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DISTRIGAS CORPORATION

Docket No. 88-37-LNG

EXHIBIT E-I

AGREEMENT FOR THE SALE AND  
PURCHASE OF LIQUEFIED NATURAL GAS  
OF APRIL 13, 1976.

## **AGREEMENT FOR THE SALE AND PURCHASE OF LIQUEFIED NATURAL GAS**

**Between:**

**Société Nationale SONATRACH, with registered office in Algiers, 80 Avenue Ahmed Ghermoul, hereinafter referred to as the "Seller", represented by its Vice President in charge of the Marketing Department, Slimane Bouguerra, authorized to execute this Contract,**

**on the one hand**

**and**

**Distrigas Corporation, a corporation organized and existing under the laws of the State of Delaware, with its principal office in Boston, Massachusetts, 125 High Street, hereinafter referred to as the "Buyer", represented by its Vice President, John G. L. Cabot,**

**on the other hand,**

### **WITNESSETH**

**WHEREAS, Alocean, Ltd., a Bermudian Corporation (ALOCEAN), and Buyer have concluded contracts for the sale and purchase of LNG dated December 3, 1969 and September 10, 1970 and an amendment to these contracts has been concluded between the two parties on October 4, 1975;**

**WHEREAS, Alocean and Buyer have concluded a contract for the sale and purchase of LNG dated October 4, 1975 relating to additional quantities to be delivered from July 1, 1976 to December 31, 1977;**

**WHEREAS, Seller and Buyer now deem it desirable, subject to Alocean's obligations under the above-mentioned contracts being assumed by Seller, that the latter sell LNG directly to Buyer rather than through Alocean,**

**and**

**WHEREAS, Seller and Buyer have agreed in accordance with a protocol signed by them June 6, 1975, to increase, beginning January 1, 1978, the quantities of LNG provided in the above-mentioned contracts and to conclude between themselves a new contract which replaces the above-mentioned contracts, beginning January 1, 1978, setting forth the new terms**

under which all quantities of LNG sold by Seller to Buyer will be delivered, beginning on such date.

It is AGREED AS FOLLOWS:

## **ARTICLE 1**

### **DEFINITIONS**

For the purpose of this agreement, the words and terms contained in Appendix A attached hereto and which are an integral part of this agreement, will have the meanings defined in said appendix.

## **ARTICLE 2**

### **PURCHASE AND SALE**

Under the terms and conditions hereinafter set forth, Seller agrees to sell and to deliver to Buyer and Buyer agrees to purchase and to receive from Seller and to pay for liquefied natural gas (LNG) in the quantities, at the times, and at the price hereinafter set forth.

## **ARTICLE 3**

### **SOURCE OF SUPPLY**

The LNG sold by Seller and delivered to Buyer will come from natural gas wells located in Algeria.

Seller represents that the LNG which is to be sold under the provisions of this agreement will be produced by the first four liquefaction units at Seller's liquefaction plant at Skikda, Algeria.

**ARTICLE 4**

**FACILITIES OF SELLER. SHIP. DELIVERY POINT.  
FACILITIES OF BUYER. PORT. TRANSFER OF TITLE**

**SECTION 4.1. *Facilities of Seller. Ship.*** Seller shall secure or shall have secured the delivery of the LNG mentioned above by an LNG tanker conforming with the specifications set forth in Appendix D to this agreement, the name of which shall be notified by Seller to Buyer before June 1, 1976. Seller has the right to substitute for such LNG tanker another LNG tanker subject to the condition that such LNG tanker be of equivalent size and specifications, or multiple tankers of smaller size subject to the condition that their conception and characteristics be compatible with Buyer's facilities, and in both cases subject to the condition that neither the quantities to be delivered under the terms of this agreement nor the sales price of the LNG to be paid by Buyer be modified because of this substitution. Seller shall be obligated to provide additional LNG tankers, subject to the same conditions, if necessary to deliver all quantities set forth in Section 6.1., subject to the conditions of Section 13.1 below.

**SECTION 4.2. *Delivery Point.*** Delivery of the LNG sold and purchased under this agreement will be made by Seller to Buyer on board an LNG tanker at the port of destination, and the point of delivery shall be at the flange connecting the permanent equipment of the LNG tanker with the receiving arms of the facilities at the port of destination designated by Buyer.

**SECTION 4.3. *Facilities of Buyer.*** Buyer shall construct, maintain and operate or cause to be constructed, maintained and operated at its sole cost, expense and risk, at the port of destination, docking, discharging and receiving facilities.

The docking facilities shall be capable of receiving, docking and handling at all times whether in daytime or at night-time, in all safety and always afloat, a LNG tanker no more than two hundred and eighty (280) meters in length with a draft of approximately eleven meters and ten centimeters (11.10) of water at full capacity and which is capable of transporting approximately one hundred and twenty five thousand (125,000) cubic meters of LNG. The configuration of Buyer's facilities is shown in Appendix C.

The discharging facilities shall include pipes and other equipment of sufficient capacity to permit the discharging of an LNG tanker at rates as indicated in Section 11.3 below. Such facilities shall also include a vapor return line sufficient in size to return natural gas vapors from Buyer's storage tanks to the LNG tanker.

The receiving facilities shall include storage and other facilities of sufficient capacity to permit receipt of full cargoes of LNG at the rates of delivery specified above.

Buyer shall also provide, free of cost to Seller, facilities adequate to supply the LNG tankers with fresh water, liquid nitrogen and telephone.

**SECTION 4.4. *Port.*** The scheduled port of destination is the port of Boston (Massachusetts) where Buyer has now at its disposal the required facilities as defined above. However, Buyer shall have the right to designate any other safe port on the East coast of the United States of America, subject to such designation being notified to Seller in writing at least 15 days prior to the scheduled date of delivery; provided, however, that all required authorizations and permits, and any delay which may result therefrom, shall be the responsibility of Buyer; provided also that the sales price stated in article 9 hereinafter shall be adjusted in such case to take into account the variations in the length of the voyage and any additional costs which would be incurred as a result therefrom.

**SECTION 4.5. *Passage of Title.*** Title to and risks regarding the LNG sold and purchased hereunder shall pass from Seller to Buyer at the port of discharging at the time of passage of the product through the connecting flange of the ship's permanent equipment.

## **ARTICLE 5**

### **LIABILITY**

While the LNG tanker is being berthed or leaving the berth, and as long as it is berthed at the Buyer's dock, each party will be responsible to the other party for any proven injuries or damage, excluding all indirect consequences, which may be caused to the other party by the fault or act of the first party, its own employees, representatives, contractors or suppliers of services.

Seller shall cause the LNG to be delivered and Buyer shall receive the LNG at the delivery point with due compliance with appropriate safety precautions.

## ARTICLE 6

### QUANTITIES AND RATE OF DELIVERIES

**SECTION 6.1. *Contractual Annual Quantities and Rate of Deliveries.*** The contractual annual quantity which Seller agrees to sell and deliver to Buyer and which Buyer agrees to receive and pay for on a firm "take or pay" basis is one million nine hundred thousand (1,900,000) cubic meters of LNG, plus or less five percent at Seller's option, corresponding to seventeen (17) full cargoes of a ship with a capacity of approximately one hundred twenty five thousand (125,000) cubic meters.

Seller and Buyer shall provide that annual inspections and overhauls of the plants and facilities necessary to carry out the operation contemplated by this agreement and of the LNG tanker shall take place preferably during the summer or at any such other suitable time of the year selected by mutual agreement as will not entail a decrease in the annual quantity of LNG the delivery of which is provided for by this agreement. Seller and Buyer shall notify each other of schedules of such annual inspections and overhauls ninety days prior to their commencement.

**SECTION 6.2. *Schedule of Deliveries.*** Seller shall submit to Buyer no later than sixty (60) days prior to the beginning of each year the schedule of deliveries which it proposes for such year. For each quarter of the year, and no later than thirty (30) days prior to the beginning of each quarter, Seller shall confirm the schedule for such quarter.

