Response to Public Comment on the Partial Delisting of Texas City from the Air Pollutant Watch List for the Air Toxics Benzene and Hydrogen Sulfide

Texas Commission on Environmental Quality Air Permits Division

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From March 11, 2013, through April 26, 2013, the Texas Commission on Environmental Quality (TCEQ) accepted public comment on its proposal to partially delist Texas City from the Air Pollutant Watch List (APWL) for the air toxics benzene and hydrogen sulfide. The TCEQ also conducted a public meeting in Texas City on April 11, 2013, to discuss the proposed delisting's and accept oral and written comments. The TCEQ received written comments from a Texas City Commissioner, Air Alliance Houston and Environmental Defense Fund (AAH), Texas Chemical Council (TCC), Texas Oil and Gas Association (TXOGA), Texas City/La Marque Community Air Monitoring Network (TCLAMN), and six individuals. AAH, a second Texas City Commissioner, and four individuals provided oral comments at the public meeting.

AAH opposes removal of Texas City from the APWL for the air toxics benzene and hydrogen sulfide. TCC, TXOGA, TCLAMN, and both Texas City Commissioners expressed support for the proposed delisting's. All written comments from individuals were in opposition to the delisting's. At the public meeting, some individuals opposed the delistings while others supported the delistings.

The proposed delisting documents contained information regarding BP Products North America, RN102535077, as well as several comments submitted related to the company. This site has been purchased by Marathon Petroleum Corporation and as of February 2013 is now called Blanchard Refining Company Galveston Bay Refinery. For consistency with the proposed delisting documents and submitted comments, this site is called BP throughout this document.

Comment 1 regarding the appropriateness of delisting based on the air monitoring data: AAH commented that the APWL program has historically been an effective use of limited state resources. However, AAH also commented at the public meeting that while they agree that the monitor trends are good, they see no reason to proceed with a delisting immediately. AAH further commented that they do not want the TCEQ to relist an area once it has been delisted and suggested the TCEQ wait another year or two before proposing to delist the area. A commenter expressed support of the comments provided by AAH at the public meeting that the state postpone the delistings for at least a year. AAH also noted that the TCEQ has looked at only two years

of monitoring data and pointed out that the TCEQ indicated at the public meeting that monitoring is one of several factors for consideration.

One commenter stated that people with respiratory issues would like to see the status quo remain and wanted to go on record as being totally opposed to any changes. Another commenter stated that although the TCEQ's evaluation indicated that concentrations of benzene and hydrogen sulfide have been below hazardous levels for two years, two years is not nearly enough time to justify removing these hazardous materials from scrutiny. The individual further commented that data for the preceding eight years far exceeded what is considered safe for evaluating delisting, and that five years or perhaps seven to ten years would be an ideal measuring guide due to the history of poor air quality in the Texas City area. The individual commented that the APWL area is too large and contains too many pollutant producers to remove it after two years of good air monitoring readings. Another commenter suggested that five years of monitoring would be good. The individual pointed out that the TCEQ is a year and a half behind in monitoring the Texas City area. One individual commented that the TCEQ should keep Texas City on the APWL for benzene and hydrogen sulfide for at least another three years, but preferably for seven more years.

Another individual at the public meeting, noting that he was a retired chemical environmental engineer and also a 40-year Texas City resident, expressed support for the delisting of benzene and hydrogen sulfide and commented that industries have done a good job in reducing benzene. The individual commented that the total tons per year (tpy) of benzene emissions had decreased from 2003 to 2011. He also stated that the reportable emissions of benzene for the area (not including maintenance upsets) decreased from 2004 to 2012, showing a tremendous effort by industry. The commenter also showed a graph with data points that he had gathered. The graph demonstrated that the curve showing the decrease in reportable emissions and the curve showing the decrease in benzene are almost exactly the same. He noted that the graph shows the downward trend immediately, and that he did not see any increase in benzene, but rather saw a tremendous decrease from 164 tpy to 60 tpy, specifically 60 tpy, 67 tpy, and 60 tpy, for the last three years.

TCLAMN commented that TCEQ's Emissions Inventory data showed a nearly 50 percent reduction of benzene emissions since 2005, and that during the same period, the measured ambient benzene concentration at the monitoring stations had shown nearly equal reductions. TCLAMN further commented that the combined reduction in emissions and improvements in the measured air quality fully support the TCEQ's delisting of benzene and hydrogen sulfide.

TCLAMN also commented that the results described in the TCEQ's proposal to delist Texas City for hydrogen sulfide and benzene confirm that air quality has improved to acceptably low levels for those air contaminants in Texas City. TCLAMN commented that every ambient monitor within Texas City has been below TCEQ's screening level of 1.4 parts per billion by volume (ppb_v) from 2010 through 2012, and that there has not been a single monitor over 1.0 ppb_v since 2009. TCLAMN commented that a three-year period without a single exceedance of the long-term screening level is consistent with the removal of the area from the APWL, and that other areas have been delisted with only two years of data below the long-term screening level. TCLAMN commented that the improvements to air quality are a result of real and permanent emission reductions

made by industry in the area. TCLAMN further commented that the industrial facilities in Texas City have spent millions of dollars to strengthen benzene and hydrogen sulfide emission controls, many of which were made voluntarily, and that these additional air pollution controls have been successful in reducing emissions of the targeted pollutants. TCLAMN commented that, in addition to the pollution controls, facilities have voluntarily implemented more rigorous work practices that will further minimize benzene and hydrogen sulfide risks.

A Texas City Commissioner commented that industries have made considerable improvements with regard to emissions, environmental equipment, and being good stewards. Another Commissioner, who expressed support for the removal of benzene from the APWL in Texas City, commented that the data shown at the public meeting was informative, demonstrating the efforts of the local industries to lower emissions. The Commissioner further stated that, although several public comments mentioned that only two years of data were presented, the data discussed were for 2010, 2011, and 2012.

TCC expressed appreciation for the work by the TCEQ and industry to reduce the levels of benzene and hydrogen sulfide in the Texas City APWL area, credited the TCEQ's use of increased monitoring, investigations, enforcement, and air permitting for the companies located in the APWL area, and acknowledged the voluntary efforts to reduce emissions by industry and TCC member companies. TCC commented that stationary monitoring data show that annual average benzene concentrations have remained below TCEQ's air monitoring comparison value (AMCV) of 1.4 ppb_v (established by the TCEQ as a safe level of annual benzene concentrations) at each monitoring location in Texas City for three consecutive years. TCC also commented that the TCEQ has determined that the annual average benzene concentrations at the industry-sponsored monitors have declined significantly and will be maintained below levels of potential concern.

Response 1: The TCEQ agrees that the APWL program has been an effective tool for concentrating TCEQ resources on the areas of the state with the greatest need. The TCEQ has focused its efforts on the Texas City area for approximately ten years. These efforts have included increased enforcement, monitoring, and scrutiny of facilities that emit air pollutants. Further, the TCEQ will remain focused on the Texas City area by evaluating monitoring data, which will continue to be collected after the area is removed from the APWL. As AAH pointed out, the monitoring data show a clear improvement in air quality.

The TCEQ agrees that monitoring is only one of the indicators that demonstrate whether control strategies have been effective in an area. In its proposal to partially delist Texas City, the TCEQ highlighted two years of validated monitoring data showing that concentrations have been below the TCEQ's conservative screening value at all monitors. At the public meeting held on April 11, 2013, the TCEQ provided preliminary data that supported the agency's contention that the annual average benzene concentrations for 2012 remained below 1.4 ppb_v at all monitors for a third consecutive year. That preliminary data has been finalized, and the Toxicology Division's July 10, 2013, health effects evaluation memo confirmed that the 2012 annual average benzene concentrations remained well below the long-term AMCV. Specifically, the Toxicology Division stated: "data from recent years for the Marathon-sponsored site and other Texas City monitoring sites indicate sufficient achievements in reducing ambient air concentrations such that levels are no longer of concern for potential long-term,

adverse health effects" and that 2012 annual average benzene concentrations represent "significant and maintained air quality improvements."

Furthermore, the TCEQ now has data for 2013 that show concentrations have remained below 1.4 ppb_v for a fourth consecutive year. Average benzene concentrations for 2013 were less than 0.4 ppb_v at the TCEQ's Texas City Ball Park monitor, less than 0.2 ppb_v at BP's 31st Street monitor, approximately 0.4 ppb_v at BP's Logan Street monitor, and 0.6 ppb_v at Marathon's 11th Street monitor, all well below the 1.4 ppb_v screening level. The monitoring data demonstrate that ambient concentrations of benzene have been maintained below the TCEQ's conservative screening value of 1.4 ppb_v at all monitors for four consecutive calendar years. Further, data show that ambient benzene concentrations have been on a downward trend at all monitors since 2007, and data from the TCEQ's Ball Park monitor show that concentrations have remained at or below 1.4 ppb_v for more than ten years—since 2001. Since industries in the area have implemented controls on the contaminants of concern and the data show that these control measures are effective, the TCEQ has determined that ambient concentrations can reasonably be expected to be maintained below its conservative screening values. For these reasons, the TCEQ is finalizing the partial delisting of Texas City from the APWL for the air toxic benzene.

Monitored concentrations of hydrogen sulfide in the Texas City APWL area have declined and exceedances of the standard are infrequent and appear to be episodic in nature. Monitoring data from the Texas City Ball Park monitor, BP's Logan Street and 31st Street monitors, and the TCLAMN 2nd Avenue monitor all show significantly fewer exceedances of the standard. At the Texas City Ball Park monitor exceedances occurred on two days in 2009 but there were no exceedances from 2010 to 2012. Similarly, there were no exceedances reported from BP's 31st Street monitor from 2010 to 2012. The Logan Street monitor showed exceedances on one day in 2011 during a unit startup at BP. The Texas City /La Marque 2nd Avenue site reported no exceedances in 2009 or 2010 and only two days of exceedances in 2011. These were caused by a power outage at BP. No exceedances were monitored in 2008 during mobile monitoring. The reduction in monitored exceedances are due primarily to the installation of controls beginning in 2005 through 2011 at four primary hydrogen sulfide contributors in the area. Because the primary companies in Texas City that emit hydrogen sulfide have installed flare gas recovery systems and other significant equipment improvements to minimize hydrogen sulfide emissions, the likelihood of experiencing extended elevated hydrogen sulfide concentrations has been drastically reduced. As such, the TCEQ has determined that monitored concentrations can reasonably be expected to be maintained below the state standard and delisting is appropriate.

Comment 2 regarding whether TCEQ will continue to monitor the area: A commenter stated that the TCEQ needs to monitor a few more years. Another commenter stated that the TCEQ's notice did not state that it will continue to operate its one monitoring station and recommended that the TCEQ maintain an active monitoring site or sites in the APWL area. Another individual stated that delisting the area "doesn't mean that the whole thing is going to go away," since there will still be monitoring.

Response 2: The TCEQ acknowledges that it did not explicitly state in its proposed delisting documents that monitoring will continue in Texas City. To clarify, monitoring will continue in the area after the delistings. Specifically, the TCEQ has no plans to discontinue operation of its Ball Park monitor. Further, Marathon has committed to continuing the operation of the three BP monitors. The TCEQ's Toxicology Division will continue to evaluate monitoring data and to determine whether any potential human health and welfare concerns develop after the area is delisted for these two contaminants.

Comment 3 regarding the implications of delisting benzene and hydrogen sulfide in Texas City: A commenter stated that he was a long-time Texas City resident and parent of a four-year old. He stated that he is opposed to removing benzene from the APWL and that he does not understand how anyone can think it would be a good idea to remove this dangerous carcinogen from the APWL. Another individual commented that removing these air toxics from the watch list would send a message that the state environmental board does not consider these chemicals to be a hazard.

Response 3: Benzene is a known carcinogen, found in many products and emitted from many industrial processes. The TCEQ established a very conservative long-term screening value to evaluate ambient benzene concentrations in order to determine whether benzene levels represent a potential long-term human health concern. The conservative screening value is called an Air Monitoring Comparison Value or AMCV, which the TCEQ established for benzene as 1.4 ppb_v to evaluate lifetime exposure (i.e., 70 years of exposure). This value is based on a thorough scientific evaluation of the toxicity of benzene. The TCEQ considers average ambient concentrations of benzene at or below 1.4 ppb_v to be protective of human health and welfare, including sensitive groups in the general population such as children, pregnant women, and the elderly.

The TCEQ is delisting Texas City for the air toxic benzene because average ambient concentrations are well below the AMCV. As a result, the TCEQ does not expect any adverse health effects to result from exposure to the ambient levels of benzene in Texas City. The TCEQ will, however, remain focused on the Texas City area by evaluating monitoring data, which will continue to be collected after the area is removed from the APWL.

