



APWL Proposed Change Document
November 14, 2016

APWL Proposed Change Document: Delisting

Benzene – Galena Park, TX

Prepared by
Toxicology Division

Office of the Executive Director

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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APWL Proposed Change Documentation - Delisting

Table 1. Area Under Consideration

APWL	1206
County	Harris
City	Galena Park
TCEQ Region	Region 12 – Houston
Pollutant(s)	Benzene
Exceedance Duration/Type	Long-Term Health
Year Added to APWL	2000

Background

The Texas Commission on Environmental Quality (TCEQ) established the Air Pollutant Watch List (APWL) to address areas in the state where air toxics were persistently monitored at levels of potential concern. The TCEQ uses the APWL to reduce levels of air toxics by focusing its resources on areas in the state with the greatest need. In 2000, the TCEQ added an area of Harris County along the Houston Ship Channel to the APWL (designated APWL 1206) to address elevated annual average benzene air concentrations observed at the Galena Park monitoring site. In 2008, the TCEQ began collecting additional ambient air data from the Pasadena North monitoring site. As ambient benzene concentrations appeared to begin trending downward at the Galena Park monitor, the first full year of data collected at the Pasadena North monitor in 2009 demonstrated an annual average benzene concentration that equaled the TCEQ-derived long-term air monitoring comparison value (AMCV).

Ambient benzene concentrations are compared to AMCVs to determine their potential to cause adverse health and welfare effects. AMCVs are set well below levels at which adverse health effects are reported in the scientific literature to provide a margin of safety. Therefore, exceedance of an AMCV does not necessarily indicate that adverse health effects or odors would be expected. The current health-based short-term (1-hour and 24-hour) and long-term AMCVs for benzene are 180 parts per billion by volume (ppb_v), 100 ppb_v, and 1.4 ppb_v, respectively. It is important to note that it is not appropriate to compare 24-hour canister samples to the long-term AMCV, because the long-term AMCV is based on a lifetime of exposure and derived for comparison to the lifetime average concentration. It is only appropriate to compare short-term canister samples to the short-term AMCV and long-term sampling data (at least one year, but most appropriately the lifetime average) to the long-term AMCV.

APWL Information

Boundary Designation

The Galena Park APWL 1206 area is currently defined as the geographical area north of Highway 225, south of Northside Belt Railroad (Port Terminal Rail Association) and Industrial

Road, east of the East Loop of Interstate Highway 610, and west of Olin Mathieson Road. (Figure 1).

In 2011, the TCEQ conducted a boundary reevaluation of the Galena Park APWL area based on the available ambient monitoring data. The TCEQ redefined the Galena Park APWL boundary by expanding it to include additional sources to the east of the original boundary. Redefining the boundary helped the TCEQ better focus its resources and encourage emission reductions from the sources that have the greatest potential to affect ambient benzene concentrations at both the Galena Park and Pasadena North monitors. The goal of the boundary reevaluation was to help the TCEQ ensure that annual average benzene concentrations at the two monitors would remain below 1.4 ppb_v, which is the TCEQ's long-term, health-based AMCV for benzene. More information on this boundary reevaluation can be found on the [Active APWL Areas](#) webpage.

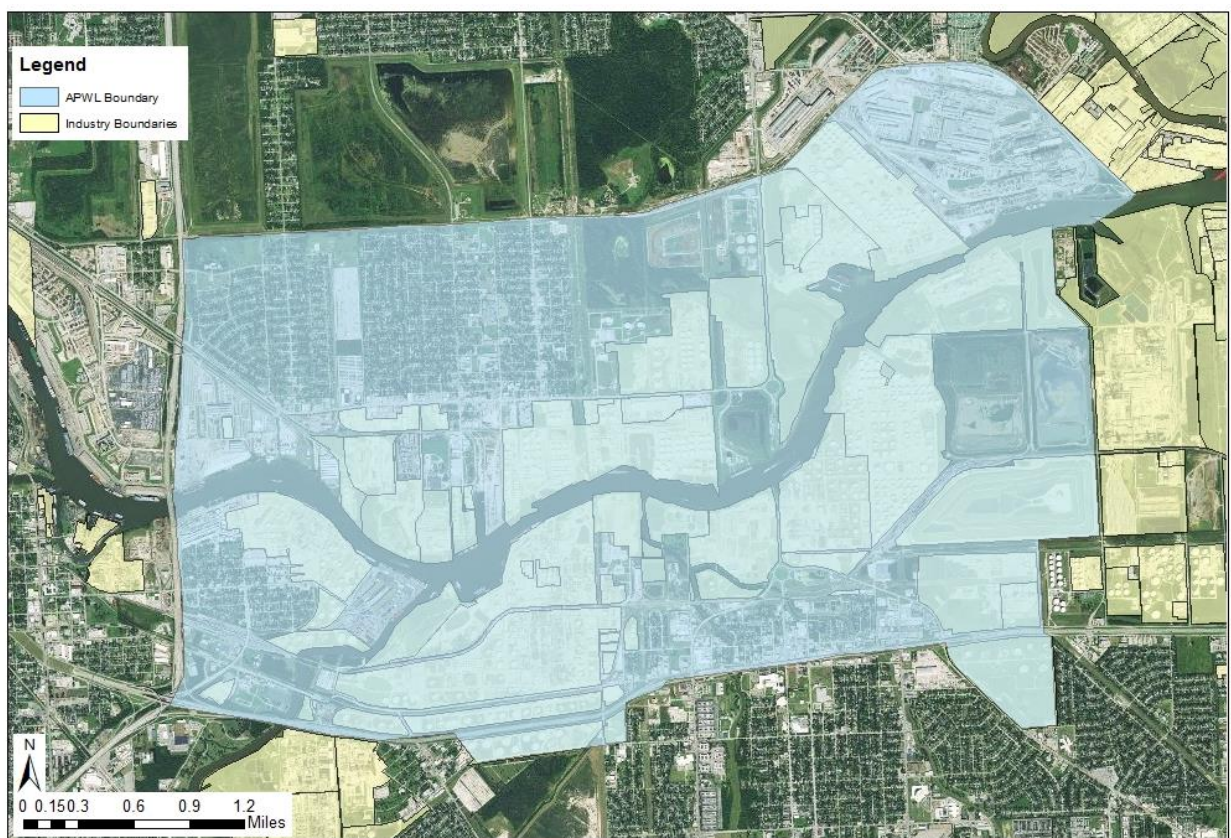


Figure 1. Boundary designation of the Galena Park APWL 1206 area

Designated Land Use and Proximity to Residential Areas and High-Traffic Roadways

The Galena Park APWL 1206 area is located in a heavily industrialized portion of Houston, east of Interstate Highway 610, encompassing industries along the Houston Ship Channel on its north and south shores. However, there are some neighborhoods located within the defined APWL boundary, and some homes are in very close proximity to the industrial areas (Figure 2).



