Memorandum

MIAMI-DADE COUNTY

Date: November 5, 2013

To: Honorable Chairwoman Rebeca Sosa
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor

Subject: Response to Resolution R-299-13 – Feasibility Study on PortMiami Acquiring and Installing On-dock Fuel Facilities

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On April 16, 2013, the Board of County Commissioners (Board) passed Resolution No. R-299-13, directing the Mayor to complete a feasibility study on PortMiami acquiring and installing on-dock fuel facilities. For that purpose, PortMiami contracted AECOM to complete a "Feasibility of On-dock Fuel Supply at PortMiami", which identifies and considers the specific objectives outlined in the resolution. The full report accompanies this memorandum.

PortMiami has been examining the marine fuel issue since the adoption of its 2035 Master Plan. PortMiami believes it to be strategically important to 1) secure long-term access to marine fuel facilities for its customers and to 2) attempt to ensure that marine fuel pricing is competitive with other southeast coast ports. At PortMiami's request, AECOM had been looking into availability and pricing issues prior to the Board's April 16, 2013 meeting, in an alternate report.

SUMMARY FINDINGS

With regard to the Board's directed study, AECOM presented the following primary conclusions:

Identify and consider the various alternatives by which to facilitate on-dock fuel facilities at the Port. There are two potential alternatives for providing competitive fuel purchasing options at PortMiami. The first alternative is to install on-dock fuel facilities, which would include fuel storage tanks (fuel farm), a fully dedicated off-loading berth, and an on-dock fueling system (hydrant pipeline) to each cruise and cargo berth. The second alternative is to connect the fuel tanks at Fisher Island via a pipeline under the channel to day-tanks and an on-dock fueling system (hydrant pipeline) located on PortMiami.

Identify and consider the cost, viability, land, security, permits, environmental and other requirements of each identified alternative. The cost of the Dodge Island on-dock fueling system (dedicated berth, tanks and hydrant system) has been estimated at approximately $42 million. The cost of the second alternative - building a pipeline from Fisher Island to the Port and installing day tanks and an on-dock hydrant system - is estimated to cost approximately $17 million. Regardless of the capital cost of either alternative, PortMiami would require a third party to finance and maintain the required infrastructure.

In terms of land, a fuel farm at PortMiami would occupy approximately ten acres, require a dedicated full-time berth for fuel tankers, and a system of underground pipes linking the system together. The second alternative – linking the Fisher Island tanks to PortMiami – would require less than one-half an acre and a system of underground pipes. A dedicated berth would not be required, as the Fisher Island berth would remain in service.

Regarding the viability, security, environmental aspects, and permitting of a fueling system, both alternatives are possible. Fuel tanks are commonly found at Ports, but their construction and operation must be coordinated with Federal and local authorities. Fueling ships from on-dock systems is environmentally safer than fueling from barge to ship. Environmental concerns on-port include fuel spills and below ground fuel leaks; however, both are uncommon with modern infrastructure. Either project would take approximately two years to permit and approximately eighteen months to construct.

Identify, evaluate and compare the respective advantages and disadvantages of each identified alternative. An on-dock hydrant system at PortMiami, independent of which alternative is explored, could reduce the ship fueling costs as much as $15 per metric ton (depending on ship volume purchasing), as a hydrant system is more affordable over time than barge delivery. Several PortMiami customers have indicated that they are paying in range of $40 more per ton of fuel than at other ports on the eastern seaboard. A reduction of $15 would likely cause a modest increase in ship fuel sales, but a reduction closer to $40 per ton is required to make PortMiami ship fueling competitive with other east coast ports. An additional reduction could result from a new fuel supplier taking over the Fisher island tank farm lease, from competition, or from a fuel-buying consortium approach, discussed in more detail below.

There is a major disadvantage to locating a tank farm at PortMiami. A tank farm would require 10 acres of land and a full-time berth at a land-constrained port. Ultimately, this land requirement will reduce the capacity of container cargo facilities and may, depending on volumes, reduce port revenues. A hydrant system, however, seems advantageous independent of where a tank farm is located.

Identify the potential Port revenue, operational, and other advantages on-dock fuel facilities could provide to the Port and/or the Port's cruise and cargo line customers. The provision of bunker fuels is a low margin enterprise. As identified in the report, PortMiami might lose revenue under several scenarios and gain revenues in others. The importance of the marginal revenue impacts is small compared to the reduction in cargo capacity. Marine fueling at PortMiami is dominated by cruise lines for multiple reasons, while the land is controlled by cargo terminal operators.

The current fuel barging system at Fisher Island requires that ship fuel deliveries are scheduled several days ahead, due to the five hour time to fill a barge and the one hour time for the tugboat to push it to the ship for fueling. With the hydrant system several ships can be fueled at the same time on very short notice and, ultimately, at reduced cost. Unlike fueling ships from barges, on-dock fueling is not impacted by high winds and foul weather;

consequently, it is easier to maintain ship fueling schedules during periods of harsh weather while using hydrants.

ALTERNATE STUDY FINDINGS

PortMiami's overall goals for marine fuel are three: 1) secure long-term access to marine fuel facilities for our customers; 2) to the extent possible, ensure that the pricing for marine fuel at PortMiami is competitive with the other southeast U.S. ports; and, 3) do not use Port acreage if a another viable option exists.

AECOM's alternate report examined the marine fueling issue from the vantage point of PortMiami's overall goals and concluded that better options existed by re-aligning PortMiami's relationship with the current Fisher Island tank farm. AECOM came to the following conclusions addressing PortMiami's three primary marine fuel goals: 1) secure a long-term commitment from the Fisher Island tank farm owners, TransMontaigne Partners L.P., to continue to provide fuel facility services to PortMiami customers (the Fisher Island tank farm has been in existence and serving the Port for over 80 years); 2) ensure that the price of fuel is competitive for our customers by either forming a buying consortium (commonly done at airports to drive down fueling costs) or by allowing major fuel purchasers at PortMiami to individually rent space within the Fisher Island tanks; 3) invest in a modern hydrant system from Fisher Island to PortMiami's cruise and cargo berths, thus saving PortMiami land while driving down fuel delivery costs, which are currently very high due to the inefficiencies of barging operations.

PortMiami has worked with its major fuel buying customers (predominantly cruise lines), TransMontaigne Partners L.P., and AECOM to begin to flesh out a large body of details (and technical challenges) concerning the above ideas. With regard to securing a commitment ensuring PortMiami customers will have long-term access to fueling facilities, TransMontaigne Partners L.P., is willing to explore entering into a long-term, binding agreement.

With regard to reducing the present pricing for marine fuel at PortMiami, the future is less clear. A hydrant system is seen as an implementable investment that should reduce costs. Beyond that, PortMiami's various fuel customers do not all agree on what is the best course for the Port to pursue, nor do they employ similar fuel buying strategies. The majority of customers do not buy fuel at PortMiami because fuel is invariably cheaper (when available) at other ports-of-call in Latin America and the Caribbean than at ports in the United States. Were fuel to be as cheap in Miami as in other east coast ports, the majority of potential fuel sales would still be lost to foreign ports.

It is important to note that the current tanks at Fisher Island have been looking for a new fuel provider for over a year without success. The current tenant has made it known publically that it will not be renewing its lease as of May 31, 2014. The tenant claims that it does not make money in this market despite the fact that fuel is thought to be expensive here.

Some tenants believe that establishing fuel tanks at PortMiami to compete against Fisher Island tanks might reduce fuel charges. Other tenants note that even if this were the case, "old steel" tends to beat "new steel" when tank farms go into competition and PortMiami might be back to one provider not too many years after the market is split.

AECOM believes that the most viable option involves establishing a fuel buying consortium as is customary at most airports, including our own. Although there are various consortium models, ultimately a consortium is designed to deliver fuel under a transparent financial structure at *cost*. AECOM believes that combining a hydrant system from Fisher Island under a consortium model is the most long-term effective strategy for PortMiami.

NEXT STEPS

There may be a brief window of time to arrange for a consortium – or, at least, an organized leasing of the Fisher Island tanks - by PortMiami customers. The current lessee has announced publicly that it is not renewing its tank lease, which is set to expire mid-2014. If PortMiami fails to explore these options in the near term, a new lessee will likely acquire the tank lease. A new lessee may be more competitive in its pricing strategy than the current provider, or it may implement a pricing approach similar to the current provider that many of our customers, which homeport vessels at PortMiami, wish to avoid. There is also the possibility that a gap may exists in fueling service, which would not be optimal for our users.

Over the next few months, the Port Director will be meeting with the executive staff of our major cruise and cargo partners to discuss the fueling situation and the possibilities of optimizing the existing system. AECOM, TransMontaigne and an expert in fueling consortiums continue to be engaged in these discussions.

Attachment

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FEASIBILITY OF HYDRANT BUNKERING AT PORTMIAMI

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Executive Summary:

PortMiami is the largest cruise ship home port in the country and the fourth largest cargo port on the East coast.

The cost of bunkers (marine fuel) for ships is a major part of the total operating cost and the operators are constantly striving to obtain the best possible pricing. Depending upon the length of their voyage, ships often have the option of carrying enough fuel for an entire multi-stop voyage rather than bunkering in Ports of Call during the voyage. The decision of whether to bunker only in the Home Port versus in Ports of call is based upon the current price of bunkers in each location and the cost of carrying a full load of bunkers from the Home Port as the ship will have a deeper draft and burn more fuel when fully bunkered.

Florida Ports have had a monopoly Bunkers supplier since the mid 1970's with the exception of the East coast ports from 1984 to 1987 and Port Canaveral since 2010. Several of the major shipping companies, both cruise and cargo claim that they are not obtaining fair pricing under this monopoly. Achieving completive bunkers pricing at PortMiami is necessary to ensure continued growth of ship calls, bunkering throughput and associated Port revenue to fund improvements at the Port.

The current method of bunkering utilizes barges and tugboats to move bunkers from the TransMontaigne terminal on Fisher Island (built in 1926) to the cruise and cargo ships on Dodge Island. Modern bunkering systems such as the Seaport at Port Canaveral (built in 2010) utilize dockside hydrant systems to bunker ships rather than tugboats and barges. It is generally recognized that this is a more cost effective way to bunker ships.

PortMiami commissioned this study to determine the feasibility of installing a dockside hydrant system on Dodge Island plus a sister study to investigate ways and means of achieving more competitive bunkers pricing at Port Miami.

This report examines the feasibility of developing a dockside hydrant system on Dodge Island. This involves the development of a new bunkers terminal and dockside hydrant system on Dodge Island. The financial impacts and hurdles were examined for the proposed dockside hydrant system compared to the current bunkering by barge operation.

Based upon the financial analysis herein, the installation of a new dockside hydrant bunkering system on Dodge Island could reduce the annual operating costs by $3,234,495 and reduce the cost of bunkering by $1.17 per barrel. Port revenues would increase by $1,388,360 assuming a constant warfage fee of $0.14 per barrel.

1.0 INTRODUCTION

1.1 Background

PortMiami operates a world class facility which is the cruise capital of the world and the thirteenth busiest cargo container port in the United States. Fuel costs are a major component of cruise and cargo ship operating costs and PortMiami (Port) has a requirement to investigate ways and means to ensure that ships fueling (bunkering) operations are performed efficiently with competitive bunkering prices and with minimum impact to cruise and cargo ship operations.

