for fiscal years 1998 - 2003 includes the construction of 35 new ships, 7 ship conversions, 4 Service Life Extensions (SLEP) and 2 carrier refuelings (Exhibit 29). More than \$45 billion is proposed for this plan. Shipyard contract value accounts for about a third of this amount, while the remainder is attributed to Government-furnished equipment placed aboard the vessels and to other Government program costs.

The Navy's proposed FY 1998 - 2003 shipbuilding program represents a continued reduction in the amount of new shipbuilding work available to the nation's industrial base when compared with previous Navy programs. This program, with an average of less than six new ships per year, represents a 69.3 percent reduction in the quantity of ships to be procured compared with the 19 ships per year average for Navy programs during the 1980s.

The Navy's plan includes the construction of 17 guided missile destroyers (DDG-51), 4 attack submarines (NSSN) and 9 amphibious transport ships (LPD). These three shipbuilding programs will probably utilize more than 84 percent of the available new construction funding.

Exhibit 29

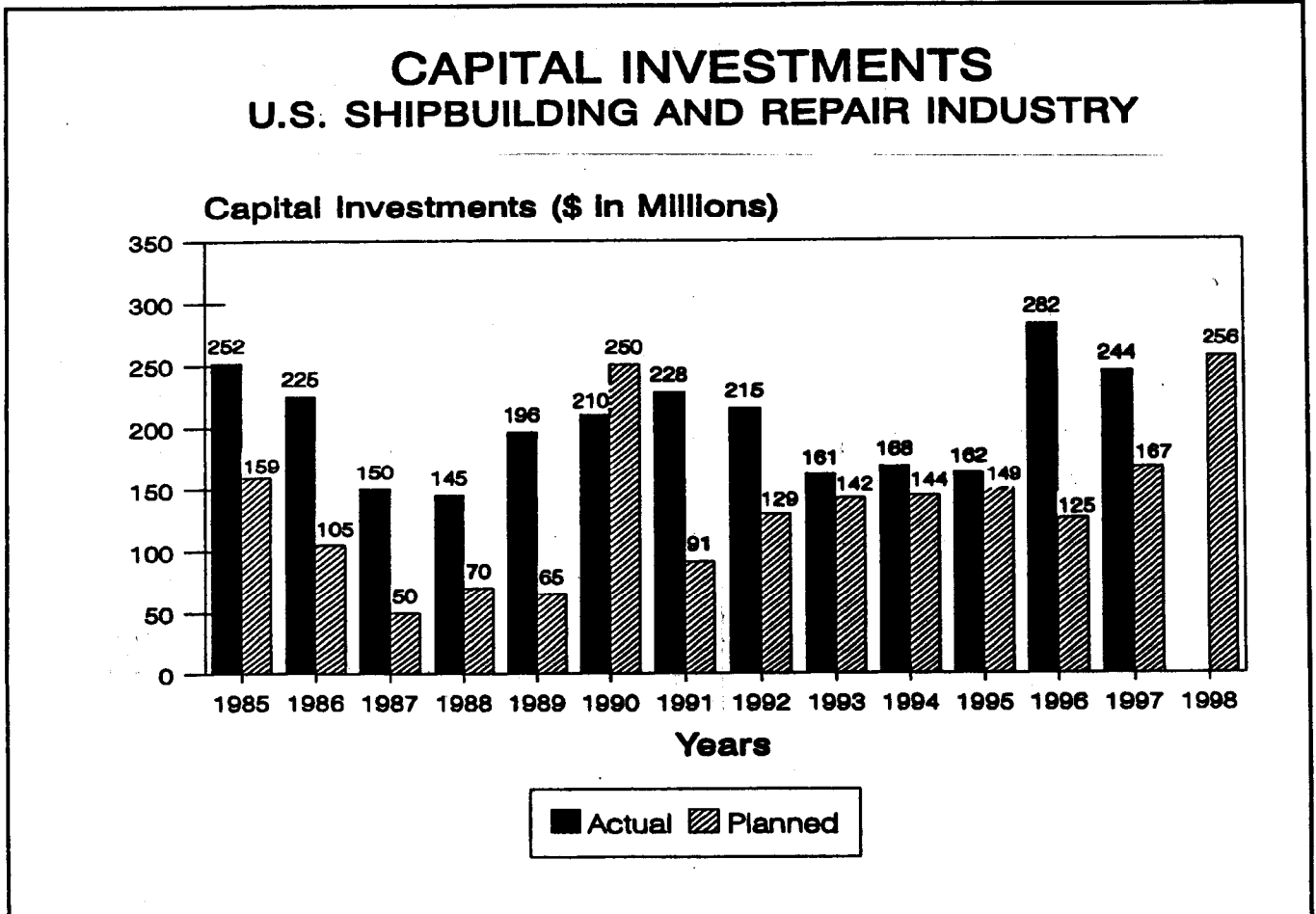
NAVY SHIPBUILDING PLAN							
Fiscal Years 1998 - 2003							
Ship Class	1998	1999	2000	2001	2002	2003	TOTAL
CVN	-	-	-	-	1	-	1
NEW ATTACK SUB	1	1	-	1	1	-	4
DDG-51	3	3	3	4	1	3	17
LPD	-	1	2	2	2	2	9
T-AKR (Military Sealift)	2	1	-	-	-	-	3
AOE	-	-	-	-	-	1	1
CVN (Refueling)	1	-	-	1	-	-	2
AE (SLEP)	-	-	-	-	1	1	2
AFS (SLEP)	-	-	-	-	1	1	2
CG (Conversion)	-	-	-	-	1	6	7
Total	7	6	5	8	8	14	48

CAPITAL INVESTMENT

During FY 1997, the U.S. ship construction and ship repair industry invested more than \$244 million in the upgrade and expansion of facilities (Exhibit 30). Much of this investment was to improve efficiency and competitiveness in the commercial shipbuilding arena. Improvements were made to update and convert shipyard facilities to be more commercially viable. Examples of recent capital investments are new pipe and fabrication shops, drydock extensions, military work enhancement programs, automated steel process buildings and expanded design programs. Many of these improvements have been necessary due to the increased utilization of U.S. shipyards, particularly those along the Gulf Coast, resulting from the resurgence of the Oil Patch Industry.

In 1998, the industry plans to spend about \$256 million in the upgrade and expansion of facilities, according to data received by the Maritime Administration. The industry's capital investments since 1970 have totaled approximately \$6.2 billion. The actual expenditures between 1985 and 1997, with the exception of 1990, have consistently exceeded those planned.