Similarly, the hydrogen sulfide state regulatory standard (30 TAC §112) of 108 $\mu g/m^3$ (80 ppb) is established well below concentrations at which adverse health effects may be expected. Monitoring data also show that concentrations of this air toxic are consistently below the state standard. The TCEQ determined that the ambient concentrations of these two air toxics have decreased and are now at levels that are no longer of concern. As stated previously, the TCEQ will continue to monitor these two air toxics at this and other areas around the state to determine whether emission reductions are necessary to protect public health.

Comment 4 regarding the effectiveness of TCEQ's efforts to improve air quality using the APWL: AAH expressed appreciation for the opportunity to comment and participate in the APWL process and stated that it supports the APWL program and the TCEQ's efforts to protect air quality in Texas City. AAH commented that it hopes that the APWL program continues to be administered efficiently and effectively. TCLAMN commented that the TCEQ's APWL process is rigorous, requires

quantifiable improvements in air quality, focuses on communities of concern, and is a process that the citizens of Texas should support. TCLAMN also noted the TCEQ's past successes with the APWL program in Texas City, in which three compounds were delisted from the APWL in 2008 after improvements in air quality were measured.

Response 4: TCEQ appreciates the support for the APWL program.

Comment 5 regarding the accuracy of the air monitoring data: A commenter asked why the monitors did not show a spiked increase in benzene levels during BP's 2010 release, stating, "You can't trust the numbers or equipment being used right now." A commenter expressed concern that members of the public are scared because of newspaper articles being published saying that the TCEQ's results are not good and because lawsuits have been filed despite the fact that there is "no benzene" in Texas City. On the other hand, a Texas City Commissioner commented that she believes the monitoring data presented by the TCEQ are accurate.

Response 5: The emissions event the commenter refers to is BP's 2010 emissions event that occurred from April 6 to May 16, 2010. The area monitors did show small fluctuations in hourly benzene concentrations during this event. Although the 31st Street and Logan Street monitors are positioned in locations that are predominantly downwind of major sources in the industrial complex of Texas City, changing meteorological conditions can have an effect on concentrations measured at the monitors. Wind speeds during the time period of the event were fairly strong (often between 8 and 15 mph) and wind directions varied (between 85-205 at the 31st Street monitor and 90-170 at the Logan Street monitor). These wind conditions could have had an impact on the benzene concentrations reaching these monitors.

The TCEQ evaluated the hourly, short-term, concentrations of benzene during the emissions event and determined that the readings were far below the TCEQ's short-term, health-protective AMCV for benzene of 180 ppb_v. The highest monitored hourly benzene concentration at the 31st Street monitor during the BP emissions event was 4.7 ppb_v. The highest available monitored hourly benzene concentration at the Logan Street monitor during the emissions event was 1.2 ppb_v. Thus, the 31st Street and Logan Street monitors show that all measured short-term benzene concentrations were below levels for which the TCEQ would have potential concern. It is correct that one of the monitors, the Logan Street monitor, did not provide ambient air data for most of the 40-day event because it was coming on-line while the event was ongoing. The monitor began providing valid data on May 14, 2010, two days before the end of the BP emissions event.

The TCEQ pursued enforcement against BP for violating its permit. This enforcement action led to a final agreed judgment that included the largest penalty levied against a company for violations of the Texas Clean Air Act in the state's history. The TCEQ will continue performing regular investigations of emission sources in the Texas City area using infrared cameras to screen for the presence of unpermitted volatile organic compound (VOC) emissions.

Comment 6 regarding public health implications of the delisting: A commenter opposed the delisting of benzene and hydrogen sulfide, which she considers very dangerous chemicals. She stated that she was a plaintiff in the pending BP civil lawsuit regarding the emissions event that occurred from April to May 2010, and

commented that she does not understand why the state wants to remove the two chemicals from the APWL when so many have suffered so recently. The individual commented that the long-term consequences of the exposure are unknown. The individual further commented that she lives very close to the Ball Park monitor and was sick after being exposed to BP's benzene leak. She also asked what the impact of removing benzene and hydrogen sulfide from the watch list would be for the plaintiffs in the pending court case. The individual commented that the timing of the TCEQ's proposed action is beneficial to BP, and that the newspaper printed that company officials were hoping that the sooner that the TCEQ took action to remove the two chemicals from the watch list, the better it would be for BP. The individual further commented that the jury pool would be from Galveston County, expressed concern that the TCEQ's decision could potentially have an impact on the jury, and asked if the TCEQ was aware that there is a pending jury trial in four to five months. Another individual questioned the lack of attendance from the people in Texas City that were affected by the blowout. The commenter also stated that leukemia is one of the illnesses associated with benzene, spoke about a woman that died of leukemia after moving to Texas City 20 years ago, and commented that it may not take 70 years of exposure to get leukemia. The commenter also discussed other diseases, including tongue paralysis and mental illness from sulfide exposure. Another individual commented that the TCEQ's proposal further enhances cancer risk in the state of Texas. The individual further commented that adoption of the TCEQ's proposals would be detrimental since there is too much pollution already and it would prove that neither the state of Texas or the TCEQ cares about public health. The individual further commented that his wife and potentially others have developed breast cancer since BP's 40-day upset. The individual expressed that the TCEQ and its proposal should be stopped dead in its tracks before too many more humans are.

Response 6: The partial delisting and civil suit are unrelated, and the civil legal action against BP is beyond the scope of the TCEQ's delisting actions. Further, the state is not a party to the civil lawsuit against BP, and it would be inappropriate for the TCEQ to respond to comments about the civil case submitted during the delisting comment period.

As stated in Response 5, the TCEQ pursued enforcement against BP for violations including the emissions event that occurred in April and May 2010. The TCEQ's partial delisting of Texas City from the APWL takes into account the potential health risks associated with monitored ambient concentrations that have occurred over the past several years, and its determination includes data from the relevant monitors that were on-line and operational during BP's emissions event in 2010. The data from these monitors indicate that the levels of benzene at the monitors during this emissions event did not exceed levels determined to be protective of human health.

Monitoring data show that concentrations have been below levels of concern for three full calendar years following BP's emissions event, indicating no recent or current risk to human health or welfare. The TCEQ will continue to evaluate ambient air concentrations of air toxics, including benzene, for potential health concerns related to cancer and other potential adverse health effects after the delistings are in effect.

Comment 7 regarding the effect of the presence of BP's refinery in Texas City on the decision to delist: AAH commented that BP is "far and away" the largest emitter of benzene in Texas City, has a long history of poor environmental compliance and safety management, and is the site of the March 23, 2005, explosion that killed 15 employees and injured 170. AAH noted that it was discovered upon investigation that BP had cut costs, resulting in risky working conditions, which were the likely cause of the catastrophic event. AAH referenced a report of the event by the Chemical Safety Board and commented that the report found numerous problems including out of date equipment, corroded pipes, and faulty safety alarms. AAH also commented that there were reports of gas leaks at the BP Texas City refinery in November 2011. AAH commented that a caller initially reported a sulfur dioxide leak to the National Response Center, that BP confirmed an ongoing leak of methyl mercaptan, and that the odor was bad enough for 30 workers from a neighboring plant downwind to be taken to the hospital. AAH commented that BP's poor record of environmental and safety management should give pause to anyone proposing a delisting in Texas City.

Response 7: The TCEQ's documents supporting the Texas City delistings include detailed discussions about TCEQ and U.S. Environmental Protection Agency (EPA) enforcement against BP. The TCEQ has also taken into account that BP sold the site to Marathon. The TCEQ determined that BP's history of performance alone should not cause the area to be maintained on the APWL. As stated previously, the TCEQ will continue to monitor air quality in the area after delisting.

Comment 8 regarding the effect of Marathon's purchase of BP's refinery on delisting: A commenter stated that the citizens of Texas City deserve the chance to see how Marathon will manage BP's large refinery, which refines 450,000 barrels of oil per day. The individual also commented that Marathon's track record is not very good and expressed concern that the state wants to relieve Marathon of the responsibility of having any benzene and hydrogen sulfide releases measured within a few weeks of taking on the huge refinery. The individual commented that Marathon will have leaks and that the company will say that they don't know how extensive it was because they weren't monitoring it. The individual further stated that the state's action of removing these two deadly chemicals from the APWL is premature for a small refinery taking on the fourth largest refinery and requested that removal of the chemicals be postponed. The individual requested that the state force Marathon to prove they can be responsible refiners. Another individual commented that the citizens of Texas City have a new company, that BP was bought out by Marathon right after its recent blowup, and that we should give Marathon a chance because there is a chance that their controls on pollution will be better.

Response 8: The TCEQ determined that, since the monitoring data show levels that are no longer of potential health concern, there is no reason to delay the APWL action because of ownership changes. Years of monitoring data, which include data that captures emissions from BP as well as from sites other than the one owned by BP, illustrate that the ambient levels of benzene and hydrogen sulfide are no longer of concern for potential public health and welfare effects in the area. Prior to the delisting proposal, Marathon voluntarily committed to implementing additional measures to minimize the frequency and magnitude of future emissions events and continue operating BP's monitors. The TCEQ's action to partially delist Texas City from the

APWL does not relieve Marathon or any other company from the expectation of compliance with all permits, rules, regulations, or any other compliance agreements. In addition, the TCEQ will continue its regulation of the site by conducting routine compliance investigations to ensure that the new owner complies with applicable environmental rules and laws.

Comment 9 regarding the effect of noise from the Marathon refinery on the delisting decision: A commenter who lives close to BP's site stated at the public hearing that she lives with anxiety and provided details of her experience in her house on the day of BP's 2005 explosion. She commented that she could hear BP's alarms all day. She further explained that the last alarm was two or three weeks prior to the public meeting when BP had some kind of leak, big fire, and smoke. The commenter expressed concern that individuals cannot wait until the "safety director" calls the public on the phone before evacuating the area. The commenter also stated that everyone says that it is steam coming out of the smoke stacks. The individual subsequently commented that loud rumbling woke her up on Friday, April 19, 2013, that the sky was a rusty color, that rusty colored smoke clouds were being emitted from Marathon's smoke stacks, and that this continued the following two mornings.[1] The commenter expressed that the rumblings took place between 1:58 a.m. and 3:30 a.m. and asked what the air monitors showed for these three mornings between 12:00 a.m. and 6:00 a.m. The commenter also expressed that she experienced a burning sensation in her eyes. Additionally, the individual commented that the white cloudy output from the same smoke stack was 1/3 the usual daytime amount the following Monday and inquired about it. The commenter also expressed that venting from Marathon woke her up the morning she submitted the comment to the APWL coordinator, that the noise from venting is deafening and frightening, and asked if something is getting worse or is going to explode. The individual commented that venting goes on for hours and sometimes multiple days, and that it stops just short of an explosion. The individual further commented that the venting is a constant sound, producing anxiety. The commenter is concerned that some citizens that support delisting live far from the refinery and don't hear the rumblings and ventings, but that she lives 1,000 to 1,400 feet from BP/Marathon and hears alarms all the time, including one on April 12 at 5:10 p.m. and another on April 13 at 8:28 a.m. The individual stated that she decided to start recording what she sees and hears and that she can be a "volunteer monitor."

Response 9: The TCEQ's jurisdiction is limited to those in statute, and it does not have the jurisdiction to regulate noise. The agency is committed to investigating all complaints related to air pollution, as well as all other activities within the TCEQ's jurisdiction such as water regulations and nuisance conditions. The TCEQ did not receive any other complaint information during the April April 19 – 21, 2013, time frame for which the commenter shared her experiences, and the TCEQ has no information indicating that an emissions event occurred. The benzene and hydrogen sulfide monitoring data from that time period has been validated and do not indicate potential levels of concern. All monitored benzene concentrations during this time period are well below the short-term, health-based AMCV of 180 ppb_v. The highest hourly benzene

[1] Friday, April 19, 2013, was after the public meeting but prior to the end of the TCEQ's public comment period on the delistings.

concentration was 3.8 ppb_v and was measured at Marathon's 11th Street monitor. The highest 30-minute hydrogen sulfide concentration was 24.1 ppb and was monitored at the Logan Street monitor on April 17, 2013. This concentration was well below the state standard of 80 ppb for residential, business, or commercial properties. The concentrations of both benzene and hydrogen sulfide are very low and the TCEQ would certainly not expect these concentrations to cause acute health effects.

The TCEQ encourages citizens to report to the TCEQ activities or events that may indicate an environmental problem. Information about gathering and preserving evidence of a violation can be found at: www.tceq.texas.gov/complaints/protocols/evi_proto.html. Additionally, any person may submit a complaint to the TCEQ online at www2.tceq.texas.gov/oce/complaints/index.cfm or may call the TCEQ toll-free at (888) 777-3186. A person may directly contact the TCEQ's Region 12 Office in Houston at (713) 767-3712 or may contact the Galveston County Health District at (409) 938-7221.

