

## Exhibit 1

# Ambient and Meteorological Air Monitoring

**Project Description:** Performing Party shall use SEP Funds to monitor air quality in Harris County using two monitoring methods: (1) Ambient Air Pollutants Monitoring; and (2) Meteorological Monitoring, as described in detail below.

### **(1) Ambient Air Pollutants Monitoring:**

Performing Party or its contractor shall use SEP Funds to:

- a) supplement or enhance operation of the existing air monitoring network;
- b) perform periodic maintenance on the air monitoring equipment;
- c) site and install new air monitoring stations; and
- d) install upgrades to or retrofit existing air monitoring stations in Harris County.

Specifically, Performing Party shall use SEP Funds to operate, maintain, and potentially expand portions of its existing ambient air quality monitoring network in the Harris County area in order to continue to provide information on data quality and trends to the public, TCEQ, and industry representatives. SEP Funds may be used to operate a single monitoring site or multiple sites contingent upon the amount of SEP funds provided. Specific sites and parameters monitored are listed below in Table 1. Future sites and parameters may be added (as identified through specific work plans and upon approval by TCEQ), depending on availability of SEP Funds. SEP Funds may be used to purchase equipment, hardware, software, and licenses to enable the monitoring of ambient air pollutants. SEP Funds may also be used for maintenance of the air monitoring equipment and for the contracting of air monitoring services. No portion of the SEP Funds will be used for administrative costs or salaries of Performing Party's personnel.

One site has been targeted for monitoring activities with first available SEP Funds: Photochemical Assessment Monitoring (PAMS) station near C167 monitoring station at Galena Park, Texas.

Hourly measurements will be reported for 63 individual volatile organic compounds (VOCs) listed in Table 2 below that participate in the formation of ground level ozone and several of which are designated by EPA as Hazardous Air Pollutants (HAPs). The speciated VOC measurements will be made using a gas chromatograph with flame ionization detector (GC-FID) capable of automated (continuous) operation, which results in at least one sampling and analysis cycle per hour.

The VOCs measured by the monitoring stations will be dependent on the representative ambient conditions of the area at each monitoring site. The VOCs measured by the monitoring stations will be selected by Performing Party from the list of VOCs in Table 2 below and must be acceptable to TCEQ.

For additional sites or parameters proposed to be added to this project, Performing Party shall propose each addition in a work plan submitted to TCEQ. The work plan will list the specific location, parameters to be monitored, measurement frequency, deliverables, estimated cost, data quality requirements, and time period. The work plan must be approved by TCEQ prior to expenditure of SEP funds received. The four tasks listed below each fund a specific monitoring site in the urban industrial area of the Houston ship channel.

The site(s) will be selected by Performing Party and must be acceptable to TCEQ. Site selection criteria will be based in part on factors to better identify specific pollution point sources as well as non-specific anthropogenic and biogenic pollution sources. The measurement techniques may consist of, but are not limited to:

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1. PAMs – hourly (AutoGC) for speciated ozone precursor VOCs as listed in Table 2, below;
2. Total non-methane organic compounds (TNMOC) analyzer for event-triggered canister sampling for VOCs as listed in Table 2, below;
3. Fast GC (< 15 minutes) analyzer for select Hazardous Air Pollutants (HAPs) such as benzene;
4. Canister samples – Gas chromatograph with mass spectrometer (GC-MS) and/or flame ionization detector (FID) analysis for selected HAPs and ozone precursor VOCs. Sampling frequency may vary dependent on the goals of the project and contingent upon available SEP Funds.

The data from this program will be collected, validated and quality assured using methodologies consistent with EPA guidance or recommended TCEQ standards. Data from each continuous monitor will be uploaded either hourly or in 5 minute average concentrations via a web-based portal directly to the TCEQ air quality information database which TCEQ may make available to the public via the TCEQ public web site.

Performing Party or its contractor will collect and report data back to the TCEQ in a format acceptable to the agency. Performing Party is responsible for all hardware, software, and services associated with ingesting the continuous monitoring data into TCEQ's data acquisition system and may use SEP Funds for this purpose.

