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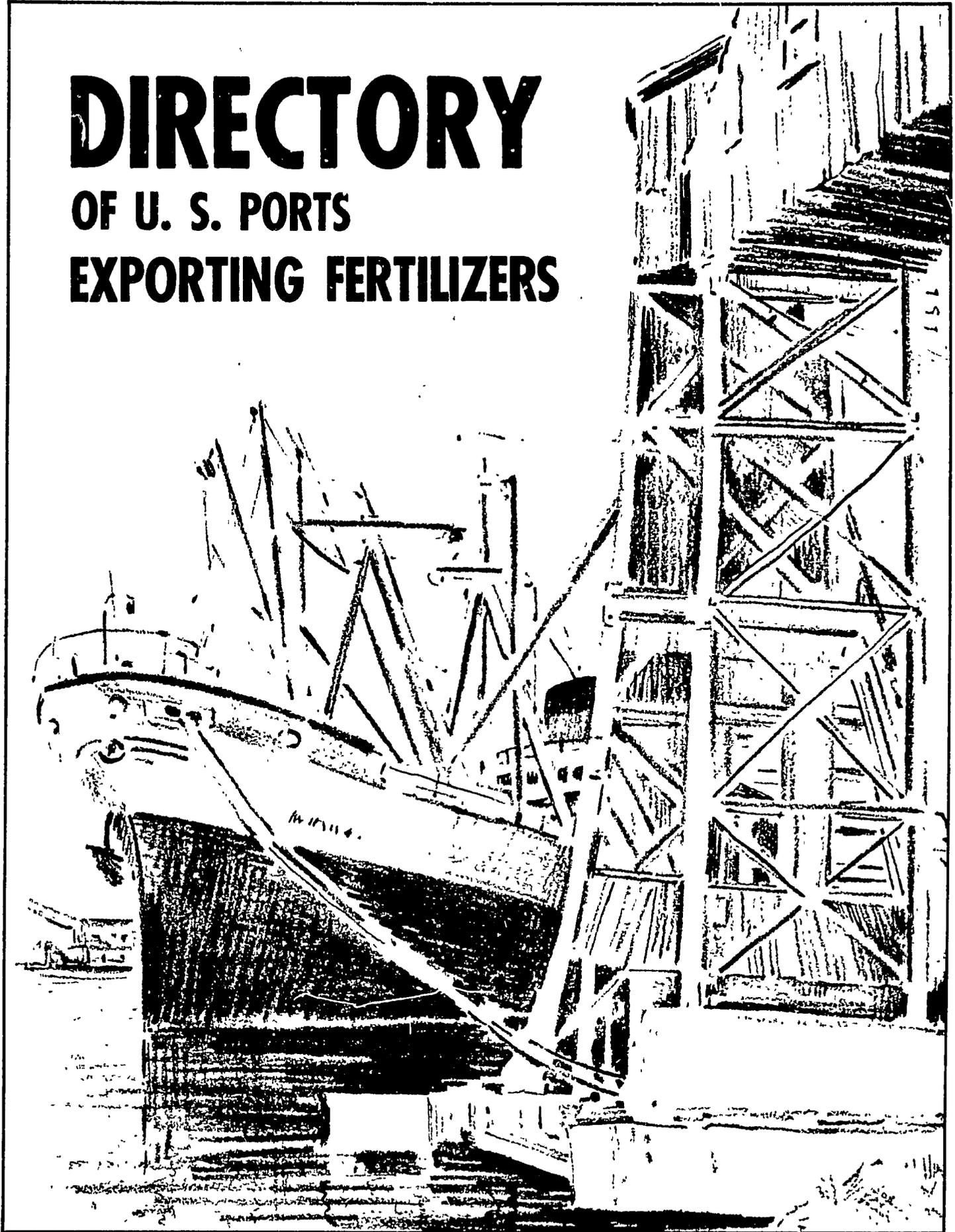
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DIRECTORY

OF U. S. PORTS

EXPORTING FERTILIZERS



NATIONAL FERTILIZER DEVELOPMENT CENTER

TENNESSEE VALLEY AUTHORITY • MUSCLE SHOALS, ALABAMA

Prepared for the

AGENCY FOR INTERNATIONAL DEVELOPMENT

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FOREWORD

This report is a product of a larger study on port facilities conducted for the Agency for International Development. Numerous firms contacted in the study indicated that a directory of ports capable of exporting fertilizers would be helpful in their operations. It is hoped that this report will meet this need and be useful to U. S. fertilizer firms and other parties interested in exporting fertilizers.

Data for this report were updated to 1970. Each firm or port included was recontacted by mail to obtain its most recent data and to verify or change, as needed, information obtained by personal interviews during 1969. Such a report, of course, would not be possible without the assistance of many industry and trade people. The authors gratefully acknowledge these contributions.

Figure 1. Location of Port Facilities Included in Study¹

¹THE NUMBER IN PARENTHESES INDICATES THE NUMBER OF FACILITIES AVAILABLE FOR EXPORTING AT EACH LOCATION.

DIRECTORY OF U. S. PORTS EXPORTING FERTILIZERS

INTRODUCTION

Exports of U. S. fertilizer materials have experienced substantial growth in recent years. This is due largely to the technical assistance programs of the U. S. Agency for International Development, which are designed to help developing countries increase food production to keep pace with expanding populations. During 1959-63, the U. S. exported approximately 2 million tons of fertilizer annually. Exports rose to 3.2 million tons in 1964 and reached a peak of 6.7 million tons in 1968. The value of exports in 1968 exceeded \$290 million compared to less than \$80 million in 1959. Fertilizer exports in 1969 declined to 5.8 million tons of material valued at \$244 million.

AID-financed fertilizer purchases continue to be an important factor in U. S. fertilizer exports. In 1967, AID-financed purchases accounted for 2.91 million tons of material—53% of the fertilizer exported. In 1968, the quantity of fertilizer exported that was financed through AID totaled 2.92 million tons but accounted for a smaller percentage—43% of total U. S. fertilizer exports. In 1969, AID-financed exports were 1.74 million tons—30% of total fertilizer exports.

Because of the rapid growth in fertilizer exports, facilities for shipping, loading, handling, storing, and bagging are frequently overtaxed. This problem is often compounded since large quantities must be moved in a relatively short time to meet tender requirements and seasonal needs in the importing country. Scheduling of production, storage, handling, and transportation to meet these requirements creates numerous problems for the U. S. fertilizer industry because of its heavy domestic market orientation.

Activities of many different firms and agencies must be coordinated. Foreign and domestic government agencies, domestic fertilizer manufacturers, foreign and domestic ship owners, ship brokers, stevedoring firms, fertilizer traders, banks, railroads, trucking firms, and ports are all involved in this complex marketing situation. Because of the dramatic changes taking place throughout the U. S. fertilizer export trade, there is a need for continuous coordination among the U. S. fertilizer industry, including fertilizer export terminals, the importing nations, and AID.

Objectives

The purpose of this study is to compile a directory of U. S. ports and to evaluate the capabilities of U. S. port facilities, both public and private, for exporting bulk and bagged fertilizers, including capabilities for bagging fertilizers at ports.¹

Source of Data

Data for this study were obtained by personal interview with port authorities, stevedoring firms, and private fertilizer companies. A final contact was made by mail to verify and update information. Both public and private port facilities which have the capability to handle bulk and/or bagged fertilizer are included.²

The study covers the following subject areas: dock (or port) facilities, bulk fertilizer handling facilities and loading capacities, bagged fertilizer handling facilities and loading capacities, bagging equipment and rate of bagging, storage facilities for bulk and bagged fertilizers, and plans for expansion. A detailed description of each of the 61 ports visited is presented in the directory portion of the report.

LOCATION AND HANDLING CAPACITIES OF FERTILIZER EXPORT FACILITIES

There are 61 ports in the U. S. equipped to export fertilizers. Of these, 13 are located on the East Coast, 33 on the Gulf, and 15 on the West Coast (figure 1). Most of the U. S. docks that handle fertilizers are located on inlets or rivers protected from the open sea and strong winds. Locations range from over 100 miles inland on large rivers, such as Baton Rouge, Louisiana, to ports such as Los Angeles and Long Beach, California, which are protected by a sea wall at the harbor entrance.

Depth of Channel at Dock

Depth of channel at dockside can restrict the amount of fertilizer loaded per vessel and size of vessel that can be docked. According to fertilizer exporters, depth of channel at most docks does not restrict the quantity of fertilizer normally loaded on vessels. As the use of larger bulk carriers becomes more prevalent, channel depth at dockside may become a more restrictive factor.

Depth of water at dockside averages slightly over 33 feet (ft) mean low tide on the East Coast but ranges from 25 ft at Hopewell, Virginia, to 40 ft at Baltimore, Maryland. Hopewell is the only dock on the East Coast where depth of water restricts the quantity of fertilizer loaded.

¹This report covers only those facilities handling granular fertilizers; it does not include facilities handling liquid or gaseous fertilizers. An attempt was made to contact all firms within the conterminous United States which had facilities for exporting fertilizers. Throughout, the term "tons" refers to short tons (2,000 pounds) unless otherwise specified.

²A number of firms had facilities for receiving inbound materials but could not use the facilities for exporting fertilizers; thus they were excluded from this report.

On the Gulf, depth of water at dockside averages about 35 ft mean low tide and ranges from 28 ft at one facility in Tampa, Florida, to 50 ft at Taft, Louisiana. In the Tampa area, depth of water restricts quantity of material loaded, particularly on the larger bulk carriers and on the older, narrow beam vessels.

On the West Coast, depth of channel at dock averages 36 ft and varies from a low of 30 ft at mean low tide at Sacramento, California, to 45 ft at Seattle, Washington.

The maximum amount of fertilizer that can be loaded at any one port depends not only upon depth of the channel but also upon the size of ship (length and draft) that the dock can accommodate. Most U. S. ports can accommodate much larger vessels than are typically used for exporting fertilizers. The limiting factor is more likely to be size of vessel that foreign ports can accommodate. The quantity of fertilizer loaded averages about 12,000 tons/vessel, although exporters report that the maximum quantity loaded exceeds 27,000 tons/vessel.

Fertilizer Export Capacity

The maximum annual quantity of fertilizer material that can be loaded at each port is, in many cases, substantially greater than quantities actually loaded. East Coast ports report the maximum fertilizer export capacity is about 430,000 tons/port. However, the average quantity loaded out in 1968 was 206,000 tons/port, and if the two ports handling large shipments of rock phosphate are excluded, the average quantity loaded drops to 77,000 tons/location. For capacities of each port, see the Port Directory Section.

On the Gulf Coast, the maximum annual quantity of material that can be loaded averages about 1,400,000 tons/port. Shipments in 1968 averaged 779,000 tons/firm. Firms in the Tampa area report a maximum capacity of nearly 3,500,000 tons each but actually shipped 1,833,000 tons/firm in 1968. Excluding ports that specialize in rock phosphate, the average quantity loaded on the Gulf Coast was 189,000 tons/firm in 1968.

Maximum annual capacity of West Coast ports is approximately 690,000 tons/port and the quantity shipped in 1968 averaged 148,000 tons/port.

The total annual U. S. export capacity for fertilizers and rock phosphate is in excess of 50 million tons. For the facilities reporting, the average annual capacity is 940,000 tons in 1970 compared with 785,000 tons in 1968. The average quantity of fertilizer and rock phosphate exported in 1968 was 478,000 tons/port. Based on these averages, only about one-half of the estimated U. S. fertilizer export capacity was utilized. However, many ports use their facilities for other cargo and no attempt was made to evaluate total port capacity or extent of total utilization for other commodities. Equipment used for handling fertilizers at ports is often the same as that used for handling other commodities.

CHARACTERISTICS OF DOCK FACILITIES³

Each port has unique characteristics that make it different from other ports. However, many characteristics can be categorized. Some of these are summarized in this section.

Ownership

More than three-fifths of the docks that handle fertilizers are publicly owned and handle it on a fee basis for any firm desiring to export fertilizers. The rest of the ports are privately owned. About one-half of the privately owned docks operate similarly to the publicly owned docks in that they handle fertilizer for any exporter on a fee basis. The remaining privately owned docks are for private use and most are owned by fertilizer companies (table 1).

Fertilizer Handled

Nearly one-half of the docks handle both bulk and bagged fertilizer material. The remainder is split evenly between those specializing in either bulk or bagged material. All of the docks that handle bulk material exclusively are located on the Gulf and East Coasts. The predominance of bulk handling facilities in these regions is largely the result of rock phosphate shipments from Florida and North Carolina. More than one-half of the docks specializing in bagged fertilizer exports are located on the Gulf, while the docks handling both bulk and bagged material are distributed throughout the three regions (table 2).

Table 1. Dock Ownership and Type Business by Region

Type of Firm	East Coast	Gulf Coast	West Coast	Total
	No. of Firms			
Privately owned-				
for private use	4	7	0	11
for public use	2	9	1	12
Publicly owned-				
for public use	7	17	14	38
Total	13	33	15	61

Table 2. Type of Fertilizer Material Handled by Region

Type of Fertilizer	East Coast	Gulf Coast	West Coast	Total
	No. of Firms			
Bulk only	4	13	0	17
Bagged only	3	9	4	16
Bulk and bagged	6	11	11	28
Total	13	33	15	61

³The terms *docks*, *ports*, and *firms* are used interchangeably; theoretically a port refers to a public port facility, whereas firm refers to a private facility.

Bulk Fertilizer Facilities

Wide differences exist among U. S. ports in their capacity to handle and load bulk fertilizers. Differences result from many factors such as: (1) type of loading equipment (i.e., bulk loader versus clamshell); (2) newness and degree of automation; (3) how fertilizer is transported to the dock; (4) speed at which material can be discharged from rail cars, barges, or trucks to the bulk loader; (5) whether the bulk loader is movable or stationary; (6) availability of bulk storage; and (7) method of trimming vessels.

In general, systems using a traveling bulk loader or gantry with a mechanical trimmer at the end of the spout and with automatic dumping or unloading facilities are the most efficient. Those using a stationary bulk loader or a stationary crane and clamshell, and which receive fertilizers in rail boxcars or trucks, are least efficient.

Receipts at Port--The most common mode of transporting bulk fertilizers from point of manufacture to the port (or dock) is rail; however, most docks can receive fertilizers by both truck and rail. Barged material is received at nine ports and nine fertilizer plants are located at the dock, enabling them to load export materials directly from plant storage to vessel by conveyor belt.

Systems and Rates of Loading--Most ports load ships either from storage or directly from rail, truck, or barge. Since all East Coast bulk handling facilities have storage facilities, both direct loading from rail or truck and loading from storage are used. Although 11 of the 24 ports on the Gulf handling bulk material have substantial storage space (30,000 tons or more), direct movement of material from rail, truck, or barge to vessel is much more common than loading from storage. This may be biased by the Tampa area where a large volume of the export capacity is operated by railroads and where unusually good working relationships exist between the railroads and the export firms. Similarly, direct loading from rail or truck is the most common practice on the West Coast. Loading from storage was reported by only five West Coast docks.

The most common means of transferring bulk material from dock to vessel involves the use of hopper pits, conveyor belts, and shiploader. Variation exists between ports in the facilities employed and, consequently, loading rates.

Loading rates range from less than 100 tons/hour (hr) to 3,000 tons/hr. Ports loading more than 2,000 tons/hr use dumping pits, automatic rail car dumpers, car positioners, conveyor belts, and traveling boat loaders. Those using less sophisticated systems load less per hour, depending upon the type of equipment used, arrangement of facilities, and other factors that affect efficiency. For distribution of docks according to rate of loading, see table 3.

Table 3. Distribution of Docks According to Rate of Loading Bulk Fertilizer

<u>Tons/Hour</u>	<u>East Coast</u>	<u>Gulf Coast</u>	<u>West Coast</u>
Under 250	6	11	5
250-499	1	1	3
500-999	0	9	2
1,000 and over	<u>2</u>	<u>2</u>	<u>1</u>
Total	9	23	11

Rates of bulk loading on the East Coast vary between 100 and 3,000 tons/hr and average 490 tons. Rates on the Gulf Coast range between 45 and 2,500 tons/hr, averaging 560 tons. The average rate per hour on the West Coast is 356 tons and varies between 150 and 1,000 tons/hr.

The average bulk loading rate for all firms is 500 tons/hr. Receipts by rail were loaded at a faster rate than receipts by truck or barge. The average loading rate from rail to ship was 650 tons/hr, while average loading rates from truck and barge to ship were 350 tons/hr.

Because of the large capital investment required in bulk loading equipment, most ports are equipped with only one bulk loader and load one hatch at a time.