Ten (10) days prior to the beginning of each calendar month, Seller shall confirm by telex to Buyer the schedule of deliveries for such month.

Seller shall promptly notify Buyer by telex of any loading at Skikda of LNG to be delivered to the latter and of the departure from Skikda of such cargo and the estimated time of arrival at Buyer's terminal.

Seller shall make its best efforts so that the deliveries be always spaced by approximately twenty (20) days.

**ARTICLE 7****QUALITY**

The LNG delivered by Seller by Buyer will have in the gaseous state:

- a PCS of between 9,640 Kcal/Nm<sup>3</sup> and 10,650 Kcal/Nm<sup>3</sup>
- constituent elements the percentage of which will vary within the following limits (in molecular percentage):

Nitrogen N <sub>2</sub>	between 0.2 and 1.4
Methane C	between 85.65 and 96.6
Ethane C <sub>2</sub>	between 3.2 and 8.5
Propane C <sub>3</sub>	between 0.0 and 3.0
Isobutane iC <sub>4</sub>	between 0.0 and 0.52
Normal butane NC <sub>4</sub>	between 0.0 and 0.7
Pentane C <sub>5</sub> plus	between 0.0 and 0.23

- an amount of H<sub>2</sub>S not exceeding zero point five (0.5) part per million in volume
- an amount of mercaptan sulfur not exceeding 2.3 mg/Nm<sup>3</sup>
- an amount of total sulfur not exceeding 30 mg/Nm<sup>3</sup>.

The verification of the PCS and of the composition of the LNG in compliance with the above specifications shall be made in accordance with the provisions of article 8 below.

For the verification of the amounts of sulphur and H<sub>2</sub>S, the procedures defined by the standards ASTM D 2385 and D 3031 shall be applied.

**ARTICLE 8****MEASUREMENT AND TESTING**

**SECTION 8.1. Gauging.** The quantities of LNG delivered under this agreement shall be measured in metric units by gauging of the liquid in the ship's tanks.

The first gauging shall be made immediately after the ship's captain has given his Notice of Readiness to discharge and as soon as the ship is

berthed, the linking of the gaseous stages between the ship and the terminal and the balancing of pressures have been achieved.

A second gauging shall be made immediately after the end of discharging.

These gaugings shall be made by Seller. Buyer shall have the right to be present if it so wishes.

Seller shall provide Buyer with a certified true copy of the gauging scales for each of the tanks of the ship in metric units approved by the Service des Instruments et Mesures de Paris as well as of the correction tables (list, trim, contraction of the tanks, etc . . .). These scales and tables shall be used for the entire duration of the agreement unless the tanks are physically modified, in which case new scales and tables shall be established.

**SECTION 8.2. *Determination of Density.*** The density of the LNG shall be determined by measurement on board the ship, by means of approved instruments.

In the case of defective functioning of the measuring equipment, the density shall be determined by a calculation from the molecular composition determined in accordance with Section 8.4 below, for the average temperature defined in Section 8.3.

The method of calculation shall be that generally used by Seller for its sales of LNG to other buyers and should it be changed from the method now used, shall be mutually agreed upon by Buyer and Seller.

The density shall be expressed in  $\text{kg/m}^3$ .

**SECTION 8.3. *Determination of the Temperature.*** The temperature of the cargo shall be the arithmetic average of the temperatures indicated by the temperature-registering devices immersed in the LNG in all of the tanks.

The temperature-registering devices, thermocouples or "resistance probes", shall be distributed over the entire height of the tanks and shall be accurate to  $0.2^\circ\text{C}$ , more or less, subject to the condition that the instruments are capable of being that accurate. These temperatures shall either be recorded in writing or printed.

**SECTION 8.4. *Sampling.*** One or several representative samples of the LNG shall be taken at a point located as close as possible to the discharging



flange of the LNG tanker. The sampling device shall permit the total vaporization of a definite quantity of LNG allowing the taking of representative gaseous samples.

The device shall be chosen by mutual agreement between Seller and Buyer. Samples shall be analyzed with the aid of a chromatograph approved by Seller. The analysis or the average of these analyses shall determine the molecular composition of the LNG.

A calibration of the chromatograph used shall be made before each delivery, with the aid of a gaseous sample, in the presence of a representative of Seller being present if it so wishes.

**SECTION 8.5. *Determination of the Gross Heating Value.*** The gross heating value (PCS) of the regasified LNG shall be calculated from its molecular composition determined in accordance with Section 8.4, from the molecular masses and from the PCS at 0°C at a pressure of 760 mm/Hg of each of the constituent elements.

The PCS shall be expressed in thermies/kg.

The PCS values of each of the constituent elements are indicated in the table attached hereto as Appendix B. They are deduced from the physical values given by the tables of API Research Project 44; they shall be corrected, without retroactive consequence, in the case of changes published later by the API.

**SECTION 8.6. *Determination of the Thermies of BTU's Delivered.*** The quantity of thermies delivered by the ship shall be computed from the following formula:

$$Q_a = V \times M \times PC$$

in which:

- |                      |   |
|----------------------|---|
| <b>Q<sub>a</sub></b> | represents the quantity of thermies delivered   |
| <b>V</b>             | represents the volume in cubic meters of LNG discharged in m <sup>3</sup> , determined in accordance with Section 8.1 |
| <b>M</b>             | represents the density of LNG determined in accordance with Section 8.2, and expressed in kg/m <sup>3</sup>           |
| <b>PC</b>            | represents the PCS determined in accordance with Section 8.5 and expressed in thermies/kg                             |

The quantity of millions of BTUs (MMBTU) delivered shall be equal to

$$Q_{\text{MMBTU}} = \frac{Q_s \times 3,968.3}{1,000,000}$$

**SECTION 8.7. *Methods of Operation.*** The gauging equipment in the ship's tanks and the equipment for measuring the density of the LNG, shall be provided, operated and maintained by the Seller at its expense. The equipment and material utilized for the determination and tests of the quality of the product shall be provided, operated and maintained by Buyer, at its expense.

Any measurement and any calculation relating to the gauging and the determination of the density of the LNG shall be made by Seller, in the presence of a representative of Buyer if Buyer so wishes. Any measurement and any calculation relating to the determination and tests of the quality of the LNG shall be made by Buyer, in the presence of a representative of Seller if Seller so wishes.

The absence of one of the parties will affect neither the taking of the measurements nor the preparation of the calculations incumbent upon the other party.

At any time, one party shall have the right to inspect the measuring and testing equipment provided by the other party, after prior notice to the latter.

Calibration of an instrument shall be made by the party in charge of the operation of this instrument, the other party having the right to be present at such operations.

However, all data relating to the tests, diagrams, calculations or any other similar information must be made available to the parties and kept for a period of at least three (3) years.

**SECTION 8.8. *Accuracy of Measurements.*** The accuracy of the equipment used may be verified on request of Seller or Buyer. Such verifications may only be made if the two parties are present by methods recommended by the makers of the instruments or by any other method agreed upon by Buyer and Seller.

If, when verified, a measuring apparatus shows errors of less than one percent (1%) the previous reports on this equipment shall be considered correct regarding calculation of deliveries and the equipment shall be adjusted immediately as needed.

If, when verified, a measuring apparatus shows errors of more than one percent (1%), the previous reports on this equipment shall be recalculated to a zero deviation by comparison to calibration results for any definitely known or agreed period; but if the period in which this error occurred were not definitely known or agreed upon, this correction would be made for half of the deliveries since the date of the last calibration.

The equipment for measuring the level of the LNG and its mass, and the temperature in the ship's tanks, as well as the chromatographs for analysis of natural gas, shall be the most reliable and accurate instrument known at the time they are chosen.

The equipment shall be professionally installed. The parties shall make every effort to obtain from the Service des Instruments et Mesures de Paris approval of measuring equipment and apparatus used.

**SECTION 8.9. Disputes.** Any dispute on the choice of the type and accuracy of the measurement apparatus, the result of a measurement, a sampling, an analysis, a calculation or method of calculation, shall be referred to the Ecole Polytechnique Fédérale de Zürich (Technische Hochschule, Zürich).

