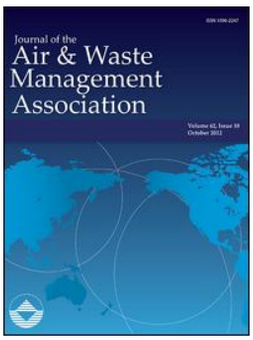
Sydney Beckner

I am submitting joint comments on behalf of the Texans for Responsible Aggregate Mining and co-signers from Air Alliance Houston, Public Citizen, Environmental Defense Fund, Lone Star Chapter Sierra Club, and Environment Texas on the Concrete Batch Plant Standard Permit (RPN 2022-033-OTH-NR). Please see the attached PDF of our joint comments along with supplemental materials cited within. We appreciate the opportunity to provide comments on this matter.



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Sensitivity of Two Dispersion Models (AERMOD and ISCST3) to Input Parameters for a Rural Ground-Level Area Source

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ABSTRACT

As of December 2006, the American Meteorological Society/U.S. Environmental Protection Agency (EPA) Regulatory Model with Plume Rise Model Enhancements (AERMOD-PRIME; hereafter AERMOD) replaced the Industrial Source Complex Short Term Version 3 (ISCST3) as the EPA-preferred regulatory model. The change from ISCST3 to AERMOD will affect Prevention of Significant Deterioration (PSD) increment consumption as well as permit compliance in states where regulatory agencies limit property line concentrations using modeling analysis. Because of differences in model formulation and the treatment of terrain features, one cannot predict a priori whether ISCST3 or AERMOD will predict higher or lower pollutant concentrations downwind of a source. The objectives of this paper were to determine the sensitivity of AERMOD to various inputs and compare the highest downwind concentrations from a ground-level area source (GLAS) predicted by AERMOD to those predicted by ISCST3. Concentrations predicted using ISCST3 were sensitive to changes in wind speed, temperature, solar radiation (as it affects stability class), and mixing heights below 160 m. Surface roughness also affected downwind concentrations predicted by ISCST3. AERMOD was sensitive to changes in albedo, surface roughness, wind speed, temperature, and cloud cover. Bowen ratio did not affect the results from AERMOD. These results demonstrate AERMOD's sensitivity to small changes in wind speed and surface roughness. When AERMOD is used to determine property line concentrations, small changes in these variables may affect the distance within which concentration limits are exceeded by several hundred meters.

IMPLICATIONS

The results presented demonstrate the potentially severe effects that the change in the preferred regulatory model may have on the ability of emitting facilities to meet regulatory standards.

INTRODUCTION

As of December 2006, the American Meteorological Society (AMS)/U.S. Environmental Protection Agency (EPA) Regulatory Model with Plume Rise Model Enhancements (AERMOD-PRIME; hereafter AERMOD) developed by the AMS/EPA Regulatory Model Improvement Committee (AERMIC) replaced the Industrial Source Complex Short Term Version 3 (ISCST3) dispersion model as the EPA preferred regulatory model. AERMOD accounts for several planetary boundary layer (PBL) effects not accounted for by ISCST3. These include effects of vertical variations in the PBL, treatment of plume meander, and the use of divided streamlines to account for dispersion in complex terrain.[1] Furthermore, AERMOD's meteorological preprocessor (AERMET) also uses more detailed meteorological data such as friction velocity, Monin–Obukhov length, convective velocity scale, temperature scale, and surface heat flux than that used by ISCST3.[1]

Evaluating AERMOD's performance using 17 field study databases, Perry et al.[2] reported that AERMOD was most successful at predicting concentration distributions for tall-stack releases of buoyant pollutants into complex terrain but was less successful in predicting low pollutant concentrations, particularly in stable conditions. Perry et al.[2] analyzed only one database characterized by nonbuoyant emissions in flat terrain from a near-ground-level source (Prairie Grass database). Although they characterized AERMOD's performance using the Prairie Grass database as "good," the highest 1-hr concentrations predicted by AERMOD were substantially lower than those predicted by ISCST3. Evaluating the same Prairie Grass database, Irwin[3] concluded that downwind concentrations predicted by AERMOD matched observed downwind concentrations well, except in the most unstable atmospheric conditions in which modeled concentrations were lower than observed values.

The switch in approved regulatory models may be significant for several reasons. First, the change from ISCST3 to AERMOD will affect Prevention of Significant Deterioration (PSD) increment consumption. The Clean Air Act Amendments of 1977 contained a subpart for the "prevention of significant deterioration" of air quality by limiting the allowable increase in ambient concentrations

of particulate matter less than or equal to 10 μm aerodynamic equivalent diameter (PM_{10}), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). PSD increment consumption is the "marginal degradation of ambient air quality beyond baseline values."[4] As an integral part of an overall air quality analysis, a PSD increment consumption analysis is unique because it may only be assessed by using air quality models to determine the impact a given source will have on a discrete receptor. Therefore, the transition from ISCST3 to AERMOD may have substantial impacts on PSD increment analysis. For a given source, if AERMOD predicts higher downwind concentrations than ISCST3, a facility may receive a more restrictive permit than formerly required, possibly resulting in lower production or requiring more expensive air pollution control devices.[4]

Second, many state air pollution regulatory agencies (SAPRAs) have begun to utilize a special use of the National Ambient Air Quality Standards (NAAQS) as property line concentrations not to be exceeded. Although this application of the NAAQS is outside the intended scope of the federal standards, many states have adopted such limits in an effort to protect public health and welfare. Because of the expense and labor requirements of on-site sampling campaigns to determine compliance with property line concentration limits, SAPRAs often use air pollutant dispersion models to predict property line concentrations on the basis of emissions estimates and local climate conditions. The transition from ISCST3 to AERMOD as the regulatory model of choice may affect a given source's ability to comply with property line concentration limits, including many existing permit limits, on the basis of modeling analyses.

Several investigations have been conducted to determine the differences in predicted pollutant concentrations on the basis of AERMOD and ISCST3 model runs. Long et al.[5] compared modeled concentrations of pollutants from multiple source types in the San Francisco Bay area and found that, except for 1-hr concentrations, AERMOD predicted consistently lower pollutant concentrations than did ISCST3. Long[6] found that 3-hr concentrations predicted by ISCST3 were much higher than those predicted by AERMOD from an elevated point source in a river valley with rolling terrain, but AERMOD's 24-hr predicted concentrations were greater than or equal to those predicted by ISCST3. Furthermore, Long[6] reported that peak and second-highest values between models were not paired in space or time. Comparing the performance of ISCST3 and AERMOD in a complex terrain scenario and a flat terrain scenario with multiple point, area, and volume sources, Tarde and Westbrook[7] found that AERMOD predicted higher 24-hr concentrations of PM_{10} in flat areas but lower concentrations than ISCST3 in complex terrain. Morrison[8] found results opposite to those of Tarde and Westbrook,[7] with ISCST3 predicting higher 24-hr concentrations than AERMOD in flat terrain with abrupt land-use changes and AERMOD predicting higher 24-hr concentrations in intermediate complex terrain. Morrison[8] also reported that ISCST3 predicted much higher 1-hr concentrations than AERMOD in complex terrain, but the models predicted similar 1-hr concentrations in the flat terrain scenario. In general, AERMOD seems to perform better in complex terrain than does ISCST3.[9]

Comparing modeled pollutant concentrations predicted by AERMOD with observed concentrations, Schewe and Wagner[10] reported that 3- and 24-hr concentrations predicted by AERMOD were below observed levels from a refinery located in complex terrain in eastern Kentucky. However, annual concentrations predicted by AERMOD were higher than those observed. Kumar et al.[11] also observed that model prediction was below observed concentrations but became better as the length of the averaging period increased from observations made in an urban area of Lucas County, OH.

Because of differences in model formulation and the treatment of terrain features, one cannot predict a priori whether ISCST3 or AERMOD will predict higher or lower pollutant concentrations downwind of a source. Furthermore, although ISCST3 and AERMOD are both double Gaussian plume dispersion models, ISCST3 limits dispersion phenomena to one of six discrete stability classes, whereas AERMOD allows for more resolved plume dispersion characterization based on substantially more user inputs such as land use/land cover (LULC) and PBL characterization.

When using AERMOD, EPA suggests values of albedo, Bowen ratio, and surface roughness for eight different land-use categories as a function of season in the AERMET User's Guide.[12] Using design concentrations, Grosch[13] evaluated the sensitivity of AERMOD to LULC parameters, modeling point sources at four heights using three values of each of the LULC parameters above. Grosch[13] concluded that the effect of these parameters on design concentrations was sufficiently complex to preclude prediction of their effect on concentrations resulting from emissions from any given source. However, the author found that design concentrations were most significantly affected by variations in surface roughness.

Analyzing the sensitivity of AERMOD-modeled concentrations from several source classes, Long et al.[5] also found that concentrations from all sources were most sensitive to surface roughness. The authors found that, behind surface roughness, concentrations downwind of an elevated point source and a ground-level point source in the San Francisco Bay area were most sensitive to solar radiation whereas concentrations downwind of a volume source were most sensitive to cloud cover.

The objectives of this paper are to:

(1) Determine the sensitivity of AERMOD to LULC and meteorological inputs; and
(2) Compare highest downwind concentrations from a ground-level area source (GLAS) predicted by AERMOD to those predicted by ISCST3.

MODEL INPUTS

The LULC and meteorological inputs analyzed in this research are described below.

LULC Parameters

- Albedo is the fraction of incoming solar radiation reflected back into space excluding absorption. Albedo can range from 0.1-in.-thick deciduous forest to 0.9 above fresh snow.

Table 1. Base scenario user inputs.

Variable	AERMOD	ISCST3
Albedo	0.2	N/A
Bowen ratio	1.5	N/A
Surface roughness (m)	0.05	N/A
Barometric pressure (kPa)	101.3	N/A
Solar radiation (W/m^2)	See Table 3 (max = 1000 W/m^2)	See Table 3 (max = 1000 W/m^2)
Wind speed (m/sec)	3.7	3.7
Average wind direction (degrees)	180	180
Temperature (K)	See Table 3 (average = 294.5 K)	See Table 3 (average = 294.5 K)
Relative humidity (%)	0	N/A
Total sky cover (tenths)	0	N/A
Mixing height (m)	N/A	1000

Notes: N/A = not applicable.

- Bowen ratio is the ratio of sensible heat flux to latent heat flux, or the proportion of solar radiation used to evaporate moisture from the ground and from plant and leaf surfaces. The Bowen ratio varies diurnally but is usually relatively constant during the day. Bowen ratio can range from 0.1 over water to 10 over desert surfaces.
- Surface roughness is the height at which the mean horizontal wind speed is zero. Surface roughness is a function of the height of obstacles obstructing wind flow and can range from 1 mm over a calm water surface to 3.7 m in heavy residential areas. Values over 1.5 m are uncommon. In ISCST3, surface roughness can only be specified as "rural" or "urban," whereas values can be specified precisely in AERMOD. The urban setting in ISCST3 corresponds to a surface roughness of 1 m, whereas the exact value of surface roughness for rural is not specified.[14]

Meteorological Parameters

- Solar radiation is the radiant energy emitted by the sun that reaches the earth's surface.
- Wind speed is measured at 10 m elevation.
- Mixing height is the height above ground to which pollutants vertically disperse because of heating by the sun (convective mixing) or turbulence caused by wind shear (mechanical mixing). Convective mixing is a daytime phenomenon and usually dominates over mechanical mixing. Mixing height is calculated by AERMET but must be specified in ISCST3.
- Temperature is the ambient temperature measured at the elevation specified by the user in AERMET.
- Cloud cover is the fraction of the sky covered by clouds.

METHODS

Particulate matter (PM) emissions were modeled from a 1000- by 1000-m GLAS in flat terrain oriented such that the edges fall along cardinal direction lines. The area source was located at 35 ° N latitude and 101 ° W longitude at an elevation of 1100 m above sea level (near Amarillo, TX). A homogeneous emission rate of 10 μg/m^2/sec was used with an average wind direction from the south. A base scenario (Tables 1 and 2) was established such that only one variable of interest was altered in any given analysis. The base scenario reflects typical conditions on the Texas High Plains. Daily temperature and daytime solar radiation follow sine functions (Table 2).

For ISCST3, the Pasquill–Gifford stability class was determined based on the Solar Radiation δ-T (SRDT) method.[15] A negative vertical temperature gradient was assumed at night (when solar radiation ≤50 W/m^2). On the basis of this assumption, the results of this model analysis should not be applied under conditions where a temperature inversion is present.

Each of the aforementioned inputs was varied independently to determine the corresponding sensitivities of AERMOD and ISCST3. The range and resolution of model

Table 2. Temperature and solar radiation for base scenario.

Hour	Solar Radiation (W/m^2)	Temperature (K)
1	0	290
2	0	289
3	0	289
4	0	289
5	0	290
6	0	291
7	239	292
8	464	293
9	663	295
10	823	296
11	935	297
12	993	298
13	993	299
14	935	300
15	824	300
16	664	300
17	466	299
18	241	298
19	0	297
20	0	296
21	0	295
22	0	293
23	0	292
24	0	291

inputs analyzed are shown in Table 3. Caution must be exercised when analyzing the extreme values from LULC analyses because parameters are interrelated. As noted by Grosch,[13] "a surface roughness length of 0.0001 [m], found only over water, cannot be combined with a Bowen ratio of 10, which represents a very dry surface."

Upper air data for AERMOD were generated to match surface data. One upper air sounding was used at an elevation of 1000 m above ground level. Barometric pressure at 1000 m was determined to be 90.16 kPa on the basis of eq 1.

$$\ln(P) = -3.42\left[\ln\left(\frac{298}{298 - 0.01z}\right)\right] + 4.618 \qquad (1)$$

where P is the pressure (kPa), and z is the elevation (m).[16]

In all model runs, the temperature at 1000 m above ground was set to be 10 °C lower than at ground level on the basis of an adiabatic lapse rate of 1 °C per 100 m elevation change. Wind direction at 1000 m was assumed to be the same as at the surface station, but wind speed was adjusted according to eq 2 (adapted from Stull[17]).

$$\left(\frac{u_2}{u_1}\right) = \left(\frac{z_2}{z_1}\right)^{\mathrm{p}} \qquad (2)$$

where z_1 and z_2 are the elevations at 1 and 2, u_1 and u_2 are the wind speeds at z_1 and z_2, and p is the exponent.

The value of p is a function of surface roughness and atmospheric stability. Values used in this analysis are shown in Table 4.[16]

BREEZE AERMOD version 6.1.24 was used in conjunction AERMET Pro version 6.1.2 (Trinity Consultants) for AERMOD analyses utilizing the FORTRAN executable file "AERMOD_EPA_07026." For each test, meteorological parameters were processed using AERMET, thus generating new AERMET profile and surface files for each test run. BREEZE ISC GIS Pro version 5.2.1 was used for ISCST3 analyses. A receptor grid was placed downwind of the source using 1- by 1-m gridded spacing and receptor heights of 2 m. Models were run for 24 hr, and the highest 1-, 3-, and 24-hr concentrations were recorded along with the distance from the northern edge of the source to the location where the highest concentrations were predicted. Regression analyses were conducted using the curve estimation regression function in SPSS (SPSS, Inc.).

Table 4. Exponents for eq 2.

Pasquill–Gifford Stability Class	Exponent (p) Surface Roughness < 0.7 m	Exponent (p) Surface Roughness ≥ 0.7 m
A	0.07	0.15
B	0.07	0.15
C	0.10	0.20
D	0.15	0.25
E	0.35	0.30
F	0.35	0.30

Notes: Adapted from Cooper and Alley.[16]

RESULTS AND DISCUSSION

The base scenario resulted in maximum modeled 1-hr concentrations of 272.8 and 172 μg/m^3 for AERMOD and ISCST3, respectively. Maximum modeled 24-hr concentrations for AERMOD and ISCST3 were 203.7 and 135.7 μg/m^3, respectively. For all scenarios with both models, the 3-hr concentrations were usually within 2 μg/m^3 of 1-hr concentrations.

Albedo

The maximum 1- and 24-hr concentrations calculated by AERMOD with varying albedo values are shown in Figure 1. Maximum 1- and 3-hr concentrations were unaffected by variations in albedo, as would be expected given that these concentrations occur at night, when there is no incoming solar radiation and the atmosphere is most stable. The lowest maximum 24-hr concentration (0.6% below the base scenario) corresponded to an albedo value of 0.1, and the highest maximum 24-hr concentrations (25% higher than the base scenario) corresponded to an albedo value of 0.85. Concentrations increased linearly with albedo values between 0.1 and 0.6 ($p < 0.0005$; $R^2 = 0.994$). Concentrations also increased linearly for albedo values between 0.6 and 0.9 ($p = 0.001$; $R^2 = 0.896$), but

Table 3. Variable range and resolution for sensitivity analysis.

Variable	Minimum	Maximum	Resolution
Albedo	0.1	0.9	0.05
Bowen ratio	0.1	10	0.1
Surface roughness (m)[a]	0.001	3.7	0.01 for 0.001 < SR < 0.1 0.1 for 0.1 < SR < 3.7
Average solar radiation (W/m^2)	400	1200	50
Wind speed (m/sec)	1	30	1
Mixing height (m)[b]	20	2000	20 for 20 < z < 300 50 for 300 < z < 2000
Average temperature (K)	270	310	5
Cloud cover (tenths)[c]	0	10	1

Notes: [a]For ISCST3, the rural dispersion option was used for SR < 0.7 m, and the urban dispersion option was used for SR ≥ 0.7 m; [b]Varied in ISCST3 only, mixing heights are automatically calculated in AERMOD; and [c]Varied total sky cover alone (opaque sky cover = 0) and total sky cover with opaque sky cover. SR = surface roughness.

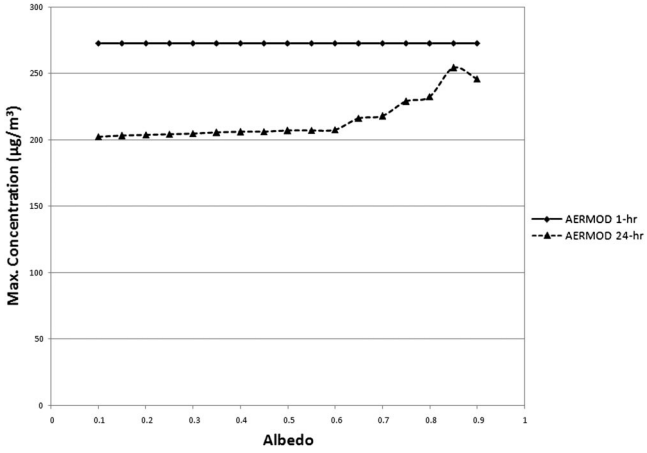

Figure 1. Maximum 1- and 24-hr AERMOD concentrations as a function of albedo.

the slope of the regression in the upper range of values was over 14 times the slope in the lower range of values.

Figure 2 shows 24-hr plume concentrations downwind of the source at 2-m elevation as predicted by AERMOD for albedo values of 0.1 and 0.85. The maximum distance downwind at which a concentration of 150 µg/m^3 (the 24-hr NAAQS for PM_{10}) is found is 117 and 252 m for albedo values of 0.10 and 0.85, respectively. The maximum distance downwind at which a concentration of 50 µg/m^3 is found is 1850 and 2682 m for albedo values of 0.10 and 0.85, respectively.

ISCST3 does not account for albedo in its dispersion modeling algorithms, thus ISCST3 concentrations were unaffected by changes in albedo. For all values of albedo, AERMOD predicted higher maximum downwind concentrations than ISCST3.

Bowen Ratio

Changes in the Bowen ratio had no effect on concentrations predicted by AERMOD. Sensible heat flux in the convective boundary layer (CBL), which affects convective mixing parameters, Monin–Obukhov length, and many other dispersion parameters, is a function of Bowen ratio.

$$H = \frac{0.9R_n}{(1 + 1/B_0)} \quad (3)$$

where H is the surface sensible heat flux (W/m^2), R_n is the net radiation (W/m^2), and B_o is the Bowen ratio.[1]

Bowen ratio likely did not affect predicted downwind concentrations in this study because mechanical mixing in the PBL outweighed effects of convective mixing. ISCST3 does not account for Bowen ratio in its dispersion model algorithms.

Surface Roughness

The maximum 24-hr concentrations calculated by AERMOD and ISCST3 as surface roughness values varied are shown in Figure 3. The 1- and 3-hr concentrations were higher than 24-hr concentrations but followed similar trends.

Maximum concentrations calculated by AERMOD changed lognormally with surface roughness ($p < 0.0005$; $R^2 = 0.923$) whereas the step change in maximum concentrations calculated by ISCST3 was a function of choosing an urban versus rural dispersion option. The lowest maximum 24-hr concentration calculated by AERMOD (86% below the base scenario) corresponded to a surface roughness value of 3.7 m, and the highest maximum 24-hr concentration (192% higher than the base scenario) corresponded to a surface roughness value of 0.001 m. Within the typical range of surface roughness values used in modeling (0.001–1.5 m), a difference in concentrations of more than a factor of 10 was observed.

Figure 4 shows plume concentrations downwind of the source at 2-m elevation as predicted by AERMOD for surface roughness values of 0.05 and 0.10 m. The minor alteration of surface roughness by 50 mm changes the maximum distance downwind at which a concentration of 150 µg/m^3 is found from 34 m (surface roughness = 0.10 m) to 120 m (surface roughness = 0.05 m). The

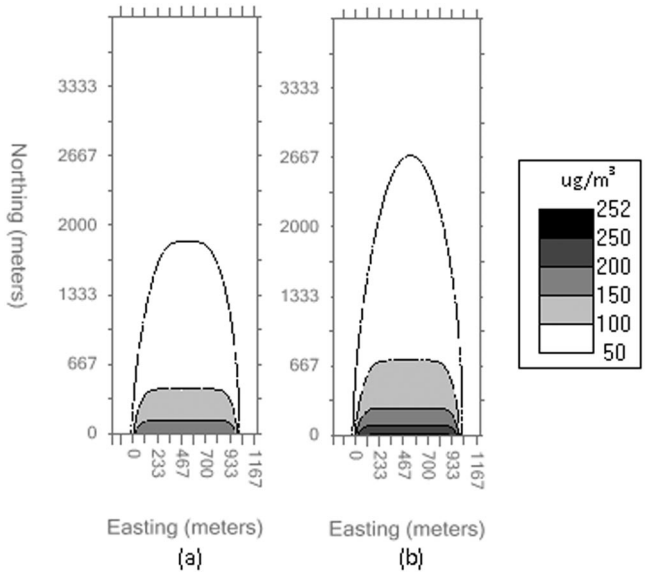

Figure 2. 24-hr AERMOD concentrations at 2-m elevation downwind of source for albedo values of (a) 0.10 and (b) 0.85.

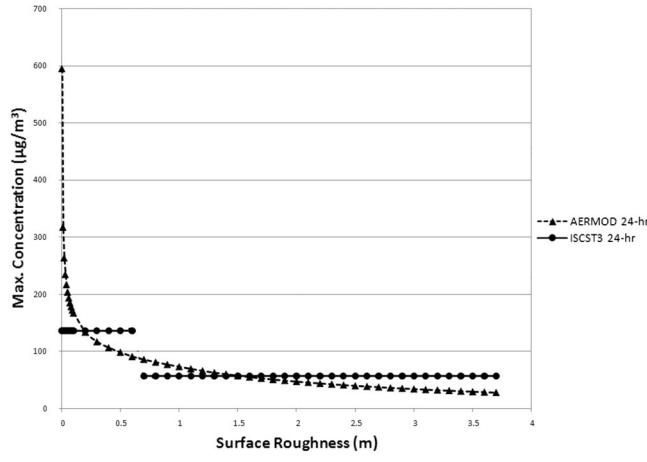

Figure 3. Maximum 24-hr AERMOD and ISCST3 concentrations as a function of surface roughness.

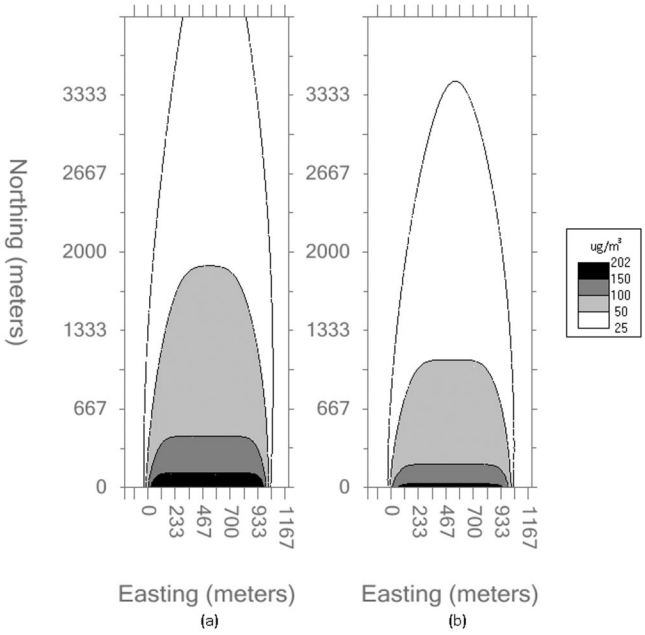

Figure 4. 24-hr AERMOD concentrations at 2-m elevation downwind of source for surface roughness values of (a) 0.05 (base scenario) and (b) 0.10 m.

maximum distance downwind at which a concentration of 50 $\mu g/m^3$ is found is 1086 and 1893 m for surface roughness values of 0.10 and 0.05 m, respectively.

Solar Radiation

The concentrations calculated by AERMOD as solar radiation values varied did not change. Again, this is likely due to the preeminence of mechanical mixing over convective mixing in the modeled domain. The maximum 1- and 24-hr concentrations calculated by ISCST3 as solar radiation values varied are shown in Figure 5. Maximum 1- and 3-hr concentrations were unaffected by variations in solar radiation, as would be expected given that these concentrations occur at night. The lowest maximum 24-hr concentration (1.9% below the base scenario) corresponded to the highest solar radiation scenario, and the highest maximum 24-hr concentrations (9.3% higher than the base scenario) corresponded to the lowest solar radiation scenario. As solar radiation increases, heating of the earth's surface increases, leading to less stable atmospheric conditions. Unstable conditions then lead to greater dispersion of airborne pollutants. Maximum concentrations varied as step functions as changes in solar radiation led to differences in Pasquill–Gifford stability classes. For all values of solar radiation, AERMOD predicted higher maximum downwind concentrations than ISCST3.

Wind Speed

Maximum 1-, 3-, and 24-hr concentrations decreased with increasing wind speed in both models. The highest 1-hr concentration predicted by AERMOD (2527 $\mu g/m^3$) occurred at a wind speed of 1 m/sec and was 4 times higher than the 1-hr concentration predicted by ISCST3 at the same wind speed. Similarly, the maximum 24-hr concentration predicted by AERMOD in a 1-m/sec wind (1937 $\mu g/m^3$) was 3.9 times higher than that predicted by ISCST3. As seen in Figure 6, the 24-hr concentrations predicted by AERMOD are higher than those predicted by ISCST3 for wind speeds below 6 m/sec, but marginally lower than those predicted by ISCST3 for higher wind speeds. Regression curves for the 1- and 24-hr concentrations predicted by AERMOD and ISCST3 are of the form

$$C = ax^b \quad (4)$$

where C is the maximum concentration ($\mu g/m^3$), x is the wind speed (m/sec), and a and b are curve fit coefficients. The values of a and b are shown in Table 5.

A Q-Q plot of 24-hr concentrations predicted by ISCST3 and AERMOD as wind speed varied above 3 m/sec (Figure 7) illustrates the higher sensitivity of AERMOD to wind speed under conditions of low wind velocity. Each point in Figure 7 represents the maximum 24-hr concentration determined for a given wind speed, with wind speed decreasing from left to right. AERMOD is increasingly sensitive relative to ISCST3 as wind speed decreases below 3 m/sec.

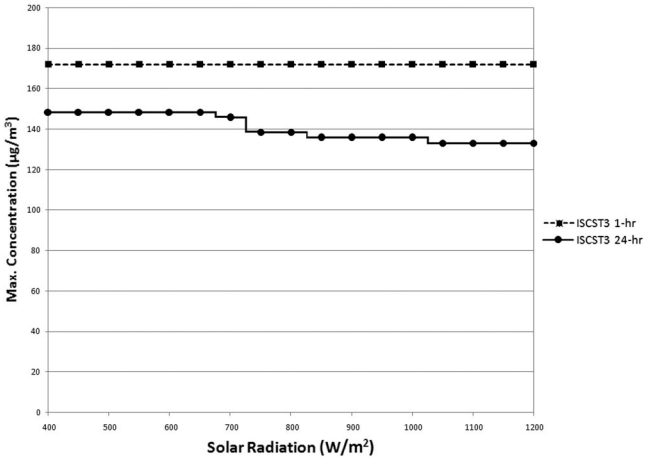

Figure 5. Maximum 1- and 24-hr ISCST3 concentrations as a function of solar radiation.

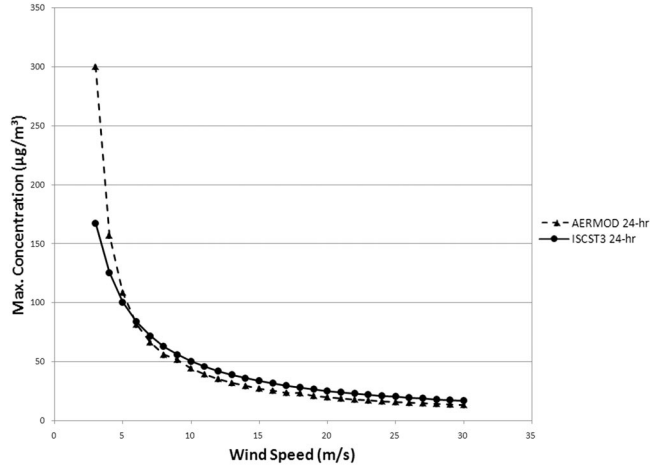

Figure 6. Maximum 24-hr AERMOD and ISCST3 concentrations as a function of wind speed (wind speed ≥ 3 m/sec).

Table 5. Curve fit coefficients for eq 4.

Model	Average Time (hr)	*a*	*b*	R^2	*p* Value
AERMOD	1	1786	−1.42	0.979	<0.0005
AERMOD	24	1335	−1.41	0.979	<0.0005
ISCST3	1	636	−1.00	1.000	<0.0005
ISCST3	24	502	−1.00	1.000	<0.0005

As seen in Figure 6, downwind concentrations modeled by AERMOD are much more sensitive to changes in wind speed in low-wind locations. The slope of the maximum 24-hr AERMOD concentration curve in Figure 6 changes from $-1882\ \mu g \cdot sec/m^4$ at a wind speed of 1 m/sec to $-0.5\ \mu g \cdot sec/m^4$ at a wind speed of 30 m/sec. This sensitivity points to the need for accurate wind speed data during relatively calm periods when using AERMOD to predict downwind concentrations of pollutants.