Figure 2. Satellite imagery showing the location of residential and industrial areas in the Galena Park APWL 1206 area.

Companies Located in the Galena Park APWL Area

There are approximately 28 industrial complexes located within the APWL 1206 boundary (Table 2). Figure 3 shows the relative locations of the industrial complexes within the APWL boundary. Although each site is associated with a single Regulated Entity Number (RN), multiple Customer Numbers (CN) may be associated with a single RN.

Table 2. Facilities located in the Galena Park APWL 1206 Area

Company Name	Regulated Entity No. (RN)
Houston Lube Oil Blending Plant	RN100209410
Motiva Enterprises Pasadena Marketing Terminal	RN100211259
United States Gypsum	RN100212281
Channel Energy Center	RN100213107
Targa Downstream Galena Park Terminal	RN100214212
Bechtel Construction AES Deepwater Cogeneration Plant	RN100216837
Lyondell-Citgo Houston Refining	RN100218130
Valero Refining Houston	RN100219310
Gulf Coast Waste Disposal Authority Washburn Tunnel Facility	RN100219500
Air Products Pasadena Plant	RN100221324
Kinder Morgan Liquids Terminals Pasadena Terminal	RN100224815
Kinder Morgan Liquids Terminals Galena Park Terminal	RN100237452
Texmark Chemicals	RN100238740
Chevron USA Galena Park Marketing Terminal	RN100706811
Pasadena Refining System	RN100716661
Kinder Morgan Arrow Terminals Galena Park Facility	RN100870237
Ardent Mills Horizon Milling Galena Park Facility	RN100898527
Home Crete Pasadena Plant Site	RN101085256
Agrifos Fertilizer PCI Nitrogen Pasadena	RN101621944
Enterprise Crude Pipeline Galena Park Terminal	RN101921781
Magellan Terminals Holdings Galena Park Terminal	RN102180486
Rig Solutions National Oilwell Varco Galena Park Facility	RN102309150
Houston Cement Company North Texas Cement	RN102415353
Louis Dreyfus Houston Public Grain Elevator	RN102511144
Kinder Morgan Liquids Terminal Vopak Terminal Galena Park	RN102753670
Sekisui Specialty Chemicals America Pasadena Plant	RN103012183
Alamo Concrete Products Plant 115	RN104556691
Shell Pipeline Company LCR Compressor and Dehydration Facility	RN104860002

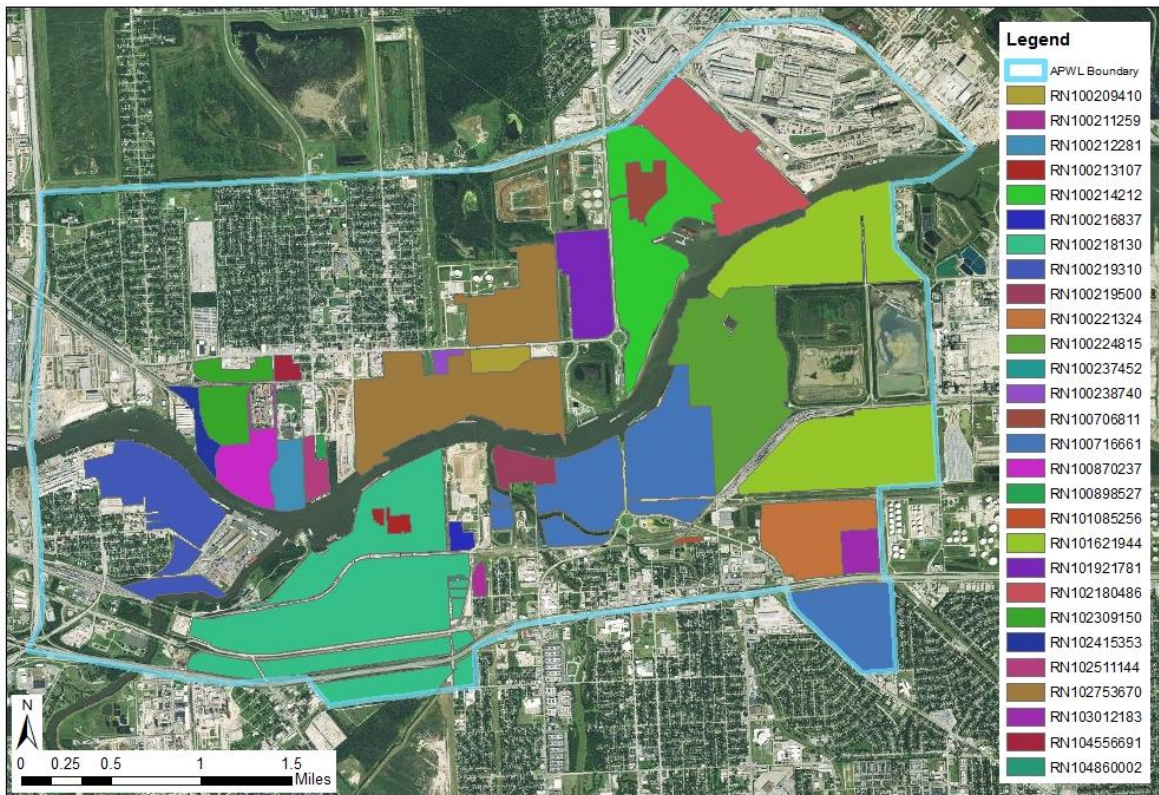


Figure 3. Industrial complexes located within the Galena Park APWL 1206 boundary.