Exhibit 30



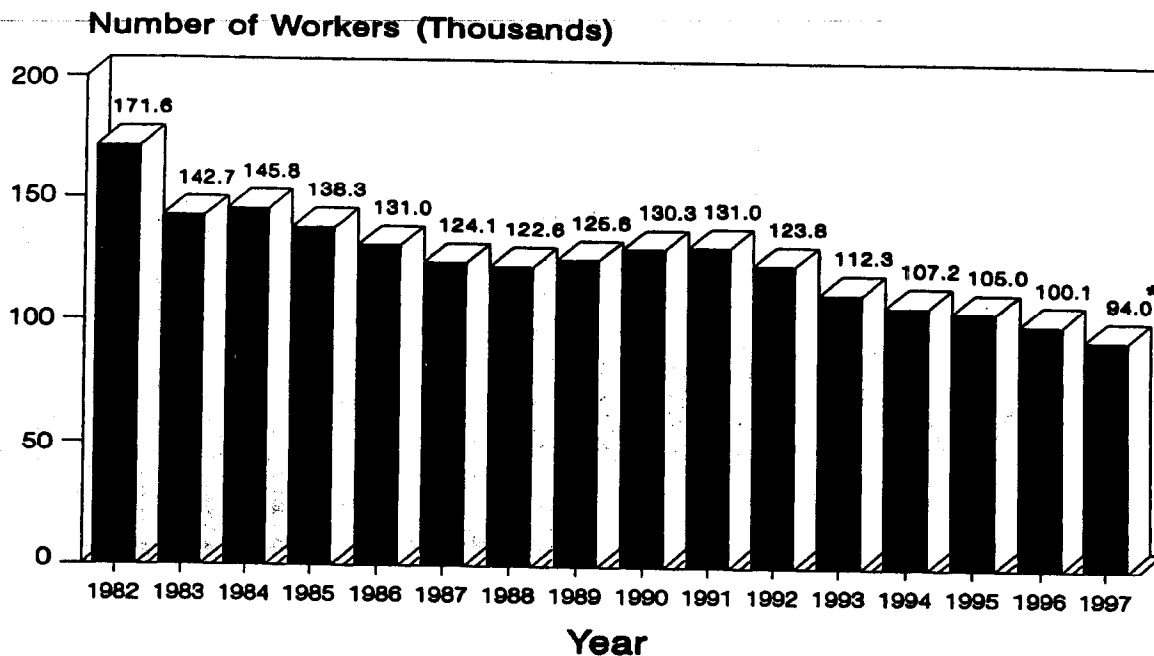
TOTAL EMPLOYMENT IN PRIVATE SHIPYARDS

According to employment data published by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, under the Standard Industrial Classification (SIC) Code 3731 (Shipbuilding and Repairing), the average total employment in U.S. private shipyards for the first eleven months of 1997 was 94,000 (Exhibit 31). This total reflects a decline of 7.0 percent, from the reported average total employment for the shipbuilding and repairing industry, for the first eleven months of 1996, this is the largest decrease since 1993.

According to the data published by the BLS, total average employment in the shipbuilding and repair industry increased slightly between 1989 and 1991, but is currently projected to be lower than any level in the past 47 years. Despite the fact that the employment level increased during 1989 and 1991, it has steadily decreased since 1991 and it has remained considerably lower than that reported in 1982 when 171,600 people were employed in the industry.

Exhibit 31

AVERAGE TOTAL EMPLOYMENT IN U.S. PRIVATE SHIPYARDS



Source: Bureau of Labor Statistics
* Average for 11 Months

AVERAGE EARNINGS IN U.S. PRIVATE SHIPYARDS

Average hourly earnings in the U.S. private shipyards are presented on a "gross" basis, reflecting not only changes in basic hourly and incentive wage rates, but also such variable factors as premium pay for overtime and late-shift work, as well as changes in output for workers paid on an incentive plan. Averages of hourly earnings differ from wage rates. Earnings are the actual return to the workers for a stated period of time; rates are the amount stipulated for a given unit of work or time. Gross average weekly earnings are derived by multiplying average weekly hours by average hourly earnings. Therefore, weekly earnings are affected not only by changes in gross average hourly earnings, but also by changes in the length of the workweek.

The annual average earnings of the private shipyards in the United States from 1982 through the first eleven months of 1997 show an increase from \$10.22 to an average of \$14.53 (Exhibit 32). During the same period, the average weekly earnings rose from \$407.91 to \$635.30.

Exhibit 32

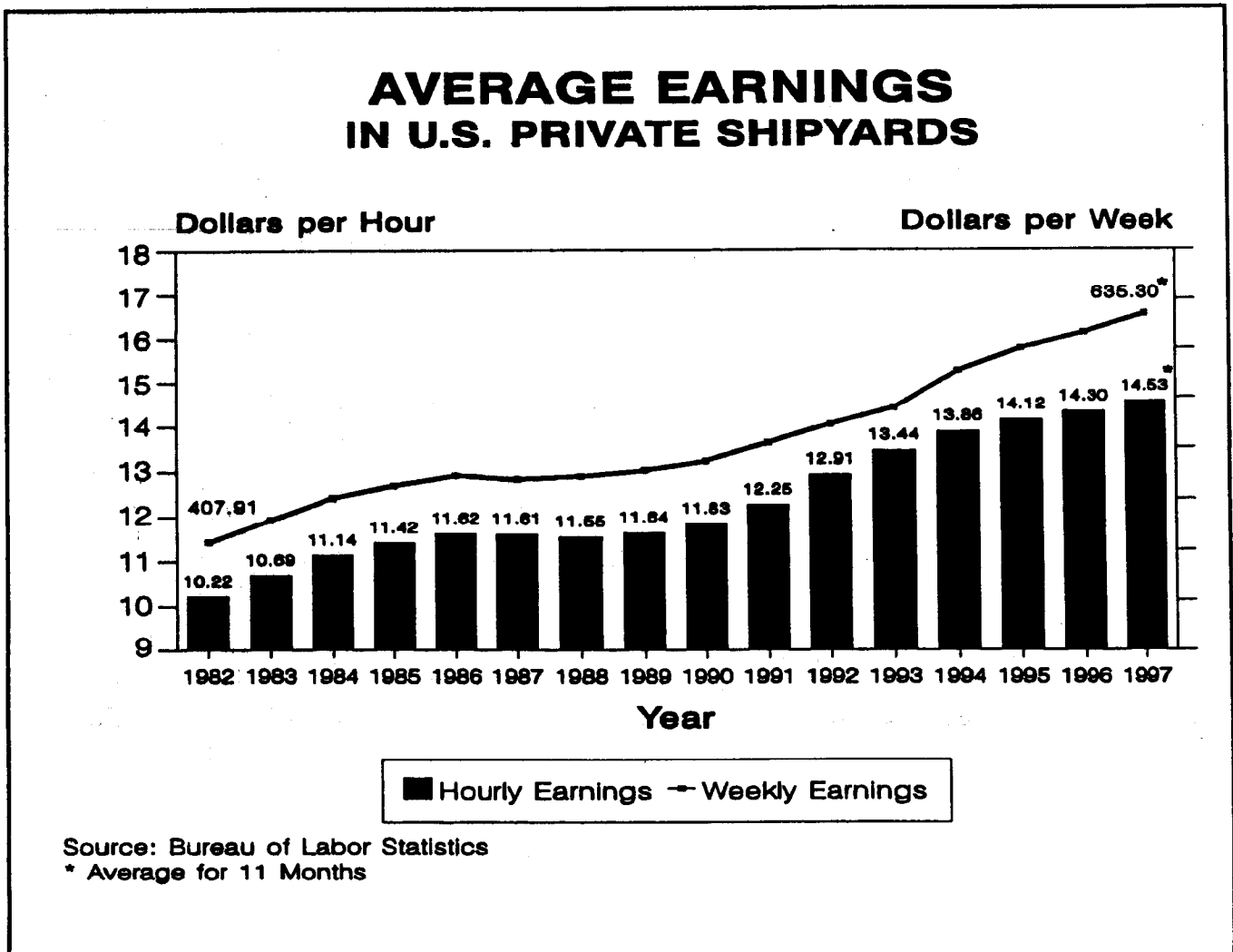


TABLE 1

SHIPBUILDING POSITION CAPACITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

TABLE 1A: GENERAL CARGO AND DRY BULK

TABLE 1B: TANKER AND OBO

BUILDING POSITION DEFINATIONS

Maximum Ship Size (LOA x Beam)

SW	=	Shipway
GD	=	Graving Dock
FD	=	Floating Dock
MR	=	Marine Railway
LL	=	Land Level Position

TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	General Cargo							Dry Bulk DWT	
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300		51,000
Length (m)	145	221	186	208	272	289	174	183	274
Beam (m)	21	32	27	31	30	32	23	32	32
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships									
<u>EAST COAST</u>									
Bath Iron Works	1	0	0	0	0	0	1	0	0
	213 X 26 SW								
	219 X 34 SW	1	0	1	1	0	1	1	0
	219 X 39 SW	1	0	1	1	0	1	1	0
		3	0	2	2	0	3	2	0
Baltimore Marine Industries	2	2	2	2	0	0	2	2	0
	(2) 244 X 32 SW								
	365 X 59 GD	4	1	2	1	1	4	1	1
		6	3	4	3	1	6	3	1
Intermarine USA	0	0	0	0	0	0	0	0	0
	162 X 20 GD	0	0	0	0	0	0	0	0