Any decision of this body shall be binding on Seller and Buyer. Expenses incurred relating to the services of this body shall be evenly divided between Seller and Buyer.

## **ARTICLE 9**

### **Price**

The sales price of the LNG, ex-ship, port of destination, is equal to the sum of the FOB price plus the cost of transport, determined in accordance with sections 9.1 and 9.2 hereinafter. It is expressed in U.S. dollars per million BTUs delivered.

**SECTION 9.1. FOB Price.** The FOB price, Algerian coast, is either determined in accordance with section 9.1.1 hereinafter, or equal to the

Minimum Price determined in accordance with section 9.1.2 hereinafter if the latter is greater. The former price shall be computed on the first working day of each semester of the Gregorian calendar. The latter price shall be computed on the first working day of each month. The FOB price shall be the greater of the two and shall apply to the deliveries which will or must be made during the course of the month concerned.

**SECTION 9.1.1. *Invoiced Price, Except for Application of the Minimum Price.*** The FOB portion of the invoiced price shall result from the application of the following formula:

$$P = P_0 \left( 0.5 \frac{F}{F_0} + 0.5 \frac{F'}{F'_0} \right)$$

in which:

- P** = the invoiced price in U. S. dollars;
- P<sub>0</sub>** = the base price taken as equal to U. S. \$1.30 per million BTU on July 1, 1975;
- F** = the price, expressed in U. S. dollars per barrel, of "No. 2 fuel oil", resulting from the arithmetic average of the highest prices published by Platt's Oilgram under the heading "Atlantic and Gulf Coast, New York Harbor District" for each day during a period of six consecutive months ending one month prior to the beginning of the semester for which the invoiced price is computed;
- F<sub>0</sub>** = U. S. \$12.642 per barrel
- F'** = the price, expressed in U. S. dollars per barrel, of "No. 6 fuel oil, low pour" having a maximum of 0.3% sulfur, resulting from the arithmetic average of the average prices published by Platt's Oilgram under the heading "Atlantic and Gulf Coast, New York Harbor District, No. 6 Fuel Rack" for this fuel oil, for each day during a period of six consecutive months ending one month prior to the beginning of the semester for which the invoiced price is computed;
- F'<sub>0</sub>** = U. S. \$13.505 per barrel

If the price of one of the above-mentioned fuels were not published in Platt's Oilgram, the last available published price would be applied. If the price of one or both above-mentioned fuels were no longer published in Platt's Oilgram, Buyer and Seller would mutually agree upon one or more than one new reference indices for equivalent products, or, lacking that, for products having characteristics as similar as possible.

**SECTION 9.1.2. Minimum Price.** The Minimum Price will result from the application of the following formula:

$$PM = PM_0(E + 1)$$

in which:

- PM** = the Minimum Price computed in U.S. dollars;  
**PM<sub>0</sub>** = the base Minimum Price taken as equal to U.S. \$1.30 per million BTU on July 1, 1975;  
**E** = the arithmetic average of the results obtained by applying the formula  $(\frac{B}{A} - 1)$  to each of the six (6) currencies (the "Currencies") of the following countries: Belgium, France, the Federal Republic of Germany, Italy, Switzerland and the United Kingdom, in which:

- A** = the average commercial rate of exchange in effect for the month of July 1975, on the London Market, for each of the Currencies, expressed in cents of U.S. dollars for one unit of each Currency (to the nearest 6th significant figure). The commercial rate of exchange referred to above for each of the Currencies is set forth in the following table:

<u>Country</u>	<u>Currency</u>	<u>In Cents of U. S. Dollars</u>
Belgium	Franc belge	2.719421
France	Franc francais	23.707874
Federal Republic of Germany	Deutschmark	40.597400
Italy	Lira	0.154130
Switzerland	Franc suisse	38.350735
United Kingdom	Pound	218.483913

- B** = the commercial rate of exchange for each of the Currencies and shall be the arithmetic average, as certified by National Westminster Bank Limited of London (the "Bank"), of the average purchase and sale rates quoted for exchange transactions by cable transfer published by the Bank at 10:30 GMT for each business day during the month preceding the day of computation of the Minimum Price and expressed in cents of U.S. dollars for one (1) unit of such Currency (rounded to the nearest 6th significant figure).

In the absence of quotations concerning a Currency on a given day, the rate of exchange of payment for such day shall be that of the last day on which such rate shall have been used.

Item E shall be considered equal to 0 as long as its absolute value shall not vary by 0.01 or more in relation to zero. When such level shall have been attained or surpassed, the Minimum Price shall be computed by using the value of E as computed above. Such value of E shall thereafter remain the value used for the computation of the Minimum Price as long as a new variation of 0.01 or more in relation to such value shall not have taken place.

If, for any currency, the Bank quote at 10:30 GMT of a business day more than one category of rates for purchase and sale for cable transfer exchange transactions, the purchase and sale rate for such Currency shall be the arithmetic average of each category of purchase and sale rates quoted.

If the Bank refuses or is unable to act, Buyer and Seller shall elect another large London bank by mutual agreement.

In the case of consolidation, subdivision or replacement in whatever manner, or of any other similar modification affecting any of the Currencies, the corresponding successor currency shall be substituted for the Currency or Currencies so consolidated, subdivided, replaced or changed in that ratio of units of the old currency to units of the old currency to units of the successor currency in order to reflect most appropriately the terms of such consolidations, subdivisions, replacements or changes and the initial exchange rate of such Currency or Currencies shall be revised, as the case may be, in order to reflect most appropriately such consolidations, subdivisions, replacements or changes, in a way accepted by both parties. Deliveries commenced during a calendar month, but completed at a time in the following calendar month, shall be at the rate in effect on the date when discharging operations commenced. Whatever the value of E may be, PM shall never be less than PM<sub>0</sub>.

**SECTION 9.2. Cost of Transport.** The cost of transport is determined on January 1 of each year, for the duration of this contract, for all deliveries to be made during the following twelve months, in accordance with the following formula:

$$C = 2.36 \frac{G}{G_0} + 1.29 \frac{H}{H_0} + 6.13 \frac{P}{P_0} + 2.29 \frac{L}{L_0} + T$$

in which:

$$T = T_0(E + I)$$

$$T_0 = 60.52 + 9.30 \frac{S}{S_0}$$

**C** = cost of transport per MMBTU delivered expressed in cents of U.S. dollars: as of July 1, 1975, **C** = 81.89.

**G** = Average value over the 31 days of the month of December of the year immediately preceding the year for which the cost of transport is being determined of the highest daily prices quoted for No. 6 fuel in the publication Platt's Oilgram Price Service under the heading Atlantic and Gulf Coast—New York Harbor (POPSAGCNYH), and expressed in U.S. dollars per barrel:

**G<sub>0</sub>** = average value over the 30 days of the month of June, 1975, of the highest daily prices quoted for No. 6 fuel by the publication POPSAGCNYH: **G<sub>0</sub>** = \$13.95 per barrel.

**I** = total annual charges incurred in the year for which the cost of transport is being determined for the insurance of the LNG tanker "Ben Franklin": expressed in U.S. dollars.

The insurance of the LNG tanker shall cover risks to the hull and machinery, safe arrival, ordinary risks, and war risks and shall include risk, protection and compensation insurance.

If, in accordance with Section 4.4 of Article 4 of this contract, a ship other than the "Ben Franklin" is used to transport the LNG, **I** shall be determined in the above manner for such ship.

**I<sub>0</sub>** = U.S. \$1,000,000.

**H** = total port charges incurred by the LNG tanker during the year immediately preceding the year for which the cost of transport is being determined, expressed in U.S. dollars. Port charges invoiced and paid in a currency other than U.S. dollars shall be recorded for the computation of **H** in dollars at the rate in effect on the date of invoicing. If the ship makes less than 17 voyages during the year immediately preceding the year for which the cost of transport is being determined, **H** shall be determined pro rata

- according to the number of voyages actually made. For the first year of the contract the figure  $H$  is contractually fixed at the value  $H_0$ .