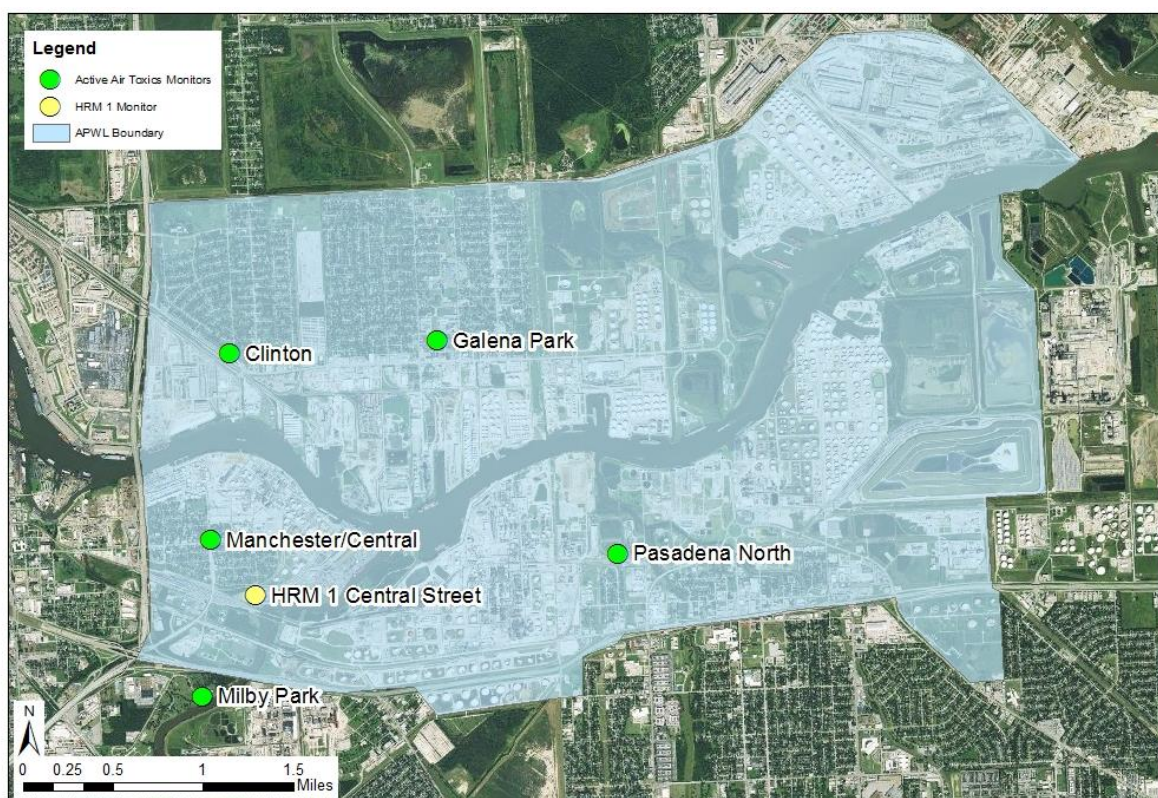
Evaluation

Ambient Air Monitoring Data

Currently the TCEQ collects monitoring data from six stationary monitors in the Galena Park area that measure benzene concentrations (Table 3 and Figure 4). Canister samples are 24-hour average concentrations collected every sixth day, while automated gas chromatograph (autoGC) samples are 1-hour average concentrations collected for 22 hours every day. Annual average concentrations are calculated from 1-hour autoGC and 24-hour canister samples and compared to the long-term AMCV. For each of the monitoring sites examined, the data were considered complete when 75% of the total possible samples were collected and valid for the year. For the 24-hour canister data collected every sixth day, 75% completeness is represented by at least 45 out of a possible 60 samples each year. For the 1-hour autoGC continuous data, 75% completeness is represented by at least 6570 out of a possible 8760 samples each year.

Table 3. Stationary monitors in the Galena Park APWL 1206 area

Monitor	AQS No.	Address	Type	Active
Clinton	482011035	9525 ½ Clinton Drive	AutoGC	7/1/1995 - present
Galena Park	482010057	1713 2 nd Street	Canister	11/6/1997 - present
			AutoGC	5/27/2015 - present
Manchester/Central	482010307	9401 ½ Manchester Street	Canister	5/28/2005 - present
Milby Park	482010069	2201A Central Street	AutoGC	2/20/2005 - present
Pasadena North	482011049	702 Light Co Service Road	Canister	7/1/2008 - present

**Figure 4. Locations of the active benzene monitors in the Galena Park APWL 1206 area.**

The Galena Park area was originally placed on the APWL in 2000 to address elevated annual average benzene concentrations at the Galena Park monitor. Annual average benzene concentrations exceeded the long-term AMCV of 1.4 ppb_v for the years 1998-1999, 2001, and 2003-2007. After 2007, several of the area companies began implementing benzene reduction strategies, and the annual average benzene concentration at the Galena Park canister sampler declined. The 2008 annual average benzene concentration was 1.3 ppb_v. Benzene concentrations continued to decline, and the 2009 average benzene concentration at the Galena Park monitoring site was at 0.8 ppb_v, well below the long-term AMCV. Although the ambient benzene

concentrations appeared to start trending down at the Galena Park monitor, the 2009 average concentration at the Pasadena North monitor equaled the long-term AMCV of 1.4 ppb_v. As a conservative measure, the TCEQ kept Galena Park on the APWL and reevaluated the area based on the most current ambient data available at that time. The TCEQ has collected additional data since it expanded the Galena Park APWL area in 2011, and the data show the sustained improvement at the Galena Park monitor and also improvement at the Pasadena North site. Since 2010, annual average benzene concentrations at all of the active stationary monitors in the Galena Park area have been well below the 1.4 ppb_v AMCV (Figure 5). In May 2015, an additional autoGC monitor was added to the Galena Park canister site. Because the monitor was installed half way through the year, the 2015 and 2016 data did not meet 75% completeness; however the monitor has collected a complete year of data and the annual average calculated from that data is below the long-term AMCV of 1.4 ppb_v.

In December 2011, the Harris County Pollution Control Services Department coordinated the collection of additional data for approximately one year from an autoGC monitor that was collocated with the Galena Park canister sampler. Validated autoGC data collected in the time period between December 2011 through November 2012 show no exceedances of the TCEQ’s 180 ppb_v short-term AMCV, and the 12-month average benzene concentration was 0.8 ppb_v, which is below the TCEQ’s 1.4 ppb_v long-term AMCV. The Houston Region Monitoring (HRM) Corporation also sponsors a stationary monitor in the Galena Park area (HRM 1, Figure 4). Since 2014, quarterly averages for this monitor from 2013 to the present have been provided to the TCEQ on an annual basis, and annual average benzene concentrations measured at the HRM 1 monitor have been well below the long-term AMCV.

