

Flare Task Force Stakeholder Group Meeting

September 18 and 21, 2009



Overview

- Flare Task Force
 - Background
 - Goals and Process
- Draft Report Recommendations
 - Flare monitoring
 - Flare minimization plans
 - Agency process changes
 - Public outreach
 - Potential research
- Next Steps
- Questions



Background

Recent Concerns About Flares

- TexAQS II research indicates short-term VOC concentrations in the HGB area are consistent with higher VOC emissions than reported in the state emissions inventory
- GasFindIR™ infrared camera technology and direct downwind VOC measurements identified flare plumes with un-combusted or partially combusted hydrocarbon emissions
- Survey research indicates flares are calculated to emit 61% of all point source HRVOC emissions in the HGB area and 85% of those HRVOC flares routinely operate at less than 25% of their max design capacity
- Preliminary results from DIAL field research indicate the reliability of flare DRE estimates warrants further evaluation for flares operating at a low percent of their max design capacity



Background Continued

Recent Concerns About Flares

- EPA enforcement initiatives stating that routine flaring is not good air pollution control practice
- EPA's National Petroleum Refinery Initiative resulting in consent decrees that include requirements to minimize flaring



Background Continued

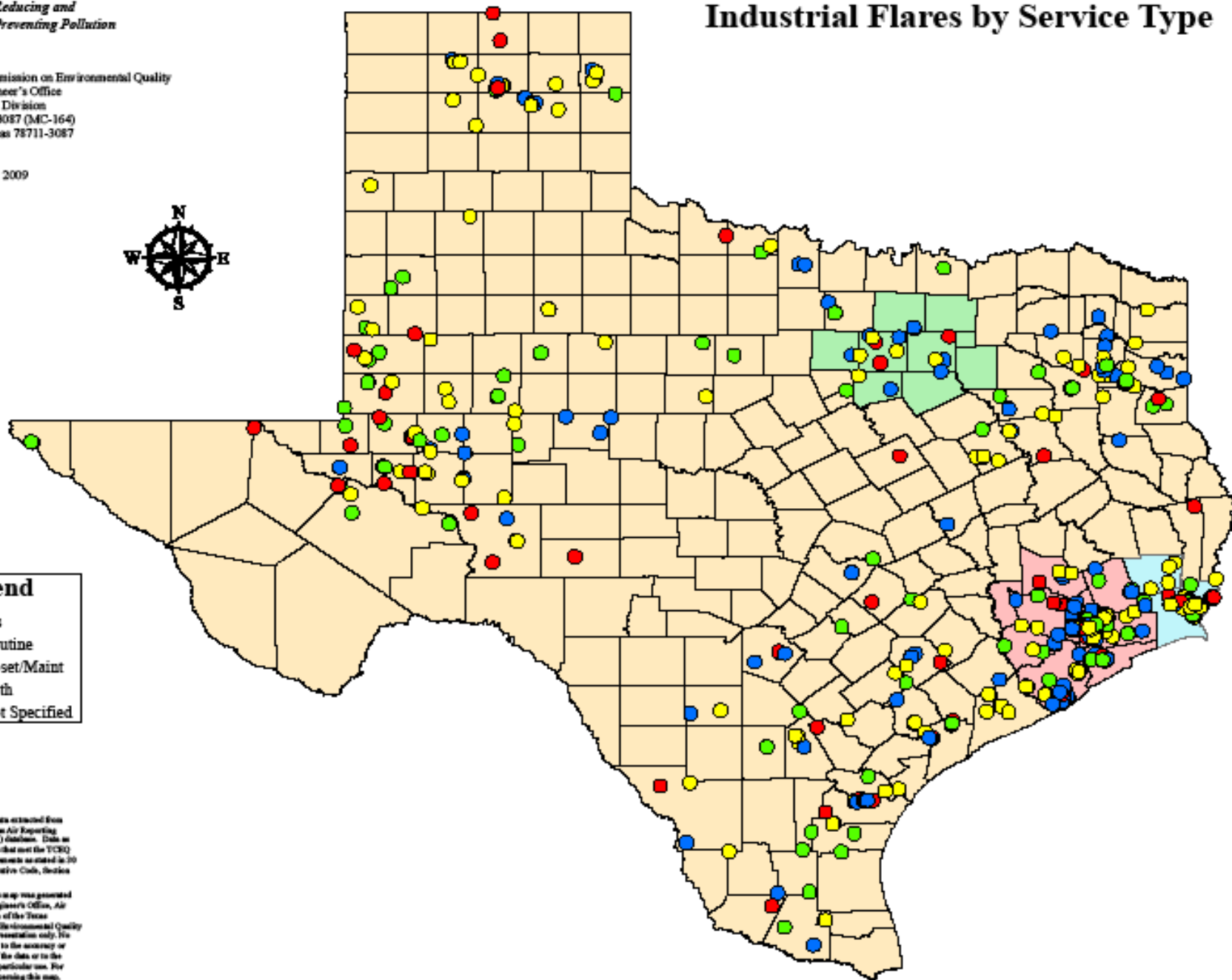
Implications for Texas

2006 TCEQ Point Source Emissions Inventory		
Area	# of Flares	Total VOC Emissions
Statewide	1130	13,078 tpy
HGB	520	7,690 tpy
BPA	118	2,416 tpy

- Small differences between assumed DRE and actual DRE can result in big differences in actual and reported emissions
- For example:
 - Assume the 2006 EI flare data was calculated using 98% DRE
 - If the actual DRE is 96%, then the statewide total VOC emissions from flares double to 26,156 tpy

Industrial Flares by Service Type

January 29, 2009



Legend

Flares

- Routine
- Upset/Maint
- Both
- Not Specified

Source: Flare data extracted from the State of Texas Air Reporting System (SDARS) database. Data as reported by sites that met the TCEQ reporting requirements as stated in 30 Texas Administrative Code, Section 101.13.

Disclaimer: This map was generated by the Chief Engineer's Office, Air Quality Division of the Texas Commission on Environmental Quality as a graphic representation only. No claims are made to the accuracy or completeness of the data or to the suitability for a particular use. For information concerning this map, contact the Air Quality Division at (512) 229-0436.



