Draft
Bayport Ship Channel Improvements General Conformity Determination

In Support of
Department of the Army
Permit Application SWG-2011-01183

U.S. Army Corps of Engineers, Galveston District

December 2012

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A draft of this document was prepared for the Port of Houston Authority by Starcrest Consulting Group, LLC, under subcontract to the Joint Venture of Turner Collie & Braden Inc., and Gahagan & Bryant Associates, Inc., and provided to the U.S. Army Corps of Engineers, Galveston District, for their use.

SECTION 1 INTRODUCTION

The Port of Houston Authority (PHA), Harris County, Texas (hereinafter referred to as "the Applicant") applied to the U.S. Army Corps of Engineers (USACE), Galveston District, for a Department of the Army Permit under Section 404 of the Clean Water Act Section and Section 10 of the Rivers and Harbors Act of 1899 for dredge and fill activities related to the improvements of portions of the Bayport Ship Channel (BSC), hereinafter referred to as "the proposed project", on December 6, 2011. The permit was applied for through Department of the Army Permit Application SWG-2011-01183. The proposed project requires dredging in navigable waters to deepen and widen portions of the BSC, and potential placement of fill in waters of the United States, both regulated activities under the jurisdiction of the USACE. In accordance with the General Conformity (GC) regulations promulgated under the Clean Air Act in 40 CFR Part 93 Subpart B (Determining Conformity of Federal Actions to State or Federal Implementation Plans), this Draft General Conformity Determination has been prepared to analyze and document the GC-related air emissions that would result from the proposed project and document that these emissions conform to the last U.S. Environmental Protection Agency (USEPA) approved State Implementation Plan (SIP) applicable to the Houston/Galveston/Brazoria (HGB) ozone non-attainment area.

1.1 Project Background

The Applicant is an autonomous governmental entity created in 1927 by a special act of the Texas Legislature (article III, section 52 of the Texas Constitution, Act of 1927, 40th Legislature, R.S., Chapter 97, § 1, 1927 Texas General Laws 256, 256-57), with a mission to provide, operate, and maintain waterways and cargo/passenger facilities. Its mission is also to promote trade and generate favorable economic effects upon, and contribute to, the economic development of the Applicant, the City of Houston, and the communities of Harris County and the Texas Coastal Region. This mission is to be accomplished in a manner that provides sufficient funds to cover the Applicant's operational expenses and capital investments.

The Port of Houston is ranked first among U.S. ports in foreign waterborne tonnage (14 consecutive years); first in U.S. imports (19 consecutive years); second in U.S. export tonnage and second in the U.S. in total tonnage (19 consecutive years) [PHA, 2010]. More than 220 million tons of cargo moved through the Port of Houston in 2009. More than 7,700 vessel calls were recorded at the Port of Houston in 2009 (PHA, 2010). The Port of Houston is home to the world's second largest petrochemical complex. The size of the refining industry plus the concentration of other energy sector services and industry (e.g. equipment manufacturing) in the area help position the Port of Houston as one of the few ports that exports more goods than it imports.

Based on container cargo processed through its facilities, the Port of Houston is the seventh largest container port in the U.S., and the leading container port on the Gulf Coast. It handles almost over 65 percent of the container traffic in the Gulf Coast region and over 94 percent of the container traffic in Texas (PHA, 2011). The Port of Houston is a 52-mile-long complex of diversified public and private port facilities located in southeastern Texas. These facilities include the Houston Ship Channel (HSC), its tributary channels and basins which extend from Morgan's Point to the HSC Turning Basin within the City of Houston, Buffalo Bayou from the HSC Turning Basin to Main Street, and the BSC. The facilities include a container terminal at Barbours Cut Terminal (BCT) at

Morgan's Point, and a container terminal at the Bayport Ship Channel Container Terminal (BSCCT) on the BSC. There are also two privately-owned liquid cargo terminals to serve the petrochemical complex located next to the BSCCT. There are other smaller facilities along the HSC around the HSC Turning Basin that have been used to handle containerized cargo; however, these facilities serve smaller vessels, have insufficient shore-side handling and storage, are not designed for modernized container operations, and are not suited for this use. Therefore, the BCT and BSCCT have been the primary container terminals for the Port of Houston.

The BSC began with a series of agreements in 1964 between Humble Oil and Refining Company and the Harris County HSC Navigation District (now the PHA) to dredge a new side channel to connect to the HSC in the present-day location of the BSC. A 10-foot deep, 100-foot wide barge channel was completed in 1966, and later deepened to 12 feet in 1970 as the first phase of the project. The second phase began in 1972 and was completed in 1977, resulting in the Bayport Turning Basin, aids to navigation, dredged material placement, drainage structures, access roads, and railroad modifications on the property on the south side of the channel within the land cut. The land cut is the portion of the channel that was created by cutting into the mainland. The channel was later deepened in 1974 to its current authorized depth of -40 feet mean low tide (MLT) in order to handle a design vessel drafting 36 feet, pursuant to Department of the Army permit number 6140. Federal maintenance of the BSC was authorized by an amendment to Section 819 of the Water Resources Development Act (WRDA) of 1986, Public Law 99-662. The USACE assumed maintenance of the channel in April 1993 with a Local Cooperation Agreement (LCA) authorized by the WRDA 1986 amendment.

A Twenty-foot Equivalent Unit (TEU) is a standard measure of cargo volume equal to the volume of a standardized twenty-foot-long shipping container. The Port of Houston handled 1,057,869 TEUs in 2001 with most of this (911,903 TEUs) handled at the BCT, the Applicant's then-primary facility. This exceeded the practical annual throughput capacity of that facility, and regional container vessel traffic was expected to increase. Container throughput in Houston had risen at an average growth of more than 10 percent per year since 1992, a rate among the highest in the world. Therefore, the Applicant sought to develop new container and cruise terminal facilities at the BSC to meet current and anticipated future needs. Planning for these facilities resulted in the *Final Environmental Impact Statement (FEIS) for Port of Houston Authority's Proposed Bayport Ship Channel Container/Cruise Terminal*, dated May 2003, hereafter referred to as the "Bayport Ship Channel Container/Cruise Terminal FEIS" (BSCCT FEIS). Construction started in 2004, with the first phase completed in January 2007, providing three of the seven planned container ship berths.

1.1.1 Project Description and Purpose

The proposed project is located at and near the BSC, in the northwest part of the upper Galveston Bay, within Harris and Chambers Counties, Texas (Figure 1.1). The BSC is currently maintained by the USACE to a depth of -40 feet (ft) MLT plus 2 ft of advanced maintenance and 2 ft of allowable overdepth, with a bottom width of approximately 300 feet, and is approximately 3.5 miles in length. The Bayport Flare, the wide channel turning segment connecting the BSC to the Houston Ship Channel (HSC), is currently maintained at a depth of -40 ft MLT plus 7 ft of advanced maintenance and 2 ft of allowable overdepth from the confluence of the flare and HSC to approximately Station 214+00. The Applicant proposes to use a hydraulic pipeline dredge to deepen and widen portions of the BSC. The channel would be deepened from the Bayport Turning

Basin through the Bayport Flare. The depth would be increased to -45 ft MLT, plus two ft of advanced maintenance and two ft of allowable overdepth. The channel bottom width would be widened by 100 ft to the north, from Station 214+00 to the land cut, and by 50 ft to the north from the land cut to the turning basin, with a transition between the 50- and 100-ft sections. The Flare, which will be eased (widened) to a radius of 4,000 ft and depth of -40 ft MLT in a separate project by the USACE Galveston District, would be further deepened to match the -45 ft MLT depth of the proposed channel improvements. Maintenance dredged materials would be placed into existing placement areas during construction. New work dredged material would be used beneficially in existing dredged material placement areas (PAs) 14 and 15 to raise levees to increase capacity, and to build levees already planned by the USACE for the PA14/15 Connection, and possibly Atkinson Marsh Cell M11. The proposed project is illustrated in Figure 1.2.