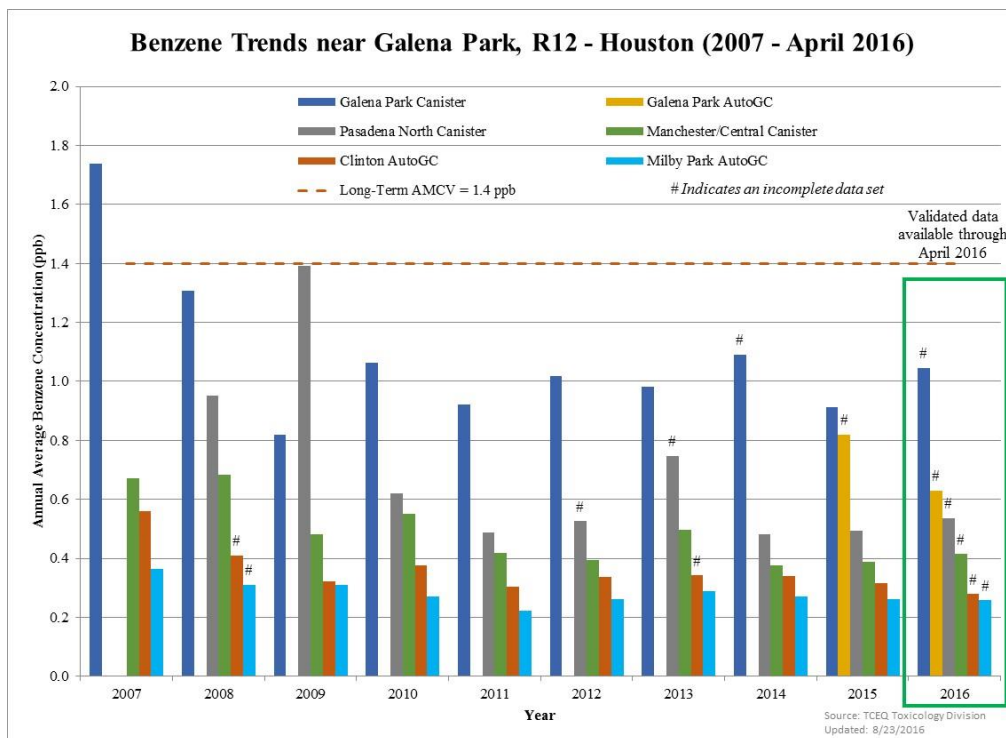


Figure 5. Annual average benzene concentrations from the stationary monitors in the Galena Park APWL 1206 area

Health Effects Reviews of Ambient Monitoring Data

The TCEQ has conducted annual health effects evaluations regarding the benzene monitoring data in Galena Park for many years. In a memorandum discussing the health effects review of the 2015 network monitoring data, the TCEQ's Toxicology Division (TD) stated that data from the Galena Park monitor that met annual data completeness objectives from recent years (2008-2013, 2015) have shown representative annual benzene concentrations less than those of concern for potential long-term (i.e., lifetime), adverse health effects. Therefore, based on the available ambient monitoring data, the TD recommends removal of benzene at Galena Park from the APWL.

Actions to Reduce Benzene Emissions

Regional Investigations

The TCEQ's Houston Region investigators have increased their efforts by conducting focused benzene investigations at some of the area's biggest benzene emitters, including Kinder Morgan Liquids Terminals Galena Park Terminal, Houston Refining, Vopak Terminal Galena Park, Pasadena Refining System, Texmark Chemicals, and Valero Refining Houston Refinery. The focused investigations helped the Houston Region identify unreported and under-reported benzene emissions and ensure that companies located in the APWL area operate in compliance with their permits and applicable federal and state regulations. TCEQ investigators have also conducted surveillance using a hand-held infrared camera to identify possible non-compliant emissions. The TCEQ will continue conducting investigations in the area.

Mobile Monitoring

In addition to the increased benzene-specific investigations and surveillance conducted by its Houston staff, the TCEQ conducted eight mobile monitoring trips between July 2004 and February 2009 to further identify potential sources of volatile organic compounds (VOCs), including benzene. Staff conducted monitoring both on land near industrial sources and from boats in the Houston Ship Channel. In July 2005, the TCEQ also began conducting helicopter flyover investigations over the Houston Ship Channel using an infrared camera to identify non-reported VOC emissions, which included benzene.

Find-and-Fix Initiative

The TCEQ's investigations revealed potentially large quantities of underreported or non-compliant emissions from companies in the Galena Park area. The TCEQ's evaluation showed that tank roof landings (i.e., the practice of emptying a tank's liquids to the extent that the roof sits on its legs, allowing the liquid level to remain below the floating roof, thereby allowing a vapor space between the liquid surface and the roof and making the control device ineffective) were a likely source of the under-reported/non-compliant emissions. The practice of landing tank roofs was common at many terminals in the area. The TCEQ followed up the flyover investigations with its Find-and-Fix initiative and, as a result, several terminals in Galena Park entered into voluntary emission reduction agreements with the TCEQ. Kinder Morgan Liquids Terminals Galena Park Terminal and Enterprise Crude Pipeline Galena Park Terminal (formerly TEPPCO) volunteered to reduce benzene emissions in response to the Find-and-Fix initiative and

Magellan Terminal Holdings Galena Park Terminal also conducted an audit to further investigate the issue.

Several companies in Galena Park also submitted air permit amendment applications following the Find-and-Fix initiative to address emissions that may have previously been unauthorized. Kinder Morgan Liquids Terminals Galena Park Terminal, Kinder Morgan Liquids Terminals Pasadena Terminal, Magellan Terminals Holdings Galena Park Terminal, and Enterprise Crude Pipeline Galena Park Terminal submitted permit amendment applications, which required a control technology and health impacts review of tank landing emissions. These permit actions resulted in additional tank landing control practices, thus reducing benzene emissions.

Refineries

In addition to the air permitting actions for the terminals, the TCEQ has required additional controls on the three refineries in Galena Park (Pasadena Refining System, Houston Refining, and Valero Refining Houston Refinery) through the authorization of their maintenance, startup, and shutdown (MSS) activities. These permitting actions were issued pursuant to the TCEQ's state-wide initiative of evaluating emissions from routine MSS activities that have been historically unauthorized. A permit review of MSS activities includes a control technology and health impacts review, and MSS permitting often requires controls and/or operational changes for activities that have been previously uncontrolled (and, in some cases, controls are required for equipment whose emissions were previously vented to the atmosphere). The Galena Park refinery MSS permits require additional control measures for tank roof landings, equipment draining and degassing, frac tanks, and vacuum trucks.