Flare Task Force

- Created to evaluate all aspects of flares
 - Contribution to state air quality issues with respect to air toxics and ozone
 - Flare use and efficiency
 - Adequacy of existing flare regulations
- Provide the Executive Director with options and recommendations
 - Improving Texas air quality
 - Improving our understanding and regulation of flares
- Participation is open to all interested parties
 - Help ensure the recommendations reflect the perspectives of all affected stakeholders



General Process

- **Define the issues**
 - Identify the most relevant issues for understanding how flares contribute to state air quality issues
- **Information gathering**
 - Applicable technical documents, research, and literature
 - Stakeholder comments on flare issues
- **Evaluation**
 - Understanding flare emissions
 - Options for reducing flare emissions
- **Draft report**
 - Additional stakeholder input and necessary changes
- **Submit final report to the Executive Director**





Draft Report Recommendations

- The recommendations are intended to
 - Improve Texas air quality
 - Improve our understanding of the quantity and content of flare emissions in Texas
 - Help ensure that flare emissions are accurately accounted for
 - Reduce emissions from routine flaring
- Draft report recommendations
 - Monitoring operational parameters
 - Flare minimization plans
 - Agency process changes
 - Public outreach
 - Potential additional research



Monitoring Operational Parameters

- Goals
 - Help ensure proper flare operation
 - Provide more reliable data for emission calculations
- Staff Recommendations
 - Continuous monitoring of any or all of the following parameters:

Flare gas flow rate

Flare gas composition

Assist gas flow rate

Net heating value

Flare flame presence



Photo Courtesy of John Zink Company



Monitoring Flare Gas Flow Rate

- Goals
 - Determine the amount of material being sent to the flare
 - Maintain exit velocity below the limit in 40 CFR §60.18
 - For assisted flares, determine the assist gas to waste gas ratio
- Staff Recommendations
 - Continuous flow monitoring
 - Continuous physical seal monitoring for emergency-only flares
- Options
 - These requirements could be applied to flares based on: industry sector, maximum design capacity, emissions exceeding a given threshold, emissions of pollutants on the Air Pollutant Watch List, toxic emissions, or hazardous air pollutants