Figure 1.1: Vicinity Map

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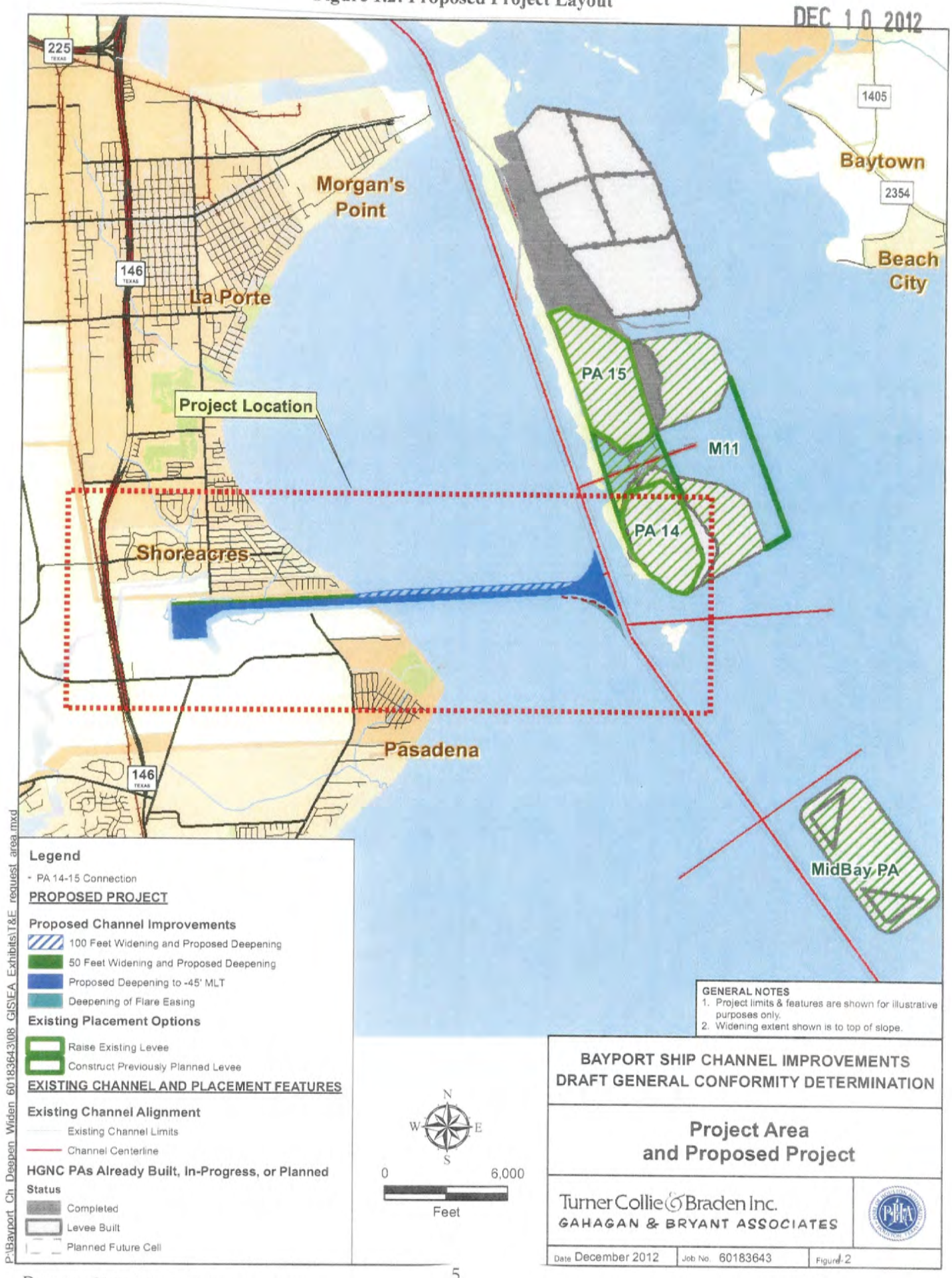
Figure 1.2: Proposed Project Layout



The overall project purpose is to deepen and widen the existing Bayport Ship Channel, as needed, to reconfigure the site to alleviate the current transit restrictions and increase travel efficiencies for vessel transit, improve safety conditions for vessel operations, improve conditions for port operations, and beneficially use the new work dredged material. At the time the channel was completed in 1974, the largest container ships could hold just over 2,000 TEUs (Port Bureau, 2011). Since then, container ship sizes have grown to more than 10,000 TEU. Ships approaching this size are already calling on the BSC, even before the completion of the Panama Canal expansion. The proposed project would increase the navigational efficiency and safety of vessel traffic already utilizing the BSC and BSCCT, and will prepare the channel and terminal for more efficient and safe operations when future increases in large vessel traffic occur. The navigational efficiency and safety needs driving the project are explained in more detail in the following section.

1.1.2 Need for Project

The need for this project is driven by the following considerations:

- **Navigational Inefficiency and Safety** - Navigational inefficiency and safety concerns due to current channel depth and size for vessels currently calling on the BSCCT
- **Larger Vessel Traffic** - Expected increase in larger vessel traffic associated with current industrial trend and the phasing out of the current smaller sized vessels
- **Cargo Handling Capacity** - Continued and growing demand for container cargo handling capacity at the Port of Houston
- **Limited Capacity for Growth** - Limited capacity for growth at Barbours Cut Container Terminal, presence of modernized terminal facilities at BSCCT, and need for deeper draft service for existing petrochemical terminal users at the BSC.
- **Economic Development** - PHA's mission to contribute to economic development of the surrounding and regional communities

1.2 Regulatory Background

General Conformity is a Federal regulatory program designed to ensure that actions taken by Federal entities, such as permits issued by the USACE, do not hinder states' efforts to meet the national ambient air quality standards (NAAQS). The definition of a Federal action as specified in 40 CFR 93.152 includes "...a permit, license, or other approval for some aspect of a nonfederal undertaking, (and) the relevant activity is the part, portion, or phase of the nonfederal undertaking that requires the federal permit, license, or approval."

With regard to a dredging project such as the Bayport Ship Channel Improvement Project, the Federal Action consists of the Department of the Army permit issued by the USACE authorizing the dredging, and any work that depends on the issuance of the permit is subject to General Conformity review. Placement of dredged material is subject to General Conformity review if the placement is

under the authorization and control of the USACE. Maintenance dredging is not subject to General Conformity review.

