The City of Virginia Beach would like to thank DEQ and EPA for their comments on the City's petition to include boat pump outs in the Lynnhaven River No-Discharge Zone (NDZ) as a nutrient reducing BMP. The City's responses to those comments are presented below. The City would like to note that the petition was submitted to DEQ in good faith almost two years ago, to fill a need for cost-effective and innovative BMPs to help the City meet its Chesapeake Bay TMDL requirements. The petition was a result of the City's findings during its boat waste sampling program and the notable increase in water quality in the Lynnhaven River since the NDZ designation and the beginning of the City's free boat pump out program. The City feels that this BMP meets several of the criteria for water pollution control strategies to restore the Chesapeake Bay found in Section 301 of Executive Order Number 13508, Chesapeake Bay Protection and Restoration. Specifically, as a BMP it is; performance-oriented and publicly-accountable, as the pump outs will be measured and sampled; it is a cost-effective pollution control measure; and can be replicated in efforts to protect other bodies of water. The City is hopeful that DEQ and EPA staff will help us work through the approval process, and allow us to take some credit for our efforts and proactive approach to improving water quality, and to give other localities a much needed cost-effective BMP to help them meet their TMDL goals.

While we recognize the environmental benefit of the No-Discharge Zone in Lynnhaven, EPA does have concerns with the proposal for crediting of Boat Pump-out facilities. Specifically, while these restrictions in discharges to the Lynnhaven Bay would reduce nutrient loads in that location, there is nothing in the regulations to prohibit these vessels from discharging their treated sewage directly into the Chesapeake Bay once they leave Lynnhaven Bay.

The City agrees that there is nothing in the regulations prohibiting vessel discharges once a boat leaves the Lynnhaven River. The City cannot control the actions of boaters beyond the City's jurisdiction, but by providing pump outs for boaters, the City is providing an alternative to boaters who may otherwise discharge their sewage directly into the Chesapeake Bay. It should be noted that numerous documents point out the harmful effects of vessel discharges. The EPA's Protecting Coastal Waters from Vessel and Marina Discharges: A Guide for State and Local Officials states that "The sewage discharged by MSDs is treated with chlorine, quaternary ammonia, and formaldehyde, which can all pose threats to the marine environment, especially if present in substantial, concentrated amounts." The Virginia Clean Marina Guidebook, funded by the Virginia Coastal Resources Management Program at the Department of Environmental Quality and the Virginia Department of Conservation, notes that "Effluent from legal Type I and Type II systems can contain nutrients, toxic chemicals, and pathogens," and that discharges from Type I and Type II systems "pose a threat to human health and water quality." A vessel discharge whether it is in the Lynnhaven River or directly into the Bay still adds nutrients and other pollutants and degrades water quality. The City of Virginia Beach is only seeking credit for the amounts of nitrogen and phosphorus from Type I and II MSDs that we are physically removing from the system through boat pump outs, which can be measured. In fact, boats with Type I and II MSDs currently pump-out their waste at the six different locations in the Lynnhaven River, which has resulted in noticeable water quality improvements, as seen by DEQ's lifting of the oyster harvesting restriction for 40% of the Lynnhaven River.

However, we recognize that VA Beach is actually proposing to measure the amount of nutrients prevented from entering the Lynnhaven Bay at their boat pump-out stations. Based on the presentation, we are concluding that the proposal applies to crediting the amount of nutrients prevented AFTER Type I/II MSD treatment. While that seems appropriate, the data presented appears to represent the pollution

levels (e.g., fecal coliform) PRIOR to Type I/II treatment—that would not be appropriate in any crediting scheme.

Type I and II MSDs treat sewage for bacteria, and reduce suspended or floatable solids in their effluent. They do not remove nutrients nor are they designed to treat nutrients. In addition, on-board storage tanks may be utilized with both Type I and Type II devices. Any storage tank treatment/chemical dosing is for bacteria and odor. The nutrient concentration of nitrogen and phosphorus is unaffected by treatment in MSDs, and should be the same before and after any treatment occurring in the MSD.

The proposal appears to indicate that while they are not seeking credit for waste from Type III MSDs, the measurements will be taken from holding tanks that collect Type I/II/III waste. We agree that no credit can be given for Type III MSDs since discharging this waste is illegal.