Monitoring Flare Gas Composition

- Goals
 - Determine the composition of gas stream sent to the flare
 - Provide more accurate estimates of flare emissions
 - Help improve operational performance of the flare
- Staff Recommendations
 - Continuous waste gas stream composition monitoring on flares that receive routine process waste gas streams
- Options
 - Composition monitoring could be for: total VOC, speciated VOC, compounds vented in excess of a given percent of total emissions, emissions of pollutants on the Air Pollutant Watch List, toxic compounds, or hazardous air pollutants



Monitoring Assist Gas Flow Rate

- Goals
 - Determine assist gas to waste gas ratio
 - Help ensure better flare performance by maintaining appropriate assist gas to waste gas ratio and minimizing periods when the assist gas to waste gas ratio is detrimental to flare performance
- Staff Recommendations
 - Continuous air/steam assist rate flow monitoring for flares
- Options
 - Requirements could be applied to flares based on: industry sector, maximum design capacity, emissions exceeding a given threshold, emissions of pollutants on the Air Pollutant Watch List, toxic emissions, or hazardous air pollutants



Monitoring Net Heating Value

- Goals
 - Maintain the minimum net heating value
 - Help ensure proper operation
- Staff Recommendations
 - Continuous monitoring of the operational parameters necessary to determine the net heating value of the waste gas stream
- Options
 - On-line calorimeter
 - Composition monitoring to calculate the net heating value
 - Maintain sufficient supplemental fuel gas to maintain the required minimum net heating value



Monitoring Flame Presence

- Goal
 - Help ensure the flare is lit at all times
- Staff Recommendations
 - Continuous monitoring to verify the presence of the flare flame
 - May require monitoring the pilot flame and monitoring the net heating value of the flare gas stream to help ensure there is sufficient Btu to support combustion



Flare Minimization Plans

- **Goals**
 - Reduce emissions from routine flaring events including planned maintenance, startup, and shutdown operations
 - Provide flexibility to implement site-appropriate control strategies
 - Maximize emission reductions for unique process designs
 - Maintain emission reductions achieved from practices already instituted at a site

- **Staff Recommendations**
 - Require sites to develop flare minimization plans and implement to reduce the frequency and duration of flaring events
 - Plan requirements may include:
 - Technical data
 - Reductions previously realized
 - Planned reductions
 - Prevention measures
 - Other data necessary to determine compliance with the rule



Flare Minimization Plans

- Options
 - Requirements could be applied based on: nonattainment area, Air Pollutant Watch List area, industry sector, maximum design capacity, emissions exceeding a given threshold, toxic emissions, or hazardous air pollutants
 - Requirements could be phased in over time starting with sites in nonattainment areas or in specific industry sectors
 - Plans could be reviewed upon: site inspection, emission events evaluation, new authorization of flares, permit renewals, or some other pre-established trigger
 - Review could be conducted by: TCEQ staff, an independent contractor hired by the TCEQ, or an independent third party contractor hired by the affected facility



Agency Process Changes

- Goals
 - Requiring additional evaluation during agency permitting processes will help ensure proper flare operation, especially for those flares that routinely operate at a low percent of their maximum design capacity
- Staff Recommendations
 - Establish procedures to determine a maximum allowable turndown ratio as part of the BACT review for flares used for both emergency and routine process waste gas streams
 - Additional monitoring requirements for flares that qualify for authorization through Permits by Rule and Standard Permits