The USEPA has established a series of steps to determine whether a given Federal Action is subject to General Conformity review as follows (USEPA, 2010):

1. Whether the action will occur in a nonattainment or maintenance area (see **Table 1-1** below for the attainment status of the project area);
2. Whether one or more of the specific exemptions apply to the action;
3. Whether the federal agency has included the action on its list of "presumed to conform" actions;
4. Whether the total direct and indirect emissions are below or above the *de minimis* levels (see **Table 1-2** below for the *de minimis* levels); and/or
5. Where the facility has an emission budget approved by the state as part of the SIP, the federal agency determines if the emissions from the proposed action are within the budget.

Regarding the proposed Bayport Channel Improvement Project,

1. The action will occur in the 8-county Houston-Galveston-Brazoria (HGB) ozone nonattainment area, which is designated as a severe nonattainment area (NAA) for the 1997 ozone standard and as marginal nonattainment for the 2008 ozone standard;
2. None of the specific exemptions apply to the action, except to the extent that any of the dredging to be carried out is maintenance dredging, which is specifically exempt;
3. The USACE has not included dredging projects on a list of "presumed to conform" actions;
4. Total direct and indirect emissions, as currently estimated, will exceed both the *de minimis* level of 25 tons of oxides of nitrogen (NO_x) in a severe ozone nonattainment area and the *de minimis* level of 100 tons of NO_x in a marginal nonattainment area. (see **Table 2-1** in Section 2 for estimated project related emissions); and
5. The Port of Houston Authority does not possess an emissions budget approved as part of the HGB area SIP.

Based on the discussion presented above and the emissions presented below in Section 2, a General Conformity determination is required for NO_x emissions from the proposed project. Projected emissions of volatile organic compounds (VOCs) do not exceed the *de minimis* level in any project year so a determination is not required for VOC emissions. Since the action is required to demonstrate conformity for NO_x, one or more of the following conditions must be met (USEPA, 2010).

1. Demonstrating that the total direct and indirect emissions are specifically identified and accounted for in the applicable SIP;

2. Obtaining a written statement from the state documenting that the total direct and indirect emissions from the action, along with all other emissions in the area, will not exceed the SIP emission budget;
3. Obtaining a written commitment from the state to revise the SIP to include the emissions from the action;
4. Obtaining a statement from the metropolitan planning organization (MPO) for the area documenting that any on-road motor vehicle emissions are included in the current regional emission analysis for the area's transportation plan or transportation improvement program;
5. Fully offsetting the total direct and indirect emissions by reducing emissions of the same pollutant or precursor in the same nonattainment or maintenance area.

A sixth potential demonstration method, conducting air quality modeling that demonstrates that the emissions will not cause or contribute to new violations of the standards, or increase the frequency or severity of any existing violations of the standards, is not available for the proposed project because modeling is not acceptable for ozone nonattainment areas due to the complexity of ozone formation from precursor pollutants and the limitations of current air quality models.

Of the options detailed above, the Applicant elected to utilize the second option, obtaining concurrence from the Texas Commission on Environmental Quality (TCEQ) that the total direct and indirect NO_x emissions from the action will not exceed the applicable SIP as well as the most recent TCEQ adopted SIP emissions budget, because of the very low level of emissions compared with the SIP budget, and the temporary nature of the emissions. It is important to note that no emissions will occur during the three years (2016, 2017, and 2018) that will be used to determine attainment in 2019.

Table 1-1: Attainment Status of Houston-Galveston-Brazoria Area

Pollutant	Primary NAAQS	Averaging Period	Designation	Counties	Attainment Deadline
Ozone (O_3)*	0.075 ppm (2008 standard, not final)	8-hour	Marginal Nonattainment	*	December 31, 2015
	0.08 ppm (1997 standard)	8-hour	Severe Nonattainment	*	June 15, 2019
Lead (Pb)	0.15 µg/m^3 (2008 std)	Rolling 3-Month Avg.	Attainment/Unclassifiable		
	1.5 µg/m^3 (1978 std)	Quarterly Average	Attainment/Unclassifiable		
Carbon Monoxide (CO)	9 ppm	8-hour	Attainment/Unclassifiable		
	(10 mg/m^3)				
	35 ppm	1-hour	Attainment/Unclassifiable		
	(40 mg/m^3)				
Nitrogen Dioxide (NO_2)	0.053 ppm (100 µg/m^3)	Annual	Attainment/Unclassifiable		
	100 ppb	1-hour	Pending		
Particulate Matter (PM_{10})	150 µg/m^3	24-hour	Attainment/Unclassifiable		
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (Arith. Mean)	Attainment/Unclassifiable		
	35 µg/m^3	24-hour	Attainment/Unclassifiable		
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (Arith. Mean)	Standard Revoked August 23, 2010		
	0.14 ppm	24-hour	Standard Revoked August 23, 2010		
	75 ppb	1-hour	Pending		

* Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties
Source of table: http://www.tceq.texas.gov/airquality/sip/hgb/hgb-status

Table 1-2: Significant Action Thresholds in Nonattainment Areas

Ambient Pollutant	Nonattainment Status	Tons/yr
Ozone (VOCs or NO_x):		
	Serious NAA's	50
	Severe NAA's	**25**
	Extreme NAA's	10
	Other ozone NAA's outside an ozone transport region	**100**
	Other ozone NAA's inside an ozone transport region	
	VOC	50
	NO_x	100
Carbon monoxide:	All NAA's	100
SO_2 or NO_2	All NAA's	100
PM–10:		
	Moderate NAA's	100
	Serious NAA's	70
PM–2.5:		
	Direct emissions	100
	SO_2	100
	NOx (unless determined not to be a significant precursor)	100
	VOC or ammonia (if determined to be significant precursors)	100
Pb:	All NAA's	25

Source of table: 40 CFR §93.153 Applicability. (Amended to include PM2.5)

SECTION 2 PROJECT CONSTRUCTION EMISSIONS

Project construction emissions have been estimated using equipment and activity estimates provided by the project engineers and emission factors and other information from published sources, including the applicant's recently released air emissions inventory, *2007 Goods Movement Air Emissions Inventory at the Port of Houston* (Starcrest, 2009), and the emission estimating model MOBILE6.2. Use of the Goods Movement Emissions Inventory (GMEI) as a source of emission factors and other emissions-related information ensures that the emission estimates presented in this conformity determination are consistent with the applicant's port-wide inventory of air emissions.

The project emissions presented in Table 2-1 have been based on operational and equipment assumptions developed as part of the detailed project planning process, and on published emission factors and other emission-related operational information. Diesel engines used in dredging and placement work have been assumed to be "Tier 1" level engines while the passenger cars and light duty trucks used in employee commuting have been assumed to be typical of the general fleet, using default settings in the MOBILE6.2 model. Details of the emission estimates can be found in Attachment A and in the GMEI report. Note that maintenance dredging to be conducted on the enhanced channel after completion of the proposed project has not been included in these emission estimates because maintenance dredging is not subject to General Conformity review.