Temperature

The concentrations calculated by ISCST3 as average daily temperature values varied did not change. The maximum 1- and 24-hr concentrations calculated by AERMOD decreased linearly as temperature values increased (Figure 8). The lowest maximum 24-hr concentration calculated by AERMOD (8.5% below the base scenario) corresponded to an average temperature of 310 K, and the highest maximum 24-hr concentration (6.3% higher than the base scenario) corresponded to an average daily temperature of 270 K.

Increasing temperature leads to more negative values of the Monin–Obukhov length:

$$L = -\frac{\rho c_p T u_*^3}{kgH} \quad (5)$$

where L is the Monin–Obukhov length (m), ρ is the density of air (kg/m^3), c_p is the specific heat of air at constant pressure ($J/kg \cdot K$), T is the temperature of the surface layer (K), u_* is the friction velocity (m/sec), k is the von Karmen constant ($k = 0.4$), and g is the acceleration due to gravity ($g = 9.8\ m/sec^2$).[1]

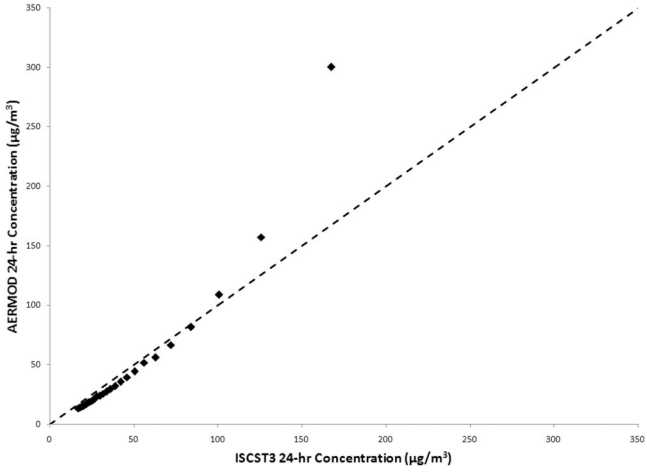

Figure 7. Q-Q plot of 24-hr concentrations predicted by ISCST3 and AERMOD as wind speed varies above 3 m/sec.

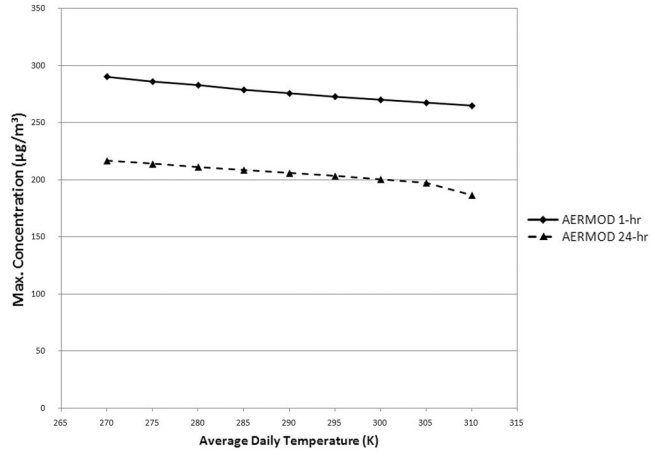

Figure 8. Maximum 1- and 24-hr AERMOD concentrations as a function of average daily temperature.

Greater magnitudes of the Monin–Obukhov length are indicative of great convective instability, which leads to greater pollutant dissipation and therefore lower concentrations. For all values of average temperature, AERMOD predicted higher maximum downwind concentrations than ISCST3.

Figure 9 shows 24-hr plume concentrations downwind of the source at 2-m elevation as predicted by AERMOD for average temperature values of 270 and 310 K. The maximum distance downwind at which a concentration of 150 $\mu g/m^3$ is found is 160 and 81 m for average temperatures of 270 and 310 K, respectively. The maximum distance downwind at which a concentration of 50 $\mu g/m^3$ is found is 2181 and 1583 m for average temperatures of 270 and 310 K, respectively.

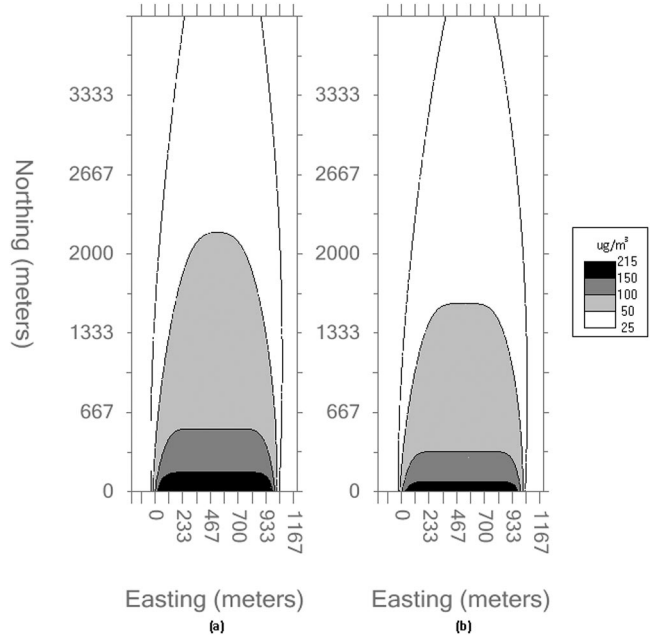

Figure 9. 24-hr AERMOD concentrations at 2-m elevation downwind of source for average temperatures of (a) 270 and (b) 310 K.

Cloud Cover

The concentrations calculated by ISCST3 as cloud cover values varied did not change. The concentrations calculated by AERMOD were unaffected by total sky cover if opaque sky cover remained negligible. However, the fraction of opaque sky cover did affect concentrations predicted by AERMOD (Figure 10). The maximum 1- and 24-hr concentrations predicted by AERMOD decreased with increasing cloud cover following a second-order polynomial trend ($p < 0.0005$, $R^2 = 0.999$ for 1 hr; $p < 0.0005$, $R^2 = 0.977$ for 24 hr). The lowest maximum 24-hr concentration calculated by AERMOD (24.4% below the base scenario) corresponded to a completely opaque sky cover, and the highest maximum 24-hr concentration corresponded to no cloud cover, as in the base scenario. For all values of cloud cover, AERMOD predicted higher maximum downwind concentrations than ISCST3.

Because maximum concentrations occur during stable conditions, the effect of cloud cover on predicted pollutant concentration is most pronounced in the stable boundary layer (SBL). The surface heat flux in the SBL is calculated in AERMOD as

$$H = -\rho c_p u_* \theta_* \quad (6)$$

where θ_* is the temperature scale (K; adapted from Cimorelli et al.[1]).

The temperature scale, θ_*, decreases with increasing cloud cover:

$$\theta_* = 0.09(1 - 0.5n^2) \quad (7)$$

where n is the fractional cloud cover. Therefore, as cloud cover increases, heat flux in the SBL becomes more negative, and dispersion increases.

Figure 11 shows 24-hr plume concentrations downwind of the source at 2-m elevation as predicted by AERMOD for no opaque cloud cover (base scenario) and full opaque cloud cover (opaque cloud cover = 10/10). The maximum distance downwind at which a concentration of 150 μg/m^3 is found is 120 m under clear skies and 31 m with complete cloud cover. The maximum distance downwind at which a concentration of 50 μg/m^3 is found is 1893 m under clear skies and 850 m with complete cloud cover.

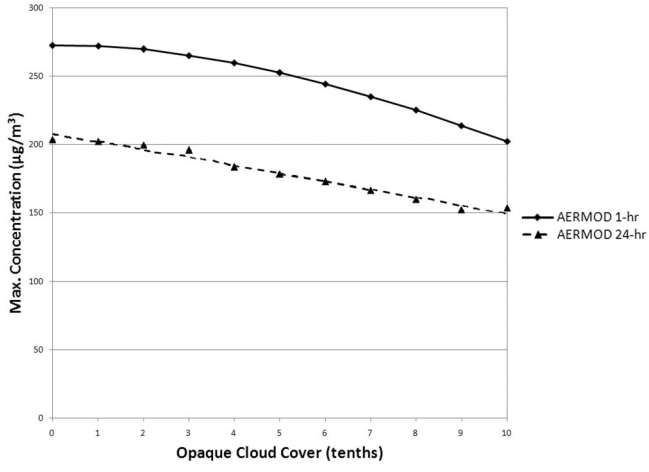

Figure 10. Maximum 1- and 24-hr AERMOD concentrations as a function of opaque sky cover.

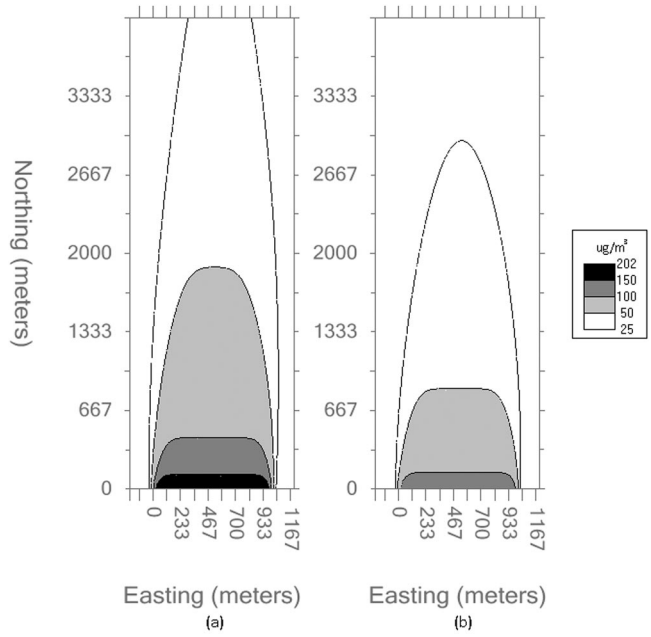

Figure 11. 24-hr AERMOD concentrations at 2-m elevation downwind of source for (a) no cloud cover (base scenario) and (b) full opaque cloud cover.

Mixing Height

Unlike ISCST3, AERMOD calculates mixing height on the basis of other meteorological parameters such as cloud cover, temperature, and solar incidence angle, therefore mixing height in AERMOD was not artificially varied for this analysis. The effects of mixing height on 1- and 24-hr concentrations predicted by ISCST3 are shown in Figure 12. Maximum 1-hr concentrations decreased as mixing height increased to 60 m, above which 1-hr concentrations were unaffected by mixing height. Maximum 24-hr concentrations decreased until mixing height reached

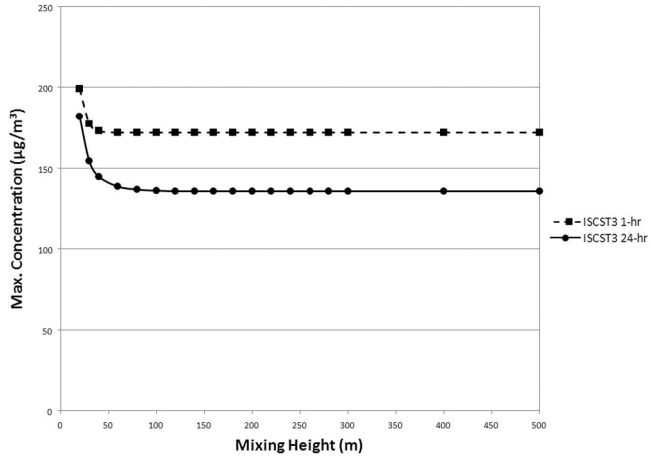

Figure 12. Maximum 1- and 24-hr ISCST3 concentrations as a function of mixing height.

160 m. At a mixing height of 20 m, the maximum 24-hr concentration predicted by ISCST3 was 34% higher than the base scenario maximum 24-hr concentration.

CONCLUSIONS

PM concentrations downwind of a GLAS are affected by many meteorological and geographical factors. When using dispersion models to predict downwind concentrations, it is important that the sensitivity of the model to any given input is understood. Concentrations predicted using ISCST3 are sensitive to changes in wind speed, temperature, solar radiation (as it affects stability class), and mixing heights below 160 m. Surface roughness also affects downwind concentrations predicted by ISCST3, but only two categories of surface roughness are considered in ISCST3. AERMOD is sensitive to changes in albedo, surface roughness, wind speed, temperature, and cloud cover. Bowen ratio did not affect the results from AERMOD, likely as a result of the greater mechanical mixing in the modeled domain.

It is troublesome that solar radiation levels do not impact concentrations predicted by AERMOD because it is well known that solar radiation impacts atmospheric stability and therefore pollutant dispersion. AERMOD proved particularly sensitive to changes in surface roughness when values were below 0.5 m and to wind speed when values were below 10 m/sec. Maximum concentrations predicted by AERMOD and ISCST3 correlated well when wind speeds exceeded 5 m/sec but diverged rapidly as wind speed decreased, with AERMOD predicting much higher maximum concentrations than ISCST3 in low-wind conditions.

The results of this paper point to the sensitivity of AERMOD to small changes in wind speed and surface roughness when predicting downwind pollutant concentrations. In situations in which AERMOD is used to determine whether PM concentrations exceed NAAQS at the property line of a facility, small changes in these variables may affect the distance within which NAAQS concentrations are exceeded by several hundred meters.

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AIR QUALITY DISPERSION MODELING REPORT
CONCRETE BATCH PLANT CLUSTER – GUNTER, TX

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EXECUTIVE SUMMARY

A dispersion modeling study has been conducted for emissions of particulate matter less than 2.5 microns ($PM_{2.5}$), particulate matter less than 10 microns (PM_{10}), and nitrogen oxides (NOx) associated with a cluster of five adjacent concrete batch plants located near Gunter, TX. The dispersion modeling analysis has been prepared by Air Resource Specialists, Inc. (ARS) of Fort Collins, Colorado.

Each concrete batch plant considered in the dispersion modeling analysis has been granted or has applied for approval under the Texas Air Quality Standard Permit for Concrete Batch Plants (Effective September 22, 2021). Under the Standard Permit, concrete production at a single site is limited to no more than 300 cubic yards per hour or 6,000 cubic yards per day. ARS understands that each of the five concrete batch plants considered in this analysis has been considered a separate "site" by the Texas Commission on Environmental Quality (TCEQ) and as such, each plant has been granted or has applied for the Standard Permit. Under the Standard Permit, the term "site" is defined as follows: *The total of all stationary sources located on one or more contiguous or adjacent properties, which are under common control of the same person (or persons under common control).*

In this situation, each Standard Permit has been issued to a separate company. However, the five concrete batch plants are located on contiguous and adjacent properties and have a common plant access road from the closest public road (Wall Street Road). The permit applications have represented that each plant was a single site, but the applications submitted to TCEQ did not acknowledge the presence of any adjacent concrete batch plants. In the opinion of Clean Air Gunter, the five concrete batch plants are functionally a single plant and the separate ownership for each plant appears to be an attempt to circumvent the Standard Permit capacity restriction for concrete production at a single site.

Dispersion modeling was conducted using the AMS/EPA Regulatory Model (AERMOD) Version 21112. AERMOD was executed as per 40 CFR 51 Appendix W and used all regulatory default model inputs.

Modeling results are summarized in Table ES-1. The modeling results indicate exceedances of the applicable National Ambient Air Quality Standards (NAAQS). Therefore, the dispersion modeling study concludes that the Texas Air Quality Standard Permit for Concrete Batch Plants (Effective Date September 22, 2021) is not protective of the NAAQS when multiple concrete batch plants are located in close proximity to one another.

Table ES-1

SUMMARY OF MODELING RESULTS
WALL STREET ROAD CONCRETE BATCH PLANT CLUSTER: GUNTER, TX
SOURCE IMPACT ONLY (NO BACKGROUND ADDED)

Pollutant	Averaging Time	Rank	Maximum Air Quality Impact	NAAQS
$PM_{2.5}$	24-Hour	H8H	129.4 $\mu g/m^3$	35.0 $\mu g/m^3$
PM_{10}	24-Hour	H2H	1509.4 $\mu g/m^3$	150 $\mu g/m^3$
NO_2	1-Hour	H8H	208.4 $\mu g/m^3$	188 $\mu g/m^3$

1.0 INTRODUCTION AND BACKGROUND

1.1 Overview

A dispersion modeling study has been conducted for emissions of particulate matter less than 2.5 microns ($PM_{2.5}$), particulate matter less than 10 microns (PM_{10}), and nitrogen oxides (NOx) associated with a cluster of five adjacent concrete batch plants located near Gunter, TX. The dispersion modeling analysis has been prepared by Air Resource Specialists, Inc. (ARS) of Fort Collins, Colorado.

Each concrete batch plant considered in the dispersion modeling analysis has been granted or has applied for approval under the Texas Air Quality Standard Permit for Concrete Batch Plants, (Effective September 22, 2021). Under the Standard Permit, concrete production at a single site is limited to no more than 300 cubic yards per hour or 6,000 cubic yards per day. ARS understands that each of the five concrete batch plants in this modeling analysis has been considered a separate "site" by the Texas Commission on Environmental Quality (TCEQ) and as such, each plant has been granted or has applied for a separate Standard Permit. Under the Standard Permit, the term "site" is defined as follows: *The total of all stationary sources located on one or more contiguous or adjacent properties, which are under common control of the same person (or persons under common control).*

In this situation, separate companies have applied for the Standard Permits. However, the five concrete batch plants are all located on contiguous and adjacent properties and have a common plant access road from the closest public road (Wall Street Road). The permit application for the various concrete batch plants have represented that each plant is a single site, but the applications submitted to TCEQ did not reference or acknowledge the presence of any adjacent concrete batch plants. In the opinion of Clean Air Gunter, the five concrete batch plants are functionally a single plant and the separate ownership for each plant appears to be an attempt to circumvent the Standard Permit capacity restriction for concrete production at a single site.

Dispersion modeling was conducted using the AMS/EPA Regulatory Model (AERMOD) Version 21112. AERMOD was executed as per 40 CFR 51 Appendix W and used all regulatory default model inputs.

1.2 Site Description

Permit applications have been submitted for five separate concrete batch plants to be located at or near 873 Wall Street Road. Gunter, TX. The five companies are listed below:

- Nelson Brothers
- Wildcatter Redi Mix
- Terra Enterprise
- Preferred Materials LLC
- Metroplex Gunite

The Standard Permit applications submitted by each company to TCEQ have conflicting information in that the individual properties described under each application appear to overlap. None of the permit applications reference or acknowledge the adjacent concrete batch plant facilities nor do any of the application materials show the proposed concrete batch plant locations in reference to one another. Because the permitapplications lack reliable site information for each concrete batch plant, an idealized siteplan was developed by ARS for the modeling study. The expected location of the five plants as used for the modeling study has been presented in Figure 1.

Figure 1: Concrete Batch Plant Locations Assumed for Dispersion Modeling
Idealized Locations Based on Application Data Submitted to TCEQ

The Google Earth image used for the base map (Figure 1) showed one existing concrete batch plant (Nelson Brothers). In order to develop the idealized configuration for the concrete batch plant cluster, each adjacent plant was assumed to mimic the size and equipment configuration of the Nelson Brothers plant shown on Google Earth. The five plants were arranged in an "L" shape on properties adjacent to the Nelson Brothers site. Wildcatter Redi Mix was assumed to be located directly north of Nelson Brothers and Preferred Materials was then assumed to be directly north of Wildcatter. Terra Enterprise was assumed to be located directly east of Nelson Brothers and Metroplex Gunite was assumed to be directly east of Terra.

All five plants share a common access road to reach the nearest public roadway (Wall Street Road). ARS' information is that the common access road connecting the concrete batch plant cluster to Wall Street Road is not a public road. The access road is visible on Figure 1.

2.0 EMISSIONS INVENTORY

In order to simplify the dispersion modeling analysis, only the most significant emission sources associated with each concrete batch plant were considered. Smaller minor sources of emissions were not evaluated. The emissions considered were as follows:

- Concrete Batch Plant Truck Loading
- Truck Traffic Fugitive Dust Emissions
- Diesel-Fired Electric Generator

The details for these emission calculations are presented in the sections below. The modeling and associated emissions addressed the maximum daily emissions as allowed under the Standard Permit for Concrete Batch Plants (Effective Date: September 22, 2021), unless the permit application for an individual site listed a lower production rate. A printed copy of the emission calculation spreadsheets has been provided in Attachment 1.

2.1 Concrete Batch Plant Emissions

The concrete batch plant emissions were derived using EPA's Compilation of Air Pollution Emission Factors (AP-42), Section 11.12 (Concrete Batching).

Under AP-42, emission estimates for PM_{10} are presented for a range of activities associate with concrete batch plant operations. However, the greatest magnitude of PM_{10} emissions occurs from concrete truck loading. As such, only the concrete truck loading emissions were considered in this analysis.

The concrete truck loading emissions are presented below (Table 1).

As per AP-42, emissions are calculated based on the weight of the cement and cement supplement[1]. Using information in AP-42, this is estimated at 564 lb/cu yard, consisting of 491 lb/cu yd for cement and 73 lb/cu yd for cement supplement.

Two concrete batch plant sizes were considered. The larger plant size used the maximum allowable production in the Standard Permit, or 6,000 cu yd per day. The Standard Permit daily production restriction is limiting as the hourly production restriction of 300 cu yd per day would exceed 6,000 cu yd per day if the plant operated continuously over 24 hours. The larger plant size was applied at three plants (Nelson Brothers, Wildcatter, and Preferred Materials). The smaller plant size of 150 cu yd per hour was used for two of the concrete batch plants (Terra Enterprises and Metroplex Gunite) based on the plant production data presented in the permit applications.

[1] AP-42, Table 11.12-2, Footnote g

$PM_{2.5}$ emissions are not explicitly identified in AP-42 Table 11.12-2 for concrete truck loading. As such, the $PM_{2.5}$ emissions factor was estimated using the $PM_{2.5}$ to PM_{10} ratios as taken from AP-42, Table 11.12-3.

Table 1
PM-10 & PM-2.5 Emissions from Concrete Truck Loading

		AP-42 Factor[2]	Larger Plant 6,000 cu yd/day		Smaller Plant 150 cu yd/hr	
		lb/ton	lb/day	g/sec	lb/hr	g/sec
PM_{10}	Uncontrolled	0.31	524.53	2.76	13.11	1.65
	Controlled	0.0263	44.50	0.23	1.11	0.14
$PM_{2.5}$	Uncontrolled	0.05	84.60	0.44	2.12	0.27
	Controlled	0.003945	6.67	0.035	0.17	0.021

For the modeling, the controlled PM_{10} and $PM_{2.5}$ emissions were used for input to AERMOD based on the emissions control requirements imposed in the TCEQ Standard Permit. Emissions were input to AERMOD as a volume source located at the center of each concrete batch plant property with an assigned a release height of 3.0 meters and assumed volume dimensions of 1 meter x 1 meter x 1 meter. These assumptions yielded an estimate of 0.465 meters for both the initial horizontal dimension (sigma y_o) and initial vertical dimension (sigma z_o).

2.2 Truck Traffic Fugitive Dust

The concrete batch plant cluster modeling also considered fugitive dust emissions released from truck traffic entering and exiting the different facilities. Truck traffic considered included both the concrete trucks carrying product to customers as well as trucks bringing raw materials to the site. Fugitive dust emissions from truck traffic are not normally considered in TCEQ permit analyses but were considered in the ARS concrete batch plant cluster modeling because the associated fugitive emissions are significant and have a real impact on local air quality.

[2] AP-42, Table 11.12-2

For concrete trucks, the truck capacity was assumed to be 7.85 cu yd per truck based on concrete mixer truck specifications found from an internet search.[3] This assumption yielded 765 trucks per day for the larger plants (6,000 cu yd/day) and 459 trucks per day for the smaller plants (150 cu yd/hr). For the raw materials, the calculations used 564 lb/cu yd for cement and cement supplement as described previously and an average load size of 25 tons, which is typical load for over the road trucks. With these assumptions, the raw material deliveries were calculated to be 68 trucks per day for the larger plants (6,000 cu yd/day) and 41 trucks per day for the smaller plants (150 cu yd/hr).

The five concrete batch plants considered in this modeling analysis have the potential to generate a combined total of almost 3,500 truck trips per day, which is approximately one truck every minute on average. All of the associated truck traffic would enter/exit along a common access road segment to reach the nearest public roadway, i.e., Wall Street Road.

The AP-42 calculations for truck traffic fugitive dust require the average vehicle weight. These calculations were based upon data for the cement mixer trucks since the mixer trucks generate the majority of the traffic. Using the concrete mixer truck specification data described previously, the estimated truck empty weight was 18 tons. The loaded weight was estimated to be 33.7 tons based on the average truck load of 7.85 cu yd per truck described previously (equal to 15.7 ton/truck). The average of 25.85 tons was then applied for the vehicle weight in the AP-42 calculations, which represents the average vehicle weight for trucks making a round trip to/from the batch plants.

The PM_{10} and $PM_{2.5}$ emissions were calculated using the emissions factor equation presented in AP-42, Section 13.2.2 (Unpaved Roads), Equation 1a, as documented below:

$E = k * (s/12)^a * (w/3)^b$, where:

k = constant, 1.5 for PM_{10} and 0.15 for $PM_{2.5}$
s = silt content (4.8% assumed)[4]
w = average vehicle weight (25.85 tons, as described above)
a = constant, 0.9
b = constant, 0.45

Using the above data, the calculated emission factors are:

PM_{10} = 1.73 lb/VMT
$PM_{2.5}$ = 0.17 lb/VMT

[3] https://www.readymix2go.co.uk
[4] AP-4, Table 13.2.2-1, Average road silt content for sand and gravel processing

For the AERMOD modeling, truck traffic fugitive dust emissions were assigned to one of eleven (11) road segments. The road segments and other source locations are illustrated in Figure 2. Road segment #1 is the entry/exit at Wall Street Road and the segments are numbered sequentially as one moves east and north from the Wall Street Road entry/exit point. The assumed access roads for each individual concrete batch plant were assumed to intersect the common access road at the southeast corner of each individual batch plant property and were aligned north/south just outside the east boundary of each individual facility. At the midpoint of the eastern boundary for each facility, the truck traffic was assumed to turn 90 degrees to enter each facility. The internal roads within each facility were assumed to run from this point to the truck loading station at the center of each facility. The details for the truck traffic fugitive dust calculations for each road segment are provided in the calculation spreadsheet (See Attachment 1).

Based on the Standard Permit, fugitive dust controls are required to mitigate dust generated from vehicle traffic. A control factor of 75% was applied to account for fugitive dust mitigation on road segments internal to each plant site. However, because the Standard Permit requires fugitive dust mitigation only within the identified batch plant boundary, no dust mitigation was assumed for road segments outside of the plant properties, such as the common access road.

Figure 2
AERMOD Source Input Locations

For AERMOD, the truck traffic fugitive dust was modeled using current US Environmental Protection Agency (EPA) recommendations for haul road truck traffic[5]. The "area source" approach listed by EPA was followed. The road width was assumed to be 8.0 meters, which would represent a standard two-lane roadway and the truck heightfrom the specification data described earlier was 12 feet.

Following the EPA "area source" haul road modeling recommendations, the plume width was calculated using the roadway width plus 6 meters, which for this modeling study was 14.0 meters (6 + 8 = 14). For the vertical plume dimension, the top of the plume was assumed to be 1.7 * truck height or 20.4 feet (6.2 meters). The emissions release height would be the midpoint of the vertical dimension, or 3.1 meters. The initial vertical dimension (sigma z_o) was calculated to be 2.88 meters (sigma z_o = Plume height / 2.15).

[5] Haul Road Workgroup Final Report to EPA-OAQPS, March 12, 2012.

2.3 Diesel-Fired Generator Engines

Under the TCEQ Standard Permit for Concrete Batch Plants, each plant is allowed a generator engine up to 1,000 horsepower (hp) is size. The nitrogen oxide (NOx) emissions associated with a 1,000 hp diesel-fired engine was included in the modeling.

The Standard Permit requires that any generator engine meet the New Source Performance Standards (NSPS) as applicable, codified at 40 CFR 60 Subpart IIII. Under Subpart IIII, the emission limitations are variable based on the age and size of the engine.

For the purpose of this modeling study, the engine NOx emissions were calculated using the applicable Subpart IIII emissions limit for certain Tier 1 engines, or 9.8 g/KW-hr (equal to 7.3 g/hp-hr). At this emission rate, a 1,000 hp generator engine would have NOx emissions of 16.08 lb/hr (2.028 g/sec). A newer engine would have lower emissionsthan assumed by the modeling. However, an older engine that predates Subpart IIII would have no maximum allowable NOx emissions.

The TCEQ Standard Permit sets 8 feet as minimum stack height for any associated generator engine, and this stack height was used for the engine NOx modeling. For the other engine parameters, ARS used data describing a 750 hp engine located in our archives from a prior modeling study, as itemized below:

- Exhaust Temperature = 915 deg F
- Stack Diameter = 0.75 ft
- Stack Velocity = 240 ft/sec

3.0 DISPERSION MODELING INPUT DATA

3.1 Model Selection and Technical Inputs

Dispersion modeling was conducted using the AMS/EPA Regulatory Model (AERMOD) Version 21112. All AERMOD technical options selected followed the regulatory default option. Model inputs also specified rural conditions for dispersion coefficients and other variables. ARS uses the BEEST interface for AERMOD developed by Providence Engineering.

The application of AERMOD followed applicable guidance from the *EPA Guideline for Air Quality Models* (40 CFR 51, Appendix W). For the conversion of generator engine NOx emissions to the regulated form, e.g., nitrogen dioxide (NO_2), ARS applied the ambient ratio method (ARM2) as recommended in Appendix W. ARM2 data inputs used the EPA-recommended default values (max = 0.9, min = 0.5).

All modeling used the Universal Transverse Mercator (UTM) grid coordinates. Electronic copies of the various AERMOD input/output files are available upon request.

The design concentrations for comparison to the NAAQS were based on the form of the NAAQS. For PM_{10}, ARS used the highest-second highest (H2H) predicted 24-hour PM_{10} concentration because the NAAQS allows one exceedance per year. For $PM_{2.5}$ and NO_2, the modeling used the highest-eighth-highest (H8H) concentration because both the $PM_{2.5}$ and NO_2 NAAQS are based on the 98^{th} percentile concentration.

3.2 Receptor Inputs

For this modeling study, ARS calculated the modeled concentrations for locations in the immediate vicinity of the concrete batch plant cluster, where the concentrations are expected to the at or close to the maximum impact levels. Receptors surrounding the concrete batch plant cluster at a resolution of 100 meters were input to AERMOD. Any receptor falling within the property boundary for any individual concrete batch plant was excluded from the modeling.