In addition to differences in type and capacity of bulk loading equipment, rate of loading bulk material varies by type of carrier. Bulk carriers are easier to load and require only about half as much time to load as do general cargo vessels with "tween" decks. Since the bulk carrier is designed for carrying bulk materials, it has no decks to dismantle before loading is begun. On a general cargo vessel with "tween" decks, the supporting beams and flooring between the decks must be removed before the vessel can be loaded; then they must be replaced as each deck is completed. Many vessels carrying bulk fertilizers to developing countries are of the general cargo type rather than modern bulk carriers.

Method of Determining Weight--A number of methods are used for determining the quantity of fertilizer loaded on the vessel and many ports use more than one method. Seventeen firms use electronic belt scales for determining the quantity of bulk material loaded. Certified truck and rail weights and bills of lading are used by 14 and 13 docks, respectively. Other methods of determining weight include batch weights, beam scales, and draft surveys.

Bagged Fertilizer Facilities

Bagged material for export may either be bagged at the port or bagged elsewhere and shipped to the port. Some ports that export only bagged fertilizers receive bulk material to be bagged at the port, some have no bagging facilities and receive only prebagged material, and some bag at the port as well as handle prebagged material. Bagging facilities at ports are covered in the next section.

Receipts at Docks—Where fertilizer is bagged at the dock, bulk fertilizer is normally received and stored. The fertilizer is then moved from storage to bagger(s) where it is bagged and palletized and then placed in storage or loaded onto the vessel. Most ports bag as much material as storage will permit before arrival of vessel so that ship loading is continuous. Frequently, due to a shortage of storage space for bagged fertilizer, bagging continues as the vessel is being loaded, the last material being delivered direct from bagger to vessel.

Systems and Rates of Loading—Loading rates of bagged material vary among ports, but the amount of variation is small compared with that found in loading bulk fertilizers since bagged fertilizer loading procedures are very similar. Loading rate of bagged fertilizer per hour per hatch varies by the quality of labor, size of gang (number of longshoremen loading each hatch), and physical arrangement of dock and storage. The overall loading rate also depends on the number of hatches being worked, the number of gangs employed, and labor contract terms.

Loading rates for bagged fertilizer range from 15 to 75 tons/hr/hatch. On the East Coast, ports load an average of 36 tons/hr/hatch; on the Gulf Coast, 39 tons; and on the West Coast, 24 tons.

The two ports that can load 70 or more tons/hr/hatch use specially designed equipment. The one on the Gulf Coast uses a conveyor belt system with a reverse banana loader. Bags move direct from the bagger to the hold of the ship. The other port is located on the West Coast and uses ship's gear to lift a platform designed to accommodate up to four pallets/lift. For a distribution of ports according to rates of loading bagged fertilizers, see table 4.

The number of hatches loaded simultaneously with bagged fertilizer depends upon availability of labor, length of dock, number of hatches on the ship, and availability of operable machinery, i.e., ship's gear, cranes, etc. Most vessels carrying fertilizer are equipped with five hatches. Where length of dock is limited, the number of hatches that can be loaded simultaneously is restricted and, in some cases, the ship must be repositioned before loading of all hatches can be completed. Most ports can load four or five hatches at a time. A number of ports can load six or seven hatches simultaneously, depending on the type of vessel and length of dock. Occasionally, if gangs are available, two gangs might work the same hatch to speed up rate of loading.⁴

Method of Determining Weight—Weight verification on prebagged material is usually determined by rail bills of lading or truck weights in addition to a bag or pallet count as the material is placed on board ship. For material bagged

⁴A gang consists of longshoremen assigned to loading a hatch. Number of longshoremen per gang varies from 13 to 24 men for loading bagged fertilizer.

at the dock, weight is usually determined by automatic scales which are a part of the bagging machine plus a check weight which is obtained by periodic weighing of bags on a platform scale. Bags and/or pallets are normally counted as the material is loaded.

Bag Damage—The amount of damage to bags in loading once the material has been palletized is minimal regardless of port from which the material is exported. Bag damage ranges from less than 0.1% to 1.0% of the total loaded per vessel.

With prebagged fertilizer, extra bags are normally supplied by the shipper so that torn bags can be replaced. The material is either rebagged if a bagger is available at the port or an outer bag is placed over the torn bag. Where the fertilizer plant is near the port, damaged bags are normally returned to the plant for rebagging. Where the plant is distant from the port, extra empty bags or extra bagged material are usually sent by the manufacturer to cover bags damaged in transit or in loading.

Bagging Facilities at Ports

About three-fourths of the ports that handle bagged fertilizer have facilities for bagging at the port. The average number of bagging machines is 2.3/port, and the number ranges from 1 to 6 machines/port (table 5).

Capacity per machine ranges between 6.5 and 50 tons/hr. The average is 28 tons/hr. Bagging rates are directly related to age and capacity of machine, size of work crew, and physical arrangement of facilities.

There appears to be no consistent pattern between type of bag and method of closure used by type of fertilizer. Many firms simply use the type of bag and closure specified in AID or tender contracts. The most common bags are jute with a polyethylene liner and polypropylene with a polyethylene liner. Most firms seal the outer bags by sewing and the inner bag with a bar loop, tipper tie, or heat seal. Most firms indicate that heat seal, tipper tie, and bar loop closures either reduce bagging rate or require additional manpower.

Table 4. Distribution of Ports by Rate of Loading Bagged Fertilizers

Rate/Hr/Hatch	East Coast	Gulf Coast	West Coast
Less than 20	0	0	2
20-29	2	1	10
30-39	4	8	2
40-49	1	9	0
50 and over	1	1	1

Table 5. Number of Bagging Machines by Region

	East Coast	Gulf Coast	West Coast	Total
Number of machines	22	45	11	78
Range	2-6	1-5	1-2	1-6
Number of firms with bagging machines	6	20	8	34

Table 6. Storage Capacity by Region^a

	East Coast	Gulf Coast	West Coast	Total
	Tons			
Bulk - total	560,500	869,700	158,000	1,588,200
- average	56,050	45,775	15,800	40,725
- range	10,000-106,000	200-170,000	5,000-40,000	—
Bagged - total	88,700	421,700	2,378,900	2,889,300
- average	9,855	21,085	182,990	68,795
- range	200-20,000	1,000-150,000	10,000-1,005,000	—

^aTotal storage capacity includes space at dock as well as adjacent areas.

Fertilizer Storage Facilities

The amount of bulk fertilizer that can be stored at any one port ranges from 200 to 170,000 tons and averages approximately 41,000 tons. Firms handling bagged fertilizer have storage capacities ranging from 200 to over 1,000,000 tons, averaging slightly less than 69,000 tons. A number of firms have additional storage facilities away from dockside that could be used for bagged fertilizer storage. However, this space is frequently used for other cargo. Thus, the space available for bagged fertilizer cannot always be specified. Dockside storage space for bagged fertilizer at most ports is transit storage and can be used for many types of cargoes. Hence, the amount of storage available at any one port at any one time depends upon requirements for cargoes other than fertilizer since ports desire as fast a turnover of cargo in storage as possible.

A summary of the amount of covered storage for bulk and bagged fertilizers available at ports by regions is presented in table 6.

Future Plans

More than one-half of the docks have no future plans for alteration, addition, or modernization of existing fertilizer loading or handling facilities. One-fifth of the firms plan to build or increase storage space for bulk and/or bagged fertilizers. Eight docks plan to install bagging facilities or add bagging machines to existing facilities. Bulk loading facilities are planned at four locations, while four additional firms plan to improve existing bulk equipment. One firm intends to construct additional facilities for unloading barge and rail bulk shipments and another plans to add a second bulk loader. New piers will be added at three locations and one firm is in the process of rebuilding its entire facility due to hurricane damage. Three facilities in the Tampa area will be phased out.

Two new bulk loading terminals are under construction. The facility at Tampa, Florida, was scheduled to be completed in mid-1970 and the terminal at Savannah, Georgia, is scheduled for completion by mid-1971.

SUMMARY

The purpose of this study was to compile a directory of U. S. fertilizer ports and to evaluate their capabilities for exporting bulk and bagged fertilizers. A total of 61 ports was enumerated to obtain these data. Of these, 13 are located on the East Coast, 33 on the Gulf, and 15 on the West Coast.

Approximately 60% of the U. S. fertilizer docks are publicly owned and handle export fertilizer on a fee basis. The remaining docks are privately owned and are evenly divided between those handling exports on a fee basis and those operating for private use.

Nearly one-half of the docks handle both bulk and bagged fertilizer material. The remainder specialize in handling either bulk or bagged exclusively.

Bulk loading rates vary from 45 to 3,000 tons/hr and average 500 tons/hr for all docks. The highest loading rates are found on the Gulf Coast and the most rapid loading rate is achieved on material received by rail.

Bagged loading rates range from 15 to 75 tons/hr/hatch and average 32 tons/hr/hatch for all U. S. fertilizer ports. As in the case of bulk loading, the highest bagged loading rates are found at Gulf Coast firms.

In summary, the quantity of fertilizer materials exported in 1968 was small relative to the estimated export capacity of the 61 ports enumerated. The ports are highly competitive and most would be willing to expand facilities if volume of business warranted.

**EXAMPLES OF PORT
HANDLING FACILITIES**

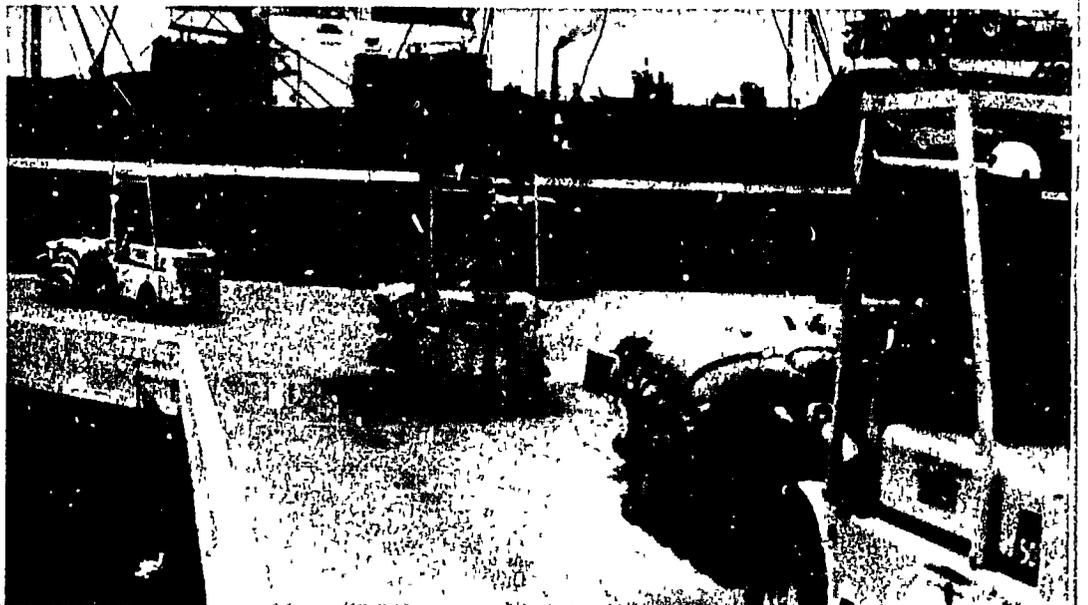


Sealing inner
polyethylene liner
of a fertilizer
bag with tipper tie.

Bagged fertilizer for export
awaiting arrival of vessel. Note
how bags are stacked on pallets.



Forklift trucks used in
transferring palletized
bagged fertilizer from
storage to ship.



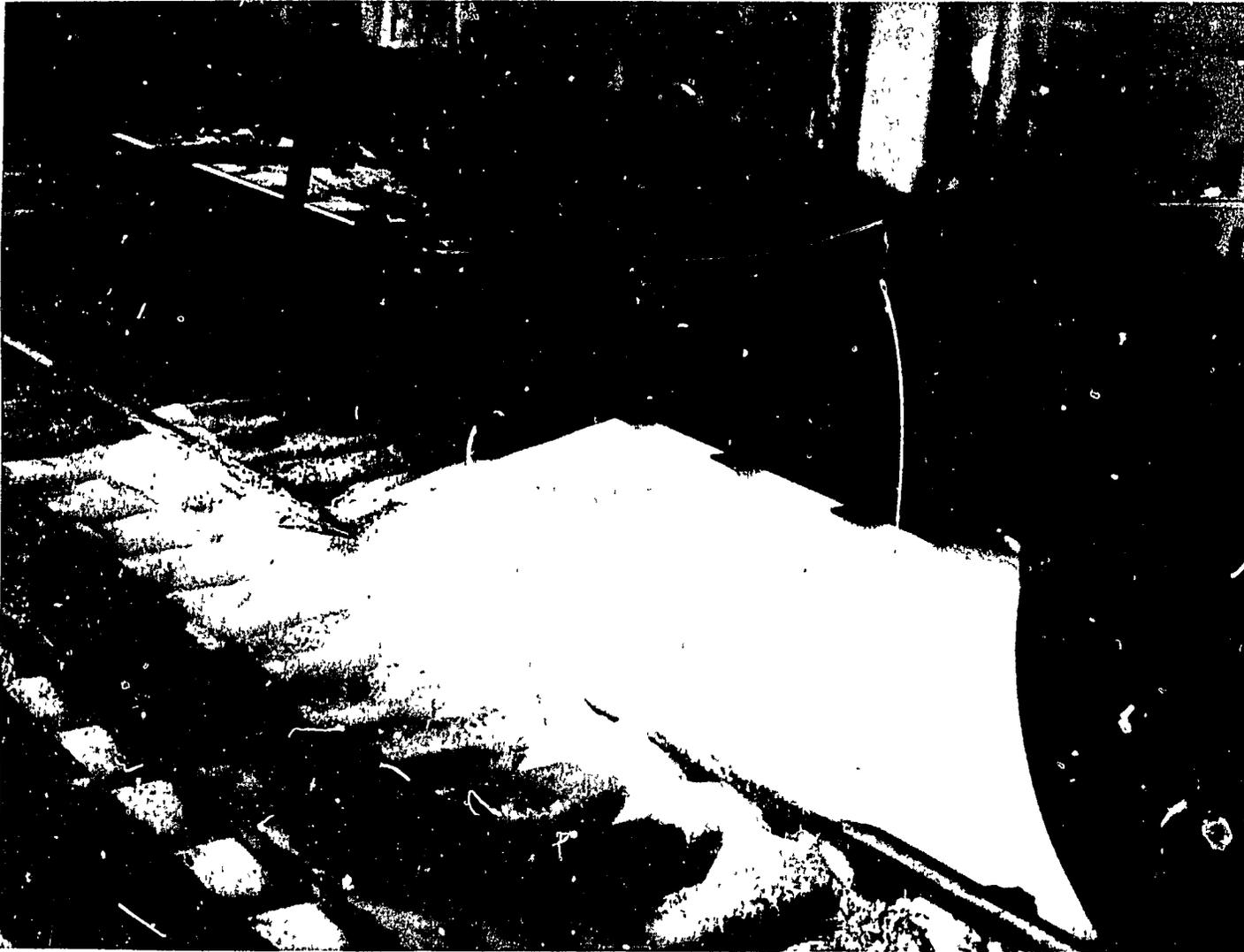


Ship's gear being used to transfer bagged fertilizer from dock to hold of ship.