Comment 10 regarding ongoing monitoring: AAH noted that many of the improvements have been a result of consent decrees and commented that, if the TCEQ finalizes the partial delisting of Texas City from the APWL, the TCEQ should continue to monitor facilities that have enforceable commitments and make sure that those commitments are maintained. AAH also commented that Marathon's monitor is going offline July 1, 2014. Further, it commented that monitoring is great and that they want to ensure that the area has a robust monitoring network in place. AAH further commented that, if the company is not required to monitor, it would be a shame since the monitor has the highest benzene concentration in the network.

Response 10: The TCEQ requires reporting for enforcement commitments made by companies in all areas including APWL areas. As such, the TCEQ fully intends to ensure that all commitments are met. The TCEQ agrees that evaluating potential impacts to public health can be maximized with a robust monitoring network. All agreed orders and compliance agreements contain specified commitment dates. Marathon has thus far met all of its compliance commitments to conduct monitoring at the 11th Street site. When its commitments fully expire, Marathon will not be required by agreed order to operate that monitor. If Marathon chooses to cease monitoring at the 11th Street site, eight other monitors will continue to collect data, which is adequate to assess ambient air toxic concentrations and is more than many similarly industrialized areas in the state have.

Comment 11 regarding offsets of emissions: AAH commented that, as new sources come online, the TCEQ should ensure that there are offsets of emissions.

Response 11: When an area is listed on the APWL, the TCEQ implements strategies to reduce emissions. One strategy that the TCEQ implements is additional scrutiny for air permit applications that include requests to permit additional emissions of the contaminant of concern. For these permit actions, in many cases, companies are required to provide equivalent reductions for requested increases of APWL contaminants. The TCEQ has determined that ambient concentrations are below levels of concern in Texas City and that they can reasonably be expected to be maintained below levels of concern. Therefore, the specific strategy to provide equivalent reductions

for permit actions will no longer be necessary. The TCEQ will, however, continue to conduct health effects evaluations on permit applications through the New Source Review permitting program. These evaluations may show that some permit applications would require the company to reduce some emissions in order to increase other emissions regardless of the area being delisted from the APWL, as determined on a case-by-case basis.

Comment 12 regarding the trustworthiness of monitors: AAH commented that the TCEQ's proposal to delist Texas City from the APWL is based on monitoring data that are incomplete, inadequate, and misleading. AAH also commented that the Ball Park monitor is the only monitor maintained by the TCEQ in Texas City, and it is troubling that there is only one valid community monitoring station in Texas City. Another commenter expressed concern that the entities producing these air pollutants will monitor the air and that the TCEQ will only have oversight.

On the other hand, TCLAMN noted that its air monitoring network is part of one of the most densely monitored areas in the U.S. TCLAMN commented that it is committed to scientific monitoring that supports the greater area's goal of demonstrating attainment with all air quality standards. Its network, consisting of the monitors at the North Site, Avenue A, 2nd Avenue, and 34th Street (which also links directly into the TCEQ's LEADS data system), was established in 1992 and measures more than 100 compounds including air toxics, ozone, ozone precursors, other criteria pollutants, and reduced sulfur. The network also tracks weather conditions such as temperature, humidity, rainfall, and barometric pressure. TCLAMN further noted that its costs are shared by member companies, that no public or government money is used to operate TCLAMN, and that TCLAMN contracts with a third party expert to manage the four monitoring sites. TCLAMN takes the necessary steps to ensure the measurement process produces accurate data, and it maintains the equipment consistent with EPA standards. TCLAMN also commented that the monitoring equipment goes through a rigorous quality assurance program to ensure the results are accurate and that all data must be validated before data are considered finalized. TCLAMN commented that the checks in place are consistent with those of the agencies that regulate the industrial facilities in Texas City, and that TCLAMN shares summary air monitoring results with the general public via the Texas City Citizen Advisory Committee and via annual meetings with the TCEQ.

Response 12: The Texas City area has more air monitoring than many other places in the country, with nine active stationary monitoring sites. The TCEQ operates one monitor in Texas City. The area also has four industry-sponsored monitors as well as the four monitors operated by TCLAMN. These monitors enabled the TCEQ to base the evaluation of delisting benzene and hydrogen sulfide on a complete and robust dataset.

Additional monitoring is one of the strategic actions used by the TCEQ to assess and improve ambient air quality in APWL areas. The industry monitors were implemented through TCEQ and EPA enforcement agreements that stipulated third-party contracting of the monitors' operations to ensure that the monitoring is properly conducted. Data from the industry-sponsored monitors do not replace data collected at the TCEQ's monitor, but provide additional monitoring data for evaluating potential impact on the public.

The third-party contractors must meet the data quality standards prescribed by the TCEQ for these industry-sponsored monitors to ensure that the data collected by the monitors is valid. As a result, the TCEQ was able to conduct a thorough evaluation of the ambient air concentrations of benzene and hydrogen sulfide in Texas City based on a dataset that included ample data regarding the concentrations of the pollutants of concern in the ambient air.

Comment 13 regarding the notification of the public about air toxic levels: A commenter expressed concern about when the public will be notified if air toxics once again become elevated above a level that is considered safe and commented that with the APWL process, it will be weeks or months after the fact.

Response 13: The TCEQ periodically participates in the Texas City-La Marque Community Advisory Council meetings to provide updates on ambient air toxic concentrations in the area. The TCEQ has historically participated in these council meetings a few times a year, and the TCEQ posts its health effects reviews of network monitoring data on its Website annually. This level of notification is appropriate for the ambient concentrations that have been measured in the area given the conservative nature of TCEQ's screening values.

The TCEQ develops two types of screening values to evaluate ambient monitoring data: short-term AMCVs and long-term AMCVs. AMCVs are set to provide a margin of safety and are set well below levels at which adverse health effects may be expected. Short-term AMCVs are conservative screening values and are established to protect the public from potential adverse short-term health effects. Because short-term AMCVs are set well below concentrations at which effects actually occur, a one-hour exceedance of a short-term AMCV does not necessarily mean that adverse health effects will occur. The TCEQ would need to evaluate the potential for short-term adverse health effects more closely. Accordingly, because short-term AMCVs are not set at effects levels, a short-term AMCV does not represent an alarm-level concentration of a contaminant where an evacuation or a shelter-in place notice would be issued to protect the public of imminent danger. Therefore, an exceedance of the short-term AMCV does not automatically mean that ambient concentrations are unsafe to breathe, and immediate public notification is not appropriate.

The TCEQ also establishes long-term AMCVs to protect the public from long-term air toxics exposure to levels of potential health concern. Long-term AMCVs are derived to protect against potential effects that may occur due to exposure over many years (e.g., a 70-year period). In order to use a comparison value appropriately, and to be scientifically correct, comparisons are conducted with data that represent the appropriate duration. For a long-term AMCV, since life-time (e.g., 70-year) data are not available, an appropriate duration would be, at a minimum, an average of sufficiently representative data collected over one calendar year. Consequently, an annual average exceedance of a long-term (i.e., life-time) AMCV also does not necessarily mean that ambient concentrations are unsafe to breathe. Rather, the TCEQ calculates annual average concentrations and conservatively compares them to the long-term (i.e., life-time) AMCV to determine if additional reductions of the contaminant of concern are needed.

Comment 14 regarding the protectiveness of the long-term AMCV for benzene: AAH noted that the long-term AMCV for benzene has been made less health protective since the Texas City area was first listed on the APWL, with a revised AMCV of 1.4 ppb_v.

Response 14: The TCEQ conducted a thorough scientific toxicity analysis for the air toxic benzene in 2007 under its scientifically-rigorous Guidelines, which have since been updated. The TCEQ used the latest scientific methods to derive the most scientifically defensible long-term AMCV value available for benzene of 1.4 ppb_v, which is a conservative screening value.

Comment 15 regarding the types of monitors used in Texas City: AAH commented that only data from TCEQ canister-based monitoring stations, such as the TCEQ's Ball Park monitor, are appropriate for calculation of a representative annual average concentration and have any evidentiary weight in a benzene delisting proposal. AAH further noted that the TCEQ's Ball Park monitor is a 24-hour canister sampler that takes a 24-hour sample once every six days and that it is the only monitor in Texas City that provides such data. AAH further commented that the Ball Park monitor is the only monitor that is designed for calculating annual average concentrations, that only a monitor that is designed to monitor for annual average concentrations can provide meaningful data for comparison to a long-term AMCV and as part of a delisting assessment, and that the Ball Park monitor therefore is the only monitor that provides data with real evidentiary value. AAH commented that BP's Logan Street and 31st Street monitors are automatic gas chromatographs (auto GCs), that auto GC data are not appropriate for calculation of annual averages or comparison to a long-term AMCV, and that data from the Logan Street and 31st Street monitors should not be given evidentiary weight in the TCEQ's proposed delisting.

Response 15: Canister samplers provide data that are used to calculate an annual average concentration. Additionally, auto GCs provide ambient concentration data that are also appropriate for the calculation of an annual average concentration. The annual average concentration is the calculation in which all data points are added and the sum is divided by the number of data points. The annual average concentration can be calculated for both canister samplers and auto GCs. An auto GC typically analyzes approximately 22 hourly samples each day (two hours per day are used for data quality checks). The annual average of these hourly measurements is considered representative when valid data are returned for at least 75 percent of the hours in a year (or approximately 6570 valid samples are analyzed out of a possible 8760 samples per year). Auto GC data are therefore at least as meaningful for comparison to a long-term AMCV as that from a canister that takes a 24-hour sample every sixth day. Both canister samplers and auto GCs are appropriate to measure ambient air concentrations and calculate the annual average concentration. Therefore, it would be inappropriate for the TCEQ to ignore available auto GC data.

Annual average concentrations at the Texas City Ball Park monitor have been below the previous long-term AMCV of 1.0 ppb_v since 2006 and below the current long-term AMCV of 1.4 ppb_v since 2001, but the TCEQ appropriately kept Texas City on the APWL because data from industry-sponsored auto GCs demonstrated that annual average benzene concentrations exceeded the TCEQ's AMCV.[2] Moreover, because data from the industry-sponsored auto GCs were used to keep an area on the APWL, it is appropriate to consider improvements shown by the same monitors. In addition, the TLCAMN's Avenue A monitor is a 24-hour canister sampler that takes a 24-hour sample once every six days, like the TCEQ's Ball Park monitor.

Evaluation of the TCEQ's Ball Park monitoring data alone as AAH suggests, without consideration of auto GC data, still shows that concentrations have been maintained below levels of concern for more than ten years, supporting the delisting of the APWL area.

Comment 16 regarding the validation of certain monitors: AAH commented that BP's Logan Street and 31st Street monitors are auto GCs and that the monitoring data from the Logan Street and 31st Street monitors have not been validated for absolute concentrations.

Response 16: The statement that data from the Logan Street and 31st Street monitors have not been validated is incorrect. The TCEQ required BP to submit for approval a Quality Assurance Project Plan along with a Monitoring Plan. The TCEQ required that each monitor be calibrated for each compound. The plans require that EPA methods be followed, or if another method is used, that method's performance would have to be evaluated, documented, and provided to the TCEQ. The plans also require performance of quality checks and specify acceptance criteria for data. Quality check samples must also be collected during routine sample analysis to prove that its method and instrument are operating within acceptable limits. All data collected at the Logan Street and 31st Street monitors have been validated by a third-party contractor since April 2010 in accordance with the plans.

Comment 17 regarding the lack of a TO Method specifically for auto GC data: AAH commented that the EPA has a set of standardized, peer reviewed methods for the determination of volatile, semi-volatile, and selected toxic organic pollutants in the air. AAH further commented that canister sampling is listed as Toxic Organic Method 15 (TO-15) and that there is no TO Method for auto GC data. AAH commented that auto GC data are collected continuously, and unless each monitor is calibrated to TO-13 for each compound, it is not suitable for calculation of annual concentrations or comparison to a long-term AMCV.

Response 17: The TCEQ has successfully used auto GC data for APWL determinations since the late 1990s. The methods in *The Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air* (TO Methods) are meant as guidance for whatever potential applications a user may deem appropriate. Though

[2] In 2006, the TCEQ's long-term, health-based AMCV for benzene was 1.0 ppb_v. Annual average concentrations at the TCEQ's Ball Park monitor have been below 1.0 ppb_v since 2006. In 2007, TCEQ established a new long-term, health-based AMCV for benzene at 1.4 ppb_v. Annual average concentrations at the TCEQ's Ball Park monitor have been below the current AMCV of 1.4 ppb_v since 2001.

auto GCs are not directly addressed in the TO Methods, the auto GC method is a variation of TO Method 17 and was approved by the EPA for use in the Photochemical Assessment Monitoring Site (PAMS) Network. This network is used for nationwide evaluation of ozone precursors, and data from the network have been influential in the Texas State Implementation Plan for developing strategies to reduce ozone formation.