1.2 Objectives

The objectives of this report are to be established by the following work tasks:

- Meet with representatives of the Port's cruise and cargo lines regarding the potential advantages and desirability of developing on-dock bunkering facilities, confirm that they use the same fuel and if they use preferential purchasing contracts with different companies, and
- Meet with TransMontaigne, the operator of the Fisher Island fuel terminal to obtain data on the terminal configuration and historical fuel volumes for the last five years, by fuel type and ship type (cargo or cruise), and
- Prepare a five year projection of fuel volumes assuming that ships continue current bunkering volumes, and also if they were bunker exclusively at the Port for trips originating and ending at the Port, and
- Confirm that TransMontaigne's terminal on Fisher Island has sufficient storage capacity for the next twenty years, assuming current turnover ratios and projected volumes continue without change, and
- Complete a feasibility study of the Port acquiring and installing on-dock bunkering facilities (hydrants) , and
- The study shall identify and consider the alternatives by which to facilitate on dock bunkering at the Port, and
- The study shall consider the cost, viability, land requirements, security, permit, environmental, and other requirements of each alternative, and
- The study shall identify, evaluate, and compare the respective advantages and disadvantages of each identified alternative, and
- The study shall identify the potential Port revenue, operational and other advantages of on-dock bunkering could provide to the Port or the cruise and cargo line operators utilizing the Port facilities.

Section 1 defines the major tasks included in the proposed project.

Section 2 defines the proposed upgrades necessary to provide dockside hydrant fueling for cruise and cargo ships on Dodge Island. It also provides capital costs for the proposed dockside hydrant system, the cost of financing, the potential for additional Port fees, and potential environmental impacts.

Section 3 examines the financial feasibility of the project, based upon historic and projected bunker throughput and the relative costs of bunkering by barge versus bunkering by a dockside hydrant system.

Section 4 provides an assessment of environmental permitting issues plus building and zoning issues applicable to this project. It also identifies and evaluates potential public concerns and political advocacy to facilitate the success of this project.

Section 5 provides conclusions and recommendations for the project.

2.0 PROPOSED DOCKSIDE BUNKERING SYSTEM

2.1 Project Setting

As indicated in the aerial photograph in Figure 1 in Appendix A, the Port of Miami (PortMiami) is a seaport located in Biscayne Bay in Miami, Florida, United States. The Port is located on Dodge Island, which now includes the former Lummus Island and Sam's Island. It is connected to downtown Miami via Port Boulevard, a bridge spanning the Intracoastal Waterway. A new tunnel connecting Dodge Island to McArthur Causeway is under construction and due to be opened in mid-2014. The Port of Miami is bounded by MacArthur Causeway/Highway 41 to the North, Miami Beach to the East, Fisher Island to the Southeast, Rickenbacker Causeway and Virginia Key to the south and the mainland to the West.

2.2 Current Site Description

Only Dodge Island would be involved in the proposed dockside hydrant fueling system.

2.2.1 Fisher Island

The bunkering requirements at PortMiami are currently serviced by TransMontaigne's terminal on Fisher Island and a fleet of tugboat and bunkering barges. In order to determine the proper storage capacity for the new bunkers terminal on Dodge Island, AECOM investigated the current storage capacity of the TransMontaigne bunkers terminal on Fisher Island. Figure 2 in Appendix A depicts the current layout of this bunkering terminal.

As indicated in § 2.3.2 the bunkers throughput at PortMiami in 2012 was 2,774,000 barrels which corresponds to an annual tank turnover rate of 4.65 times tank capacity per year. This is low by industry standards which are typically in the range of ten to twelve turnovers per year. This means that this facility has adequate storage to handle a throughput of up to 8,342,000 barrels per year which is 300% of the 2012 bunkers throughput.

TransMontaigne has an offloading berth on the north side of the Fisher Island Terminal to receive shiploads of inbound bunkers. The berth size and depth currently limit the capacity of inbound tankers to 200,000 to 220,000 barrels in fourteen hours which are offloaded at a rate of 15,000 barrels per hour (10,500 gpm) can offload an inbound tanker in fourteen hours. This data from the Fisher Island terminal is used as a starting point for the proposed Dodge Island Terminal design criteria.

According to FDEP records the Fisher Island terminal has a storage capacity of 665,368 barrels in twelve above ground tanks as indicated in Table 1 below.

Table 1 – Data on Fisher Island Terminal

Tank #	Year Built	Contents	Capacity - Barrels
101	1923	Residual	30,580
102	1923	Residual	25,319
103	1923	Residual	10,492
104	1926	Residual	72,723
105	1936	Residual	9,377
106	1936	Residual	10,021
107	1965	Residual	106,757
108	1965	Residual	100,487
112	1979	Residual	44,766
113	1979	Residual	100,724
114	1979	Residual	84,636
115	1979	Distillate	69,486
$\sum$ All Fuels			665,368
$\sum$ Distillate			69,486
$\sum$ Residual			595,882

2.2.2 Dodge Island

Currently no bunkering infrastructure exists on Dodge Island and this report provides details on the proposed dockside hydrant system and bunkers terminal that would be installed there.

2.3 Proposed Design Concept

The Port is concerned that the existing bunkering services at PortMiami, namely barge bunkering offered by TransMontaigne from their Fisher Island Terminal, do not provided pricing which is competitive with other ports on the east coast of Florida, or Ports of Call in the Bahamas or the Caribbean. Barging bunkers is weather dependant, labor intensive, environmentally risky and requires scheduling deliveries days ahead because of the barge loading times of up to five hours and transit times. Hydrant systems are capital cost intensive but eliminate all of the downsides of barging. The proposed design

Concept involves the installation of a new bunkering terminal and dockside hydrant system located on Dodge Island.

2.3.1 Bunkering at Port Canaveral

The current bunkering system at Seaport, Port Canaveral is an excellent model to emulate at PortMiami for the following reasons:

- It was constructed and put into operation in 2010 by VTTI a division of VITOL on a turnkey design, permit, finance, build and operate over a 30 year lease with two ten year options, and
- Cost recovery is on a per barrel throughput fee paid by the users at no cost to Port Canaveral, and
- The design reflects the current state of the art in high capacity dockside bunkering systems built to serve both cruise ships and cargo ships, and
- Port Canaveral staff advised that VTTI/VITOL performed the entire contract on time and budget.

The VTTI Port bunkering system at Port Canaveral has the following characteristics:

- The bunkering system has three tanks; one 150,000 barrel tank for high sulfur residual fuel, one 150,000 barrel tank for low sulfur residual fuel, and one 50,000 barrel tank for distillate fuel. The annual throughput is believed to be approximately one million barrels per year and this would result in an average annual tank turnover rate of 2.8 per year, which is relatively low by industry standards of twelve to fourteen turnovers per year.

- The bunkering system has a loading rate of 3Kb/h or 2,100 gpm per ship which is standard for ship bunkering which typically takes place with 6" or 8" hose connections. Their pumping system has the capacity to loadout/bunker high capacity Navy ships at 10 Kb/h or 7,000 gpm.

- The main fuel residual hydrant line is 14" diameter from terminal to the cruise ship berth area with 10" spurs piping to each ship loadout position where it reduces to 6' at the riser to the ship. The system can loadout two ships at a time, at a flow rate of 2,100 gpm per ship by utilizing two

pumps. The bunker pit at each ship berth only has two pipe connections; one for distillate fuel and one for residual fuel.

- The bunkering system has individual meters at each of the ship hydrant connections and an automation system meters the barrels loaded out to each ship, the fuel temperature and the density correction to provide a reference Bill of Lading to the ship's crew. Staff levels are minimized as VTTI staff just has to connect the fueling hose to the hydrant riser for distillate or residual fuel and observe the meter until the requested number of barrels have been loaded out at which point the bunkering stops and a reference Bill of Lading is handed off to the ship's crew. The contents of the fuel hose are then blown back into the hydrant line.

The above features should be included in the proposed Dodge Island dockside hydrant system as they provide a highly efficient bunkering system with proven capabilities in the Florida market.

2.3.2 Port Miami Bunkering Throughput Data

TransMontaigne provided five years of data on throughputs of various bunker fuels in Table 2 and Tables 3 and 4 provide throughput data for cargo ships:

Table 2 - Actual Bunker Fuel Demand for Cruise and Cargo Ships

Fuel Type	2009 bbls	2010 bbls	2011 bbls	2012 bbls
Residual 380 – 3%	2,725,000	2,974,000	2,776,000	2,317,000
Residual 380 --1%	0	0	0	332,000
Distillate - DMA	145,000	166,000	79,000	125,000
Total	2,870,000	3,140,000	2,855,000	2,774,000

Note: The low sulfur residual fuel (ISO 380 and distillate DMA) were first required in 2012 to meet the MARPOL Emission Control Area requirements.

Table 3 - Actual 2012 Bunker Demand for Cargo Ships

Fuel Type	Demand (tonnes)	Conversion	Demand (bbls)
Residual 380 > 3%	33,000	X 6.57	216,810
Residual 380 <1%	18,000	X 6.57	118,260
Residual 180 = 1%	1,600	X 6.57	10,512
Distillate - MGO	12,000	X 7.41	88,920
Total	56,000		434,000

Table 4 - Projected 2013 Bunker Demand for Cargo Ships

Fuel Type	Demand (tonnes)	Conversion	Demand (barrels)
Residual 380 > 3%	56,000	X 6.57	367,920
Residual 380 < 1%	11,000	X 6.57	72,270
Residual 180 = 1%	8,000	X 6.57	52,560
Distillate - MGO	6,000	X 7.41	39,420
Total	81,000		532,170

A comparison of Tables 1 and 2 indicates that in 2012, cargo ship utilized 50% of the distillate fuel throughput and 13% of the residual fuel throughput at PortMiami. Table 5 presents Ship Call data for PortMiami

Table 5- Ship Call Data for PortMiami

Fiscal Year	2009	2010	2011	2012
Cargo:	1,706	1,663	1,936	1,649
Cruise:	795	778	774	721
Total:	2,501	2,441	2,710	2,370

The question of whether bunkering demand should trend with Ship Call data or overall economic indicators is a difficult one to resolve. Cargo movements generally follow the economic indicators of the country of receipt and cruise ship movements follow the economic indicators of the country of origin. As per table 5, from 2009 through 2102 the total Ship Calls increased steadily peaking in 2011 and then dropping off in 2012. The bunkers demand increased over the same period, peaking in 2010 and then dropping off in 2011 and 2012. Bunkering demand may decrease up to 3 to 5% per year even with constant utilization as ship operators are introducing energy conservation measures on both propulsion systems and shipboard systems.

Table 6 (from the AECOM report dated March 2010 entitled "Feasibility Study for DECAL PortMiami Conceptual Bulk Petroleum Facility and SeaPort Hydrant System Project") presents the calculated bunker fuel demand for PortMiami since data on the actual bunker fuel demand was not available at that time.