As stated before, the City is only requesting credit for nitrogen and phosphorus removed in waste from Type I and Type II devices. It is not economically feasible to provide separate holding tank systems for waste from Type I and II devices versus waste from Type III devices at each of the pump out facilities in the Lynnhaven. Therefore, the City proposes to take credit for a reduced percentage of the nutrients removed, based on the number of boats with Type I and II MSDs. The City of Virginia Beach will conduct a survey/census of the boats in the Lynnhaven River using the City of Virginia Beach / Virginia Department of Health (VDH) summer boat pump-out program starting May 16, 2015. The City will determine the percentage of boats pumped out with Type I and Type II devices, and will apply that percentage to the volume of waste pumped to determine nutrient load reductions for credit. To provide a margin of safety, the City will apply a 10% downward reduction to the percentage of waste for which it is credited. For example, if 40% of the boats pumped out during the summer pump out program have Type I and II MSDs, the City would take credit for the nutrient reduction provided by 36% of the waste volume pumped out (40% x 90% = 36%). By counting the boats with Type I and II, the City feels a reasonable estimate of the volume of pumped waste can be attributed to those types of MSDs, and is no less arbitrary than the EPA's assumption that in Virginia, 25% of vessels between 27 and 40 feet in length have Type III holding tanks, as listed on their "Boater Sanitary Waste Reception Facility Requirements Worksheet". The City's plan and protocols for sampling the effluent pumped from the tanks were provided in a memo to the EPA on February 13, 2015.

Outside of these overarching issues, we did have other concerns with whether it is appropriate to account for this type of wastewater discharge (which we presume ultimately ends up in a wastewater treatment plant for additional treatment) in an MS4 annual report.

The inspection and maintenance of the City's pump-out facilities have always been reported annually in the MS4 annual report as per the Virginia state requirement.

In addition, EPA considers the discharge of sewage from a vessel as a nonpoint source of pollutants—it is not a traditional wastewater stream. The volume of boat waste that goes to the treatment plant is a very small fraction of the total annual volume of wastewater treated by the facility. Tertiary wastewater treatments are efficient at nutrient removal, and the small annual volume that will be sent to the plant and treated will not result in a measurable increase in the nutrient load from the treatment plant.

Another concern would be that this NDZ was established in 2007 before the 2010 TMDL. Therefore, double-counting of any load reductions should be considered.

The following excerpt is from DEQ's Chesapeake Bay TMDL Action Plan Guidance Draft dated 3/19/2015:

> "APPENDIX VI – Credit for BMPs installed prior to July 1, 2009 – for all BMPs or impoundments that were installed prior to July 1, 2009 permittees may receive credit for any incremental increase in treatment that is the result of an enhancement, conversion, or restoration project. Permittees may receive full credit for BMPs that were not previously reported to the Commonwealth, but were initially installed on or after January 1, 2006 and prior to July 1, 2009, if a full account of BMPs throughout the permittees jurisdiction is submitted to the Department as part of the "Historical Data Clean-Up" effort."

The boater pump out program began in 2007, the same year the Lynnhaven received its NDZ designation. This is an annual load reduction that was implemented after the calibration period, so it is not double counting to credit this reduction as a BMP. Also these reductions are occurring downstream of any load calibration stations that were used in the Phase 5 Chesapeake Bay Watershed Model, so they are not implicitly included in any other land use, and therefore not included in the calibration.

If this proposal was to move forward, it would need careful vetting through the BMP expert panel process.

The City of Virginia Beach is confused by this comment. The original petition, presented in 2013, was sent to DEQ. DEQ and EPA subsequently referred it to the Wastewater Treatment Workgroup (WWTWG) for further consideration. At the April 7, 2015 meeting of the WWTWG, this petition was sent to the Urban Stormwater Workgroup. The Urban Stormwater Workgroup chose to defer to the WWTWG for the official endorsement. The City would, therefore, like to know if another BMP expert panel will be necessary to move this process forward, and who would make up this panel?

Virginia DEQ Comments (as captured in 5/5/15 WWTWG conference call minutes)

1. How will the baseline year for these loads be established in order to avoid double counting? No-discharge zones were in place prior to the TMDL, so that could be an issue.

   As noted above, DEQ is allowing localities to take credit for BMPs installed after January 1, 2006 and prior to July 1, 2009. Both the NDZ designation and the boat pump out program began in 2007. As a previously unreported BMP, the City feels this should be treated as any other water quality BMP implemented between January 2006, and July 2009 that was not reported to DEQ. In addition, this was not in the Phase 5 Chesapeake Bay Watershed Model in 2011 because BMPs were only counted up through 2006.