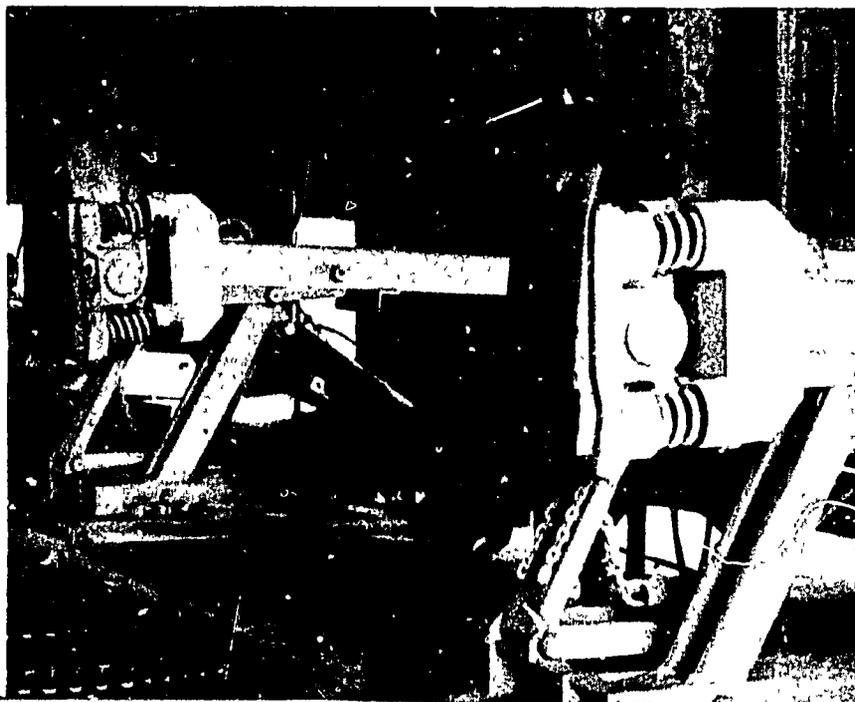


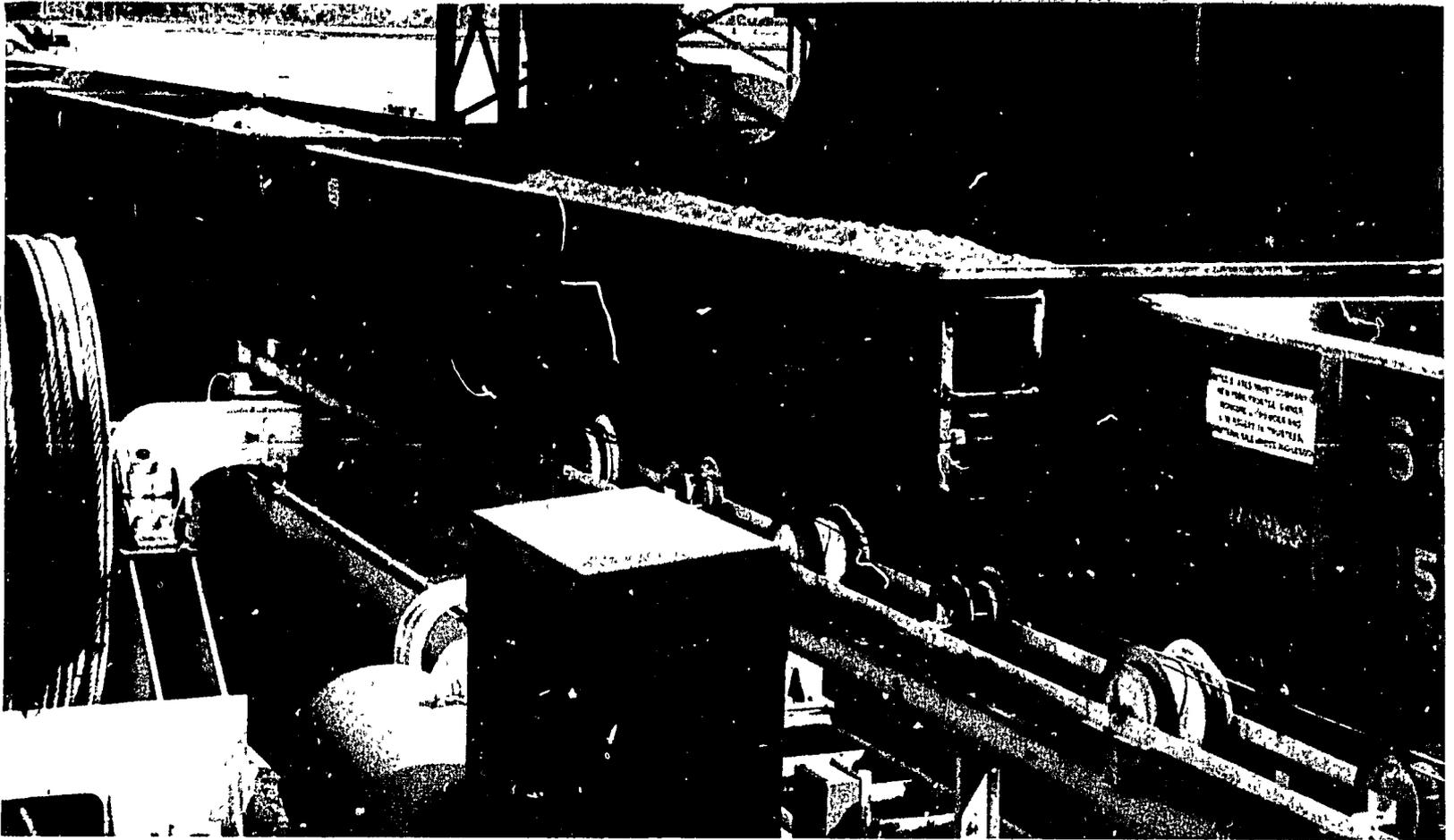
Use of ship's gear to place bagged fertilizer into hold of ship. Note paper and wooden slats used to line vessel to prevent damage to the bags.

Transferring bulk urea from
hopper car to pit to conveyor belt.



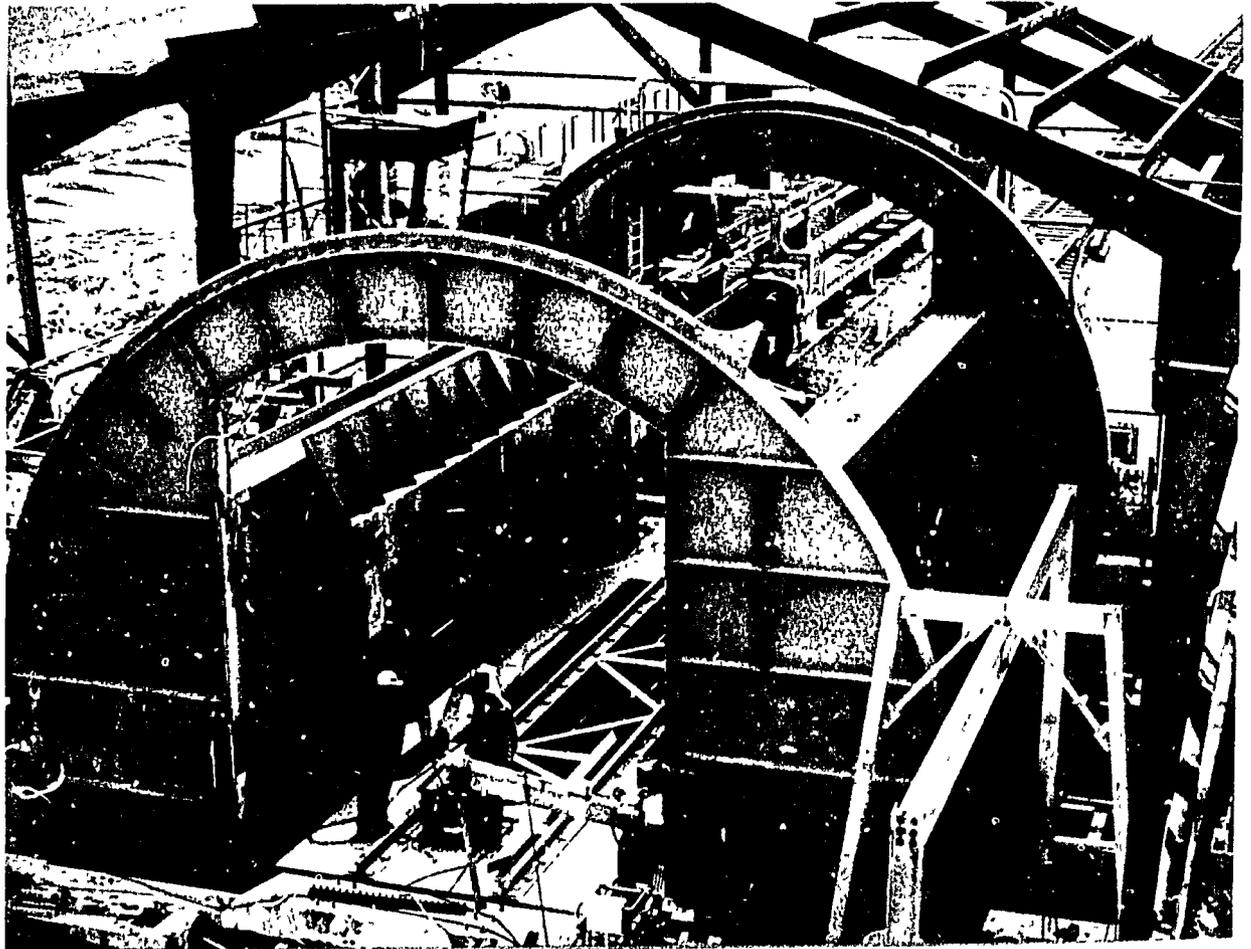
Rail car shakers used in
loosening bulk fertilizer
materials in hopper cars.
Hopper pits are below rails.

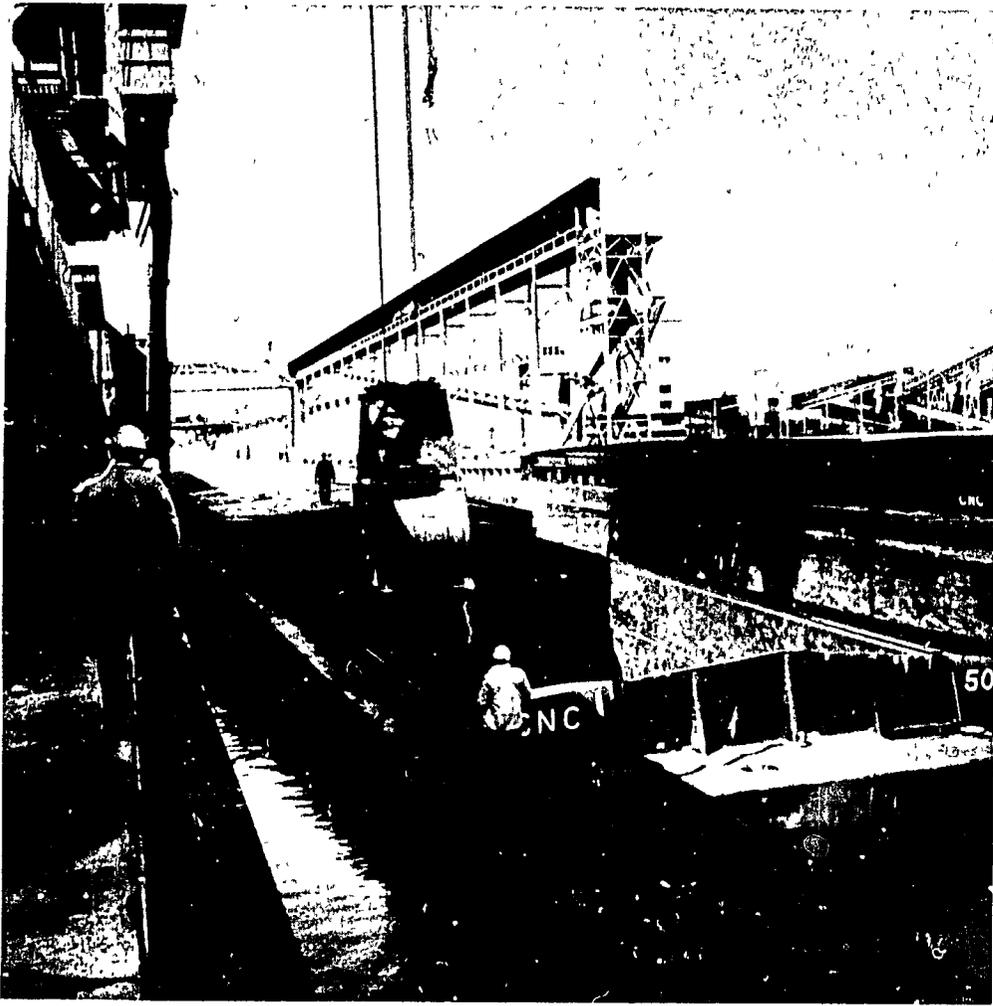




Automatic rail car positioner positioning cars prior to entering rotary car dumper.

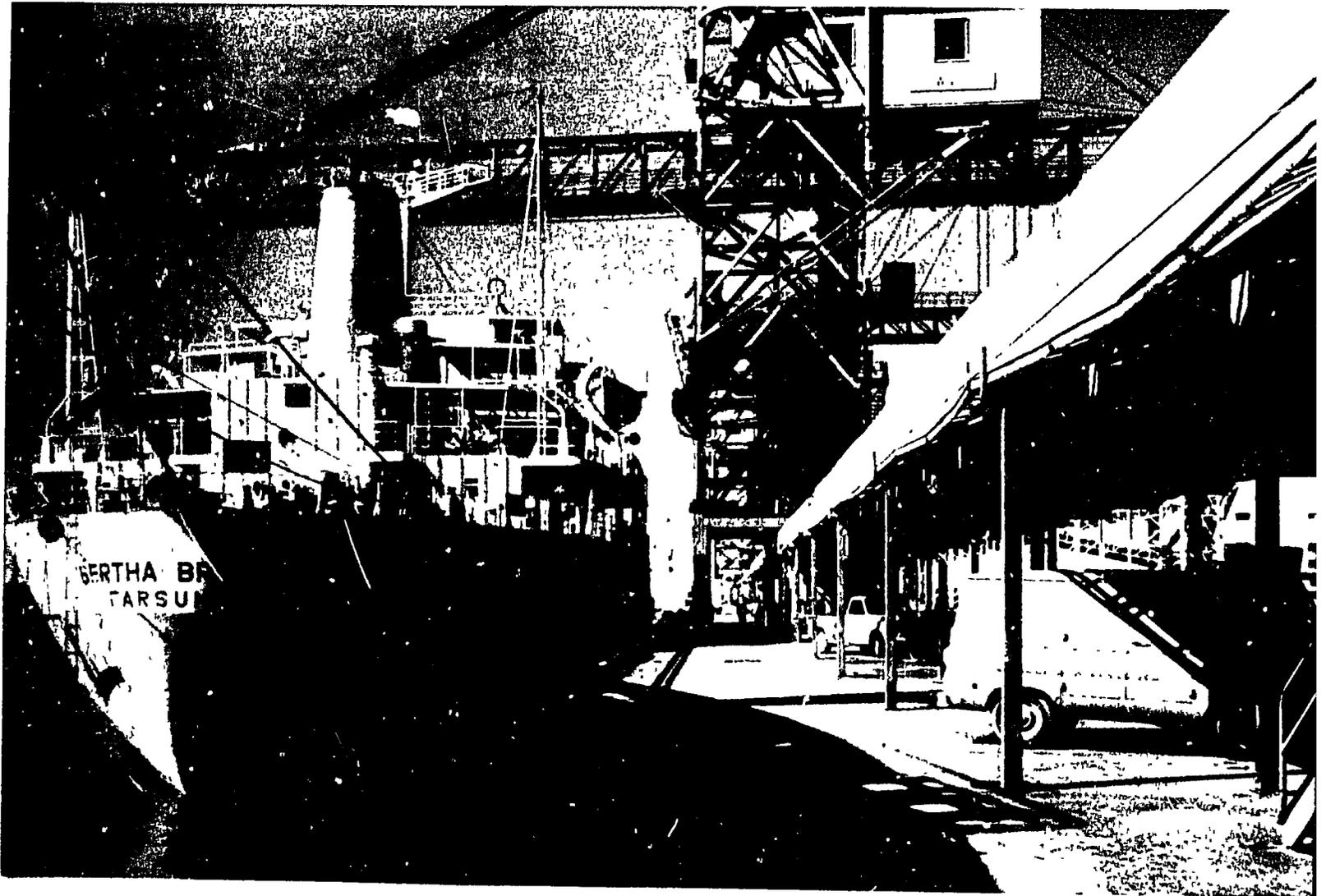
Rotary rail car dumper under construction at a Gulf port.