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships	General Cargo					Dry Bulk DWT		
		Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300	51,000 - 100,000
	Length (m)	145	221	186	208	272	289	174	183
	Beam (m)	21	32	27	31	30	32	23	32
EAST COAST									
Newport News Shipbuilding	292 X 37 GD	2	1	1	1	1	1	1	1
	334 X 41 GD	2	1	1	1	1	1	1	1
	660 X 75 GD	12	4	6	6	4	4	9	4
		16	6	8	8	6	6	11	8

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	General Cargo							Dry Bulk DWT	
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300		51,000
Length (m)	145	221	186	208	272	289	174	183	274
Beam (m)	21	32	27	31	30	32	23	32	32
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships									
GULF COAST									
Alabama Shipyard	4	1	1	1	1	1	2	1	1
	4	1	1	1	1	1	2	1	1
AMFELS, Inc.	10	3	4	3	4	3	5	3	3
	10	3	4	3	4	3	5	3	3
Avondale Industries	(2)	8	2	2	2	2	4	2	2
	(2)	2	2	2	0	0	2	2	0
	10	4	4	4	2	2	6	4	2

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships	General Cargo						Dry Bulk DWT		
		Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300	51,000	100,000
	Length (m)	145	221	186	208	272	289	174	183	274
	Beam (m)	21	32	27	31	30	32	23	32	32
GULF COAST										
Halter Moss Point Shipyard	140 X 20 LL	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0
Ingalls Shipbuilding	(5) 259 X 53 LL*	10	5	5	5	0	0	16	11	0
	488 X 53 LL*	3	2	2	2	1	1	2	2	1
		13	7	7	7	1	1	18	13	1
Tampa Bay Shipbuilding & Repair	(2) 273 X 44 GD	2	1	1	1	1	0	1	1	0
	227 X 32 GD	2	2	2	2	0	0	2	2	0
		4	3	3	3	1	0	3	3	0

* Ship size constrained by maximum launching capability of 259 X 53 meters.

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	General Cargo							Dry Bulk DWT	
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300		51,000
Length (m)	145	221	186	208	272	289	174	183	274
Bearn (m)	21	32	27	31	30	32	23	32	32
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships									
WEST COAST									
Gunderson, Inc.	1	1	1	1	0	0	1	1	0
	1	1	1	1	0	0	1	1	0
National Steel & Shipbuilding	2	2	2	2	2	0	2	2	2
	4	1	1	1	1	1	2	1	1
	6	3	3	3	3	1	4	3	3

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

	General Cargo						Dry Bulk		
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300	51,000	100,000
Length (m)	145	221	186	208	272	289	174	183	274
Beam (m)	21	32	27	31	30	32	23	32	32

SHIPYARD

BUILDING POSITION
(Qty) / Metric Units (m)
Quantity of Ships

WEST COAST

Portland Ship Yard	183 X 30 LL	1	0	0	0	0	0	1	0	0
	305 X 55 LL	4	1	2	1	1	1	2	1	1
		5	1	2	1	1	3	3	1	1

Todd Pacific Shipyards	(2) 168 X 18 SW*	1	0	0	0	0	0	0	0	0
		1	0	0	0	0	0	0	0	0

* Max ship size is 168 X 29 meters using two adjacent 168 X 18 meter SWs.

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

	General Cargo						Dry Bulk DWT
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	
Length (m)	145	221	186	208	272	289	174
Beam (m)	21	32	27	31	30	32	32
							21,300
							51,000
							100,000

**BUILDING POSITION
(Qty) / Metric Units (m)
Quantity of Ships**

SHIPYARD							
GREAT LAKES *							
Fraser Shipyard	0	0	0	0	0	0	0
189 X 17 GD	0	0	0	0	0	0	0
252 X 23 GD	1	0	0	0	0	0	1
	1	0	0	0	0	0	1

Marquette Marine	0	0	0	0	0	0	0
122 X 24 LL	0	0	0	0	0	0	0

Metro Machine of Pennsylvania, Inc. Industrial Products Division	2	0	0	0	0	0	2
375 X 35 GD	2	0	0	0	0	0	2

* NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 222 meters x 24 meters.

**TABLE 1A
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	General Cargo							Dry Bulk DWT	
	Gen. Cargo	Mob. Cargo	Container	RO/RO	LASH	Container	21,300	51,000	100,000
Length (m)	145	221	186	208	272	289	174	183	274
Beam (m)	21	32	27	31	30	32	23	32	32
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships									
REGION	QUANTITY OF SHIPS								
EAST COAST	25	9	14	13	7	7	20	13	7
GULF COAST	41	18	19	18	9	7	34	24	7
WEST COAST	13	5	6	5	4	2	8	5	4
GREAT LAKES *	3	0	0	0	0	0	3	0	0
TOTAL BUILDING POSITIONS - ALL YARDS	82	32	39	36	20	16	65	42	18

* NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 222 meters x 24 meters.

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	Tanker										OBO
	25,000	38,000	89,000	120,000	125,000 CUB. FT. (ENCL)	225,000	265,000	80,000	160,000		
	189	210	272	286	284	335	335	270	304		
Length (m)	21	27	32	42	43	43	54	32	44		
Beam (m)											
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships											
EAST COAST											
Bath Iron Works	1	0	0	0	0	0	0	0	0	0	0
	1	1	0	0	0	0	0	0	0	0	0
	1	1	0	0	0	0	0	0	0	0	0
	3	2	0	0	0	0	0	0	0	0	0
Baltimore Marine Industries	2	2	0	0	0	0	0	0	0	0	0
(2)	2	1	1	1	1	1	1	1	1	1	1
	4	3	1	1	1	1	1	1	1	1	1
Intermarine USA	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	Tanker										OBO
	25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000	80,000	160,000		
Length (m)	189	210	272	280	284	335	335	270	304		
Beam (m)	21	27	32	42	43	43	54	32	44		
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships											
<u>EAST COAST</u>											
Newport News	1	1	1	0	0	0	0	1	0		
Shipbuilding	1	1	1	0	0	0	0	1	0		
	9	6	4	2	2	1	1	4	2		
	11	8	6	2	2	1	1	6	2		

TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	Tanker										OBO
	25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000	80,000	160,000		
Length (m)	189	210	272	280	284	335	335	270	304		
Beam (m)	21	27	32	42	43	43	54	32	44		
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships											
GULF COAST											
Alabama Shipyard	2	1	1	1	1	0	0	1	0		
	2	1	1	1	1	0	0	1	0		
AMFELS, Inc.	5	4	3	2	2	2	2	3	2		
	5	4	3	2	2	2	2	3	2		
Avondale Industries	4	2	2	2	2	0	0	2	2		
(2)	2	2	0	0	0	0	0	0	0		
(2)	6	4	2	2	2	0	0	2	2		

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships	Tanker							OBO	
		25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000		80,000
	Length (m)	189	210	272	280	284	335	335	270	304
	Beam (m)	21	27	32	42	43	54	54	32	44
GULF COAST										
Halter Moss Point Shipyard	140 X 20 LL	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0
Ingalls Shipbuilding	(5) 259 X 53 LL*	10	5	0	0	0	0	0	0	0
	488 X 53 LL*	4	2	1	1	1	0	0	1	1
		14	7	1	1	1	0	0	1	1
Tampa Bay Shipbuilding & Repair	(2) 273 X 44 GD	2	1	1	0	0	0	0	1	0
	227 X 32 GD	2	2	0	0	0	0	0	0	0
		4	3	1	0	0	0	0	1	0

* Ship size constrained by maximum launching capability of 259 X 53 meters.