Table 2-1: Estimated Emissions from Proposed Project Construction (Tons Per Year)

Component of Work	2013 NOx	2013 VOCs	2014 NOx	2014 VOCs
Dredging	233	9.1	185	7.2
Booster Pump	5	0.2	52	2.5
Support Vessels	115	5.1	105	4.7
Placement Site Work	9	1.4	9	1.3
Employee Vehicles	0.17	0.18	0.15	0.17
Total	**362**	**16**	**351**	**16**

2.1 Dredging Equipment and Supporting Vessel Emissions

Emission sources on the dredge itself consist of diesel-fueled engines that provide power for the various operations required for dredging. The dredge is expected to be a cutter suction dredge equipped with a main engine to provide power to the cutterhead, an engine to power the ladder pump used to transport the dredged material from the substrate to the surface, an engine to move and position the ladder that guides and positions the cutterhead, and an auxiliary engine to produce electricity for power needs on the dredge. The dredging operation will also require, at certain times, a diesel engine powered booster pump to extend the range that the dredged material can be transported by pipeline as a slurry to the placement area, and various support vessels such as positioning tugs, crew boats, and survey boats.

The project engineers provided estimated characteristics of the diesel engines on board the dredge and of the diesel engine that will power the booster pump, such as horsepower, operating hours, and average operating loads. They also provided typical characteristics of the support vessels, including horsepower and operating hours. Emission factors for all of these diesel engines were obtained from the "harbor craft" section of the GMEI, which lists emission factors for marine engines of various sizes and emission tier levels.

2.2 Dredged Material Placement Site Work

Once the dredged material has been pumped to the placement area it will be moved and compacted by non-road equipment such as dozers and loaders. The project engineers provided typical horsepower and operating hours of this type of equipment, and average load factors were obtained from the GMEI. Emission factors were based on the emission certification levels of Tier 1 non-road equipment. Dredged material placement and handling will account for a small percentage (approximately 2.5%) of overall project construction NO_x emissions.

2.3 Employee Vehicle Commuting

Although a very small part of overall project construction emissions, an estimate has been prepared of emissions from the vehicles of workers commuting to and from the job sites. These emissions were estimated using the MOBILE6.2 emission estimating model, using the model's estimates for light-duty gas vehicles and light-duty gas trucks, the most likely vehicle types used for commuting. Commuting distance was based on the average commuting distance in Houston according to the Texas Transportation Institute (TTI, 2011). On-road vehicle commuting will account for less than 0.1% of overall project construction NO_x emissions.

SECTION 3 GENERAL CONFORMITY EVALUATION

To demonstrate that the project construction NO_x emissions can be accommodated in the HGB SIP emissions budgets, the most recent USEPA-approved ozone SIP demonstration[1] was reviewed to determine the emissions allocated to the various activity categories in which the proposed project's construction activities will fall. In addition, emissions have been compared with the most recent ozone SIP adopted by the TCEQ but not yet approved by USEPA.[2] While the SIPs evaluate NO_x emissions from all sources, including biogenic (non-human-caused) emission sources, this evaluation focuses on the categories most relevant to the proposed project construction emissions, specifically the Construction and Mining and the Commercial Marine categories. Employee commuting emissions have been compared with the SIP's on-road mobile source emissions.

While the on-road mobile source emission budget was provided in the SIP, the Construction and Mining and the Commercial Marine categories emissions were not identified explicitly in the SIP. These two categories fall under the non-road source category that includes other non-road sources like rail, agricultural, logging, and other non-road vehicle uses. In the current USEPA-approved ozone SIP, the non-road category, controlled emissions has NOx emissions of 146.66 tons per day (tpd), for calendar year 2008. While a specific breakdown of this non-road source category is not available for the SIP numbers, the TCEQ provided the breakdown for the state's submission of 2008 emissions to USEPA under the Consolidated Emissions Reporting Rule (CERR).[3] These emissions totaled 149.24 tons per day for the non-road source category, so they can be considered comparable to the SIP emissions. The emissions budgets for the Construction and Mining and Commercial Marine categories that are in the CERR submission, along with the on-road Mobile Sources emission budget in the SIP, are presented in Table 3-1.

Table 3-1: Applicable SIP NO_x Emissions for 2008

Categories	2008 NOx Emissions (tpd)
Construction and Mining	28.45
Commercial Marine	39.48
On-road Mobile Sources	171.65
Totals	**239.58**

Table 3-2 presents the proposed project construction emissions in tons per year (tpy) and in average tons per day and compares these estimates with the 2008 emissions corresponding to the SIP demonstration. Since the project construction phase is expected to encompass two calendar years, the table compares the higher year of emissions against the emissions budget figures.

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[1] HGB Eight-Hour Ozone Standard SIP Demonstrating Reasonable Further Progress (RFP), Rule Log 2006-1892-SIP. Details can be found at: http://m.tceq.texas.gov/airquality/sip/may2007hgb.html#rfp

[2] *Emissions Modeling for the HGB Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard*. Details can be found at: http://www.tceq.state.tx.us/assets/public/implementation/air/sip/hgb/hgb_sip_2009/09017SIP_ado_Appendix_B.pdf

[3] For information see: http://www.epa.gov/ttnchie1/cerr/index.html

Table 3-2: Comparison of Proposed Project Emissions with Modeled SIP Emissions Budgets (Tons per Day)

Project Activities	SIP Inventory Categories	Project NOx Emissions (tpy)	Project NOx Emissions (tpd)	2008 HGA SIP Emissions Budget (tpd)	2008 % HGA SIP Emissions Budget (%)
Dredging Activities (dredge, support vessels)	Commercial Marine Vessels	352.9	0.97	39.48	2.5%
Land-side Activities (dredged mat'l placement)	Construction and Mining	9.4	0.026	28.45	0.09%
On-road Activities (employee commuting)	On-road Mobile Sources	0.2	0.0005	171.65	0.0003%
Overall Totals (on-road plus non-road)		**362.47**	**1.00**	**239.58**	**0.42%**

Overall, the proposed project construction emissions of NO_x represent only 0.42% of emissions from marine, on-road, and construction sources modeled in the SIP for 2008. Emissions from the dredging equipment itself, plus support vessels, represents 2.5% of the commercial marine vessel emissions modeled in the SIP, while emissions from construction equipment represent 0.09% of construction and mining emissions. As noted earlier, the applicant is seeking TCEQ concurrence that the NO_x emissions representing these low percentages will not hinder timely attainment of the 1997 8–hour ozone standard. As noted previously, no emissions will occur during the three years (2016, 2017, and 2018) that will be used to determine attainment in 2019.

In addition to comparing proposed project construction emissions of NO_x with the emissions corresponding to the current USEPA-approved SIP, the emissions have also been compared with the latest SIP modeling adopted by the TCEQ on March 10, 2010, but not yet approved by USEPA (HGB Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard). This SIP demonstration includes projected daily emissions for 2006 and 2018, with the latter year's projection showing the effects of activity growth and emission reductions brought about by the effects of regulatory programs. The SIP NO_x emissions for these two years are presented in Table 3-3. Since the proposed project will take place during 2013 and 2014, approximately mid-way between the two SIP years, project construction emissions are compared with both sets of SIP emissions to provide as complete a comparison as possible.

Table 3-3: Modeled SIP NO_x Emissions for 2006 and 2018

SIP Inventory Categories	Modeled NOx Emissions 2006 (tpd)	2018 (tpd)
Commercial Marine Vessels	35.10	39.24
Construction and Mining	30.21	14.68
On-road Mobile Sources	197.29	49.22
Totals	**262.60**	**103.14**

Table 3-4 presents the proposed project construction emissions in tons per year and in average tons per day and compares these estimates with the 2006 and 2018 emissions modeled in the SIP demonstration.[4] Since the project construction phase is expected to encompass two calendar years, the table compares the higher year of emissions against the emissions budget figures.