Table 6 - Potential Bunker Fuel Demand (DECAL 2010)

Variables	Cruise Only	Cruise + 25% Cargo	Cruise + 50% Cargo
2009-10 Cruise vessel schedules	879	879	879
Cruise Vessels % Fueling at Miami	100%	100%	100%
No. of Cruise Berths	6	6	6
Weekly Cruise Calls per Berth Requiring Fuel	2.8	2.8	2.8
Average fuel required per vessel call (MT)	1,459	1,459	1,459
Average fuel required per vessel call (barrels)	9,481	9,481	9,481
Potential Cruise Vessel Fuel Demand (MT)	1,282,108	1,282,108	1,282,108
Potential Cruise Vessel Fuel Demand (barrels)	8,333,699	8,333,699	8,333,699
2008 Cargo vessel calls	1,624	1,624	1,624
Cargo Vessels % Fueling at Miami	0%	25%	50%
No. of Cargo Berths	8	8	8
Weekly Cargo Calls per Berth Requiring Fuel	-	1.0	2.0
Average fuel required per vessel call (MT)	2,917	2,917	2,917
Average fuel required per vessel call (barrels)	18,962	18,962	18,962
Total Cargo Vessel Fuel Demand (MT)	-	1,184,381	2,368,763
Potential Cargo Vessel Fuel Demands (barrels)	-	7,698,479	15,396,959
Total Annual Fuel Demand (MT)	1,282,108	2,466,489	3,650,870
Barrels/MT	6.50	6.50	6.50
Potential Total Annual Fuel Demand (barrels)	8,334,000	16,032,000	23,731,000

Table 6 indicates a "Cruise Only" potential bunkering throughput of 8,344,00 barrels and a 16,032,000 barrel throughput for cruise ships plus 25% of the cargo ships and 23,731,000 barrels throughput for all cruise ships plus 50% of cargo ships. These figures are well in excess of the actual bunkering throughput data from TransMontaigne as indicated in Table 2 and from the cargo ship data indicated in Tables 3 and 4. For example the data in Tables 1 and 2 indicate that cruise ships only had an actual (all fuels) throughput of 2,336,000 barrels for 2012, which is only 28% of the computed annual cruise ship demand of 8,334,000 barrels from Table 6.Either the DECAL computation is overly optimistic or the cruise ships are bunkering away from PortMiami as the actual fuel demand for 2012 from Table 14 is one third of the computed potential demand in Table 3.

This difference could be due to over-estimation of bunkering demand or lack of Home Port purchases due to non-competitive pricing at PortMiami.

2.3.3 Terminal and Hydrant System on Dodge Island

As indicated in § 2.3.1 the VTTI/VITOL bunkering terminal at the Cape Canaveral Seaport is an appropriate hydrant bunkering system for emulation on Dodge Island.

2.3.3.1 New Bunkers Terminal

The original 2010 DECAL tank sizing (see Table 5 below) is a starting point for determining the correct storage tank capacity.

Table 5 – Proposed Storage Capacity on Dodge Island (DECAL 2010 Report)

Variables	Small Tanks	Large Tanks	Total
Tank Diameter (ft)	110	150	
Tank Diameter (m)	33.5	45.7	
Tank Radius (m)	16.8	22.9	
Tank Area m^2	883.3	1,642.6	2,526
Expected Tank Height (m)	14.6	14.6	
Tank Volume (m^3)	12,927	24,038	
Tank Volume (metric tons)	12,927	24,038	36,965
Barrels/Metric Ton	6.5	6.5	
Tank Volume (barrels)	84,025	156,245	240,270
No. of Tanks	4	4	8
Total Static Capacity (barrels)	336,000	625,000	961,000

The above Table proposed a total of eight tanks with a total storage capacity of 961,000 barrels, which was based upon a projected annual throughput of 8,333,700 barrels (See Table 6) with an annual tank turnover rate of 8.7 times per year. This is is more efficient than TransMontaigne's 2012 annual rate of 4.72 tank turnovers per year. As indicated in the comments after Table 6, the DECAL projected throughputs are too high and the correct tank capacity or the proposed bunkering terminal on Dodge Island are computed in Table 6.

Table 6 – Design Throughput for proposed Dodge Island Terminal

Fuel Type	2012 Thru'put	Design A	Design B	DECAL 2010
R 380 - 3% S	2,317,000	4,634,000	9,268,000	13,390,000
R 380 - 1% S	332,000	664,000	1,382,000	1,921,000
ULSD*	125,000	250,000	500,000	721,000
Total	2,774,000	5,548,000	11,150,000	16,032,000
Tank Capacity*				
R 380 - 3% S	231,700	463,400	926,800	1,339,000
R 380 - 1% S	33,200	66,400	138,200	192,100
ULSD**	12,500	25,000	50,000	72,100
Total	277,400	554,800	1,115,000	1,603,200

**ULSD = ultra low sulfur diesel distillate fuel with <.1% sulfur content

Note: All throughputs are in barrels, and Tank capacity based upon 10 turnovers per year. The 2012 throughput (Thru'put) is actual from TransMontaigne, Design A = 200% of 2012 throughput, Design B = 400% of 2012 throughput and DECAL 2010 is estimated throughput assuming 100% bunkering of home port cruise ships and cargo ships.

Tank Design A with an annual throughput of 5,548,000 barrels has been selected as the appropriate design throughput based upon currently available data. The proposed design capacity of 554,800 barrels has been rounded up to 650,000 barrels (a 17% increase) to allow for future expansion. It should be noted that this storage capacity is 98% that of the current Fisher Island Terminal, which is well over capacity for the current demand as evidenced by the low turnover rate of 4.65 times per year. Table 7 below provides the storage tank data for the fuel terminal proposed for Dodge Island:

Table 7 – Proposed Storage Capacity Calculations (This Report)

Variables	Small Tanks	Large Tanks	Total
Tank Diameter (ft)	136	172	
Tank Height (ft)	48	48	
Tank Volume (barrels)	125,000	200,000	240,270
No. of Tanks	2	2	4
Total Capacity (barrels)	250,000	400,000	650,000

Based upon the 15 acre parcel required for the DECAL 2010 bunkering terminal, a 10 acre parcel will be adequate for the development of the new fuel storage, heating and pumping systems for the proposed hydrant bunkering facility on Dodge Island, as described in § 2.3. 2. The storage capacity of 650,000 barrels with four tanks for different marine fuels, a heating and pumping station for the hydrant loop and a truck loading rack for dockside deliveries. With 14 tank turnovers per year, this facility has a maximum annual throughput of 9,100,000 barrels per year or a daily average of 25,000 barrels. A pumping rate of 5,000 barrels per hour (3,500 gpm) is required to match the current barge bunkering rates. In order to handle the projected ultimate peak (200% of average) throughput of 50,000 barrels per day, a design pumping rate of 5,000 barrels per hour (3,500 gpm) for 10 hours a day will provide the required throughput. This is equivalent to 328% of the daily throughput of the current Fisher Island barge bunkering system.

AECOM has evaluated alternative parcels of land at on Dodge Island for this facility based upon a review of the 2035 Master Plan and the DECAL 2010 report. (See Figure 3) The recommended location for the proposed fuel terminal is shown on Figure 4 and is identical. This figure also provides a concept layout for the proposed bunkering terminal and dockside hydrant system on Dodge Island.

2.3.3.2 Dockside Hydrant System

A dual fuel buried pipeline system consisting of one trace heated residual fuel pipe (single wall steel) and one unheated distillate fuel pipe (double wall steel) will be installed from the bunkers terminal r in § 2.3.2.1 to each active cruise ship and cargo ship fueling station.

Currently there are six active cruise ship berths (Bay 00 to Bay 59, a total length of 7,126 feet on the north side of Dodge Island (see Figure 5). Generally cruise ships berth with their starboard side to the berth and they are bunkered by barge on the port side. The length of the cruise ships berthing at Dodge Island ranges from 500 ft to 1,200 ft.

Each of these cruise ship berths would be equipped with a hydrant connection to provide residual fuel or distillate fuel to up to three ships simultaneously. Future expansion of the cruise berths on the north side of Dodge Island up to three additional berths east of berth 50-59. The hydrant loop pipe in this area will be

installed with tees and valves so that the additional lateral pipe runs out to the new berths can be installed in coordination with the construction of the new berths.

Current cargo ship lengths vary between 328 and 545 feet. Generally cargo ships berth with their starboard side to the berth allowing their cranes (normally on the port side) to be moved out of the way to work cargo. Most ships have their bunker connection located just in front of the accommodations area. Seaboard generally discharges a ship with two mobile harbor cranes (berths 155 – 177) or under the gantry cranes (berths 129 – 143). Occasionally Seaboard will use the gantries east of 130.

Berths 177-182 The port will begin construction in December, 2013 of a new linear bulkhead (extending from 177) in this area which is currently rip-rap. This project has been designed and it should be completed by the end of December 2014.

Berths 165-177 There is a ro-ro restriction on the east end of 172-177. The port has committed to rehabilitating the entire berth line from 165-177 before 2017. Such construction will more than likely eliminate the ro-ro bump at berth 172.

Seaboard does not have a continuous line of berths which complicates the placement of bunker hydrants. Presently berths 149 -154 cannot be used to work cargo as this section of the apron cannot hold the weight of cargo and cranes unless improved by PortMiami. The ro-ro bump at berth 154 also segments the continuous line. Berths 155 – 171 are the longest section of uninterrupted berthing, but it has ro-ro bump restrictions on each end. Berths 172 – 177 are currently used, but they have a ro-ro bump restriction on the east end. Presently Seaboard is unable to use the berths west of 177 until improvements are completed by PortMiami

Figure 4 provides details on the proposed routing of the dockside hydrant system which is very similar to that defined in the 2010 DECAL study (see Figure 3), except that a total of six cruise ship hydrant connections and eight cargo ship hydrant connections will be included in Phase 1 as described in this section. Further hydrant to ship connections can be added when as the new berths are completed.

It should be noted that there are two separate fuel lines to each berth (one trace heated and insulated single wall steel pipe for residual fuels and one unheated and un-insulated double wall steel pipe for distillate fuel),. This system has a

limitation in that only one type of residual fuel can be pumped at a time and that switching over from high sulfur residual fuel to low sulfur residual fuel, requires that the product lines to the next ship to fuel are full of low sulfur, rather than high sulfur fuel. This requires "line fill flushing" to ensure that the correct grade of fuel is in the supply line right up to the ship / hydrant connection for the next ship to be bunkered. This line fill / line flush procedure will be done by programming the fuel selection / pump control system to do the final stages of high sulfur bunkering for the previous ship with low sulfur fuel so that the line to the next ship to be bunkered is pre-filled with the correct fuel for the next ship.

The hydrant system will be built initially to service the six active cruise bunkering berths and eight active cargo bunkering berths and it will be expanded as new bunkering berths are brought on line as per the 2035 Master Plan.

2.3.3.3 New Tanker Unloading Berth

Since bunkers will not be received from Fisher Island a new deepwater tanker offloading berth must be installed to supply bunkers to the new bunker terminal described in § 2.3.3.1. It should be designed to handle tankers larger than the 220,000 barrel tankers currently used at Fisher Island (draft limited at 34.5') , thereby reducing the transportation cost of inbound bunkers.

2.4 Capital Cost of Dodge Island Dockside Bunkering System

A capital cost budget has been developed for each of the major cost components of the proposed bunkers terminal and dockside hydrant system on Dodge Island.

2.4.2.1 New Terminal on Dodge Island

AECOM has investigated the cost of the proposed new terminal on Dodge Island totaling $21,908,166 as indicated in Table 8 below.