Terrain elevations for receptors were determined using the 3D Elevation Program (3DEP), formerly the National Elevation Dataset (NED). The 3DEP elevation data at a resolution of 1-arcsecond were downloaded from EPA at https://gaftp.epa.gov/Air/aqmg/3dep/. Terrain heights for emissions sources and receptors and were then calculated using the 3DEP elevation data and the most recent version of AERMAP (Version 18081), which is supplied with the BEEST AERMOD modeling software. The EPA website provides the 3DEP elevation data in a format compatible with AERMAP without any additional manipulation/formatting by the user.

3.3 Meteorological Data Inputs

The dispersion modeling study used meteorological data downloaded from TCEQ. ARS used the calendar year 2016 preprocessed meteorological data file recommended by TCEQ for the Gunter location (Grayson County).

The Grayson County meteorological data were generated by TCEQ using surface meteorological data from Denton (TX) Municipal Airport (WBAN = 3991) and corresponding upper air data collected at Fort Worth TX (WBAN = 3990). Based on the TCEQ documentation, the meteorological data were processed by TCEQ using AERMET Version 19191 and applied the U-Star option as recommended by Appendix W.

On the TCEQ website, preprocessed meteorological data are available for different surface roughness heights. ARS selected preprocessed TCEQ data calculated using the "medium" surface roughness height (0.1 to 0.7 meters).

4.0 RESULTS AND DISCUSSION

4.1 Particulate Matter (PM_{10} & $PM_{2.5}$)

Table 2 summarizes the concrete batch plant cluster AERMOD dispersion modeling results for PM_{10} and $PM_{2.5}$ and compares the results to the applicable NAAQS. Dispersion modeling results are presented for the 24-hour average using the highest 2nd highest (H2H) modeled concentration for PM_{10} and the highest 8th highest (H8H) modeled concentration for $PM_{2.5}$. This approach for selecting the design value matches the form of the NAAQS. The PM_{10} NAAQS allows for once exceedance per year, so the H2H concentration is the appropriate design value. The $PM_{2.5}$ NAAQS is based on the 98th percentile concentration and the H8H concentration represents the 98th percentile when a one-year period is considered.

The modeled impacts in Table 2 are for the modeled emission sources, which include the concrete mixer truck loading operations plus fugitive dust from truck traffic entering and exiting each batch plant. No other PM_{10} and $PM_{2.5}$ emission sources at the concrete batch plant were considered, such as material stockpiles, loading and handling of raw materials, equipment traffic (e.g., front end loader) on unpaved areas within the plant. Also, a background concentration has not been added to these results.

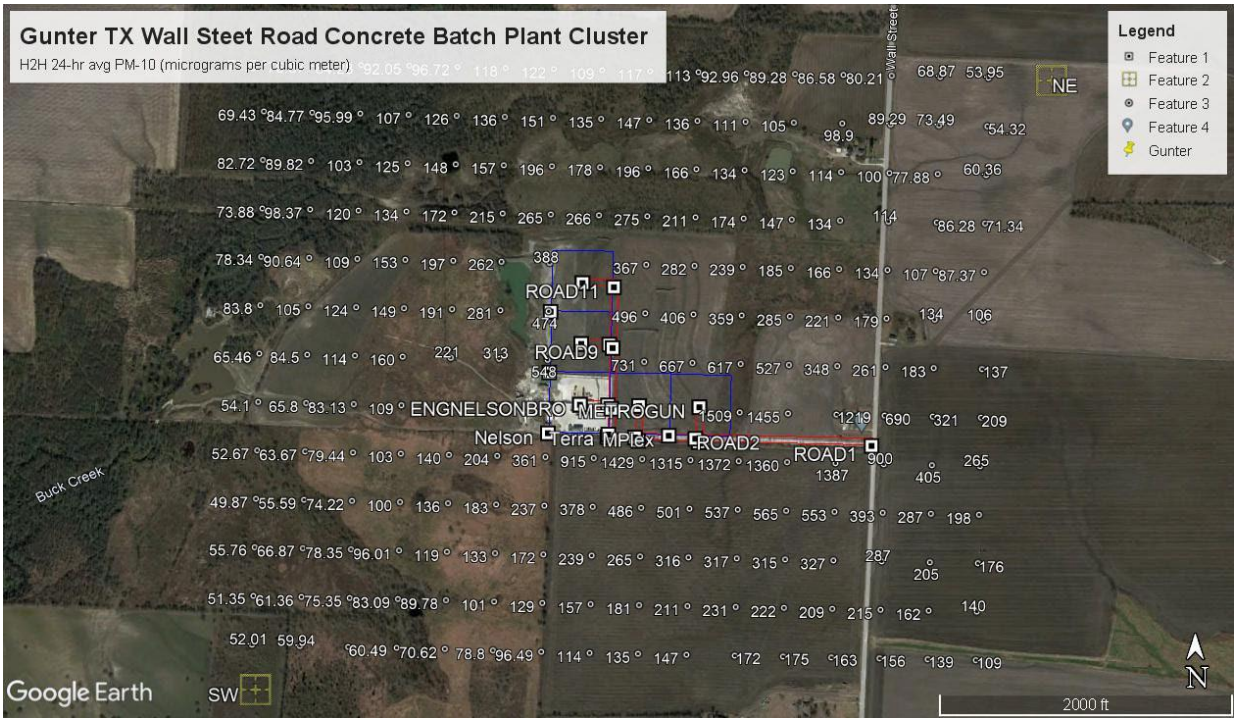
Only the 24-hour average concentrations have been reported from the modeling because the emission calculations were representative of the worst-case emissions day with all plants operating at the maximum capacity identified in the respective applications for the TCEQ Standard Permit.

Table 2
Predicted PM_{10} and $PM_{2.5}$ Concentrations
Gunter TX Wall Street Road Concrete Batch Plant Cluster

Pollutant	Averaging Period	Rank	Model Concentration Prediction	PRIMARY NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)
$PM_{2.5}$	24-Hour Average	H2H	17.23	35
PM_{10}	24-Hour Average	H8H	44.24	150

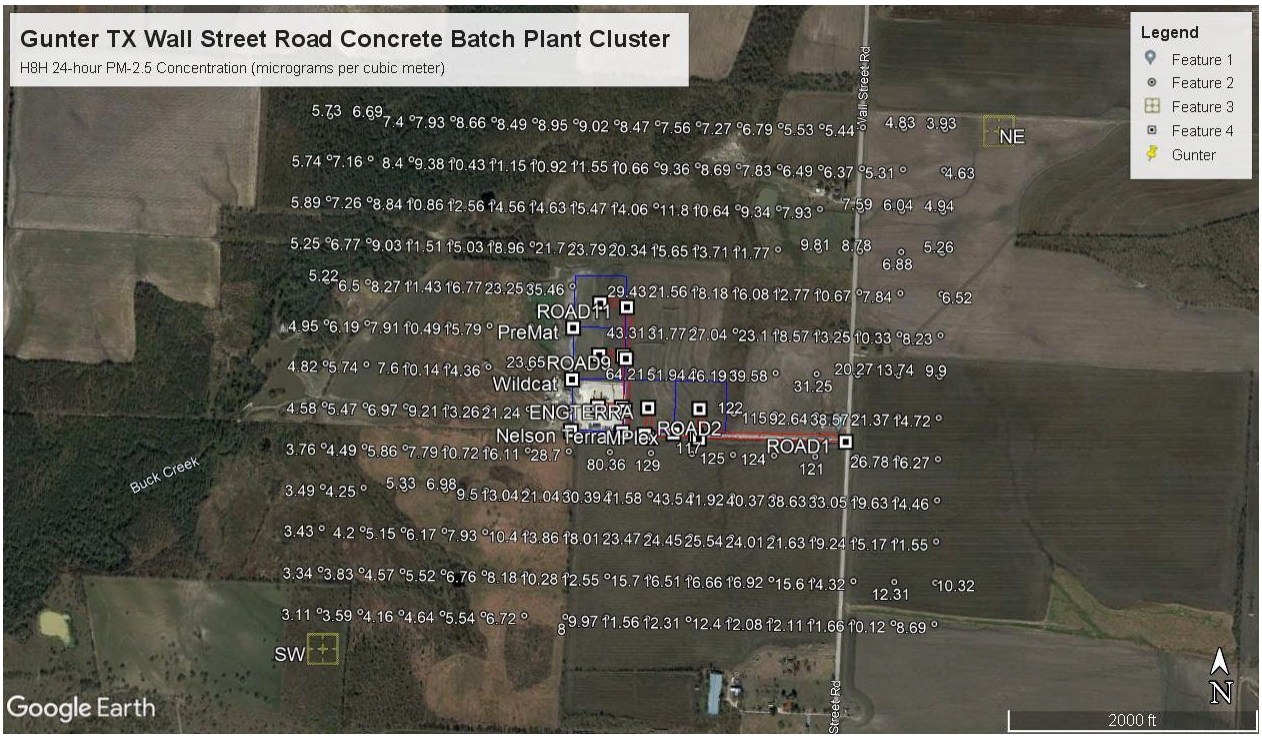
Dispersion modeling predicted that the H2H 24-hour average PM_{10} concentration would be 1509.4 $\mu g/m^3$. For comparison, PM_{10} NAAQS for the 24-hour averaging period is 150 $\mu g/m^3$. The geographic distribution of PM_{10} concentrations overlayed on Google Earth has been provided in Figure 3. The figure shows the modeled H2H 24-hour average PM_{10} concentration plotted at each receptor. Readers with an electronic copy of the document may zoom in on the image to provide greater clarity.

Figure 3
Wall Street Road Concrete Batch Plant Cluster
H2H 24-hour PM_{10} Concentrations ($\mu g/m^3$)



Dispersion modeling predicted that the H8H 24-hour average $PM_{2.5}$ concentration would be 129.4 $\mu g/m^3$. For comparison, $PM_{2.5}$ NAAQS for the 24-hour averaging period is 35 $\mu g/m^3$. The geographic distribution of $PM_{2.5}$ concentrations overlayed on Google Earth has been provided in Figure 4. The figure shows the modeled H8H $PM_{2.5}$ 24-hour average concentration plotted at each receptor. Readers with an electronic copy of the document may zoom in on the image to provide greater clarity.

Figure 4
Wall Street Road Concrete Batch Plant Cluster
H8H 24-hour PM_{10} Concentrations ($\mu g/m^3$)



The modeling predicted that both the PM_{10} and $PM_{2.5}$ NAAQS in the vicinity of the concrete batch plant cluster would be exceeded by a very wide margin. The modeled PM_{10} concentration exceeded the NAAQS by about a factor of 10 and the modeled $PM_{2.5}$ concentration exceeds the NAAQS by about a factor of 3 to 4. The modeling results also suggested that the fugitive dust from truck traffic along the access road from Wall Street Road would be the primary cause of the predicted NAAQS violations.

4.2 Nitrogen Dioxide (NO_2)

Table 3 summarizes the concrete batch plant cluster AERMOD dispersion modeling results for NO_2 and compares the results to the applicable NAAQS. Dispersion modeling results are presented for the 1-hour average using the highest 8th highest (H8H) modeled concentration. This approach for selecting the design value matches the form of the NAAQS. The NO_2 1-hour average NAAQS is based on the 98th percentile of the daily maximum concentration and the H8H concentration represents the 98th percentile when a one-year period is considered.

The modeled impacts in Table 3 were for the modeled emission sources, which included only the 1,000 hp diesel-fired generator engine allowed under the Standard Permit. No other NOx emission sources at the concrete batch plant were considered, such as NOx combustion emissions from the large number of trucks entering/leaving the batch plat cluster. All of the truck traffic would be concentrated along the access road from Wall Street Road. Also, a background concentration has not been added to these results.

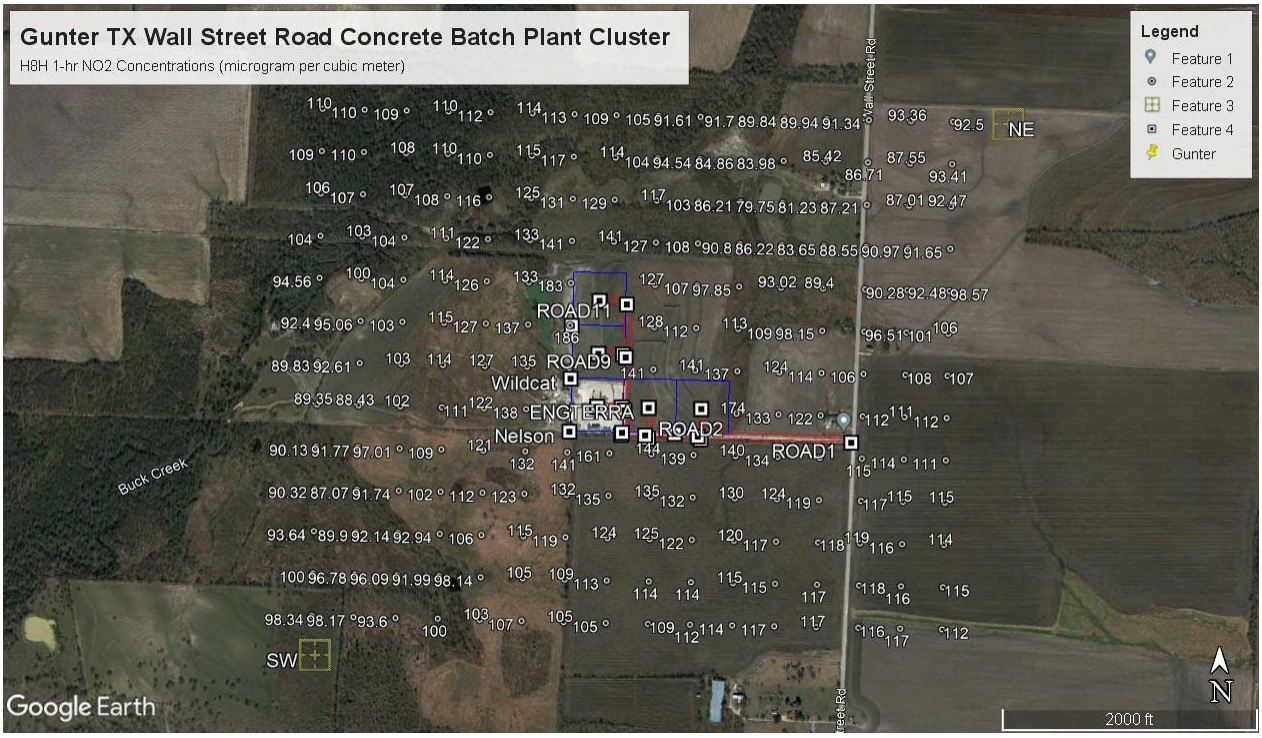
Only the 1-hour average NO_2 concentrations have been reported because the emission calculations were representative of the worst-case emissions with all engines operating at the maximum capacity identified the TCEQ Standard Permit, e.g.,1,000 hp.

Table 3
Predicted NO_2 Concentrations
Gunter TX Wall Street Road Concrete Batch Plant Cluster

Pollutant	Averaging Period	Rank	Model Concentration Prediction	PRIMARY NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)
NO_2	1-Hour Average	H8H	208.4	188

Dispersion modeling predicted that the H8H 1-hour average NO_2 concentration would be 208.4.4 $\mu g/m^3$. For comparison, NO_2 NAAQS for the 1-hour averaging period is 188 $\mu g/m^3$. The geographic distribution of NO_2 concentrations overlayed on Google Earth is provided in Figure 5. The figure shows the modeled H8H NO_2 1-hour average concentration plotted at each receptor. Readers with an electronic copy of the document may zoom in on the image to provide greater clarity.

Figure 5
Wall Street Road Concrete Batch Plant Cluster
H8H 1-hour NO_2 Concentrations ($\mu g/m^3$)



4.3 Discussion/Conclusions

A dispersion modeling study has been conducted for emissions associated with a cluster of five adjacent concrete batch plants located near Gunter, TX. Dispersion modeling was conducted using the AMS/EPA Regulatory Model (AERMOD) Version 21112. AERMOD was executed as per 40 CFR 51 Appendix W and used all regulatory default model inputs. The dispersion modeling analysis was prepared by Air Resource Specialists, Inc. (ARS) of Fort Collins, Colorado.

The modeling results indicated exceedances of the applicable National Ambient Air Quality Standards (NAAQS) for all pollutants (PM_{10}, $PM_{2.5}$ and NO_2). Therefore, the dispersion modeling study concludes that the Texas Air Quality Standard Permit for Concrete Batch Plants (Effective Date September 22, 2021) is not protective of the NAAQS when multiple concrete batch plants are located in close proximity to one another.

ATTACHMENT 1

Emission Information

Gunter Concrete Batch Plant Cluster Modeling

Concrete Batch Plant Data

Plant Size			300 cu yd/hr	6,000 cu yd/day	150 cu yd/hr	6,000 cu yd/day
Average Delivery	7.85	cu yd/truck	38.22	trucks/hr	19.11	trucks/hr
	15.7	ton/truck	764.33	trucks/day	458.60	trucks/day
Truck Empty Wt		18	ton			
Truck Wt Full		33.7	ton			
Average		25.85	ton			
Raw Materials						
Cement	491	lb/cu yd				
Cement Supplement	73	lb/cu yd				
SUM	564	lb/cu yd	169200	lbs/hr	84600	lbs/hr
			84.6	ton/hr	42.3	ton/hr
			1692	ton/day	1015.2	ton/day
Raw Material Deliveries @ 25 ton/load			67.68	trucks/day	40.608	trucks/day

Emissions Data	AP-42 Section 11.12 Concrete Truck Loading		300 cu yd/hr	6,000 cu yd/day		150 cu yd/hr	
			lb/hr	lb/day	g/sec	lb/hr	g/sec
	PM_{10} (lb/hr or lb/day) Uncontrolled	0.31 lb/ton	26.23	524.52	2.76	13.11	1.65
	Controlled	0.0263 lb/ton	2.22	44.50	0.23	1.11	0.14
	$PM_{2.5}$ (lb/hr or lb/day) Uncontrolled	0.05 lb/ton	4.23	84.60	0.44	2.12	0.27
	Controlled	0.003945 lb/ton	0.33	6.67	0.035	0.17	0.021

Emissions based on weight of cement and cement supplement as per AP-42

$PM_{2.5}$ calculated from $PM_{2.5}$-to-PM_{10} ratios taken from AP-42, Table 11.12-3

Gunter Concrete Batch Plant Cluster Modeling

Access Roads

Segment	Segment Length			Traffic (Trucks/Day)				Emissions (lb/day)		Control	PM_{10} Model Input (lb/hr)		$PM_{2.5}$ Model Input (lb/hr)	
	meters	ft	miles	Concrete	Raw Materials	Total	VMT/day	Uncontrolled	Controlled	Factor	lb/hr	grams/sec	lb/hr	grams/sec
1	357	1171	0.22	3208	281	3489	774.0	1341	1341.43	0	55.89	7.05	5.59	0.70
2	62	203	0.04	458	40	498	19.2	33	8.31	75	0.35	0.04	0.03	0.004
3	125	410	0.08	2750	241	2991	232.3	403	402.65	0	16.78	2.12	1.68	0.21
4	62	203	0.04	458	40	498	19.2	33	8.31	75	0.35	0.04	0.03	0.004
5	62	203	0.04	2292	201	2493	96.0	166	166.46	0	6.94	0.87	0.69	0.09
6	125	410	0.08	2292	201	2493	193.6	336	335.61	0	13.98	1.76	1.40	0.18
7	62	203	0.04	764	67	831	32.0	55	13.87	75	0.58	0.07	0.06	0.007
8	125	410	0.08	1528	134	1662	129.1	224	223.74	0	9.32	1.18	0.93	0.12
9	62	203	0.04	764	67	831	32.0	55	13.87	75	0.58	0.07	0.06	0.007
10	125	410	0.08	764	67	831	64.5	112	111.87	0	4.66	0.59	0.47	0.06
11	62	203	0.04	764	67	831	32.0	55	13.87	75	0.58	0.07	0.06	0.007

Emissions Factor - AP42

Control Factor 75% applied to traffic on-site (Segments 2, 4, 7, 9 & 11)

Equation $E = k * (s/12)^a * (w/3)^b$

Constant (k)	1.5	AP-42 PM-10 Factor
Constant (k)	0.15	AP-42 PM-2.5 Factor
Silt Content (s)	4.8	%
Vehicle Wt	25.85	tons
Constant (a)	0.9	AP-42 PM-10 Factor
Constant (b)	0.45	AP-42 PM-10 Factor
E Factor (PM_{10}) E	1.733197	lb/VMT
Factor ($PM_{2.5}$)	0.17332	lb/VMT

b(6) Privacy

April 4, 2022

By email and certified mail

For the U.S. Environmental Protection Agency:
External Office of Civil Rights
Compliance Office (2310A)
1200 Pennsylvania Ave., NW
Washington, D.C. 20460
title_vi_complaints@epa.gov

Lilian Dorka
Director, External Civil Rights Office
Mail Code 4101A
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
Lilian.dorka@epa.gov

For the U.S. Department of Justice:
Daria Neal
Deputy Chief, Federal Coordination and Compliance Section
Civil Rights Division
950 Pennsylvania Avenue, N.W.
Washington, DC 20530
Daria.neal@usdoj.gov

Re: Complaint Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d, 40 C.F.R. Part 7

Dear Director Simons and Deputy Chief Neal:

b(6) Privacy submits this Complaint on behalf of its residents alleging that the Texas Commission on Environmental Quality ("TCEQ" or "Commission") administers a program that is in violation of Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d *et seq.*, the U.S. Environmental Protection Agency's ("EPA")

implementing regulations at 40 C.F.R. part 7, and runs contrary to Executive Orders 12,898,[1] 13,166,[2] and 13,985,[3] and Administrator Michael Regan's directive to EPA regional offices[4] because it unjustifiably creates and perpetuates a disproportionately high pollution burden on racial and ethnic minorities, Limited English Proficient ("LEP") people, and low-resource people.

This Complaint concerns TCEQ's minor source air quality permit program that EPA has delegated authority to Texas to administer under the Clean Air Act ("CAA"). In particular, this Complaint concerns two TCEQ minor source New Source Review ("NSR") permits specifically for concrete batch plants ("CBPs")—the CBP Standard Permit and the CBP Standard Permit with Enhanced Controls. CBP operators in the County primarily use the CBP Standard Permit, which is a generally applicable permit used by hundreds of CBP operators across the State of Texas and by over one hundred CBP operators in the County.

On September 22, 2021, the TCEQ Commissioners adopted an amendment to this permit ("2021 CBP Standard Permit") and this amendment is the triggering action for this Complaint.[5] The purpose of the amendment, according to TCEQ, was to correct a so-called "clerical error" discovered through a permit challenge where community members were able to demonstrate that TCEQ failed to model and consider the health impacts of cancer-causing crystalline silica.[6] This permit challenge was one of the very few times in TCEQ's history where the agency denied a "registration" (agency term) under the CBP Standard Permit. Despite opposition from Harris County[7] and others, the 2021 amendment re-adopted the permit's previous version, the 2012 CBP

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[1] Exec. Order No. 12,898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7,629 (Feb. 16, 1994).

[2] Exec. Order 13,166, Guidance to Environmental Protection Agency Federal Financial Aid Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affection Limited English Proficient Persons, 69 Fed. Reg. 35,602 (Jun. 25, 2004).

[3] Exec. Order No. 13,985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, 86 Fed. Reg. 7,009 (Jan. 25, 2021).

[4] Email from Michael Regan, EPA Administrator, to EPA employees, "Message from The Administrator," (Apr. 7, 2021) (directing EPA offices to "[t]ake immediate and affirmative steps to incorporate environmental justice considerations into their work, including assessing impacts to pollution-burdened, underserved, and Tribal communities in regulatory development processed and considering regulatory options to maximize benefits to these communities.").

[5] TCEQ, Order Issuing an Amendment to Air Quality Standard Permit (effective Sept. 22, 2021 and order signed Oct. 5, 2021), TCEQ Docket No. 2021-0493-MIS, Non-Rule Project No. 2021-016-OTH-NR ("2021 Amendment TCEQ Order"), included as Attachment 1 with the agency's response to public comment ("RTC"); *also see*, TCEQ, Archived video Commissioners Agenda – September 22, 2021 ("Sept. 22, 2021 TCEQ Commissioners Meeting"), https://www.youtube.com/watch?v=R1ep_9QwL9I (minute 45:40).

[6] *See* Application of Bosque Solutions, LLC for Permit No. 152013, Concrete Batch Plant, Tarrant County, Texas, Proposal for Decision at 17; SOAH Docket No. 582-19-6473; TCEQ Docket No. 2019-0665-AIR (discussion on TCEQ's failure to consider crystalline silica individually), Attachment 2.

[7] Harris County Attorney, Harris County's Comments and Request for an Extension of Time; Non-Rule Project No. 2021-016-OTH-NR; Proposed Amendments to Texas Commission on Environmental Quality Air Quality Standard Permit for Concrete Batch Plants (Jun. 29, 2021) ("Harris County CBP Comment"), Attachment 3.

Standard Permit, and re-instated an exemption related to crystalline silica that the agency claimed was "inadvertently omitted" during the 2012 permit amendment proceedings. The TCEQ failed to demonstrate whether the agency ever modeled crystalline silica emissions from CBPs. The CBP Standard Permit with Enhanced Controls is authorized under the same CAA delegated authority and its terms are very similar to the 2021 CBP Standard Permit; thus, it is also part of this Complaint.[8]

Using a March 28, 2022 snapshot of CBPs in the County that have active registrations under the 2012 CBP Standard Permit, the County calculated the total potential emissions for 96 CBPs, assuming perfect compliance with permit terms and emission limits. Under these limitations, it is estimated that these 96 CBPs emit 1,942,617.6 pounds of course particulate matter (PM_{10}), per year and 2,603.52 pounds of fine particulate matter ($PM_{2.5}$), per year. These are the emissions Harris County hopes to address in this Complaint.[9]

However, most CBPs in the County have compliance issues. According to the Harris County Pollution Control Department ("HCPCSD"), there are approximately 140 CBPs in Harris County and the majority of them use the CBP Standard Permit. PCS and the County Attorney are authorized by state law to enforce environmental laws, statutes, and permits, including CBP permits.[10] In response to concerns from residents who share their community with CBPs, PCS initiated the Concrete Batch Plant Initiative where PCS set out to investigate all CBPs in the County and conduct enforcement activities until each facility achieved full permit compliance. Thus far, PCS has conducted 349 investigations and issued a total of 224 violation notices. Despite PCS's efforts, our residents are still being exposed to unhealthy levels of pollution because TCEQ's permit is not protective of public health or welfare, even under perfect compliance.

b(6) Privacy commissioned independent air dispersion modeling that proves that the 2021 CBP Standard Permit allows for offsite emissions that far exceed health-based limits. The County modeled emissions allowed under the 2012 CBP Standard Permit, which was adopted verbatim by the 2021 amendment. The County modeled CBP emissions of $PM_{2.5}$, PM_{10}, and crystalline silica. The models assumed perfect permit compliance and considered emissions from one CBP, emissions from one CBP and background concentrations, and emissions from two CBPs without background concentrations and operating with separate permits located on the same site. The modeled emissions were compared to their respective particulate matter National Ambient Air Quality Standard ("NAAQS") and the TCEQ crystalline silica Effects Screening Levels ("ESLs").

Though the TCEQ has not evaluated the 2012 $PM_{2.5}$ NAAQS in the context of this permit, it nonetheless claims that the 2021 CBP Standard Permit complies with this NAAQS. TCEQ also claims that the permit is otherwise protective of public health and the environment. The County's

[8] Both permits allow the facility to operate 24-hours a day, seven days per week, but, unlike the CBP Standard Permit, the CBP Standard Permit with Enhanced Controls does not have a daily production limit. For a permit comparison, see Attachment 4.

[9] TCEQ estimates that under the 2012 CBP Standard Permit, CBPs emit a total of 2.31 pounds her hour of PM_{10} and 1.13 pounds per hour of $PM_{2.5}$ from silos, engines, and fugitive emissions. TCEQ does not account for in-plant road emissions. The list of facilities ("CBP March 28, 2022 Snapshot") is included as Attachment 5.

[10] Tex. Health & Safety Code § 382.111.

modeling shows that under nearly every modeling scenario—even when background concentrations were not considered—$PM_{2.5}$, PM_{10}, and crystalline silica CBP emissions far exceeded their respective health-protective limits.

There are also issues with TCEQ's adherence to the Texas State Implementation Plan ("SIP") required under the CAA. SIP provisions are rules that are mandatory on TCEQ. TCEQ made certain representations to EPA regarding its minor source NSR program regarding the permit protectiveness and public participation, among others. However, TCEQ is not adhering to these representations. For example, TCEQ did not provide technical information in support of the 2021 CBP Standard Permit amendment. TCEQ's stated purpose of the 2021 amendment is to correct a "clerical error" that consists of re-inserting a sweeping exemption from buffer and emissions limitations for CBPs that was "inadvertently omitted" from the 2012 CBP Standard Permit. Further, even though these permits apply statewide, notices were provided only in English and only published in three newspapers, TCEQ's website, and by a listserv email. Harris County and many others submitted public comment and urged the TCEQ to make supporting documents public, to provide information in Spanish, and to extend the comment period—including a bipartisan cohort of federal, state, and local elected officials.

TCEQ did not extend the comment period or provide supporting documents. TCEQ hosted a virtual public meeting on June 28, 2021 and the comment period closed the next day.[11] TCEQ ended the meeting prior to giving all participants an opportunity to speak. Meeting participants requested another public meeting but TCEQ did not grant one. The agency issued its RTC at the same time that it adopted the 2021 CBP Standard Permit on September 22, 2021 instead of prior to adoption, like the SIP requires. The RTC was the first time that the public learned of TCEQs substantive rationale behind the 2021 amendment, at least in part because the agency did not disclose modeling that the public would learn about later when a TCEQ Commissioner spoke of it at a TCEQ public meeting.[12] TCEQ's RTC was provided only in English and fails to respond or even acknowledge certain substantive comments, including emission abatement recommendations from PCS and requests for translation and interpretation in Spanish.

A disproportionate number of CBPs exist in communities where racial and ethnic minorities and poor people are overrepresented. The typical environmental justice community in the County is made up of racial and ethnic minorities and poor people, experiences flood risk, has limited access to resources, has many sources of pollution, and often includes linguistically isolated communities. The County's environmental justice communities have an amount of pollution in the community—through no fault of their own—that exceeds that borne by the general population. The County analyzed U.S. Census Bureau data for Census Tracts where two or more CBPs are sited. This government-backed data demonstrates that Census Tracts with two or more CBPs are disproportionately made up of racial and ethnic minorities, linguistically isolated populations, and poor people. And TCEQ is considering siting yet another CBP in a low-income, minority area and to make matters worse, it would be across the street from a Harris County all-

[11] TCEQ listserv email notice and website announcement included as ("TCEQ CBP Notice"), Attachment 6.