2. How does Virginia Beach propose to separate out loads from Type III MSDs from the loads from Type I and Type II MSDs? Type III discharges are illicit and therefore credit cannot be given for eliminating those loads.

   (This is similar to a question by the EPA and is covered by the City's third response found above.)

The following are the City's responses to EPA questions/concerns provided to the City by David Wood in his email on April 30, 2015. Item No. 3 below, is similar to one of the concerns addressed above, and the City's response is the same.

1. Does the sample data represent waste from Type I/II MSDs or is it from Type I/II/III MSDs combined?

Sample data was taken from the City's "Lynnhaven River Boat Wastewater Sampling Program" report dated February 29, 2008. The sample data was used to approximate the annual reductions that the pump out program could provide. Samples were collected from effluent from boat pump outs performed between May 26 and September 3, 2007. The report does not specifically state that pump outs were performed on Type I and Type II MSDs devices exclusively.

2. What is the rationale behind proposing this practice for Stormwater credit as opposed to wastewater? Will the waste end up in a wastewater treatment plant ultimately?

The required Chesapeake Bay TMDL reductions are currently being enforced through the City's MS4 permit, and discharges from MSDs result in a direct discharge of nutrients into the Lynnhaven. Those nutrient discharges are no different from stormwater runoff from a parking lot adjacent to the Lynnhaven with drop inlets and a pipe outfall along the river. They constitute a delivery of nutrients directly to the tributary. In addition, while it may be considered "wastewater" to some degree, it is a waste stream that is typically not treated by any wastewater facility, is not required to be treated at a wastewater facility, and could be legally discharged to the Lynnhaven before the NDZ designation.

3. There are concerns about double-counting of credits due to the fact that this practice was put in place prior to the TMDL.

The following excerpt is from DEQ's Chesapeake Bay TMDL Action Plan Guidance Draft dated 3/19/2015:

> "APPENDIX VI – Credit for BMPs installed prior to July 1, 2009 – for all BMPs or impoundments that were installed prior to July 1, 2009 permittees may receive credit for any incremental increase in treatment that is the result of an enhancement, conversion, or restoration project. Permittees may receive full credit for BMPs that were not previously reported to the Commonwealth, but were initially installed on or after January 1, 2006 and prior to July 1, 2009, if a full account of BMPs throughout the permittees jurisdiction is submitted to the Department as part of the "Historical Data Clean-Up" effort."

The boater pump out program began in 2007, the same year the Lynnhaven received its NDZ designation. This is an annual load reduction that was implemented after the calibration period, so it is not double counting to credit this reduction as a BMP. Also, these reductions are occurring downstream of any load calibration stations, so they are not implicitly included in any other land use, therefore, not included in the calibration.

Final Comments from the City

Improving water quality is very important to the City as demonstrated by its proactive approach to controlling pollution from all sources, such as marine discharges in the Lynnhaven River. While nutrient credit from boat pump outs will not meet the City's TMDL requirement alone, it is still a cost-effective tool that the City could use to help meet those goals. The negative impacts to water quality from vessel discharges are repeatedly mentioned in countless documents from the EPA and state agencies on

protecting our waterways from sewage from recreational activities. Eliminating vessel discharges into the Bay itself, or any of its tributaries by providing boat pump outs will do nothing but improve water quality, and provide benefits that far outweigh the minor nutrient reductions the City would like to receive credit for. If approved as a nutrient-reducing BMP for the Chesapeake Bay TMDL, there will be an incentive for other localities to install pump out facilities or provide boat pump outs where facilities are lacking. Access to pump out facilities gives boaters an alternative to discharging into the Bay and its tributaries and reduces discharges from Type I and II MSDs where those discharges may be legal.

The types of nutrient reducing BMPs that can be used by coastal plain localities like Virginia Beach is severely limited due to poorly drained soils and high groundwater conditions. In addition, cost-effective BMPs that can be used to help localities meet their Chesapeake Bay TMDL requirements are severely lacking. The City has seen definite improvements in water quality within the Lynnhaven since the NDZ designation. Through its boat pump out program, the City is providing boaters an alternative to discharging their MSDs outside the Lynnhaven River, and thereby reducing the amount of nutrients and other pollutants reaching the Bay. The City hopes that the EPA and DEQ will see that the benefits to the City's boat pump out program go beyond the nutrient credits the City is requesting. As a nutrient reducing BMP, boat pump outs will be a cost effective tool for other localities to employ, and will provide definite water quality improvements, as the City has experienced in the Lynnhaven River.