Table 8 – Dodge Island Terminal Cost Estimate

Service to Cruise & Cargo Areas	Unit	# of Units	Cost per Unit	Total Cost
Storage Tanks	Barrel	650,000	$15	$9,750,000
Concrete Foundation & Dikes	Barrel	650,000	$6	$3,900,000
Electrical, Mechanical & Instrumentation		0		$1,500,133
Pavement (12")	SY	30,000	$35	$1,050,000
Fence	Feet	2,400	$20	$48,000
Admin Building	EA	1	$300,000	$300,000
Truck Loading Rack	EA	3	$300,000	$900,000
Construction Cost				$17,488,133
Engineering and Project Management				$1,748,813
Contingency (20%)				$2,671,220
Total Project Cost				$21,908,166
Projected Cost Per Barrel of 2012 Bunkers Throughput (2,774,000 Barrels)				$7.99

2.4.2.2 Dockside Hydrant System

Table 9 - Dockside Hydrant System Cost Estimate

Service to Cruise & Cargo Areas	Unit	# of Units	Cost per Unit	Total Cost
Number of On-berth Pits	EA	14	$50,000	$700,000
On Berth Pipeline				
12" dia (Residual) single wall pipe	Feet	16,600	$183	$3,037,800
8" dia (Distillate) double wall pipe	Feet	16,600	$200	$3,320,000
Inside Tank Farm Pipeline				
12" dia (product 1)	Feet	1,000	$183	$183,000
8" dia (black oil)	Feet	1,200	$200	$240,000
Pavement (12")	SY	30,000	$35	1,050,000
Construction Cost				$9,230,800
Engineering and Project Management		0		$923,080
Contingencies		0		$1,384,620
Total Project Cost				$11,538,500
Projected Cost Per Barrel of 2012 Bunkers Throughput (2,774,000 Barrels)				$4.16

The total estimated cost of the proposed dockside hydrant as presented in Tables 7, 8 and 9 is $17,039,480 or $4.16 per gallon of 2012 throughput (2,774,000 barrels)

2.4.2.3 New Tanker Unloading Berth

As indicated in § 2.3.3.3, a new tanker unloading berth is required to supply bunkers to the new terminal on Dodge Island. The estimated cost of this facility is provided in Table 9 below:

Table 10 – Tanker Unloading Berth Cost Estimate

Service to Terminal Area	Unit	# of Units	Cost per Unit	Total Cost
Berth + Loading Arms	EA	1	$6,000,000	$6,000,000
Vessel Unloading Equipment	EA	1	$500,000	$500,000
Construction Cost				$6,500,000
Engineering and Project Management				$650,000
Contingency (20%)				$1,300,000
Total Project Cost				$8,450,000
Projected Cost Per Barrel of 2012 Bunkers Throughput (2,774,000 Barrels)				$3.04

The total estimated cost of the dockside hydrant system as presented in Tables 8, 9 and 10 is $41,896,666 or $15.10 per gallon of 2012 throughput (2,774,000 barrels)

2.5 Projected Operating Costs of Upgraded Bunkering System

The projected operating cost of the proposed terminal and hydrant system on Dodge Island has been developed in § 3.1 which projected an annual operating cost of $2,816,000 including labor, electric power and fuel for heating residual bunkers.

2.6 Financial Model

AECOM developed a financial model to provide the economic basis and rationale for evaluating the viability of the proposed dockside hydrant system. The financial model was developed to assess the internal rate of return on investment to upgrade the facility and to derive the annual income per barrel of petroleum that Port Miami will receive for the throughput of the upgraded facility.

We are assumes that money can be borrowed at 6%, and that in order to convert from onetime costs to annual costs for construction, the new terminal operator is able to borrow money for the life span of the asset at that rate and that there is no salvage value at the end of the useful life of the infrastructure.

The following assumptions were made in creating the financial model:

Escalation Rates:

- Property lease cost – 3% per year
- Operating cost increases - 3% per year
- Upgrade lease – 1.25% per year

Operator Costs:

- Construction cost estimate of $41,896,666 for the dockside hydrant system as indicated in § 2.4.2.3
- Lease cost to Port assumed at $100 K /acre/year
- Operating expenses estimated at $2,816,000 / year (§ 3.1).
- Property taxes estimated at 2.2% of construction cost annually

AECOM assumes the operator or bunkering consortium will pay for the development and operations of the facility and revenue will be derived by the Port from the tank lease rates. The Port of Miami will be compensated via lease rates for the construction and operation of the proposed facility on Port-owned land, in addition to the wharfage for bunker fuel vessels calling at the Port.

Table 11 – Annual Operating Costs

Annual Operating Costs	**Existing**	**Proposed**
Annual Costs:		
Amortization of Construction Costs	$0	$3,131,505
Facility maintenance	$100,000	$100,000
Barge operations (tugs, etc.)	$5,890,000	$0
Fuel Farm Operations	$4,992,000	$2,496,000
Pipeline pumping costs	$0	$95,000
Pipeline heating costs	$0	$225,000
Dodge Island lost container revenue	$0	$1,700,000
Annual Total Operating Cost	$10,982,000	$7,747,505
Cost Per barrel of 2012 Throughput	$3.96	$2.79

AECOM has assumed the Port of Miami will be paid wharfage of $0.14 per barrel plus a lease rate of $100,000 per acre of above grade area occupied by the bunkering facility

on Port property per year. The proposed dockside hydrant system will require approximately ten acres of land on Dodge Island, exclusive of the right of way for buried hydrant lines to the bunker berthing positions. This area was used for the projected Port revenue calculations in Table 12 below, based upon current and projected throughputs.

Table 12 - Port Revenues from Proposed Facility
s

Description	Status Quo	Proposed
Annual Volume - barrels	2,774,000	5,548,000
Annual Wharfage	$388,360	$776,720
Annual Lease Income	$0	$1,000,000
Total Port Income Per Year	$388,360	$1,776,720
Total Port Income Per bbl	$0.14	$0.32

2,774,000 barrels = 2012 bunkers throughput
5,548,000 barrels = annual design throughput = 200% of 2012
Maximum throughput = 9,100,000 barrels per year
Lease area = 10 acres

3.0 PROJECT FEASIBILITY

3.1 Projected Operating Cost of Bunkering by Hydrant

This section provides an operating cost estimate for a new state of the art bunkering terminal with dockside hydrants on Dodge Island.

The assumed rate of pay for bunkering operators is assumed to be $100 per hour including all benefits. One operator would be required in the control room, 1 operator for the pump and valve manifold plus four operators to staff that terminal and maintain bunkering service for up to two ships at a time (cargo or cruise).

The annual cost of two shifts per day for 365 days per year is:

6 x $100 / hr x 2,080 hours per year per shift x 2 shifts = $2,496,000

Electrical pumping and trace heating for residual fuel are estimated at $95,000 per year based upon the 2012 throughput of 2,744,000 gallons.

Residual fuel heating costs are estimated at $225,000 per year based upon the 1012 throughput of 2,744,000 gallons.

The total operating cost of bunkering by hydrant is estimated at $2,816,000 per year, and it is largely independent of throughput.

3.2 Security Issues

A dockside hydrant system is less vulnerable to vandalism and terrorism than a barge bunkering system as most of it is buried underground with the only access points being under locked access hatches.

3.3 Potential Environmental Impacts

Bunkering barges are subject to marine weather conditions including tidal currents and waves due to strong storms. The cruise ship bunkering positions on the North side of Dodge Island are vulnerable to strong north winds and the cargo ship bunkering locations on the south side of Dodge Island are vulnerable to southeast winds due to the long fetch to Key Biscayne. A dockside hydrant system is not vulnerable to marine weather conditions. A large spill during bunkering could have a major environmental impact Biscayne Bay.

4.0 PERMITTING AND DERM REVIEW

The permitting process for the bunkering hydrant system proposed for PortMiami is very complex and the details are provided in Appendix B.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

A new entity would design, build finance and operate the proposed new bunkers terminal and dockside hydrant system on Dodge Island. The estimated cost of this is $41,896,666. The capital cost of this option would be borne by the new entity.

Based upon the financial analysis herein, the installation of a new dockside hydrant bunkering system on Dodge Island could reduce the annual operating costs by $3,234,495 and reduce the cost of bunkering by $1.17 per barrel. Based upon information from cruise and cargo lines, this price reduction would not be adequate to cause a significant increase in bunkering throughput at PortMiami. Port revenues would increase by $1,388,360 assuming a constant warfage fee of $0.14 per barrel.

5.2 Recommendations

AECOM recommends the dockside hydrant system as having a lower annual operating cost inclusive of debt servicing. However, it will remove approximately ten acres of property and one berth position from the ultimate build out cruise and cargo use of Dodge Island. This project would take up to three years to design, permit, construct and commission, during which period bunkering by barge would have to continue.

APPENDICES

Appendix A - Figures

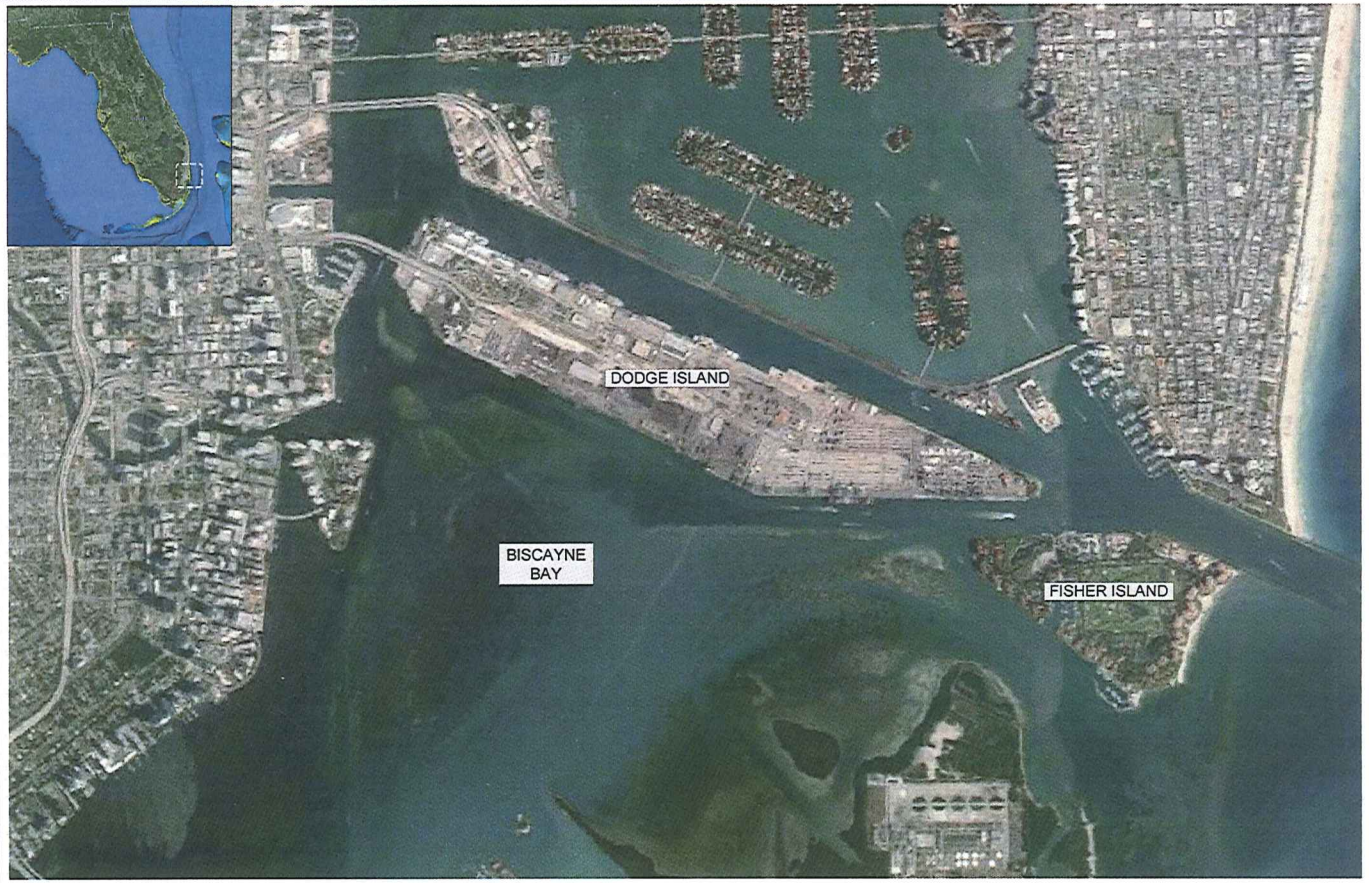

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FIGURE - 1

SITE VICINITY MAP - PORT OF MIAMI

NOT TO SCALE

AECOM

PROJECT

PORT of MIAMI BUNKERING STUDY

PORT of MIAMI
BISCAYNE BAY
MIAMI, FLORIDA

CLIENT

PORT of MIAMI

SEAPORT DEPARTMENT
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NR	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