[12] Sept. 22, 2021 TCEQ Commissioners Meeting.

inclusive park that was recently expanded to accommodate adults and children with disabilities and special needs.[13]

It is the duty of the Harris County Attorney to protect County resident's right to breathe healthy air and to use any legal means necessary to achieve this goal. Overwhelmingly, CBP emissions of $PM_{2.5}$, PM_{10}, and crystalline silica exceed health-based standards—standards backed by the best available science. This affects millions of Harris County residents and, in specific, those who are without means, those who do not speak English, and those with the immutable characteristics of having Brown and Black skin. These wrongs are illegal and EPA must hold TCEQ accountable. The County asks that EPA withdraw the authority it delegated to TCEQ to carry out this minor NSR program and institute a moratorium on any future registrations under the CBP Standard Permit and the CBP Standard Permit with Enhanced Controls unless and until TCEQ addresses the issues raised in this Complaint. Doing so will not impinge on the rights of Texans to operate CBPs because case-by-case NRS permits will remain available to them.[14] In specific, that EPA require TCEQ to create a regionally specific permit for Harris County that accounts for factors unique to the County and further discussed below.

b(6) Privacy asks that EPA accept this Complaint for investigation because it establishes a *prima facie* case of discriminatory conduct by TCEQ. Further, that EPA's Office for Civil Rights ("OCR") promptly and thoroughly investigate the allegations made in this Complaint and take all actions necessary to ensure that TCEQ complies fully with the law.

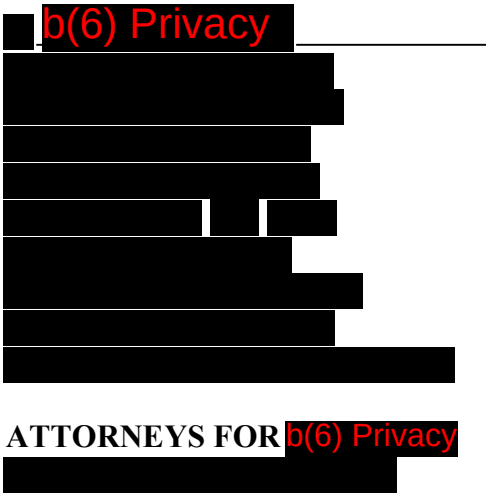
Respectfully submitted,

b(6) Privacy

[redacted]

[13] Harris County Attorney's Office Comments; Avant Garde Construction, Co., Application for Air Quality Standard Permit for Concrete Batch Plant; Registration No. 167453; 10945 Eastex Freeway, Houston, Texas (Apr. 4, 2022) (County comment requesting Spanish language interpretation and noting high percentage of racial and ethnic minorities and LEP people, specifically schoolchildren, in the Census Tracts including and surrounding the proposed CBP. This proposed plant is in the Aldine, Texas area where multiple CBPs are already in operation.), Attachment 7.

[14] *See* 40 C.F.R. § 7.25 (EPA defines "normal operation" to mean "the operation of a program or activity without significant changes that would impair its ability to meet its objectives." The purpose of challenged program or activity cited in this Complaint is TCEQ's administration of minor NSR permit programs, which does not exclusively rest on the 2021 CBP Standard Permit).



ATTORNEYS FOR b(6) Privacy

cc:

Toby Baker, Executive Director, TCEQ
Vic McWherter, TCEQ, Office of Public Interest Counsel
Earthea Nance, PhD, PE, Regional Administrator, EPA Region 6

Table of Contents

I. Parties

A. Complainants

b(6) Privacy files this Complaint on behalf of its residents. Harris County, Texas is home to over 4.71 million people and spans over 1,777 square miles.[1] It is home to the Nation's largest petrochemical complex, the Houston Ship Channel, while also being hurricane- and flood-prone because of its proximity to the Gulf of Mexico. Many of our communities are still recovering from the devastation caused by Hurricane Harvey in 2017 and other natural and anthropogenic disasters in our region. We are one of the most diverse Counties in the Nation. Over a quarter (26.27%) of the County's population is foreign-born and a fifth (20.40%) speak English "less than very well," if at all. Over 100 languages are spoken in the County with Spanish being the most prevalent. Nearly a quarter (22.40%) of the County's population lacks health insurance coverage and at least 12.10% live in poverty.

Too often, the air in the County is unhealthy to breathe and this burden falls heavy on the shoulders of racial and ethnic minorities, LEP people, and poor people—even when taking into account the fact that Harris County is a minority-majority county. At present, the County is part of the Houston-Galveston-Brazoria ("HGB") nonattainment area for the 2008 and 2015 ozone National Ambient Air Quality Standards ("NAAQS")[2] and there is a considerable risk that the area may soon be redesignated to nonattainment for the 2012 NAAQS for fine particulate matter, $PM_{2.5}$.[3]

B. Recipient

TCEQ "is the agency of [Texas] given primary responsibility for implementing the constitution and laws of [Texas] relating to the conservation of natural resources and the protection of the environment."[4] In part, TCEQ must "safeguard the state's air resources from pollution by controlling or abating air pollution and emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic

[1] All demographic data is taken from the U.S. Census Bureau and available at data.census.gov and reflects the most recent U.S. Census count (2020) and the 2019 American Communities Survey, to the greatest extent possible. The specific tables used by the County are described in Census cover sheets in Attachment 8. The County has all original tables and can make them available upon request ("Census Tables").

[2] The HGB area is classified as a "marginal" nonattainment area for the 2015 ozone NAAQS and "serious" for the 2008 ozone NAAQS, however, the state's data demonstrate that the HGB area has failed to meet yet another deadline and there is a strong likelihood that the area will be formally reclassified to "serious" – the second worst classification under the Clean Air Act. *See Center for Biological Diversity, et al. v. Michael Regan*, No. 3:22-cv-01855 (N.D.C.A. filed Mar. 24, 2022) (nondiscretionary duty case alleging that EPA is overdue in its obligation to reclassify or "bump up" the HGB area and other "serious" areas, to "severe" nonattainment, the second worst classification under the CAA).

[3] Recent high $PM_{2.5}$ readings from TCEQ air quality monitors are discussed below.

[4] Tex. Water Code § 5.012; 30 Tex. Admin. Code § 1.1.

enjoyment of air resources by the public and the maintenance of visibility."[5] This duty includes administering Texas's SIP, which includes minor NSR obligations, and submitting to EPA assurances that the agency will comply with EPA's nondiscrimination regulations.

II. Jurisdiction

Title VI of the Civil Rights Act of 1964 provides that "[n]o person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[6] Acceptance of federal funds, such as EPA assistance, creates an obligation on the recipient to comply with Title VI and the federal agency's implementing regulations.[7] TCEQ receives federal financial assistance from EPA and administers a "program or activity" as defined by Title VI, making it subject to the requirements of Title VI and EPA's implementing regulations. Thus, this Complaint alleging unlawful discriminatory behavior by TCEQ is properly filed with EPA.

A. Federal Financial Assistance

TCEQ is a recipient of EPA federal financial assistance as defined in EPA's Title VI implementing regulations. EPA's Title VI regulations define a "[r]ecipient" as "any State or its political subdivision, any instrumentality of a State or its political subdivision, any public or private agency, institution, organization, or other entity, or any person to which Federal financial assistance is extended directly or through another recipient …."[8] For fiscal year 2021, the State of Texas (DUNS No. 002537595) was awarded a staggering $342,342,297,027.00 in federal funding assistance.[9] Of this amount, the TCEQ (DUNS No. 808805154) was awarded at least $51,488,348.00. As of 2017, EPA has awarded TCEQ at least $103,013,093 in federal financial assistance. Current EPA award obligations to TCEQ spanning to 2024 include at least $77,787,066 in federal financial assistance to fund TCEQ programs. Thus, the State of Texas and the TCEQ receive federal financial assistance within the meaning of EPA's Title VI regulations.

B. Program or Activity

Title VI defines a "program or activity" to include "all of the operations of … a department, agency, special purpose district, or other instrumentality of a State or of a local government … any part of which is extended Federal financial assistance."[10] Further, "if any part of a listed entity

[5] Tex. Health & Safety Code § 382.011.

[6] 42 U.S.C. § 2000d.

[7] 40 C.F.R. § 7.80.

[8] *Id.* at § 7.25.

[9] USASpending.gov, State Profile, Texas, https://www.usaspending.gov/state/texas/latest (award information may be found under "View child recipients" and by using the advanced search feature using the applicable DUNS).

[10] 42 U.S.C. § 2000d-4a.

receives federal funds, the entire entity is covered by Title VI."[11] TCEQ is an agency of the State of Texas. The Texas Legislature conferred general jurisdiction onto the TCEQ to execute a broad range of regulatory functions.[12] The agency is also vested with plenary powers that it may utilize as necessary and convenient to perform acts within its jurisdiction.[13] Administering CAA requirements is within the TCEQ's jurisdiction, in specific, minor source NSR requirements such as the CBP Standard Permit and the CBP Standard Permit with Enhanced Controls. Accordingly, TCEQ's operations meet the definition of "program or activity" under Title VI.

C. Timeliness

EPA Title VI implementing regulations require that a "complaint must be filed within 180 calendar days of the alleged discriminatory acts, unless the [EPA's Office of Civil Rights] waives the time limit for good cause."[14] The County considers the triggering action for this Complaint the date when the public was made aware of the adoption of the 2021 CBP Standard Permit. The TCEQ Chairman signed the order adopting this amendment on October 5, 2021 and it was made publicly available on October 6, 2021.[15] This order is only in English and was not accompanied by supporting or explanatory material in any other languages.

D. Other Jurisdictional and Prudential Considerations

EPA Title VI implementing regulations require that a complaint be filed with EPA, in writing, and that it include a description of the alleged discriminatory acts.[16] Harris County submits this Complaint to EPA on behalf of County residents who are exposed to unhealthy levels of $PM_{2.5}$, PM_{10}, and cancer-causing crystalline silica. Specifically, racial and ethnic minorities, LEP populations, and poor County residents who bear a disproportionately high burden of this pollution.

III. Concrete Batch Plant Background

A. How Concrete Batch Plants Work

The primary purpose of CBPs is prepare a concrete mixture and load it into mixing trucks. This mix includes water, cement, fine aggregate (sand), coarse aggregate (gravel), and binding

[11] *Ass'n of Mexican-Am. Educators v. State of Cal.*, 195 F.3d 465, 475 (9th Cir. 1999), *rev'd in part on other grounds*, 231 F.3d 572 (9th Cir. 2000) (citing *Grimes v. Superior Home Health Care,* 929 F. Supp. 1088, 1092 (M.D. Tenn. 1996)).

[12] Tex. Water Code § 5.013.

[13] *Id.* at §§ 5.002, 5.102.

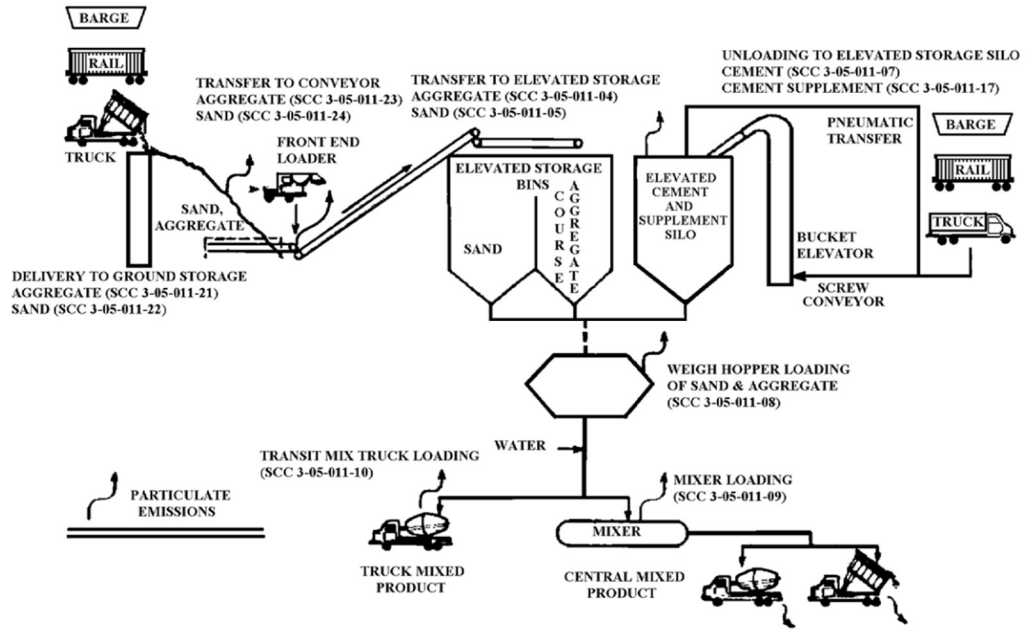
[14] 40 C.F.R. § 7.120(b)(2); for Title VI purposes, EPA defines an "action" to mean "activity, policy, rule, standard, or method of administration; or the use of any policy, rule, standard, or method of administration").

[15] 2021 Amendment TCEQ Order.

[16] 40 C.F.R. § 7.120(b).

compounds which have small amounts of chemical additives. Each component is housed in a specific part of the plant. Cement is typically stored in silos and fed into mixing trucks through a conveyor belt. Aggregate is commonly stored in stockpiles that may or may not be enclosed. As cement enters the rotating drum of the truck, the other concrete elements are introduced. Not all CBPs will follow this process.[17]

Typical concrete batching process[18]



B. CBP Emissions and Impact on Human Health and Communities

The pollutants at issue are $PM_{2.5}$, PM_{10}, and crystalline silica. Crystalline silica is a known carcinogen and a pollutant of concern for CBPs. The TCEQ Toxicology Division has developed ESLs for many pollutants. ESLs are used to evaluate the potential for effects to occur from air contamination exposure.[19] Acute exposure is evaluated using short-term ESLs, which are based on a one-hour averaging period.[20] Chronic exposure is evaluated with a long-term ESL based on an annual averaging period.[21] If ambient levels of contaminants exceed an ESL, a more in-

[17] EPA, AP 42, Fifth Edition, Vol. I, Ch. 11: Mineral Products Industry, at ch. 11.12, https://www3.epa.gov/ttnchie1/ap42/ch11/.

[18] *Id.* at ch. 11.12-2.

[19] *See* TCEQ, Toxicology Division, About Air Monitoring Comparison Values, https://www.tceq.texas.gov/toxicology/amcv and TCEQ, Toxicology Division, About Effects Screening Levels, https://www.tceq.texas.gov/toxicology/esl/ESLMain.html.

[20] *Id.*
[21] *Id.*

depth review is required.[22] The TCEQ has set the short-term silica ESL at 14 µg/m^3 and the long-term ESL at 0.27 µg/m^3.[23]

Particulate matter is harmful in a variety of ways. The current annual $PM_{2.5}$ NAAQS is 12.0 µg/m^3 while the 24-hour NAAQS is 12.0 µg/m^3. EPA is currently assessing the adequacy of the current particulate matter standards, including the most recent scientific literature.[24] But much is already known about particulate matter and its toxic effects on human health. Inhalation exposure to particulate matter is associated with infertility.[25] There is an association between an increase of just 1 µg/m3 $PM_{2.5}$ and an 8% increase in the COVID-19 death rate.[26] Meaning that [a] small increase in long-term exposure to $PM_{2.5}$ leads to a large increase in the COVID-19 death rate.[27] Low birth weights at a global scale can be attributable to particulate matter pollution.[28] We know that sources of particulate matter disproportionately *and systemically* affect people of color.[29] Particulate matter pollution drives up the cost of healthcare.[30] Children under using Medicaid in the Houston area are more likely to be diagnosed with asthma after short-term exposure to particulate matter.[31] Long-term exposure to particulate matter among the elderly is

[22] TCEQ, Toxicology Factor Database Screening Levels, March 8, 2018, Interoffice Memo, available at https://www.tceq.texas.gov/assets/public/implementation/tox/esl/special%20notations.pdf.

[23] ESL data is be found in the TCEQ Texas Air Monitoring Information System Database.

[24] EPA, Supplement to the 2019 Integrated Science Assessment for Particulate Matter (External Review Draft) (Sept. 2021), https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=352823.

[25] Li, Qin et al., Association between exposure to airborne particulate matter less than 2.5 µm and human fecundity in China, Envt'l Int'l146 (2021), Attachment 9.

[26] Wu, Xiao, et al., Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study, Harvard T.H. Chan School of Public Health (Apr. 27, 2020), https://www.medrxiv.org/content/10.1101/2020.04.05.20054502v2.full.pdf.

[27] *Id.*

[28] Ghosh, Rakesh, et al., Ambient and household $PM_{2.5}$ pollution and adverse perinatal outcomes: A meta-regression analysis of attributable global burden for 204 countries and territories, PLOS Medicine (Sept. 28, 2021), https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003718.

[29] Tessum, Christopher W., et al., $PM_{2.5}$ polluters disproportionately and systemically affect people of color in the United States, Science Advances (2021), https://www.science.org/doi/10.1126/sciadv.abf4491.

[30] Birnbaum, Howard G., et al., Measuring the Impact of Air Pollution on Health Care Costs (Dec. 2020), Health Affairs 2113, https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.00081.

[31] Wendt, Judy K., et al., Association of short-term increases in ambient air pollution and timing of initial asthma diagnosis among medicaid-enrolled children in a metropolitan area, 131 Environ Res. 50 (Mar. 20, 2014), Attachment 10.

associated with a higher risk of stroke and other cardiac disease.[32] Plainly, $PM_{2.5}$, PM_{10}, and crystalline silica emissions are harmful to human health.

Prior to the COVID-19 pandemic, heart disease, cancer, cerebrovascular disease (including strokes), and respiratory disease were the in the top five leading causes of death in Harris County,[33] all of which are associated with exposure to CBP pollutants of concern. Disparity exists within the mortality data as Black Americans have the highest morality rates of heart disease and cancer, and the lowest life expectancy when compared to all other races.[34] COVID-19 drastically altered mortality rates and became third leading cause of death in Harris County in 2020.[35] Harris County mortality data from 2010 to 2020, shown in a chart below, shows across the board higher death rates in 2020, but highlights the drastic increases in mortality for people of color – an increase of 46.6% for Hispanics and 22.6% for non-Hispanic Blacks compared to 12.4% for whites.[36]

[32] Yazdi, Mahdieh Danesh, et al., Long-term Association of Air Pollution and Hospital Admissions Among Medicare Participants Using a Doubly Robust Additive Model, American Heart Association, Circulation Vol. 143, No. 16 (Apr. 20, 2021), https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.120.050252.

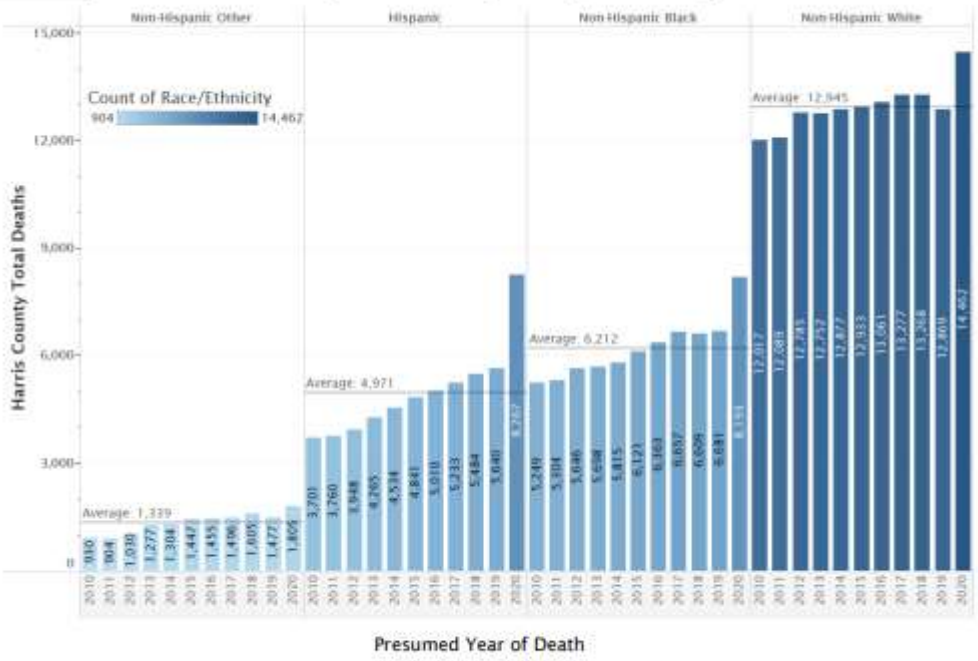
[33] Harris County Public Health, Harris County leading Causes of Death Analysis 2015-2019 with Preliminary Exploration of 2020 (Aug. 2021), https://publichealth.harriscountytx.gov/Portals/27/Documents/Harris%20County%20Leading%20Causes%20of%20Death%20Analysis%202015-2019.pdf?ver=CcrSFfKZI_07nyGqLO0M_w%3d%3d.

[34] *Id.* at 11.

[35] *Id.*

[36] Harris County Commissioners Court's Analyst's Office Memo to Harris County Precinct Two Commissioner Adrian Garcia, Annual Deaths in Harris County, 2010 through 2020 (Jul. 28, 20201, https://ccao.harriscountytx.gov/Portals/72/Documents/Harris%20County%20Annual%20Deaths%20Memo_2021.pdf?ver=0ovW-6zxPdlGFqmGWqy-OA%3d%3d.

Figure 3 **Harris County Deaths by Race/Ethnicity, 2010 – 2020**



Note: Death data for 2020 are provisional. Provisional statistics are tabulated based on data that are not yet edited and may be incomplete. Provided data are subject to change before data are finalized.
Source: Texas Death Certificate Data-Prepared by the Texas Department of State Health Services, Center for Health Statistics, date of run: 06/14/2021.

In addition to health impacts, CBPs create conditions in the community that affect resident's ability to use and enjoy their property and outdoor spaces. HCPCSD often receives complaints from residents regarding vibrations in their homes tied to activity at a CBP, such as 18-wheeler traffic transporting aggregate. CBPs are allowed to operate 24 hours a day, seven days a week. They affect peoples' sleep by, for example, subjecting neighboring residents to loud noises and bright lights in the middle of the night. Members of the Super Neighborhood Alliance, an alliance of communities that represent all of Houston, expressed concern about these impacts and community mental health, including the self-worth of people who live next to these facilities through no fault of their own. Constant heavy truck traffic creates dangerous conditions for children playing outdoors. This is a concern no child should have.

C. Concrete Batch Plant Distribution in Harris County

Given their prolific nature, it is difficult to determine the exact number of CBPs in the County because TCEQ's databases are not always up to date and new CBPs are frequently permitted. Considering a March 28, 2022 snapshot of CBPs, the County identified 96 CBPs in 68 U.S. Census Bureau Tracts[37] that have active registrations under the 2012 CBP Standard Permit.[38]

[37] *See* CBP March 28, 2022 Snapshot. (A Census Tract could not be identified for a facility located in zip code 77572. The total Census Tract number does not include this facility.).

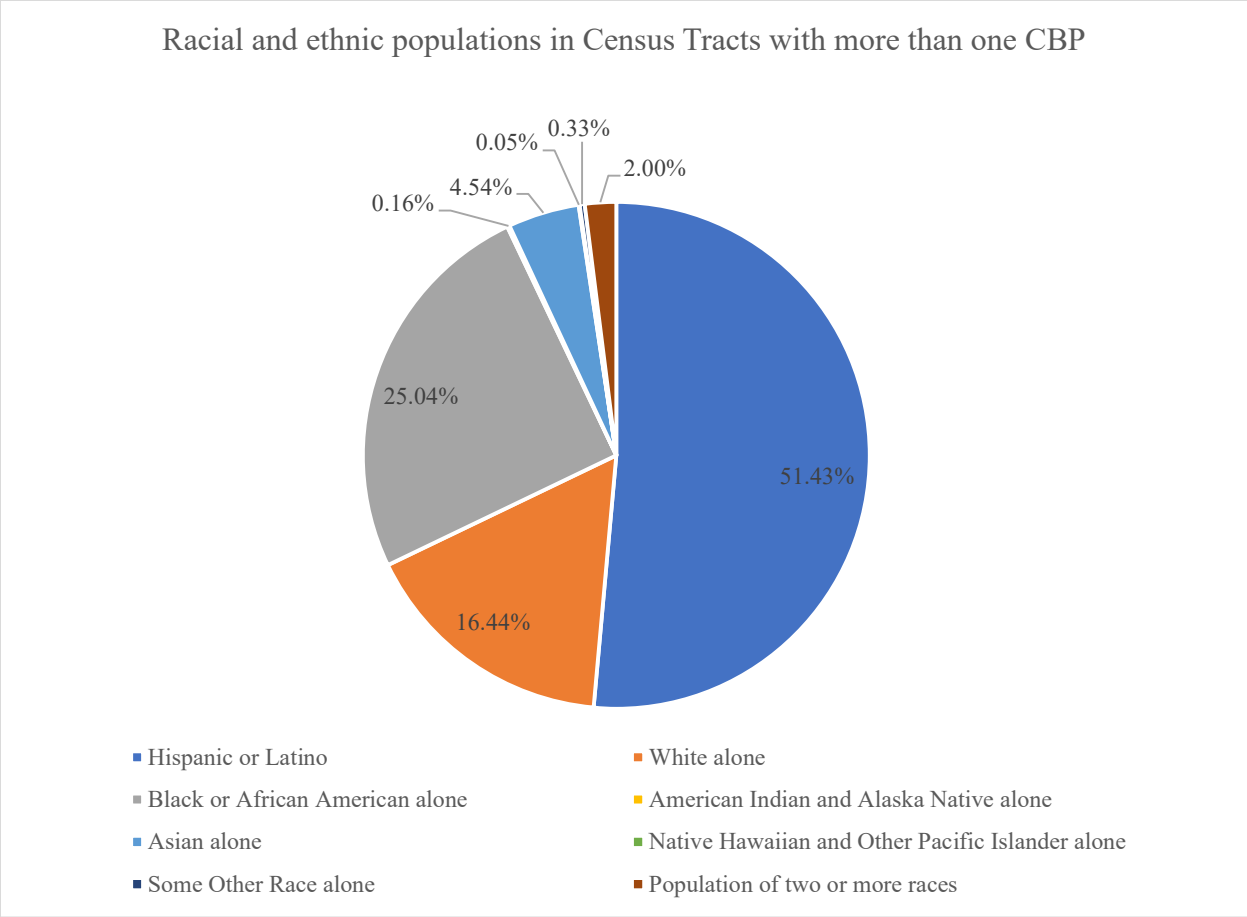
[38] There are over 100 CBPs in the County and the remainder are permitted under the CBP Standard Permit with Enhanced Controls or an NSR case-by-case permit.