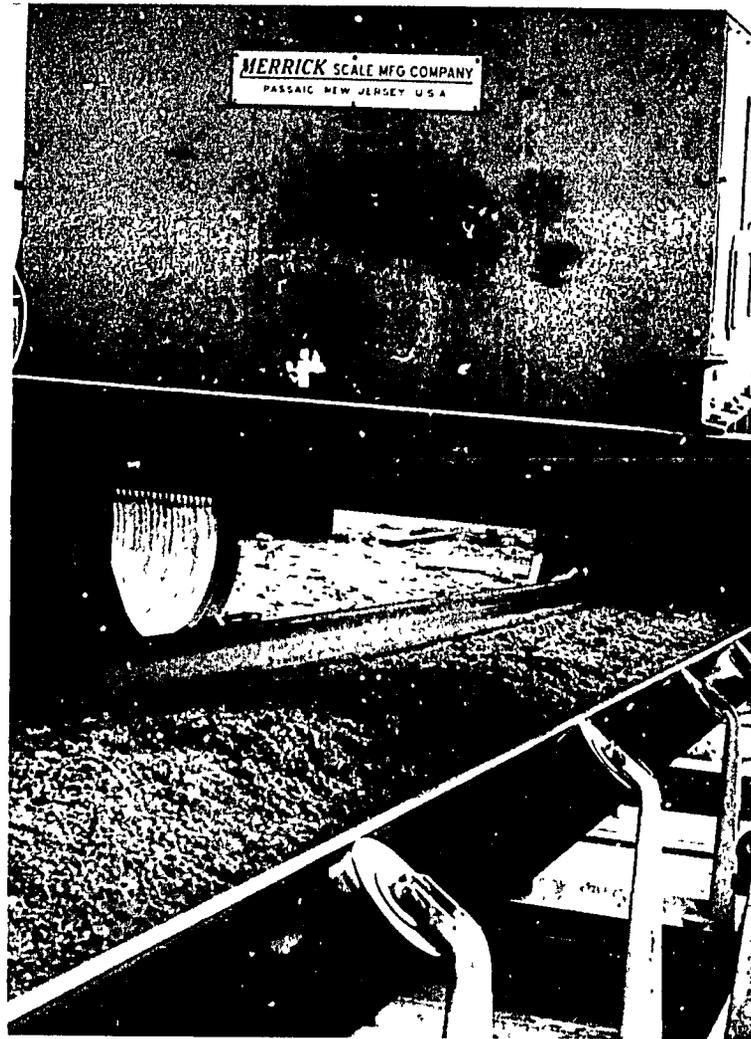


Example of clamshell and traveling gantry used to unload barges. Material is then loaded on a vessel on the other side of the dock in one continuous operation.

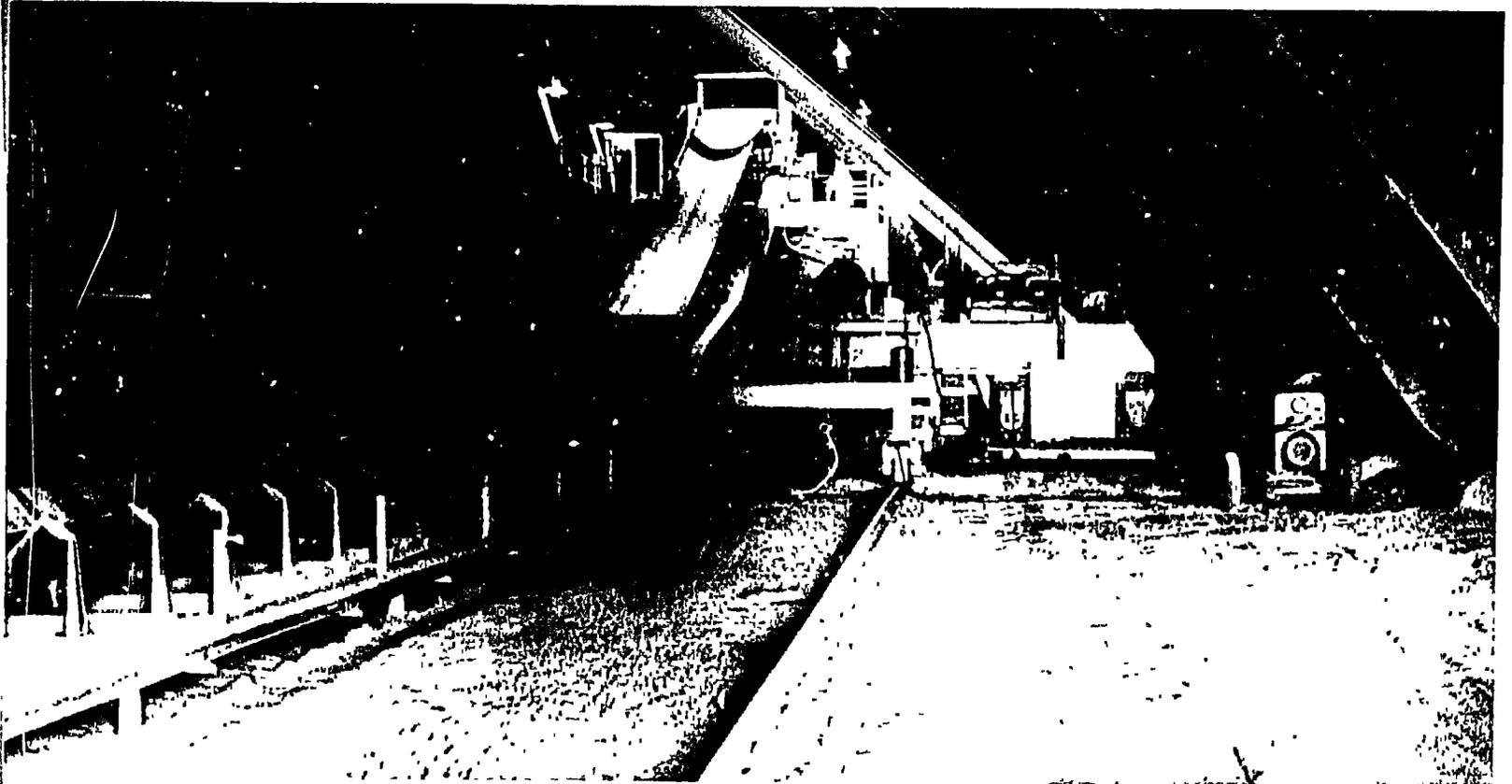
Traveling gantry and clamshell used in loading or unloading bulk materials from barge to ship, or vice versa.



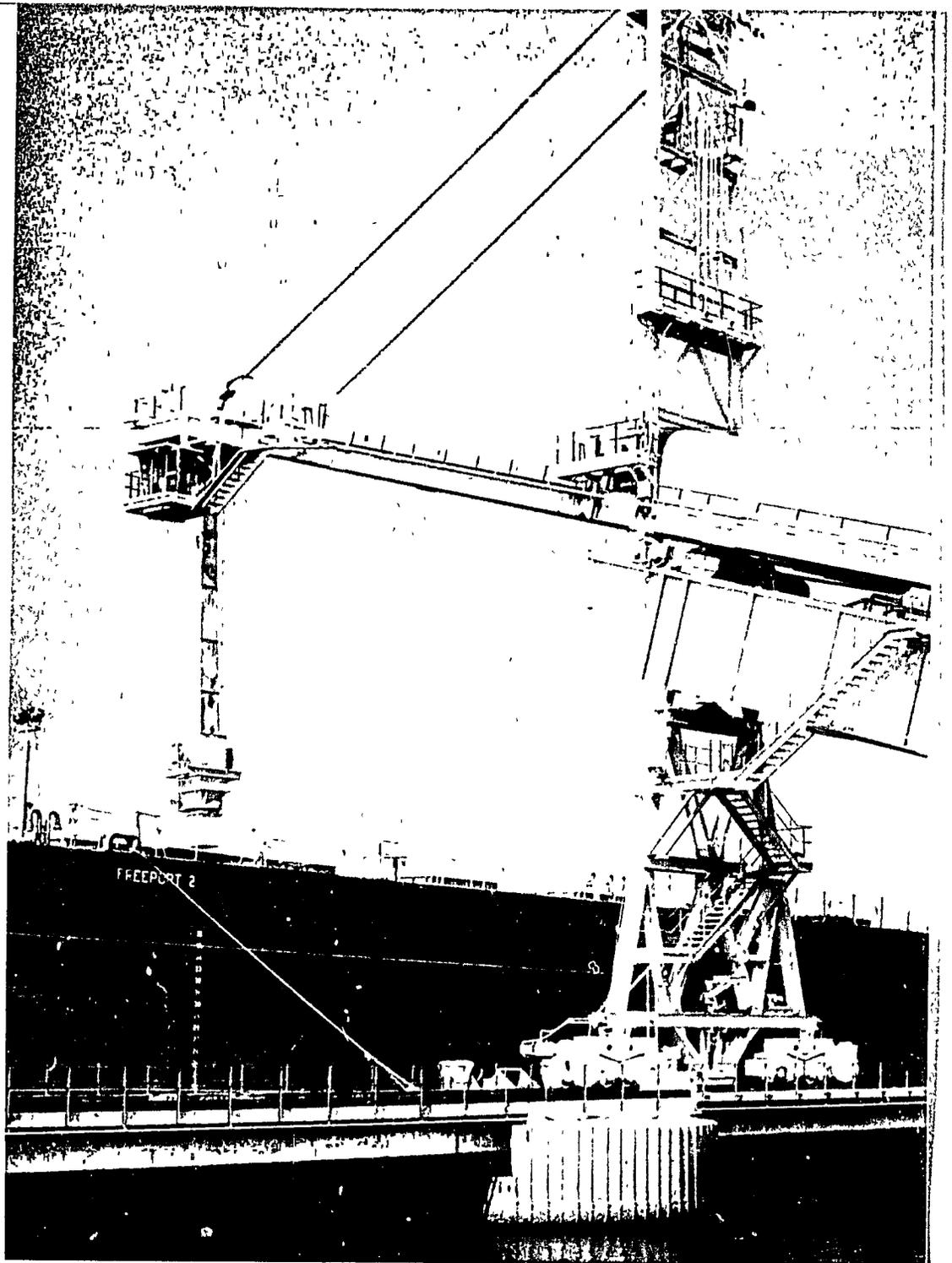
Some sophisticated bulk handling systems use electronic belt scales for automatically weighing bulk materials.



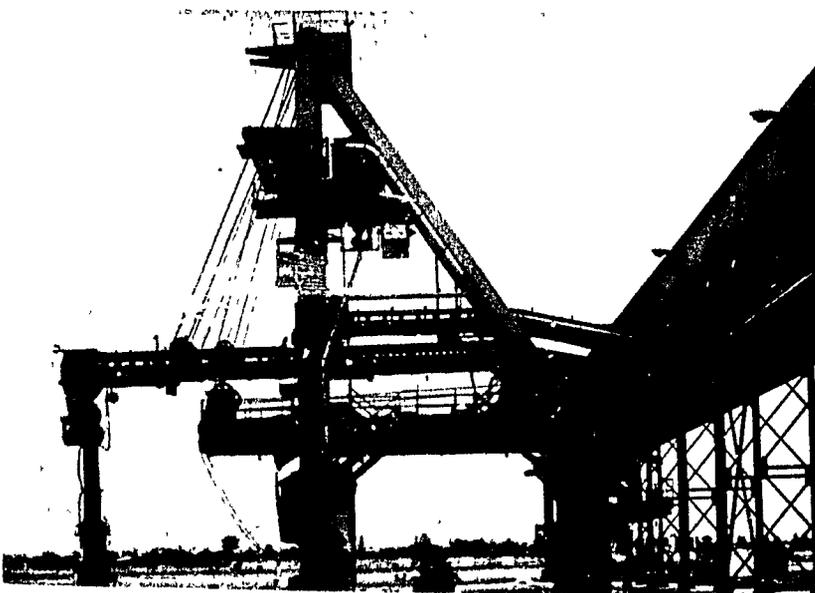
Automatic reclaiming equipment used in transferring bulk materials from storage to ship.



Telescoping traveling gantry and spout. Bulk loader travels length of dock so that vessels do not have to be repositioned in filling holds.



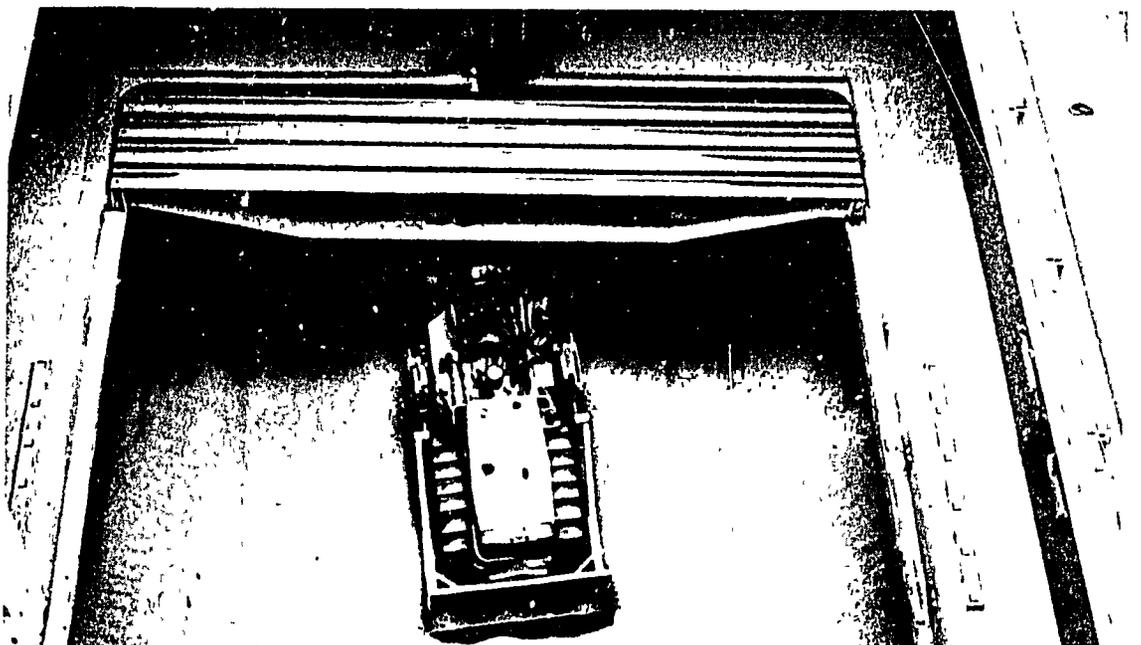
Traveling telescoping bulk loader with mechanical trimmer at end of spout. Note immense size of bulk loading equipment.



Conveyor belt, traveling ship loader, spout, and mechanical trimmer.



Example of trimming vessel with bulldozer.
This is necessary when the bulk loader is not equipped with a mechanical trimmer.



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East Coast Ports

Name: Ramsay, Scarlett and Company, Inc. (Baltimore Stevedoring Company)

Location: Baltimore, Maryland

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship	Forklift, pallet, ship's gear	30 long
Rail to storage to ship	Forklift, pallet, ship's gear	30 long

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 34 ft.

Size of ship handled (tons): Average 10,000 (long)

Maximum 10-12,000"

Maximum length vessel that can be berthed: 980 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk _____ Bagged _____

Method of determining weight: Rail bills of lading.

No. hours estimated to load 10,000 tons: 65-70

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
			not applicable

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 9, _____, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
			not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>1,000</u>
In nearby areas:	_____	<u>0</u>

PLANS FOR EXPANSION:

New 1200-foot general cargo pier under construction by Maryland Port Authority.

RESTRICTIONS ON FERTILIZER HANDLED:

Nonodorous materials only.

Method of determining weight: _____

No. hours estimated to load 10,000 tons: _____

Name: Rukert Terminals Corporation

Location: Baltimore, Maryland

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 45 ft.

Size of ship handled (tons): Average 10,000
Maximum 20,000

Maximum length vessel that can be berthed: 675 ft.

Number of ships usually loaded simultaneously: 3

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 300,000

Bulk 150,000 Bagged 150,000

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, spout	200
Truck to ship	Hopper pit, conveyor belt, spout	200

Method of determining weight: Rail cars and trucks are light and heavy weighed.

No. hours estimated to load 10,000 tons: 40

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship (prebagged)	Forklift, pallet, ship's gear	40
Truck to ship (prebagged)	Forklift, pallet, ship's gear	40
Storage to ship	Forklift, pallet, ship's gear	40
Bagging machine to ship	Forklift, pallet, ship's gear	40

Method of determining weight: Cars and trucks are light and heavy weighed.

No. hours estimated to load 10,000 tons: 48-50

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	25	Open mouth	Machine sewed
Ammonium sulfate	25	paper, burlap or polypropylene	or inner liner wire tied and
Triple superphosphate	25		outer bag sewed
Diammonium phosphate	25		separately
Mixed fertilizers	25		
Potash	25		

Number of bagging machines: 3

Method of determining weight: Automatic scales on bagging machines. Every 10th bag check weighed on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>50,000</u>	<u>20,000</u>
In nearby areas:	<u>50,000</u>	<u>10,000</u>

PLANS FOR EXPANSION:

Plans being drawn for a new 100-foot by 300-foot clear span warehouse for bulk or bagged material.

RESTRICTIONS ON FERTILIZER HANDLED:

Will not store hazardous material such as ammonium nitrate.