U.S. Oil Recovery

U.S. Oil Recovery, a waste treatment facility, was located on the south side of the Houston Ship Channel at 400 North Richey Street in Pasadena, TX. Because of the nature of its operations, wind-directional data, and close proximity to the Pasadena North monitoring site, the TCEQ previously identified U.S. Oil Recovery as potentially impacting ambient benzene levels. Upon investigation, the TCEQ documented multiple compliance problems relating to air and water violations and issued multiple Notices of Enforcement to the company. U.S. Oil Recovery ceased operations in March 2010. Although the site had multiple compliance issues, the open wastewater basin was of particular concern because it likely contained VOCs, including benzene. The TCEQ determined that the discontinued use of the wastewater basin has also contributed to the improvement in ambient benzene concentrations in the area.

Kinder Morgan Liquids Terminals Galena Park Terminal

Kinder Morgan Liquids Terminals Galena Park Terminal has undertaken multiple initiatives to reduce (and properly report into the emissions inventory) VOC and benzene emissions. Specifically, in the 2005 – 2006 timeframe, the company significantly reduced the number of roof landings at its facility, which has a significant impact on VOC and benzene emissions. In addition, the company improved its liquid waste management practices by covering all sumps and eliminating the use of dock drip pan and drain hoses directly into sumps. Kinder Morgan Liquids Terminals Galena Park Terminal (and other companies in the area) also installed controls to comply with TCEQ's tank rule changes, such as installing slotted guide pole controls on external floating roof tanks. Additionally, the company conducted its own fly-over analysis

upon completing its improvements to verify that it had accounted for and properly controlled VOC emissions. The company made additional investments to evaluate and reduce benzene emissions in the 2007 – 2008 timeframe, which included improvements of handling benzene-containing wastes and controlling vacuum truck and marine loading/unloading activities. Most recently, in 2013, the company agreed through the New Source Review air permitting process to begin using an infrared camera to inspect and monitor tanks in benzene service on a quarterly basis, thus enabling the company to more quickly identify tanks needing repair.

Houston Refining

Houston Refining conducted a benzene reduction study in the 2008 – 2009 timeframe to improve the accuracy of its emissions reporting and also to identify potential emission control strategies. The company primarily identified benzene reduction strategies relating to tanks and fugitive emissions, prioritized improvements based on effectiveness, and implemented most of its strategies in the 2008 – 2010 timeframe. Specifically, the company now controls emissions that result from tank refilling in addition to tank degassing, installed best-in-class fittings on floating roof tanks, improved tank seals, and conducts enhanced seal inspections. Regarding fugitive emissions, the company has addressed some fugitive monitoring compliance issues and has also taken voluntary measures to improve its fugitive monitoring program, which can have a significant impact on benzene emissions. At the renewal of its air permit, Houston Refining upgraded its fugitive monitoring program to a more stringent one. In addition to replacing leaking components as required by permit and rule requirements, the company has also developed a system to calculate, prioritize, and repair additional “top emitter” fugitive components, further reducing VOC and benzene emissions. Also, in addition to its fugitive leak detection and repair program, Houston Refining uses a hand-held infrared camera to aide in the identification of additional leaks or other issues on a periodic basis. The company has also improved the controls on its sludge processing unit.

Pasadena Refining System

Pasadena Refining System was required to obtain authorization for some of its equipment that was previously grandfathered (i.e., was constructed prior to the passing of the Texas Clean Air Act in 1971), and its existing facility permit required the company to install 10-year old best available control technology on the affected equipment. This authorization was issued in 2007 and required the company to implement a fugitive monitoring program and install controls at some of its combustion sources, tanks, cooler unit, and wastewater systems. In addition, two of the site’s tanks were shut down as an alternative to upgrading the controls. Since 2005 Pasadena Refining System has enhanced its fugitive monitoring program throughout the refinery and has recently implemented some process improvements in an attempt to reduce flaring events. Pasadena Refining System is also working to better control benzene emissions from their wastewater system, addressing compliance issues with Title 40 Code of Federal Regulations Part 61, Subpart FF, National Emission Standard for Benzene Waste Operations.

Valero Refining Houston Refinery

Valero Refining Houston Refinery has taken several actions to address VOC emissions from tanks, fugitives, and flares, and these improvements have also significantly reduced benzene emissions. Specifically, in the 2008 – 2009 timeframe, Valero improved their tank fittings and

guide pole sleeves and wipers to comply with TCEQ's tank rule changes. Additionally, Valero made improvements on its cooling towers in the 2006 time frame to comply with the TCEQ's highly-reactive VOC rules. The company installed auto GCs on all cooling towers to comply with the highly-reactive VOC rules. The company now tracks emissions daily instead of monthly, and these improvements have resulted in a reduction of highly-reactive VOCs and also benzene. Additionally, the company has reduced their number of reportable emissions events and has installed a flare gas recovery system as a result of the U.S. Environmental Protection Agency's Petroleum Refinery Initiative. Since the flare gas recovery system was installed in December 2008, Valero has routed routine emissions and emissions that would previously have been reported as small to medium-sized upsets to the flare gas recovery system, resulting in decreased VOC emissions, including benzene. In addition, the company has implemented an extensive electrical reliability project to ensure the proper operation of the refinery in cases of power outages.

Gulf Coast Waste Disposal Authority Washburn Tunnel Facility

The Gulf Coast Waste Disposal Authority Washburn Tunnel Facility began operating a treatment system modification in 2007 to reduce VOC emissions, including benzene, from its wastewater treatment system. The modification included converting an existing primary clarifier to a first-step aeration basin that uses pure oxygen aeration instead of air aeration. The modification reduced the company's permitted benzene emissions by 87 percent.

Magellan Terminals Holdings Galena Park Terminal

Magellan Terminals Holdings Galena Park Terminal has begun to retrofit some of its older tanks. These retrofits would allow the company to capture emissions from tank landing operations, and the company has agreed to capture and control emissions from the retrofit tanks.