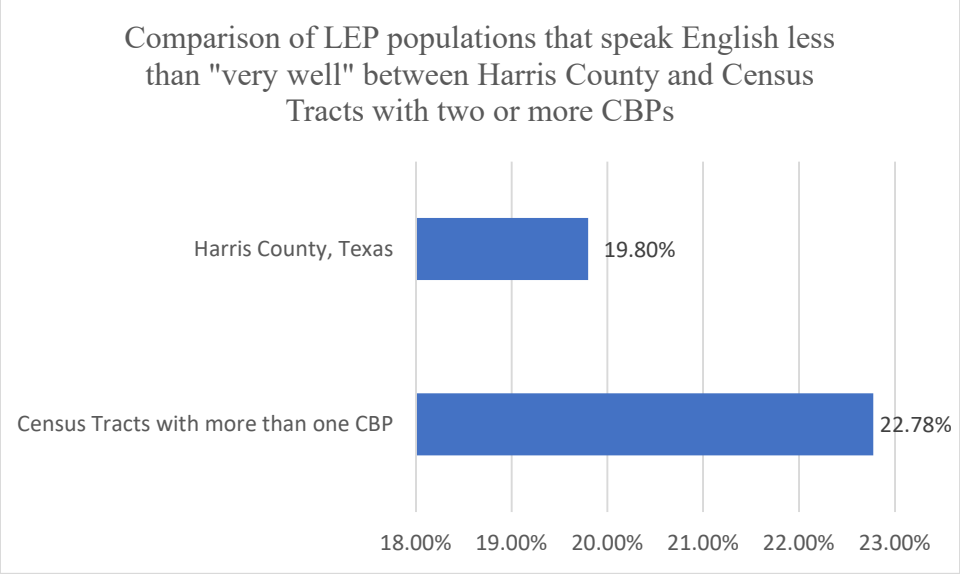
Then, the County identified Census Tracts where two or more CBPs are sited, 16 in total.[39] These 16 Census Tracts are home to 43 CBPs—nearly half of the facilities identified. These Census Tracts are:

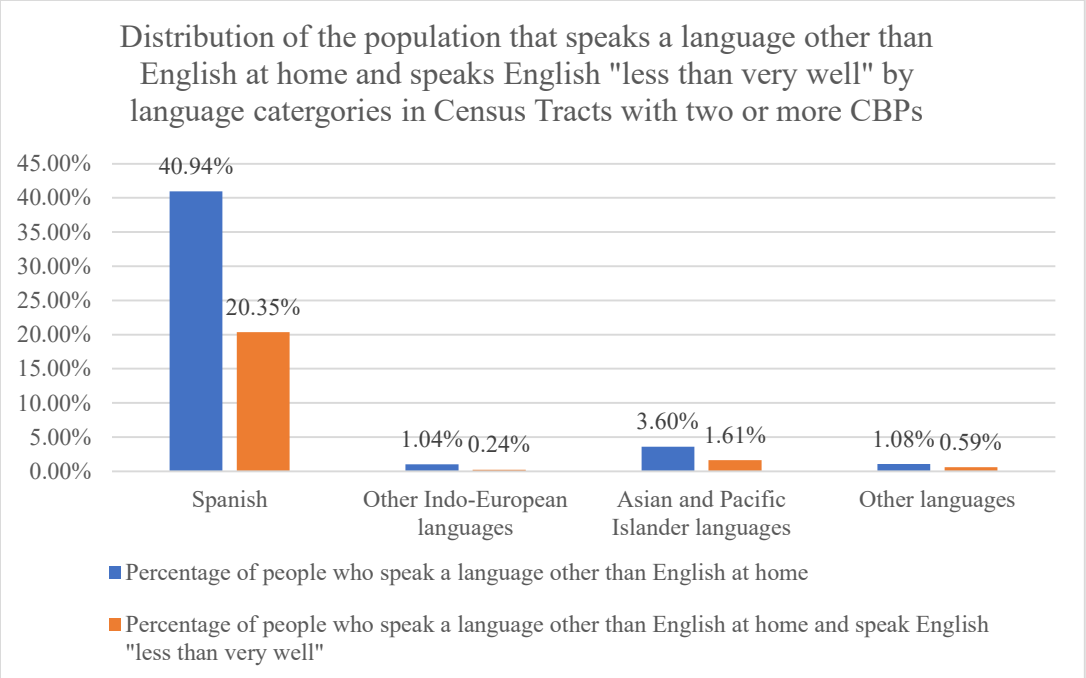
Zip	Census Tract	Number of CBPs
77048	3308.01	7
77045	3341.02	5
77447	5560	4
77041	5401.02	3
77022	2204	2
77026	2108	2
77038	5336	2
77039	2228	2
77047	3308.02	2
77048	3317	2
77048	3338.01	2
77338	2507.01	2
77375	5548.09	2
77447	5430.05	2
77447	5431	2
77449	5422.02	2
	Total:	**43**

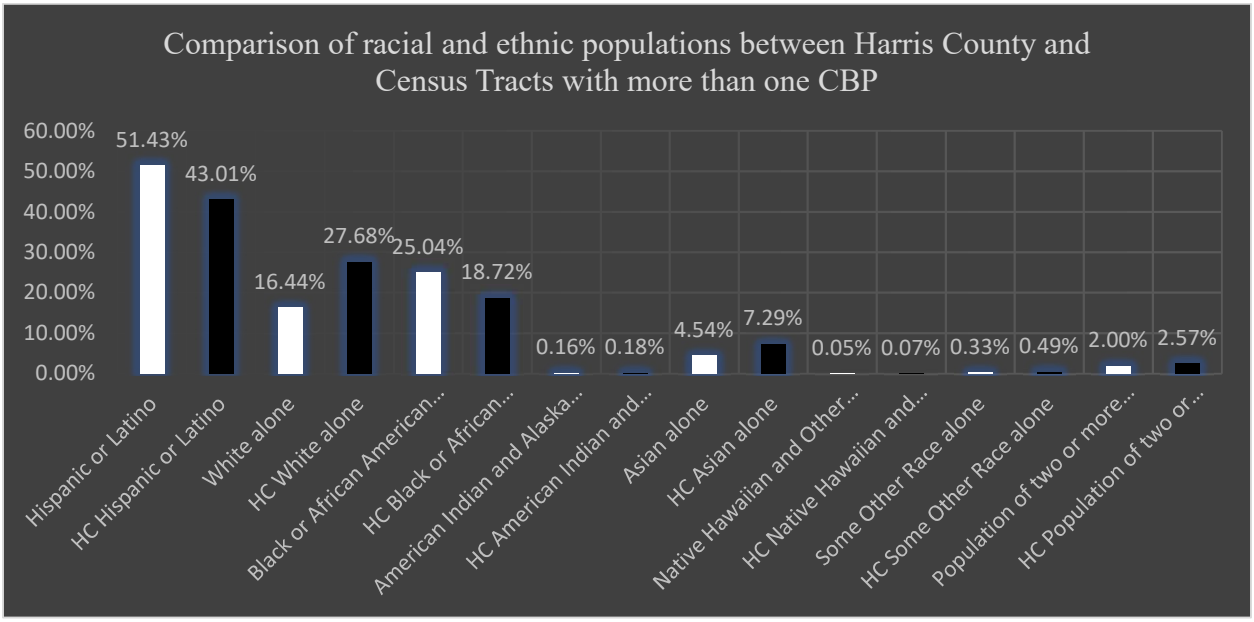
Then, the County analyzed Census Tract data for race and ethnicity, LEP status, and poverty. The averages shown below are averages of percentages for each Census Tract, not an average of the overall population in all Census Tracts. This analysis shows that racial and ethnic minorities and LEP people generally face a disproportionately higher risk of having more than one CBP sited in their community when compared to the general Harris County population, even accounting for the County's majority-minority population status. Further, the County found that Black Americans face a disproportionately high risk of having the most CBPs sited in one Census Tract. Census Tract 3308.01 in zip code 77048 has the most CBPs sited, seven in total. The population in this Census Tract is 40.86% Black or African American.

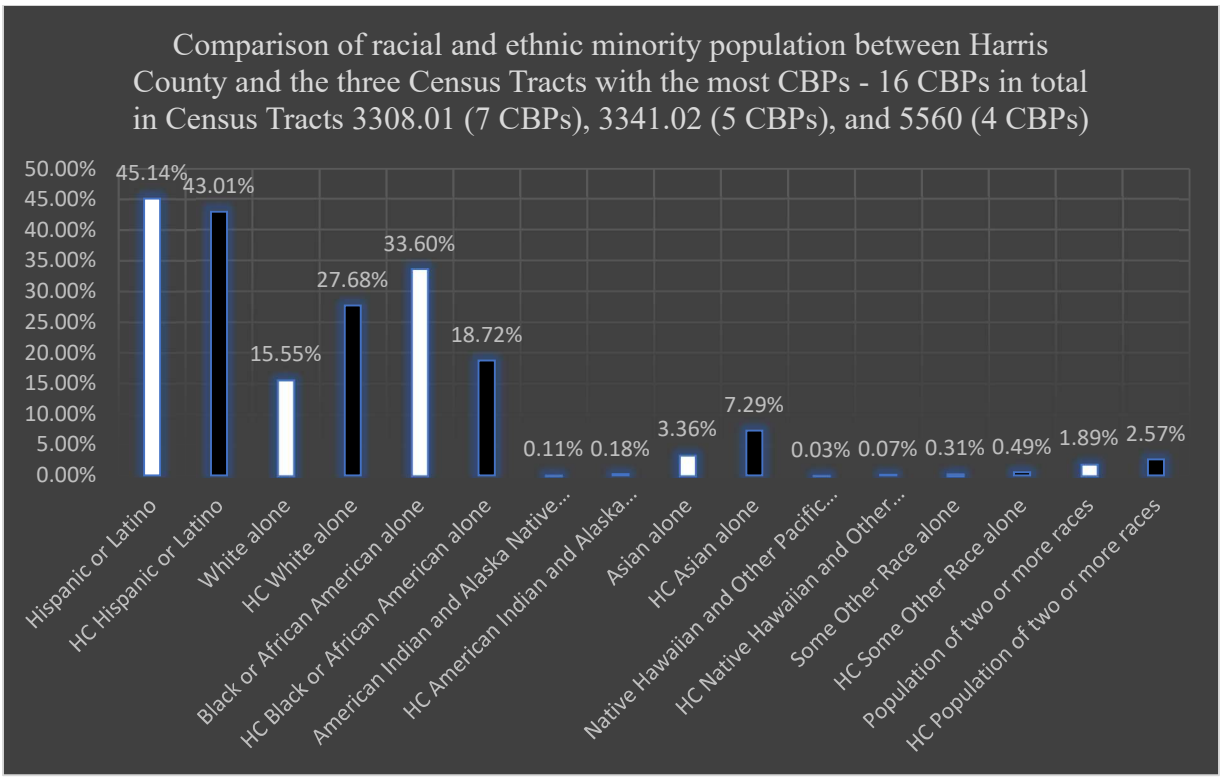
[39] *See* Census Tables.

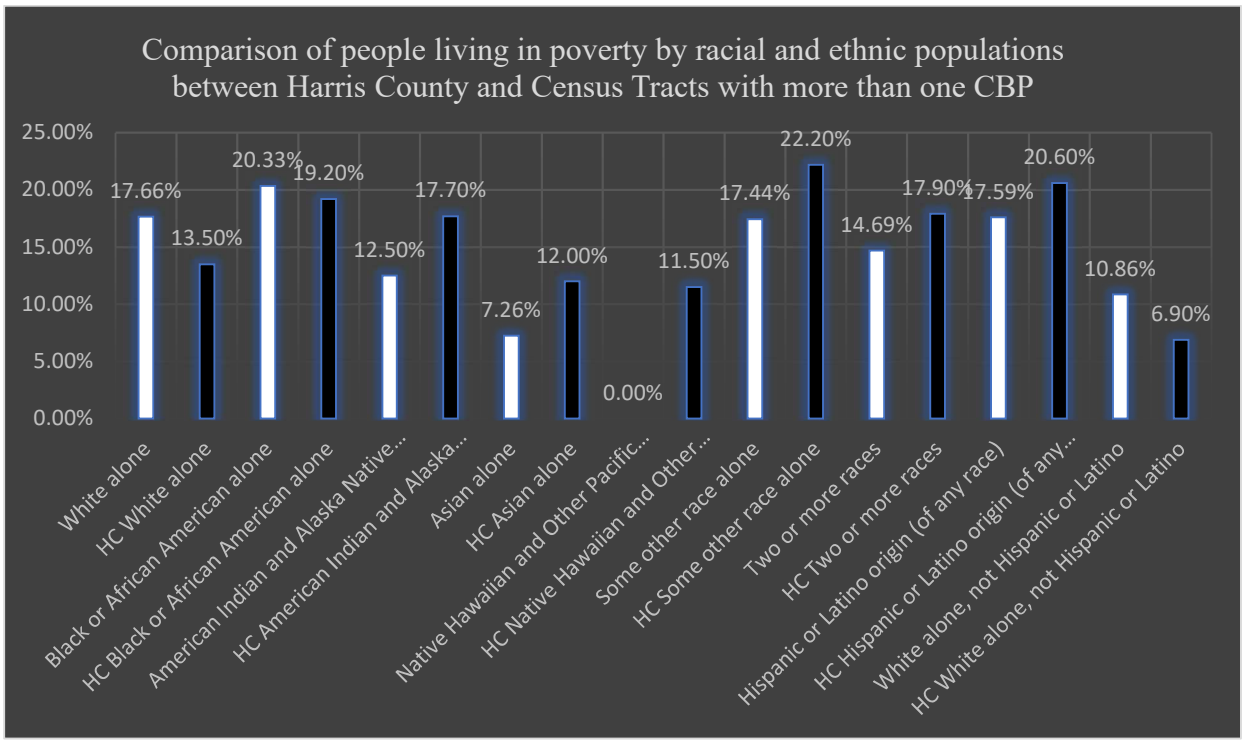

Racial and ethnic populations in Census Tracts with more than one CBP
0.05%
0.33%
2.00%
4.54%
0.16%
25.04%
51.43%
16.44%
Hispanic or Latino
White alone
Black or African American alone
American Indian and Alaska Native alone
Asian alone
Native Hawaiian and Other Pacific Islander alone
Some Other Race alone
Population of two or more races


Comparison of LEP populations that speak English less than "very well" between Harris County and Census Tracts with two or more CBPs
Harris County, Texas
19.80%
Census Tracts with more than one CBP
22.78%
18.00%
19.00%
20.00%
21.00%
22.00%
23.00%


Distribution of the population that speaks a language other than English at home and speaks English "less than very well" by language catergories in Census Tracts with two or more CBPs
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
40.94%
20.35%
1.04%
0.24%
3.60%
1.61%
1.08%
0.59%
Spanish
Other Indo-European languages
Asian and Pacific Islander languages
Other languages
Percentage of people who speak a language other than English at home
Percentage of people who speak a language other than English at home and speak English "less than very well"


Comparison of racial and ethnic populations between Harris County and Census Tracts with more than one CBP
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
51.43%
43.01%
16.44%
27.68%
25.04%
18.72%
0.16%
0.18%
4.54%
7.29%
0.05%
0.07%
0.33%
0.49%
2.00%
2.57%
Hispanic or Latino
HC Hispanic or Latino
White alone
HC White alone
Black or African American...
HC Black or African...
American Indian and Alaska...
HC American Indian and...
Asian alone
HC Asian alone
Native Hawaiian and Other...
HC Native Hawaiian and...
Some Other Race alone
HC Some Other Race alone
Population of two or more...
HC Population of two or...





Note: This comparison does not reflect the percentage of non-white Hispanic or Latino people who live in poverty and is thus may not accurately represent this ethnic group's minority status.

IV. Environmental and Public Health Issues Specific to Harris County

A. Legacy Ozone Pollution

TCEQ failed to consider historic ozone pollution as an air pollution cumulative impact in the development of the 2021 CBP Standard Permit. Ozone is not emitted; rather, it is formed through a chemical reaction between nitrogen oxides ("NOx") and volatile organic compounds ("VOCs") when they are exposed to sunlight. Ozone is a corrosive air pollutant that can inflame the lungs, constrict breathing, and even lead to life-threatening conditions. Ozone's precursor pollutants are harmful to public health on their own, like cancer-causing VOCs benzene and ethylene. According to EPA's own findings in support of the NAAQS, ozone pollution can harm healthy persons but vulnerable populations are more susceptible to its harmful effects. Children, elders, persons with disabilities, and residents of environmental justice communities are among the most vulnerable to ozone pollution. For example, children living in areas with higher concentrations of ozone in ambient air have been shown to be more likely to have asthma or to experience asthma attacks compared to children who are exposed to less ozone pollution.[40] Ozone can also harm vegetation and entire ecosystems, thereby exacerbating the loss of vegetative cover and poor environmental conditions in the community.

Harris County, and the HGB nonattainment area, have never met any of the ozone NAAQS at the time of their initial implementation. Based on the best available science, the four ozone standards, established in 1979, 1997, 2008, and 2015, have set progressively lower permissible ozone levels. The standards reflect eight-hour averages, except the 1979 standard, which reflects a one-hour average. The HGB area remains in nonattainment for the 2008[41] and 2015[42] NAAQS. For the 2008 ozone standard, the HGB area was initially classified as "marginal," then it failed to meet that attainment deadline and was reclassified to "moderate." Then again in 2018 the area failed to meet the "moderate" attainment deadline and was reclassified to "serious" in 2019. Modeling data prepared by the TCEQ indicate that the HGB area will fail to meet the serious area deadline of July 20, 2021[43] and pending litigation make reclassification to "severe" a considerable likelihood in the short term.[44]

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[40] Akinbami, Lara J., *et al.*, The association between childhood asthma prevalence and monitored air pollutants in metropolitan areas, United States 2001-2004 110 Envt'l Research 294, (Apr. 2010), https://doi.org/10.1016/j.envres.2010.01.001 http://dx.doi.org/10.1016/.

[41] 75 parts per billion (ppb); *see also* 42 U.S.C. § 7511a(b); 40 C.F.R. § 51.1103(a) tbl. 1 (attainment dates for Texas).

[42] 70 ppb.

[43] TCEQ, Houston-Galveston-Brazoria (HGB) Serious Classification Attainment Demonstration State Implementation Plan (SIP) Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS), TCEQ Rule Project No. 2019-077-SIP-NR, TCEQ Docket No. 2019-0692-SIP, at ES-1 ("The peak ozone design value for the HGB nonattainment area is projected to be 76 ppb in 2020..."); at 76 ppb, it is likely that the HGB area may fail to attain by the 2015 ozone standard marginal area attainment date of August 3, 2021, though it has not been reclassified.

[44] *See Center for Biological Diversity*, No. 3:22-cv-01855.

B. HGB Area's Challenge to Remain in Attainment for the $PM_{2.5}$ NAAQS

The HGB area has a $PM_{2.5}$ problem, even though the area meets the NAAQS. According to the HGB area's air planning authority, the Houston-Galveston Area Council ("H-GAC"), "[t]he region has historically been most troubled by high concentrations of ground-level ozone, however within the last decade there have been additional concerns about elevated concentrations of $PM_{2.5}$." Further, H-GAC notes that "[a]ir monitoring data collected, compiled, and validated by the [TCEQ] identifies the certified $PM_{2.5}$ annual design value [measurement of NAAQS compliance] for 2010-2012 for the HGB region as 12.1 micrograms per cubic meter ($\mu g/m^3$)" which is above the $PM_{2.5}$ NAAQS for annual exposure, 12.0 $\mu g/m^3$.[45] H-GAC recognizes that there is a "continued risk of future $PM_{2.5}$ nonattainment for the" HGB area and thus the agency continues to collect and report on voluntary $PM_{2.5}$ emission reduction programs.[46]

H-GAC is not wrong. When EPA refused to designated the HGB area under the $PM_{2.5}$ NAAQS to "attainment" and instead classified it to "attainment/unclassifiable" it did so over TCEQ's objection where TCEQ claimed that it justifiably excluded high $PM_{2.5}$ readings at the Clinton Park air quality monitor and that an "attainment" designation was warranted.[47] This tacit acknowledgement perhaps helps to explain why there are recent alarmingly high $PM_{2.5}$ readings from TCEQ's Wayside Drive air quality monitor, which is not far from the Clinton Park monitor. This monitor is in an area where there are at least 3 CBPs located nearby. As of April 3, 2022, the four highest readings from the Wayside Drive monitor are 27.4 (3/1/22), 25.6 (1/17/22), 23.2 (1/14/22), and 22.1 (3/4/22) $\mu g/m^3$.[48]

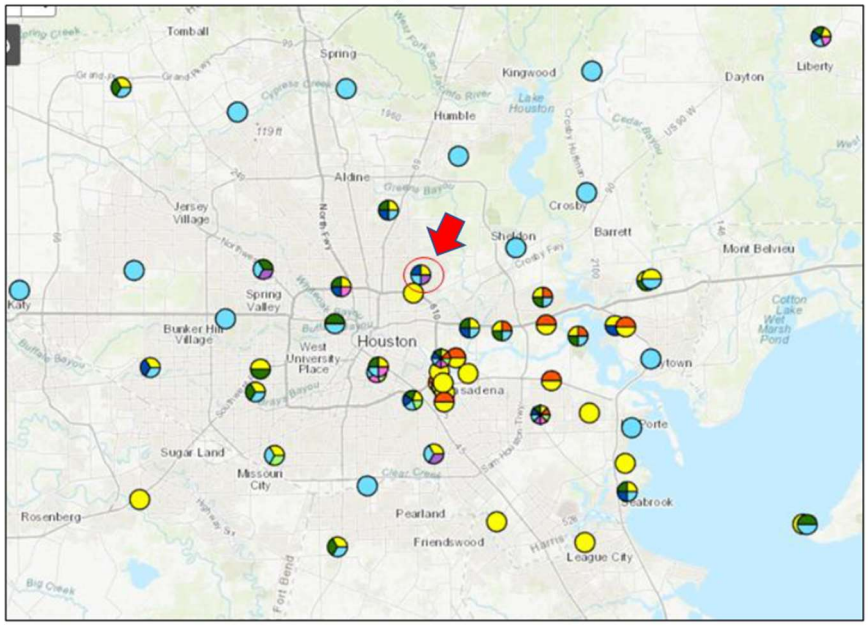
[45] Houston-Galveston Area Council, Regional Air Quality Planning Advisory Committee, Houston-Galveston-Brazoria (HGB) $PM_{2.5}$ Advance Path Forward 2021 at 9-10, https://www.h-gac.com/board-of-directors/advisory-committees/regional-air-quality-planning-advisory-committee/2019-pm2-5-advance-path-forward-report.

[46] *Id.* at 7.

[47] 79 Fed. Reg. 51,517; *see also* Letter from Bryan W. Shaw, PhD, P.E., Chairman, TCEQ to Ron Curry, EPA, Region 6 Administrator (Oct. 14, 2014), Attachment 11.

[48] TCEQ, Four Highest 24-Hour PM-2.5 Concentrations (updated daily, Apr. 3, 2022 readings), https://www.tceq.texas.gov/cgi-bin/compliance/monops/pm25_24hr_4highest.pl.

Location of Wayside Drive monitor[49]



According to TCEQ, the Wayside Drive design value for PM_{10} currently meets the PM_{10} NAAQS. However, the current $PM_{2.5}$ design value at this monitor exceeds the annual $PM_{2.5}$ NAAQS.

Preliminary design values for TCEQ's Wayside Drive air quality monitor[50]

$PM_{2.5}$ NAAQS	**Wayside Drive values ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**
24-hour	27.0	35
Annual	12.8	12

TCEQ analyzed possible contributing sources near the monitor. Two of these sources are CBPs, Five Star Ready Mix (0.75 miles southwest) and Queen Ready Mix (1.75 miles southeast).[51] The HCPCSD has cited numerous violations at both facilities.

The Queen Ready Mix is located at 8702 Liberty Road, Houston, Texas 77028 in Census Tract 2325.[52] This CBP is not identified in the County's March 28, 2022 snapshot. Approximately 25% of the population in Census Tract 2325 speaks English "less than very well."[53] Latinos of any

[49] TCEQ, Houston North Wayside Particulate Matter, presentation to the Houston PM Advance Committee, at 5 (part of H-GAC) (Feb. 7 2022), Attachment 12.

[50] *Id.* at 7 (noting that the values were calculated using preliminary data from May 4, 2021 through January 24, 2022).

[51] *Id.* at 13.

[52] *See* Census Tables.

race make-up 66% of the population and while 20% of the total population is Black or African American. Half of the population in Census Tract 2325 under the age of 18 lives in poverty. HCPCSD has authority like TCEQ to enforce environmental statutes, rules, and orders – this includes enforcing TCEQ-issued air quality permits. HCPCSD inspected this facility in 2020 and documented many violations, including dust and stormwater discharges, as shown below.

View of regular loading operations at the baghouse

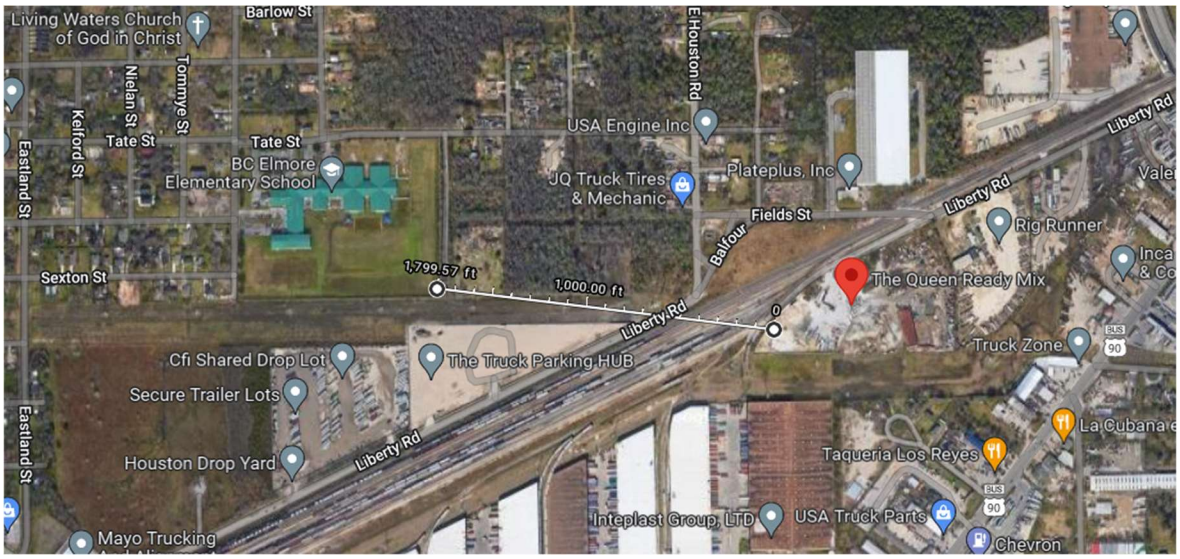
Offsite stormwater runoff

Dust emissions from aggregate transportation on dusty pavement

The Queen Ready Mix is approximately 1,800 feet west of Elmore Elementary School. Between Elmore and Queen Ready Mix lies many railroad lines that used by oil tankers servicing the Houston Ship Channel, adding to the pollution burdens experienced by the students and nearby residents. According to the Texas Education Agency ("TEA"), the student body at this primary school is 44.5% African American and 54% Hispanic.[54] Nearly every child at this school is economically disadvantaged—98%—meaning that nearly the entire student body at this school experiences food insecurity and thus the federal government ensures that these children receive at

[54] TEA, 2020-21 School Report Card, ELMORE EL (101912475), Attachment 13.

least two hot meals a day at free or reduced cost. English Language Learners make up 39.4% of the population. Though the school was not rated for the 2020-2021 school year because of the COVID-19 pandemic, the 2019 figures show that only 16% of the student body met or exceeded minimum standardized testing requirements which are necessary to advance to the next grade level and eventually graduate from high school in Texas.



The County's modeling, discussed below, shows that children at this school are exposed to unhealthy levels of particulate matter and crystalline silica, especially during recess because the school's track is closest to the facility. Because of Texas's extremely restrictive CBP standing rules, no parent, child, teacher, or school administrator would be able to challenge permits for this facility because the school is more than 440 yards from the baghouse and no person permanently resides at the school.[55]

[55] *See* Tex. Health & Safety Code § 382.058(c) (to challenge a CBP Standard Permit, "only those persons actually residing in a permanent residence within 440 yards of the proposed plant may request a hearing...").

Elmore Elementary School 1st grader organizing a food pantry in her front yard at the beginning of the COVID-19 Pandemic[56]

Many CBP operators routinely violate their permit terms and it is no accident that HCPCSD has issued hundreds of violations to these owners/operators. The County also attaches photos from a HCPCSD inspection of the Concrete Pros Ready Mix Inc. facility located at 4005 Swingle Rd, Houston, Texas 77047.[57] This facility is identified in the County's March 28, 2022 snapshot. The photos show common nuisance conditions at CBPs in addition to CBP permit violations, these include open dumping, unauthorized accumulation of hazardous materials, broken fences, damaged equipment. In response to community concerns, the TCEQ Public Interest Counsel has recommended to the TCEQ and the Texas Legislature for years for the creating of a taskforce to address issues at CBPs and other aggregate processing facilities.[58] No such committee has been formed. The TCEQ Public Interest Counsel, based on community feedback from across the state, recommends that such committee study proposals for:

1. Minimizing the effects of such operations on neighboring communities;
2. Limiting operating hours;
3. Routine audits or inspections to ensure compliance with permit terms and associated proposals for increased application fees to cover the cost of inspections;
4. Standardized buffer zone or setback requirements across all authorizations under which these facilities may operate;

[56] Source: Elmore Tigers Twitter account @ElmoreTigers (May 7, 2020).

[57] Attachment 14.

[58] TCEQ, Office of Public Interest Counsel's Annual Report to the TCEQ (Fiscal Year 2018) (report also discusses CBP permitting matters that the Counsel has participated in, for example, a CBP permit that was issue to a plant sited across the street from a dedicated emergency room in a rural part of Texas), https://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/057_18/appC.pdf.

5. Enhanced monitoring of particulate matter in geographic areas where these facilities are more concentrated; and
6. Reviewing and standardizing, as appropriate, the various types of authorizations and public participation processes that may apply to the permitting of such facilities.

V. Legal and Regulatory Background

A. Civil Rights Law

EPA's Title VI implementing regulations provide that "a recipient [of federal financial assistance] shall not on the basis of race, color, or national origin provide a person any service, aid, or other benefit that is different, or is provided differently from that provided to others under the program or activity."[59] Nondiscrimination executive orders and agency guidance establish how EPA should administer civil rights laws to consider, for example, subgroups of protected populations, including LEP people and poor people. The "environmental justice order," Exec. Order 12,898, directs EPA to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[60] Meaning that EPA has to take affirmative steps to remedy past discrimination in all of its functions. While EPA's LEP guidance, intended to comply with Exec. Order 13,166, describes elements of acceptable LEP policies.[61] President Joe Biden recently adopted a "whole-of-government" approach to addressing systemic racism in the Nation and required the federal agencies to "assess whether, and to what extent, its programs and policies perpetuate systemic barriers to opportunities and benefits for people of color and other underserved groups."[62] Collectively, these laws, regulations, and policies prohibit the disparate treatment of protected populations and provide EPA with baseline investigation elements for Title VI investigations.[63] EPA Title VI investigations must ensure that "[a] recipient shall not use criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex or substantially impairing accomplishment of the objectives of the program or activity with respect to individuals of a

[59] 40 C.F.R. § 7.35(a).

[60] 59 Fed. Reg. 7,629 (emphasis added).

[61] EPA, Guidance to Environmental Protection Agency Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons, 65 Fed. Reg. 159 (Aug. 16, 2000) (emphasis added) ("LEP Guidance").

[62] 86 Fed. Reg. 7,009 (In part, requiring a formal equity assessment for impacts to "underserved communities.") (emphasis added).

[63] 40 C.F.R. §§ 7.30 (general prohibition), 7.35(b) (specific prohibitions); see, also, *Guardians Ass'n. v. Civil Serv. Comm'n.* 463 U.S. 582, 593 (1983) (concluding that Title VI reaches unintentional, disparate impact as well as intentional discrimination); *Alexander v. Choate*, 469 U.S. 287, 292-293 (1985) (confirming that, under *Guardians*, agencies enforcing Title VI can address disparate impact discrimination through their regulations). Many subsequent cases cite *Guardians* in support of the validity of Title VI disparate impact claims. *See*, U.S. EPA's External Civil Rights Compliance Office Toolkit, p. 8 (Jan. 18, 2017) ("ECRCO Toolkit"), https://www.epa.gov/sites/production/files/2017-01/documents/toolkit-chapter1-transmittal_letter-faqs.pdf.

particular race, color, national origin, or sex."[64] These nondiscrimination obligations extend to the siting of facilities.[65]

To establish a *prima facie* case of disparate impact discrimination, EPA must determine whether a federal funding recipient used a facially neutral policy or practice that had a sufficiently adverse and disproportionate effect based on race, color, or national origin. To establish a disparate impact, EPA must:

(1) identify a specific policy or practice;
(2) establish adversity/harm[66];
(3) establish disparity[67]; and
(4) establish causation.

The focus of EPA's investigation is on the consequences of the recipient's actions, rather than the recipient's intent.[68] The neutral policy or decision in question need not be in writing but could be understood as a standard practice by the recipient's employees. Neutral policies also include an agency's failure to act or adopt important policies, such as a failure to adopt policies to serve a LEP populations despite repeated requests.[69] A violation of Title VI and its regulations can be established when a recipient fails to consider the disparate impact of a facility's operation on the basis of race, color or national origin as part of a decision to permit.[70]

If the evidence establishes a *prima facie* case of adverse disparate impact, EPA must then determine whether the recipient has articulated a "substantial legitimate justification" for the

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[64] 40 C.F.R. § 7.35(b).

[65] *Id.* § 7.35(c).

[66] ECRCO Toolkit, at 18, fn. 41 (relevant factors to establish an actionable harm include the nature, size, and likelihood of the alleged impact).