Name: Allied Chemical Corporation, Agricultural Division

Location: Hopewell, Virginia

Type of facility: Private

Fertilizer handled: Bulk

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

GENERAL INFORMATION

Depth of channel: At dock 25 ft.; In channel 23 ft.

Size of ship handled (tons): Average not available

Maximum 16,465

Maximum length vessel that can be berthed: 615 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded

simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 450,000

Bulk _____ Bagged _____

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Plant storage to ship	Dragline, conveyor belt, hopper, stationary shiploader	200

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>44,500</u>	_____
In nearby areas:	<u>30,000</u>	_____

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

None

Method of determining weight: Electronic belt scale

No. hours estimated to load 10,000 tons: 55

Name: Elizabeth River Terminals, Inc.

Location: Norfolk, Virginia

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel — ft.

Size of ship handled (tons): Average 20,000

Maximum 40,000

Maximum length vessel that can be berthed: 750 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 600,000

Bulk 400,000 Bagged 200,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 10, —

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, shiploader, trimmer	250-400
Truck to ship	Hopper pit, conveyor belt, shiploader, trimmer	250-400
Barge to ship	Barge unloader, hopper pit, conveyor belt, shiploader, trimmer	250-400
Storage to ship	Payloader, hopper, conveyor belt, shiploader, trimmer	250-400

Method of determining weight: Terminal's own truck scales, railroad scales, and electronic belt scales.

No. hours estimated to load 10,000 tons: 50

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to ship	Forklift, pallet, dock crane	37.5-50
Storage to ship	Forklift, pallet, dock crane	37.5-50

Method of determining weight: Automatic scales on bagging machines and platform scales.

No. hours estimated to load 10,000 tons: 50

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	25	Paper or jute with polyethylene liner	Straight sew or tipper tie liner separately
Ammonium sulfate	25		
Triple superphosphate	25		
Diammonium phosphate	25		
Mixed fertilizers	25		

Number of bagging machines: 6

Method of determining weight: Automatic scales on bagging machine and check weigh periodically with platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>100,000</u>	<u>200</u>
In nearby areas:	<u>25,000</u>	<u>0</u>

PLANS FOR EXPANSION:

Additional berth planned for bulk loading and unloading.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Smith-Douglass Division, Borden Chemical Company

Location: Norfolk, Virginia

Type of facility: Private

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to ship	Forklift, pallet, ship's gear	30-40
Storage to ship	Forklift, pallet, ship's gear	30-40

GENERAL INFORMATION

Depth of channel: At dock 30 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10,000

Maximum 10-12,000

Maximum length vessel that can be berthed: 450 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 4-5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 100-130,000

Bulk 40-50,000 Bagged 60-80,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Plant storage to ship	Conveyor belt through a fixed tower	150

Method of determining weight: Semi-automatic scales on bagging machine and platform scales.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Mixed fertilizers	35	Jute, poly-ethylene liner	Sewn
Mixed fertilizers	30	Polypropylene	Heat seal

Number of bagging machines: 3

Method of determining weight: Semi-automatic scales on bagging machine and check weigh one bag every 15 minutes on platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>20,000</u>	<u>2-3,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

None

Method of determining weight: Light and heavy weighing of small plant cars upon discharge onto conveyors.

No. hours estimated to load 10,000 tons: 70-80

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: North Carolina State Ports Authority

Location: Morehead City, North Carolina

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: (Planned)

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 35 ft.

Size of ship handled (tons): Average 8-20,000

Maximum 23,000

Maximum length vessel that can be berthed: 800 ft.

Number of ships usually loaded simultaneously: 2 bulk

3 bagged

Number of hatches usually loaded simultaneously per vessel:

Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 1,040,000

Bulk 1,000,000 Bagged 40,000

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Barge to storage	Self-unloading barge, conveyor belt	1,000
Storage to ship	Bucketwheel reclaimer, conveyor belt, traveling shiploader, trimmer	3,000
Barge to ship	Self-unloading barge, conveyor belt, traveling shiploader, trimmer	500-1,000 300-700 (pelleted fertilizer)

Method of determining weight: Merrick electronic belt scale.

No. hours estimated to load 10,000 tons: 4-5

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship (prebagged)	Forklift, pallet, ship's gear	30-40
Bagging machine to ship	Forklift, pallet, ship's gear	

*No experience.

Method of determining weight: Truck weights determined by port's truck scale and rail bills of lading.

No. hours estimated to load 10,000 tons: 72

BAGGING FACILITIES (anticipated)

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple superphosphate	Not available	Jute, poly-ethylene liner	Sewn
Diammonium phosphate	Not available	Jute, poly-ethylene liner	Sewn
Mixed fertilizers	Not available	Variable	Sewn

Number of bagging machines: 3

Method of determining weight: Automatic scales on bagging machines and periodic check with platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>106,000</u>	<u>1,000</u>
In nearby areas:	<u>0</u>	<u>5,000</u>

PLANS FOR EXPANSION:

Additional bulk unloading pier for barges and bulk rail unloading facilities are planned. Long-range plans include three more 106,000-ton warehouses.

RESTRICTIONS ON FERTILIZER HANDLED:

No storage facilities for finished materials available as yet. Loading must be from barge to ship 300-700 tons per hour.

Name: North Carolina State Ports Authority

Location: Wilmington, North Carolina

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 38 ft.

Size of ship handled (tons): Average 10,000

Maximum —

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 3-7

Number of hatches usually loaded simultaneously per vessel: Bulk —

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 120,000

Bulk — Bagged —

TERMINAL LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 7, as required

Work days per week: 5, overtime—Sat., Sun., holidays

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: —

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear, dock crane	28-35
Truck to storage to ship	Forklift, pallet, ship's gear, dock crane	28-35

Method of determining weight: Rail and truck weights.

No. hours estimated to load 10,000 tons: 300-350 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
--------------------	--------------------------------	----------	-------------------

not applicable

Number of bagging machines: —

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bagged
At dock or in dock area:	4,000—prior arrangement 1,000—routine dock order
In nearby areas:	6,000—prior arrangement

PLANS FOR EXPANSION:

Additional berths under construction. Future plans—additional transit sheds. The North Carolina State Ports Authority will consider any request for contracts to erect, operate, or lease to private enterprise specialized facilities justified by guaranteed annual volume.

RESTRICTIONS ON FERTILIZER HANDLED:

Limited to those materials approved by U. S. Coast Guard for handling and storage without a special permit.

Name: Shipyard River Terminals

Location: Charleston, South Carolina

Type of facility: Private, but do contract work

Fertilizer handled: Bulk

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel 32 ft.

Size of ship handled (tons): Average 10,000
Maximum 30,000

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 50,000

Bulk Bagged

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8

Work days per week: 5

BULK FERTILIZER LOADING*

Table with columns: Route of movement, Equipment used, Rate of loading (tons/hr) Actual, Rated cap.

*Terminal can also discharge bulk from vessels or barges at 400 tons per hour.

Method of determining weight: Rail bills of lading and truck weights.

No. hours estimated to load 10,000 tons: 70

BAGGED FERTILIZER LOADING

Table with columns: Route of movement, Equipment used, Tons loaded/hr/hatch

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons:

BAGGING FACILITIES

Table with columns: Type of Fertilizer, Bagging rate (tons/hr/machine), Bag type, Method of closure

Number of bagging machines: 4

Method of determining weight: Automatic scales on bagging machines, check weigh one in ten bags on platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

Table with columns: At dock or in dock area, Bulk, Bagged, In nearby areas

PLANS FOR EXPANSION:

None, unless warranted by volume offered.

RESTRICTIONS ON FERTILIZER HANDLED:

Ammonium nitrate restricted by Coast Guard.

Name: South Carolina State Ports Authority

Location: Charleston, South Carolina

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear	50

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 35 ft.

Size of ship handled (tons): Average 4,000

Maximum 10,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: flexible

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 100,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
		not applicable	

Method of determining weight: Rail bills of lading.

No. hours estimated to load 10,000 tons: 40

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
			not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>20,000</u>
In nearby areas:	_____	<u>0</u>

PLANS FOR EXPANSION:

None. However, there is an existing container terminal and another under construction.

RESTRICTIONS ON FERTILIZER HANDLED:

None, as long as it meets with Coast Guard regulations.

Method of determining weight: _____

No. hours estimated to load 10,000 tons: _____

Name: Georgia Ports Authority, Garden City Terminal (Savannah Multi-Product Bulk Terminal)
 (Under construction; scheduled to be operative in May 1971)

Location: Garden City, Georgia (Savannah, Georgia)

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
-------------------	----------------	----------------------

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 36 ft.

Size of ship handled (tons): Average 22,000
 Maximum 25,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 11, 11, _____

Work days per week: 7 days if needed

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Barge to ship	Bulk unloader, conveyor belt, Slewlin Bridge bulk loader, trimmer	Not available	750
Rail to storage to ship	Hopper pit, conveyor belt, stacker-reclaimer, Slewlin Bridge bulk loader, trimmer	Not available	1,500

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>32,000</u>	_____
In nearby areas:	Subject to availability	_____

PLANS FOR EXPANSION:

Facilities will be expanded when needed.

Method of determining weight: Automatic belt scales will be built into conveyor belt system.

No. hours estimated to load 10,000 tons: 7

RESTRICTIONS ON FERTILIZER HANDLED:

Subject to United States Coast Guard regulations.

Name: Southern Shipping Company

Location: Savannah, Georgia

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel - ft.

Size of ship handled (tons): Average 550 ft

Maximum 15,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 325,000

Bulk 250,000 Bagged 75,000

LABOR

Number of shifts in a normal work day: 1 bulk, 2 bagged

Hours in each shift: 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to storage to ship	Payloader, hopper, conveyor belt, shiploader, trimmer	150	250

Method of determining weight: Draft survey and rail bills of lading.

No. hours estimated to load 10,000 tons: 6 days

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	28-30

Method of determining weight: Weight is determined during bagging process. Clerk used to count number of pallets loaded.

No. hours estimated to load 10,000 tons: 330 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Ammonium sulfate	25	Jute, polyethylene liner	Sewn

Number of bagging machines: 4

Method of determining weight: Exact-o-weight scales on bagging machines. Platform scales used to check weigh bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>25,000</u>	<u>0</u>
In nearby areas:	<u>0</u>	<u>Available</u>

PLANS FOR EXPANSION:

None at Ocean Terminal. Georgia Ports Authority is constructing new bulk loading facility at Garden City Terminal.

RESTRICTIONS ON FERTILIZER HANDLED:

No ammonium nitrate handled.

Name: Jacksonville Bulk Terminal, Inc.

Location: Jacksonville, Florida

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 34 ft.

not applicable

Size of ship handled (tons): Average 12-30,000 (long)

Maximum 30,000 "

Maximum length vessel that can be berthed: 645 ft.

Number of ships usually loaded simultaneously: 1

Method of determining weight:

Number of hatches usually loaded simultaneously per vessel: Bulk 1

No. hours estimated to load 10,000 tons: _____

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 1,500,000

Bulk _____ Bagged _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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LABOR

Number of shifts in a normal work day: 1

not applicable

Hours in each shift: 8, _____, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, stationary shiploader	1,250
Rail to storage to ship	Hopper pit, conveyor belt, stationary shiploader	1,250

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	28,000	_____
In nearby areas:	0	_____

PLANS FOR EXPANSION:

None

Method of determining weight: Merrick electronic belt scale.

No. hours estimated to load 10,000 tons: 8

RESTRICTIONS ON FERTILIZER HANDLED:

If loaded directly from rail cars to ship, material must be furnished in covered hopper cars. Only unground phosphate rock can be stored in silos.

Name: Wilson and Toomer Fertilizer Company

Location: Jacksonville, Florida

Type of facility: Private, but do contract work

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 30 ft.; In channel 34 ft.

Size of ship handled (tons): Average 7,000 (metric)
Maximum 12,000

Maximum length vessel that can be berthed: 500 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel:
Bulk 1
Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 150,000 (metric)

Bulk 75,000 Bagged 75,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, shiploader	100	175
Plant to ship	Conveyor belt, shiploader	100	175
Plant storage to ship	Payloader, hopper, conveyor belt, shiploader	100	175

Method of determining weight: Batch weigh own material. Use rail bills of lading on contractual material.

No. hours estimated to load 10,000 tons: 100

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to ship	Forklift, pallet, ship's gear	25-30
Plant storage to ship	Forklift, pallet, ship's gear	25-30

Method of determining weight: Batch weigh, draft of vessel.

No. hours estimated to load 10,000 tons: 100

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple superphosphate	30	Burlap, polyethylene liner	Sewn
Diammonium phosphate	30	Burlap, polyethylene liner	Sewn
Mixed fertilizers	25	Polypropylene, polyethylene liner	Heat seal

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, check weigh bags with platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>10,000</u>	<u>4,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

No nitrates.

Gulf Coast Ports

Name: Seaboard Coast Line Railroad Company (Boca Grande Facility)

Location: Boca Grande, Florida

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

GENERAL INFORMATION

Depth of channel: At dock 31 ft.; In channel 31 ft.

Size of ship handled (tons): Average 10-12,000

Maximum 15-18,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 2,000,000, including rock phosphate

Bulk _____ Bagged _____

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: up to 24 _____, _____

Work days per week: up to 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, gantry, loading chute	800-950 for bulk carrier; 400-600 for general cargo vessel
Rail to storage to ship	Hopper pit, conveyor belt with tipper, storage with sloping floors, gantry, loading chute	

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>30,000</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

Method of determining weight: Automatic electronic belt scales.

No. hours estimated to load 10,000 tons: 15-bulk carrier
25-general cargo vessel

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: East Tampa Phosphate Terminal, Cities Service Company, Tampa Agricultural Chemical Operations

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 30 ft.; In channel 30 ft.

Size of ship handled (tons): Average 10,000

Maximum 21,000

Maximum length vessel that can be berthed: 600 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 2,600,000

Bulk 2,500,000 Bagged 100,000

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Plant storage to ship	Hopper pit, conveyor belt, Jeffrey bulk loader	500	800

Method of determining weight: Weigh rail cars light and heavy.

No. hours estimated to load 10,000 tons: 20

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Plant to storage to ship	Semi-trailer truck, pallet, forklift, ship's gear	40

Method of determining weight: Automatic scales on bagging machine and weigh each bag on scale and count number of bags loaded.

No. hours estimated to load 10,000 tons: 62.5

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple super-phosphate or diammonium phosphate	33-35	10-oz. jute with polyethylene liner	Sewn
Triple super-phosphate or diammonium phosphate	25	Jute with polyethylene liner or polypropylene with polyethylene liner	Tipper tie and sewn
Mixed fertilizers	25	Polypropylene with polyethylene liner	Tipper tie and sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagger plus weigh each bag on separate scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>5,000</u>
In nearby areas:	<u>125,000</u>	<u>0</u>

PLANS FOR EXPANSION:

Plan to modify bulk loader to increase loading capacity to 1,000 tons per hour. Also considering additional bulk and bagged storage facilities.

RESTRICTIONS ON FERTILIZER HANDLED:

All run-of-pile triple superphosphate loading at a rate less than 500 tons per hour will not be handled through this terminal.

Name: Eastern Associated Terminals (Ohio River Terminal)

Location: Tampa, Florida

Type of facility: Private, under contract

Fertilizer handled: Rock phosphate

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 34 ft.

Size of ship handled (tons): Average 25,000

Maximum 57,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 4,000,000, rock phosphate only

Bulk _____ Bagged _____

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Rail car dumper, hopper pit, conveyor belt, telescoping traveling gantry	2,500	3,000
Rail to storage to ship	Rail car dumper, hopper pit, conveyor belt, stacker-reclaimer, telescoping traveling gantry	2,500	3,000

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR PHOSPHATE (TONS)

	Bulk	Bagged
At dock or in dock area:	100,000 outside storage	_____
	170,000 covered storage	_____

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Handle rock phosphate only.

Method of determining weight: Merrick electronic belt scale.

No. hours estimated to load 10,000 tons: 4

Name: International Minerals and Chemicals Phosphate Terminal Company

Location: Tampa, Florida

Type of facility: Private, will load for chemical companies under contract

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 34 ft.

Size of ship handled (tons): Fert.: Avg. 12,000; Max. 32,000

Rock Phos.: Avg. 24,000; Max. 44,000

Maximum length vessel that can be berthed: 844 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel:

Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled):

Total: 500,000, not including rock phosphate

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Truck to storage to ship (diammonium phosphate)	Hopper pit, conveyor belt, payloader, automatic scales, traveling gantry, spout	800 for bulk carrier, 400 for general cargo vessel	1,800
Rail to ship (triple superphosphate)	Hopper pit, conveyor belt, traveling gantry, automatic scales, spout	400 for general cargo vessel	900
Rail to ship (rock phosphate)	Hopper pit, conveyor belt, traveling gantry, automatic scales, spout	1,400	1,800

Method of determining weight: Automatic electronic Merrick belt scales. Also draft survey vessels on request.