Prior to the use of SEP Funds, Performing Party shall obtain TCEQ approval concerning the location of the sampling systems and specific pollutants to be monitored. Performing Party or its contractor must generate a Quality Assurance Project Plan (QAPP) following EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5), which must be approved by TCEQ prior to implementation. The QAPP shall include sampling site locations, target compounds, measurement quality objectives, and quality assurance checks.

Performing Party shall ensure that analysis of all data collected from these sites complies with Performing Party's or its contractor's Standard Operating Procedures (SOPs) for the analysis and measurement of VOCs in ambient air. Performing Party must also ensure that any laboratory data generated by this project is from a TCEQ-accredited laboratory in compliance with state laws and rules regarding use of certified or accredited testing laboratories (e.g., 30 TEX. ADMIN. CODE, ch. 25, relating to Environmental Testing Laboratory Accreditation and Certification, as amended).

SEP Funds will be used to purchase equipment, hardware, software, and licenses to enable the monitoring of ambient air pollutants. SEP Funds may also be used for maintenance of the air monitoring equipment. SEP Funds may also be used, subject to special conditions, for the contracting of air monitoring services. No portion of the SEP Funds will be used for administrative costs or salaries of Performing Party's personnel.

**Table 1 - Harris County SEP Ambient Air Network  
 Monitoring Locations and Parameters**

\*MET data includes: wind speed, wind direction, temperature, wind gust, wind vector, wind standard deviation, and net radiation  
 \*\* VOC list attached below

Location		*Met	Criteria Pollutants							Non-Criteria Pollutants			
				Oxides of Nitrogen			Particulate Matter						
		MET data	CO	NO <sub>2</sub>	NO <sub>x</sub>	Ozone (O <sub>3</sub> )	PM 2.5	PM 10	SO <sub>2</sub>	Lead	(H <sub>2</sub> S)	PAMS VOC	**Other VOC
1.	Galena Park at or near CAM #167	✓										✓	

Galena Park Monitoring Station will monitor speciated VOCs on a semi-continuous basis (at least one measurement per hour with a minimum of 75% data return) with a minimum detection limit no higher than 0.5 ppbv.

Shaded areas represent monitoring that will continue to be 100% funded from other (non-SEP) sources.

**Table 2 - Harris County SEP Photochemical Assessment Monitoring Station "PAMS" Target Species**

	AIRS code	Hydrocarbon
1.	43206	Acetylene
2.	43203	Ethylene
3.	43202	Ethane
4.	43205	Propylene
5.	43204	Propane
6.	43214	I-butane
7.	43280	1-Butene
8.	43270	Isobutene
9.	43212	n-Butane
10.	43216	trans-2-Butene
11.	43217	cis-2-Butene
12.	43282	3-Methyl-1-Butene
13.	43221	Isopentane
14.	43224	1-Pentene
15.	43220	n-Pentane
16.	43243	Isoprene
17.	43226	trans-2-Pentene
18.	43227	cis-2-Pentene
19.	43228	2-Methyl-2-Butene
20.	43244	2,2-Dimethylbutane
21.	43283	Cyclopentene

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22.	43234	4-Methyl-1-Pentene
23.	43242	Cyclopentane
24.	43284	2,3-Dimethylbutane
25.	43285	2-Methylpentane
26.	43230	3-Methylpentane
27.	43246	2-Methyl-1-Pentene
28.	43231	n-Hexane
29.	43289	trans-2-Hexene
30.	43290	cis-2-Hexene
31.	43262	Methylcyclopentane
32.	43247	2,4-Dimethylpentane
33.	45201	Benzene
34.	43248	Cyclohexane
35.	43263	2-Methylhexane
36.	43291	2,3-Dimethylpentane
37.	43249	3-Methylhexane
38.	43250	2,2,4-Trimethylpentane
39.	43232	n-Heptane
40.	43261	Methylcyclohexane
41.	43252	2,3,4-Trimethylpentane
42.	45202	Toluene
43.	43960	2-Methylheptane
44.	43253	3-Methylheptane
45.	43233	n-Octane
46.	45203	Ethylbenzene
47.	45109	m/p-Xylene
48.	45220	Styrene
49.	45204	o-Xylene
50.	43235	n-Nonane
51.	45210	Isopropylbenzene
52.	45209	n-Propylbenzene
53.	45207	1,3,5-Trimethylbenzene
54.	45208	1,2,4-Trimethylbenzene
55.	45211	o-Ethyltoluene
56.	45212	m-Ethyltoluene
57.	45213	p-Ethyltoluene
58.	45218	m-Diethylbenzene
59.	45219	p-Diethylbenzene
60.	45225	1,2,3-Trimethylbenzene
61.	43238	n-Decane
62.	43954	n-Undecane
63.	43000	Sum PAMS Target Species