[67] A general measure of disparity compares the proportion of persons in the protected class who are adversely affected by the challenged policy or decision and the proportion of persons not in the protected class who are adversely affected. *See Tsombanidis v. W. Haven Fire Dep't*, 352 F.3d 565, 576-77 (2d Cir. 2003) (internal citations omitted).

[68] *Lau v. Nichols*, 414 U.S. 563, 568 (1974) (school district was required to provide non-English speaking students of Chinese origin with a meaningful opportunity to participate in federally funded educational programs).

[69] *See*, *e.g.*, *Maricopa Cty.*, 915 F. Supp. 2d 1073, 1079 (D. Ariz. 2012) (disparate impact violation based on national origin properly alleged where recipient "failed to develop and implement policies and practices to ensure [limited English proficient] Latino inmates have equal access to jail services" and discriminatory conduct of detention officers was facilitated by "broad, unfettered discretion and lack of training and oversight" resulting in denial of access to important services).

[70] *See*, *e.g.*, *S. Camden Citizens in Action v. N.J. Dep't of Envtl. Prot.*, 145 F. Supp. 2d 446, 481 (D.N.J. 2001), modified, 145 F. Supp. 2d 505 (D.N.J. 2001), rev'd sub nom. on other grounds, 274 F.3d 771 (3d Cir. 2001) (in a pre-*Sandoval* Title VI action, granting plaintiff's request for declaratory judgment on this basis).

challenged policy or practice.[71] The analysis requires balancing recipient's interests in implementing their policies with the substantial public interest in preventing discrimination.[72] Even when EPA finds a substantial legitimate justification, it must determine whether there are any comparably effective alternative practices that would result in less adverse impacts. Thus, even if a recipient demonstrates a substantial legitimate justification, the challenged policy or decision may nonetheless violate federal civil rights law if the evidence shows that a less discriminatory alternative exists.[73]

For complaints alleging air quality impacts, an area's attainment status for the NAAQS can be considered in EPA Title VI investigations but should not alone dispose of allegations of discrimination.[74] "[C]ompliance with standards adopted pursuant to the Clean Water Act, Clean Air Act, or other environmental laws does not ensure that persons are not adversely affected by a permitted facility, particularly if they are exposed to multiple sources of pollution in overly burdened communities."[75] EPA may identify a disproportionally affected population where a facility's proposed emissions would impair an Air Quality Control Region's ("AQCR") (as determined by EPA under the CAA) ability to comply with a NAAQS.[76] In doing so, EPA has considered additional modeling to determine whether emissions from a proposed permit are in fact below the NAAQS.[77] This additional modeling may change the administrative record and thus could lead to different permit terms or a denial.[78]

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[71] *Georgia State Conf.*, 775 F.2d at 1417. *See also*, *Patterson v. McLean Credit Union*, 491 U.S. 164, 186-87 (noting the framework for proof developed in civil rights cases), citing, *Texas Dept. of Community Affairs v. Burdine*, 450 U.S. 248, 254 (1981); *McDonnell Douglas Corp. v. Green*, 411 U.S. 792, 802 (1973).

[72] *See*, Department of Justice Title VI Legal Manual, Section VII: Proving Discrimination – Disparate Impact, §C.2, https://www.justice.gov/crt/fcs/T6Manual7#U.

[73] *Elston v. Talladega Cty. Bd. Of Educ.*, 997 F.2d 1394, 1407 (11th Cir. 1993); *see* ECRCO Toolkit, at 9-10.

[74] *In Re: Shell Gulf of Mexico, Inc., Shell Offshore, Inc.* (frontier Discovery Drilling Unit), 15 E.A.D. 103, 2010 WL 5478647 (Dec. 30, 2010), at *2 (holding EPA erred in relying solely on compliance with the then-existing annual NO_2 NAAQS in finding that Alaska Native populations would not experience adverse human health or environmental effects from the permitted activity when the NAAQS was under revision).

[75] Marianne Engelman Lado, TOWARD CIVIL RIGHTS ENFORCEMENT IN THE ENVIRONMENTAL JUSTICE CONTEXT: STEP ONE: ACKNOWLEDGING THE PROBLEM, 29 Fordham Envtl. L. Rev. 1, 16 (2017) (citing to Steve Lerner, SACRIFICE ZONES: THE FRONT LINES OF TOXIC CHEMICAL EXPOSURE IN THE UNITED SATES (2010).

[76] *See* Letter from Father Phil Schmitter & Sister Joanne Chiaverini, St. Francis Prayer Center, to Diane [sic] E. Goode, Director, EPA (June 9, 1998), https://www.documentcloud.org/documents/2162464-epa_05r-98-r5.html (*Select Steel* Title VI complaint); *also see* Letter from Ann E. Goode, EPA, to Father Phil Schmitter & Sister Joanne Chiaverini, St. Francis Prayer Center, (Oct. 30, 1998), https://www.documentcloud.org/documents/2162464-epa_05r-98-r5.html.

[77] See Order Denying Review, *In re Select Steel Corporation of America Permit No. 579-97*, Docket No. PSD 98-21, at 13 (Sept. 11, 1998) (denying review of the Select Steel decision on jurisdictional grounds), https://yosemite.epa.gov/oa/eab_web_docket.nsf/Unpublished~Final~Orders/1890AA3427C194748525706C0053DB75/$File/select.pdf.

[78] *In Re: Shell Gulf of Mexico, Inc., Shell Offshore, Inc.*, 2010 WL 5478647, at *3.

B. Limited English Proficient Populations

The failure to provide access to agency programs or activities to LEP people through translation and interpretation can violate Title VI.[79] EPA's LEP Guidance defines Limited English Proficient, or LEP, persons as "[i]ndividuals who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English."[80] EPA's LEP Guidance confirms that "Title VI prohibits conduct that has a disproportionate effect on LEP persons because such conduct constitutes national origin discrimination."[81] Further, it confirms that written materials informing LEP persons of "rights or services is an important part of 'meaningful access'" because "[l]ack of awareness that a particular program, right, or service exists may effectively deny LEP individuals meaningful access."[82] Thus, EPA recognizes that "[i]n certain circumstances, failure to ensure that LEP persons can effectively participate in or benefit from [f]ederally assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Act of 1964 [...] and Title VI regulations against national origin discrimination." [83] The LEP Guidance sets criteria for EPA to use to evaluate whether a recipient has fulfilled its Title VI obligations to LEP populations.

EPA established four factors used to determine the extent of a federal funding recipient's obligation to provide LEP persons with language services:

(1) the number or proportion of LEP persons eligible to be served or likely to be encountered by the program or grantee;
(2) the frequency with which LEP individuals come in contact with the program;
(3) the nature and importance of the program, activity, or service provided by the program to people's lives; and
(4) the resources available to the grantee/recipient and costs.

The LEP Guidance directs recipients to consider their past interactions with groups of LEP people and to affirmatively search for data on LEP individuals from, for example, the U.S. Census Bureau, school systems, and governments.[84] Immediacy and high toxicity can indicate an obligation to provide LEP people with language services. "A recipient needs to determine whether denial or delay of access to services or information could have serious or even life-threatening implications for the LEP individual."[85]

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[79] *Lau*, 414 U.S. at 566.

[80] 69 Fed. Reg. 35,602, 35,606.

[81] *Id.* at 35,605 (citing *Lau*).

[82] *Id.* at 35,610.

[83] *Id.* at 35,604.

[84] *Id.* at 35,606.

[85] *Id.* at 35,607.

EPA may revisit LEP issues resolved under prior complaints to find new Title VI violations tied to the agency's implementation of informal resolution agreement terms.[86] For example, in a recent complaint against the Bay Area Air Quality Management District ("BAAQMD"), EPA found that the agency's website failed to provide LEP people with an identifiable link to information in other languages on its homepage. What little information was provided using the website's search feature only resulted in "information that was vague and limited and can only be accessed by persons with LEP if they search the website and know how to activate the Google Translate function."[87] BAAQMD provided a phone interpretation service, but callers had to navigate through a pre-recorded message that was only in English. Further, EPA found that the agency's internal guidance documents regarding services to LEP populations—which were also only provided in English—were outdated and included Census information that was over twenty years old. EPA found that BAAQMD's agency-wide public participation plan was provided only in English and did "not provide specific policies and procedures on how it will provide [LEP] populations effective translation and interpretation services to ensure meaningful participation."[88]

C. TCEQ's Minor Source CBP Standard Permit, the Texas State Implementation Plan, and Texas's Requirements for Crystalline Silica

EPA first authorized Texas's standard permit program in 2003.[89] It did so under the understanding that TCEQ's program would comply with all minor source NSR permit "applicable requirements" under the CAA.[90] These include "emissions, production or operational limits, monitoring, and reporting."[91] According to EPA, standard permits provide a streamlined mechanism for permit approvals for similar sources by "provid[ing] an alternative process for approving construction of certain categories of new and modified sources for which TCEQ has adopted a Standard Permit."[92] Pursuant to Texas's SIP, so long as standard permits meet EPA-

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[86] Letter from Lilian S. Dorka, External Civil Rights Compliance Office, Office of General Counsel, EPA to Jack P. Broadbent, Chief Executive Officer/Air Pollution Control Officer, BAAQMD, Preliminary Findings for EPA Complaint No. 01R-21-R9 (Jun. 21, 2021), https://www.epa.gov/system/files/documents/2021-07/2021.06.21-baaqmd-final-preliminary-findings-letter-recipient-signed.pdf; *see also* Letter from from Lilian S. Dorka, External Civil Rights Compliance Office, Office of General Counsel, EPA to Carol S. Comer, Director, Missouri Dep't of Nat. Resources, Partial Preliminary Finding for EPA Complaint No. 01RNO-20-R7: Non-Compliance at 9-10 (Mar. 30, 2021) (issuing a preliminary finding of discrimination against LEP people based in part on a recipient's failure to provide translation services and in specific, the recipient's failure to "provide evidence that it offered or provided meaningful access to individuals with LEP during its solicitation for comments related to [a federal operating permit application under the CAA]), https://www.epa.gov/ogc/partial-preliminary-findings-letter-administrative-complaint-no-01rno-20-r7.

[87] *Id.* at 29.

[88] *Id.* at 30.

[89] 68 Fed. Reg. 64,543 (Nov. 14, 2003).

[90] 42 U.S.C. §§ 7410(a)(2)(A), (C).

[91] 68 Fed. Reg. at 65,544.

[92] *Id.*.at 64,546.

approved rules, then the permits satisfy CAA requirements. In its application to EPA to revise the Texas SIP, TCEQ made certain representations to EPA about TCEQ's standard permits[93]:

1. The permits would not apply to new major sources or major modifications.
2. Minor sources will satisfy CAA New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants.
3. Facility emissions will be registered.
4. Recordkeeping requirements will assure compliance.
5. The permits will be enforceable.
6. Standard permits development process includes public participation.[94]

TCEQ also represented to EPA that each "new or revised Standard Permits [would] undergo public notice and a 30-day comment period, and TCEQ [would] address all comments received from the public before finalizing its action to issue or revise a Standard Permit."[95] Further, standard permits must apply the best available control technology ("BACT").[96] In practice, CBP permit applicants are required to demonstrate that their facility's emissions will not cause or contribute to NAAQS and are protective of human health, general welfare, and physical property, commonly referred to a protectiveness review.[97]

TCEQ promulgated a standard permit for CBPs in 2000, with amendments in 2003, 2012, and 2021—the subject of this Complaint. The TCEQ claims that the most recent amendment is only to correct a clerical error, an error discovered only after TCEQ denied a CBP Standard Permit application, one of its very few denials on this permit. Through an administrative challenge to Bosque Solutions LLC's CBP application, residents were able to defeat the permit by demonstrating that TCEQ never evaluated the impacts of crystalline silica, a known carcinogen, in any of its protectiveness reviews in support of the standard permits.[98] Crystalline silica is a regulated pollutant under state law. Standard permits must meet emission limitations set by Table 262 to 30 Tex. Admin. Code § 106.262. While this table does not list crystalline silica, it notes that for compounds not listed, the TCEQ must apply "[t]he time weighted average (TWA) Threshold

[93] *Id.* at 64,544.

[94] Texas's standard permits are not subject to the Texas Administrative Procedure Act and thus do not follow the ordinary rulemaking process. Tex. Health & Safety Code § 382.05195(g). Instead, the TCEQ must publish only one notice of the draft permit in the Texas Register and the same in one or more statewide newspapers to solicit public comments for 30 days. *Id.* at § 382.05195(b). TCEQ must issue an RTC but, unlike individual permits and rules, "the commission shall issue a written response to the comments at the same time the commission issues or denies the permit" instead of prior to any commission action. *Id.* at § 382.05195(d). TCEQ can set an effective date for standard permit amendments, otherwise amendments take effect when permit registrations are renewed. *Id.* at § 382.05195(f).

[95] 68 Fed. Reg. at 64,547.

[96] Tex. Health & Safety Code §§ 382.051(b)(3), 382.05195(a).

[97] TCEQ, Air Quality Modeling Guidelines, APDG 6232, Air Permits Division, TCEQ (November 2019) at 10.

[98] *Lau*, 414 U.S. 563.

Limit Value (TLV) published by the American Conference of Governmental Industrial Hygienist (ACGIH) in its TLVs and BEIs guide (1997 Edition)."[99] Emissions of chemical has a limit value of less than 200 $\mu g/m^3$ are prohibited under state law.[100] According to the ACGIH, crystalline silica has a time value that is under 200 $\mu g/m^3$ and its emissions are prohibited.

TCEQ attempted to rely on an exemption but realized that it was removed during the 2012 permit amendment. This term exempted CBP operators from having to comply with, arguably, the two most protective permit conditions, buffers and emission limitations for certain compounds, including crystalline silica. This gave TCEQ no choice but to adopt the administrative law judges' findings and deny the permit application. Soon after, the TCEQ Chairman directed agency staff to correct the permit quickly. Under this guidance, the TCEQ Executive Director's staff re-opened the CBP Standard Permit for the purpose of reinstalling the broad exemption.

In response to the Bosque findings, the TCEQ published an English-only notice of a proposed amendment to the 2012 CBP Standard Permit to "add the exemption from emissions and distance limitations in 30 Tex. Admin. Code § 116.610(a)(1)."[101] The agency opened the public comment period for only 30 days, from May 28 to June 29, 2021, providing the public with no information about the agency's technical findings in support of the amendment.[102] On June 29, 2021, Harris County timely filed comments with the TCEQ regarding the proposed amendment. Despite considerable public participation, requests from a bipartisan cohort of elected officials from the local, state, and federal levels, and requests for materials and notice to be translated into Spanish, the Commission did not take further comment and instead proceeded to adopt the 2021 Amended CBP Standard Permit, effective on September 22, 2021.[103]

On October 18, 2021, Harris County filed a Motion for Rehearing with the TCEQ.[104] The Harris County's Motion requested that the TCEQ remand the matter to the executive director because the 2021 CBP Standard Permit is not protective of human health. In support, Harris

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[99] 30 Tex. Admin. Code § 106.262(a)(2), fig. 2.

[100] *Id.* at § 106.261(a)(3).

[101] *See* TCEQ CBP Notice.

[102] TCEQ, Order Issuing an Amendment to Air Quality Standard Permit (signed Oct. 5, 2021), TCEQ Docket No. 2021-0493-MIS, Non-Rule Project No. 2021-016-OTH-NR; Harris County has submitted a Texas Public Information Act request to obtain documents and records relating to the 2000, 2003, and 2012 Protectiveness Reviews (discussed below) developed by TCEQ during the adoption of the initial concrete batch plant standard permit and subsequent amendment. In specific Harris County has requested the methods, calculations, models, workbooks, and any other items prepared or relied on by the TCEQ in support of its findings. The request covers all compounds reviewed by TCEQ, including $PM_{2.5}$ and PM_{10} particulate matter and crystalline silica. *See* Office of the Harris County Attorney, Christian D. Menefee, Information request for Amendment to the Air Quality Standard Permit for Concrete Batch Plants; TCEQ Docket No. 2021-0493-MIS; Non-Rule Project No. 2021-016-OTH-NR (submitted on Oct. 15, 2021 and TCEQ sought clarification on the same day, Harris County clarified its request on Oct. 18, 2021).

[103] *Id.*

[104] Harris County, Texas's Motion for Rehearing on Order Issuing an Amendment to Air Quality Standard Permit, TCEQ Docket No. 2021-0493-MIS (Oct. 18, 2021), Attachment 15.

County submitted independent air dispersion modeling, discussed below, that demonstrates the CBP Standard Permit far exceeds NAAQS for $PM_{2.5}$ and PM_{10} and the ESL for crystalline silica and fails to meet state air permitting requirements. On November 15, 2021, the TCEQ denied all Motions for Rehearing. Having exhausted all possible administrative remedies, Harris County filed suit in state district court.[105] The matter remains pending in the 345th Judicial District in Travis County, Texas.

VI. The 2021 CBP Standard Permit is not Protective of Public Health or the Environment

A lot has changed since the agency issued the original CBP Standard Permit in 2000. Yet, the agency continues to rely on the protectiveness review it conducted for the original permit[106] and the limited review it conducted for the 2012 revision.[107] Also, for the 2021 CBP Standard Permit amendment, TCEQ also relied on modeling for aggregate production operations ("APOs"). There are considerable differences between CBPs and APOs that call into question whether using this modeling is appropriate.[108] TCEQ makes clear that "[t]his amendment to the standard permit does not affect the protectiveness review conducted during the development of the original standard permit."[109] According to the agency, its findings continue to comport with "current effects screening level guidelines and current [NAAQS]."**[110]** However, and as Harris County noted in its comment, that the current $PM_{2.5}$ NAAQS was promulgated by EPA after the 2012 Protectiveness Review.**[111]** Effective March 18, 2013, EPA lowered the $PM_{2.5}$ NAAQS from 15.0 micrograms per cubic meter ($\mu g/m^3$) to 12.0 $\mu g/m^3$ ("2012 $PM_{2.5}$ NAAQS").**[112]** TCEQ's 2012 CBP Standard Permit became effective on December 21, 2012.**[113]** The memorandum summarizing the 2012 Protectiveness Review makes no mention of the 2012 $PM_{2.5}$ NAAQS.**[114]** Thus, TCEQ cannot

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[105] *Harris County v. Tex. Comm. On Envt'l Qual.*, D-1-GN-21-006505 (345th Dist. Ct., Harris County, Texas) (filed Oct. 22, 2022) (petition, without accompanying attachments, Attachment 16).

[106] Texas Natural Resource Conservation Commission (TCEQ's predecessor agency), Air Permits Division, Office of Permitting, Proposed Standard Permit for Concrete Batch Plants (Apr. 25, 2000) (rereferred by TCEQ as the "2000 Protectiveness Review"), Attachment 17.

[107] TCEQ, Interoffice Memorandum from Mike Gould, P.E., Mechanical/Agricultural/Construction Section to Robert Opiela, P.E., Technical Program Support Section, Concrete Batch Plant Standard Permit Protectiveness Review ("2012 Protectiveness Review") (Sept. 24, 2012), Attachment 18.

[108] *See* comparison of the CBP Standard Permit to APO permit requirements, Attachment 19.

[109] 2021 Amendment, RTC at 7.

[110] *Id.* at RTC 1, 10 ("In addition, the protectiveness review conducted by the TCEQ in 2012 showed that the concentrations of $PM_{2.5}$ were below the levels of the [NAAQS], which are set to protect public health with an adequate margin of safety.").

[111] *See* Harris County CBP Comments at 9.

[112] 78 Fed. Reg. 3,086 (Jan. 15, 2013).

[113] TCEQ, Amendments to the Air Quality Standard Permit for Concrete Batch Plants at 1 (effective Dec. 21, 2012).

[114] 2012 Protectiveness Review at 2.

assure compliance with the 2012 $PM_{2.5}$ NAAQS because EPA had not yet finalized the standard by the time TCEQ completed the 2012 Protectiveness Review**.**

For over two decades, TCEQ has permitted CBPs in communities based on deficient air dispersion modeling for particulate matter and having never evaluated the effects of crystalline silica. Harris County conducted independent modeling using TCEQ's own CBP Emission Rate Calculation Workbook using both AERMOD and ISCST3 (v02035) to model for $PM_{2.5}$, PM_{10}, and crystalline silica. Unlike TCEQ, the County speciated pollutants in specific, crystalline silica. The results of this modeling are attached to this Complaint.[115]

First, Harris County modeled the 2012 CBP Standard Permit under perfect compliance, without considering background concentrations. Under nearly every circumstance, the offsite impacts exceeded the respective particulate matter NAAQS or TCEQ's crystalline silica ESL. The relevant pollutant standards are:

Pollutant	Standard/Metric
PM	150 µg/m³ (24 hr); 60 µg/m³ (annual) [1971-1987]
PM_{10}	150 µg/m³ (24 hr)
$PM_{2.5}$	35 µg/m³ (24 hr); 12 µg/m³ (primary NAAQS, annual)
Silica (PM)	14 µg/m³ (short-term)
Silica (PM_4)	0.27 µg/m³ (long-term)

These models reveal shocking levels of $PM_{2.5}$ and PM_{10} and crystalline silica impacts as far as 3 miles from the emission point, the bag house. In the tables below, the County summarizes AERMOD models under all types of terrain roughness and using meteorological data from three airports. These models do not account for background concentrations.

Crystalline silica. AERMOD results far exceed the short-term ESL threshold with maximum modeled concentrations ranging from 489.54 µg/m^3 to 1081.35 µg/m^3. Similarly, ISCST3 results exceed the short-term ESL threshold with maximum modeled concentrations at 786.84 µg/m^3. AERMOD results far exceed the long-term ESL threshold with maximum modeled concentrations ranging from 2.81 µg/m^3 to 5.78 µg/m^3. Similarly, ISCST3 results exceed the long-term ESL threshold with maximum modeled concentrations at 1.46 µg/m^3.

PM_{10} NAAQS. The PM_{10} 24-hour NAAQS is 150 µg/m^3. All but one AERMOD modeled concentration exceeds the NAAQS. Maximum modeled concentrations exceeding NAAQS range from 179.04 µg/m^3 to 497.97 µg/m^3. Similarly, ISCST3 results exceed the NAAQS with maximum modeled concentrations at 259.77 µg/m^3.

$PM_{2.5}$ NAAQS. Many AERMOD modeled concentrations exceed the 24-hour NAAQS, with the highest modeled concentration at 79.01 µg/m^3. Similarly, ISCST3 results exceed

[115] Harris County's air dispersion modeling tables and maps, Attachment 20.

the NAAQS with maximum modeled concentrations at 39.44 µg/m^3. All AERMOD modeled emissions exceed the Annual NAAQS, with the highest modeled concentration at 22.92 µg/m^3.

Because all modeled emissions far exceeded their respective Significant Impact Level ("SIL"), the County, following TCEQ guidance, proceeded to run models that considered background concentrations—TCEQ did not take this step. When determining whether to account for background, the TCEQ compares the highest modeled concentration to a SIL.[116] For purposes of particulate matter emissions, the 24-hour PM_{10} SIL is 5 µg/m^3, the Annual PM_{10} SIL is 1 µg/m^3, the 24-hour $PM_{2.5}$ SIL is 1.2 µg/m^3 , and the Annual $PM_{2.5}$ SIL is 0.2 µg/m^3.[117] If the modeled concentration is greater than the SIL, the proposed source could make a significant impact on existing air quality.[118] In that case, the predicted concentration, plus representative monitoring background concentrations, are compared to the respective PM NAAQS.[119]

Background concentrations of $PM_{2.5}$ in the County are significant. There are seven TCEQ air quality monitors in Harris County that measure $PM_{2.5}$.[120] Between 2018 and 2020, on average, $PM_{2.5}$ concentrations in the ambient air ranged from 7.3 µg/m^3 to 10.3 µg/m^3 and the average reading for all the monitors is 9.29 µg/m^3. TCEQ's 2012 Protectiveness Review found that at 100 feet from the emission source (the bag house), $PM_{2.5}$ emissions from the CBP alone are 9.31 µg/m^3 for 30 cu. yd/hour and 7.19 µg/m^3 for 300 cu. yd/hour.[121] Taking background and modeled emissions together, like County residents experience, puts $PM_{2.5}$ levels well above the former (15.0 µg/m^3) and current (12.0 µg/m^3) 2012 $PM_{2.5}$ NAAQS. In almost every separate analysis, using both AERMOD and ISCST3 models, modeled emissions exceed the 2012 $PM_{2.5}$ NAAQS, the PM_{10} NAAQS. The County also modeled for cumulative impacts and this is discussed below.

The County's modeling, including for cumulative impacts as discussed below, renders TCEQ's BACT determinations for the CBP Standard Permit null.[122] The TCEQ is authorized to issue standard permits for similar facilities only if the standard permit is enforceable, includes adequate compliance monitoring, and uses BACT.[123] Whether a type of control technology

[116] TCEQ, Air Quality Modeling Guidelines, APDG 6232, Air Permits Division, TCEQ (November 2019).

[117] *Id.*

[118] *Id.*

[119] *Id.*

[120] *See* Harris County CBP Comments at 9 (Clinton Park, Deer Park, Baytown, Aldine, Seabrook, Houston East, and Park Place).

[121] *Id.* at 10.

[122] While BACT only applies to major sources pursuant to the CAA, 42 U.S.C. § 7479(3), TCEQ applies a comparable state BACT standard, and that is the standard discussed here.

[123] Texas Health & Safety Code §§ 382.051(b)(3), 382.05195(a)(3); 30 Tex. Admin. Code § 116.602.

qualifies as BACT depends on whether the TCEQ finds that the technology is technically practicable and economically reasonable.[124]

The TCEQ has not demonstrated that the 2021 Amended CBP Standard Permit uses BACT. TCEQ last assessed for BACT in the 2012 CBP Standard Permit – over 9 years ago.[125] In light of the modeling results discussed above and the length of time since a BACT analysis, a proper assessment would include updated modeling and require a re-evaluation of BACT. BACT could include further distance requirements, additional requirements to address visible emissions, and added requirements for housekeeping to prevent dust, such as the ones recommended by HCPCSD in public comment which went unacknowledged by the TCEQ.

Pollutant: Silica						
	Maximum Modeled Ground-Level Concentrations (µg/m³)					
	1-Hour (14)			Annual (0.27)		
Met Station	Low	Med	High	Low	Med	High
IAH	897.21	567.39	488.27	5.53	4.96	3.72
EFD	850.93	519.99	477.26	4.78	4.06	2.81
HOU	1081.35	587.28	489.54	5.78	4.29	3.26

Pollutant: PM_{10}						
	Maximum Modeled Ground-Level Concentrations (µg/m³)					
	24-Hour (150)			Annual		
Met Station	Low	Med	High	Low	Med	High
IAH	497.97	267.83	201.22	139.80	129.65	97.54
EFD	410.23	214.49	136.64	123.07	100.98	75.88
HOU	400.72	224.58	179.04	144.45	117.73	90.16

Pollutant: $PM_{2.5}$						
	Maximum Modeled Ground-Level Concentrations (µg/m³)					
	24-Hour (35)			Annual (12)		
Met Station	Low	Med	High	Low	Med	High
IAH	79.01	43.65	31.95	21.78	20.34	15.51
EFD	64.74	34.98	22.29	19.46	15.78	12.06
HOU	64.72	35.37	28.48	22.92	18.31	14.23

[124] Texas Health & Safety Code at § 382.0518(b)(1).

[125] TCEQ, Amendments to the 2012 Concrete Batch Plant Air Quality Standard Permit Summary Document, at Page 2, available at https://www.tceq.texas.gov/permitting/air/newsourcereview/mechanical/cbp.html.

The following table summarizes modeled offsite impacts from a single CBPs for $PM_{2.5}$, PM_{10}, and crystalline silica using ISCST3 and using rural land use as the dispersion coefficient. Like the above AERMOD tables, the below results do not include background.

RURAL ISCST3 Version 02035 Runs

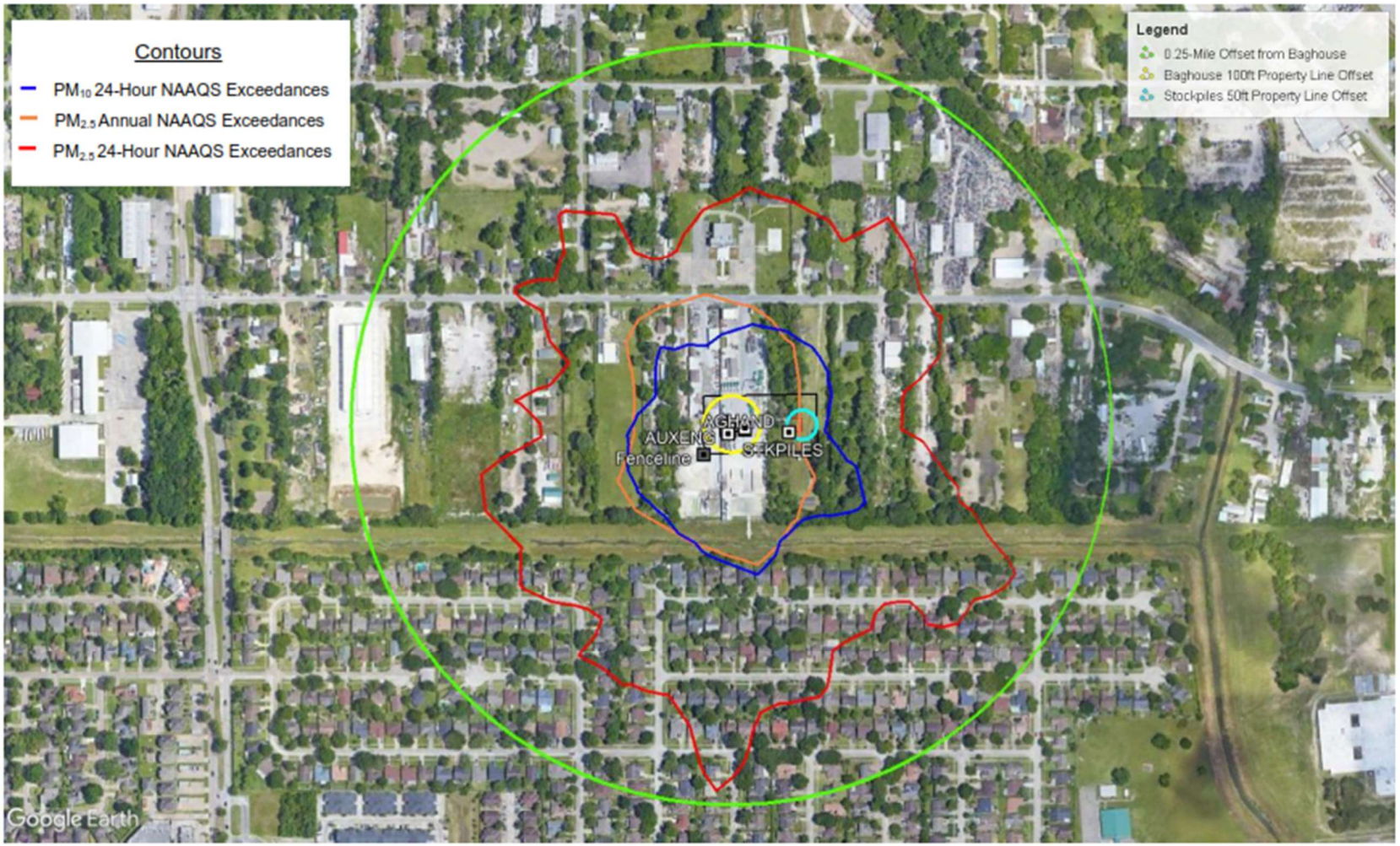
Permanent Concrete Batch Plant			
Pollutant	Maximum Modeled Ground-Level Concentrations (µg/m³)		
	1-Hour	24-Hour	Annual
PM		553.57	96.24
PM_{10}		259.77	
$PM_{2.5}$		39.44	6.67
SIL	786.84		
SIL_4			1.46

ISCST3 modeling using rural land use dispersion.