Supplemental Data

Point Source Emissions Inventory (EI) Data

Owners or operators of certain stationary sources are required by 30 Texas Administrative Code (TAC) §101.10, Emissions Inventory Requirements, to submit an annual emissions inventory to the TCEQ. A company subject to § 101.10 is required to report all of its actual air emissions each year, including all authorized and unauthorized emissions. Unauthorized emissions may include those emissions released as a result of emissions events or unauthorized MSS activities. Reviewing the EI information can be useful to identify the companies that report the contaminant of concern. For more information, please refer to the [point source EI webpage](#).

Table 4 lists the facilities located in the Galena Park APWL 1206 area that reported benzene emissions to the point source EI. The remaining facilities either do not specifically report benzene or are not required to report to the point source EI. Sixteen facilities located in the Galena Park APWL 1206 area reported benzene emissions in 2014; Magellan Terminals and Houston Refining had the highest benzene emissions. Emissions data are reported in tons per year (tpy).

Table 4. 2014 Benzene EI data from the facilities located within the Galena Park APWL 1206 area.

Owner/ Operator	RN	2014 Benzene EI (tpy)	% Texas Emissions
Magellan Terminals Holdings Galena Park Terminal	RN102180486	8.726	0.98%
Lyondell-Citgo Houston Refining	RN100218130	7.3218	0.83%
Kinder Morgan Liquids Terminals Galena Park Terminal	RN100237452	3.0516	0.34%
Valero Refining Houston	RN100219310	2.9877	0.34%
Pasadena Refining System	RN100716661	2.3132	0.26%
Kinder Morgan Liquids Terminals Pasadena Terminal	RN100224815	0.6713	0.08%
Gulf Coast Waste Disposal Authority Washburn Tunnel Facility	RN100219500	0.3376	0.04%
Chevron USA Galena Park Marketing Terminal	RN100706811	0.3287	0.04%
Motiva Enterprises Pasadena Marketing Terminal	RN100211259	0.1864	0.02%
United States Gypsum	RN100212281	0.116	0.01%
Texmark Chemicals	RN100238740	0.0612	0.01%
Targa Downstream Galena Park Terminal	RN100214212	0.0362	0
Channel Energy Center	RN100213107	0.0136	0
Enterprise Crude Pipeline Galena Park Terminal	RN101921781	0	0
Rig Solutions National Oilwell Varco Galena Park Facility	RN102309150	0	0

According to the reported EI data, ten facilities in the Galena Park APWL 1206 area have reported benzene emissions over 1 tpy in the last ten years, with Magellan Terminals and Houston Refining contributing the most emissions (Table 5). Historically, the Kinder Morgan Galena Park Terminal also reported high benzene emissions; however, significant decreases have been reported since 2006. Additionally, while Magellan Terminals has remained fairly constant, Lyondell-Citgo Houston Refining had significant reductions since 2006.

Table 5. Benzene EI data for ten facilities in the Galena Park 1206 area with reported emissions from 2005 - 2014.

Site	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Targa Downstream	0.27	0.26	0.08	0.17	0.48	0.64	1.06	0.07	0.05	0.04
Houston Refining	53.66	45.08	38.99	18.34	7.46	5.82	5.22	6.82	7.32	7.32
Valero Refining Houston	9.60	7.20	5.14	1.97	1.53	1.58	2.91	2.96	4.32	2.99
Gulf Coast Waste Disposal Authority	9.38	4.10	0.53	0.11	0.06	0.08	0.1	0.07	0.22	0.34
Kinder Morgan Pasadena Terminal	28.20	6.12	7.53	3.96	1.52	0.69	0.52	0.88	1.30	0.67
Kinder Morgan Galena Park	235.85	50.82	9.78	11.27	8.30	5.11	6.57	5.27	4.64	3.05
Chevron USA	1.02	0.96	1.00	0.48	0.47	0.41	0.44	0.39	0.30	0.33
Pasadena Refining	11.47	8.79	9.26	5.42	4.36	5.52	5.92	9.13	2.87	2.31
Enterprise Crude Pipeline	1.46	1.11	0.25	0.19	0.06	0.07	0	0	0	0
Magellan Terminals	5.95	6.60	30.29	33.22	15.10	7.87	7.25	10.06	7.88	8.73

*Data are reported in tons per year (tpy)

Air Permits

Several of the facilities located in the Galena Park APWL 1206 area had permitting actions in 2015 that resulted in changes in benzene emissions. However, the majority of these 2015 permitting actions did not result in changes in benzene emissions.

Valero Refining Houston – RN100213910

- Project 240088 – Storage tank replaced, benzene emissions decreased from 0.054 tpy to 0.048 tpy.

Kinder Morgan Liquids Terminal Pasadena Terminal – RN100224815

- Project 247382 – Project proposed a decrease in VOCs including benzene; however the reduction was not quantified.
- Project 218236 – The benzene emission potential was added to the sources evaluated and equated to a potential increase of 2.52 tpy for this project. In June 2014, the company permitted an enforceable VOC limit on the site that reduced actual VOC emissions by 318 tpy. The benzene component of that reduction was estimated to be 3.24 tpy and thus offsets the benzene emission increase within the last two years.

Kinder Morgan Liquids Terminal Galena Park Terminal – RN100237452

- Project 233436 – New special condition 36 paragraph J, for tanks in service of liquids with 10 liquid weight percent or greater benzene, was added, requiring that uncontrolled roof landing emissions be vented to a thermal oxidizer with a 99.8% destruction efficiency during draining, standing, and refill operations. Based on benzene emissions historical data reported to emissions inventory by Kinder Morgan from the filling emissions from storage vessels from years 2010-2014, it was concluded that an actual reduction of approximately 1,801 pounds of benzene would be obtained, from this four year period, once the tank landings were controlled.
- Project 233351 – Emission points deleted from review, permitted benzene cap reduced accordingly, however no specific values were stated.
- Project 194861 – Prior agreements with the agency resulted in commitments to reduction strategies in a recent amendment (“9+1” project) to permit no. 2193; those measures offset reduction requirements for the 1.17 tpy benzene increase and cap authorized and established in that action. After the “9+1” project (in the follow-up “as-built” amendment to Permit No. 2193), ship collection efficiency testing demonstrated that additional benzene reductions (0.88 tpy) were realized from implementation of the testing results. The applicant proposed to apply 0.24 tpy of this available reduction to offset the proposed increase (0.24 tpy) and to retain its remainder (0.64 tpy) for use in future projects.