Table 3-4: Comparison of Proposed Project Emissions with Modeled SIP Emissions Budgets (Tons per Day)

Project Activities	SIP Inventory Categories	Project NOx Emissions (tpy)	(tpd)	2006 Emissions Budget HGA SIP (tpd)	% of SIP (%)	2018 Emissions Budget HGA SIP (tpd)	% of SIP (%)
Dredging Activities (dredge, support vessels)	Commercial Marine	352.90	0.97	35.10	2.8%	39.24	2.5%
Land-side Activities (dredged mat'l placement)	Construction and Mining	9.40	0.026	30.21	0.09%	14.68	0.18%
On-road Activities (employee commuting)	On-road Mobile	0.17	0.0005	197.29	0.0002%	49.22	0.001%
Overall Totals		**362.5**	**1.00**	**262.6**	**0.38%**	**103.14**	**0.97%**

Overall, the proposed project construction emissions of NO_x represent only 0.38% of emissions from marine, on-road, and construction sources modeled in the SIP for 2006, and 0.97% of those emissions projected and modeled for 2018. Emissions from the dredging equipment itself plus support vessels represents 2.8% of the commercial marine vessel emissions modeled in the SIP for 2006, and only 2.5% of those emissions projected and modeled for 2018. Emissions from the construction equipment represents 0.09% of the construction emissions modeled in the SIP for 2006, and only 0.18% of those emissions projected and modeled for 2018.. These additional comparisons serve to reinforce the relative insignificance of the proposed project construction NOx emissions as compared with the emissions modeled for attainment planning. Although the

[4] HGB Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard, obtained from: http://www.tceq.state.tx.us/assets/public/implementation/air/sip/hgb/hgb_sip_2009/09017SIP_ado_Appendix_B.pdf Onroad: Table 3.1-33 for 2006 and Table 3.1-39 for 2018; Commercial marine: Table 4.4-4 for 2006 and 2018; Construction: Table 4.1-19 for 2006 and Table 4.1-20 for 2018.

project emissions have been compared with projected 2018 emissions, it bears repeating that project emissions will not actually be occurring as late as 2018. The comparison was made to provide additional information on the relationship between SIP emissions and proposed project construction emissions.

SECTION 4 PRELIMINARY GENERAL CONFORMITY DETERMINATION

Section 3 presented the estimated direct and indirect emissions from construction of the project and a comparison to the latest USEPA approved SIP emissions budgets for the relevant categories. The emissions were also compared to the latest TCEQ adopted SIP modeling demonstration emissions budgets. In summary, the project construction NO_x emissions constitute 2.5 % of the Commercial Marine Vessels budget and 0.42 % of the total budget of the USEPA approved HGB SIP, and 2.5 % of the Commercial Marine Vessels budget and 0.38 % and 0.97% of the total budget of the latest TCEQ adopted HGB SIP modeling demonstration for the Year 2006 and 2018, respectively. Though the emissions exceed the *de minimis* conformity threshold for NO_x, they constitute a small percentage of SIP budget emissions.

The Applicant presented the estimated project construction emissions and comparison with the SIP to the TCEQ in a March 7, 2012 meeting to discuss the preliminary draft General Conformity analysis results. A copy of the Preliminary General Conformity Evaluation report was provided to the TCEQ. The report contained all of the information on estimated emissions and methodology that have been incorporated into this Draft General Conformity Determination. Indications from that meeting were that the estimated project construction emissions were a small percentage of the SIP budget, and that the emissions could be accommodated in the SIP with no issues identified for the State's ability to conform to the 1997 and 2008 eight-hour ozone standards.

The Applicant submitted a letter dated October 10, 2012 summarizing the emissions and information presented at the March 7, 2012 meeting, and requesting concurrence with the determination that since the estimated project emissions represented a low percentage of SIP budget emissions that the emissions can be accommodated in the SIP (reference Attachment B). The TCEQ Air Quality Division issued a letter of concurrence, dated November 5, 2012, which determined that the emissions from the proposed project will not exceed the emissions in the most recent SIP approved by the USEPA (reference Attachment B).

Pursuant to the General Conformity Rule (40 CFR 51.851) and associated regulations (40 CFR 93), this Draft General Conformity Determination has been produced to demonstrate that the proposed Bayport Ship Channel Improvements Project would comply with the requirements of the General Conformity Rule and would be in conformity with the SIP. The TCEQ General Rule §101.30, Conformity of General Federal Actions to State Implementation Plans, which specified State obligations under General Conformity of Federal actions, was repealed in 2011 due to repeal of most of 40 CFR Part 51. The repeal was submitted to the USEPA as a revision to the SIP (State of Texas Secretary of State 2011 Page 2817). However, the relevant obligations are superseded and incorporated into 40 CFR Part 93, Subpart B, which specifies at 40 CFR 93.158(a)(5)(i)(A) that the state must make a determination and document that the total of direct and indirect emissions from the action, or portion thereof, would result in a level of emissions which, together with all other emissions in the HGB NAA, would not exceed the emissions budgets specified in the SIP. The TCEQ reviewed the estimated project construction emissions information contained in the Preliminary General Conformity Evaluation report and summarized in the October 10, 2012, review request letter from the applicant, and provided written confirmation in their November 5, 2012, letter that the project emissions would not result in a HGB NAA-wide level of emissions that would exceed the emissions budgets specified in the

SIP, as discussed in the paragraph above. Therefore, it is determined that the project emissions resulting from the Federal action will result in a level of emissions, which, together with all other emissions in the HGB NAA, would not exceed the emissions budgets specified in the SIP, and the action can be considered to conform with the HGB NAA SIP. This determination will serve as the basis for making a Final General Conformity Determination for the proposed Bayport Ship Channel Improvements Project.

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Appendix A - Emission Estimation Details

Emission estimates have been prepared for the dredging and associated activities in support of a Draft General Conformity Determination (GCD) that has been prepared in accordance with the General Conformity (GC) regulations promulgated in 40 CFR Part 93 (Determining Conformity of Federal Actions to State or Federal Implementation Plans). The determination evaluates and documents the GC-related air emissions that will result from the proposed project and documents that these emissions conform to the current State Implementation Plan (SIP) applicable to the Houston/Galveston/Brazoria (HGB) ozone non-attainment area.

The information needed to estimate construction emissions for the proposed project includes the following:

- A description of the equipment that will be needed, in terms of type, horsepower, age, and other characteristics;
- Estimates of the operating time (e.g., hours per day, days per week, etc.) of each type of equipment during each phase or component of work;
- Emissions characteristics (emission factors) of each type of equipment;
- Emission calculation methods and equations.

Additionally, assumptions have been made regarding the number of employee commuting days to develop estimates of on-road emissions associated with the project.

Information related to the physical and operational characteristics of the equipment has been developed by the project engineers. The physical information includes the type of equipment (e.g., dredge, supporting tug boat, dozer), the type of engine on that equipment (e.g., main engine, auxiliary engine) for equipment with more than one engine, the typical rated horsepower for the type of equipment and engine, and, for the dredge and booster pump, the average in-use load factor, which is the average percentage of full power at which the engine is typically operated. The load factors used for tugs and land-side equipment have been obtained from the GMAEI. A summary of the physical and operational characteristics is presented in Table 1.