- $H_0$  = U.S. \$591,000;
- $P$  = the FOB price determined in accordance with Section 9.1 in U.S. dollars;
- $P_0$  = the base FOB price taken as equal to U.S. \$1.30 per million BTU on July 1, 1975;
- $E$  = the same meaning as in Section 9.1.2 above;
- $S$  = the value for the month of June of the year immediately preceding the year for which the cost of transport is being determined, of the index "average Hourly Earnings of Non-Supervisory Workers" in "Transportation and Public Utilities", published in "Employment and Earnings" by the U.S. Department of Labor;
- $S_0$  = the value of the above defined index  $S$  for the month of June, 1975, i.e. \$5.82.

## ARTICLE 10

### TAXES AND DUTIES

All duties, taxes and imposts affecting the LNG cargo and collected by the Government of the United States of America shall be borne by Buyer.

All duties, taxes and imposts affecting the LNG cargo and collected by other states and all duties, taxes and imposts affecting the LNG tanker shall be borne by Seller.

## ARTICLE 11

### DISCHARGING

**SECTION 11.1. Notice of Arrival.** Seller shall notify Buyer or cause Buyer to be notified, at least seventy-two (72) hours and again at least twenty-four (24) hours in advance of the estimated hour when the LNG tanker will arrive at the port designated by Buyer.



**SECTION 11.2. *Notice of Readiness to Discharge.*** As soon as the LNG tanker arrives at the port of discharge, that is, for Boston, at the pilot's station, the captain of the ship or the representative of Seller shall notify Buyer or its representative, by any means, at any hour of the day or night.

Buyer represents and warrants that the Buyer's facilities will be ready for receiving and discharging the LNG tanker as soon as it has arrived with no expense for such use to be charged to Seller by Buyer.

**SECTION 11.3. *Laytime.***

(a) ***Authorized Laytime.*** Buyer shall be allowed as authorized laytime for discharging and receipt of the cargo and any other purposes connected therewith 24 running hours, Sundays and holidays included, if the capacity of the LNG tanker is over 80,000 cubic meters, and 20 running hours, Sundays and holidays included, if the capacity of the LNG tanker is less than 80,000 cubic meters.

(b) ***Beginning of Authorized Laytime.*** Laytime shall commence either at the expiration of the six running hours following delivery to Buyer of the Notice of Readiness provided in Section 11.2 above, or at the time of attachment of the discharging arms of the Buyer's terminal to the permanent vessel connections whichever occurs first.

(c) ***Extension of Authorized Laytime.*** The authorized laytime as defined in paragraph (a) of this Section shall be extended should the time consumed by the ship to get to the discharging berth, after delivery of the Notice of Readiness to Discharge, exceed six hours for one of the following reasons:

1. failure of the ship;
2. application of the regulations in force at the time of execution of this agreement or of decisions of governmental authorities or agencies taken pursuant to such regulations;
3. prohibition from proceeding to the berth by night;
4. weather conditions including bad weather.

The term of extension shall be equal to the delay of the ship in getting to the dock over and above the above-mentioned six hours in the first three cases; to half such delay in the fourth case.

Should the regulations referred to in 2. above be materially amended after the date of execution of this agreement, the parties shall meet to determine the effect of such amendments on the cost of transportation and adjust it, if relevant, by mutual agreement.

While the ship is berthed, should there occur a period of time during which Seller's and Buyer's facilities simultaneously fail, the authorized laytime shall be extended by a term equal to half such period.

While the ship is berthed, should there occur a delay attributable exclusively to the LNG tanker, caused, among other things, by breakdown or inability of the LNG tanker facilities to discharge the cargo within the allowed time, a term equal to this loss of time shall be added to the authorized laytime.

**SECTION 11.4. Demurrage.** The discharging of the LNG tanker will end either at the time when the discharging arms of the Buyer's terminal are disconnected from the permanent vessel connections, or when the documents relating to the operations effected are delivered on board, whichever comes last. Should the discharging end after expiry of the authorized laytime as defined in Section 11.3 above, Buyer shall pay demurrage to Seller at the rate provided in Appendix E.

Demurrage shall be prorated for a fraction of a day. Such rate shall be adjusted on January 1 of each year, the first adjustment taking effect on January 1, 1978, in the same proportion as the cost of transport, in accordance with the formula set out in Section 9.2.

If, however, demurrage accrues at the port of discharge

(1) by reason of strike or lockout preventing or delaying the LNG tanker from reaching or entering the port, or docking or discharging, or

(2) by reason of fire, explosion, breakdown or deficiencies in the shore facilities of Buyer or its agents,

the rate of demurrage shall be reduced to one-half for the demurrage thereby incurred. In such event, Seller agrees to waive the provision of Section 4.2 requiring 15 days' notice for instructions to proceed to another port. However, in case of delay to the LNG tanker caused by a strike, lockout, fire, explosion or breakdown commencing or occurring after expiry of the authorized laytime, the full rate shall apply, unless such event

commences or occurs while the LNG tanker is already on half-demurrage, in which case the half-demurrage rate shall continue to apply until termination of the event having caused it.

**SECTION 11.5. *Supply of Discharging Arms.*** Buyer shall supply the arms necessary to discharge LNG. These arms will be connected to the discharging pipe of the ship by Buyer or, at the request of the captain, by the ship but at the risk and cost of Buyer.

## **ARTICLE 12**

### **INVOICING, PAYMENT AND ERRORS**

#### **SECTION 12.1. *Invoicing and Payment.***

(a) Immediately upon completion of each discharging, Seller shall prepare and deliver to Buyer the documents showing the measurements and calculations made in compliance with Article 8 concerning the delivered cargo.

Seller shall also prepare and deliver promptly to Buyer, for each cargo of LNG, an invoice showing the quantity of delivered BTUs based on the PCS of the LNG and the sum in U.S. dollars due by Buyer to Seller.

Buyer shall pay Seller the sums invoiced to and due by Buyer to Seller for each delivered cargo of LNG within ten (10) days following receipt of the invoice. In the case of a delay in the payment of the invoices, the amounts owed by Buyer shall bear interest at a rate of ten (10) percent per year.

(b) If no payment is made within a period of thirty (30) days, Seller shall have the right to suspend further deliveries until payment is made and such suspension will neither entitle Buyer to claim any compensation therefor nor release Buyer from its obligations under this agreement.

(c) In the case of a dispute about the preparation of an invoice, Buyer shall pay the amount of such invoice as a deposit. Seller and Buyer shall thereafter determine what corrections are to be made to the invoices in dispute. Any adjustment to be made to the payment, either by Buyer or by Seller, shall bear interest from the due date of payment until the date of the adjustment, at a rate of ten (10) percent per year.

(d) If Buyer is unable or unwilling to take delivery of one or several cargoes of LNG to be tendered to it as provided by this agreement, Buyer shall nevertheless be obligated to pay Seller for the corresponding quantities of LNG at the price indicated in Article 9. Seller shall immediately issue and deliver to Buyer for each cargo which would not be taken as indicated above an invoice for an amount equal to the sum in U.S. dollars due by Buyer to Seller. Buyer shall pay the sum invoiced by and due to Seller within ten (10) days after Buyer receives the invoice.

(e) The sums owed by Buyer to Seller pursuant to the terms of this Section will be paid in U. S. dollars and the corresponding payments will be made to Buyer to the bank account of Seller mentioned on the invoice.

(f) Should Buyer, pursuant to this agreement, pay for an LNG cargo without taking delivery thereof, Seller shall credit Buyer with the proceeds of any sale of such cargo to a third party, after deducting the expenses reasonably incurred in connection with such sale to a third party.

SECTION 12.2. *Errors.* In the event of any error being found in the amount shown on any invoice issued pursuant to Section 12.1, such error shall be corrected within one (1) month after it has been found, provided notice thereof shall have been given within three (3) months from the date when the invoice was issued.