Magellan Terminals Holdings Galena Park Terminal – RN102180486

- Project 250202 – This project represented a decrease in benzene of 0.55 tpy and 0.14 lb/hr.
- Project 238587 – Annual VOC and benzene emissions associated with operating scenario 1 were deleted and emissions from operating scenario 2 were made enforceable. Additionally, the annual VOC and benzene emissions were further reduced from 171.52 tpy and 7.17 tpy to 161.52 tpy and 5.56 tpy respectively.
- Project 204447 – Short term and annual VOC emissions were reduced from 2564.42 lb/hr (235.52 tpy) to 1990.63 lb/hr (205.52) tpy. Annual Benzene emissions reduced from 8.07 tpy to 7.17 tpy. Reductions were made in order to obtain Emission Reduction Credits (ERCs) from a storage tank. Additionally, annual benzene emissions were reduced from 205.52 tpy to 171.52 tpy. These reductions were made to support ERCs for tanks 372 (19.1 tpy) and 373 (15 tpy).

Shell Pipeline Company LCR Compressor and Dehydration Facility – RN104860002

- Project 243728 – This project incorporated VOC fugitive emissions from Permit 77814 (2.14 tpy) and PBR Registration No. 94715 (1.95 tpy). Overall, VOC emissions, including benzene, decreased to 2.85 tpy. Unregistered PBRs added 0.20 tpy and total benzene emissions are 0.00000372 lb/hr and 0.0000163 tpy.

Compliance History

30 TAC Chapter 60 requires the TCEQ to calculate a rating of the compliance history of every owner and/or operator of a facility that is regulated under the following state environmental laws: the water quality laws of Texas Water Code Chapter 26, laws for the installation and operation of injection wells, the Texas Solid Waste Disposal Act (Texas Health & Safety Code (THSC)

Chapter 361), the Texas Clean Air Act (THSC Chapter 382), and the Texas Radiation Control Act (THSC Chapter 401). For the purposes of the compliance history report, owners and operators are referred to as “customers,” and the facility is referred to as the “regulated entity.”

Table 6 summarizes the compliance history reports for the facilities located in the Galena Park APWL 1206 area. The compliance history entails both positive and negative factors related to the customer's environmental performance at a site over the past five years. The customer's history is used to calculate a numerical rating. A rating of zero indicates perfect compliance, and a customer's rating increases with each failure to comply. If no information is available on which to base a rating, the customer is assigned a rating of zero and the classification is designated as “unclassified.” More information about compliance histories and ratings is available on the [compliance history webpage](#).

Table 6. Summary of compliance history for the facilities in the Galena Park APWL 1206 area.

Owner/ Operator	RN	Site	Site Rating	Classification	Date Rated	Date Posted
Equilon Enterprises LLC	100209410	Houston Lube Oil Blending Plant	0	High	09/01/2008	05/10/2016
Motiva Enterprises LLC	100211259	Pasadena Marketing Terminal	0.27	Satisfactory	09/01/2008	11/15/2015
United States Gypsum Co.	100212281	United States Gypsum	1.10	Satisfactory	09/01/2009	11/15/2015
Channel Energy Center LLC	100213107	Channel Energy Center	0.30	Satisfactory	09/01/2010	11/15/2015
Targa Downstream LLC	100214212	Galena Park Terminal	0.50	Satisfactory	09/01/2010	11/15/2015
Bechtel Construction Co.	100216837	AES Deepwater Cogeneration Plant	0	Unclassified	09/01/2010	11/15/2015
Lyondell-Citgo	100218130	Houston Refining	0	High	09/01/2013	11/15/2015
Valero Partners Houston	100219310	Valero Refining Texas LP	5.95	Satisfactory	09/01/2008	11/15/2015
Gulf Coast Waste Disposal Authority	100219500	Washburn Tunnel Facility	3.20	Satisfactory	09/01/2008	11/15/2015
Air Products Inc.	100221324	Air Products Pasadena Plant	6.97	Satisfactory	09/01/2009	11/15/2015
Kinder Morgan Liquids Terminals Inc.	100224815	Pasadena Terminal	0	High	09/01/2008	11/15/2015
Kinder Morgan Liquids Terminals Inc.	100237452	Galena Park Terminal	0.1	Satisfactory	09/01/2008	11/15/2015
Texmark Chemicals Inc.	100238740	Texmark Chemicals	1.02	Satisfactory	09/01/2008	11/15/2015
Chevron USA Inc.	100706811	Chevron USA Galena Park Marketing Terminal	3.13	Satisfactory	09/01/2008	11/15/2015
Pasadena Refining System	100716661	Pasadena Refining System	0	High	09/01/2011	11/15/2015
Kinder Morgan Arrow Terminals LP	100870237	Kinder Morgan Arrow Terminals Galena Park Facility	0	Unclassified	09/01/2008	11/15/2015
Ardent Mills LLC	100898527	Horizon Milling Galena Park Facility	0	Unclassified	09/01/2012	11/15/2015
FBEC Inc.	101085256	Home Crete Pasadena Plant	0	Unclassified	09/01/2011	06/12/2016
Agrifos Fertilizer LLC	101621944	PCI Nitrogen Pasadena	5.53	Satisfactory	09/01/2008	11/15/2015
Enterprise Crude Pipeline	101921781	Galena Park Terminal	0	High	09/01/2010	11/15/2015
Magellan Terminals Holdings LP	102180486	Galena Park Terminal	0	Unclassified	09/01/2011	11/15/2015
National Oilwell Varco LP	102309150	Rig Solutions National Oilwell Varco Galena Park	0	Unclassified	09/01/2008	11/15/2015
Houston Cement Company	102415353	North Texas Cement	0	Unclassified	09/01/2009	11/15/2015
Louis Dreyfus Corp.	102511144	Houston Public Grain Elevator	0	Unclassified	09/01/2010	11/15/2015
Kinder Morgan Liquids Terminal Inc.	102753670	Vopak Terminal Galena Park	0	High	09/01/2008	11/15/2015
Sekisui Specialty Chemicals America LLC	103012183	Sekisui Specialty Chemicals America Pasadena Plant	0.33	Satisfactory	09/01/2009	11/15/2015
Alamo Concrete Products Company	104556691	Alamo Concrete Products Plant 115	0	Unclassified	09/01/2013	11/15/2015

Owner/ Operator	RN	Site	Site Rating	Classification	Date Rated	Date Posted
Shell Pipeline Company LP	104860002	LCR Compressor and Dehydration Facility	0	Unclassified	09/01/2014	11/15/2015

Complaint History

The TCEQ places a high priority on collecting and responding to citizen complaints concerning environmental issues, including visible pollution in air or water, odors, or problems with individuals or companies licensed by the TCEQ. Information on submitting and checking the status of submitted complaints can be found on the [environmental complaints webpage](#).