No. hours estimated to load 10,000 tons: 12.5-13—bulk carrier
25—general cargo vessel

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk
At dock or in dock area:	<u>43,000</u> (for diammonium phosphate)
In nearby areas:	<u>50,000</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Pate Stevedoring Company (Fillette, Green and Company), Garrison Terminals

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bagged (handle inbound bulk shipments)

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 30 ft.; In channel — ft.

Size of ship handled (tons): Average 7,600 (GRT)

Maximum 10,400 "

Maximum length vessel that can be berthed: 600-700 ft.

Number of ships usually loaded simultaneously: 3

Number of hatches usually loaded

simultaneously per vessel: Bulk —

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled). Total 300,000

Bulk — Bagged —

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, —, —

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship (prebagged)	Forklift and/or tractor-drawn trailer, pallet,	25 metric
Truck to ship (prebagged)	ship's gear and/or dock crane	50 metric
Storage to ship		40-50 metric
Bagging machine to ship		30-35 metric

Method of determining weight: Accept rail or truck weights for prebagged material. Own bagged material is controlled by automatic baggers and periodic check with Toledo dial scales.

No. hours estimated to load 10,000 tons: 225 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple superphosphate	30 metric	Burlap or polypropylene with	Sewn or heat seal
Diammonium phosphate	30 metric	polyethylene liner	
Mixed fertilizers	30 metric		

Number of bagging machines: 4

Method of determining weight: Automatic bagging machines (Inglett and Corley). Bags are check weighed from bagging machine with Toledo dial or beam scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>30,000*</u>	<u>10,000</u>
In nearby areas:	<u>0</u>	<u>5,000</u>

*Limit of 3,000 tons for material to be bagged.

PLANS FOR EXPANSION:

Considering additional bagging capacity and construction of a limited bulk loading facility. Both, however, are subject to a feasibility study.

RESTRICTIONS ON FERTILIZER HANDLED:

Must be free flowing.

Method of determining weight:

No. hours estimated to load 10,000 tons: —

Name: Seaboard Coast Line Railroad Company (Port Tampa Facility)

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 34 ft.

Size of ship handled (tons): Average 12-15,000
Maximum 26,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 3,000,000, mostly rock phosphate

Bulk Bagged

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Table with 3 columns: Route of movement, Equipment used, Rate of loading (tons/hr). Row 1: Rail to ship, Hopper pit, conveyor belt, traveling gantry, bulldozers, 400-600 for general cargo vessel, 1,200 for bulk carrier.

Method of determining weight: Merrick electronic belt scales on conveyor belt.

No. hours estimated to load 10,000 tons: 10-11-bulk carrier, 16-25-general cargo vessel

BAGGED FERTILIZER LOADING

Table with 3 columns: Route of movement, Equipment used, Tons loaded/hr/hatch.

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons:

BAGGING FACILITIES

Table with 4 columns: Type of Fertilizer, Bagging rate (tons/hr/machine), Bag type, Method of closure.

not applicable

Number of bagging machines:

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

Table with 2 columns: Bulk, Bagged. Rows: At dock or in dock area, In nearby areas.

PLANS FOR EXPANSION:

This facility will be phased out sometime about the middle of June 1970, and will be replaced with a new bulk loading facility at Rockport.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Seaboard Coast Line Railroad Company.(Rockport Facility)

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 34 ft.

Size of ship handled (tons): Average 10,000 (net)
Maximum 52,000"

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel:
Bulk 1
Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 10,000,000, mostly rock phosphate
Bulk _____ Bagged _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship direct	Rotary car dumper, conveyor belt, shiploader	Not available	3,000
Rail to storage	Rotary car dumper, conveyor belt, stacker-reclaimer, shiploader	Not available	3,000

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>148,000</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

Expect to start operating the Rockport facility about the first half of June 1970.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight: Two Merrick electronic belt scales.

No. hours estimated to load 10,000 tons: 3-3.75

Name: Seaboard Coast Line Railroad Company (Seddon Island Facility)

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 34 ft.

Size of ship handled (tons): Average 20,000 (net)
Maximum 43,000

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 4,000,000, mostly rock phosphate
Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 12, 12, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, traveling gantry	1,500 for bulk carrier
Rail to ship	Hopper pit, conveyor belt, traveling gantry, bulldozers	400-600 for general cargo vessel with tween decks

Method of determining weight: Merrick electronic belt scales.

No. hours estimated to load 10,000 tons: 7-10—bulk carrier
16-25—general cargo vessel

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

This facility will be phased out possibly the last half of June 1970, and will be replaced with a new bulk loading facility at Rockport.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Tampa Stevedoring, Inc.

Location: Tampa, Florida

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 28 ft.; In channel 32 ft.

Size of ship handled (tons): Average 10-12,000 (long)
Maximum 12,000 "

Maximum length vessel that can be berthed: 950 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel:
Bulk _____
Bagged 4-5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 240,000
Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	40 on older vessels 50 on newer vessels

Method of determining weight: Automatic scales on baggers and pallet count.

No. hours estimated to load 10,000 tons: 40-55

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple superphosphate or diammonium phosphate	32	Burlap with polyethylene liner or polypropylene with polyethylene liner	Sewn
Triple superphosphate or diammonium phosphate	25	Burlap with polyethylene liner or polypropylene with polyethylene liner	Heat seal liner, sew outer bag

Number of bagging machines: 3

Method of determining weight: Automatic scales on bagging machine and check weigh every 40th bag.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>14-15,000</u>
In nearby areas:	_____	<u>0</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Facility cannot handle: (1) dusty material (pollution control), (2) nonfree-flowing material, and (3) certain so-called penalty cargoes.

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Port of Pensacola

Location: Pensacola, Florida

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 33 ft.

Size of ship handled (tons): Average 3,000
Maximum 5,000

Maximum length vessel that can be berthed: 1,400 ft.

Number of ships usually loaded simultaneously: 1 bulk

Number of hatches usually loaded 1 bagged

simultaneously per vessel: Bulk 1

Bagged 3

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 50,000 (long)

May be all bulk, all bagged, or combination

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Portable hopper, portable conveyor belt	50 long

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, snip's gear	30-35 long
Truck to storage to ship	Forklift, pallet, ship's gear	30-35 long

Method of determining weight: Truck weights and rail bills of lading.

No. hours estimated to load 10,000 tons: 95-110

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Ammonium nitrate	20-25	Burlap with poly-ethylene liner	Sewn

LABOR

Number of bagging machines: 2 portable

Method of determining weight: Automatic scales on bagging machines, check weigh bags on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>1,500</u>	<u>2,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

Additional 90,000 square feet of warehouse storage completed in July 1970.

RESTRICTIONS ON FERTILIZER HANDLED:

None. This port has Coast Guard approval to handle ammonium nitrate.

Method of determining weight: Rail bills of lading.

No. hours estimated to load 10,000 tons: 180

Name: Walsh Stevedoring Company, Inc.

Location: Mobile, Alabama

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10-12,000

Maximum 50,000

Maximum length vessel that can be berthed: 1,500 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt	100	400
Barge to ship	Dock crane, clamshell, hopper, conveyor belt	200	600
Storage to ship	Payloader, hopper, conveyor belt	100	

Method of determining weight: Rail weights, and draft surveys on barges and vessels.

No. hours estimated to load 10,000 tons: 100

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	40

Method of determining weight: Automatic scales on bagging machines and check weigh bags.

No. hours estimated to load 10,000 tons: 5-6 days

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	20	Paper or jute with polyethylene liner	Sewn or tipper tie
Mixed fertilizers	20		

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, check weigh bags on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>200</u>	<u>10,000</u>
In nearby areas:	<u>0</u>	<u>10,000</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

No ammonium nitrate.

Name: Port of Pascagoula

Location: Pascagoula, Mississippi

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 38 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10,000

Maximum 15,000

Maximum length vessel that can be berthed: 800 ft.

Number of ships usually loaded simultaneously: 2

Number of hatches usually loaded simultaneously per vessel: Bulk

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 230,000

Bulk Bagged

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8

Work days per week: 7-Sat. & Sun. at overtime differential

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to ship (prebagged)	Forklift, pallet, ship's gear	40-45
Rail to ship (prebagged)	Forklift, pallet, ship's gear	40-45
Storage to ship	Forklift, pallet, ship's gear	40-45

Method of determining weight: Truck weights on prebagged material, automatic scales on bagging machines.

No. hours estimated to load 10,000 tons: 250 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	20-30	Burlap, poly-ethylene liner	Bar loop and sewn
Ammonium phosphate	30-40	Burlap, poly-ethylene liner	Sewn
Mixed fertilizers	30-40	Burlap, poly-ethylene liner	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, check weigh one out of every 20 bags on platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:		26,000
In nearby areas:		0

PLANS FOR EXPANSION:

Adding two bagging machines and three hopper bins.

RESTRICTIONS ON FERTILIZER HANDLED:

Forty-six percent urea and mixed fertilizers must be free flowing. At present, no ammonium nitrate can be handled at Pascagoula.

Method of determining weight:

No. hours estimated to load 10,000 tons:

Name: Walsh Stevedoring Company, Inc.

Location: Gulfport, Mississippi

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 29 ft.; In channel 30 ft.

Size of ship handled (tons): Average 10,000

Maximum 15,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: not available

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 200,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	45

Method of determining weight: Automatic scales on bagging machines.

No. hours estimated to load 10,000 tons: 45

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	20	Burlap, poly-ethylene liner	Tipper tie and sewn
Diammonium phosphate	30	Burlap, poly-ethylene liner	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine, check weigh bags periodically.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	12-15,000
In nearby areas:	_____	0

PLANS FOR EXPANSION:

Docks and warehouses are being rehabilitated after damage from Hurricane Camille. Completion expected during summer 1970.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Atlantic and Gulf Stevedores, Inc.

Location: Desire Street Wharf, New Orleans, Louisiana

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 39.42 ft.; In channel 39 ft.

Size of ship handled (tons): Average 8-10,000
Maximum 15,000

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 2
Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 2,500,000

Bulk 2,325,000 Bagged 175,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, spout	45	45
Barge to ship	Dock crane, clamshell	100	150

Method of determining weight: Scale weights of rail cars, loaded and empty, and draft survey on barges.

No. hours estimated to load 10,000 tons: 50

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	45
Bagging machine to ship	Forklift, pallet, ship's gear	45
Rail to ship (prebagged)	Forklift, pallet, ship's gear	45

Method of determining weight: Automatic scales on bagging machines, rail bills of lading on prebagged material.

No. hours estimated to load 10,000 tons: 45

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	40	Jute, polyethylene liner	Tipper tie and sewn
Diammonium phosphate	40	Jute, polyethylene liner	Tipper tie and sewn
Mixed fertilizers	40	Jute, polyethylene liner	Tipper tie and sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines. Check weigh one out of every 20 bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>1,500</u>	<u>11,000</u>
In nearby areas:	<u>0</u>	<u>1,500</u>

PLANS FOR EXPANSION:

Anticipate addition of another bagging plant of same capacity as present facility. May also add additional bagging machine to present facility.

RESTRICTIONS ON FERTILIZER HANDLED:

Materials must be nontoxic.

Name: Public Bulk Terminal of New Orleans

Location: New Orleans, Louisiana

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 36 ft.

Size of ship handled (tons): Average 20,000

Maximum 35,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 200-300,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 11, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Barge to ship	Traveling gantry, clamshell	400-600	1,500
Barge to ship	Floating crane (not at bulk loader), clamshell, portable hopper, trimmer	100-150	750
Rail to ship	Hopper pit, conveyor belt, traveling gantry, spout, trimmer	600	1,000

Method of determining weight: Draft survey when loading from barges. Accept rail bills of lading when loading from rail cars.

No. hours estimated to load 10,000 tons: 16-20—rail to ship
40—barge to ship—bulk carrier
60—barge to ship—tween deck

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	_____
In nearby areas:	<u>12,000*</u>	_____

*Not used due to high cost and problems of delivery.

PLANS FOR EXPANSION:

At the present time, there are no plans for erection of storage facilities at the bulk handling plant for fertilizers. This is due to there being no offerings of tonnages sufficient to warrant same.

RESTRICTIONS ON FERTILIZER HANDLED:

All fertilizer materials except ammonium nitrate can and have been handled at the bulk handling plant.

Name: Occidental Chemical Corporation

Location: Taft, Louisiana

Type of facility: Private

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 50 ft.; In channel 50 ft.

Size of ship handled (tons): Average 10-15,000
Maximum 22,000

Maximum length vessel that can be berthed: 500 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged 1

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 300,000

May be all bulk, all bagged, or combination

LABOR

Number of shifts in a normal work day: 3 bulk, 2 bagged

Hours in each shift: 8, 8, 8

Work days per week: 7 bulk, 5 bagged

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Storage to ship	Conveyor belt, trimmer	250	360

Method of determining weight: "Hardy" batch scale on conveyor belt. National Cargo Bureau checks deadweight of ship before and after loading.

No. hours estimated to load 10,000 tons: 40

BAGGED FERTILIZER LOADING

Route of movement	Equipment used*	Tons loaded/hr/hatch
Bagging machine to ship		70

*Bags are dropped onto a conveyor belt (same belt is used for both bagged and bulk) transferred to shipside, dropped onto a portable belt that dumps bags onto a reverse banana unloader and lowered into hold of ship.

Method of determining weight: Electric eye counter on conveyor belt located at the dock end of belt. National Cargo Bureau checks deadweight of ship before and after loading.

No. hours estimated to load 10,000 tons: 160

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Diammonium phosphate	24	Polyethylene lined	Sewn

Number of bagging machines: 3

Method of determining weight: Automatic scales on bagging machines which are checked periodically by check weighing bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>38,000</u>	<u>0</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

Recently completed installation of tipper tie machines.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Ramsay, Scarlett and Company, Inc. (Burnside Bulk Marine Terminal)

Location: Burnside, Louisiana

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 20,000 (long)

Maximum 60,000 "

Maximum length vessel that can be berthed: 850 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 2

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 1,000,000 (long)

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Barge to ship	Gantry crane, clam-shell, conveyor belt, stationary shiploader	1,000	2,000

Method of determining weight: Electronic belt scale.

No. hours estimated to load 10,000 tons: 16-17

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

No immediate plans.

RESTRICTIONS ON FERTILIZER HANDLED:

This terminal will not handle material of an extremely corrosive nature.

Name: Triad Chemical

Location: Donaldsonville, Louisiana

Type of facility: Private

Fertilizer handled: Bulk

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 100 ft.

Size of ship handled (tons): Average 15,000*

Maximum 22,000

*Average size is for ships loaded with NH₃. Dry fertilizer has been loaded on barges only to date.

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded

simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 400,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Plant to storage to ship	Payloader, hopper, conveyor belt, shiploader	150	150

Method of determining weight: Draft survey.

No. hours estimated to load 10,000 tons: 65-70

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	20	Burlap, poly-ethylene liner	Sewn and tipper tie

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, check weigh with platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>40,000</u>	<u>1,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

Long-range plans call for bagged loading facility.

RESTRICTIONS ON FERTILIZER HANDLED:

None specified at present.

COMMENTS:

Dock is in regular service for NH₃ barge and ship loading and urea barge loading.

Name: Greater Baton Rouge Port Commission

Location: Baton Rouge, Louisiana

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 3,000

Maximum 5,000

Maximum length vessel that can be berthed: 1,000 ft.

Number of ships usually loaded simultaneously: 1-4

Number of hatches usually loaded simultaneously per vessel: Bulk Bagged 3-4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 60,000

Bulk Bagged

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail or truck to storage to ship	Forklift, pallet, ship's gear, dock crane	30-35

Method of determining weight: Accept truck or rail bills of lading.

No. hours estimated to load 10,000 tons: 72-4 gangs

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	23	Burlap, poly-ethylene liner	Tipper tie and sewn
Ammonium sulfate	28	Burlap	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine and check weigh every 25th bag on independent platform scale. State inspector also check weighs bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:		5,000
In nearby areas:		5,000

PLANS FOR EXPANSION:

Planning to construct a bulk handling facility. Additional 60,000 square foot transit shed under construction.

RESTRICTIONS ON FERTILIZER HANDLED:

Do not permit bagging on the dock at present.

Method of determining weight:

No. hours estimated to load 10,000 tons:

Name: Southeastern Terminals, Division of Baltimore Stevedoring Company, Inc.