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships	Tanker						OBO		
		25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000		265,000	80,000
	Length (m)	189	210	272	280	284	335	335	270	304
	Beam (m)	21	27	32	42	43	54	54	32	44
<hr/>										
WEST COAST										
Gunderson, Inc.	222 X 32 SW	1	1	0	0	0	0	0	0	0
		1	1	0	0	0	0	0	0	0
<hr/>										
National Steel & Shipbuilding	(2) 274 X 34 SW	2	2	2	0	0	0	0	2	0
	303 X 52 GD	2	1	1	1	1	0	0	1	0
		4	3	3	1	1	0	0	3	0
<hr/>										
Portland Ship Yard	183 X 30 LL	0	0	0	0	0	0	0	0	0
	305 X 55 LL	2	2	1	1	1	0	0	1	1
		2	2	1	1	1	0	0	1	1

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	Tanker										OBO
	25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000	80,000	160,000		
Length (m)	189	210	272	280	284	335	335	270	304		
Beam (m)	21	27	32	42	43	43	54	32	44		

**BUILDING POSITION
(Qty) / Metric Units (m)
Quantity of Ships**

WEST COAST

Todd Pacific Shipyards	(2)	168 X 18 SW*	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0

* Max ship size is 108 X 29 meters using two adjacent 168 X 18 meter SWs.

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

SHIPYARD	Tanker										OBO
	25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000	80,000	160,000		
Length (m)	189	210	272	280	284	335	335	270	304		
Beam (m)	21	27	32	42	43	43	54	32	44		
BUILDING POSITION (Qty) / Metric Units (m) Quantity of Ships											
GREAT LAKES *											
Fraser Shipyard	0	0	0	0	0	0	0	0	0	0	
252 X 23 GD	1	0	0	0	0	0	0	0	0	0	
	1	0	0	0	0	0	0	0	0	0	
Marinette Marine	0	0	0	0	0	0	0	0	0	0	
122 X 24 LL	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
Metro Machine of Pennsylvania, Inc. Industrial Products Division	1	0	0	0	0	0	0	0	0	0	
375 X 35 GD	1	0	0	0	0	0	0	0	0	0	

* NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 222 meters x 24 meters.

**TABLE 1B
SHIPBUILDING POSITION CAPACITY
BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE**

	Tanker							OBO	
	25,000	38,000	89,000	120,000	125,000 Cu. m. (LNG)	225,000	265,000		80,000
Length (m)	189	210	272	280	284	335	335	270	304
Beam (m)	21	27	32	42	43	43	54	32	44

**BUILDING POSITION
(Qty) / Metric Units (m)
Quantity of Ships**

SHIPYARD	QUANTITY OF SHIPS								
EAST COAST	18	13	7	3	3	2	2	7	3
GULF COAST	31	19	8	6	6	2	2	8	5
WEST COAST	7	6	4	2	2	0	0	4	1
GREAT LAKES *	2	0	0	0	0	0	0	0	0
TOTAL BUILDING POSITIONS - ALL YARDS	58	38	19	11	11	4	4	19	9

* NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 222 meters x 24 meters.

TABLE 2

NUMBER OF SHIPBUILDING POSITIONS BY LENGTH

(MAXIMUM SHIP SIZE)

NUMBER OF SHIPBUILDING POSITIONS BY LENGTH (MAXIMUM SHIP SIZE) *

Length OA (in meters): 122 137 152 168 183 198 213 229 244 259 274 290 305 320 335 351 366 396 427 488

EAST COAST

Bath Iron Works	3	3	3	3	3	3	3	3												
Baltimore Marine Industries	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1					1
Electric Boat Corporation **																				
Intermarine USA	1	1	1																	
Newport News Shipbuilding	7	7	7	7	7	3	3	3	3	3	2	2	1	1	1	1	1	1	1	1
TOTAL	14	14	14	13	13	9	9	6	6	4	3	3	2	2	2	1	1	1	1	1

GULF COAST

Alabama Shipyards	1	1	1	1	1	1	1	1	1	1	1									
AMFELS, Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					1
Avondale Industries	6	6	5	5	5	5	5	5	2	2	2	2								
Halter Moss Point Shipyard	1	1																		
Ingalis Shipbuilding	6	6	6	6	6	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1
Tampa Bay Shipbuilding & Repair	3	3	3	3	3	3	1	1	1											
TOTAL	18	18	16	16	16	18	14	14	9	5	4	2	2	2	1	1	1	1	1	1

WEST COAST

Gunderson, Inc.	1	1	1	1	1	1	1													
National Steel & Shipbuilding	3	3	3	3	3	3	3	3	3	3	1									
Portland Ship Yard	2	2	2	2	2	1	1	1	1	1	1	1								
Todd Pacific Shipyards	2	2	2	2																
TOTAL	8	8	8	8	6	5	4	4	4	4	2	1	0	0	0	0	0	0	0	0

GREAT LAKES ***

Fraser Shipyard	2	2	2	2	2	1	1	1	1											
Marinette Marine	1																			
Metro Mach. of PA Inc., Ind. Pkts Div	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	4	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0

GRAND TOTAL ALL COASTS AND GREAT LAKES 44 43 41 40 38 32 32 26 18 14 11 9 5 4 3 2 2 2 2 2 2

* Including Shipways, Graving docks and land level positions.
 ** Engaged exclusively in U.S. navy submarine construction.
 *** Maximum size ship that can exit St. Lawrence Seaway locks is 222 meters X 24 meters.

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APPENDIX A

STANDARD FORM 17

FACILITIES AVAILABLE FOR THE CONSTRUCTION

OR REPAIR OF SHIPS

Standard Form 17 (Rev. 9-96)
DEPARTMENT OF THE NAVY
(MAVSEASYSOCOM)
NAVMARINE ADMINISTRATION
Coordinator for Ship Repair
and Conversion (000-DOC)

Form Approved
OMB No. 0703-0006
Expt. as Aug 31, 1999

FACILITIES AVAILABLE FOR THE CONSTRUCTION OR REPAIR OF SHIPS

The public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Director of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0703-0008), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS. RETURN COMPLETED FORM TO THE APPROPRIATE DEPARTMENT OF DEFENSE OFFICE OR MARITIME ADMINISTRATION.

DATE

INSTRUCTIONS
Forward original copy to appropriate Department of Defense Office or Maritime Administration, Washington, D.C.

NO. OF WAY	LAUNCHING (X one)	DIMENSIONS	MAXIMUM SHIP SIZE (Ton 2,240 lbs.)	DEPTH OF WATER		CONDITION OF WAY	NO.	CRANES SERVING WAY	TYPE (Plus hook height for bridge cranes)	LIFT CAPACITY (Std. tons)
				OVER WAY END	AT DROP OFF					
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
	END	LENGTH	LENGTH O.A.							
	SIDE	WIDTH	BEAM							
	BASIN	DEPTH	WEIGHT							
LENGTH OF LAUNCHING RUN		DEPTH OF RUN AT M.L.W.								
				TIDAL RANGE (Difference M.L.-M.H.)		IS FIRE PROTECTION AVAILABLE ON BUILDING WAY?		IS SNUBBING NECESSARY?		
						YES <input type="checkbox"/> NO <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>		

SHIP'S BERTHS (Piers, Wharves, Butheads, Mooring Dolphins (M.L.W.))												
NO.	TYPE	LENGTH (Actual and Usable)	WATER DEPTH		HEIGHT OF DOCK	USE REPAIR AND/OR OUTFITTING	SERVICE AVAILABLE (Use abbreviations of services and units of measure unless indicated otherwise)	NO.	CRANES SERVING BERTHS, ETC.		LIFT CAPACITY (Std. tons)	
			INBOARD	OUTBOARD					TYPE (Hook height above M.L.W.)			
		ACT. USE. ACT. USE. ACT. USE. ACT. USE. ACT. USE. ACT. USE. ACT. USE.									LIFT REACH LIFT REACH LIFT REACH LIFT REACH LIFT REACH LIFT REACH LIFT REACH	
DRYDOCKS (Mean High Water) (List building docks under building ways)												
DOCK NO.	MATERIAL CONSTRUCTED OF - TYPE FLOATING-DOCK GRAVING-DOCK MARINE RAILWAY-DOCK	MAXIMUM SHIP SIZE ACCOMMODATED LENGTH OA - BEAM	LENGTH			CLEAR WIDTH			DEPTH/DRAFT			LIFTING CAPACITY (Ton 2,240 lbs.)
			OVERALL	AT DOCKING SIDE ON PONTOONS (FO)	AT KEEL BLOCKS; ON CRADLE (BR)	AT TOP; CRADLE (BR)	AT KEEL BLOCKS	OVER GILL (BR)	OVER FLOOR	OVER KEEL BLOCKS		