The concern the commenter expressed about the auto GC data for benzene not being suitable for determination of annual average concentrations is unfounded. Benzene is directly calibrated at the auto GC instrument at least annually. Additionally, the instruments are compared with other Quality Control (QC) samples every day to determine the overall accuracy of the results. The results of these QC samples, in addition to operating conditions, annual audits, and equipment assessments performed by an independent company, are considered in the final validation of the data. Due to this rigorous QC process and the comparability of auto GC data with other VOC methods used in Texas, the TCEQ is confident in both the validity of data collected by auto GCs and statistical summaries of the data, such as annual averages.

A recent example of the successful use of auto GC data is the Lynchburg Ferry auto GC. The improvements to the Lynchburg Ferry APWL for benzene were realized in large part due to responses to near-real time email notifications generated when elevated concentrations were detected by the Lynchburg Ferry auto GC. Subsequently, the TCEQ used the Lynchburg Ferry auto GC data to evaluate and delist that APWL area for benzene in 2010. The TCEQ is confident in the validity of the benzene data used to evaluate potential health effects in the Texas City APWL.

Comment 18 regarding the appropriateness of TCEQ's use of different types of data: AAH stated that they are concerned that the TCEQ treats data from several different types of monitors on equal footing. AAH commented that the TCEQ compared both canister and auto GC data to the long-term AMCV in its delisting proposal, which did not include any discussion of cross-calibration between canisters and auto GCs. AAH noted that the TCEQ's proposal includes no discussion of the relative weight to be given with respect to differences in data collected from different types of monitors. AAH further noted that the comparison of annual averages from each monitor to the long-term AMCV without robust analysis is simplistic and misleading.

Response 18: The TCEQ evaluates data from each monitor individually. To evaluate potential chronic health effects, the TCEQ first averages the data from a particular monitor for the calendar year and then compares the average concentration to the TCEQ's established AMCVs. An AMCV is a conservative screening value, and annual average concentrations at or below the screening value do not pose a potential long-term health concern. The TCEQ then conducts a more detailed evaluation if a concentration at a monitor is above the screening value. For Texas City, it may appear that all data are treated the same because the concentrations at all monitors have been below the TCEQ's conservative screening value. Thus, there is no need to conduct a more detailed evaluation, or for "cross-calibration" or "weighting." The TCEQ considers its approach to evaluating chronic health effects conservative, especially considering that annual averages are compared to life-time screening values.

Comment 19 regarding the appropriate emphasis given to data from different types of collection methods: AAH noted that the TCEQ's proposal did not discuss the significance of different data collection methods; that the TCEQ did not demonstrate that evidence collected with these different methods is equivalent; and that the TCEQ seems to give these data equal weight and plots different types of data on a single chart as if it were the same.

Response 19: The TCEQ acknowledges that a detailed discussion about data collection methods was not included in its proposal documentation to delist Texas City. The TCEQ developed the proposal in a manner that explained to the general public and other interested stakeholders why it proposed to partially remove Texas City from the APWL.

Benzene is calibrated directly in both monitoring methods (canister and auto GC), so there is a high degree of certainty that both methods produce accurate data. As the commenter noted, there are differences in the methods, but this is why the TCEQ evaluates data from each monitor individually, as described above.

Qualitatively, comparison of annual averages from the two monitoring methods shows similar concentration levels. There are currently six ambient air monitoring sites in Texas (Dallas Hinton, Fort Worth Northwest, Beaumont Downtown, Haden Road, Lynchburg Ferry, and Houston Deer Park) with both an auto GC and a canister sampler. An evaluation of benzene data collected from these two methods at these six sites from 2010-2013 indicates that annual average concentrations are within 0.1 ppbv. Four annual averages (14 percent) differed by between 0.2 and 0.3 ppbv.

Furthermore, as discussed above, the TCEQ conducts all of its annual health effects evaluations by calculating the average concentration at each monitor for the calendar year. The average is calculated whether the monitor is an auto GC or canister sampler. The annual average concentration is then compared to the average value of the long-term AMCV. Including all monitoring information on one chart is appropriate, as the data reflect the average ambient concentration over the calendar year, whether the monitor collected 60 samples (every six days) that year or 8760 samples (every hour of the year). When the data are presented in one chart, appropriate descriptions are provided to explain that more than one type of data was used and which types are represented. The TCEQ's annual health effects evaluations of all ambient air monitoring data for the last ten years are available to the public on its Website.

Comment 20 regarding the lack of discussion of data collection methods at the public meeting: AAH also noted that the TCEQ did not discuss the significance of different data collection methods at its April 11, 2013, public meeting, which is misleading and represents a serious scientific flaw in the way that the TCEQ communicates information to the public.

Response 20: The primary purpose of the public meeting was to accept statements about the TCEQ's proposal to partially delist Texas City in a forum appropriate for all members of the general public, including those with scientific backgrounds. The TCEQ also provided a brief explanation of the improvements in Texas City and provided an opportunity for the public to ask the TCEQ's staff questions at the public meeting. No questions were raised by any member of the public on the significance of data collection methods.

Comment 21 regarding the TCEQ's lack of use of wind data: AAH commented that the TCEQ has made no attempt to correlate monitor values with wind data and that there has been no attempt to pinpoint emissions sources, even though the TCEQ has acknowledged that upwind and downwind monitors are useful for pinpointing. AAH also commented that the TCEQ's presentation of its analysis does not adequately explain the relationship between monitored concentrations and wind direction and frequency.

Response 21: The TCEQ has completed numerous source determinations in Texas City using wind data with monitored values. The health effects memoranda of the 2005, 2007, 2008, and 2009 air monitoring network data provide specific details on the sources of benzene in Texas City identified by the TCEQ. Although these past TCEQ health effects evaluations provided details on source determination and wind directional analysis, the proposed delisting documents provide extensive details showing that ambient concentrations were below levels of potential concern in 2010 and 2011 at all Texas City monitoring sites. Sustained concentrations below TCEQ's screening values indicate an improvement and would not prompt additional analysis of wind direction and frequency with monitored concentrations.

Comment 22 regarding the analysis of wind data: AAH stated that they have performed a detailed analysis of hourly concentration data from the Logan Street and 31st Street auto GCs in conjunction with wind directional data, commenting that their analysis allowed them to find very close correlations between hourly monitored benzene concentrations and specified wind directions. AAH also commented that their analysis of the data from the Logan Street and 31st Street auto GCs is useful only to the extent that it allowed them to pinpoint emissions. However, AAH also commented that they used their analysis to pinpoint the major sources of benzene emissions within the BP facility and to estimate annual benzene concentrations in communities downwind of these sources through examination of wind direction frequencies.

Response 22: The TCEQ disagrees that auto GC data are only useful for pinpointing emissions. Auto GC data are useful and appropriate for both pinpointing emissions and determining potential health impacts, as AAH has attempted to do in their own analysis of the Logan Street and 31st Street auto GC data. The TCEQ has included the industry-sponsored auto GC data in its numerous health effects evaluations and has documented its analyses in its health effects memoranda since 2005. Similarly, consideration of auto GC data is appropriate for delisting the area, and discussion of the auto GC data was appropriately included in the proposed delisting documentation. The TCEQ has determined that all decisions related to the APWL program should be based on measured ambient concentrations rather than estimated values.

Comment 23 regarding proper data collection and analysis: AAH commented that the TCEQ cannot ensure that it is maintaining the APWL in a manner that protects public health without proper data collection and analysis. AAH commented that they pinpointed BP's tanks in the western part of the refinery as the major source of VOC emissions, including benzene, which allowed AAH to identify several siting issues with the existing monitors.

Response 23: There are nine active monitors in the Texas City area that collect ambient benzene data. Three monitors are located downwind of the BP refinery-the Logan Street, 31st Street, and Ball Park monitors. As discussed later in this document,

these three monitors collect data continuously, including when winds blow from the western part of the refinery, enabling the TCEQ to collect a sufficient amount of data to conduct detailed health effects evaluations.

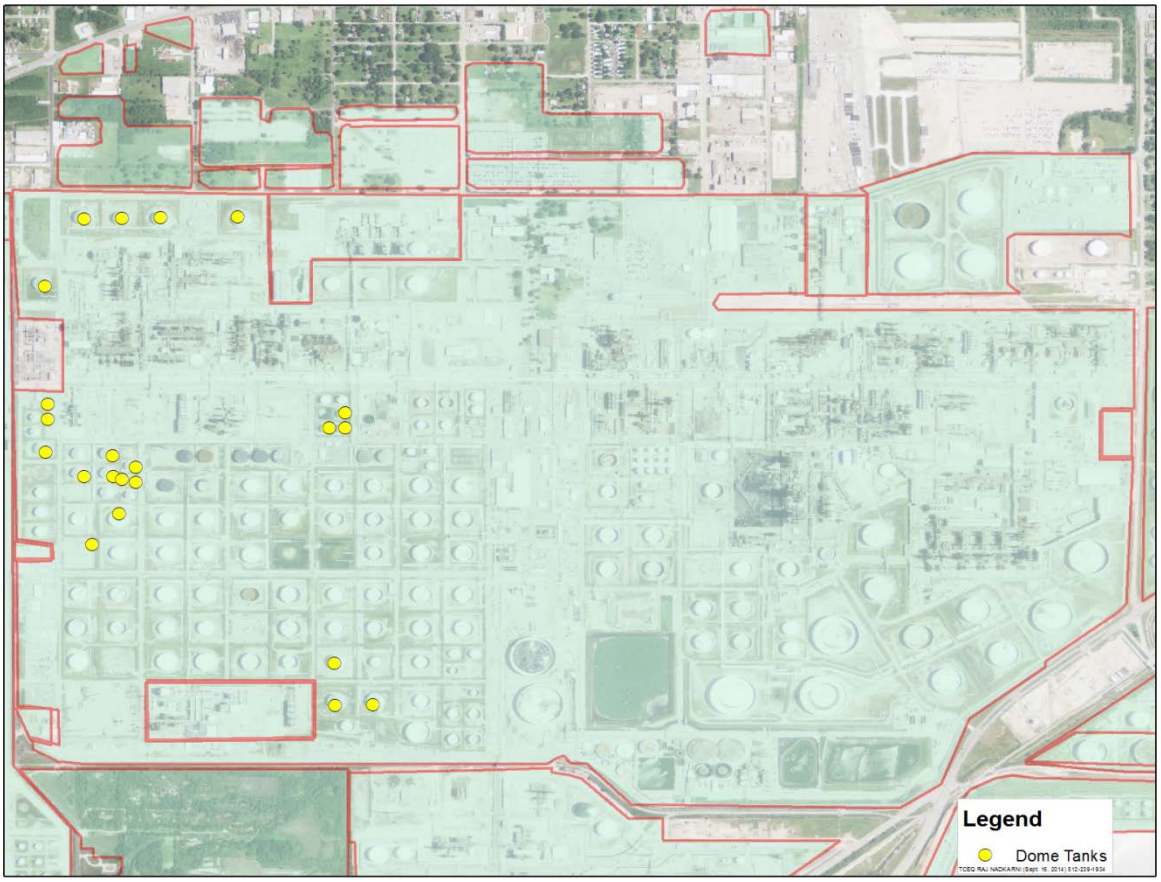
Comment 24 regarding the Ball Park monitor location: AAH commented that benzene was listed because of exceedances of the long-term AMCV measured at the TCEQ's Ball Park monitor. AAH stated that their evaluation illustrates that the TCEQ's Ball Park monitor is not located in an area that can be expected to capture the highest benzene concentrations. AAH commented that the TCEQ's Ball Park monitor is properly located downwind from the eastern part of the BP facility considering the predominant wind direction. AAH commented that the eastern part of the facility was historically considered to be the major source of emissions from the facility, but that AAH used their analysis to pinpoint BP's benzene emissions as originating from the west/northwest portion of the facility.

Response 24: The TCEQ did not site its Ball Park monitor to solely capture emissions from the eastern portion of BP's facility. The TCEQ's Ball Park monitor is located in the general downwind direction of the entire, multi-company, industrial area. The monitor is also located in the general downwind direction of the BP refinery. Meteorological conditions such as wind direction vary throughout the day, and the location of TCEQ's Ball Park monitor is well-located to evaluate emissions from sources in the eastern and western areas of the BP site. Additionally, when winds blow at about 190 to 200 degrees airborne benzene travels from the tanks in the western portion of BP's refinery to the Ball Park monitor.