**(2) Meteorological Monitoring:**

The Harris County Public Health & Environmental Services' Environmental Public Health Division (HCPHES-EPH) is currently installing ozone monitors in selected public buildings, such as libraries, in Harris County to improve the current ozone monitoring system for the area. The Performing Party shall use SEP Funds to install meteorological monitoring equipment to the existing ozone monitoring equipment at the same public buildings. These systems will contribute data to the TCEQ's ozone monitoring system which will assist in tracking ozone plumes. The

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tracking of ozone plumes assists efforts to understand the production and movement of ozone. SEP Funds will be used for the purchase and maintenance of the meteorological monitoring equipment.

**Table 3. Harris County Meteorological Air Monitoring  
Locations and Target Parameters**

Location		*Meteorological						Other Parameters	
		Wind speed	Wind direction	Temp	Wind gust	Wind vector	Wind std deviation	Net radiation	Ozone
1.	Station name #CAMS 551_								✓
2.	Station name #C552								✓
3.	Station name #C553								✓
4.	Station name #CAMS 554_								✓
5.	Station name #C555								✓
6.	Station name #C556	✓	✓	✓	✓	✓	✓	✓	✓
7.	Station name #CAMS 557_								✓
8.	Station name #C558								✓
9.	Station name #C559	✓	✓	✓	✓	✓	✓	✓	✓
10.	Station name #C560	✓	✓	✓	✓	✓	✓	✓	✓
11.	Station name #C561								✓
12.	Station name #C562								✓

Ozone monitoring will continue to be 100% funded by another funding source.

**Environmental Benefit:**

Data from this monitoring network may be used to evaluate the effectiveness of current emission control strategies, track ambient concentration trends for key pollutants of interest, evaluate episodic emission events, conduct source attribution studies, and assess potential community exposure to toxic air contaminants. The TCEQ uses this information, along with information collected at its own monitors and monitors operated by the City of Houston, to evaluate air quality in the Houston area.

Implementation of this SEP will allow continuation of ambient air monitoring in this region to collect near real-time VOC, ozone, and/or meteorological data sets that can be used to evaluate and track air pollution emission events as they occur, and to assess potential ambient community exposure to a limited number of HAPs. Data from the monitors will be used with data from other monitors to provide critical information that can be used to evaluate the effectiveness of current and proposed emission control strategies aimed at achieving compliance with the NAAQS 8-hr ozone standard and it provides a key source of information that is essential to furthering overall understanding of those emission sources that contribute to ambient community exposure to toxic air contaminants. Because the information is available in near real-time, it can be used to provide both agency staff and industry personnel with time-critical information to investigate emission events in a timely fashion. Another key benefit is the ability to measure the change in the ambient air concentration of the individual target species and quantify control measure effectiveness. Data from these monitors will also be publicly accessible through the TCEQ's website and will be used in evaluating air quality in the area, including ozone forecasts, and ozone warnings. Thus, the public will directly benefit by having access to the data and the forecasting and notification tools which can be used for public awareness, and indirectly by providing data useful in addressing Houston's ozone non-attainment status.

The Meteorological Monitoring program will provide data relating to wind direction, ambient temperature, and ultraviolet ray intensity for use in understanding ozone production and travel. This real-time data will be accessible for air quality regulators and the public via the TCEQ's ambient air quality database.

**Eligible Counties:**

Harris

**Minimum Contribution:**

Any contribution amount accepted.