PORT of MIAMI

SHEET TITLE

FIGURE - 1
SITE VICINITY MAP
PORT OF MIAMI

SHEET NUMBER

FIGURE - 1

EXISTING A.S.T. SCHEDULE **			
TANK DESIGNATION	TANK DIAMETER	TANK HEIGHT	ESTIMATED CAPACITY
A	100'	50'	69,760 BARRELS
B	110'	50'	84,520 BARRELS
C	135'	40'	101,905 BARRELS
D	115	40'	73,810 BARRELS
E *	120	48'	94,630 BARRELS
F	80'	50'	44,525 BARRELS
G	135'	40'	101,905 BARRELS
H	30'	30'	10,476 BARRELS
I	80'	35'	25,000 BARRELS
J	44'	36'	9,738 BARRELS
K	80'	42'	37,380 BARRELS
L	44'	36'	9,738 BARRELS
		TOTAL	665,190 BARRELS

* = DISTILLATE FUEL
** = RESIDUAL FUEL (UNLESS OTHERWISE NOTED)

N

FIGURE - 2

EXISTING FISHER ISLAND TERMINAL

0 60' 120'

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SHEET TITLE

FIGURE - 2
FISHER ISLAND
EXISTING FISHER ISLAND TERMINAL

SHEET NUMBER

FIGURE - 2

N

FIGURE - 3

DECAL 2010 PROPOSAL FOR DODGE ISLAND

40 0 20 40 80

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PORT of MIAMI
BUNKERING
STUDY

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FIGURE - 2
FISHER ISLAND
DECAL PROPOSAL FOR DODGE ISLAND

SHEET NUMBER

FIGURE - 3

FIGURE - 4

PROPOSED CONCEPT PLAN (DODGE ISLAND)

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KEY PLAN

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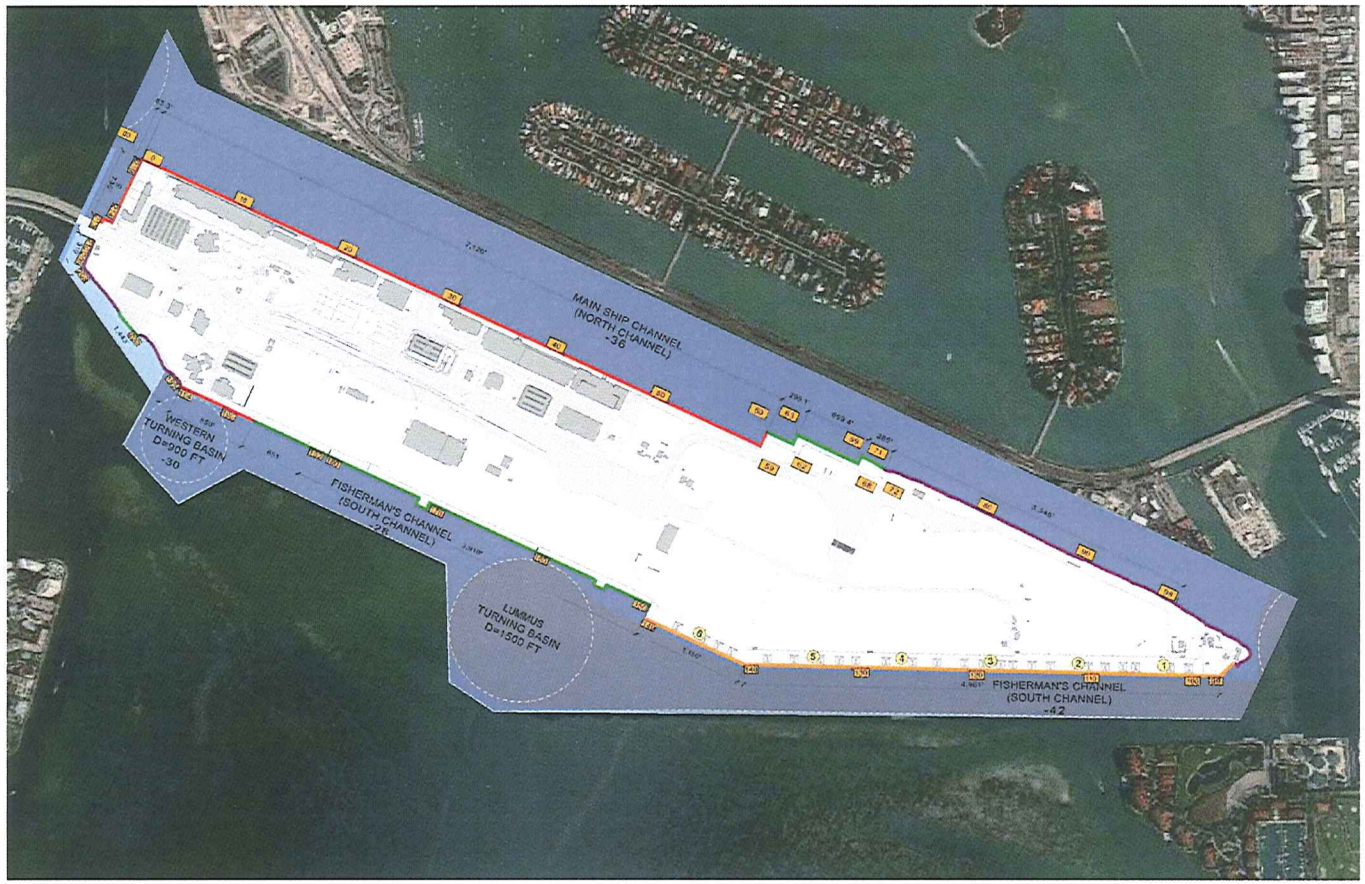
PORT of MIAMI

SHEET TITLE

FIGURE - 4
PROPOSED
CONCEPT PLAN
(DODGE ISLAND)

SHEET NUMBER

FIGURE - 4



N

FIGURE - 5

SHIP BERTHING PLAN BUILDOUT

40 0 20 40 80

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FIGURE - 5
BUNKERING BERTH PLAN
(DODGE ISLAND)

SHEET NUMBER

FIGURE - 5

Appendix B – Permitting Procedures & Public Outreach

AECOM has reviewed applicable codes and regulations to provide an overview of the permitting process for this project. The purpose of the overview is to identify the numerous permits and reviews and/or agencies involved in the permitting phase of the project described herein.

The first step in the permitting process for this facility would be a preliminary site plan review/approval during the early stages of the project. Site plan approval could involve a Biscayne Bay Shoreline Review Committee, and either an Administrative Site Plan Review (ASPR) or a Governmental Facilities Hearing.

Biscayne Bay Shoreline Review is a Zoning evaluation unit that coordinates applications and meetings for projects that must be approved by the Biscayne Bay Shoreline Development Review Committee.

The Code of Metropolitan Dade County requires that the construction and operation of County facilities obtain public hearing approval from the Board of County Commissioners. The Internal Services Department coordinates this process in conjunction with the Regulatory and Economic Resources Department.

The site plan will be reviewed by the Regulatory and Economic Resources Department (Development Services Division -previously Zoning, Planning Division and Division of Environmental Resources Management (DERM), and the Public Works and Waste Management Department for compliance with zoning regulations and site plan review criteria. Additionally, the Departments of Transportation Administration and Fire Rescue Department will be conducting a concurrency evaluation.

The Port of Miami should provide direction on specific site plan review procedures required for the proposed facility and conduct the process for site plan approval.

After construction documents/as-built plans have been completed, and a construction contract is awarded, a Building Permit application is required prior to the start of construction. Review of construction plans may involve the Division of Building and Permits (formerly the Building Department), Regulatory and Economic Resources Department Development Services Division and Planning Division, Public Works and Waste Management Department, DERM, Fire Prevention and Inspection Division and the Department of Health.

Pre-application meetings can be scheduled, prior to filing with all the applicable departments involved in the permitting process, to obtain information on filing

requirements, to review/revise completed applications and forms, and to review as-built plans.

Upon the completion of construction work, all inspections, including final inspections and certifications proving compliance with the requirements of all departments, the Building Department will issue a Certificate of Occupancy and Regulatory and Economic Resources Department Development Services Division and Planning Division will issue a Certificate of Use or Occupational License, which certifies the structure for its intended use.

4.1.1 Department of Public Works and Waste Management Department

The Department of Public Works and Waste Management Department reviews all applications for consistency with the County's Code requirements, including detail sheets and specifications in the Public Works and Waste Management Department Manual. This evaluation includes:

1. Right-of-way, widths and dedications, including to within 125 feet of the site.
2. Condition of streets, driveways and sidewalks adjacent to the property.
3. Sidewalks connecting from right-of-way to the project and continuing across driveways.
4. Sidewalks and pedestrian walkways.
5. Minimum required turning radius.
6. Visibility relating to landscaping, walls, fences, dumpster location, etc.
7. Number of fueling positions.
8. Gates.
9. Paving and drainage.

3.1.2 Regulatory and Economic Resources Department Development Services Division and Planning Division

Zoning permits authorize the use of structures. The Zoning Permit Sections of the Regulatory and Economic Resources Department Development Services Division determine whether or not present zoning regulations allow for certain uses or development proposals.

The Zoning Plans Processing Section will review as-built construction plans, currently under review with the Building Department, for compliance with the

zoning codes. This section works closely with Dade County Public Works and Waste Management Department Department to determine if road right-of-way dedications have been completed and whether the site complies with platting requirements. The Zoning Plans Processing Section also reviews zoning hearing and administrative variance files, administrative site plans and restrictive covenants specific to the project site to determine compliance with plans submitted for permitting.

Of major concern are setbacks to property lines, lot coverage, floor area ratio, height of buildings or structures, parking spaces, permitted uses in each zoning classification and compliance with the Landscaping Code.