Comment 25 regarding pinpointing the greatest benzene emission sources at the BP refinery: AAH stated that they used wind directions to identify a tank farm in the western half of BP's facility as the source of the highest monitored concentrations of benzene at both the Logan Street and 31st Street monitors. AAH commented that the tank farm is a previously unrecognized source of benzene emissions. Also, the emissions from the tanks are consistent with several recent studies including the DIAL and EPA Other Test Method-10 studies that report that tanks are major VOC and benzene sources in refineries. AAH commented that, when prevailing winds place the Logan and 31st Street monitors downwind of the tanks, monitored concentrations of benzene spike. AAH also commented that measurements from days that prevailing winds put the existing monitors directly downwind of the pinpointed sources are diluted by averaging in measurements from days that the wind blows emissions away from the monitors.

Response 25: Benzene occurs naturally in gasoline, and other refinery products contain benzene. BP, like all refineries, has benzene sources. BP has reported benzene emissions from several of its facilities for many years. As discussed in the TCEQ's benzene delisting proposal, BP has already implemented several benzene control strategies at its refinery through the TCEQ/EPA enforcement process, including the installation of additional controls on 22 tanks. The following figure shows the tanks that have the additional controls, shown as yellow circles. The figure illustrates that controls have been installed on tanks located in the western portion of the refinery.

Figure 1: Tanks Retrofitted with Benzene Controls



The TCEQ develops short-term AMCVs to evaluate short-term concentrations (e.g., 1-hour values, any hourly spikes), which may be higher or lower than the annual average depending upon wind direction, including when the monitor is directly downwind of the cited sources. Long-term (life-time) AMCVs, on the other hand, are developed to evaluate long-term (i.e., annual to life-time average) concentrations, which naturally result from changes in wind direction and concentration and are representative of the long-term average concentrations that are appropriate for comparison to long-term AMCVs. The wind naturally changes direction throughout the day. Variations in monitored concentrations from different wind directions is common, and the TCEQ uses an average annual concentration comparison to a long-term (life-time) AMCV as a conservative approach to determine whether there may be potential long-term health concerns and whether a more detailed evaluation is needed. The TCEQ also has a 24-hour AMCV for benzene. These AMCVs for benzene (1-hour, 24-hour, long-term) allow the TCEQ to fully and appropriately evaluate both short- and long-term data.

Because annual average concentrations at all monitors are below TCEQ's conservative screening value, an additional, detailed source determination to pinpoint benzene emissions is unnecessary. Nonetheless, the TCEQ has conducted an additional evaluation of the Logan Street and 31st Street monitoring data in response to these comments, using data collected beginning in April 2010. Monitored concentrations are sometimes lower from other wind directions than from the direction of the tank farm;

however, the data do not indicate that concentrations when winds do blow from the tanks to the monitors are at levels of potential concern. No exceedances of the TCEQ's short-term AMCV were measured. Further, as is discussed in more detail elsewhere in this Response, even average concentrations based on data solely from the direction of the tank farm, which are not representative of the annual average and as such are not appropriate for comparison to the long-term AMCV, do not exceed the TCEQ's conservative long-term screening value of 1.4 ppb_v.

Comment 26 regarding the location of monitors: AAH commented that the annual average benzene concentration is artificially low without a properly sited monitor. AAH commented that BP's 31st Street monitor is north of the primary source of emissions within the western half of the BP facility, and it is surrounded by trees to the south directly in the path of the facility, which could affect its accuracy. AAH commented that the poor siting of the 31st Street monitor impacts the data collected at that monitor. AAH commented that the 31st Street monitor should not be used to monitor compliance with the long-term AMCV. AAH commented that the poor placement of the 31st Street monitor is indicative of poor planning and execution of the monitoring plan in Texas City.

Response 26: The TCEQ ensures that the siting criteria guidelines for ambient monitors specified in Title 40 Code of Federal Regulations Part 58 (Part 58) are followed when monitors are put into place. Appendix E to Part 58 states that trees can act as obstructions in cases where they are located between the air pollutant sources and the monitoring site and where the trees are of a sufficient height and leaf canopy density to interfere with the normal airflow around the probe, inlet, or monitoring path. Further, Appendix E requires that the probe, inlet, or at least 90 percent of the monitoring path be at least 10 meters or further from the drip line of trees to reduce possible interference/obstruction from trees. AAH submitted aerial images that show the presence of vegetation between the monitor and the BP site. Because an area may change over time after a monitor has been installed, the TCEQ conducted further analysis regarding the siting of this monitor to address these comments. After reviewing the site, the TCEQ took the following photograph in July 2013. The vegetation between BP and the monitor is shown on the left side of the monitor in the picture.

Figure 2: Photograph of 31st Street Monitor

This image allows the TCEQ to better determine the potential impact of vegetation on the monitor because it shows the height of the vegetation relative to the monitor as Appendix E to Part 58 stated could be a siting problem. As the picture illustrates, the monitor's intake through which air is taken in and samples are collected is located ten feet above the ground (consistent with Part 58 guidelines), and the photograph shows that the vegetation to the south of the monitor is not a fully grown forest with a dense canopy (also consistent with Part 58 guidelines). Therefore, the TCEQ determined that the vegetation did not have a negative impact on the ambient concentrations measured at the monitor, and the monitor has provided data that are representative of potential public exposure.

Nonetheless, the TCEQ acknowledges that siting a monitor has its challenges. To address the concerns from the commenters and ensure better compliance with the guidelines outlined in Part 58, the TCEQ requested that BP conduct tree trimming. The company agreed to the request and completed it on September 5, 2013.

Also, although there is some vegetation in the area, the 31st Street monitor is located in the primary downwind direction of BP, which the commenters have pointed out is the area's largest benzene contributor. The TCEQ has used the data from this and other monitors to evaluate the Texas City area for many years. The TCEQ has relied on data from the 31st Street monitor for keeping the area on the APWL when concentrations

were elevated, and the data from the monitor now show that the ambient air quality has clearly improved, as the annual average concentrations have decreased significantly. Further, even if data from the 31st Street monitor were not considered in its evaluation, the data from the other monitors would support delisting Texas City. The data from all other monitors in the area show that benzene levels have decreased to below concentrations of potential concern.

Comment 27 regarding location of the 31st Street monitor: AAH commented that poor siting of the 31st Street monitor impacts the data collected at the monitor, and that the monitor is a similar distance from the pinpointed source of benzene as the Logan Street monitor, but shows much lower benzene concentrations (and also toluene).

Response 27: The wind direction for approximately six to seven months of the year is out of the ESE with some variation to the south. The wind carries emissions from the west plant of the refinery directly to the 31st Street monitor. Based on wind direction, there are approximately six process units, not including tank farms that are significant contributors of VOC as well as benzene emissions. They are, for the most part, directly upwind of the monitor. If the monitor is moved to the west, it would begin capturing emissions from the adjacent DOW/Union Carbide plant. If it is moved east, it is no longer directly downwind of the most significant emissions sources in the refinery's west side. These factors indicate that the monitor is well-sited for collecting representative samples for air quality analysis.

In addition, siting of the monitor is only one of many variables that could explain lower concentrations of benzene observed at the 31st Street monitor as compared to the Logan Street monitor. It is likely that improvements made by industry are causing the lower benzene concentration detected by the 31st Street monitor. One such improvement is the retrofit of tanks with additional controls. These tanks are pictured in the upper left corner of Figure 1.

Comment 28 regarding a possible increase in benzene emissions: AAH noted that their analysis of recent data (beginning in 2010) from BP's Logan Street and 31st Street monitors indicates that the current primary benzene sources are in the western area of the BP facility and that these western sources have actually contributed to an increase in benzene concentrations between 2010/11 and 2012.

Response 28: The annual average benzene concentration remained the same at the Logan Street monitor from 2011 to 2012 at 0.5 ppb_v. The annual average concentration at the 31st Street monitor increased in 2012 to 0.5 ppb_v from 0.4 in 2011. These concentrations are not of concern since they are less than half of the AMCV of 1.4 ppbv. Further, the information provided by AAH did not show an increase in benzene concentrations from the western sources in the refinery for the specified time period.

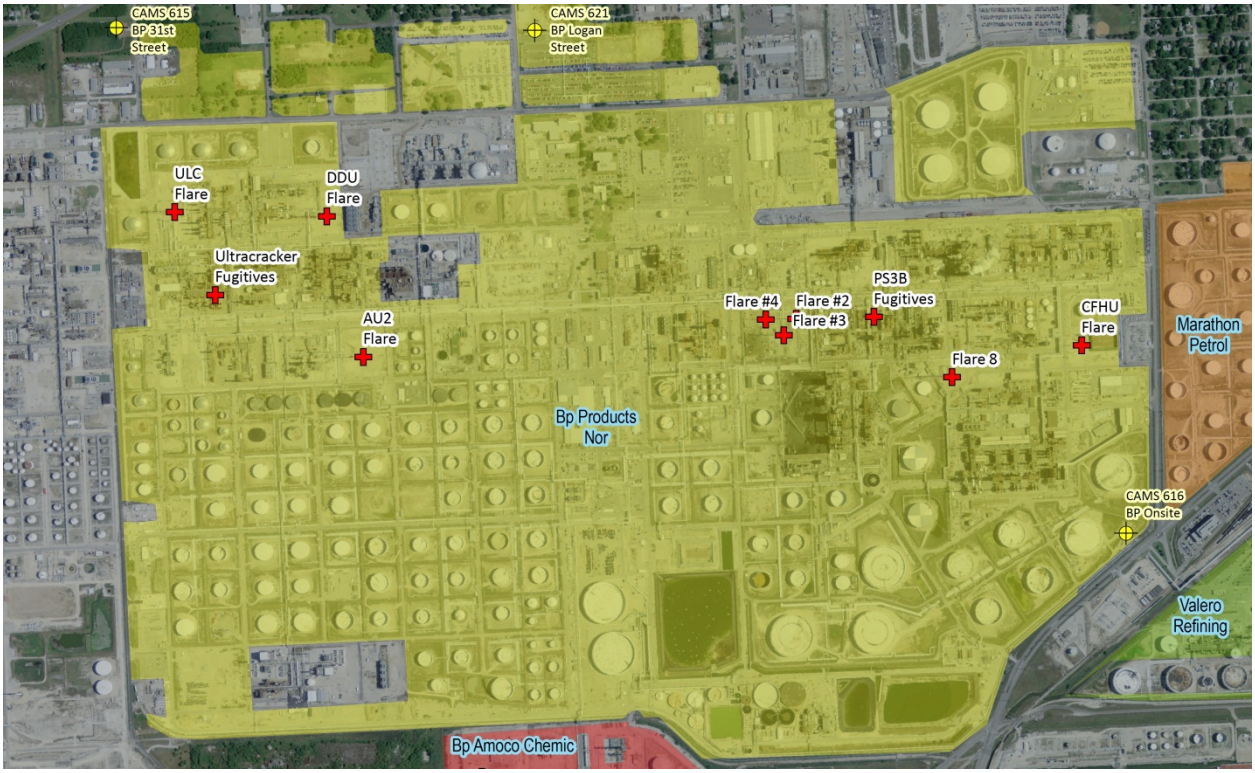
Comment 29 regarding the rate of benzene emissions from certain tanks: AAH stated that they analyzed hourly benzene concentrations and plotted them against wind direction and wind direction frequencies for 2012 and 2010/11. AAH commented that their analyses show that prevailing wind frequencies did not significantly change between the two time periods, that the main peaks on both stations remained at similar levels and wind directions, and that this indicates that the pinpointed group of tanks continued to emit benzene at a similar rate in 2012.

Response 29: Validated monitoring data show that ambient benzene concentrations were below levels of concern for 2010, 2011, and 2012. Since validated ambient monitoring data demonstrate that emissions during this time period are not at levels of concern, concentrations at the same levels whether from these tanks or others would not be expected to adversely affect public health and welfare.

Comment 30 regarding BP's reporting of emission events: AAH commented that they have identified an upward trend in benzene emissions from the western portions of BP's facility over the last three years, but that BP has not reported emissions events of benzene from this area.

Response 30: BP has reported emissions of benzene from this area during the time frame cited by the commenters. According to information submitted to the State of Texas Environmental Electronic Reporting System (STEERS) by BP, there were a total of 4 reportable emissions events relating to the BP TC refinery that occurred between the dates of April 10 through May 10, 2011. Two of those events involved benzene and hydrogen sulfide emissions. Both events were caused by a loss of electrical power. A specific example is the benzene emissions events during a major plant power outage from three sources (DDU Flare, AU2 Flare, and ULC Flare, as depicted in Figure 3) in the western part of its site. The benzene emissions totaled 306 pounds.