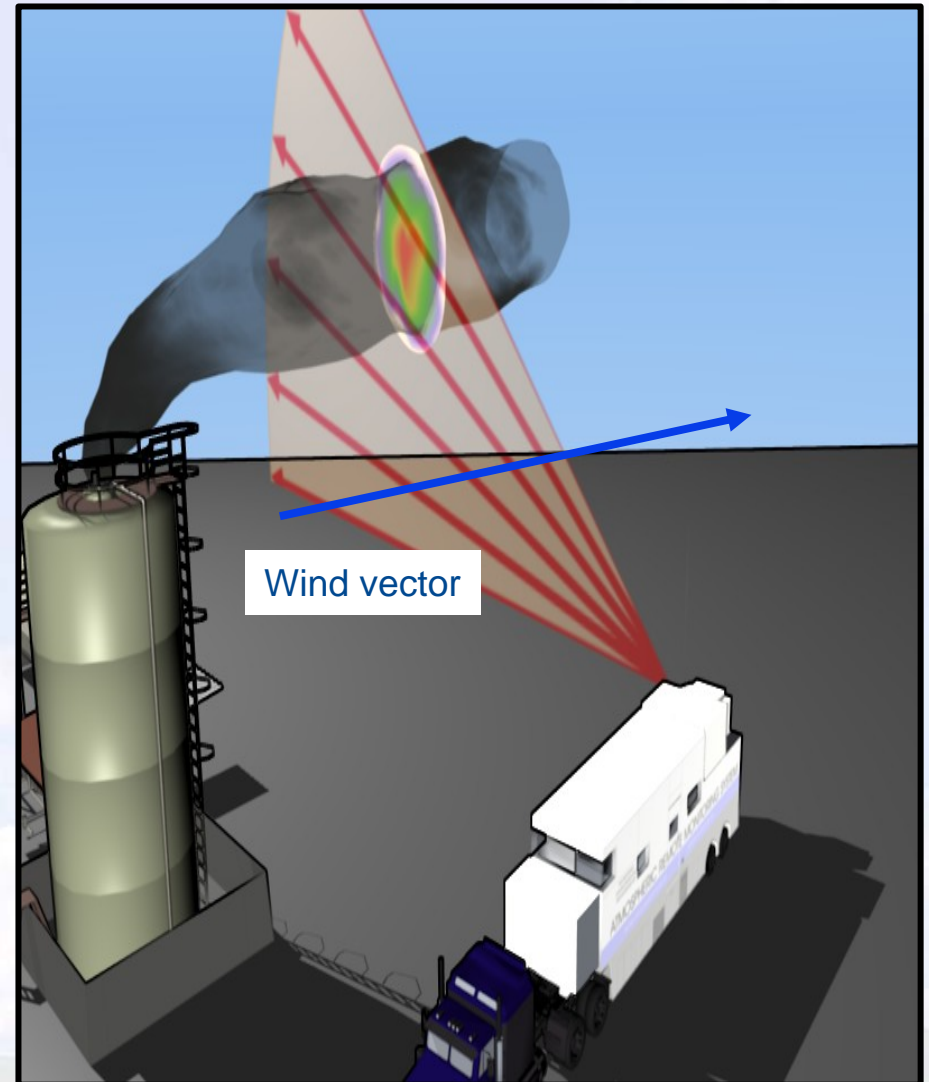
Public Outreach

- **Goals**
 - Continuing to promote stakeholder involvement in agency flare issues will help improve our collective understanding of how flares factor into Texas air quality issues
 - Implement measures to promote public awareness and maintain stakeholder involvement in agency flare issues
- **Staff Recommendations**
 - Maintain the Flare Task Force Stakeholder Group to promote open communication among affected stakeholders
 - Provide educational information on flares to increase public awareness about flares in Texas
 - Conduct outreach to educate business owners and operators about best management practices for flares



Additional Research

- TCEQ flare research
 - early 2010
 - test facility
 - controlled environment
- Examine CE and DRE when flares are operating at a low percent of the maximum design capacity
- Quantify emissions using
 - direct measurement
 - remote sensing (DIAL)





Next Steps

- Requesting informal stakeholder comments on the draft report
 - Provide detailed information on the technical and economic feasibility of the report recommendations
 - Clearly identify confidential information
 - Informal comments will be posted on the stakeholder group web page
- Staff will review comments and finalize the report
- Final report will be submitted for the Executive Director's consideration
- Additional actions as directed by executive management



Informal Comments

- Please submit comments by **September 28, 2009**
- Electronic comments are preferable, and may be submitted via e-mail to siprules@tceq.state.tx.us
 - All electronic comments should reference “Flare Task Force Stakeholder Group” in the subject line
- Mail comments to Lindley Anderson, TCEQ Air Quality Division, MC-206, P.O. Box 13087, Austin, TX 78711-3087
- Fax comments to (512) 239-5687



Questions and Open Discussion