## ARTICLE 13

### FORCE MAJEURE AND ALLOCATION OF PRODUCTION

SECTION 13.1. *Force Majeure.* The contracting parties shall be temporarily released, in whole or in part, from their obligations in the case of events such as, especially:

- fire, flood, atmospheric disturbance, storm, hurricane.
- earthquake, undermining of the ground, landslide, lightning, epidemic.
- war, riot, insurrection, act of a public enemy. . . . .
- strike, lockout, . . . . .

provided that the burden of establishing that such an event has occurred and has the characteristics of force majeure shall lie on the party claiming such release; and in the case of the following events:

- severe accident with respect to operation or equipment affecting the facilities for the production of natural gas in the field, the transportation by the main pipe line in Algeria, the processing, the liquefaction, the storage, the loading operations, the transportation by LNG tanker and the receiving facilities, the storage, the regasification as well as the main exit pipeline from the regasification plant to the first branching on such pipeline provided that the length of any such exit pipeline shall not exceed twelve (12) U. S. miles, of such nature that its consequences cannot be overcome by using reasonable means at a reasonable cost,
- act of a third party affecting the same items as above, such that this act or its consequences cannot be overcome by using reasonable means at a reasonable cost,
- any act or failure to act of any public authority of Algeria or any other country entailing the suspension of the operations which are the subject of this agreement.

The concerned party shall as soon as possible after any of the above-mentioned events has occurred give notice to the other party by letter, or by telephone or telex confirmed by letter.

It is agreed that in no event shall Seller or Buyer be released from obligations already existing upon them at the date of the notice, including the Buyer's obligation to pay the sums owing on such date for the payment of the quantities of LNG previously delivered.

In all cases, the contracting parties shall make all appropriate arrangements to resume within the shortest possible period of time the performance of the agreement.

**SECTION 13.2. Allocation of Production.** When for any reason, including but not limited to force majeure, production from the first four liquefaction units at Seller's liquefaction plant at Skikda is at any time insufficient to permit full performance of this agreement, Seller will immediately allocate production among Buyer and its other customers for LNG from those units in accordance with the following provisions:

1. No LNG will be delivered to any third party from any of the first three liquefaction units other than Buyer and Seller's other customer presently receiving deliveries of LNG from those units under contracts in force as of the date of execution of this agreement.

2. No LNG will be delivered from the fourth liquefaction unit to any third party other than Buyer and Seller's other customer for LNG from such unit under a contract existing as of the date of execution of this agreement.

3. Seller undertakes to provide to Buyer regular current information on production from the first four units at Skikda and quantities delivered to its customers from those units. Subsequent to the resumption of normal production from the first four liquefaction units, permitting full performance of this contract, Seller will furnish to Buyer a summary schedule of production and deliveries made from such units during the period of allocation.

This provision shall in no way limit Seller's ability to deliver nor Buyer's ability to receive quantities of LNG from other liquefaction units which may be built at Skikda in the future.

#### ARTICLE 14

##### EFFECTIVE DATE AND TERM OF THE AGREEMENT

This agreement shall enter into effect on the date of its execution subject to the condition mentioned in Section 18.1 and shall become operative from January 1, 1978.

This agreement shall remain in effect for twenty (20) consecutive years from the date of the first regular delivery of LNG.

The first regular delivery of LNG is defined as being the first of at least 13 deliveries of complete cargoes made over a period of 12 months totaling at least 1,400,000 cubic meters.

It is agreed that this agreement may not remain in effect after January 1, 2000, unless otherwise mutually agreed.

#### ARTICLE 15

##### NOTICES

Any notice, request, claim, invoice, report or other communication required or provided for by this agreement, or any notice that one party may

wish to give to the other party, shall be in writing and deemed to have been duly delivered when personally handed over to a qualified employee of the party or to its duly appointed representative or when received by registered letter or telegram to the address of such party or of the duly appointed person.

Seller and Buyer now designate their addresses as follows:

Seller: Sonatrach  
80 Avenue Ahmed Ghermoul  
Algiers, Algeria

Buyer: Distrigas Corporation  
125 High Street  
Boston, Massachusetts 02110  
U.S.A.

Either party may change its address by giving the other party prior written notice thereof.

Any notice mailed or sent by telegram shall be deemed to have been given on the date when received by the addressee, except that routine communications, including invoices, reports and payments, shall be deemed to have been duly delivered on the date when mailed or handed over to the duly appointed person employed by the party or to its representative.

#### ARTICLE 16

##### GOVERNING LAW

This agreement shall be construed in accordance with the laws of the United Kingdom.

#### ARTICLE 17

##### ARBITRATION

Any dispute between the parties hereto relating to the construction or the performance of the terms of this agreement shall be settled by arbitration in Geneva, Switzerland, by arbitration under the rules of conciliation and arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with such rules. The arbitration award shall be final and without any appeal being open.

The parties shall perform the arbitration award without any exception or reservation. Such award may be invoked before any court of competent jurisdiction and application may be made to such court to confirm such arbitration award by authorizing its enforcement.

## ARTICLE 18

### APPROVAL OF GOVERNMENTAL AUTHORITIES

**SECTION 18.1. *Governmental Authorizations.*** This agreement is subject to the respective authorizations of the governmental authorities of the parties concerned.

**SECTION 18.2. *What Seller and Buyer Shall Make Every Effort to Obtain.***

Seller shall do all in its power to obtain within the shortest possible period of time all approvals and authorizations which may be required by the administrative authorities of Algeria, or by any other authority, deemed necessary by Seller, to allow Seller to begin and to continue deliveries of LNG to Buyer under the terms of this agreement, and to provide Buyer with certified true copies of such governmental approvals and authorizations attaching certified true copies of the rules, regulations and restrictions imposed by each of these administrative authorities concerning such authorizations.

Buyer shall do all in its power to obtain within the shortest possible period of time all approvals and authorizations required by the administrative authorities of the United States of America, or deemed necessary by Buyer, to allow it to begin and to continue to receive the LNG under the terms of this agreement and to provide Seller with certified true copies of such governmental approvals and authorizations attaching certified true copies of the rules, regulations and restrictions imposed by each of the administrative authorities, if any, concerning such approvals and authorizations. Buyer shall also do all in its power to obtain from the administrative authorities of the United States of America any other approval or authorization which may be required from time to time during the term of this agreement.

Each party shall, if required by the other, help the other party by doing all in its power to obtain such governmental authorizations and approvals.



The party having obtained said authorizations and approvals shall within the shortest possible period of time notify the other party and shall let the other party know as soon as possible if these governmental approvals and authorizations are of an appropriate form and will allow it to meet the contractual obligations contained in this agreement. When all of these governmental approvals and authorizations deemed indispensable by Seller and Buyer have been obtained, Seller and Buyer shall so notify each other.

If, by June 30, 1977 at the latest, Buyer and Seller do not succeed in obtaining the necessary governmental approvals and authorizations permitting the importation or exportation of the maximum number of complete cargoes mentioned in Section 6.1. and for the term of this agreement, Seller or Buyer shall have the right to terminate this agreement at any time after such date and before the obtaining of such approvals and authorizations by notifying the other party in writing of its intention.

**SECTION 18.3. *No Liability in Case of Termination.*** Should either Seller or Buyer exercise the right provided in Section 18.2 (fourth subparagraph) to terminate this agreement, the party exercising such right shall not be held liable to the other party for any damage, expense or loss incurred by such other party as a result of the termination of this agreement.

## ARTICLE 19

### CONTENTS OF THE AGREEMENT

This agreement contains the entire contract and agreement entered into between the parties and supersedes all prior agreements between them with respect thereto. No oral promise or representation may affect it. It may be amended only in writing and by mutual agreement.

The provisions concerning measurement procedures and methods of analysis may be amended or supplemented by memoranda written, under mutual agreement, by the employees of Buyer and Seller.

## ARTICLE 20

### REVISION OF THE CONTRACTUAL SALES PRICE

The parties agree to meet regularly to proceed with the revision of the Contractual Sales Price defined in Article 9. above. They shall so meet for

the first time during the first quarter of the year 1980 and thereafter every four (4) years.