The emission factors have primarily been obtained from the harbor craft section of the GMAEI. The report lists emission factors for engines in various size and horsepower ranges, and three different "tier levels," which reflect emission standards effective when the engines were manufactured. Because the specific equipment to be used on the proposed project is not known, the engines are assumed to be Tier 1 engines, manufactured in approximately the 2000 to 2005 time frame. Emission factors for the land-side equipment (dozers and loaders) have been based on the Tier 1 emission standards for non-road diesel engines. Emission factors for on-road vehicles used in employee commuting have been based on the emission estimating model MOBILE6.2. While the newer estimating model MOVES also produces emission estimates for on-road vehicles, the existing SIPs against which project emissions are being compared were prepared using MOBILE6.2, so this is the appropriate model to use for the current analysis. In addition, any difference in results between models would not be significant given the very low emissions from on-road travel related to this proposed project. Table 2 lists the emission factors used in developing the emission estimates.

Emissions from dredge, vessel, and land-side non-road equipment have been estimated using the basic equation:

$$E = \frac{hp \times LF \times hrs \times EF}{(453.59\ g/lb \times 2{,}000\ lb/ton)}$$

Where:

E	= emissions, tons per year
hp	= rated horsepower of the engine
LF	= load factor
hrs	= hours of operation per year
EF	= emission factor, grams per horsepower-hour
453.59 g/lb	= conversion constant
2,000 lb/ton	= conversion constant

As an example, a large tug used as a support vessel may have a main engine rated at 3,000 hp. The average load factor is estimated to be 69%, and it would be expected to operate on this project for 3,864 hours in a year. The Tier 1 emission factor for oxides of nitrogen (NOx) for this engine is 7.3 g/hp-hr. The estimated emissions would be:

$$E = \frac{3{,}000\ hp \times 0.69 \times 3{,}864\ hrs/yr \times 7.3\ g/hp\text{-}hr}{(453.59\ g/lb \times 2{,}000\ lb/ton)} = 64.4\ tons/yr$$

Emissions from on-road vehicles used by employees while commuting to the job site have been estimated using the equation:

$$E = VMT \times EF / (453.59\ g/lb \times 2{,}000\ lb/ton)$$

Where:

E	= emissions, tons per year
VMT	= vehicle miles of travel during the year
EF	= emission factor, grams per mile of travel
453.59 g/lb	= conversion constant
2,000 lb/ton	= conversion constant

The VMT driven by employees has been calculated using the average commuting distance in the Houston area in 2010 (21.2 miles, one way) from the 2011 Urban Mobility Report prepared by the Texas Transportation Institute[5] and an estimate of the number of workers on each task and each work shift (a total of 55 workers over three shifts). With the assumption that the

[5] Texas Transportation Institute, TTI's 2011 Urban Mobility Report. September 2011. Available at: http://tti.tamu.edu/documents/mobility-report-2011.pdf

commuting employees would use a combination of gasoline fueled light duty cars and trucks, the NOx emission factor is 0.4057 grams per mile (g/mile). An example of the commuting emission estimating method is as follows:

$$E = \frac{375{,}452 \text{ miles/year} \times 0.4057 \text{ g/mile}}{(453.59 \text{ g/lb} \times 2{,}000 \text{ lb/ton})} = 0.17 \text{ tons/yr}$$

Tables 3 and 4 present the emission estimates of NOx and VOCs, respectively, developed using the methods discussed above.

Table 1: Summary of Equipment Physical and Operational Characteristics

Component of Work		Emission Source Description	Rated Horsepower	Load Factor	Weekly Operating Hours
Flare Only Beyond USACE Depth		Main Engines	7,200	65%	140
Work hours/day	20	Ladder Pump	800	65%	140
Work days/week	7	Cutter & Swing	3,600	65%	140
		Auxiliaries	2,400	60%	168
Main Channel Deepen/Widen		Main Engines	7,200	70%	126
Work hours/day	18	Ladder Pump	800	70%	126
Work days/week	7	Cutter & Swing	3,600	70%	126
		Auxiliaries	2,400	60%	168
Land Cut to TB Deepen/Widen		Main Engines	7,200	75%	98
Work hours/day	14	Ladder Pump	800	75%	98
Work days/week	7	Cutter & Swing	3,600	75%	98
		Auxiliaries	2,400	60%	168
Booster Pump		Main Engines	3,600	75%	98
Work hours/day	14	Auxiliaries	400	60%	168
Work days/week	7				
Support Vessels					
Work hours/day	24	Large Tug	3,000	69%	168
Work hours/day	12	Large Tug	1,950	69%	84
Work hours/day	24	Small Tug	800	69%	168
Work hours/day	12	Crew Boat	800	50%	84
Work hours/day	12	Survey Boat	800	50%	84
Land-side Equipment					
D6 Dozers / Marsh Buggy	60	hours/day*	150	59%	420
Loader (966)	24	hours/day	170	59%	168

Table 2: Emission Factors

Engine Type	Marine Engine Category[1]	NOx EF	VOC EF	EF Units
Dredge/booster main engine	Cat 2	7.3	0.37	g/hp-hr
Dredge/booster ladder pump	Cat 1	7.3	0.20	g/hp-hr
Dredge cutter & swing	Cat 1	7.3	0.20	g/hp-hr
Dredge/booster auxiliaries	Cat 1	7.3	0.20	g/hp-hr
Large tug	Cat 2	7.3	0.37	g/hp-hr
Small tug	Cat 1	7.3	0.20	g/hp-hr
Crew boat	Cat 1	7.3	0.20	g/hp-hr
Survey boat	Cat 1	7.3	0.20	g/hp-hr
Dozer/loader	Non-road	6.9	1.00	g/hp-hr
On-road car/light truck	On-road	0.4057	0.4418	g/mile

[1] Marine engine categories are based on the displacement of a single engine cylinder. Category 2 engines are typically larger in overall displacement than Category 1 engines.

Table 3: Project Construction NOx Emission Estimates

Component of Work		Emission Source Description	Engine Category	NOx EFs g/hphr	NOx 2013 tpy	NOx 2014 tpy	NOx Total tpy
Flare Only Beyond USACE Depth		Main Engines	Cat 2	7.3	26.4	0.0	26
Weeks of work, 2013:	5	Ladder Pump	Cat 1	7.3	2.9	0.0	3
Weeks of work, 2014:	0	Cutter & Swing	Cat 1	7.3	13.2	0.0	13
		Auxiliaries	Cat 1	7.3	9.7	0.0	10
		Subtotals			52.2	0.0	52.2
Main Channel Deepen/Widen		Main Engines	Cat 2	7.3	81.9	0.0	82
Weeks of work, 2013:	16	Ladder Pump	Cat 1	7.3	9.1	0.0	9
Weeks of work, 2014:	0	Cutter & Swing	Cat 1	7.3	40.9	0.0	41
		Auxiliaries	Cat 1	7.3	31.2	0.0	31
		Subtotals			163.1	0.0	163.1
Land Cut to TB Deepen/Widen		Main Engines	Cat 2	7.3	8.5	89.5	98
Weeks of work, 2013:	2	Ladder Pump	Cat 1	7.3	0.9	9.9	11
Weeks of work, 2014:	21	Cutter & Swing	Cat 1	7.3	4.3	44.8	49
		Auxiliaries	Cat 1	7.3	3.9	40.9	45
		Subtotals			17.6	185.1	202.7
Booster		Main Engines	Cat 2	7.3	4.3	44.8	49
Weeks of work, 2013:	2	Auxiliaries	Cat 1	7.3	0.6	6.8	7
Weeks of work, 2014:	21						
		Subtotals			4.9	51.6	56.5
Support Vessels							
		Large Tug	Cat 2	7.3	64.4	58.8	123
Weeks of work, 2013:	23	Large Tug	Cat 2	7.3	20.9	19.1	40
Weeks of work, 2014:	21	Small Tug	Cat 1	7.3	17.2	15.7	33
		Crew Boat	Cat 1	7.3	6.2	5.7	12
		Survey Boat	Cat 1	7.3	6.2	5.7	12
		Subtotals			114.9	105.0	219.9
Land-side Equipment							
Weeks of work, 2013:	23	Dozers (D6)/ Marsh Buggy		6.9	6.5	5.9	12
Weeks of work, 2014:	21	Loader (966)		6.9	2.9	2.7	6
		Subtotals			9.4	8.6	18.0
		Totals			362.1	350.3	712.4