Table 7 lists the number of complaints received between January 1, 2010, and December 31, 2015, for each of the facilities located within the Galena Park APWL 1206. Complaints are typically not related to a particular chemical and therefore may not be related to benzene. However, all complaints are provided for completeness.

Table 7. Complaint history for the facilities located in the Galena Park APWL 1206 area, 2010-2015.

Owner/ Operator	RN	Site	# Complaints 2010 - 2015
Equilon Enterprises LLC	100209410	Houston Lube Oil Blending Plant	0
Motiva Enterprises LLC	100211259	Pasadena Marketing Terminal	0
United States Gypsum Co.	100212281	United States Gypsum	0
Channel Energy Center LLC	100213107	Channel Energy Center	0
Targa Downstream LLC	100214212	Galena Park Terminal	0
Bechtel Construction Co.	100216837	AES Deepwater Cogeneration Plant	0
Lyondell-Citgo	100218130	Houston Refining	0
Valero Partners Houston	100219310	Valero Refining Texas LP	0
Gulf Coast Waste Disposal Authority	100219500	Washburn Tunnel Facility	0
Air Products Inc.	100221324	Air Products Pasadena Plant	2
Kinder Morgan Liquids Terminals Inc.	100224815	Pasadena Terminal	2
Kinder Morgan Liquids Terminals Inc.	100237452	Galena Park Terminal	0
Texmark Chemicals Inc.	100238740	Texmark Chemicals	0
Chevron USA Inc.	100706811	Chevron USA Galena Park Marketing Terminal	0
Pasadena Refining System	100716661	Pasadena Refining System	0
Kinder Morgan Arrow Terminals LP	100870237	Kinder Morgan Arrow Terminals Galena Park Facility	0
Ardent Mills LLC	100898527	Horizon Milling Galena Park Facility	0
FBEC Inc.	101085256	Home Crete Pasadena Plant	0
Agrifos Fertilizer LLC	101621944	PCI Nitrogen Pasadena	1
Enterprise Crude Pipeline	101921781	Galena Park Terminal	0
Magellan Terminals Holdings LP	102180486	Galena Park Terminal	0
National Oilwell Varco LP	102309150	Rig Solutions National Oilwell Varco Galena Park	0
Houston Cement Company	102415353	North Texas Cement	0
Louis Dreyfus Corp.	102511144	Houston Public Grain Elevator	0
Kinder Morgan Liquids Terminal Inc.	102753670	Vopak Terminal Galena Park	0
Sekisui Specialty Chemicals America LLC	103012183	Sekisui Specialty Chemicals America Pasadena Plant	0
Alamo Concrete Products Company	104556691	Alamo Concrete Products Plant 115	0
Shell Pipeline Company LP	104860002	LCR Compressor and Dehydration Facility	0

APWL Proposed Change Recommendation

The collaborative efforts of the TCEQ and the industrial facilities in the Galena Park APWL 1206 area have resulted in several tangible factors that support the delisting of benzene from this APWL area:

- APWL 1206 was originally established in 2000 to address elevated annual benzene concentrations measured at the Galena Park canister monitor. Since 2008, annual average benzene concentrations at the Galena Park monitor have declined and remained below the long-term AMCV of 1.4 ppb_v. Additionally, collocated validated autoGC data collected from December 2011 through November 2012 and May 2015 through June 2016 were well below the long-term AMCV for benzene.
- The 2009 annual average benzene concentration at the Pasadena North canister monitor equaled the long-term AMCV of 1.4 ppb_v. Since 2009, annual average concentrations at the Pasadena North canister monitor have declined and have been well below the long-term AMCV of 1.4 ppb_v.
- Additional benzene monitoring data from the Galena Park area have shown annual concentrations below the long-term AMCV of 1.4 ppb_v since 2008, including the Clinton autoGC monitor, the Manchester/Central canister monitor, and the Milby Park autoGC monitor. Annual average benzene concentrations at the HRM1 monitor from 2013 through 2015 have also been below the long-term AMCV.
- Reported benzene emissions in the Galena Park APWL 1206 have decreased substantially since its listing on the APWL.
- Companies in the Galena Park area have implemented significant equipment and operational improvements to contribute to the reduction of emissions as outlined in this document.

Based on the available monitoring data and other information (e.g., company improvements, emissions inventory data), the TD recommends the delisting of benzene and the Galena Park APWL 1206 area from the APWL.

Appendix A:

Public Comment Period

The TCEQ will accept comments on the proposed delisting of Galena Park from the APWL, which is currently listed for the air toxic benzene. Interested persons may send comments to APWL@tceq.texas.gov or to the APWL coordinator at the following mailing address:

Jessica Myers, Ph.D.
Air Pollutant Watch List Coordinator
Texas Commission on Environmental Quality
MC 168
P.O. Box 13087
Austin, TX 78711

The comment period begins on November 14, 2016, and the TCEQ will accept comments through December 21, 2016. Any questions regarding the proposed delisting or the APWL process may be forwarded to Dr. Myers by email at APWL@tceq.texas.gov or by telephone at (512) 239-1795 or (877) 992-8370.

Public Meeting

The TCEQ will conduct a public meeting to receive comments on the proposed delisting of Galena Park from the APWL. The public meeting will be held on Wednesday, December 14, 2016, at 6:00 p.m. in the Alvin D. Baggett Recreation Building, located at 1302 Keene Street, Galena Park, Texas. The TCEQ will give a short presentation on the delisting at 6:00 p.m. After a short question and answer session, the TCEQ will officially open the public meeting. The public meeting will be structured for the receipt of oral or written comments by interested persons.

Individuals may present statements when called upon in order of registration. Open discussion within the audience will not occur during the public meeting; however, the TCEQ's staff will be available to discuss the proposed delisting and answer any additional questions after the meeting.

Persons who have special communication or other accommodation needs who are planning to attend the meeting should contact the Office of the Chief Clerk at (512) 239-3300 or 1-800-RELAY-TX (TDD) at least one week prior to the meeting.