The revision of the price shall consist in adapting it in a reasonable and fair manner to the economic circumstances then prevailing on the imported Natural Gas market and on the market for the other imported energy supplies competing with this product in the East Coast and Gulf Coast areas of the United States of America within the framework of long term contracts. The parties shall take into account the individual characteristics of each of the above products including the quality, the continuity of deliveries, the production and transportation costs, etc. .

In addition, if after the first deliveries any and/or both of the F and F' indexes would no longer reflect the evolution of the market prices in the East Coast and Gulf Coast areas of the United States of America of fuel oils with similar characteristics, the parties agree to meet at any time to determine new more representative reference indexes.

The request for such a meeting shall be in writing, and shall be delivered 180 days in advance, and shall set forth the agenda for such meeting.

If the parties, in either case, cannot reach an agreement within 90 days from the date of their first meeting to this effect, either party shall be entitled to have recourse to arbitration as provided in Article 17 above.

No amendment agreed to by the parties or resulting from an arbitration award shall become effective before it is approved by the authorities having jurisdiction in the countries of the parties. As long as such authorization is not obtained, the provisions of Article 9 then applicable shall remain unchanged.

## **ARTICLE 21**

### **ASSIGNMENT**

Seller or Buyer may assign all or a part of the rights which it holds under this agreement to any person who, by accepting this assignment, shall become a party to this agreement, but no assignment shall ever release or relieve Seller or Buyer of any of its obligations or commitments agreed to under this agreement.

The party assigning its rights shall, before proceeding to the assignment, obtain the prior authorization of the other party, which shall not unreasonably refuse it, and shall deliver to it copies of the instrument establishing the assignment after having proceeded to it.

Any assignment shall contain a provision to the effect that the assignee agrees that all the clauses and conditions of this agreement will be binding upon and inure to the benefit of the parties, their successors and assigns, and shall include the express commitment of the assigning party, that is to remain guarantor towards the other party for the due performance of the contractual obligations of its assignee.

## ARTICLE 22

### NON PERFORMANCE AND TERMINATION OF THE AGREEMENT

Over and above what is provided for in Section 12.1.(b), should Seller or Buyer default in one of its obligations under this agreement, and should this default continue for sixty (60) days after the non-defaulting party has requested the defaulting party to remedy this default, the non-defaulting party shall have the right, in addition to all its other rights and recourses, to interrupt the deliveries or receipts of LNG until this default is remedied, or to terminate this Agreement.

## ARTICLE 23.

### MISCELLANEOUS

**SECTION 23.1. *Exchange of Information.*** The parties shall keep each other informed as to the progress being made in obtaining all the governmental authorizations provided for in Sections 18.1 and 18.2 above.

Additionally, in order to facilitate the construction and operation of the facilities, the Parties hereby agree to exchange information relating thereto as frequently as appropriate and in any event, not less than once in each quarter.

To the extent possible working sessions shall be held at the construction sites of the Parties relating to the operations which are the subject of this Contract.

**SECTION 23.2. *Language.*** This agreement is signed by the parties in two original copies in the French language and in two original copies in the English language.

In case of discrepancy between the French original and the English translation, and if the parties cannot reach an agreement as to such discrepancy in good faith and together, the text in the French language shall prevail.

Made in Boston, on April 13, 1976

**DISTRIGAS CORPORATION**

**SONATRACH**

By JOHN G. L. CABOT  
John G. L. Cabot  
Vice President

By SLIMANE BOUGUERRA  
Slimane Bouguerra  
Vice President-Marketing

**APPENDIX A****DEFINITIONS**

For the purpose of this agreement, to which this Appendix A is attached, the words and terms hereafter shall have the following meanings unless their use in the context obviously implies a different meaning:

**1. Natural Gas (NG)**

Any hydrocarbon or mixture of hydrocarbons consisting mainly of methane, in the gaseous state, and which is extracted from underground in the natural state, separately or in association with liquid hydrocarbons.

**2. Liquefied Natural Gas (LNG)**

Natural gas at its bubbling point or below and at or about the atmospheric pressure.

**3. Normal Cubic Meter (Nm<sup>3</sup>)**

Quantity of natural gas necessary to fill one (1) cubic meter of space at a temperature of 0°C and at a pressure of 1.01325 Bar.

**4. Gross Heating Value (PCS)**

Amount of heat generated by burning one cubic meter of water-free gas in the air, at a constant pressure, the air being at the same temperature and at the same pressure as the gas, after cooling the products of the combustion to the initial temperature of the gas and air, and after condensation of the water produced by the combustion.

The initial conditions of the air and gas will be equal to 0°C and 1.01325 Bar.

**5. Thermie (th)**

One calory (cal) being the amount of heat necessary to raise by 1°C the temperature of one (1) gram of an element the heat pertaining to the mass of which is equal to that of water at 15°C at normal atmospheric pressure (1.01325 Bar). one thermie is equal to one thousand kilocalories (Kcal).

one kilocalory (Kcal) being itself equal to one thousand (1,000) calories; 252 thermies being equal to one (1) million BTU (MMBTU).

All references to BTUs, calories, kilocalories, thermies shall be considered as references to BTUs, calories, kilocalories, thermies of gross heating value, at constant pressure.

#### 6. BTU

BTU means one (1) British Thermal Unit (BTU) and is defined as the amount of heat required to raise the temperature of one pound (avoir-dupois) of water from fifty-nine (59) to sixty (60) degrees Fahrenheit at the absolute constant pressure of fourteen and six hundred and ninety six thousandths (14.696) pounds per square inch.

#### 7. Standard Cubic Foot (SCF)

One standard cubic foot (SCF) is the quantity of natural gas filling one (1) cubic foot of space at a temperature of sixty (60) degrees Fahrenheit and at the absolute pressure of fourteen and six hundred and ninety six thousandths (14.696) pounds per square inch.

#### 8. Bar

One bar is equal to one hundred thousand (100,000) Pascal; one Pascal is the pressure exercised by a force of one (1) Newton per square meter; one (1) Newton is the force which, applied to a mass of one (1) kilogram, transmits to it an acceleration of one (1) meter per second/per second ( $1 \text{ m/sec}^2$ ).

#### 9. Contractual Annual Quantity

The contractual annual quantity means the quantity of LNG which Buyer is under an obligation to buy and to receive and which Seller is under an obligation to deliver to Buyer each contractual year.

#### 10. Pound

A pound is the weight unit defined by the avoirdupois system.

**11. LNG Tanker**

LNG tanker means a ship in which LNG purchased and sold is transported.

**12. Barrel**

Barrel means forty-two (42) United States gallons (five cubic feet six thousand one hundred and forty six ten thousandths) (5.6146 cft).

**13. Day**

The period of time of 24 consecutive hours beginning at 8:00 a.m. GMT of every calendar day and ending at 8:00 a.m. GMT of the following calendar day.

**14. Month**

The period of time beginning at 8:00 GMT the first day of a calendar month and ending at the same hour of the first day of the following calendar month.

## APPENDIX B

Conditions 0°C 760 mm/Hg

Components	PCS	
	Kcal/mol	Thermic/kg
CH <sub>4</sub>	213.31	13.2961
C <sub>2</sub> H <sub>6</sub>	374.52	12.4549
C <sub>3</sub> H <sub>8</sub>	534.08	12.1114
nC <sub>4</sub> H <sub>10</sub>	693.49	11.9313
iC <sub>4</sub> H <sub>10</sub>	691.52	11.8974
nC <sub>5</sub> H <sub>12</sub>	853.99	11.8362
iC <sub>5</sub> H <sub>12</sub>	852.11	11.8101



## APPENDIX C

### BUYER'S FACILITIES

This description will be applicable starting January 1, 1978.

#### 1. Mooring Facilities

(a) Depth. The berth is dredged to maintain a depth of at least 36.4 feet (11.1 m) at mean low tide.

(b) Dolphins. The attached Figure C-1 shows the location and load capacity of breasting and mooring dolphins.