Location: Port Allen (Baton Rouge), Louisiana

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 5,000 (long)

Maximum 20,000 "

Maximum length vessel that can be berthed: 1,000 ft.

Number of ships usually loaded simultaneously: not available

Number of hatches usually loaded simultaneously per vessel:

Bulk _____

Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 60,000 (long)

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1½

Hours in each shift: 8, 4, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Dock to ship	Shoreside cranes, ship's gear	35

Method of determining weight: Hopper scale.

No. hours estimated to load 10,000 tons: 72

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Diammonium phosphate and mixed fertilizer	29 GT	Burlap with liner	Tipper tie with sewing
Urea	25 GT	Burlap with liner	Tipper tie with sewing

Number of bagging machines: 2

Method of determining weight: Automatic scale on bagging machine.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>5,000</u>
In nearby areas:	_____	<u>0</u>

PLANS FOR EXPANSION:

No immediate plans.

RESTRICTIONS ON FERTILIZER HANDLED:

This terminal will not handle material of an extremely corrosive nature.

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Port of Lake Charles

Location: Lake Charles, Louisiana

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear	40

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10-15,000
Maximum 23,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: not available

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk _____ Bagged _____

Method of determining weight: Automatic scales on bagging machines and bag count during loading.

No. hours estimated to load 10,000 tons: 5 days

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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Bagging machines are no longer in operation due to high operating costs.

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, shiploader	750

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, check weigh every 20th or 25th bag.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>22,000*</u>	<u>50,000</u>
In nearby areas:	<u>0</u>	<u>100,000 plus</u>

*Rock phosphate only.

PLANS FOR EXPANSION:

Expanding general cargo storage space.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight: Automatic belt scales.

No. hours estimated to load 10,000 tons: 1 day

Name: Hydrocarbon Products Company, Inc.

Location: Port Arthur, Texas

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 30 ft.; In channel 65 ft.

Size of ship handled (tons): Average 14,000 (metric)

Maximum 20,000 "

Maximum length vessel that can be berthed: 400 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded

simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 600,000 (metric)

May be all bulk, all bagged, or combination

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Storage to ship	Payloader, hopper, dock crane, clamshell	125	125

Method of determining weight: Hopper scale and draft survey.

No. hours estimated to load 10,000 tons: 80

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear, and/or dock crane	40 metric
Bagging machine to ship	Forklift, pallet, ship's gear, and/or dock crane	40 metric

Method of determining weight: Count bags.

No. hours estimated to load 10,000 tons: 250 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	38 metric	Burlap with poly-ethylene liner	Bar loop and sewn

Number of bagging machines: 1

Method of determining weight: Batch weigh at bagging and check weigh every 10th bag.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>5,000</u> metric	<u>4,700</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

Additional storage for bulk and bagged material is under consideration. Also a bulk belt loader will be rebuilt if bulk fertilizer exports through the port make it feasible.

RESTRICTIONS ON FERTILIZER HANDLED:

Does not accept ammonium nitrate. Rail cars for ammonium sulfate available only on a long-term rental. Therefore, ammonium sulfate for exportation will have to be received by barge.

Name: Bulk Packaging Corporation, Port of Beaumont

Location: Beaumont, Texas

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	30-35 long

GENERAL INFORMATION

Depth of channel: At dock 34 ft.; In channel 36 ft.

Size of ship handled (tons): Average 10,000

Maximum 20,000

Maximum length vessel that can be berthed: 600 plus ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 5 or more

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 125,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

Method of determining weight: Automatic scales on bagging machines and platform scale.

No. hours estimated to load 10,000 tons: 55-65

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	30	Jute, polyethylene liner	Sewn and bar loop
Ammonium sulfate	30	Jute, polyethylene liner	Both sewn at same time
Mixed fertilizer	30	Jute, polyethylene liner	Sewn
Mixed fertilizer	30	Paper-5 ply, plastic reinforced	Sewn
Potash	30	Paper-5 ply, plastic reinforced	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine. Check weigh one out of every 30 bags on platform scale.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>9,000</u>
In nearby areas:	_____	<u>0</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Materials must be of nonhazardous nature. No ammonium nitrate.

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Phillips Petroleum Company, Adams Terminal Division

Location: Pasadena (Houston), Texas

Type of facility: Private

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 25 ft.

Size of ship handled (tons): Average 12,000

Maximum 40,000

Maximum length vessel that can be berthed: 650 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 360,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5-5½

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Plant to storage to ship	Hopper pit, conveyor belt, bulk loader, trimmer	200	450
Truck to storage to ship	Hopper pit, conveyor belt, bulk loader, trimmer	200	450

Method of determining weight: Weighed in bin above bulk loader or trucks are light and heavy weighed.

No. hours estimated to load 10,000 tons: 64

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	_____
In nearby areas:	<u>50,000</u>	_____

PLANS FOR EXPANSION

Not available.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Olin Corporation (Agricultural Division)

Location: Pasadena (Houston), Texas

Type of facility: Private

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel 45 ft.

Size of ship handled (tons): Average 300 feet
Maximum 500"

Maximum length vessel that can be berthed: 500 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 100,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Storage to ship	Bridge crane, pay-loader, hopper bin, conveyor belt, loading boom, trimmer	100-200

Method of determining weight: Automatic scales on conveyor belt.

No. hours estimated to load 10,000 tons: 100

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>40,000</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

None at this time.

RESTRICTIONS ON FERTILIZER HANDLED:

Nitrates

Name: Goodpasture, Inc.

Location: Galena Park (Houston), Texas

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 38 ft.; In channel 40 ft.

Size of ship handled (tons): Average 8-13,000

Maximum 15,000

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 2

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 550,000 (long)

Bulk 250,000 Bagged 300,000

LABOR

Number of shifts in a normal work day: 1 (2 if needed)

Hours in each shift: 8, 8, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Truck to ship	Hopper, conveyor belt, shiploader, trimmer	200-220	300

Method of determining weight: Trucks are light and heavy weighed.

No. hours estimated to load 10,000 tons: 50

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to ship	Forklift, pallet, ship's gear	30 long
Storage to ship	Forklift, pallet, ship's gear	30 long

Method of determining weight: Automatic scales on bagging machines with platform scale check weighing.

No. hours estimated to load 10,000 tons: 55

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	50	Burlap, polyethylene liner	Tipper tie and sewn
Ammonium sulfate	50	Paper (plastic reinforced)	Sewn
Mixed fertilizers	50	Polypropylene, polyethylene liner	Tipper tie and sewn

Number of bagging machines: 5

Method of determining weight: Automatic scales on bagging machines with platform scale weighing periodically.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>20,000</u>	<u>10,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

None at present.

RESTRICTIONS ON FERTILIZER HANDLED:

Will not handle dangerous materials.

Name: Cargill Cargo Carriers, Inc., and Rogers Terminal and Shipping Company

Location: Channelview (Houston), Texas

Type of facility: Private, under contract

Fertilizer handled: Bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Forklift, pallet, ship's gear	30-32

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel — ft.

Size of ship handled (tons): Average 6,000

Maximum 10,000

Maximum length vessel that can be berthed: 500 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk —

Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk — Bagged —

Method of determining weight: Automatic scales on bagging machine, count number of pallets as loaded.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Mixed fertilizers	30	Burlap with poly-ethylene liner	Sewn

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 4-5

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

Number of bagging machines: 2

Method of determining weight: Bulk fertilizer is weighed on belt scale during unloading; automatic scales on bagging machines; and check weigh bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>33,500</u>	<u>3,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

No specific plans; possibility of expanding facility to handle bulk fertilizer loading.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight:

No. hours estimated to load 10,000 tons: —

Name: Port of Houston (Bulk Materials Handling Plant)

Location: Greens Bayou (Houston), Texas

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 36 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10,000

Maximum 35,000

Maximum length vessel that can be berthed: 650 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged _____

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 500,000 or more

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 10, (during ship loading)

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, bulk loader, trimmer	Ammonium sulfate-500
Truck to ship	Hopper pit, conveyor belt, bulk loader, trimmer	Diammonium phosphate-600 Potash-700-1,200 Maximum capacity-1,400

Method of determining weight: Accept rail bills of lading, weigh trucks light and heavy.

No. hours estimated to load 10,000 tons: 12-13

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
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not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	_____
In nearby areas:	<u>0</u>	_____

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Southern Stevedoring Company, Inc.

Location: Houston, Texas

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 38 ft.; In channel 40 ft.

Size of ship handled (tons): Average 15-24,000
Maximum 24,000

Maximum length vessel that can be berthed: (bulk) 650 ft.

Number of ships usually loaded simultaneously: 1 bulk

Number of hatches usually loaded simultaneously per vessel: 1 bagged

Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 1,060,000 or more

Bulk 1,000,000 or more Bagged 60,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 10, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt	800	1,000 long
Truck to ship	Hopper pit, conveyor belt	200	200 long
Barge to ship	Dock crane, clamshell, hopper, conveyor belt	300	300 long

Method of determining weight: Rail bills of lading; truck weights, barge weights.

No. hours estimated to load 10,000 tons: 14

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/day
Storage to ship	Forklift, pallet, ship's gear	1,000
Truck to storage to ship (prebagged)	Forklift, pallet, ship's gear	1,000

Method of determining weight: Automatic scales on bagging machines, truck weights on prebagged material.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	20	Burlap with poly-ethylene liner	Sewn and tipper tie
Triple superphosphate	20	Burlap strip laminated,	Sewn or tipper tie
Diammonium phosphate	20	or loose liner,	
Ammonium sulfate	25	or polypropylene	
Mixed fertilizers	20		
Potash	20		

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machines, spot check on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>5,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

None, as long as the material is nonexplosive.

Name: Bulk Packaging Corporation

Location: Galveston, Texas

Type of facility: Public

Fertilizer handled: Bulk

Bagging equipment available: No (Bagging facilities available at Beaumont, Texas)

GENERAL INFORMATION

Depth of channel: At dock 32-34 ft.; In channel 40 ft.

Size of ship handled (tons): Average 12,000

Maximum 25,000

Maximum length vessel that can be berthed: 600 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 475,000

Bulk Bagged

LABOR

Number of shifts in a normal work day: 1 1/2

Hours in each shift: 10, 4

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, shiploader	200	450
Storage to ship	Payloader, hopper, conveyor belt, shiploader	260	450
Barge to ship	Dock crane, clamshell	100	

Method of determining weight: Beam-type conveyor scale and draft survey.

No. hours estimated to load 10,000 tons: 40-55

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
		not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons:

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
			not applicable

Number of bagging machines:

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	0	
In nearby areas:	0	

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

No ammonium nitrate.

Name: Brazos River Harbor Navigation District

Location: Freeport, Texas

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to storage to vessel	Forklift, pallet, wagon, ship's gear	25

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel 36 ft.

Size of ship handled (tons): Average 11,000

Maximum 13,700

Maximum length vessel that can be berthed: 585 ft.

Number of ships usually loaded simultaneously: 1-2

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 100,000

Bulk not available Bagged not available

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
			not available

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 4, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Truck to ship	Truck crane with clamshell, portable hopper, conveyor belt, trimmer	155

Number of bagging machines: 1

Method of determining weight: Not available.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>5,000</u>
In nearby areas:	<u>0</u>	<u>6,000</u>

PLANS FOR EXPANSION:

Have just completed a new warehouse which will be available for fertilizer storage.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight: Weigh trucks light and heavy on public truck scale 70 feet long, 104,000-pound capacity.

No. hours estimated to load 10,000 tons: 70

Name: Port of Corpus Christi, Corpus Christi Public Elevator

Location: Corpus Christi, Texas

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to storage to ship	Forklift, pallet, ship's gear	30

GENERAL INFORMATION

Depth of channel: At dock 38 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10,000
Maximum 12,900

Maximum length vessel that can be berthed: 900 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk _____
Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 120,000
Bulk _____ Bagged _____

Method of determining weight: Automatic scales on bagging machine and platform scales check weigh at random.

No. hours estimated to load 10,000 tons: 8 days

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	30	Jute, poly-ethylene liner	Bar loop and sew outer bag

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
not applicable			

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine and check weigh every 10 to 15 bags.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>10,000</u>
In nearby areas:	_____	<u>4,500</u>

PLANS FOR EXPANSION:

No plans at present for expansion, but expansion will be considered if conditions warrant.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Port of Brownsville (Brownsville Navigation District)

Location: Brownsville, Texas

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: No

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear	30-32

GENERAL INFORMATION

Depth of channel: At dock 34½ ft.; In channel 36 ft.

Size of ship handled (tons): Average 10,000

Maximum 32,000

Maximum length vessel that can be berthed: not available ft.

Number of ships usually loaded simultaneously: 1 bulk

3 bagged

Number of hatches usually loaded simultaneously per vessel:

Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 350,000

Bulk 100,000 Bagged 250,000

Method of determining weight: Accept rail bills of lading and count pallets and bags loaded.

No. hours estimated to load 10,000 tons: 65-70

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 5

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to storage to ship	Payloader, portable conveyor belt, elevator leg, shiploader	100-120	300

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>10,000</u>	<u>50,000</u>
In nearby areas:	<u>0</u>	<u>40,000</u>

Method of determining weight: Automatic scale on conveyor belt.

No. hours estimated to load 10,000 tons: 100

PLANS FOR EXPANSION:

Long-range plans include installation of a hopper pit and conveyor belt system.

RESTRICTIONS ON FERTILIZER HANDLED:

Normal Coast Guard restrictions apply.

West Coast Ports

Name: Crescent Wharf and Warehouse Company, 10th Avenue Terminal

Location: San Diego, California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 45 ft.

Size of ship handled (tons): Average 10-15,000
Maximum 25,000

Maximum length vessel that can be berthed: 850 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 3,625,000

Bulk 3,500,000 Bagged 125,000

LABOR

Number of shifts in a normal work day: 1-2

Hours in each shift: 8, not available

Work days per week: 5-7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, traveling ship-loader, trimmer	1,000	1,100

Method of determining weight: Rail cars are weighed light and heavy.

No. hours estimated to load 10,000 tons: 12-16

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship (prebagged)	Forklift, pallet, ship's gear	25
Rail to storage to ship (prebagged)	Forklift, pallet, ship's gear	25
Bagging machine to ship	Forklift, pallet, ship's gear	25
Storage to ship	Forklift, pallet, ship's gear	25

Method of determining weight: Rail bills of lading on prebagged material. Automatic scales on bagging machine and platform scales on material bagged at port.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	28	Burlap, poly-ethylene liner	Tipper tie and sewn
Ammonium sulfate	32	Burlap, poly-ethylene liner	Sewn
Diammonium phosphate	32	Burlap, poly-ethylene liner	Sewn
Potash	32	Burlap, poly-ethylene liner	Sewn
Soda ash	32	Paper	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine. Random sample of bags is check weighed on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>10,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

May add storage for bulk fertilizer.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Crescent Wharf and Warehouse Company and Metropolitan Stevedore Company

Location: Wilmington (Long Beach), California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 40-45 ft.; In channel 52 ft.

Size of ship handled (tons): Average 10-20,000
Maximum 50-60,000

Maximum length vessel that can be berthed: 800 plus ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 875,000

Bulk 850,000 Bagged unlimited

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, shiploader, trimmer	600-700	600
Truck to ship	Hopper pit, conveyor belt, shiploader, trimmer	300	600

Method of determining weight: Rail bills of lading.

No. hours estimated to load 10,000 tons: 16-24

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear	15
Truck to storage to ship	Forklift, pallet, ship's gear	15
Rail to ship	Forklift, pallet, ship's gear	15

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: not available

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of care
			not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged as arranged
At dock or in dock area:	<u>0</u>	
In nearby areas:	<u>0</u>	<u>unlimited</u>

PLANS FOR EXPANSION:

Now constructing a second bulk loader which will permit simultaneous loading of two vessels or the very rapid loading of one vessel.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Port of Los Angeles and U. S. Borax Company Bulk Facility

Location: Los Angeles, California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 35 ft.

Size of ship handled (tons): Average 10-20,000

Maximum 50-60,000

Maximum length vessel that can be berthed: 1,000 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total not available

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 1

Hours in each shift: 8, _____, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Port of Los Angeles:		
Rail to ship	Hopper pit, conveyor belt, bulk loader, trimmer	700
Truck to ship	Hopper pit, conveyor belt, bulk loader, trimmer	100
U. S. Borax:		
Rail to storage to ship	Hopper pit, conveyor belt, bulk loader, trimmer	700

Method of determining weight: Port of Los Angeles, rail bills of lading; U. S. Borax, electronic belt scales.