Figure 3: Sources with Reported Benzene for 2011 Emissions Event



Emissions events, however, are not the only activities that contribute to the ambient benzene concentration, as sources emit benzene as a routine part of everyday operations. Benzene, in particular, has a very low long-term AMCV, and everyday operations can have a significant impact on the ambient benzene concentration. A site will not operate exactly the same from year to year; therefore, the reported emissions inventory values are likely to fluctuate. Also, the amount of emissions reported by a company in a given year may not be directly related to the ambient concentration at the fence line. Data do, however, show an overall downward trend in benzene reported into the emissions inventory and monitored ambient benzene concentrations. As discussed in the TCEQ's delisting proposal document, emissions inventory data show that, over all, companies (including BP) are reporting the release of less benzene (60.14 total tons were reported by companies in the Texas City APWL area in 2011, which is down from 162.54 tons in 2000), and monitors show ambient benzene concentrations are also lower for the area as a whole.

Comment 31 regarding the lack of monitors in the residential area downwind from the refinery: AAH noted that a residential community is located downwind of the benzene sources in the western part of the refinery, but there are no official TCEQ canister-based monitoring stations situated within this downwind community to intercept benzene plumes.

Response 31: The TCEQ has determined that it is not necessary to deploy monitors along the company's entire fence line. BP operates two monitors that are downwind of its site from the predominant wind direction, and these monitors are less than three quarters of a mile apart. AAH used the data from BP's two monitors to conduct its own source determination and evaluation, thus demonstrating the effectiveness of this monitoring configuration.

The TCEQ's Ball Park monitor also collects data downwind of BP. The data from the three monitors downwind of BP are not at levels that would prompt the TCEQ to implement additional strategies to evaluate emissions, such as the deployment of an additional monitor, but rather show that ambient concentrations of air toxics have improved over time.

It is not necessary for a monitor to be located downwind of each piece of equipment to determine potential impacts. Collecting data over time allows for a better source determination. Collection of data for almost ten years at the 31st Street monitor and for approximately 3 years at the Logan Street monitor has provided a tremendous amount of data that has enabled the TCEQ to evaluate potential impacts from benzene concentrations. Further, the company will continue to collect data from the two monitors as discussed previously in this document, and this additional data will be used by the TCEQ to evaluate ambient concentrations and help ensure that the public's health is protected.

Comment 32 regarding prevailing winds: AAH stated that their analysis shows that monitors are not ideally located to capture benzene that is emitted from the major sources within BP's facility (which AAH maintains is a group of tanks in the western portion of the refinery). Specifically, AAH noted that their analysis of wind direction frequency shows that wind blows most frequently from approximately 175 degrees, and very infrequently from 200 degrees and further west. AAH further stated that monitored

benzene concentrations peak at Logan Street when the wind blows from the south from 200 to 220 degrees. AAH also commented that they plotted hourly benzene concentrations against wind direction for 2010 and 2011, which revealed a major peak for the Logan Street monitor from 190 to 220 degrees and the 31st Street monitor from 140 to 170 degrees. AAH commented that the wind blows most frequently from 170 to 190 degrees with a smaller peak at 150 degrees, placing prevailing winds (from the tanks identified by AAH) exactly between existing monitors. Thus, AAH concluded that prevailing winds often blow emissions from the primary source of benzene emissions west of the Logan Street monitor, and that the Logan Street and 31st Street monitors are actually on either side of the most frequent and significant plumes of benzene emissions. AAH further commented that their analysis determined that there are residences in the APWL downwind from the northwestern side of the BP facility that may experience annual benzene levels greater than the 1.4 ppb_v long-term AMCV. AAH further commented that a monitor located in a direction most frequently downwind of the pinpointed source may have measured benzene concentrations of three to five times the current Ball Park monitor.

Response 32: The TCEQ did not receive any information from AAH that documents benzene concentrations occurring at levels greater than 1.4 ppb_v in the neighborhoods downwind of BP. There is no sufficient scientific evidence to show that residences downwind of BP will experience annual average benzene concentrations greater than 1.4 ppb_v, nor is there sufficient scientific evidence to show that a monitor located between the two existing monitors will show that annual average concentrations exceed 1.4 ppb_v. AAH has not provided the TCEQ with monitored concentration data, nor has AAH provided any information indicating that it conducted an actual modeling exercise. AAH requested from the TCEQ ambient benzene data from the Logan and 31st Street monitors. AAH stated that they estimated annual benzene concentrations in communities through examination of wind direction frequencies. The TCEQ analyzed the information submitted by AAH. As discussed below, the TCEQ determined that the wind directional analysis does not demonstrate that annual average benzene levels exceed 1.4 ppb_v. Therefore, there is not sufficient scientific evidence to support AAH's assertion that a monitor located between the two existing monitors will show that annual average concentrations will exceed 1.4 ppb_v or that communities near the northwestern side of the BP facility will be exposed to concentrations greater than 1.4 ppb_v.

As discussed in detail throughout this document, the TCEQ would not ordinarily conduct a detailed analysis of data collected between 2010 and 2012 because ambient concentrations are maintained below the conservative screening level. However, in response to the comments submitted, the TCEQ conducted an in-depth evaluation of the monitoring data that included an evaluation of the measured concentrations associated with winds from the benzene sources highlighted by AAH.

Due to varying wind conditions throughout the year, no one stationary location is maximally downwind of a source all the time. Consistent with its purpose, a stationary location measures a representative annual average at its respective location. AAH is correct that the wind does not blow from the tanks they have identified to the Logan Street monitor for the majority of the time, nor would the wind consistently blow from the tanks to nearby residences. The wind does blow from the tanks to the Logan Street

monitor for some percentage of time, which more closely represents ambient exposures at that location. As data are collected over time, any potential health risk of exposures to the measured ambient levels of benzene can be accurately assessed, even when monitors are not directly located in the predominant downwind direction of a particular source. Furthermore, because the Logan Street monitor is closer to BP sources than are the nearest residences, the benzene concentrations are likely higher and the health effects evaluation of those levels is likely more conservative than other more residential monitors. Additionally, the area contains two downwind auto GCs, which allow for the triangulation of sources should concentrations become elevated.

AAH commented that monitored benzene concentrations peak at Logan Street when the wind blows from the south from 200 to 220 degrees. Therefore, the TCEQ analyzed the Logan Street benzene data when winds blew from this direction for the time period beginning in June 2010 (when the monitor began collecting data) through December 2012. The TCEQ's analysis of the Logan Street data shows that when winds blow from 200 to 220 degrees, the average concentration from this direction is 1.42 ppb_v. If the unrealistic assumption is made that the wind blows from the tanks to the community 100 percent of the time throughout the year, then the annual average concentration would be 1.42 ppb_v— Not appreciably different than the 1.4 ppb_v screening level; however, this is simply not the case and AAH's own analysis acknowledges that wind direction frequently varies. With inherent variations in wind direction, average concentrations would reasonably be expected to be below 1.4 ppb_v, and there are no measured data suggesting that concentrations would be higher .

Additionally, the TCEQ conducted multiple evaluations using the Logan Street monitoring data to develop conservative, worst-case scenarios to predict the annual average concentration with the assumption that winds blow from the tanks much more frequently. In each case, the TCEQ found that the annual average benzene concentrations would still remain well below the AMCV. The TCEQ and other regulatory agencies develop long-term comparison values such as AMCVs to compare to representative and appropriate long-term site average concentrations from time periods greater than or equal to one year; long-term AMCVs are inappropriate for use to evaluate levels from one particular direction over intermittent short periods of time. Short-term comparison values are used for that purpose, and the AMCVs for benzene (1-hour, 24-hour, long-term) allow the TCEQ to fully and appropriately evaluate both short- and long-term data. AAH has attempted to take monitoring data and triangulate sources that are impacting the monitor. This type of evaluation is critical when ambient concentrations are elevated in order to identify sources that should be controlled to reduce emissions. This type of evaluation, however, is less important when emissions have already been reduced sufficiently to bring ambient concentrations below levels of concern.

AAH commented that the monitors are not ideally located to capture benzene emitted from BP's major sources of emissions; however, AAH attempted to identify the major sources of emissions based on data taken after controls were already implemented on a significant number of benzene sources. Therefore, AAH's analysis identifies the remaining benzene sources, rather than the facility's historical major sources. As discussed at length in this document, the TCEQ maintains that the 31st Street and Logan Street monitors are well-sited to capture benzene concentration data. Many sources

have been controlled in the refinery, and data from the 31st Street and Logan Street monitors show that these control strategies are effective.

Comment 33 regarding secondary sources of benzene: AAH commented that 2012 data show additional peaks, pinpointing an additional secondary source of benzene close to ground level at the northwest corner of the BP facility.

Response 33: BP has reported sources of benzene for its annual emissions inventory each year, and some sources of benzene are located in the northwest portion of the BP facility. Monitors located north of BP demonstrate that ambient benzene concentrations, regardless of the source, are not at a level of potential health concern. The 2012 average benzene concentration at the 31st Street monitor, which is located in the predominantly downwind direction of the sources in the northwest portion of the site, was 0.5 ppb_v. This concentration is far below the TCEQ's AMCV of 1.4 ppb_v benzene.

Comment 34 regarding the adequacy of data collected: AAH commented that current monitoring in Texas City is ineffective and that monitors must be placed so that they capture the highest concentrations to which the public are exposed. AAH commented that only focused monitoring of benzene in the areas downwind of major sources of benzene emissions that demonstrates that concentrations are below the AMCV for several years can justify delisting. AAH strongly suggested that only canister measurements taken in the residential community downwind of the benzene sources in the western area of the BP facility, which may be supported by auto GC and open path monitoring, for a period of several years can prove that benzene concentrations are below the AMCV and justify delisting.[3] AAH also commented that only a monitor placed in the direct path of emissions could demonstrate that no Texas City residents are exposed to concentrations above the long-term benzene AMCV and that such a monitor is needed before a reasonable assessment or recommendation can be made with regard to the APWL listing status. AAH also commented that monitors are improperly sited and that only properly sited monitors with validated data can justify a delisting. AAH commented that, in order to properly monitor the highest annual concentrations of benzene, a TO-15 monitor should be located at 175 degrees from the pinpointed source of benzene emissions, which is approximately between the Logan Street and 31st Street monitors. AAH also commented that the TCEQ must place a point monitor such as a TO-16 open path monitor between the Logan Street and 31st Street monitors. AAH further commented that if well-sited TO-15 monitors do not exceed the long-term AMCV, and well-sited and cross-calibrated auto GCs or TO-16 monitors do not exceed the short-term AMCV, for several years, then the TCEQ may reconsider.

Response 34: The monitors in Texas City were sited at different times. Each time an additional monitor was sited, an evaluation was conducted to determine the best location to site the monitor to comply with federal siting guidelines and to obtain data to evaluate potential public exposure. As discussed previously, the Logan Street, 31st Street, and Ball Park monitors are able to capture ambient benzene data, including benzene

[3] AAH provided with its comments on the proposed delisting a copy of a published paper about a technology called differential absorption light detection and ranging, or DIAL, which is a mobile technology that can be used to conduct surveys of hydrocarbon plumes.

that originates from BP with inherent variations in wind direction; therefore, it is unnecessary to continually move a stationary monitor to adequately capture ambient data in this area. Further, stationary monitors are not intended to be moved to capture emission plumes each time the wind direction shifts, but rather stationary monitors are placed to take numerous readings over a long period of time. Higher short-term levels are captured and characterized when the monitor is downwind, and annual averages are characterized by the long-term data.

With regard to AAH's reference to the DIAL study, DIAL is used to measure emission fluxes coming from specific emission points or units within a plant; concentrations can be estimated from this, but these are modeled estimates, not monitored concentrations. For purposes of determining an area's annual average concentration of a pollutant, in this case for the determination of whether the area should be on APWL, the TCEQ uses monitoring data, not modeled concentrations.

The Texas City monitors show ambient concentrations well below levels of concern. Control measures have been implemented, and monitoring data show an improvement in air quality, demonstrating that the control strategies are effective.

The TCEQ appreciates the suggestions from AAH, but does not agree that the methods suggested provide the only mechanism to ensure that concentrations are protective of public health. Neither the concentrations measured at the Logan Street and 31st Street monitors nor the analysis presented by AAH show that an additional monitoring method above and beyond the current monitoring network is required to move forward with the APWL delisting. The TCEQ has determined that the Logan Street and 31st Street auto GCs and the TCEQ's Ball Park canister sampler provide ample data to evaluate the potential for public exposure to air toxics, showing that ambient concentrations have trended downward and have been sustained under the TCEQ's conservative screening values. This indicates that an improvement in air quality has been achieved and ambient concentrations continue to be below levels of potential health concern.

Comment 35 regarding the presence of other VOCs: AAH noted that their analysis of other VOCs such as hexane, pentane, and toluene demonstrates that the highest emissions originate from BP's tank farm, which they stated strengthened their results.