The Biscayne Bay Shoreline Development Review Committee has the responsibility of reviewing applications for development within the shoreline review boundary. One of the many major responsibilities of the Committee is to prevent incompatible development with adjacent in- water and developed areas along the bay shoreline. Figure 4.1 depicts the Biscayne Bay Shoreline Development Review boundary.

Typically the following information will be required for a Site Plan review:

1. A completed application form.

2. Documentation of zoning and ownership of the area where the new facility will be located.

3. Boundary survey no older than one year indicating:
   a) Location and height of all existing structures, right-of-way, municipal boundaries, etc.
   b) Location, variety, size and height of all existing trees.
   c) Natural and archeological features (for shoreline review).

4. Site plan showing entire property and indicating:
   a) Location of lot lines.
   b) Shoreline and setback distances.
   c) Location, shape, size, height and use of existing and proposed structures.
   d) All dimensions measured to centerline of the streets.
   e) Location of on-site and off-street parking.
   f) Loading facilities, service areas and waste collection areas.

g) Location of streets, alleys, driveways, pedestrian ways and sidewalks.

5. Floor plans and elevations of:
   a) Buildings and structures, identifying all rooms and indicating dimensions of each.
   b) Accessory structures.
   c) Cross-sections through the entire property.
   d) Adjacent buildings or structures.

6. Landscape plan indicating:
   a) Location, variety, size and condition of all existing and proposed trees.
   b) Proposed fences.
   c) Landscaped areas, landscaping materials and outdoor furniture, if any.
   d) Buffers.
   e) Visual corridors.
   f) Lighting and trash receptacles.
   g) Landscape legend and certificate of compliance with Landscape Ordinance.

7. Zoning legend and zoning data calculations:
   a) Gross and net acreage.
   b) Required and provided open space area.
   c) Required and provided setbacks.
   d) Maximum density allowed.
   e) Provided density.
   f) Building heights.
   g) Area of building coverage at ground level.
   h) Required and provided trees and shade canopy.
   i) Required and provided parking.
   j) Paved area.
   k) Such other design data as may be needed to evaluate the project.

8. Any applicable fees

Once a Certificate of Occupancy has been issued by the Building Official, the Regulatory and Economic Resources Department will issue the Certificate of Use or Municipality Occupational License, also referred to as a Zoning Permit. Previous to the issuance of a Zoning Permit, Zoning Inspectors will

determine compliance with the requirements of the Zoning Code and conditions for use approved through the site plan review process.

4.1.3 Regulatory and Economic Resources Department Division of Building and Permits (Building Department)

Plans' reviewers and inspectors from the Building Department will approve each phase of the project, and determine compliance with applicable codes and approved plans. An application for a building or construction permit includes:

1. Permit application form.

2. Construction plans reviewed by a licensed Engineer and/or Architect, as required, indicating:
   a) Site requirements.
   b) Fire resistant construction.
   c) Smoke detectors location.
   d) Egress requirements.
   e) Accessibility requirements.
   f) Finishes.
   g) Roofing systems.
   h) Structural systems to support and transfer to ground gravity and wind loads.
   i) Connection between structural elements.
   j) Structural design calculations.
   k) Electrical systems.
   l) Service panels and schedule.
   m) Receptacles.
   n) Switches.
   o) Electrical equipment.
   p) Sanitary and water systems.
   q) Riser diagrams.
   r) Number and location of plumbing fixtures.
   s) Ducts.
   t) Diffuser sizes.
   u) Mechanical equipment.
   v) Energy calculations.
   w) Specialized mechanical, electrical and plumbing systems, such as toxic air infiltration, fire detection, alarm systems, etc.

3. Any Applicable Fees:

The Building Department will review the site plan and construction plans of all proposed buildings and structures for compliance with all applicable codes and standards before the issuance of a building permit. Reviews will verify the following code requirements:

1. Building:
   a) Occupancy classification.
   b) General building limitations.
   c) High-hazard use groups.
   d) Special conditions that modify allowable height and areas.
   e) Special requirements based on combustible storage and hazardous materials occupancy.
   f) Fire protection.
   g) Fire resistant construction.
   h) Fire resistivity.
   i) Interior finishes.
   j) Combustible materials.
   k) Means of egress.
   l) Exit access and exit discharge.
   m) Accessibility.
   n) Interior environment.
   o) Non-structural materials.
   p) Special devices and conditions

2. Structural:
   a) Structural design calculations.
   b) Design loads.
   c) Foundations.
   d) Concrete.
   e) Masonry.
   f) Structural steel design.
   g) Glass and glazing.

3. Electrical:
   a) Electrical equipment, materials and installations.
   b) Wiring methods and materials.
   c) Electrical service.
   d) Over current protection.

e) Grounding.
f) Separately derived AC systems.
g) Means of egress exit signs and lights.
h) Emergency systems.
i) Generator specifications.
j) Standby systems.
k) Miscellaneous requirements.
l) Disconnect means.
m) Wet locations.
n) Fire Protection Systems- Smoke Detection, Fire Alarm and Detection system.

4. Plumbing:
   a) Site plan.
   b) Riser diagram.
   c) Water calculations.
   d) Plumbing fixtures.
   e) Fixture requirements.
   f) Fixture, fixture fitting standards, installation requirements.
   g) Water supply and distribution.
   h) Materials.
   i) Piping support and installation.
   j) Interceptors and separators.
   k) Fuel-gas piping.
   l) Other gas piping systems.

5. Mechanical:
   a) Efficient utilization of energy.
   b) Equipment approval and installation.
   c) Energy efficiency applicability and compliance methods.
   d) Ventilation.
   e) Exhaust systems.
   f) Duct systems.
   g) Opening protection.
   h) Combustion air.
   i) Chimneys and vents.
   j) Specific fuel-burning equipment.
   k) Boilers, water heaters and pressure vessels.
   l) Refrigeration.

m) Hydronic piping.
n) Fuel oil piping and storage.

After plans have been reviewed and approved by the appropriate building officials and all the other departments involved in the permitting process, a Master Permit will be issued. Building Permits are issued in the name of the person performing the work.

Florida's Construction Lien Law requires that a Notice of Commencement be recorded with the Clerk of the Courts for real property improvements greater than $2,500.00. A certified copy of the recorded document must be provided at the construction site. During construction, each trade required to do construction work must apply for a permit under the approved Master Permit.

During the lifecycle of the construction project, the work will be inspected to verify that the work being performed is according to the approved plans. Inspections depend on what is involved in the project. Simply stated, an inspection is required prior to covering up any part of the construction.

Building Officials will issue a Certificate of Occupancy or Certificate of Completion when the structure or building is fit for occupancy. The construction must be completed and all final inspections must be obtained prior to application for a Certificate of Occupancy.

Request for Certificate of Occupancy or Certificate of Completion means a properly completed and executed application for:

1. A Certificate of Occupancy or Certificate of Completion.
2. A Certificate of Compliance from the licensed Architect or Engineer.
3. Any applicable fees.
4. Any documents required by the local Building Official.

Prior to the Building Department issuing the Certificate of Occupancy, the work completed also must comply with the requirements of all other Departments (DERM, Fire Rescue, Zoning, Public Works and Waste Management Department, etc.).

4.1.4 Regulatory and Economic Resources Department Division of Environmental Resource Management (DERM)

Prior to the Building Department issuing the Certificate of Occupancy, the work completed also must comply with the requirements of all other Departments (DERM, Fire Rescue, Development Services Division, Public Works and Waste Management Department, etc.).

- Water supply.
- Septic tanks and onsite sewage treatment and disposal system.
- Certificates of Use or Municipal Occupational License.
- Certificates of Occupancy.
- Trees and wetlands.
- Flood plain and grading.
- Storage tanks.
- Paving and drainage.
- Plumbing permits.
- Asbestos.
- Docks.
- Hazardous materials/waste.
- Air emissions.
- Land use covenants

Three groups work together within the DERM Office of Plan Review Services:

The Environmental Core Review
The Flood Plain Review
The Engineering Review

Environmental Core Review:

This review consists of DERM Plan Reviewers examining construction plans for building permits and Certificates of Use and Occupancy. The Core reviewer routes the plans to the various sections of DERM and issues DERM final approval. The Core review includes:

- Water and sewer service availability.
- Proposed land uses.
- Impact to wellfield protection areas.
- Impact on natural resources.
- Restrictive land use covenants.

- Flood plan management.

If the project will be served by a public sanitary sewer and there is an increase in the amount of wastewater discharged to the public sanitary sewers, it will require a Sewer Capacity Certification from DERM, which certifies that the proposed project will not overburden the sanitary sewer system. If an extension of a sanitary sewer line is required, DERM will issue a Sewer Extension Plan Approval letter.

Miami-Dade County code prohibits industrial facilities from operating when served by a septic tank or onsite sewage disposal and treatment system. A facility may be allowed to operate on a septic tank or onsite sewage disposal and treatment system by applying for a Major Departmental Review or approval from the Environmental Quality Control Board, depending on the characteristics of the project.

Flood Plan Review:

The purpose of the Flood Plain review is to ensure that the proposed structure is constructed at an elevation that will minimize any potential flooding caused by storms or from rising water. Applications for Flood Plain Review must be submitted with the following:

1. A site plan showing project locations, boundaries, and elevations thereof.
2. A topographical survey showing site elevations, including elevations of the crown of adjacent roads, swales, road shoulders and access to the site.
3. Flood program legend
4. Cross-section showing:
   a) Grade elevations.
   b) Transition of grade from centerline of road to structure.
5. A floor plan showing:
   a) Existing and/or proposed lowest floor elevation.
   b) Grade elevation adjacent to structure.

Engineering Review:

The Engineering Group is responsible for technical reviews involving:

- Industrial facilities.
- Paving and drainage.
- Asbestos.

- Air emission sources.
- Storage tanks.
- Upland and freshwater resources.
- Agricultural.

An Industrial Facilities review is required when the proposed use of a facility has the potential to store, handle, or generate hazardous materials and/or hazardous wastes. Applications for Industrial Facilities approval must be submitted with the following information:

1. Site plan indicating:
   a) Site location.
   b) Address and folio number of property.
   c) Property boundaries.
   d) All utility features within the site, including water and sewer lines and connection points, manholes, clean-outs, sampling points, septic tanks and drain fields, groundwater monitoring wells, above ground tanks, underground tanks, and existing on-site supply of production wells.

2. Floor plan indicating:
   a) Location of equipment, treatment systems, floor drains and their discharge points, restrooms and sewer connections, all hazardous material and waste storage and locations of waste generating equipment.
   b) Secondary containment areas and structures.
   c) Size, design, material of construction and location of fuel tanks.
   d) Fuel piping layout in plan and profile of entire piping running, indicating fuel pumps, if any, piping design, material, support and slope.
   e) Fuel tanks' anchoring details
3. A signed and sealed engineering report with a complete and detailed process description, equipment specifications, and material safety data sheets (MSDS).

4. Application forms:
   a) A complete permit application, when required, which will include Material Safety Data Sheets (MSDS) for the products used and copies of contracts with approved waste hauler(s).
   b) Spill Prevention Control and Countermeasure Plans, required for tanks or system of tanks with capacities of 5,000 gallons or more. S.P.C.C.P. signed and sealed by a professional engineer.