No. hours estimated to load 10,000 tons: 16-20

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship (prebagged)	Forklift, pallet, ship's gear	20-24
Truck to ship (prebagged)	Forklift, pallet, ship's gear	30
Bagging machine to ship	Forklift, pallet, ship's gear	30-36
Storage to ship	Forklift, pallet, ship's gear	30-36

Method of determining weight: Bills of lading on prebagged material. Automatic scales on bagging machine and check weigh on platform scales for material bagged at port.

No. hours estimated to load 10,000 tons: 90-100

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	19	Burlap, poly-ethylene liner	Tipper tie and sewn
Diammonium phosphate	19	Paper	Sewn
Mixed fertilizers	19	Paper	Sewn
Potash	19	Burlap	Sewn
Nitrate of soda	19	Paper	Sewn

Number of bagging machines: 2

Method of determining weight: Automatic scales on bagging machine and sample weigh bags at random on platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>30,000</u>
In nearby areas:	<u>28-30,000</u>	<u>100,000</u>

PLANS FOR EXPANSION:

Long-range plans include expansion of bulk handling and storage facilities.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Oxnard Harbor District, Port of Hueneme

Location: Port Hueneme, California

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No (planned)

GENERAL INFORMATION

Depth of channel: At dock 31 ft.; In channel 38 ft.

Size of ship handled (tons): Average 8,500

Maximum 10,145

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 2

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 4-5 (up to 7)

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 120,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, (10 on sailing shift)

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to storage to ship	Pallet, forklift, ship's gear	25

Method of determining weight: Truck bills of lading. (Fifty-ton public weighscale is available at all times.)

No. hours estimated to load 10,000 tons: 80-5 gangs
64-6 gangs
56-7 gangs

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure

not applicable

Number of bagging machines: _____

Method of determining weight:

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	<u>15,000</u>
In nearby areas:	_____	<u>400</u>

PLANS FOR EXPANSION:

(1) Bagging facilities available January 1971 or sooner, and (2) bulk handling facilities under consideration, no date for construction (dependent on volume being contemplated).

RESTRICTIONS ON FERTILIZER HANDLED:

The only restrictions on fertilizer are the usual regulations relative to the explosive content or highly volatile nature of materials handled.

Name: Port of Oakland and Marine Terminals Corporation

Location: Oakland, California

Type of facility: Public

Fertilizer handled: Bulk and Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 30-34 ft.; In channel 32 ft.

Size of ship handled (tons): Average 10,000
Maximum 15,000 plus

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1 bulk

Number of hatches usually loaded 3 bagged

simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 350,000

Bulk 200,000 Bagged 150,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail or truck to ship	Hopper pit, conveyor belt	Ammonium sulfate—125-150 Potash—100
Storage to ship	Steel tanks, conveyor belt	Ammonium sulfate—200-210 Potash—250-300

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: 52

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Bagging machine to storage to ship	Pallet, forklift, ship's gear	25 long
Bagging machine to ship	Pallet, forklift, ship's gear	15 long

Method of determining weight: Not available.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	12.5	Paper or burlap with polyethylene liner	Sewn
Ammonium sulfate	12.5	Paper or burlap with polyethylene liner	Sewn
Diammonium phosphate	23-25	Burlap with polyethylene liner	Sewn
Potash	23-25	Burlap with polyethylene liner	Sewn

Number of bagging machines: 2

Method of determining weight: Bags are automatically weighed by bagging machine and every 25th bag is sample weighed. The state also sample weighs bags. Bags are counted as they are put on board ship.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>5,000</u>	up to <u>150,000</u>
In nearby areas:	<u>0</u>	up to <u>750,000</u>

PLANS FOR EXPANSION:

Additional warehouse of 50,000 square feet to be completed in 1971.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Name: Port of San Francisco

Location: San Francisco, California

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 50-100 ft.

Size of ship handled (tons): Average 10,000

Maximum 28,000

Maximum length vessel that can be berthed: 2,800 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 1,000,000 or more

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 10, 10, _____

Work days per week: 7 (Sat. & Sun. are overtime)

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship	Forklift, pallet, ship's gear	25 plus

Method of determining weight: Rail bills of lading.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure

not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	_____	unlimited
In nearby areas:	_____	0

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Fire Department and U. S. Coast Guard rules restrict quantities of some nitrate compounds.

Name: Benicia Port Terminal Company

Location: Benicia, California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 38 ft.; In channel 35 ft.

Size of ship handled (tons): Average 10,000 (long)

Maximum 46,000 "

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1 bulk

Number of hatches usually loaded simultaneously per vessel: 1 bagged

Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 260,000 (long)

Bulk 200,000 Bagged 60,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, bulk loader	500	800
Truck to ship	Hopper pit, conveyor belt, bulk loader	250	800

Method of determining weight: Rail or truck bills of lading.

No. hours estimated to load 10,000 tons: 40

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to storage to ship	Forklift, pallet, ship's gear	20

Method of determining weight: Truck bills of lading.

No. hours estimated to load 10,000 tons: 100

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>0</u>	<u>20,000</u>
In nearby areas:	<u>10,000</u>	<u>20,000</u>

PLANS FOR EXPANSION:

Will expand if volume warrants.

RESTRICTIONS ON FERTILIZER HANDLED:

Unable to handle ammonium nitrate per Coast Guard restrictions.

Name: **Diablo Service Corporation**

Location: **Pittsburg, California**

Type of facility: **Public**

Fertilizer handled: **Bulk and bagged**

Bagging equipment available: **No**

GENERAL INFORMATION

Depth of channel: **At dock 35 ft.; In channel 35 ft.**

Size of ship handled (tons): **Average 10-15,000**

Maximum 30,000

Maximum length vessel that can be berthed: **700 ft.**

Number of ships usually loaded simultaneously: **1**

Number of hatches usually loaded simultaneously per vessel: **Bulk 1**

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): **Total not available**

Bulk Bagged

LABOR

Number of shifts in a normal work day: **2**

Hours in each shift: **8, 8**

Work days per week: **7**

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Truck to ship	Hopper pit, conveyor belt, bulk loader, trimmer	200-250	650

Method of determining weight: **Truck bills of lading.**

No. hours estimated to load 10,000 tons: **15-20**

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to storage to ship	Forklift, pallet, ship's gear	20

Method of determining weight: **Count bags.**

No. hours estimated to load 10,000 tons: **not available.**

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
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not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	0	5,000
In nearby areas:	15,000*	5,000

*Outdoor.

PLANS FOR EXPANSION:

Not available.

RESTRICTIONS ON FERTILIZER HANDLED:

Materials must not be explosive or toxic.

Name: Port of Stockton

Location: Stockton, California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel 30 1/2 ft.

Size of ship handled (tons): Average 10-12,000 (long)

Maximum 25,000 "

Maximum length vessel that can be berthed: 650 ft.

Number of ships usually loaded simultaneously: 1

Number of hatches usually loaded

simultaneously per vessel: Bulk 1

Bagged all hatches

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 360,000

May be all bulk, all bagged, or combination

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 5 (bagged) / 8, 8, 8 (bulk)

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to storage to ship	Payloader, reclaiming pit, conveyor belt, bulk loader	150 long

Method of determining weight: Trucks are light and heavy weighed. Accept bills of lading on rail cars.

No. hours estimated to load 10,000 tons: 66

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail or truck to storage to ship	Pallet, forklift, ship's gear	30
Rail to ship	Pallet, forklift, ship's gear	20-22

Method of determining weight: Count bags, weigh trucks light and heavy, accept rail bills of lading.

No. hours estimated to load 10,000 tons: Depends on number of hatches to load and number of gangs used.

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
			not applicable

Number of bagging machines: _____

Method of determining weight: _____

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	15,000	15-20,000
In nearby areas:	0	0

PLANS FOR EXPANSION:

Plans call for an additional 50,000 tons of bulk storage and 500 to 1,000 tons per hour loading rate.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Port of Sacramento

Location: Sacramento, California

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 32 ft.; In channel 30 ft.

Size of ship handled (tons): Average 15,000

Maximum 37,000

Maximum length vessel that can be berthed: 700 ft.

Number of ships usually loaded simultaneously: 1 bulk

2 bagged

Number of hatches usually loaded simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 360,000

Bulk 180,000 Bagged 180,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt, shiploader	300-350 long	600 long
Storage to ship	Payloader, conveyor belt, shiploader	300-400 long	600 long

Method of determining weight: Weigh rail cars light and heavy.

No. hours estimated to load 10,000 tons: 24

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail or truck to storage to ship	Pallet, forklift, ship's gear	25 long

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: 95

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
All types	8 long	Valve	Self

Number of bagging machines: 1

Method of determining weight: Scale on bagging machine plus beam scale for check weighing.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>4,000</u>	<u>25,000</u>
In nearby areas:	<u>15,000</u>	<u>1,000</u>

PLANS FOR EXPANSION:

Future construction of bulk and bagged warehouse space will proceed based on demands for regular volume movements. Additional bagging machine to be installed in near future.

RESTRICTIONS ON FERTILIZER HANDLED:

Fertilizer materials must be within U. S. Coast Guard and local Fire Marshall rules and regulations.

Name: **Portland Public Docks**

Location: **Portland, Oregon**

Type of facility: **Public**

Fertilizer handled: **Bulk and bagged**

Bagging equipment available: **Yes**

GENERAL INFORMATION

Depth of channel: **At dock 35-40 ft.; In channel 40 ft.**

Size of ship handled (tons): **Average 7-9,000 (barge)**
Maximum 43,000 plus

Maximum length vessel that can be berthed: **unlimited ft.**

Number of ships usually loaded simultaneously: **1**

Number of hatches usually loaded simultaneously per vessel: **Bulk 1**
Bagged 4

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): **Total 1,292,000**

Bulk 792,000 Bagged 500,000

LABOR

Number of shifts in a normal work day: **2**

Hours in each shift: **8, 8, _____**

Work days per week: **7**

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to ship	Hopper pit, conveyor belt, bulk shiploader	150 long

Method of determining weight: **Rail cars are weighed light and heavy at dockside.**

No. hours estimated to load 10,000 tons: **67**

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to storage to ship.	Forklift, pallet, pallet loader, ship's gear	50-75

Method of determining weight: **Accept rail bills of lading. Bags are counted during loading process.**

No. hours estimated to load 10,000 tons: **50**

BAGGING FACILITIES*

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Triple superphosphate	10	Paper	Sewn
Diammonium phosphate	10	Paper	Sewn

*Bagging facilities are currently used to bag inbound material.

Number of bagging machines: **1**

Method of determining weight: **Automatic scales on bagging machine, check weigh bags on platform scales.**

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	10,000 long	5,000 long
In nearby areas:	0	up to 1,000,000

PLANS FOR EXPANSION:

Channel will be deepened to 40 feet.

RESTRICTIONS ON FERTILIZER HANDLED:

None for port except those covered by Federal law such as on ammonium nitrate.

Name: Port of Astoria

Location: Astoria, Oregon

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel 40 ft.

Size of ship handled (tons): Average 18,000
Maximum 35,000

Maximum length vessel that can be berthed: 850 ft.

Number of ships usually loaded simultaneously: 1 bulk
1 bagged

Number of hatches usually loaded simultaneously per vessel: Bulk 1
Bagged 6

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 100,000

Bulk 20,000 Bagged 80,000

LABOR

Number of shifts in a normal work day: 3

Hours in each shift: 8, 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
Rail to ship	Hopper pit, conveyor belt	350	400

Method of determining weight: Automatic scales.

No. hours estimated to load 10,000 tons: 32

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail, truck, or barge to storage to ship	Pallet, forklift, ship's gear	28

Method of determining weight: Bills of lading and Richardson scale.

No. hours estimated to load 10,000 tons: 400 gang

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	23	Polyethylene	Tipper tie and sewn

Number of bagging machines: 1

Method of determining weight: Richardson scale and spot scale check every hour with platform scales.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>20,000</u>	<u>20,000</u>
In nearby areas:	<u>20,000</u>	<u>30,000</u>

PLANS FOR EXPANSION:

There is possibility that an additional bagging machine will be installed.

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Name: Port of Vancouver

Location: Vancouver, Washington

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 40 ft.; In channel 40 ft.

Size of ship handled (tons): Average 10,000

Maximum 30,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 4

Number of hatches usually loaded simultaneously per vessel: Bulk _____

Bagged 2

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 120,000

Bulk _____ Bagged _____

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.

not applicable

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Truck to storage to ship	Pallet, forklift, ship's gear	25-30

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: 80

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	6.25	Paper with poly-ethylene liner	Sewn

Number of bagging machines: 1

Method of determining weight: Automatic weigher on bagger.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>10,000 long</u>	<u>10,000</u>
In nearby areas:	<u>0</u>	<u>0</u>

PLANS FOR EXPANSION:

No immediate plans at this time; however, facilities will be expanded for handling fertilizers when such need arises.

RESTRICTIONS ON FERTILIZER HANDLED:

There are the usual U. S. Coast Guard restrictions on certain bulk or bagged chemical fertilizers.

Method of determining weight:

No. hours estimated to load 10,000 tons: _____

Name: Port of Longview

Location: Longview, Washington

Type of facility: Public

Fertilizer handled: Bagged

Bagging equipment available: No

GENERAL INFORMATION

Depth of channel: At dock 35 ft.; In channel - ft.

Size of ship handled (tons): Average 7-10,000

Maximum 60,000

Maximum length vessel that can be berthed: unlimited ft.

Number of ships usually loaded simultaneously: 3

Number of hatches usually loaded simultaneously per vessel: Bulk

Bagged 5-6

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 200-300,000

Bulk Bagged

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)	
		Actual	Rated cap.
		not applicable	

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Rail to ship	Pallet, forklift, ship's gear	20
Truck to ship	Pallet, forklift, ship's gear	20
Storage to ship	Pallet, forklift, ship's gear, and/or dock crane	20

Method of determining weight: Weigh rail cars or trucks light and heavy or accept bills of lading.

No. hours estimated to load 10,000 tons: 90-100

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea (using portable bagger)	10	Jute with poly-ethylene liner	Heat seal

Number of bagging machines: 0
Portable baggers can be obtained from a contractor.

Method of determining weight: Not available.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:		10,000
In nearby areas:		0

PLANS FOR EXPANSION:

None

RESTRICTIONS ON FERTILIZER HANDLED:

Not available.

Method of determining weight:

No. hours estimated to load 10,000 tons:

Name: Port of Seattle

Location: Seattle, Washington

Type of facility: Public

Fertilizer handled: Bulk and bagged

Bagging equipment available: Yes

GENERAL INFORMATION

Depth of channel: At dock 45 ft.; In channel 45 ft.

Size of ship handled (tons): Average 10,000

Maximum 50,000

Maximum length vessel that can be berthed: 630 ft.

Number of ships usually loaded simultaneously: 1 bulk

5 bagged

Number of hatches usually loaded

simultaneously per vessel: Bulk 1

Bagged 5

Maximum tonnage of fertilizer that can be exported annually (estimated, taking into account other commodities usually handled): Total 248,000

Bulk 48,000 Bagged 200,000

LABOR

Number of shifts in a normal work day: 2

Hours in each shift: 8, 8, _____

Work days per week: 7

BULK FERTILIZER LOADING

Route of movement	Equipment used	Rate of loading (tons/hr)
Rail to storage to ship	Hopper pit, conveyor belt, payloader, bulk loader	150

Method of determining weight: Weigh hopper.

No. hours estimated to load 10,000 tons: 65

BAGGED FERTILIZER LOADING

Route of movement	Equipment used	Tons loaded/hr/hatch
Storage to ship	Pallet, forklift, ship's gear	15

Method of determining weight: Bills of lading.

No. hours estimated to load 10,000 tons: 134

BAGGING FACILITIES

Type of Fertilizer	Bagging rate (tons/hr/machine)	Bag type	Method of closure
Urea	6.5	Paper with poly-ethylene liner	Sewn
Calcium phosphate	8	Paper	Sewn

Number of bagging machines: 1

Method of determining weight: Automatic scales on bagging machine.

STORAGE AVAILABLE FOR FERTILIZER (TONS)

	Bulk	Bagged
At dock or in dock area:	<u>5,000</u>	up to <u>150,000</u>
In nearby area:	<u>0</u>	<u>5,000</u>

PLANS FOR EXPANSION:

None at present.

RESTRICTIONS ON FERTILIZER HANDLED:

None

Bulletin Y-14

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NATIONAL FERTILIZER DEVELOPMENT CENTER TENNESSEE VALLEY AUTHORITY MUSCLE SHOALS, ALABAMA 35660