Response 35: The APWL program is pollutant-specific, and AAH may petition the APWL coordinator to investigate these pollutants if they believe that ambient concentrations of these pollutants exist at potentially harmful levels. The TCEQ's proposal relates to the air toxics benzene and hydrogen sulfide. It is unclear if AAH is suggesting that concentrations of hexane, pentane, and toluene are elevated to levels that are potentially harmful to human health and welfare. TCEQ's past reviews of hexane, pentane, and toluene concentrations indicate that these compounds have not occurred at levels of potential concern in Texas City. For example, 2013 data from monitoring sites at 31st Street, Logan Street, 34th Street, and Ball Park show that the annual means for hexane, pentane, and toluene are all significantly less than 1% of their respective long-term AMCVs. Short-term concentrations of hexane, pentane, and toluene are not at levels of potential health concern either. For example, the maximum hourly concentrations of these compounds measured at the 31st Street, Logan Street, and

34th Street auto GC monitors in 2013 were less than 1.3% of their respective short-term, health-based AMCVs.

Comment 36 regarding criteria for delisting a certain area: AAH commented that the TCEQ's APWL Protocol dictates how to proceed with a delisting, but that no criteria are provided in the protocol for choosing areas to propose for delisting.

Response 36: The TCEQ's APWL Protocol provides the framework for listing and delisting areas, and the TCEQ conducts an area-specific analysis when it proposes to delist an area. This detailed analysis is performed to understand why the reductions have been achieved in a certain area and to ensure that the improvement in air quality can reasonably be expected to continue. The TCEQ's proposal documents for Texas City's partial delisting from the APWL describe both the improvement in air quality to concentrations below the state standard for hydrogen sulfide and the long-term AMCV for benzene. It also describes the physical changes and operational improvements that will help ensure that the improvements in air quality will be maintained.

The criteria the TCEQ uses in evaluating delisting a specific area are state standards where available and AMCVs for air toxics that have no state standards. The protocol requires reductions in ambient concentrations of pollutants to concentrations below a level of concern in order for a certain area to be delisted.

Comment 37 regarding the appropriateness of delisting hydrogen sulfide: AAH commented that delisting hydrogen sulfide is inappropriate and premature. AAH commented that its analysis of hydrogen sulfide and wind direction frequency also shows that monitors are not ideally located, commenting that they identified considerable siting and data analysis issues. AAH further noted that their analysis shows one major, narrow peak of hydrogen sulfide concentrations at the 31st Street monitor when the wind is blowing at 100 degrees, indicating a nearby source of hydrogen sulfide to the east of the 31st Street monitor and probably very near to the fence line. AAH commented that the wind blows most frequently from 160 to 190 degrees.

Regarding the Logan Street monitor, AAH commented that hydrogen sulfide concentrations peak when the wind blows from 100, 140, and 220 degrees. AAH further commented that the 220 degree spike along with the 100 degree spike at the 31st Street monitor allowed them to triangulate a major source near the fence line between the two monitoring stations. AAH commented that a hydrogen sulfide monitor downwind of this source may frequently monitor concentrations that exceed the 0.08 parts per million ambient regulatory standard for residential, business, or commercial properties.

TCLAMN commented that there have been no exceedances of hydrogen sulfide in 2010 or 2012 at the area with monitors. TCC noted that the TCEQ reports that stationary monitoring data demonstrate that exceedances of the hydrogen sulfide state regulatory standard are infrequent and appear to be episodic in nature, yet monitored concentrations show a significant improvement. TCC further noted that stationary monitoring data show that no exceedances of the state hydrogen sulfide standard have occurred since April 2011 and that the number of days that monitoring shows an exceedance of the state standard have decreased significantly since 2003. TCC also noted that the TCEQ has determined that because the primary companies in Texas City that emit hydrogen sulfide have implemented significant equipment improvements to minimize hydrogen sulfide emissions, the likelihood of experiencing extended elevated

hydrogen sulfide concentrations has been drastically reduced. TCC also noted that the TCEQ has accordingly determined that monitored concentrations can reasonably be expected to be maintained below the state standard.

Response 37: AAH did not provide data that show exceedances of the hydrogen sulfide state standard. The available data and information show a significant improvement in the area's ambient air quality. Monitoring data show that concentrations of hydrogen sulfide are below levels of concern and do not indicate a need to install an additional monitor. Based on the TCEQ's data, delisting hydrogen sulfide is appropriate.

Comment 38 regarding delisting a smaller area than the one proposed: AAH suggested that the TCEQ redraw the APWL area if it is delisting since there are just a few sites that are disproportionately responsible for the emissions in this area. AAH commented that drawing a smaller boundary could reduce the scrutiny on the 19 sites that are not large contributors, leaving some of the other ones in an APWL area.

TCLAMN commented that the scientific analysis supports the TCEQ's decision to delist benzene and hydrogen sulfide from the entire Texas City APWL area and that it does not support the idea of carving out a smaller APWL boundary in Texas City. TCLAMN further commented that the monitors are concentrated throughout the entire city, so carving out a smaller APWL is inconsistent with the air quality data, which demonstrates that the ambient air throughout the APWL area meets the levels protective of human health and the environment.

TCC commented that, because the TCEQ believes that all appropriate measures are in place to ensure with reasonable expectation that the levels of benzene and hydrogen sulfide in the Texas City APWL will remain below levels deemed to be protective of public health and the environment, TCC fully supports the delisting of the pollutants from the Texas APWL area. TCC commented that it does not support the suggestion to narrow the boundaries of the APWL area prior to delisting as the data do not support that approach. TCC commented that it is important for industry to have some measure of certainty in APWL areas. Delisting of pollutants should occur when by appropriate emissions reductions measures after a period of time of no exceedances. TCC further commented that narrowing the boundaries of the APWL area prior to delisting would only maintain these APWL pollutants much longer than necessary and would add undue burden on the agency, the community, and industry.

TXOGA expressed its support for the TCEQ's proposal to delist benzene and hydrogen sulfide from the Texas City APWL and concurred with the comments submitted by TCLAMN. TXOGA commented that it disagrees with commenters at the public meeting who asked the TCEQ to require a five-year review period and/or to consider narrowing the boundaries of the APWL prior to delisting. TXOGA further commented that, with the robustness of the monitoring network and three years of validated data below levels of concern, the scientific analysis supports the TCEQ's decision to delist benzene and hydrogen sulfide from the entire APWL.

Response 38: Monitoring data show a sustained improvement below levels of potential concern from all of the industrialized sites in the area, which supports the TCEQ's decision to delist the entire area from the APWL for benzene and hydrogen sulfide as opposed to redrawing the APWL boundary.

Comment 39 regarding total emissions in Texas City: AAH commented that emissions inventories submitted by Texas City companies show that with regard to benzene, total emissions have increased from 2008 to 2010 from 61 tons per year to 66 tons per year. These emissions include increases at several of the larger facilities, such as BP, which increased benzene emissions from 29.96 tons per year to 45.63 tons per year—an increase over 50 percent. AAH also noted the EPA's Toxic Release Inventory (TRI) data show 62.8 tons in 2010, which is inconsistent with the 45 tons reported to the TCEQ in the company's emissions inventory. The TRI also shows 55 tons reported from the company in 2011. AAH also commented that TRI data show increases in emissions from 2010 to 2011, with 8.6 tons from the BP refinery in 2011 as opposed to 1.6 tons in 2010. Valero has stayed the same at 5.1 tpy, and Marathon has increased from 8.7 tons in 2010 to 9.7 tons in 2011. AAH also commented that, of the 19 companies in the area, 7 of them continue to report hydrogen sulfide releases; there have been increases in hydrogen sulfide from BP from 10.3 to 10.9; and that Marathon has also increased hydrogen sulfide releases slightly.

Response 39: The purpose of the APWL program is to address areas with persistent, elevated ambient concentrations of air toxics. Emissions inventory data and TRI data submitted by a company show emissions, but do not show ambient concentrations. The TCEQ does find this type of data useful for prioritizing investigations and surveillance, but cannot rely on this data to determine potential public health impacts. Also, in regard to hydrogen sulfide, a reported release of hydrogen sulfide will not necessarily result in an exceedance of the state regulatory standard; this determination can only be made with the ambient monitoring.

Comment 40 regarding efforts to control benzene: AAH commented that there is monitoring conducted, but that the reported benzene numbers in the emissions inventory and TRI are very large amounts and that they want to do everything they can to ensure that those facilities are doing the best they can.

Response 40: As stated in the previous Response, the purpose of the APWL program is to reduce ambient air toxic concentrations below levels of potential health concern. Data show that this objective has been achieved, and the strategies implemented to achieve the reductions help ensure that the improvement will be maintained. The APWL program does not impose additional regulatory requirements; however, the TCEQ will continue to conduct routine compliance investigations to ensure that companies maintain compliance with all applicable permits, rules, and regulations.

Comment 41 regarding compliance of industry: A commenter expressed concern regarding the town of San Leon, which has been recently annexed by Texas City, and its recent industrial development. The individual specifically expressed concerns about large vessels and tanks, posed questions about what the vessels and tanks store, how the companies were given permission to move the vessels and tanks in, and commented that more and more appear each week. The individual also specifically expressed concern about the company Duratherm, its plans for expansion, and its public meetings. The individual indicated that it appeared that the company may have started construction prior to the issuance of its authorization by the TCEQ. The individual also indicated that Duratherm has several hundred train cars storing hazardous materials, one of which remains in the bay after a hurricane in 2011. The individual requested that the TCEQ investigate the new companies that are coming into Texas City every day and

also commented that it may be necessary to build a fence around the recreational area and patrol it.

Response 41: New sources of emissions and modifications to existing facilities undergo a review by the Air Permits Division to verify the protectiveness of human health and the environment for any proposed emissions increases. Details regarding any changes to these facilities are included in the technical review documents associated with applications submitted by the respective companies. Any increases of pollutants of concern are taken into consideration in the permitting process for facilities in an APWL area. This review is separate from the review of air monitoring data that is the basis for delisting benzene and hydrogen sulfide from the Texas City APWL area. Furthermore, San Leon and Duratherm are not in the Texas City APWL area and are, therefore, outside the scope of this APWL delisting action. However, individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Houston Regional Office at 713-767-3500 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

If the facility is found to be out of compliance with the terms and conditions of the permit, it will be subject to possible enforcement action. Citizen-collected evidence may be used in such an action. See 30 Texas Administrative Code § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. The TCEQ has procedures in place for accepting environmental complaints from the general public and now has a new tool for bringing potential environmental problems to light. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental laws, and the information can be used by the TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028, and may be downloaded from the agency website at www.tceq.state.tx.us (under Publications, search for document no. 278).

Comment 42 regarding hazardous waste: A commenter stated that Galveston County ranks 22nd among the 254 Texas counties in cancer mortality, commented that pollution comes down to Galveston County from Amarillo, noted that hazardous waste is transported into Texas from as far up as Ohio, asked if any of this was being monitored, and noted that she didn't have an opportunity to comment. The individual also commented about a hearing that occurred on the previous day for Safe Harbors Environmental and expressed concern that the company processes hazardous waste that could potentially be released in the next hurricane.

Response 42: The TCEQ monitors ambient air and derives its AMCVs to evaluate monitored ambient air concentrations and ensure that the air is safe to breathe. Sometimes monitoring shows that ambient air toxic concentrations should be reduced to help decrease the public's long-term exposure to concentrations that may increase the risk of adverse effects in the long-term (i.e., cancer) if they are allowed to persist. The TCEQ established the APWL program to develop strategic actions to reduce emissions and to reduce ambient concentrations to below levels of potential health concern. The

issues regarding hazardous waste are beyond the scope of ambient air monitoring or the APWL; however, the TCEQ does have comprehensive programs for ensuring that companies comply with hazardous waste rules and regulations. Again, individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Houston Regional Office at 713-767-3500 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

Comment 43 regarding living near industrial facilities: A commenter stated that she was unsure if people want to accept the impact on their lives for the convenience of living close to work and the paychecks. She gave as an example chemical companies in Chocolate Bayou, where people originally did not live, but now want to be close to their jobs.

Response 43: The TCEQ's jurisdiction is established by the Texas Legislature and is limited to the issues set forth in statute. Accordingly, the TCEQ does not have jurisdiction to consider facility location choices made by companies or the authority to establish zoning for an area to determine where people can live. The TCEQ does, however, conduct monitoring in industrialized areas to determine if concentrations are safe to breathe and uses the APWL program if monitoring data show that ambient concentrations are at levels of potential concern.

Comment 44 regarding available emission controls: A commenter noted that her husband was an instrumentation engineer for a chemical company, and he indicated that there are things out there that will control pollution that are made in the U.S., that U.S. companies don't buy them, but other countries like Japan do.

Response 44: The purpose of the APWL is not for the TCEQ to evaluate existing pollution controls, but to evaluate ambient air data and work to reduce emissions where monitoring shows an area of concern. Therefore, emission controls that may be used in other countries are beyond the scope of the TCEQ's proposal.