(c) Platforms. Two platforms alongside are suitable to receive an accommodation ladder. These are shown in Figure C-1.

(d) Length. The extent of the berth in the easterly direction is the property line, which is 470 ft. (143 m) from the central (vapor) unloading arm. The extent of the berth in the westerly direction is approximately 1,000 ft. (305 m).

#### 2. Unloading Facilities

The unloading equipment consists of five marine unloading arms, four for liquid and one for vapor. Each connection is a 12-inch ASA 150-RF flat-faced flange. The plan and elevation of the arms are shown in Figure C-2.

The four liquid arms connect to a 24-inch unloading line that leads to two storage tanks, with nominal capacities of 59,000 m<sup>3</sup> and 95,000 m<sup>3</sup>.

The vapor arm is connected to a 12-inch vapor return line leading from the tanks. The line is equipped to return sufficient vapor to maintain the ship's connecting flange at 1080 millibar absolute pressure.

#### 3. Auxiliary Facilities

On the loading arm platform (elevation 53 ft. 9 in. in Figure C-2) is a connection for loading liquid nitrogen and a bonding cable for electrical grounding.

An "international flange" connection for supplying supplementary firewater is located on the dock approximately 40 m east of the cargo

manifold. A fresh water connection is located near the gate at the dock roadway at the head of the pier. The locations of the water connections are shown on Figure C-1.

#### **4. Communication**

The focal point for communication between the ship and the Buyer's facilities shall be the ship's cargo control room. Buyer shall station a representative in the control room who is duly authorized and fully competent to relay all requests, replies, and statements between the ship's cargo officer and Buyer's Supervisor-in-Charge. To facilitate efficient communication, Buyer shall provide its representative with at least two independent means of communication with shore.

WATER QUALITY (USE OF SEWAGE)  
 (1) SEWAGE TREATMENT (USE OF SEWAGE)  
 (2) SEWAGE (USE OF SEWAGE)

WATER QUALITY  
 (1) SEWAGE TREATMENT  
 (2) SEWAGE

WAGO NEW STEEL PRODUCTS CO.  
 PRELIMINARY NEW BRIDGE CO.

SEWAGE GAS AND  
 FUEL ASSOCIATED  
 LACED TO FUEL  
 FUEL SULFUR

WAGO NEW STEEL  
 PRODUCTS INC.

DISTRICTS CORPORA

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

WAGO OIL AND  
 COMPANY

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

150" LINE PULL  
 150' FROM HERE

HIGHEST TIDE  
 (150' TIDE TOWER)

USE 400 A.L.V.

USE 400 A.L.V.

HIGHEST TIDE  
 (150' TIDE TOWER)

WATER QUALITY  
 (1) SEWAGE TREATMENT  
 (2) SEWAGE

DESIGN CRITERIA  
 DISPLACEMENT: 50,000 TONS  
 APPROXIMATE VELOCITY: 15 KNOTS  
 APPROXIMATE TIDE: 15 KNOTS  
 APPROXIMATE TIDE: 15 KNOTS

DATUM REFERENCE DATA

PERINI CORPORATION  
 MARINE DIVISION

DISTRICTS OF MASSACHUSETTS  
 EVERETT MARINE TERMINAL

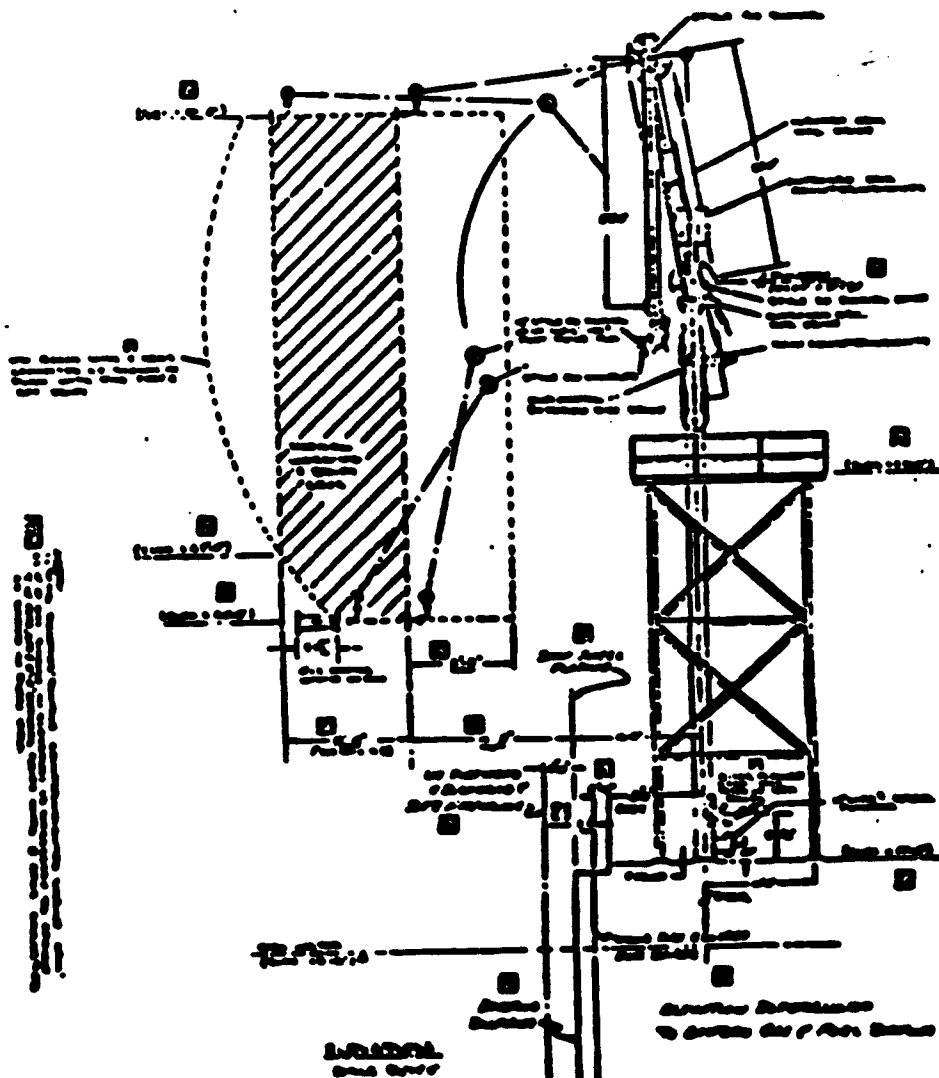
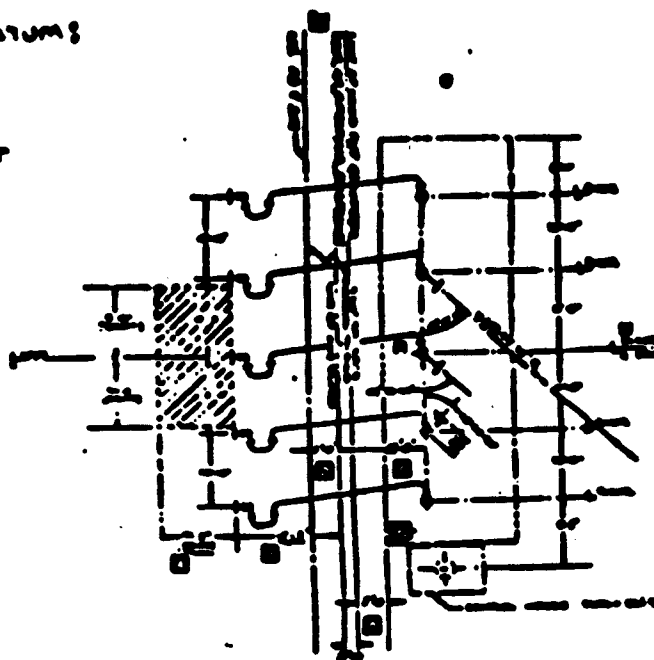
DOCKING FACILITIES

DATE	1971
DESIGN	1971
SCALE	1/4" = 1'-0"
BY	PERINI CORPORATION
FOR	MA. FIGURE C-1

LOW - LOW                      •     - 2.3 FT

**C-2**

(DESSIN C-2)

[illegible]

**APPENDIX D****SPECIFICATION OF LNG SHIP**

Presented below are the specifications to which any LNG Tanker must conform in order to comply with Section 4.4. In the absence of Buyer's prior approval, any delay in unloading caused by lack of conformance to these specifications will be construed under Section 11.3(b) as being due to "inability of the LNG Tanker's facilities to discharge cargo within the time allowed."