The Paving and Drainage review is required for any construction project which is proposing paved driveways, walkways, and/or courtyards that will require some form of drainage structure for the removal of storm water. Applications for Storm Water Drainage Approvals must be submitted with the following:

1. Paving and drainage plans:

    a) Site plan, indicating project location, building structures and limits of paved and unpaved areas.
    b) Survey showing land elevations and elevations of existing topographical features.
    c) Design details in conformance with good engineering practices and details stipulated in the Dade County Code.
    d) Plan and profile of the proposed drainage system.
    e) Existing and/or proposed drainage structure details.
    f) Identification and calculation of pervious and impervious areas within the project site.

2. Drainage calculations and test data.

If the facility's equipment, chemicals, or operations have the potential to emit air pollutants, an Air Permit Approval from DERM must be obtained. Other reviews that may be required by Sections of DERM include Coastal, Industrial Pre-Treatment, Water and Wastewater Conveyance, Water Control and Contaminated Sites.

Prior to the Building Department issuing a Certificate of Occupancy, it is necessary to comply with certifications required by DERM to allow the issuance of the C.O. The number of certifications required will depend on the specific characteristics of the project.

Prior to the Regulatory and Economic Resources Department issuing the Certificate of Use, the facility must comply with DERM's Land Use Regulations, obtain the appropriate Sewer Capacity Certification, and secure any required DERM Operating Permits.

4.1.5 Fire Rescue Department

All fire permits and inspections related to construction projects are handled by the Fire Prevention Division and Inspection Division. Industrial and

manufacturing facilities must be reviewed by the Miami-Dade Fire Engineering Department. Reviews to the construction plans will verify the following code requirements.

1. Life safety drawings will be reviewed for compliance with NFPA 101:

   a) Site plan indicating fire hydrant locations and fire flow, fire lanes, emergency vehicle zones and turning radius, etc.
   b) Fire hydrants water extension number.
   c) Type of construction.
   d) Generator class type and level.
   e) Fire sprinkler system.
   f) Fire alarm system.
   g) Occupancy classification.
   h) Occupancy separation, if more than one occupancy is defined in the facility.
   i) Classification of hazard.
   j) Calculations related to number of occupants for each occupancy class. k) Special requirements for areas containing hard hazard contents.
   l) Specific occupancy requirements for special structures such as towers, piers, and water surrounded structures.
   m) Means of egress.
   n) Exits and exit discharge.
   o) Interior finishes.
   p) Emergency shut-off control.
   q) Emergency lighting.
   r) Emergency signage.
   s) Areas required to be separated with fire resistive construction.
   t) Penetration and protection of openings.
   u) Fire suppression equipment.
   v) Fire retardant materials.
   w) Detailed plans indicating compliance of fuel system and fuel storage with applicable codes.

2. Fire-Alarm System:

   a) Scope of work statement.
   b) Floor plans indicating room dimensions; room uses; wall and partitions heights; each device, module, appliance and component; diagram of

device coverage, location of remote annunciator; manual pull stations; automatic initiating devices; relays for automatic extinguishing systems.

c) Ceiling plans indicating ceiling mounted devices, ceiling type and height.
d) Riser diagram with all zones and circuits labeled, indicating each device, module, appliance and component; wire size, type and number of conductors of each circuit; relays for automatic extinguishing systems.
e) Total number of devices and components being installed. f) Alarm qualifier's state license.
g) UL, FM or ETL certificates.
h) Manufacturer's specifications and installation sheets.
i) Manufacturer's specifications of device compatibility.
j) Description of suppression systems and sprinkler system if provided.
k) Class and/or style of initiating device circuits, signal line circuits and notification appliance circuits.
l) Sequence of operation.
m) Manufacturer's model and number and symbol of each device.
n) Emergency forces' notification.
o) Sprinkler supervision.
p) Method of communication to the monitoring station.
q) Ampacity of power supply and circuits for each fire alarm control panel and NAC panel.
r) Speakers' wattage tap.
s) Wattage capacity and load calculation of amplifiers.
t) Backup power.

3. Sprinkler System - Depending on occupancy classification and occupant load, the Office Maintenance Building and/or Heater Room Building may require a sprinkler system.

a) Scope of work.
b) Occupancy classification.
c) Underground, PIV, FDC and fire hydrant location.
d) Miami-Dade Fire Department's flow test with calculations. e) Design calculations.
f) Piping layout.
g) Pumps, piping, valves and hanger schedule. h) Ceiling plans indicating heads' location.
i) Head schedule.

j) Exterior elevations and interior elevations indicating any changes in ceiling level.
k) Structural details of roof, if open ceiling application.
l) Specifications sheets for all devices, control units and components.
m) Manufacturer listed submittal data for heads, pumps and valves. n) Flood elevation and pump room elevation.
o) Pump flow.
p) Graphic of flows and pressure.

4. Fire Department Access Roads- Site Plan indicating:

a) Dimensions of fire department access roads.
b) Turn radius, cul-de-sac, T or Y turnarounds.
c) Sidewalks and green spaces to be identified separate from roadway dimensions.
d) Building access.
e) Gates' dimensions and hardware.
f) Clearance around fire hydrants and fire department connections.

Once approved, plans will be stamped and approved by Miami-Dade Fire Engineering Department. Businesses are required to have an annual inspection and receive a Life Safety Operating Permit.

4.1.6 Water and Sewer Department (WASD)

For a new, physical connection to the water and sewer system for the first time, or for changes of use or modifications to existing facilities that are increasing in water and/or wastewater flows, WASD will determine if the water main and sewer fronting the property is of sufficient size for the additional demand and if it provides complete property frontage and will issue a Water and Sewer verification form.

For connecting a new water service installation to an existing water main abutting the property, the following documents and information must be submitted:

1. Property information (name, address, folio, legal description).
2. Property boundary survey signed and sealed by a Professional Land Surveyor or a Professional Surveyor and Mapper.
3. Daily rated gallonage.

4. A sewage flow allocation letter from DERM or aseptic tank I onsite sewage treatment and disposal system approval letter from the Miami-Dade Department of Health.
5. Connection fees.

For connecting the facility to the WASD sewer system, the following documents and information must be submitted:

1. Property information (name, address, folio, legal description).
2. Property boundary survey signed and sealed by a Professional Land Surveyor or a Professional Surveyor and Mapper.
3. A sewage flow allocation letter from DERM.
4. Connection fees.

In addition, when an extension of a public water main line or sanitary sewer line is required for a new water and/or sewer service agreement, the following documents and information will also need to be submitted prior to preparation of the service agreement:

1. Location sketch.
2. Proposed site plan showing the layout of buildings and roads.
3. Construction schedule.
4. Proposed plan of water and/or sewer connection and layout.
5. Current and proposed zoning designation.

For an extension of a public water main line, a Water Extension Plan Approval letter from the Department of Health is required.

For an extension of a sanitary sewer line, a Sewer Extension Plan Approval letter from DERM is required.

For a fire hydrant installation, plans are required to be approved by the Fire Engineering Department.

4.1.7 Department of Health (DOH)

If the facility requires a septic tank or onsite sewage treatment and disposal system, a permit should be issued by the Department of Health. The following information must be submitted to the DOH:

1. Application for a construction permit for an Onsite Sewage Treatment and Disposal System.
2. Site plan.
3. Floor plans.
4. Application fee.
5. A site evaluation to determine the conditions on the property must be performed by a qualified professional. The Health Department can perform this site evaluation, but an additional fee will be charged for that service.

Standards for septic tank systems and other onsite sewage treatment and disposal systems can be found in Florida Statutes (FS) and the Florida Administrative Code (FAC).

No building permit is issued in cases where the property is serviced by a septic tank or onsite sewage treatment and disposal system until a permit is obtained with the DOH. In addition, a Certificate of Occupancy is not issued until there is evidence that the system has received final construction approval from DOH.

If an extension of a public water main line is required, DOH will issue a Water Extension Plan Approval letter.

4.1.8 Permit Expediting Services

Permit expediting services can be provided during the Building Permit phase, which is indicated in orange boxes on the flowchart on page 16. Permit expediting services may include the following:

1. Coordinate pre-application meetings between departments involved in the process and the project team.
2. Identify required forms and checklists for permit applications.
3. Identify required forms and checklists with DERM, Fire Engineering Department, DOH and WASD.
4. Review application package.
5. Submit application for Building Permit.
6. Follow up revisions.
7. Coordinate actions required to correct disapproval comments.
8. Re-submit building permit application and follow up, as required.
9. Pick up Master Permit when issued.

10. Record Notice of Commencement.
11. Submit Trades Permit applications.
12. Follow up Trades Permit applications and pick up permits when issued.
13. Submit application for Certificate of Occupancy once all inspections and approvals have been obtained, follow up and pick up Certificate of Occupancy when issued.

4.2 Port of Miami-Dade Marine Fuel Terminal Plan and Permit Requirements

The proposed marine fuel terminal will be located within the Port of Miami, which is under the jurisdiction of the Miami-Dade County Seaport Department. All users of the Port facilities are required to comply with all applicable laws, including the Code of Miami-Dade County, Port of Miami Terminal Tariff No. 010 and all regulations or directives issued by the Port Director or Seaport Department staff. The following is a list of plans and/or permits 'typically' required for a marine fuel terminal project.

1. Site Plan Approval

   Conceptual approval will be issued by the Port of Miami-Dade. A minimum of three (3) sets of plans will be processed through the Building, Zoning and Fire Departments and DERM. The approval may be subject to a public hearing and commission approval, depending upon existing inter-local agreements between Miami-Dade County and the Port of Miami-Dade. Typical items required on the site plan include tanks, buildings, containment, paving, parking, etc. Storm water issues will need to be addressed prior to designing the site plan. Retention/detention areas, if required, will need to be shown. Also it must be determined that the containment design is adequate to meet the storm water calculations.

2. Storm Water Permitting

   Approval from the DERM Pollution Control Division and a Class VI permit will be required for the construction of an on-site drainage system. In addition, the issuance of an Environmental Resources Permit from the Florida Department of Environmental Protection (FDEP) will be required for the operation of the surface water management system.

The proposed marine fuel terminal will have to comply with the National Pollutant Discharge Elimination System (NPDES) as well. A Notice of Intent (NOI) will need to be submitted for both construction and operation of the facility. A major component of this permit requirement is the generation and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

Also included will be the Industrial Waste Water Discharge Permit. This permit will be for the discharge of hydro-testing waters and any other process or industrial related waters from the facility.

The proposed marine fuel terminal will have to connect to the Port of Miami-Dade infrastructure. An agreement will need to be made with the Port to allow for the discharge into their Municipal Separate Storm Sewer System (MS4). This may require the upgrading of some Port infrastructure to allow for this.

3. Site Development Plans

Site development plans, signed by a licensed-engineer registered in the State of Florida, will need to be generated. These plans will include designs for water, sanitary sewer, storm sewer, paving plans, and containment drainage plans. The containment drainage will need to address the impervious liner and the catchments sumps and pumps used to remove the accumulated storm water from the containment areas.

A Sanitary Sewer License will be issued by Miami-Dade County Water & Sewer Department to facilitate a new connection to the public water supply system, or as additional discharge into the Port's sanitary sewer system. It is possible that the Port of Miami-Dade infrastructure can be accessed and/or upgraded to accommodate the increase in sanitary sewer discharge.