Comment 45 regarding TCEQ communication with the public: A commenter stated that the TCEQ is doing a good job protecting the public but is doing a terrible job of getting its message out.

Response 45: The TCEQ is working to improve communications with the public and maximize the sharing of information given its limited resources. The TCEQ provides monitoring data, all of its health effects reviews, and information regarding APWL areas on its Website. TCEQ staff also is available to the public by phone to answer any questions. To share information about the status of the APWL area for Texas City and its proposed delisting, the TCEQ conducted the public meeting on April 11, 2013, to explain the improvements that have been achieved in the area and provide the public with an opportunity to comment on its delisting proposals. Additionally, the TCEQ has presented information on ambient air data and the TCEQ's health impact reviews at past Texas City-La Marque Citizen Advisory Council meetings, including a meeting of the council on October 18, 2012.

Comment 46 OSHA's benzene exposure standards: A commenter noted that people are and should be alarmed about benzene because it is hazardous, but that the threshold on an industrial site in compliance with Occupational Safety and Health Administration (OSHA) regulations is 1,000 times higher than it is out there in the

community. The commenter noted that the TCEQ sets its ambient air toxic guideline levels low to protect the elderly, people with respiratory problems, and babies. Thus, OSHA regulates benzene to a parts per million concentration at a plant whereas the TCEQ protects the community at a parts per billion concentration, which is equivalent to ¼ of a drop of benzene in an Olympic-sized swimming pool. The commenter also noted that an individual that fills a car or lawn mower up with gasoline is exposed to 11,000 or 13,000 parts per billion benzene and noted that the public should put things in perspective. The individual also noted that the EPA's Website indicates that levels in an individual's house are higher than what is out in the public because benzene is in almost everything, such as cleaning fluids, wax, glue, and gasoline. The commenter stated that he did not have any information pertaining to the boats of concern (discussed by a different commenter), but that the air is safe to breathe.

A Texas City Commissioner explained that she was in the safety industrial hygiene profession for 25 years and expressed support for the TCEQ's proposals. The Commissioner noted that OSHA regulations must be followed with respect to personnel, and all of the numbers shown by the TCEQ are much, much below those limits. For example, the TCEQ's AMCV is 1.4 parts per billion, which equals 0.0014 parts per million, and OSHA's limit for an eight-hour work day would be one part per million—a significant difference.

Response 46: The TCEQ establishes its AMCVs at levels to protect the public including sensitive populations (e.g., those with pre-existing health conditions, children, the elderly), and thus the long-term AMCV for benzene is significantly (714 times) lower than levels required by OSHA regulations. Also, the TCEQ agrees that benzene is widely-used and found in many products that people use every day. Further, the TCEQ agrees that the air is safe to breathe, as sustained monitored concentrations at or below the AMCV indicate that ambient benzene concentrations are not at levels of potential concern.

Comment 47 regarding buffer zones and property values: A commenter discussed in detail the formation of the buffer zone for the industrial area and the subsequent drop in property values. The individual commented that many people live out on the loop and she agrees that the air is diluted there.

Response 47: The TCEQ's jurisdiction is established by the Texas Legislature and is limited to the issues set forth in statute. Accordingly, zoning land use, including industrial buffer zones and potential effects on property values, are beyond the TCEQ's authority. The TCEQ is committed to routinely conducting investigations of the facilities for which it has authority to regulate to ensure that companies are in compliance. The TCEQ is also committed to conducting monitoring as necessary to ensure that the air is protective of human health—even for those living in homes next to industrial property.

When evaluating the Texas City designated land use map, the TCEQ determined that the northern boundary of the buffer zone is FM 1765. Comparing the City of Texas City's designated land use map (Figure 4) with the TCEQ's air monitoring GIS data (Figure 5) shows that BP's Logan Street and 31st Street monitors are located in the designated buffer area, while Marathon's 11th Street monitor appears to be located in the area designated by the City of Texas City as industrial. Thus, air measurements taken from

these monitors help ensure that concentrations are protective to human health for people living near industrial equipment, including people living in the buffer zone.

Figure 4: City of Texas City Designated Land Use Map

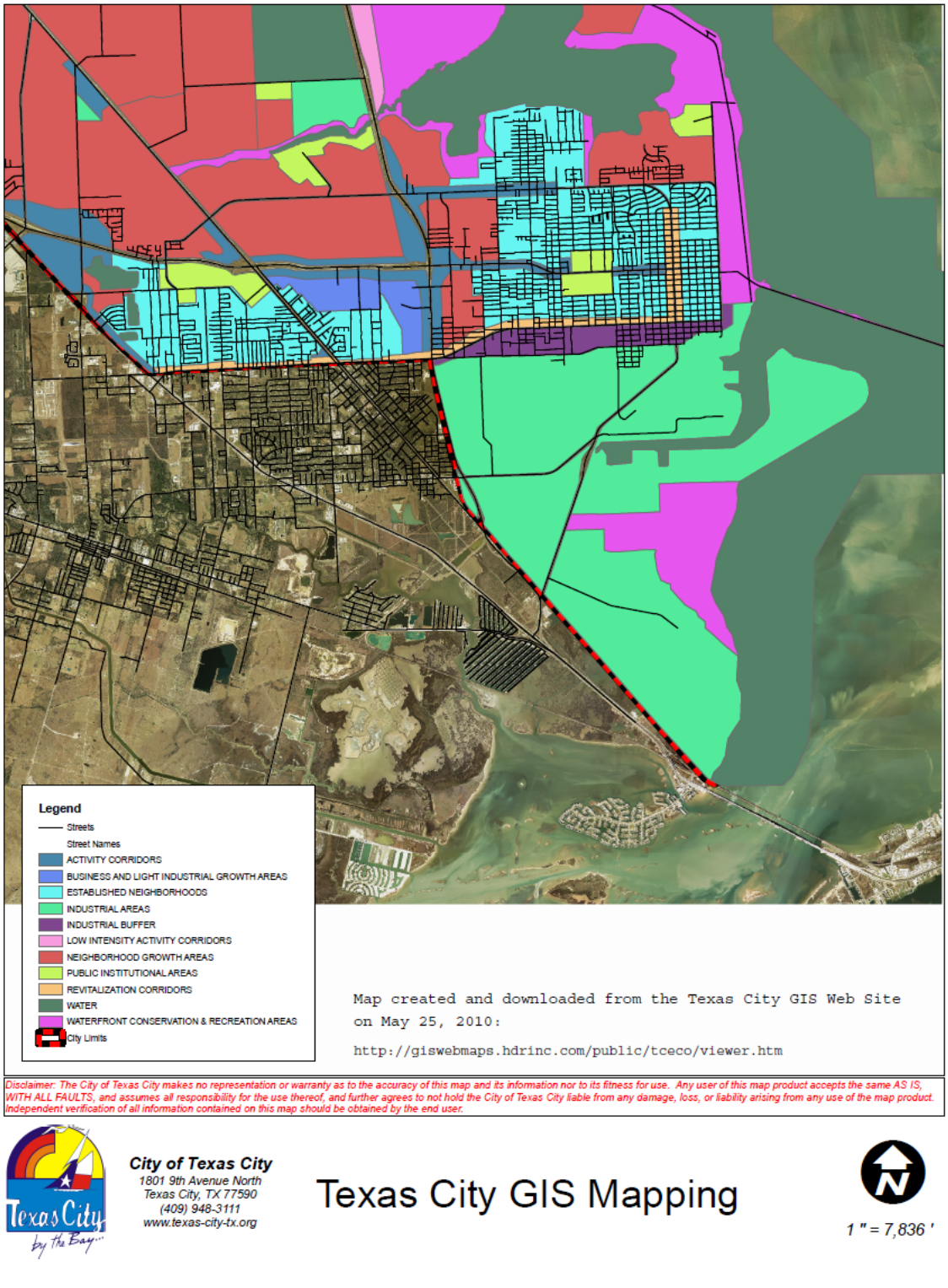
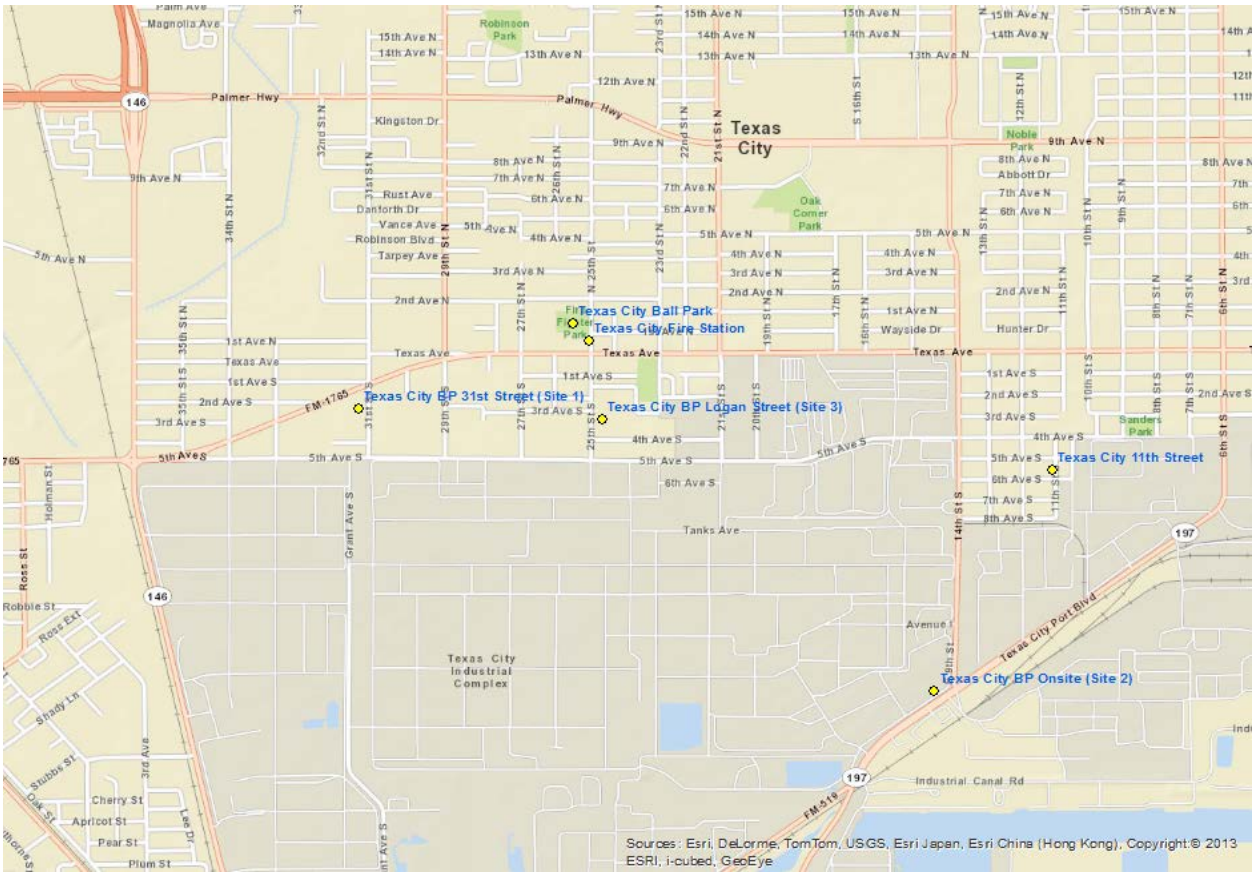


Figure 5: Locations of Texas City Monitors



Comment 48 regarding emissions data available online: A commenter noted that real-time air monitoring data are available for the public to view on their own computers, such as data from the 34th Street monitor, which provides benzene data and also ozone data. The individual noted the ozone map on the Galveston County Health District Website and encouraged the TCEQ and other entities to advertise the availability of this information. The individual also noted that the number of reportable emissions is available on the TCEQ's Web site.

Response 48: The TCEQ's Website has many Webpages that contain information on current air quality and reported events. For example, links to information regarding the APWL program, toxicological evaluations of air monitoring data, and the TCEQ's interactive geographical representation of air quality monitoring in Texas can be found at www.tceq.texas.gov/agency/air_main.html. An individual may contact the APWL coordinator to receive assistance in navigating the TCEQ's Website and in finding information about ozone and air toxics.

Comment 49 regarding TCEQ's role in improving air quality: TCLAMN expressed support for the TCEQ's leadership in the APWL program and noted that many areas previously on the TCEQ's APWL have experienced sustained improvements in air quality by working cooperatively with regulated entities.

Response 49: The TCEQ appreciates the support for the APWL program. The TCEQ determined that Texas City has shown significant improvement for the air toxics benzene and hydrogen sulfide and is committed to continue monitoring the area to ensure that its improvements are also sustained.