LEGEND (Abbreviations of Services)
 Fresh water - F.W. - G.P.M. - P.S.I.
 Salt water - S.W. - G.P.M. - P.S.I.
 Steam - S - P/HR - P.S.I.
 Air - A - C.F.M. - P.S.I.
 Electric power - E-V-AC-AMP
 Electric power - E-V-DC-AMP
 Fire protection - FP - G.P.M. - P.S.I.
 Sanitary sewer - SS - Yes or No

PRINCIPAL SHOPS AND BUILDINGS										ALL OTHER SHOPS <i>(List names and dimensions, include mold loft, if any)</i>					
NAME OF SHOP OR BUILDING	DIMENSIONS OF SHOP OR BUILDING	MATERIALS PROCESSED <i>(See Note)</i>	LARGEST EXIT		WEIGHT OF MATERIAL OR NUMBER AND SIZE OF UNITS PRODUCED PER 8 HOURS <i>(See Note)</i>										
			WIDTH	HEIGHT											
FABRICATING															
PLATE															
SHEET METAL															
SUBASSEMBLY															
CARPENTER															
WOODWORKING															
BOAT ASSEMBLY OR MOLDING															
MACHINE															
ELECTRICAL															
ELECTRONIC															
PIPE															
GALVANIZING															
FOUNDRY															
RIGGER															

NOTE: Indicate materials as steel, aluminum, reinforced plastic, wood, plywood, sheet metal, etc.

SHOP OR YARD CRANES (5 tons or over)											
BRIDGE TYPE					STATIONARY, RAIL OR MOBILE						
CAP. (Std. tons)	MAX. SPAN	HEIGHT OF HOOK	AREA/SHOP SERVICED	TYPE	CAP. (Std. tons)	MAX. REACH	CAPACITY AT REACH	BOOM LENGTH	HEIGHT HINGE	AREA SERVICED	HGT. OF HOOK ABOVE BASE AT OUT REACH

MAJOR ITEMS OF MACHINE TOOLS AND EQUIPMENT (List briefly such of the large items as will indicate the capacities of all important shops in maximum work piece size, e.g., 30' plate bending rolls, 10' plate shears, 400 ton Hydraulic press, 30' plate furnace, engine lathe 36" x 20" b.c., etc.)

STORAGE SPACE (Sq. ft.) FOR COMPONENTS AND MATERIALS (Less boat storage) (List dimensions for each area, plus type material stored)

		RAW STEEL STORAGE (Sq. ft.)	WELDING AND ASSEMBLY (Sq. ft.)
ACREAGE LEGALLY CONTROLLED			
IN USE	DEVELOPED (including in use)	TOTAL (including undeveloped)	
EXISTING LOCAL ORDINANCES LIMITING PRODUCTIVE USE			
LIMITATIONS IMPOSED BY PROPERTY ZONING CLASSIFICATION			
YARD LAYOUT - PLEASE FURNISH A PLOT PLAN OF YARD OR PLANT, IF AVAILABLE.			

LOCATION OF PRODUCTION FACILITIES FOR PRODUCTS LISTED IN ITEM 8 OF SF 129			ON WATERFRONT		
EMPLOYMENT	CURRENT	CURRENT NO. SHIFTS	MOBILIZATION - SHIFTS	YES <input type="checkbox"/>	NO <input type="checkbox"/>
MANAGEMENT, ADMINISTRATION					
PROFESSIONAL, ENGINEERING					
PROFESSIONAL, TECHNICAL <i>(All others)</i>					
PRODUCTION, SKILLED					
PRODUCTION, SEMISKILLED					
PRODUCTION, UNSKILLED					
NONPRODUCTION					
TOTAL					

NUMBER OF PRODUCTION PERSONNEL PRESENTLY ENGAGED IN SHIP AND/OR BOAT CONSTRUCTION (): REPAIR ().

APPROXIMATE TOTAL EMPLOYMENT OF ALL AFFILIATED CONCERNS ONLY LISTED IN ITEM 8 OF SF 129
 (NOTE: An affiliate is a concern that directly, or indirectly through one or more intermediary controls, or is controlled by, or is under common control with, the reporting firm. Common ownership of stock by individuals does not in itself constitute affiliation.)

DISTANCE TO NEAREST RAILROAD CONNECTION | DISTANCE TO NEAREST AIRPORT - IDENTIFY

LARGEST CONVEYANCE AVAILABLE AND MAXIMUM DIMENSIONS OF LOAD, FOR OVERLAND TRANSPORTATION OF FINISHED PRODUCTS *(Not to exceed limitations imposed by local ordinances)*

NAVIGATIONAL RESTRICTIONS *(Indicate all at M.L.W.)*

MINIMUM CHANNEL TO TIDEWATER | MINIMUM HORIZONTAL AND VERTICAL BRIDGE CLEARANCES TO TIDEWATER *(Identify structures)*

LIMITING LOCK DIMENSIONS TO TIDEWATER *(Identify locks)*

PROJECTS UNDER CONSTRUCTION WHICH WILL ALTER NAVIGATIONAL RESTRICTIONS *(Specify projects and state effect and estimated completions.)*

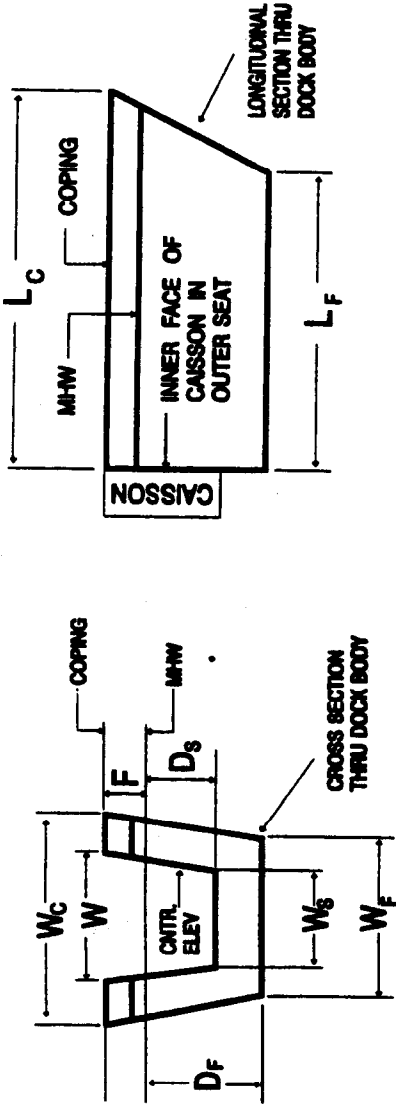
DESCRIPTION OF TYPES OF WORK NORMALLY SUBCONTRACTED

PRODUCTION EXPERIENCE (List at least three of the largest and the most complex ships or boats constructed, indicating (1) date completed, (2) hull length, beam, and molded depth, (3) type propulsion unit (fully described), (4) horsepower, (5) electrical and/or electronic installation, (6) special piping features, (7) size and tensile strength of plates, if steel, or type hull material, if other than steel, (8) special annealing, heat treating, or stress relieving problems encountered, if steel, plus, (9) any other important problems resolved.)

(NOTE: If no previous construction experience give detailed description of major conversion or industrial manufacturing work considered comparable to ship or boat construction.)

GRAVING DOCK CHARACTERISTICS SUMMARY

GRAVING DOCK NOMENCLATURE



KEY

- MHW - Mean High Water
- DF - Depth of Dock from MHW to Floor
- DS - Depth of Dock from MHW to Sill
- LC - Length of Dock at Coping
- LF - Length of Dock at Floor
- WC - Width of Dock at Coping or maximum clear width above Dock Floor
- WF - Width at Dock Floor
- WS - Width of Dock at Entrance (Sill)
- F - Freeboard. Distance from MHW to top of coping. Indicate if part of Freeboard may be superflooded.