Table 4: Project Construction VOC Emission Estimates

Component of Work	Emission Source Description	Engine Category	VOCs EFs g/hphr	VOCs 2013 tpy	VOCs 2014 tpy	VOCs Total tpy
Flare Only Beyond USACE Depth						
Weeks of work, 2013: 5	Main Engines	Cat 2	0.37	1.34	0.00	1.34
Weeks of work, 2014: 0	Ladder Pump	Cat 1	0.20	0.08	0.00	0.08
	Cutter & Swing	Cat 1	0.20	0.36	0.00	0.36
	Auxiliaries	Cat 1	0.20	0.27	0.00	0.27
	Subtotals			2.05	0.00	2.1
Main Channel Deepen/Widen	Main Engines	Cat 2	0.37	4.14	0.00	4.14
Weeks of work, 2013: 16	Ladder Pump	Cat 1	0.20	0.25	0.00	0.25
Weeks of work, 2014: 0	Cutter & Swing	Cat 1	0.20	1.12	0.00	1.12
	Auxiliaries	Cat 1	0.20	0.85	0.00	0.85
	Subtotals			6.36	0.00	6.4
Land Cut to TB Deepen/Widen	Main Engines	Cat 2	0.37	0.43	4.53	4.96
Weeks of work, 2013: 2	Ladder Pump	Cat 1	0.20	0.03	0.27	0.30
Weeks of work, 2014: 21	Cutter & Swing	Cat 1	0.20	0.12	1.23	1.35
	Auxiliaries	Cat 1	0.20	0.11	1.12	1.23
	Subtotals			0.69	7.15	7.8
Booster	Main Engines	Cat 2	0.37	0.22	2.27	2.49
Weeks of work, 2013: 2	Auxiliaries	Cat 1	0.20	0.02	0.19	0.21
Weeks of work, 2014: 21						
	Subtotals			0.24	2.46	2.7
Support Vessels						
	Large Tug	Cat 2	0.37	3.26	2.98	6.24
Weeks of work, 2013: 23	Large Tug	Cat 2	0.37	1.06	0.97	2.03
Weeks of work, 2014: 21	Small Tug	Cat 1	0.20	0.47	0.43	0.90
	Crew Boat	Cat 1	0.20	0.17	0.16	0.33
	Survey Boat	Cat 1	0.20	0.17	0.16	0.33
	Subtotals			5.13	4.70	9.8
Land-side Equipment						
Weeks of work, 2013: 23	Dozers (D6)/ Marsh Buggy		1.00	0.94	0.86	1.80
Weeks of work, 2014: 21	Loader (966)		1.00	0.43	0.39	0.82
	Subtotals			1.37	1.25	2.62
	Totals			15.84	15.56	31.40

PORT OF HOUSTON AUTHORITY

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Dana Blume
Environmental Manager
713-670-2805
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October 10, 2012

Mr. Steve Hagle, P.E.
Deputy Director
Office of Air
Texas Commission on Environmental Quality
MC 122
P.O. Box 13087
Austin, TX 78711-3087

SUBJECT: Department of the Army Permit Application SWG-2011-01183; General Conformity Concurrence

Dear Ms. Hildebrand:

The Port of Houston Authority (PHA) has applied to the U.S. Army Corps of Engineers (USACE) for a Department of the Army permit pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The referenced permit application number is SWG-2011-01183. The PHA proposes to use a hydraulic pipeline dredge to deepen and widen the existing Bayport Ship Channel (BSC), deepen the Turning Basin, deepen a portion of the Bayport Flare, and place the new work dredged material and maintenance dredged material in existing dredged material placement areas. The project site is located in Galveston Bay in Chambers County and Harris County, Texas.

Issuance of the permit would be a federal action subject to general conformity regulations under Title 40 Code of Federal Regulations Part 93, Subpart B. As this project is located in the Houston-Galveston-Brazoria (HGB) area, which is classified as severe nonattainment for the 1997 ozone standard as well as being classified as marginal nonattainment for the 2008 ozone standard, and the Nitrogen Oxides (NO_x) emissions are expected to be above the respective 25 tons-per-year and 100 tons-per-year *de minimis* thresholds, a general conformity determination will be required.

PHA staff previously met with members of your staff on March 7, 2012 to provide information on the project and provide a preliminary draft General Conformity analysis for review. This letter is a follow up to that meeting, and is being used to formally ask for concurrence from the Texas Commission on Environmental Quality (TCEQ) that this project can be accommodated in the HGB State Implementation Plan (SIP).

This project would widen the channel inside the land cut section of the BSC by 50 feet and the Galveston Bay section by 100 feet, and would deepen the entire channel including the turning basin from -40 feet mean low tide (MLT) plus 2 feet of allowable overdepth and 2 feet of advanced maintenance, to -45 feet MLT plus 2 feet of allowable overdepth and 2 feet of advanced maintenance. The USACE is undertaking a separate project to widen (ease) the BSC Flare, which is the turning connection between the BSC and Houston Ship Channel (HSC), to a radius of 4,000 feet. PHA's project would also further deepen the BSC Flare Easing to match the proposed deepening of the rest of the BSC. The emissions from the PHA's proposed project would occur in both Harris and Chambers counties and are estimated to be 362 tons of NO_x in 2013 and 351 tons of NO_x in 2014. Volatile Organic Compound (VOC) emissions are estimated to be 16 tons in both 2013 and 2014, so general conformity will not be required for VOC. The following table provides a breakdown of the emissions.

Estimated Emissions from Proposed Project Construction (Tons Per Year)

	2013		2014		Total	
Component of Work	**NOx**	**VOCs**	**NOx**	**VOCs**	**NOx**	**VOCs**
Dredging	233	9.1	185	7.2	418	16.3
Booster Pump	5	0.2	52	2.5	57	2.7
Support Vessels	115	5.1	105	4.7	220	9.8
Placement Site Work	9	1.4	9	1.3	18	2.7
Employee Vehicles	0.17	0.18	0.15	0.17	0.32	0.35
Total	**362**	**16**	**351**	**16**	**713**	**32**

Although the NO_x emissions are above the 25 tons and 100 tons *de minimis* thresholds, when one compares the project emissions to the emissions inventories in the SIP for the HGB area, it is evident that this project represents a very small percentage of the emissions inventories in the SIP. As a result of this, PHA believes that this project can be accommodated in the SIP as allowed in 40 CFR 93.158(a)(5)(i)(A). This states that the State agency responsible for the SIP can make a determination that the emissions from the federal action, together with all other emissions in the nonattainment area, would not exceed the emissions budgets specified in the applicable SIP.