Pollutant: $PM_{2.5}$ and PM_{10} **Averaging Period:** 24-hour and Annual **Output Units:** $\mu g/m^3$

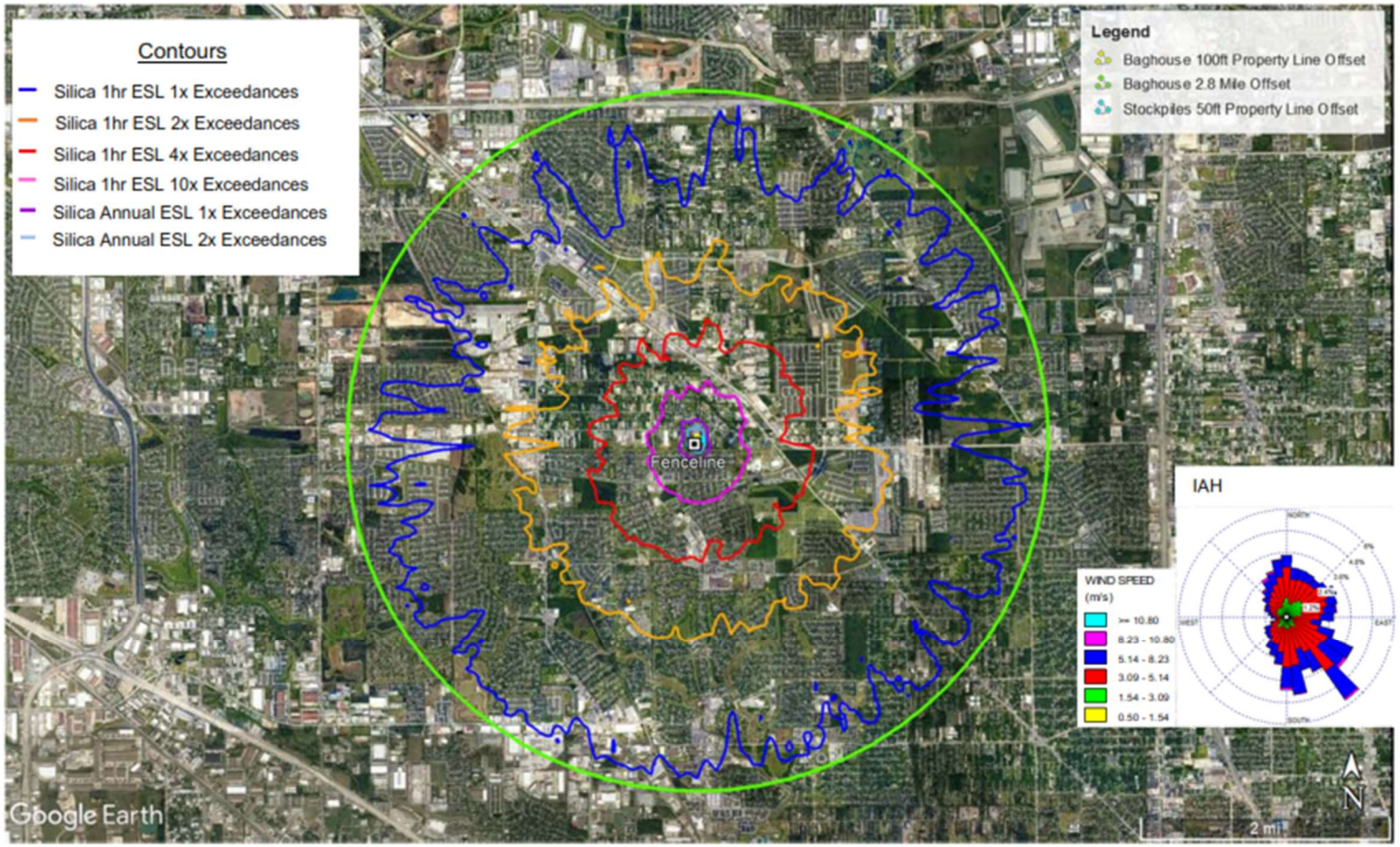
Values: Site + Background **Map Type:** Google Earth **Model:** ISCST3 (v02035)

Generated: 10/14/2021 **MET Data:** IAH **Page:** 1 of 1



[Silica] The figure below depicts air dispersion modeling results of crystalline silica from CBP operations. Model input emission rates are based on TCEQ's emission calculation workbook for CBPs. One (1) year of surface meteorological data provided by TCEQ was used. Contours mark the extent of the area in which the CBP impacts exceed some multiple of a TCEQ toxicological level (either the short- or long-term Effects Screening Level, or ESL).

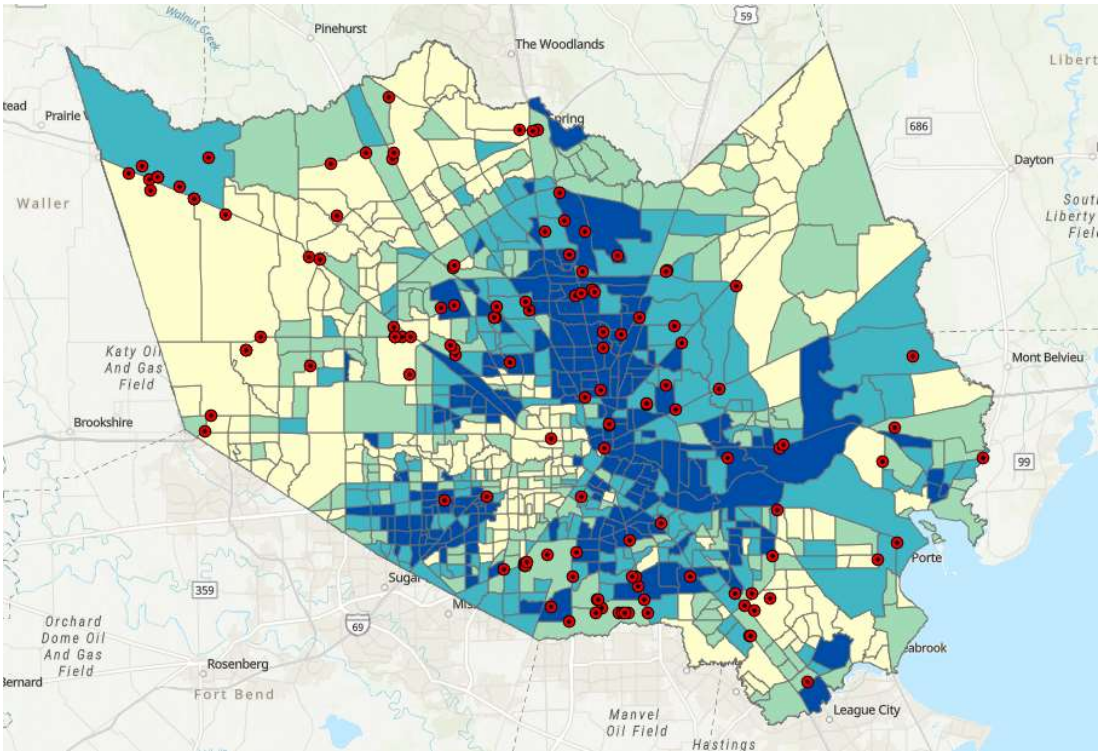
Model: ISC3T3 (v02035) **Configuration:** 2 CBPs (Stacked) **Pollutants:** Crystalline silica **Met Data:** IAH



The CAA allows states to administer their own minor source NSR permit programs so long as these programs "assure that the national ambient air quality standards are achieved."[126] Texas's CBP Standard Permit fails to meet this requirement.

VII. TCEQ's CBP Standard Permit Program Has a Negative Disparate Impact on Racial and Ethnic Minorities, LEP People, and Low-Income People

Data from the U.S. Census Bureau cited above shows that TCEQ's administration of the CBP Standard Permit allows CBPs to be sited in communities that are disproportionately made up of low income, Latino, Black, and LEP people. The map below illustrates the location of CBPs in Harris County and the Center for Disease Control's ("CDC") social vulnerability index.[127] This CDC tool considers 15 social factors, including poverty, car ownership, race, ethnicity, and language.



Map of concrete batch plants located in Harris County according to 2020 TCEQ data, overlaid with the Center for Disease Control Social Vulnerability Index. Darker colors indicate higher vulnerability.

TCEQ's CBP standard permit continues to fail to protect Harris County residents in a manner that disproportionately impacts racial and ethnic minorities, LEP people, and poor people. First, TCEQ fails to account for unique cumulative impacts that specifically apply to Harris County residents. Second, TCEQ failed to provide meaningful public engagement in the development of the permit and excluded LEP from what little public process the agency did offer. Finally, third,

[126] 42 U.S.C. § 7410(a)(2)(C).

[127] CDC and Agency for Toxic Substances and Disease Registry, Social Vulnerability Index, https://www.atsdr.cdc.gov/placeandhealth/svi/index.html.

TCEQ excluded LEP people from the public process it affords to the development of CBP Standard Permits.

A. The 2021 CBP Standard Permit is Not Protective of Human Health and Fails to Consider Cumulative Impacts

The HGB area's attainment status for the 2012 $PM_{2.5}$ NAAQS cannot alone determine whether the 2021 CBP Standard Permit is protective of human health or the environment.[128] And even if EPA were to take this approach, TCEQ would still fail the mark. As demonstrated above, and in the cumulative impacts discussion that follows, the County's air dispersion modeling demonstrates that the permit is not protective of public health or the environment. EPA can and should give weight to this additional modeling that demonstrates that the permit exceeds health-based limits for particulate matter and crystalline silica. NAAQS are designed to protect the ambient air, not the air at the fenceline of a facility. Houston's lack of community planning and zoning restrictions further intensifies this problem. In Harris County, it is not uncommon for a CBP to share a fence with a residential property.

There are many communities in the County where there are multiple CBPs and other industry within the community. TCEQ is statutorily mandated to "protect the public from cumulative risk in areas of concentrated operations" and to "give priority to monitoring and enforcement in areas in which regulated facilities are concentrated."[129] TCEQ states that it considered "cumulative or additive emissions during the protectiveness review [2000 and 2012, presumably]."[130] However, TCEQ's definition of "cumulative impact" restricts its analysis to cumulative impacts from one site. In response to comment, the agency did not explain its rationale on this point or whether or why the agency could not apply a different definition.

According to the TCEQ, the protectiveness review in support of the CBP Standard Permit "included site-wide production limits to avoid the potential for cumulative emissions that would be higher than what is authorized by the standard permit."[131] While emissions from multiple sources at one site can contribute to cumulative impacts, the County and many other commenters made TCEQ aware of other, more prevalent cumulative impacts. For example, communities with several CBPs that are not in the same site and communities with one or more CBP co-located or in the vicinity of other sources of air pollution in the community.

TCEQ regulations do not define "cumulative impacts" in this action or in rules. For the 2021 Amended CBP Standard Permit, TCEQ states that "cumulative impacts" are those from one "site" - another term that is undefined for the purpose of determining cumulative impacts. In another permitting matter, TCEQ states that "[t]he TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing ESL values that

[128] *See In Re: Shell Gulf of Mexico, Inc., Shell Offshore, Inc.*, 2010 WL 5478647, at *3.

[129] Tex. Water Code § 5.130.

[130] 2021 Amendment at RTC 8.

[131] *Id.*

are used in air permitting."[132] And in another agency permitting action for oil and gas operations, the TCEQ claims that "emissions monitoring and inventory in the Barnett Shale....addresses ambient air conditions from a cumulative basis to ensure groups of facilities are not contributing to problems in particular locations."[133]

To assess cumulative impacts, the County modeled two CBPs side-by-side using AERMOD under medium terrain roughness, considering background concentrations, and working under perfect compliance with two separate CBP Standard Permits. The County considered a situation where one CBP is downwind from another CBP. Under every circumstance, modeled emissions far, far exceeded applicable NAAQS and ESLs.

Pollutant: Silica		
Maximum Modeled Ground-Level Concentrations (µg/m³)		
	1-Hour (14)	**Annual (0.27)**
Met Station	**Med**	
IAH	599.48	5.47
EFD	564.53	4.42
HOU	623.87	4.78

Table 6: Multi-plant crystalline silica modeled emissions.

Pollutant: PM		
Maximum Modeled Ground-Level Concentrations (µg/m³)		
	24-Hour (150)	**Annual (60)**
Met Station	**Med**	
IAH	875.98	347.29
EFD	693.65	279.34
HOU	690.94	310.66

Table 7: Multi-plant total particulate matter modeled emissions.

Pollutant: PM_{10}		
Maximum Modeled Ground-Level Concentrations (µg/m³)		
	24-Hour (150)	**Annual**
Met Station	**Med**	
IAH	293.99	141.36
EFD	233.19	112.84
HOU	241.20	131.21

[132] *See* TCEQ, Application by Valero Refining - Texas, L.P. Houston Refinery, Houston, Harris County (Air Quality Permit No. 2501A) 13; SOAH Docket No. 582-20-4163; TCEQ Docket No. 2020-0783-AIR (application remanded to the ED on Mar. 17, 2021 by order of the ALJs).

[133] TCEQ, Commission Approval for Rulemaking Adoption, Chapter 106 – Permits by Rule, Non-Rule Air Quality Standard Permit for Oil and Gas Handling and Production Facilities, Oil and Gas Permit by Rule and Standard Permit Corrections, Response to Comment, Rule Project No. 2011-014-106-PR 172 (adopted Jan. 11, 2012); TCEQ Docket No. 2011-0893.

Table 8: Multi-plant coarse particulate matter modeled emissions.

Pollutant: $PM_{2.5}$		
Maximum Modeled Ground-Level Concentrations (µg/m³)		
	24-Hour (35)	Annual (12)
Met Station	Med	
IAH	47.92	22.23
EFD	38.03	17.72
HOU	38.10	20.50

Table 9: Multi-plant fine particulate matter modeled emissions.

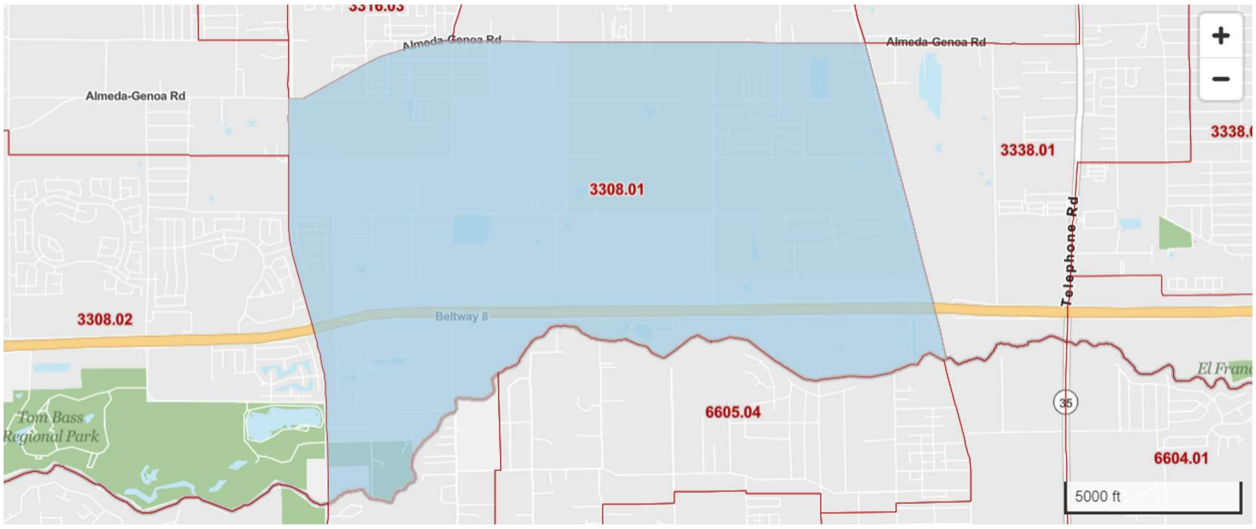
Racial and ethnic minorities and low resource people bear a disproportionate share of this excessive pollution. In southeast Harris County, for example, there are at least 16 CBPs within approximately a three-mile radius from the intersection of East Orem Drive and Martindale Road. This part of the County includes Sunnyside, a community with a legacy of blatant environmental racism against Black Americans.[134]

Concrete batch plant locations in and around Sunnyside.[135]

This area is where Census Tract 3308.01 in zip code 77048 is located. This Census Tract has the most CBPs sited, 7 in total, out of all of the Census Tracts identified by the County with active registrations under the 2012 CBP Standard Permit. The population in this Census Tract is 40.86% Black or African American.

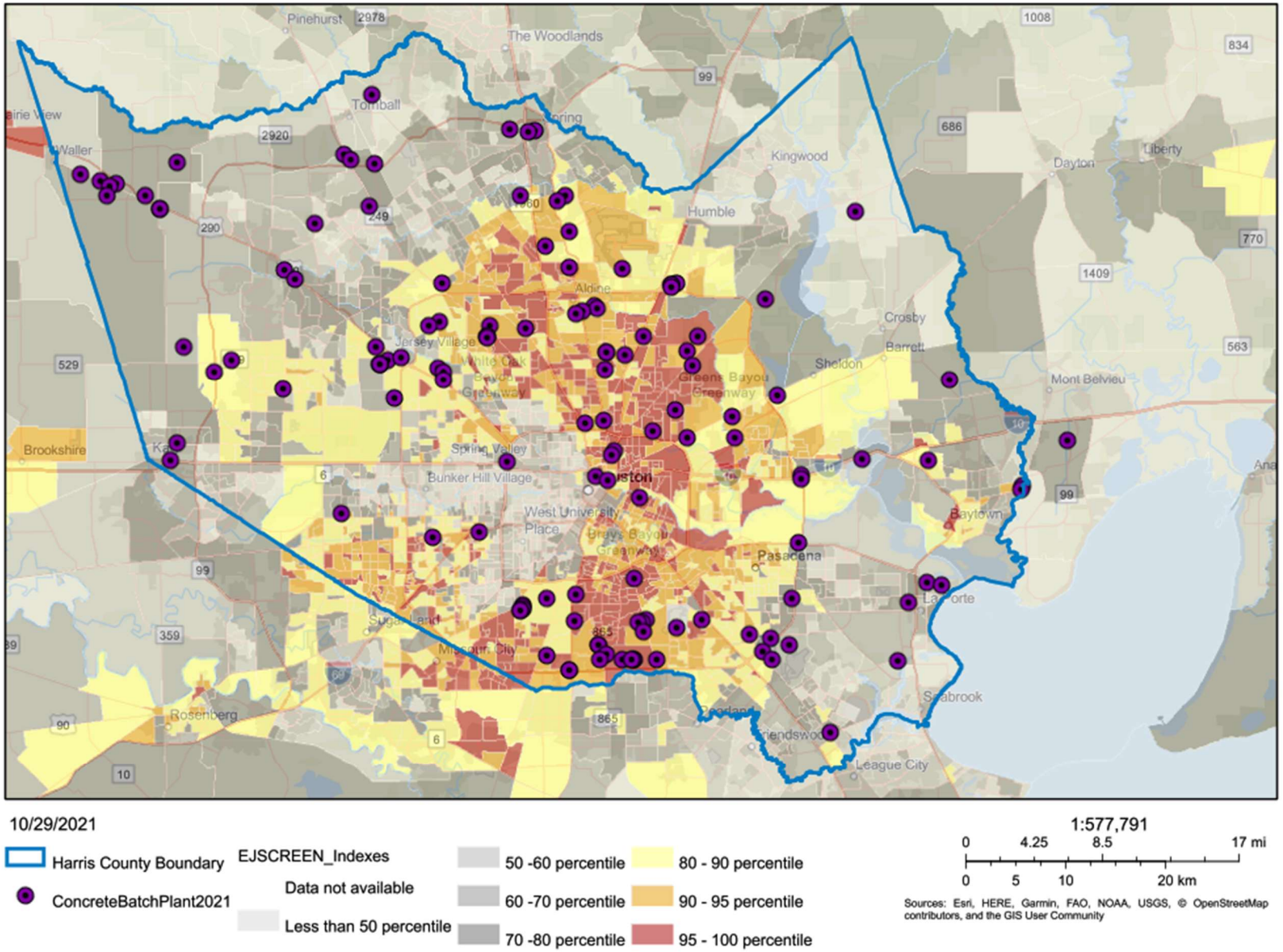
[134] *See* Bullard, Robert D., PhD, Invisible Houston: The Black Experience in Boom and Bust at 71-72 (1987) (discussing a disproportionate number of incinerators and landfills in Sunnyside).

[135] Interactive map maintained by Harris County Pollution Control Services available: https://harriscounty.maps.arcgis.com/apps/webappviewer/index.html?id=28e3ce8cf8c5475989beb52b090e8db5.

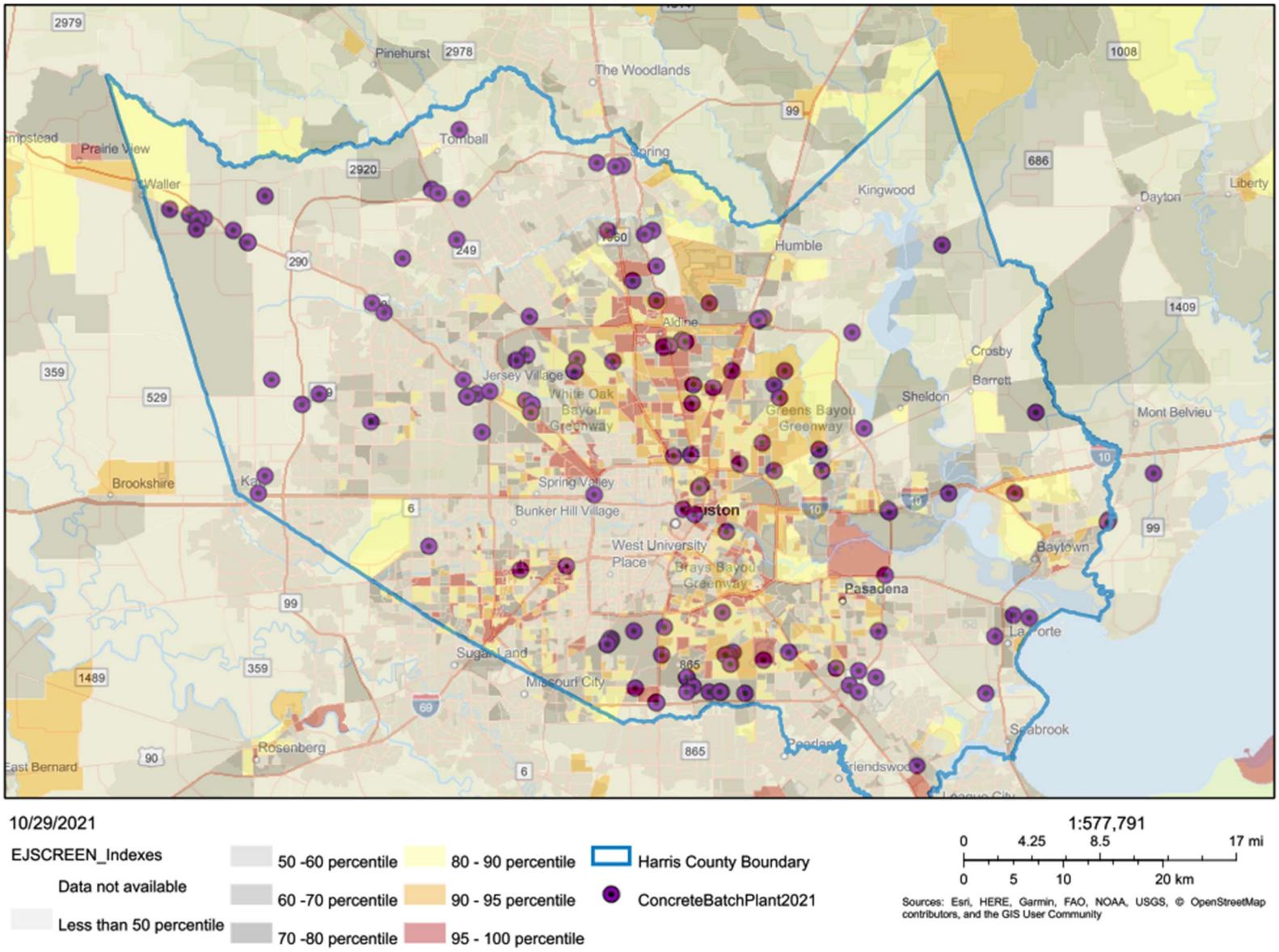


The failings of the CBP Standard Permit allow operators to pollute with impunity in communities that are already unjustly burdened by sources of pollution from CBPs and other sources. Though racial and ethnic minorities make up the majority of the population in Harris County, this does not mean that disproportionate impacts are not possible in the County. Disproportionate impacts are apparent in the County's east-west divide. More industrial facilities are sited in eastern parts of Harris County, including the Houston Ship Channel, where minorities and low-income people are overrepresented. Meanwhile, less facilities are sited in western Harris County where there are less communities of color and greater wealth.[136] This pattern holds true for the bulk of CBP sites, as seen in the maps below. Higher percentiles indicate higher concentrations of people of color and poor people.

[136] Union of Concerned Scientists and Texas Environmental Justice Advocacy Services, *Double Jeopardy in Houston: Acute and Chronic Chemical Exposures Pose Disproportionate Risk for Marginalized Communities* (Aug. 22, 2016) (discussing higher risk of chemical accidents and toxic exposure in minority communities in eastern Harris County communities in comparison to white western Harris County communities), https://www.ucsusa.org/resources/double-jeopardy-houston.



EPA's People of Color National Index and Concrete Batch Plant Locations in Harris County, Texas



EPA's Low Income Population National Index and Concrete Batch Plant Locations in Harris County, Texas

TCEQ's permit places impacted residents in an impossible situation when an operator decides to site a facility in the community. Residents have little recourse when a CBP operator decides to move into their community. Restrictive state laws limit who can challenge CBP Standard Permit applications to "only those persons actually residing in a permanent residence within 440 yards of the proposed plant."[137] Even when residents can meet this high bar, TCEQ rarely denies CBP Standard Permit applications, making the Bosque Solutions, LLC denial truly extraordinary. In an act that further limits a residents ability to challenge a CBP application, TCEQ's rules prohibit the admissibility of air dispersion modeling at a contested case hearing on a CBP Standard Permit registration.[138] In 2017, the Texas Legislature further restricted the process when it changed the CBP Standard Permit public notice rules to require only one notice providing for a 30-day public comment period, down from two notices, two 30-day comment periods, and any time between the two notices.[139]

Communities with CBPs regularly have other sources of pollution in the community, like industrial plants, highways, 18-wheeler truck terminals, and several CBPs. The County accounted for cumulative impacts by modeling two facilities "stacked" and operating in perfect compliance with two separate CBP Standard Permits. These models again show exceedances well beyond the property line. These models are attached.[140] The crystalline silica model shows exceedances up to a 3-mile radius from the bag house with background concentrations.

B. Failure to Provide Meaningful Public Participation

TCEQ failed on its promise to provide meaningful public engagement as part of the development of the CBP Standard Permit. On May 28, 2021, TCEQ announced that it opened the CBP Standard Permit for 30 days of public comment. TCEQ did so through a government listserv, on its website, and in one newspaper in each of Austin, Houston, and Dallas. This short announcement was only in English. TCEQ provided no technical information in support of the announcement, even when the agency was asked to do so.[141] It held only one virtual public meeting where the agency took comment but ended the meeting before all participants had an opportunity to speak. The result of this nontransparent process is that LEP people were excluded. TCEQ mailed its RTC after the TCEQ Commissioners adopted the CBP Standard Permit amendment on September 22, 2021. TCEQ adopted the amendment under the objection and request for more time and information from many, including Harris County and a bipartisan cohort of state and federal elected officials. The RTC also falls short. Several of Harris County's comments went unacknowledged, including one suggesting more protective permit conditions. TCEQ's process deprives the public—and local governments like Harris County—from providing well-informed

[137] Tex. Health & Safety Code § 382.058(c).

[138] 30 Tex. Admin. Code § 80.128.

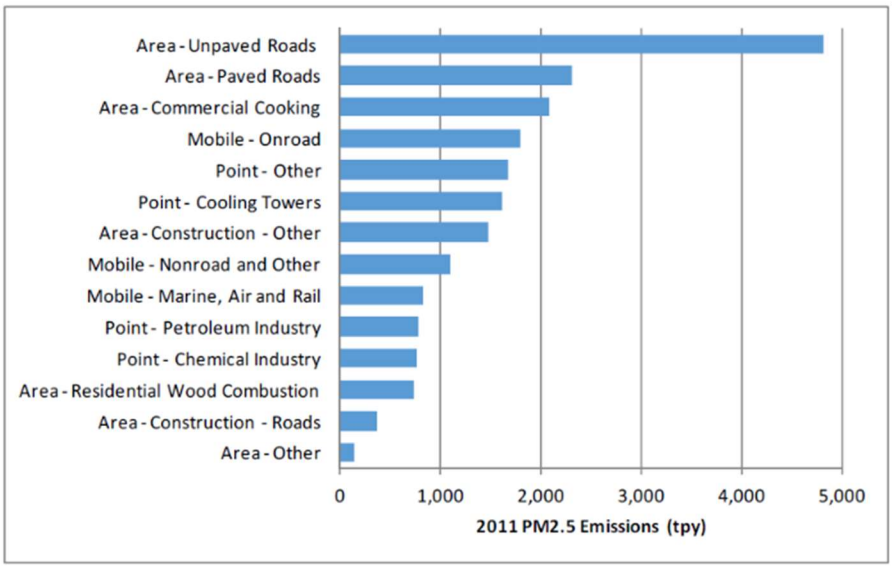
[139] 30 Tex. Admin. Code § 39.603(c) (for CBPs, combining the Notice of Intent to Obtain a Permit (also known as "NORI" or first notice) and the Notice of Application and Preliminary Decision (also known as "NAPD" or second notice)).