GRAVING DOCK IDENTIFIER	LENGTH		ENTRANCE DIMENSIONS			DOCK BODY DIMENSIONS				SUPERFLOODING	STANDARD DEFINITION $\frac{L_C \times W_C \times D_S}{D_F}$	AVAILABLE ELECTRICAL SERVICE (SHORE POWER TO VESSEL)			REMARKS (e.g. indicate dimensions of pits in dock floor)			
	FLOOR L_F	COPING L_C	SILL W_S	COPING W	MHW D_S	DEPTH	WIDTH	FLOOR W_F	COPING W_C			MHW D_F	FREEBOARD F	VOLTS		AMPS	HERTZ	

FLOATING DRYDOCK CHARACTERISTICS SUMMARY

FLOATING DRYDOCK IDENTIFIER	MAXIMUM LENGTH OF PONTOON	MAXIMUM DEPTH OVER BLOCKS	CLEAR WIDTH BETWEEN WINGWALLS	LIFT CAPACITY (TONS)	NORMAL KEEL BLOCK HEIGHT	AVAILABLE ELECTRICAL SERVICE (SHORE POWER TO VESSEL)			REMARKS (Indicate existence of hauling blocks, if end selection can be lowered, and max. length of ship DD can accommodate).
						VOLTS	AMPS	HERTZ	

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APPENDIX B

MAJOR U.S. PRIVATE SHIPBUILDING,

REPAIR (WITH DRYDOCKING),

AND TOPSIDE REPAIR FACILITIES

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

Name and Address	Maximum Ship Size (LOA--Beam)	Berths/Piers Usable Length	Remarks
	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	

1/ Type of work usually engaged in
2/ Employment - Mid-1997

Lengths are in Meters

EAST COAST

Shipbuilding Yards

Bath Iron Works Corp. 700 Washington Street Bath, ME 04530	213 X 26 SW	<u>259</u>	1/ Construction, conversion and repair - all types of vessels. 2/ 7,236
	219 X 34 SW	869	
	219 X 39 SW		
Baltimore Marine Industries, Inc. 600 Shipyard Road Baltimore, MD 21219	(2) 244 X 32 SW	<u>384</u>	1/ Construction, conversion and repair of vessels. 2/ 857
	365 X 59 GD	1920	
	274 X 40 FD		
Electric Boat Corp. 75 Eastern Point Road Groton, CT 06340-4989	(2) 134 X 23 SW	<u>228</u>	1/ Engaged exclusively in construction, conversion and repair of submarines for the U.S. Navy. 2/ 10,303* * Includes Groton & Quonset Point
	(4) 171 X 23 LL	1087	
	157 X 20 GD		
	197 X 26 GD		
	185 X 21 GD		
Intermarine, USA 301 North Lathrop Avenue P.O. Box 3045 Savannah, GA 31402-3045	182 X 20 GD *	<u>244</u>	1/ MHC construction. 2/ 429 * Can accommodate ship up to 366 meters in length.
		591	
Newport News Shipbuilding 4101 Washington Avenue Newport News, VA 23607	292 X 37 GD *	<u>418</u>	1/ Construction, conversion and repair - all types of vessels. 2/ 18,236 * Used for construction. ** Used for repair and overhaul.
	334 X 41 GD *	2881	
	197 X 27 GD **		
	282 X 31 GD **		
	139 X 21 GD **		
	159 X 21 GD **		
	660 X 75 GD *		
	195 X 41 FD		
(4) 183 X 12 LL			

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Synorolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997

Lengths are in Meters

EAST COAST

Repair Yards with Drydock Facilities

Atlantic Drydock Corp. 8500 Heckscher Drive Jacksonville, FL 32226-3311	137 X 23 MR	<u>310</u> 502	1/ Construction of small vessels. Repair and overhaul of small and medium size vessels. 2/ 387* * Includes Atlantic Marine's Fort George Island employees.
Bath Iron Works Corp. 40 Commercial St. Portland, ME 04101	257 X 41 FD	<u>305</u> 457	1/ Ship repair and conversion. 2/ 285
Braswell Services Group, Inc. 2151 Dyess Avenue Charleston, SC 29405	136 X 18 FD	<u>213</u> 428	1/ Ship repair and conversion. 2/ 110
Caddell Dry Dock & Repair Company, Inc. P.O. Box 327 Staten Island, NY 10310	137 X 25 FD	<u>169</u> 773	1/ General ship repair. 2/ 179
Colonna's Shipyard, Inc. 400 E. Indian River Rd. Norfolk, VA 23523	122 X 22 MR 195 X 25 FD	<u>274</u> 1399	1/ General ship repair. 2/ 358
Detyens Shipyard, Inc. 2383 Highway 41 Mt. Pleasant, SC 29464	137 X 21 FD 168 X 26 FD 226 X 32 GD * 185 X 30 GD * 177 X 29 GD *	<u>122</u> 539	1/ General ship repair and conversion. 2/ 405 * Leased from Charleston Naval Shipyard Redevelopment Association
Eastern Technical Enterprises MPN, Inc. Brooklyn Navy Yard Brooklyn, NY 11205	219 X 35 GD	<u>229</u> 671	1/ General ship repair. 2/ 60

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA-Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW-Shipway	<u>Longest</u> Total linear	1/ Type of work usually engaged in
	GD-Graving Drydock		2/ Employment - Mid-1997
	FD-Floating Drydock		
	MR-Marine Railway		
	LL-Land Level Position		
	SL-Syncrolift		

Lengths are in Meters

EAST COAST

Repair Yards with Drydock Facilities

Economic Development & Industrial Corp. Of Boston (EDIC) 43 Hawkins St. Boston, MA 02210	350 X 34	GD	<u>274</u> 597	1/ General ship repair. 2/ N/A
GMD Shipyard Corp. Brooklyn Navy Yard, Bldg #386 Brooklyn, NY 11205	(2) 330 X 43	GD	<u>233</u> 503	1/ General ship repair. 2/ 230
Metro Machine Corp. P.O. Box 1860 Norfolk, VA 23501	206 X 29	FD	<u>239</u> 885	1/ Ship repair and conversion. 2/ 668
Metro Machine Corp. of Pennsylvania, Inc. P.O. Box 180 Chester, PA 19016	274 X 55	FD	<u>198</u> 198	1/ Ship repair and conversion. 2/ 22
Norfolk Shipbuilding & Drydock Corp. P.O. Box 2100 750 Berkley Ave Norfolk, VA 23501-2100	229 X 29 305 X 48	FD FD	<u>314</u> 2403	1/ Ship conversion and repair - all types of vessels. 2/ 1,976
North Florida Shipyards, Inc. P.O. Box 3255 Jacksonville, FL 32206	122 X 16	FD	<u>290</u> 988	1/ Ship repair and conversion. 2/ 459

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA-Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997
			Lengths are in Meters

EAST COAST

Topside Repair Yards

American Shipyard Corp. One Washington Street Newport, RI 02840-0943	<u>731</u> 1815	1/ General ship repair. 2/ 72*
* Includes Quonset Point facility.		
Associated Naval Architects, Inc. 3400 Shipwright Street Portsmouth, VA 23703	<u>137</u> 439	1/ General ship repair and overhaul. 2/ 74
General Ship Repair Corp. 1449 Key Highway Baltimore, MD 21230	<u>146</u> 271	1/ General ship repair. 2/ 46
Hood Enterprises, Inc. One Little Harbor Landing Portsmouth, RI 02871	<u>366</u> 731	1/ General ship repair. 2/ 153
Marine Hydraulics International, Inc. 800 East Indian River Rd. Norfolk, VA 23523	<u>183</u> 396	1/ General ship repair. 2/ 218
Metal Trades, Inc. P.O. Box 129 Hollywood, SC 29449-0129	<u>320</u> 1151	1/ General ship repair. 2/ 147
Moon Engineering Two Harper Avenue Portsmouth, VA 23707	<u>231</u> 899	1/ General ship repair. 2/ 212
Promet Marine Services Corp. 242 Allens Ave. Providence, RI 02905	<u>183</u> 366	1/ General ship repair. 2/ 36