For purposes of comparing the project emissions to the applicable SIP, the general conformity regulations require that the most recent U.S. Environmental Protection Agency (EPA)-approved SIP is used. For the HGB area, this is the HGB Eight-Hour Reasonable Further Progress (RFP) SIP adopted by the TCEQ Commission on May 23, 2007, and approved by the EPA on April 22, 2009. The table below compares the project emissions to the applicable SIP inventory categories.

Comparison of Proposed Project Emissions to the EPA Approved SIP Emissions Budgets

Project Activities	SIP Inventory Categories	Project NOx Emissions (tpy)	Project NOx Emissions (tpd)	2008 HGA SIP Emissions Budget (tpd)	% HGA SIP Emissions Budget (%)
Dredging Activities (dredge, support vessels)	Commercial Marine Vessels	352.9	0.97	39.48	2.4%
Land-side Activities (dredged material placement)	Construction and Mining	9.4	0.026	28.45	0.09%
On-road Activities (employee commuting)	On-road Mobile Sources	0.2	0.0005	171.65	0.0003%
Overall Totals		**362.5**	**0.99**	**239.58**	**0.42%**

Overall, the proposed project construction emissions of NOx represent only 0.42% of emissions from marine, on-road, and construction sources modeled in the SIP for 2008. Emissions from the dredging equipment itself, plus support vessels, represents 2.4% of the commercial marine vessel emissions modeled in the SIP, while emissions from construction equipment represent 0.09%.

In addition to comparing proposed project construction emissions of NOx with the emissions corresponding to the most recently EPA-approved SIP, the emissions have also been compared with the latest SIP modeling adopted by TCEQ but not yet approved by EPA (HGB Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard adopted by TCEQ on March 10, 2010). This SIP demonstration includes projected daily emissions for 2006 and 2018, with the latter year's projection showing the effects of activity growth and emission reductions brought about by the effects of regulatory programs. Since the proposed project would take place during 2013 and 2014, approximately mid-way between the two SIP years, project construction emissions are compared with both sets of SIP emissions inventories to provide as

complete a comparison as possible. Since the project construction phase is expected to encompass two calendar years, the table compares the higher year of project emissions against the SIP emissions inventories.

Comparison of Proposed Project Emissions to the Modeled SIP Emissions Budgets

Project Activities	SIP Inventory Categories	Project NOx Emissions		2006		2018	
		(tpy)	(tpd)	HGA SIP Emissions Budget (tpd)	% of SIP Emissions Budget (%)	HGA SIP Emissions Budget (tpd)	% of SIP Emissions Budget (%)
Dredging Activities (dredge, support vessels)	Commercial Marine	352.9	0.97	35.10	2.8%	39.24	2.5%
Land-side Activities (dredged material placement)	Construction and Mining	9.4	0.026	30.21	0.09%	14.68	0.18%
On-road Activities (employee commuting)	On-road Mobile	0.2	0.0005	197.29	0.0002%	49.22	0.001%
Overall Totals		**362.5**	**0.99**	**262.6**	**0.38%**	**103.14**	**0.96%**

Overall, the proposed project construction emissions of NOx represent only 0.38% of emissions from marine, on-road, and construction sources modeled in the SIP for 2006 and 0.96% of those emissions projected and modeled for 2018. Emissions from the dredging equipment itself, plus support vessels, represents 2.8% of the commercial marine vessel emissions modeled in the SIP for 2006, and only 2.5% of those emissions projected and modeled for 2018. Emissions from the construction equipment represents 0.09% of the construction emissions modeled in the SIP for 2006, and only 0.18% of those emissions projected and modeled for 2018. This additional comparison serves to reinforce the relative insignificance of the proposed project construction NOx emissions as compared with the most recent TCEQ modeling for attainment planning.

PHA believes it has shown that this proposed project can easily be accommodated into the SIP because the NO_x emissions represents such a low percentage of the applicable SIP inventory categories, and as such, seeks concurrence from the TCEQ as allowed by 40 CFR 93.158(a)(5)(i)(A). Please provide concurrence by written letter to Ms. Dana Blume, Environmental Affairs Manager, at the address in the letterhead. The concurrence letter will then be forwarded to the USACE for use in the general conformity determination.

If you have any questions, please contact Ken Gathright by telephone at 713-670-2690, or via email at kgathright@poha.com.

Sincerely,

Ken Gathright for Dana Blume

Dana Blume
Environmental Affairs Manager

CC:

Mr. Mark Vincent, Port of Houston Authority

Mr. Carl Sepulveda, AECOM, 5757 Woodway, Suite 101 W, Houston, Texas 77057

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 5, 2012

Ms. Dana Blume
Environmental Manager
Port of Houston Authority
P.O. Box 2562
Houston, Texas 77252-2562

Re: Department of the Army Permit Application SWG-2011-01183; General Conformity Concurrence

Dear Ms. Blume:

This letter provides general conformity concurrence for the proposed Department of the Army Permit Application SWG-2011-01183. The Texas Commission on Environmental Quality (TCEQ) reviewed the project in accordance with Title 40 Code of Federal Regulations Part 93. The proposed project is located in the Houston-Galveston-Brazoria (HGB) area, which is classified as severe nonattainment for the 1997 eight-hour ozone standard, and emissions are expected to be above the 25 tons per year *de minimis* threshold. Therefore, a general conformity analysis is required.

The TCEQ has determined that emissions from the proposed project will not exceed the emissions budgets specified in the most recent state implementation plan (SIP) revision approved by the United States Environmental Protection Agency (EPA). The most recently approved SIP revision, the HGB Reasonable Further Progress SIP adopted by the Commission on May 23, 2007, was approved by the EPA on March 29, 2010. This general conformity determination is based upon information provided in an October 10, 2012, letter submitted by the Port of Houston Authority.

In support of the ozone National Ambient Air Quality Standard, the TCEQ suggests the Port of Houston Authority adopt pollution prevention and/or reduction measures in conjunction with this and future projects, such as the following:

- encourage construction contractors to apply for Texas Emission Reduction Plan grants;
- establish bidding conditions that give preference to clean contractors;
- direct construction contractors to exercise air quality best management practices;
- direct contractors that will use tugboats during construction to use clean fuels;
- direct operators of the assist tugboats used in maneuvering dredge vessels to use clean fuels;
- select assist tugs based on lowest nitrogen oxides (NO_X) emissions instead of lowest price; and/or
- purchase and permanently retire surplus NO_X offsets prior to commencement of operations.

Thank you for providing the necessary information and staff assistance for our review. We would also appreciate update(s), as appropriate, as this project moves forward. I look forward to working with you in the future on any upcoming projects you may have that affect air quality in your district. If you require further assistance on this matter, please contact Mrs. Amy Muttoni at (512) 239-6351 or Amy.Muttoni@tceq.texas.gov.

Sincerely,

David Brymer, Director
Air Quality Division
Texas Commission on Environmental Quality

DB/AM/kb