1. The maximum cargo capacity shall not exceed 125,000 m<sup>3</sup> by more than three percent.
2. The ship shall be capable of discharging from the port side, as required by the U.S. Coast Guard.
3. The dimensions of the ship shall be compatible with Buyer's facilities as described in Appendix C. Specifically, the forwardmost projection of the bow shall not exceed the berth limit given in Section 1(d) of Appendix C.
4. The ship shall be equipped with a safe and convenient accommodation ladder (stairway type) mounted to provide access from one of the dock platforms described in Section 1(c) of Appendix C.
5. The ship's port side cargo manifold shall consist of two or four liquid connections and no more than two vapor connections. Upon arrival at the berth, the connections provided shall be 12-inch ASA 150-RF, flat-faced flanges; the flanges will be in a clean, un-blinded condition ready to be connected to the marine arms. The forward to aft arrangement of the flanges shall be one of the following (L-liquid; V-vapor):

(a) L.L.V.V.L.L

(b) L.L.V.L.L

For arrangements (a) or (b), the separation distance between the centers of the outermost two liquid flanges shall be no less than 10.3 m (33.8 ft.) and no greater than 15.2 m (49.9 ft.)

The flange faces shall reside in a common plane which is perpendicular to the water surface and parallel to the ship's longitudinal

axis. The flange centers shall reside in a line which is parallel to the water surface. In a transverse section of the ship through the manifold area, the above line is represented by a point; this point shall be located within the reach envelope shown in Figure D-1 under all conditions of draft. In addition, no railing platform, or other part of the ship's structure shall occupy any volume of space through which the arms must pass to reach the flanges.

6. In addition to its full pumping capability, the ship shall be able to discharge LNG in two smaller ranges of flowrate.

(a) 30 to 50 m<sup>3</sup>/H (for cooldown of the loading arms).

(b) 170 to 230 m<sup>3</sup>/H (for cooldown of the unloading line to the tanks).

7. The ship shall provide efficient means to drain and purge the loading arms and manifold piping. For this purpose, dry gaseous nitrogen shall be made available and connected at the time that pumping is finished. This nitrogen shall be available at a nominal rate of 100 Kg/H at a gauge pressure of 3 Bar.

8. The ship shall have means for independent control of its cargo tank pressures at all times. Specifically, with the exception of an emergency, the ship shall have no need to send vapor ashore during any portion of its visit.

9. The focal point for communication between the ship and the Buyer's facilities shall be the ship's cargo control room. From the start of unloading until the completion of all drain and purge operations, the ship shall station an officer who speaks in English to be continuously present in the control room. This officer shall be fully competent and duly authorized to conduct all phases of the unloading operation; he shall not leave the control room for any purpose whatsoever unless relieved by an officer who is equivalent in authority, competence, and fluency in English. For the purposes of this requirement, the start of unloading is the completion of connecting the arms or the completion of gauging the cargo tanks, whichever occurs later; any delay after this point caused by absence of the aforementioned officer from the cargo control room shall not count as authorized laytime.



**BRIGHT ABOVE WATERLINE**

NR 15.2 -

no 13.1 m

1.49 m	1.89 m	was 1.85 m
--------	--------	------------

W. 4.93 W.

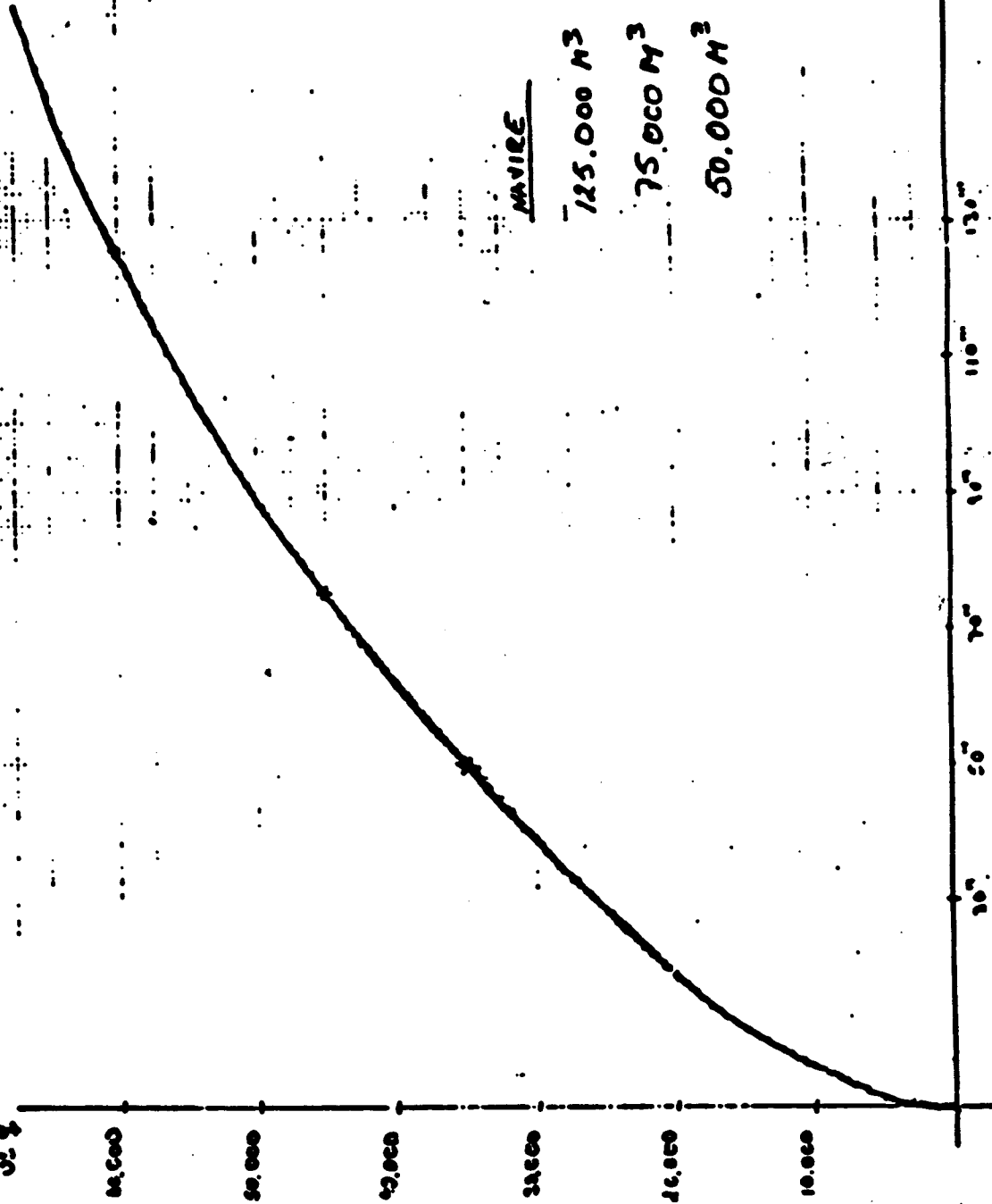
PROTECTION OF SHIP'S LINE

FIGURE 3-1  
KETCH FILM  
ALL  
1964

# Distrigas of Massachusetts Corporation

Anne. E

INVESTICIE  
vz. \$



NAVIRE

INVESTICIE

- 125.000 M³ — US \$ 60.000
- 75.000 M³ — US \$ 45.000
- 50.000 M³ — US \$ 35.000

CAPACITE  
M³