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

Maximum Ship Size	Berths/Piers (LOA--Beam)	Remarks Usable Length	
Name and Address	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997

Lengths are in Meters

EAST COAST

Topside Repair Yards

Reynolds Shipyard Corp. 200 Edgewater Street P.O. Box 0500/10 Staten Island, NY 10305	<u>134</u> 134	1/ General ship repair. 2/ 10
Steel Style, Inc. 401 South Water Street Newburgh, NY 12550	<u>183</u> 335	1/ General ship repair. 2/ 22

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	1/ Type of work usually engaged in 2/ Employment - Mid-1997
Name and Address	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	

Lengths are in Meters

GULF COAST

Shipbuilding Yards

Alabama Shipyard, Inc. P.O. Box 3201 Mobile, AL 36652	290 X 50 LL	<u>328</u> 642	1/ Ship construction, conversion and repair. 2/ 709
AMFELS, Inc. Hwy. 48, P.O. Box 3107 Brownsville, TX 78523	335 X 122 LL 182 X 29 FD	<u>610</u> 610	1/ General ship repair. 2/ 838
Avondale Industries, Inc. P.O. Box 50280 New Orleans, LA 70150-0280	265 X 38 SW * 137 X 27 SW *** (2) 311 X 53 LL ** (2) 265 X 38 LL ** 305 X 66 FD ** 229 X 35 FD *	<u>521</u> 1431	1/ Modular ship construction, conversion, and repair - all types of vessels. 2/ 5,114 3/ Can accommodate ship up to 366 meters in length. * Upper main yard. ** Lower main yard. *** Westwego Plant.
Halter Moss Point P.O. Box 767 Moss Point, MS 39563	140 X 20 LL	<u>140</u> 178	1/ Construction, conversion and repair of ships, boats, barges. 2/ 452
Ingalls Shipbuilding, Inc. P.O. Box 149 Pascagoula, MS 39568-0149	259 X 53 FD * (5) 259 X 53 LL * 488 X 53 LL *	<u>792</u> 1758	1/ Construction, conversion, and repair - all types of vessels. 2/ 9,420 * West Bank can only launch ships up to 259 meters X 53 meters. Land Level Positions constrained by launching capability.
Tampa Bay Shipbuilding & Repair Co. 1130 McCloskey Blvd Tampa, FL 33605	273 x 44 GD (2) 227 x 32 GD	<u>328</u> 1041	1/ Construction, conversion and repair. 2/ 159

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
Name and Address	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997

Lengths are in Meters

GULF COAST

Repair Yards with Drydock Facilities

Atlantic Marine, Inc. - Mobile P.O. Box 3202 Mobile, AL 36652	213 X 26 FD 305 X 49 FD	<u>345</u> 990	1/ Ship repair and overhaul. 2/ 883
Bender Shipbuilding & Repair Co., Inc. 285 South Water Street Mobile, AL 36601	167 X 27 FD 202 X 36 FD	<u>258</u> 968	1/ Construction of vessels up to 91.44 meters in length. Also repair and conversion. 2/ 633
Bludworth Bond Shipyard, Inc. P.O. Box 5065 8114 Huckley Houston, TX 77262-5065	122 X 24 FD *	<u>244</u> 671	1/ General ship repair. 2/ 305 * Two drydocks are combined.
Gulf Coast Fabrication, Inc. Box 539 Lakeshore, MS 39558	140 X 44 GD 183 X 30 SW	<u>305</u> 305	1/ Small vessel construction and repair P.O. 2/ 273
Halter Gulf Repair 3900 Jourdan Rd. P.O. Box 8126 New Orleans, LA 70182	133 X 18 FD 122 X 34 FD 229 X 32 FD 152 X 23 LL	<u>549</u> 549	1/ Construction and repair of offshore oil vessels and barges. 2/ 216
International Ship Repair & Marine Services, Inc. 1616 Penny Street Tampa, FL 33605	168 X 27 FD 137 X 32 FD	<u>549</u> 1158	1/ General ship repair. 2/ 210
Newpark Shipbuilding & Repair, Inc. 8502 Cypress Houston, TX 77012	122 X 22 FD	<u>710</u> 710	1/ Small vessel construction and repair. 2/ 338

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997
			Lengths are in Meters

GULF COAST

Repair Yards with Drydock Facilities

TDI -Halter, Inc. (Dockyard Facility) P.O. Box 968. Orange, TX 77631-0968	274 X 36 FD	<u>213</u> 213	1/ Repair of ships and offshore oil rigs. 2/ 413
TDI -Halter, Inc. (Orange) P.O. Box 968 Orange, TX 77631-0968	168 X 37 FD	<u>549</u> 823	1/ General ship repair. 2/ 149

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
Name and Address	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997

Lengths are in Meters

GULF COAST

Topside Repair Yards

Avondale Industries, Inc. Algiers Division 3103 Patterson Drive New Orleans, LA 70114	<u>588</u> 1112	1/ Ship conversion, repair, and overhaul. 2/ 24
Boland Marine Manufacturing Co., Inc. P.O. Box 53287 New Orleans, LA 70153	<u>305</u> 305	1/ General ship repair and conversions. 2/ 157
Bollinger Machine Shop and Shipyard, Inc. P.O. Box 250 Lockport, LA 70374-0250	<u>1648</u> 3712	1/ Coast Guard vessel construction. 2/ 620
Buck Kreihs Co., Inc. P.O. Box 53305 New Orleans, LA 70153	<u>341</u> 341	1/ Ship repair and conversion. 2/ 200
Calcasieu Shipyard P.O. Box 129 Sulphur, LA 70664-0129	<u>137</u> 518	1/ Construction and repair of offshore vessels. 2/ 155
CBH Services 200 Pier Road Orange, TX 77630	<u>457</u> 457	1/ General ship repair. 2/ 75
Dixie Machine Welding & Metal Works, Inc. 1031 Anunciation St. New Orleans, LA 70130	<u>406</u> 406	1/ General ship repair. 2/ 264

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berth/Piers</u> (LOA-Beam)	<u>Remarks</u> <u>Usable Length</u>	
<u>Name and Address</u>	SW--Shipway	<u>Longest</u> Total linear	1/ Type of work usually engaged in
	GD--Graving Drydock		2/ Employment - Mid-1997
	FD--Floating Drydock		
	MR--Marine Railway		
	LL--Land Level Position		
	SL--Syncrolift		

Lengths are in Meters

GULF COAST

Topside Repair Yards

Equitable Shipyards 4325 France Road New Orleans, LA 70126	<u>122</u> 402	1/ Construction and repair of small vessels and barges. 2/ 149
Gulf Copper & Manufacturing Corp. 320 Houston Avenue Port Arthur, TX 77640	<u>262</u> 524	1/ General ship repair. 2/ 129
Gulf Marine Repair Corp. 1200 Sertoma Drive Tampa, FL 36605	<u>152</u> 152	1/ Ship repair and overhaul. 2/ 225
Hendry Corp. 5107 S. Westshore Blvd. Tampa, FL 33611	<u>305</u> 610	1/ General ship repair. 2/ 150
Houston Ship Repair, Inc. Brady Island Ship Repair Facility 8510 Cypress Street Houston, TX 77012	<u>259</u> 259	1/ General ship repair and conversion. 2/ 485
Jay Bludworth, Inc. P.O. Box 2441 Corpus Christi, TX 78403	<u>122</u> 219	1/ General ship repair. 2/ 19
John Bludworth Marine, Inc. 1600 N. Witter Pasadena, TX 77506	<u>259</u> 750	1/ General ship repair. 2/ 260
Orange Shipbuilding, Co. Inc. P.O. Box 1670, 710 Market Street Orange, TX 77631-1670	<u>152</u> 152	1/ General ship repair. 2/ 77
TDI Halter, North 2350 South Gulfway Drive Port Arthur, TX 77640	<u>265</u> 265	1/ General ship repair. 2/ 260

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
Name and Address	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrollft	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997
			Lengths are in Meters