4. Storage Tank Foundation Permits

Foundation permits will be required if new storage tanks will be installed. The reviewing agencies may require additional geotechnical studies to confirm that the existing subsurface or foundations can support the proposed storage tank farm. If this information is required, some of the items that will need to be addressed include subgrade preparation, mud slab details, ring wall details,

backfill details, impervious material installation, cathodic protection specifications and design, and interstitial monitoring system details.

5. Storage Tank Construction Permits

   Design plans will require approval from all agencies and will need to include information related to shell details, gauge, alarm, and accessory details, and fire-fighting equipment details (foam chambers and associated piping).

6. Terminal Piling Plan

   If pilings are required, a plan depicting piling details and installation locations must be submitted. Piling details would be required for such items as tanks, pipe supports, and foundations.

7. Terminal Pipe Supports

   Design plans will need to include piping supports. Piping supports will require review for both product piping and for foam piping. There are different standards for spacing that will be addressed during the review.

8. Terminal Foundation Plans

   Design plans will need to detail all the foundation plans for piping supports, building slabs, loading rack(s), canopy slab, vapor unit, and pump skids.

9. Terminal Product Piping

   Plans detailing all piping, valves, pumps, flanges and all other associated accessories will be required.

10. Terminal Electric

    These plans will need to include details related to terminal main power, tank electrical, building electrical, terminal lighting, gate actuator, rack skid, fire panel electric, and security electric.

11. Terminal Buildings

All buildings will require permitting prior to construction. Pre-fabricated buildings need to be approved by the Department of Community Affairs in Tallahassee, Florida, and must meet stringent South Florida Building Codes. Typical structures would include the loading rack canopy, electrical building (MMC), office building, and fire pump housing.

12. Fire Fighting Equipment Plan

A set of firefighting equipment plans, depicting the Fire Department connections, the fire pump system, the fixed firefighting system, the fire alarm system, and the loading rack canopy system, will need to be generated and signed and sealed by a Florida registered firefighting professional.

13. Cargo Fuel Lines

Design plans, including all piping schematics and details, asphalt repairs, maintenance of traffic plans, off-loading structures, foundations, containment, connections to existing piping manifolds, and vapor recovery unit information, if required, for back loading onto vessels, will require signature and seal by a Florida-licensed engineer. The plans will require approval by all reviewing agencies. Typically, contaminated soil will be encountered during construction and will have to be disposed of accordingly.

14. Cargo Fuel Line License Agreement

The proposed cargo line corridor will require acceptance/agreement by the Port of Miami- Dade. The easement will need to be executed and then will have to be approved by the Board of County Commissioners. Part of this approval process is the generation of a survey for the License Agreement that identifies the cargo line corridor.

15. Development of Regional Impact Approval (DRI)

The proposed marine fuel terminal project is exempt from the regulations; however, exemption letters will be required from the Port, Miami-Dade County, and from the Department of Community Affairs.

16. Air Permitting

The proposed marine fuel terminal will utilize above-ground storage tanks (AST). These ASTs may contain a variety of fuels, i.e., black oil, bunker fuel, diesel, and/or cutter stock bunker fuel. Potential sources of air emissions may include the tank farm, generator, heater room, and the firefighting pumps and bladder tank. Air permits will be required from Miami- Dade County and, possibly the FDEP, depending upon the quantity of criteria pollutants emitted and/or if vapor pressure of the stored products is excessive.

17. Integrated Contingency Plan

This plan will include the Florida Discharge Prevention and Response Plan (FDPRP), the Environmental Protection Agency (EPA) Spill Prevention Control and Countermeasure Plan (SPCC), the EPA Emergency Response Plan, and the United States Coast Guard Spill Plan.

18. Terminal Security Plan

The proposed facility will need to comply with the Maritime Transportation Security Act (MTSA) mandated Facility Security Plan. As per the Port of Miami Terminal Tariff No. 010, Item 113, Facility Security Plan (FSP), the proposed marine fuel terminal will require "a plan developed to ensure the application of security measures designed to protect the facility, their cargoes, and persons on board at the respective Maritime Security (MARSEC) Levels pursuant to all applicable laws including but not limited to 33 Code of Federal Regulation 101.105, et seq". Additionally, since this terminal is on County property and not private property, there may also be some issues with Florida Department of Law Enforcement (FDLE).

19. Operations Plan

An Operations Plan for the Terminal and for the Dockside Operations will be required. In addition, as per the Port of Miami Terminal Tariff No. 010, Item 714, Annual Permit Fees (A), "No one may engage in a business transaction or provide services on the Port of Miami- Dade without first obtaining a business permit, supplying evidence of insurance coverage, and complying with all other applicable provisions of the tariff and/or other pertinent regulations issued by the Port Director and the Miami-Dade County Code".

20. FTZ I Bonded Warehouse

An application for bonding should be submitted if foreign jet fuel storage is contemplated for the proposed terminal. This is issued by the Customs and Border Patrol department. The application must include background checks required for personnel involved.

21. ATF Permit for Ethanol

If it is determined that ethanol will be stored at the proposed marine fuel terminal, this permit, issued by the Bureau of Alcohol, Tobacco and Firearms (ATF), will be required. The submittal of this type of application requires background checks as well.

4.3 DERM Letter of Interpretation

The DERM will be the main regulatory agency involved in the permitting of the proposed marine fuel terminal at the Port of Miami. As previously mentioned, the DERM reviews all applications for Building Permits, Occupational Licenses, Certificates of Use and Occupancy to ensure compliance with all applicable environmental regulations at the Federal, State, and County levels.

At present, numerous environmental monitoring sites have been identified at the Port of Miami.
If this project proceeds into design and permiting the consultant will have to submit submit a formal request to the DERM for a 'Letter of Interpretation' (LOI) regarding the design and construction of a proposed marine fuel terminal at the Port of Miami. The LOI is a comprehensive review and summary of findings of the plans and permitting requirements associated with design and construction projects. The DERM LOI researches and discusses a variety of project-related issues, plans and permitting requirements.

An overview of the DERM LOI indicates:

1. Potable Water Service and Wastewater Disposal
   Connection of the proposed project to the public water supply system and sanitary sewer system is required;

2. Storm Water Management

   Due to current contamination associated with the proposed site, approval from the DERM Pollution Control Division and a Class VI permit are required prior to the construction of a drainage system on site;

   An Environmental Resources Permit from the Florida Department of Environmental Protection (FDEP) is required for the construction and operation of the required surface water management system;

   Compliance of site grading and development plans with Miami-Dade County Code requirements (Chapter 11C);

3. Pollution Remediation

   Records of current contamination assessment or remediation issues for five (5) businesses at the Port of Miami-Dade;

4. Enforcement History

   A review of the Permits and Enforcement database and the Enforcement Case Tracking system has revealed four (4) open and fifteen (15) closed enforcement records for properties associated with the Port of Miami-Dade;

5. Coastal Resources

   Any work conducted in, on, over or upon tidal waters or wetlands of Miami-Dade County requires a Class I permit;

6. Air Quality Preservation

   Conceptual or proposed design will require a Miami-Dade County Air Permit; an FDEP Air Permit also may be required depending upon the quantity of criteria pollutants emitted;

   If site renovation/demolition is proposed, disturbances of building materials suspected of containing asbestos will require an asbestos survey from a Florida-licensed asbestos consultant. Depending upon the survey results, the removal of asbestos-containing materials may be required by a Florida-licensed asbestos abatement contractor;

7. Hazardous Materials Management

DERM approval may be required regarding the on-site management practices to control potential discharge and spillage of pollutants associated with activities inherent to the proposed land use;

8. Fuel Storage Facilities

Secondary containment for fuel hydrant lines and storage and the installation of a 'high density polyethylene' liner must comply with current regulations;

Compliance with local and state regulations regarding the design, permitting, installation, modification, repair, replacement and continuing operation of the proposed facility;

9. Operating Permits

Proposed operating permits from the DERM will be required;

10. General

Additional information regarding project scope of work, design specifications, the submittal of a Spill Prevention Control and Countermeasures Plan, injection well (IW) permit and state registration requirements, etc.

Refer to Appendix B for a copy of the DERM Letter of Interpretation.

Additional permits or approvals may be required by the Army Corps of Engineers, the FDEP, and the South Florida Water Management District for the proposed project, i.e., Environmental Resources Permit, Notice of Asbestos Renovation or Demolition, etc.

4.4 PUBLIC OUTREACH

4.4.1 Introduction

This chapter describes public outreach activities undertaken to date by AECOM in the planning of a two million barrel storage tank facility at the Port of Miami. The regulatory context at County and State levels is discussed in Section 5.2, while the process involved in developing the scope of work for the project is described in Section 5.3. Details related to the public outreach program are outlined in Section 5.3 and the importance of community involvement from the inception of the development process is stressed. Section 5.4 concludes with a discussion regarding the importance of political advocates in assisting the successful bidder to navigate the departmental channels in Dade County, as well as at the Port of Miami. Emphasis is placed throughout on the commitment of AECOM's staff to the adoption of the program and to its conviction that its implementation will bring numerous benefits to Dade County, to the Port of Miami and to the entire community.

4.4.2 Regulatory Context

This Draft Feasibility Study has been prepared in accordance with AECOM's policies and procedures regarding feasibility planning documents. This study addresses all of the known regulatory requirements for a project of this size, type and scope. Members of AECOM's staff have contacted or visited each of the agencies that would have direct regulatory oversight of this project. Each group was asked to provide a comprehensive list of all the regulatory requirements needed to complete the work. These are described in Section 4.0. Each agency will be made aware of the proposed project to work with AECOM and the successful bidder to transform the concept into a reality. AECOM has developed exceptional professional relationships on both the County and State levels and will use those relationships to ensure that this program moves forward with minimum intervention from the regulatory community and in full compliance with all mandated rules and regulations of the appropriate agencies.

4.4..3 Project Scoping Process

Once the Port reaches a decision to move forward with the project, a Draft Scoping Document will need to be produced, outlining the proposed bulk fuel storage program, as well as the scoping process. This document will include information pertinent to the background of the proposed project, the purpose and need for the planned work, a discussion of alternative approaches, a general analysis for assessing possible impacts,

and a summary of efforts related to public participation to be implemented during the course of the project.

AECOM staff will meet with County and State agencies to discuss the proposed project. A draft Scoping Document will be reviewed with each of the agencies to address any comments they may have regarding the program prior to the completion of the Scoping Document. This should serve to eliminate any previously unidentified public issues that might arise prior to the final submittal of the proposals by interested bidders.

4.4.4 Ongoing Public Participation Process

4.4.4.1. General Overview

Public involvement is a factor of considerable significance with regard to the proposed bulk storage facility project. Attendance at public meetings will be an important component of the outreach process and will provide a venue in which to solicit input from members of the community. These meetings, which ideally could begin before the Seeping Meeting, mentioned in Section 5.3 above, will provide a forum for citizens, not only to become informed about the program, but also to express their opinions and concerns and to contribute to ongoing discussions essential to the decision-making process. Attendance at such gatherings will be assembled by AECOM and will have the support of the Port of Miami.

AECOM will assemble a team dedicated specifically to advocating the benefits of this program and, further, will identify and recommend a local outreach firm, whose services will be utilized throughout the development phase, to clarify details related to the project and to explain its advantages. This should prove to be a valuable adjunct in avoiding the possibility of delays due to the public's lack of knowledge or comprehension regarding the aims of the program.