WEST COAST

Shipbuilding Yards

Gunderson, Inc. 4350 N.W. Front Avenue Portland, OR 97210	222 X 32 SW	<u>335</u> 335	1/ Construction, conversion, and repair - all types of vessels. 2/ 132
National Steel & Shipbuilding Co. Harbor Drive & 28th St. San Diego, CA 92186-5278	(2) 274 X 34 SW 303 X 52 GD * 229 X 42 FD	<u>305</u> 2210	1/ Construction, conversion, and repair - all types of vessels. 2/ 4,293 * Graving dock and piers at U.S. Naval Station, San Diego.
Portland Ship Yard (Cascade General) 5555 N. Channel Avenue Building 50 Portland, OR 97217	183 X 30 LL 305 X 55 LL 198 X 26 FD 247 X 34 FD 351 X 55 FD	<u>335</u> 3353	1/ Ship construction, repair and conversion - all types of vessels. 2/ 986
Todd Pacific Shipyards Corp. 1801 16th Avenue, S.W. Seattle, WA 98134	(2) 168 X 18 SW * 128 X 19 FD 198 X 26 FD 287 X 41 FD	<u>427</u> 1834	1/ Ship construction, repair, and conversion - all types of vessels. 2/ 1,050 * Max. ship size is 168 X 29 meters using two 168 X 18 meter SWs.

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam) SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Synrolift	<u>Remarks</u> Usable Length	<u>1/</u> Type of work usually engaged in <u>2/</u> Employment - Mid-1997
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Name and Address

Longest
Total linear

Lengths are in Meters

WEST COAST

Repair Yards with Drydock Facilities

Dakota Creek Industries, Inc. 820 Fourth Street Anacortes, WA 98221	122 X 26 FD	<u>305</u> 477	<u>1/</u> General ship repair. <u>2/</u> 185
Lake Union Drydock Co. 1515 Fairview Avenue East Seattle, WA 98102	122 X 17 FD	<u>381</u> 750	<u>1/</u> Ship repair and conversion. <u>2/</u> 165
Maritime Contractors, Inc. 201 Harris Avenue Bellingham, WA 98225	122 X 16 FD	<u>213</u> 351	<u>1/</u> General ship repair. <u>2/</u> 111
San Francisco Drydock Co. Foot of 20th Street San Francisco, CA 94120-7644	290 X 44 FD 213 X 29 FD	<u>244</u> 1135	<u>1/</u> Ship repair and overhaul. <u>2/</u> 474
Southwest Marine, Inc. P.O. Box 13308 Foot of Sampson Street San Diego, CA 92170-0308	200 X 31 FD 127 X 19 FD	<u>213</u> 589	<u>1/</u> Ship repair, overhaul, and conversion. <u>2/</u> 1,129 Graving dock at Naval Station can be leased as required.
Southwest Marine, Inc. San Pedro Division 985 So. Seaside Avenue Terminal Island, CA 90731-7331	122 X 17 FD 209 X 27 FD	<u>201</u> 568	<u>1/</u> Ship repair, overhaul, and conversion. <u>2/</u> 200

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997

Lengths are in Meters

WEST COAST

Topside Repair Yards

Al Larson Boat Shop 1046 S. Seaside Avenue Terminal Island, CA 90731	<u>122</u> 293	1/ Ship end boat repair. 2/ 100
Bay Ship & Yacht Co. 2900 Main Street Alameda, CA 94501	<u>488</u> 1394	1/ General ship repair 2/ 192
Campbell Industries 8th Ave. at Harbor Drive San Diego, CA 92101	<u>171</u> 338	1/ General ship repair and construction of vessels up to 91 meters in length. 2/ 48
Continental Maritime of San Diego, Inc. 1995 Bay Front Street San Diego, CA 92113-2122	<u>213</u> 1387	1/ General ship repair. 2/ 351 Graving and floating docks at Naval Station can be leased as required.
Foss Shipyard 660 West Ewing Street Seattle, WA 98119	<u>146</u> 788	1/ Vessel repair, alteration, and overhaul. 2/ 125
MAR-COM, Inc. P.O. Box 1029 Vancouver, WA 98666	<u>122</u> 174	1/ General ship repair. 2/ 46
Pacific Fishermen, Inc. 5351 24th Avenue, N.W. Seattle, WA 98107	<u>152</u> 152	1/ Construction and repair of small vessels. Topside repair of large vessels. 2/ 31
San Pedro Boat Works Berth 44, Outer Harbor San Pedro, CA 90731	<u>189</u> 189	1/ General ship repair. 2/ 96

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997
			Lengths are in Meters

GREAT LAKES

Shipbuilding Yards

(Maximum ship size that can exit the St. Lawrence Seaway locks is 222 meters X 24 meters)

Fraser Shipyards, Inc. P.O. Box 997 Superior, WI 5488	252 X 23 GD 189 X 17 GD	<u>274</u> 527	1/ Ship construction, repair, and conversion. 2/ 32
Marinette Marine Corp. Foot of Ely Street Marinette, WI 54143	122 X 24 LL	<u>651</u> 651	1/ Ship construction, repair, and conversion. 2/ 546
Metro Machine of PA. Industrial Products Division Foot of Holland Street P.O. Box 1730 Erie, PA 16507-0730	375 X 35 GD	<u>366</u> 859	1/ Ship construction, repair, and conversion. 2/ 27

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA--Beam)	<u>Remarks</u> Usable Length	
<u>Name and Address</u>	SW--Shipway	<u>Longest</u> Total linear	1/ Type of work usually engaged in
	GD--Graving Drydock		2/ Employment - Mid-1997
	FD--Floating Drydock		
	MR--Marine Railway		
	LL--Land Level Position		
	SL--Syncrolift		

Lengths are in Meters

GREAT LAKES

Repair Yards with Drydock Facilities

(Maximum ship size that can exit the St. Lawrence Seaway locks is 222 meters X 24 meters)

Bay Shipbuilding Corp. 605 North Third Ave. Sturgeon Bay, WI 54235	195 X 20 FD	<u>305</u>	1/ Ship repair and conversion.
	351 X 41 GD	2162	
	222 X 32 SW		2/ 128
Toledo Ship Repair Co. 2245 Front Street Toledo, OH 43605	152 X 21 GD	<u>183</u>	1/ Ship repair and conversion.
	222 X 22 GD	305	2/ 64

Topside Repair Yards

(Maximum ship size that can exit the St. Lawrence Seaway locks is 222 meters x 24 meters)

H. Hansen Industries Riverside Marine Industries, Inc. 2824 Summit Street Toledo, OH 43611	<u>228</u>	1/ General ship repair.
	451	2/ 48
Nicholson Terminal & Dock Co. P.O. Box 18066 River Rouge, MI 48218	<u>701</u>	1/ General ship repair.
	1097	2/ 68

MAJOR U.S. PRIVATE SHIPBUILDING AND REPAIR FACILITIES
(Vessels 122 m in Length and Over)

<u>Maximum Ship Size</u>	<u>Berths/Piers</u> (LOA-Beam)	<u>Remarks</u> Useable Length	
Name and Address	SW-Shipway GD-Graving Drydock FD-Floating Drydock MR-Marine Railway LL-Land Level Position SL-Syncrolift	<u>Longest</u> Total linear	1/ Type of work usually engaged in 2/ Employment - Mid-1997
			Lengths are in Meters

NON-CONUS

Shipbuilding Yards

NONE

Repair Yards with Drydock Facilities

Marisco, Ltd. 91-607 Malakola Road Ewa Beach, HI 96707	152 X 24 FD *		1/ General ship repair. 2/ 102 * Leased from Port Commission.
Perez Y Cia., De Puerto Rico, Inc. P.O. Box 2209 San Juan, PR 00903	191 X 24 GD	<u>305</u> 853	1/ General ship repair. 2/ 100

Topside Repair Yards

Honolulu Shipyard, Inc. P.O. Box 30989 Honolulu, HI 96820		<u>183</u> 183	1/ General ship repair and overhaul. 2/ 92
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