[140] *See* Attachment 20.

[141] *See* Harris County CBP Comment.

comments based on first-hand knowledge and reviews of technical and other supporting information.

In comment, HCPCSD presented TCEQ with specific improvements to the CBP Standard Permit based on its years of CBP enforcement experience and "122 Facility investigations and a total of 144 Violation Notices" completed by PCS since February 2020 as part of its Concrete Batch Plant Initiative.[142] As more fully described in the County's comment, PCS's recommendations include common-sense adjustments to the CBP Standard Permit intended to achieve enduring compliance with the permit's terms. For example, because "[f]ailure to pave all entry and exit and main traffic routes" is a very common violation, PCS recommended that facilities submit "an As-Built Certification, signed and sealed by an engineer, to tell TCEQ and the local pollution control authority that all entry and exit and main traffic routes....have been paved."[143] Unpaved roads are also the leading source of $PM_{2.5}$ emission sources in the County.



2011 Houston-Galveston-Brazoria Annual $PM_{2.5}$ Emissions.[144]

Land development in the County requires a permit from the Harris County Engineering Department, including CBPs.[145] The typical permit application must be supported by an As-Built Certification signed and sealed by an engineer. Thus, the burden of such a requirement could be little to none. PCS would like for the Commission to consider and respond to its recommendations.

[142] *Id.* at 7-8.

[143] *Id.*

[144] 2021 H-GAC Update at 15.

[145] *See* Regulations of Harris County, Texas for Floodplain Management (July 9, 2019).

Perhaps a reason that the CBP Standard Permit went unchallenged for so long is because Texas law prohibits applicants from conducting "air dispersion modeling before beginning construction of a concrete plant, and evidence regarding air dispersion modeling may not be submitted at a hearing..."[146]

C. TCEQ Excluded LEP from the Public Participation Process

TCEQ's notice for the 2021 CBP Standard Permit amendment excluded LEP residents from the CBP Standard Permit public participation process. Harris County explained in its comment to TCEQ that a quarter or more of the CBPs in Harris County are in zip codes where 20% or more of the population age 5 years and over do not speak English or do not speak it very well, with Spanish being the most widely spoken language among these residents.[147] TCEQ seems to think that Title VI obligations are fulfilled by merely adhering to state law which requires it to only "provide reasonable notice throughout the state."[148] In rules, TCEQ interprets its enabling legislation to mean that it must only "publish notice in the daily newspaper of largest general circulation" in Austin, Dallas, and Houston.[149] In its RTC,[150] and without discussion, TCEQ perfunctorily concludes that "[b]ilingual notice was not required per state statute or rule."[151] TCEQ should know better. It was recently the subject of a Title VI civil rights investigation that prompted sweeping changes at the agency to create greater access to agency programs for LEP populations.[152]

It is clear that EPA's four factor test is more than substantiated here. First, approximately 20% of the County is made up of LEP people and this figure rises to 23% among the Census Tracts with two or more CBPs. This far exceed the 5% benchmark TCEQ recently set in its public participation plan for LEP people.[153] Second, TCEQ receives applications for CBPs in Harris

[146] Tex. Health & Safety Code at § 382.058(d).

[147] Harris County CBP Comment.

[148] Tex. Health & Safety Code § 382.05195(b).

[149] 30 Tex. Admin. Code §116.605(c).

[150] Found within the 2021 Amendment and formed part of supporting materials given to the Commissioners for deliberation at the September 22, 2021 Commissioners' Meeting. Harris County notes that the RTC was not provided prior to the Commissioners' deliberations.

[151] 2021 Amendment, RTC at 22.

[152] *See* Informal Resolution Agreement between the Texas Commission on Environmental Quality and the United States Environmental Protection Agency, EPA Complaint No. 02NO-20-R6 (Nov. 3, 2020), Attachment 21.

[153] TCEQ, Language Access Plan (The County notes that there are at least two ways of accessing this and other Title VI compliance documents but the public has to navigate several webpages to get to them. The first would have a member of the public click through 4 pages that are not clearly labeled, from TCEQ's homepage, the pages are titled "Agency," "Agency Deliberations and Decisions," "Public Representation and Participation," and "Title VI Compliance at TCEQ." The second also starts with the agency's homepage, then the public has to scroll to the bottom to find "Learn about public participation and inclusion," then click on "Title VI Compliance at TCEQ."), https://www.tceq.texas.gov/agency/decisions/participation/title-vi-compliance#:~:text=TCEQ's%20Language%20Access%20Plan,a%20timely%20and%20reasonable%20manner.

County, the agency has reason to know that there is a substantially high likelihood that it will encounter LEP people, specifically Spanish speakers. Repeatedly, the County, residents, and advocates must raise LEP concerns only to be ignored by TCEQ over and over again. For example, on average, 53% of households are made up of LEP people in the Census Tracts that include and surround the proposed Avant Garde facility cited above. Despite this, community members have to plead with TCEQ to provide language interpretation services at an upcoming public meeting, as well as Spanish notice for the upcoming meeting. TCEQ also recently engaged in similar discriminatory behavior in a landfill permit application for the Hawthorne Landfill in southwest Harris County.[154] There, the agency held a public meeting without Spanish translation knowing that many comments made in Spanish were part of the record. This also runs contrary to the rules and policies TCEQ enacted. In Harris County, TCEQ must always provide Spanish language services, residents should not have to plead with TCEQ every time. TCEQ is engaging in the same behavior that was subject of the 2019 Title VI complaint.

Third, the public process afforded to CBP Standard Permit applications is important. These facilities create tremendous problems in the community and permit are issued for years at a time. Community members have a very small window to make their concerns heard. Without translation and publication in appropriate newspapers, LEP people in Harris County and throughout the state remain without notice of this important change in regulation, including those who own and operate CBPs and work in the facilities. In this instance, LEP community members were denied meaningful access to TCEQ's public participation process for CBPs, including the agency's public meeting on the amendment held on June 28, 2021.

Public meetings provide meaningful and exclusive opportunities for public participation. They often mark the end of the public comment period and offer the only opportunity to introduce oral public comment into the administrative record. Public meetings serve to democratize important decisions affecting communities for years to come. Panelists may provide attendees with presentations, handouts, and contact information. The TCEQ Executive Director's staff will typically talk about the status of the application, technical review, and procedural next steps. Community members also have an opportunity to ask questions of staff during an informal question and answer session. Nowhere else can community members receive this information succinctly and tailored to their concerns about a particular facility.

Lastly, the fourth factor in EPA's analysis looks at agency resource. The TCEQ has the resources to provide adequate language service to LEP people. The agency often touts the fact that it is the second largest environmental regulation agency in the Nation, after EPA. It funds its programs, in part, through application fees. If it is such a financial burden to TCEQ, something the agency has not outwardly claimed, perhaps it should pass the cost to the applicant.

VIII. Violations of Title VI

The facts and law cited in this Complaint establish a *prima facie* case of discriminatory conduct by TCEQ. Harris County believes that an investigation is warranted pursuant to EPA's

[154] Harris Count Attorney, Request for a Public Meeting; USA Waste of Texas Landfills Inc., Application for Municipal Solid Waste Permit No. 2185A; 10550 Tanner Road, Houston, Texas (Mar. 28, 2022), Attachment 22.

Case Resolution Manual[155] and that this investigation would result in further evidence pointing to discrimination including further review of Texas law, TCEQ rule and policy, TCEQ practice, modeling, Census data, and other information provided support this Complaint and that EPA may encounter during its investigation. There is no "substantial legitimate justification" for TCEQ's discriminatory conduct. For years, communities and advocates across the state have warned the agency of the discriminatory impacts of the CBP Standard Permit to no avail.

Further, Harris County believes that the evidence cited in this Complaint supports a finding of discrimination by a preponderance of the evidence, in specific, on the two points below.

A. TCEQ's Administration of CAA Minor Source NSR Requirements Negatively and Disproportionately Impact the Public Health in Communities where Racial and Ethnic Minorities, LEP People, and Low-Income People are Overrepresented

The Texas SIP requires that TCEQ administer the CBP Standard Permit in compliance with the CAA. To do so, TCEQ must establish "emissions, production or operational limits, monitoring, and reporting" sufficient to comply with the NAAQS.[156] TCEQ is supposed to do this through a protectiveness review and modeling in support the permit. Further, TCEQ is supposed to provide a meaningful public participation process and respond to public comments prior to issuing minor source NSR permits. The 2021 CBP Standard Permit does not meet these requirements and these failings disproportionally and adversely affect racial and ethnic minorities, LEP people, and low-income people.

The permit fails on enforceability against the PM_{10} and the $PM_{2.5}$ NAAQS because even when operators perfectly comply with 2021 CBP Standard Permit terms, the CBP emissions still exceed the applicable NAAQS. Further, by nesting a state law requirement for crystalline silica into a federally-required permit, TCEQ compounds the disproportionate pollution burden borne by surrounding communities. Further, TCEQ did not provide a meaningful public participation process. The agency failed to provide the public with information in support of its permit proposal, even when asked to do so. The agency offered one virtual public meeting on an English-only notice and did not allow all participants to provide comment. As a result, TCEQ's administration of this program falls short of meeting CAA requirements and U.S. Census Bureau data demonstrates that TCEQ's inability to comply with the CAA disparately impacts racial and ethnic minorities, LEP people, and low-income people.

B. TCEQ's Public Participation Process Excluded LEP People, Again

The TCEQ lacks procedural safeguards required by 40 C.F.R. Parts 5 and 7 sufficient to ensure that the agency complies with general nondiscrimination obligations, including specific policies and procedures to ensure meaningful access to TCEQ's services, programs, and activities, for individuals who are racial and ethnic minorities and LEP people. As discussed above, the

[155] EPA, Case Resolution Manual (Jan. 2021), https://www.epa.gov/sites/production/files/2021-01/documents/2021.1.5_final_case_resolution_manual_.pdf.

[156] 68 Fed. Reg. at 65,544.

TCEQ is not providing LEP people with meaningful access to the public participation the agency gives to the development of standard permits. For example, TCEQ did not provide background information or notices in Spanish. Also, the record does not indicate that TCEQ conducted any LEP outreach, especially for LEP people.

TCEQ is also in violation of at least two terms from the Informal Resolution Agreement resolving EPA Title VI Complaint 02-NO-20-R6. Specifically, § III.A.3. where TCEQ was supposed to hold two community meetings within one year of its first virtual meeting on it LEP rule changes. The first meeting was held on April 27, 2021. As of the date of this Complaint, TCEQ has neither held nor noticed such meetings. Further, § III. B.1.c. requires that TCEQ develop nondiscriminatory public participation procedures, including procedures for engaging with LEP people. TCEQ does not have such procedures in place for the pubic participation process it affords to CBP Standard Permits. Like the BAAQMD case cited above, TCEQ's public participation plans and Title VI compliance documents are not easy to access. EPA should revisit its 2020 compliance review of TCEQ' public participation processes and, in specific, those that apply to LEP people.

IX. Disproportionality

TCEQ's CBP Standard Permit program disproportionately and adversely impacts racial and ethnic minorities, LEP people, and poor people. According to TCEQ data, there are approximately 96 CBPs in the County that hold active registrations under the 2012 CBP Standard Permit. Of these, 46 are sited in Census Tracts with more than one CBP. These 46 CBPs are sited in just 16 Census Tracts. U.S. Census Bureau data shows that in these 16 Census Tracts:

1. LEP people make up 19.80% of the Harris County population but they make up 22.78% of the population in the selected Census Tracts and this population is disproportionately made up of Spanish speaking people.
2. Hispanic or Latino people make up 43.01% of the Harris County population but they make up 51.43% of the population in the selected Census Tracts and 45.14% of the population in the top three Census Tracts.
3. Black or African American people make up 25.04% of the Harris County population but they make up 27.68% of the population in the selected Census Tracts and 33.60% of the population in the top three Census Tracts.
4. Black or African American people living in poverty make up 19.20% of the Harris County population but they make up 20.33% of the population in the selected Census Tracts.

X. Less Discriminatory Alternatives

There are less discriminatory alternatives available to TCEQ. The purpose of the CBP Standard Permit program is to provide air quality permits for CBPs and TCEQ could simply withdraw the permit and require that applicants apply for an NSR case-by-case permit. Through a case-by-case permit, community members would have a greater opportunity to effect permit changes requisite for the protection of their health. Also, they would have a greater opportunity to challenge permit applications through administrative contested case hearings and not be subject to the restrictive standing requirements associated with the CBP Standard Permit.

TCEQ could develop regionally specific permits. Texas is large state and its many regions do not all share the same environmental conditions. For example, large metroplexes like Dallas, and Houston have long-standing air pollution issues. Other areas of the state are predisposed to specific natural hazards such as wildfires in the Texas Panhandle, drought in Central Texas, and hurricanes along the Gulf Coast. Such conditions could justify regionally applicable permits. The TCEQ administers such permits, for example, for water quality over the Edwards Aquifer.

XI. Relief

b(6) Privacy asks that EPA's OCR accept this Complaint for investigation to determine whether TCEQ violated Title VI of the Civil Rights Act of 1964 and the agency's implementing regulations, and whether TCEQ is in violation of the November 3, 2020 Informal Resolution Agreement between EPA and TCEQ. The County requests that the Civil Rights Office of the U.S. Department of Justice play an active role in coordinating this federal investigation and any subsequent enforcement actions. During the pendency of this investigation, the County requests that EPA place a moratorium on TCEQ's ability to issue registrations under the 2021 CBP Standard Permit and the CBP Standard Permit with Enhanced Controls until EPA determines whether this permit is protective of public health and the environment. Harris County asks to be part of EPA's investigation and for the agency to specifically meet with representatives from the Super Neighborhood Alliance to hear from local leaders across the County about their experiences living next to CBPs.

b(6) Privacy also asks that EPA rescind assurances submitted by TCEQ under 40 C.F.R. § 7.80 certifying the agency's compliance with EPA's nondiscrimination regulations. Further, that the EPA reject future assurances from TCEQ for all of its programs or activities unless and until the agency addresses the issues raised in this Complaint.

XII. Conclusion

EPA has powerful tools at its disposal—including the Clean Air Act and Title VI of the Civil Rights Act of 1964—to redress systemic racism is the distribution of pollution burdens. Consistent with President Biden's whole-of-government approach, and Administrator Regan's directive to all EPA offices that they take immediate and affirmative steps to ameliorate historic injustices against racial and ethnic minorities, EPA must hold TCEQ accountable. This Complaint establishes a *prima facie* case of discrimination because it demonstrates that the 2021 CBP Standard Permit is not protective of public health and the environment and that this pollution burden is disproportionately felt by Black, Brown, non-English speaking poor people in the County.

EPA has an opportunity to do right by communities throughout Texas where nondemocratic public processes have allowed CBPs to pollute with impunity in communities that sorely need public health protections. TCEQ's administration of the minor NSR CBP Standard Permit program functions in a way that is an afront to American values and it must not stand, EPA must not let it stand.

b(6) Privacy

b(6) Privacy

b(6) Privacy

May 17, 2022

VIA E-FILING @ *title_vi_complaints@epa.gov*
US Environmental Protection Agency
Office of General Counsel (2310A)
External Civil Rights Compliance Office
1200 Pennsylvania Ave., NW
Washington, DC 20460

RE: Complaint Pursuant to Title VI of the Civil Rights Act of 1964 by Impacted Communities Against the Texas Commission on Environmental Quality for Actions Related to a Rulemaking Amendment to the Concrete Batch Plant Standard Permit

Dear Sirs:

On behalf of b(6) Privacy hereinafter collectively referred to as "Complainants" or "Impacted Communities", b(6) Privacy submits this complaint ("Complaint") pursuant to Title VI of the Civil Rights Act of 1964 ("Title VI") concerning actions by the Texas Commission of Environmental Quality ("TCEQ") in approving a rulemaking amendment to the Concrete Batch Plant Standard Permit ("CBPSP").

On September 22, 2021, despite public comments by individuals, legislators, communities, and other advocates, TCEQ passed a rulemaking amendment to the CBPSP, exempting applicants for concrete batch plants ("CBPs") from the air pollutant emissions and distance limitations set forth in Chapter 30 of the Texas Administrative Code (the "Rulemaking Amendment"). The Rulemaking Amendment was passed without providing proper notice to Limited English Proficiency ("LEP") individuals, and without conducting a new protectiveness review. In

approving this Rulemaking Amendment, TCEQ effectively ensured that minority communities already inundated with CBPs will continue to be disproportionately burdened by the adverse effects of proximity to these plants, a clear violation of Title VI. Accordingly, Complainants request an investigation be opened into TCEQ's actions in failing to provide notice of the Rulemaking Amendment in Spanish, failing to conduct a new protectiveness review, and in approving the Rulemaking Amendment. Complainants further request EPA provide the following relief to Complainants:

1) Investigate the allegations in this Complaint regarding the discriminatory actions by TCEQ taken against the communities represented by Complainants where TCEQ has permitted CBPs;

2) Abate TCEQ's issuance of any permits for proposed CBPs or amendments in Houston pending any EPA investigation of this Complaint;

3) Require TCEQ to define "cement dust" with respect to the CBPSP;

4) Require TCEQ to conduct an updated protectiveness review for the CBPSP for particulate matter, crystalline silica, and cement dust impacts from CBP operations;

5) Require TCEQ to re-evaluate the conditions of the CBPSP to address environmental justice concerns;

6) Require TCEQ to revise its public participation requirements for the issuance of standard permits to ensure access for LEP populations;[1] and

7) Provide a new notice and comment period with respect to the Rulemaking Amendment on the CBPSP which complies with TCEQ's Informal Resolution Agreement with EPA regarding Limited English Proficiency and with TCEQ's Language Access Plan.

Complainants would further request any other and further relief that EPA feels they are entitled to after conducting its investigation to remedy TCEQ's discriminatory actions in adopting the Rulemaking Amendment.

I. PROCEDURAL HISTORY

TCEQ issued its Rulemaking Amendment for its CBPSP in October 2021, but the history of this discriminatory action began long before this order was issued. In November 2020, the Agency was at a crossroads after an administrative law judge ("ALJ") at the State Office of Administrative Hearings ("SOAH") adopted the arguments made by a group of protestants against a proposed CBP permit for Bosque Solutions, LLC ("Bosque"). The ALJ's findings recognized that the Agency's current standard permit for CBPs failed to exempt certain materials from its permitting requirements for applicants for its standard permit. Rather than have applicants actually quantify the amount of potential pollutants the proposed site would generate on a permit-by-permit basis, TCEQ felt it could not issue any more CBP permits in the State of

[1] 30 TEX. ADMIN CODE § 116.603.

Texas until it fixed this issue, which TCEQ described as an administrative error[2] due to the "inadvertent removal" during the 2012 amendment of an exemption from emissions and distance limitations in 30 TAC § 116.610(a)(1).[3] An "error" that had been on the books since 2012.

The "error" only became a concern for TCEQ because of the Agency's pending denial of a CBPSP application, the first denial ever.[4] In its effort to fix the issue that had been latent for years, TCEQ moved with such speed that TCEQ: (1) failed to conduct the scientific analysis and due diligence required to ensure its CBPSP was protective of sensitive and overburdened populations like Complainants' neighborhoods in Houston, Texas; and (2) failed to properly notice the permit for impacted LEP populations like Complainants' neighborhoods to ensure participation. The following timeline will chronologize the events leading up to this administrative complaint:

Year	**Events Related to "Administrative Error"**	**Years Elapsed Since Last, Complete Protectiveness Review**
2000	TCEQ Amendments to CBPSP – Protectiveness Review	0
2003	TCEQ Amendments to CBPSP – No Protectiveness Review	3
2012	TCEQ Amendments to CBPSP – Limited Protectiveness Review	12
2020	Administrative Law Judge Issues Proposal for Decision in Bosque Solutions LLC Recommending Denial of the Permit[5]	20
2021	TCEQ Rulemaking Amendment to CBPSP – ***No Protectiveness Review Conducted or Disclosed for Review***	21

2021	**Events Related to Rulemaking Amendment**	**Days Elapsed**
Public Notice to End of Public Comment Period		
May 28	Notice of Rulemaking Amendment on CBPSP Published (in English)[6] Public Comment Period on Rulemaking Amendment Begins	0

[2] APPX_000341. Cites to documents in the Appendix will uniformly be referenced with the prefix "APPX_." All Appendix documents are continuously Bates and included with the Submission of the Title VI Complaint. Cites to the Appendix will include a pincite or range that denotes the applicable Appendix pages, retaining only the last two digits and dropping the repetitious digits. (eg. APPX_000001 or APPX_0000001-05).
[3] APPX_000105-07.
[4] Magaly Ayala, "Mansfield neighbors relieved after permit for concrete batch plant in their neighborhood is denied." Spectrum News (June 12, 2021) available at https://spectrumlocalnews.com/tx/south-texas-el-paso/news/2021/06/11/mansfield-neighbors-relieved-after-permit-for-concrete-batch-plant-in-their-neighborhood-is-denied.
[5] APPX_000125-54.
[6] APPX_000105-09.

2021	Events Related to Rulemaking Amendment	Days Elapsed
Public Notice to End of Public Comment Period		
June 9	TCEQ Denies CBPSP Application for Bosque Solutions, LLC	12
June 28	Public Meeting on Rulemaking Amendment[7] (in English)	31
June 29	Public Comment Period on Rulemaking Amendment Ends Complainants Timely Submit Comments[8]	32
TCEQ's Review of Public Comments to Approval		
September 3	TCEQ's ED Issues Response to Comments[9] (in English)	66
September 22	TCEQ's ED Issues Amended Response to Comments[10] (in English) Commissioners Hearing Agenda on Rulemaking Amendment[11]	85
October 5	TCEQ Issues Order Amending the CBPSP[12]	98
TCEQ's Review of Concerns Post-Approval & Complainants' Compliance with Administrative Exhaustion Requirements		
October 18	Complainants and Harris County file separate Motions for Rehearing[13]	13
October 21	Complainants and Harris County file separate lawsuits against TCEQ seeking judicial review[14]	16
November 15	TCEQ's ED responds to Motions for Rehearing[15]	41
November 29	Motion for Rehearing overruled as a matter of law[16]	55

TCEQ's approval process for the Rulemaking Amendment from the date of public notice to the signed order took no more than 130 days. In moving this quickly to fix an issue that was actually decades old, TCEQ left out the Impacted Communities and LEP populations and failed to conduct a protectiveness review to ensure that what the Agency was doing was good science and would not have an adverse effect on public health. In short, our state environmental protection agency should be doing more to protect the Impacted Communities and fenceline LEP populations where CBPs are prolific in Houston, Texas—not less. This issue is not just about a state agency being able to issue permits, but about protecting public health.

[7] *Id.*
[8] APPX_000023-53; APPX_000094-95; APPX_000103-04.
[9] APPX_000329-69.
[10] APPX 000000370-94.
[11] *Id.*
[12] APPX_000791.
[13] APPX_000001-22; APPX_000458-78.
[14] APPX_000184-224; APPX_000403-32.
[15] APPX_000395-402.
[16] 30 TEX. ADMIN. CODE § 80.272(e)(1).

II. EPA'S JURISDICTION OVER TCEQ

Title VI, codified under 42 U.S.C. § 2000d, states:

> No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

EPA implements Title VI under 40 C.F.R. § 7.10 *et seq*.:

> No person shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving EPA assistance on the basis of race, color, national origin[…]

A. Program or Activity

Under Title VI, a "program" or "activity" includes all the operations of a department or agency of a State or local government, or the entity of such a State or local government that distributes such assistance and each such department or agency to which the assistance is extended.[17] TCEQ is the environmental agency of the State of Texas entrusted with protecting the state's public health and natural resources. Operations of TCEQ include administering environmental regulations and enforcement of the same. Accordingly, TCEQ qualifies as a "program" or "activity" as defined by Title VI.

B. Recipient of Federal Financial Assistance from EPA

TCEQ is a recipient of EPA financial assistance. "EPA assistance" is defined as any grant or cooperative agreement, loan, contract…or any other arrangement by which EPA provides funds, services of personnel, or real or personal property.[18]

In September 2019, TCEQ received approximately $58.5 million from EPA in Performance Partnership Grants, with a funding period through August 31, 2022.[19] The purpose of the funding is for the "operation of the TCEQ's continuing environmental programs while giving it greater flexibility to address its highest environmental priorities…"[20] The operations referenced include managing activities to protect and maintain air, water, land, pollution prevention, and chemical safety.[21] Furthermore, in its 2022 Fiscal Year, which runs from September 1, 2021 through August 31, 2022, TCEQ's operating budget includes $39.9 million from federal funds, with nearly $21 million from EPA's Performance Partnership Grant.[22]

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[17] 42 U.S.C. § 2000d-4a (2015).
[18] 40 C.F.R. § 7.25 (2010).
[19] Grants to TCEQ from EPA located using USASpending.gov database found here: https://www.usaspending.gov/award/ASST_NON_99662720_6800.
[20] *Id*.
[21] *Id*.
[22] TCEQ, OPERATING BUDGET FOR FISCAL YEAR 2022, SFR-030/22, (December 1, 2021), available at https://www.tceq.texas.gov/downloads/agency/administrative/legislatively-mandated-reports/sfr-030-22.pdf.

C. Timeliness

Under Title VI as implemented by EPA, a complainant who believes a specific class of persons has been discriminated against may file a complaint with EPA in writing within 180 calendar days of the alleged discriminatory acts, unless this time frame is waived for good cause.[23] Furthermore, this 180-day time limitation may be waived for good cause.[24]

This Complaint is timely as it is filed within 180 days of Complainants' Motion for Rehearing on TCEQ's approval of the discriminatory Rulemaking Amendment being overruled by operation of law. While the amendment was approved by the Commission after a public hearing on September 22, 2021, the order approving the Rulemaking Amendment was not signed until October 5, 2021.[25] Under Chapter 30 of the Texas Administrative Code ("TAC"), a motion for rehearing must be filed within 25 days of the signed order, a reply must be filed within 40 days of the signed order, and the motion for rehearing is overruled by operation of law after 55 days unless TCEQ extends time or rules on the motion.[26] Complainants exhausted their administrative remedies by filing a Motion for Rehearing with the Agency before pursuing other avenues for relief, such as filing this Title VI Complaint. As demonstrated in Section I above, all motions and replies were timely filed. However, TCEQ did not extend time or rule on the Motion within 55 days of the signed order. Therefore, Complainants' Motion for Rehearing was officially overruled by operation of law on November 29, 2021.[27]

The overruling of Complainants' Motion for Rehearing is significant as it deprived Complainants of their last opportunity to resolve concerns regarding the amendment directly with TCEQ. TCEQ's refusal to grant a rehearing solidified its stance on the amendment: it would remain in force despite its discriminatory impacts on minority groups of various Houston communities, and TCEQ being advised of same during the public comment process. TCEQ's stance was further solidified by the Executive Director's Response to the Motion, which clearly demonstrated TCEQ believes it has no duty to ensure the minority communities most affected by the Rulemaking Amendment are protected.[28]

Following TCEQ's affirmation of its order, Complainants filed a Petition for Judicial Review in Travis County, Texas, seeking review and reversal of the notice and approval of the Rulemaking Amendment.[29] This court action remains pending as of the date of the filing of this Complaint. Harris County, Texas filed a similar lawsuit, challenging the administrative action.

Finally, ongoing issuance of standard permits under this nonprotective Rulemaking Amendment continues to cause discriminatory impacts, which is good cause for waiver of any time limitation. Since September 22, 2021, when the CBPSP Rulemaking Amendment was approved, the following concrete batch plant permits have been issued or renewed in zip codes in Houston:

[23] 40 C.F.R. § 7.120(a)-(b) (2010).
[24] *Id.*
[25] APPX_000791.
[26] 30 TEX. ADMIN. CODE §§ 55.201, 80.272(d).
[27] *Id.*
[28] APPX_000395-402.
[29] APPX_000184-224.

Table 1: CBP Permits Applied For and Issued Since 9/22/2021 CBPSP Amendment[30]

Customer Name	Project Type	TCEQ Rec'd Date	Project Complete Date	Project Status	Physical Location
WILLIAMS BROTHERS CONSTRUCTION CO., INC.	RENEWAL	9/23/21	11/24/21	COMPLETE	20406 HUFSMITH KOHRVILLE RD
ALAMO CONCRETE PRODUCTS COMPANY	REVISION	10/11/21	10/27/21	COMPLETE	11206C GIFFORD HILL ROAD
AUZ MATERIALS COMPANY LLC	REVISION	9/16/21	9/30/21	COMPLETE	17203 PREMIUM DR
AVANT GARDE CONSTRUCTION CO	INITIAL	12/17/21		PENDING	10945 EASTEX FWY
CAMPBELL CONCRETE & MATERIALS LLC	AMEND	2/2/22		PENDING	3935 SCHURMIER RD
CONCRETE PROS READY MIX INC	REVISION	10/7/21	10/14/21	COMPLETE	4005 SWINGLE RD
CS CONCRETE READY MIX INC	INITIAL	12/14/21	4/12/22	COMPLETE	7515 FURAY RD
D&D READY MIX CONCRETE LLC	AMEND	4/14/22		PENDING	5125 SCHURMIER RD
NEW HOUTEX READY MIX CONCRETE INC	INITIAL	6/24/21	10/25/21	COMPLETE	6262 S ACRES DR
OLDCASTLE INFRASTRUCTURE INC	RENEWAL	12/20/21	3/15/22	COMPLETE	13600 S WAYSIDE DR
RHINO READY MIX, LLC	INITIAL	8/18/20	4/20/22	VOID	9230 WINFIELD RD
SHIP CHANNEL CONSTRUCTORS LLC	AMEND	7/9/21	12/3/21	COMPLETE	15015 E FWY B
TERRELL MATERIALS CORPORATION	INITIAL	11/30/21	12/17/21	COMPLETE	19500 FOXWOOD FOREST BLVD
THE PRECAST COMPANY LLC	INITIAL	12/6/21	2/2/22	COMPLETE	8510 E SAM HOUSTON PKWY N
THE QUEEN READY MIX INC	INITIAL	8/3/21	12/16/21	COMPLETE	2507 N HOUSTON AVE
TRICON PRECAST LTD	RENEWAL	5/9/22		PENDING	15055 HENRY ROAD
WILLIAMS BROTHERS CONSTRUCTION CO., INC.	RENEWAL	9/23/21	11/24/21	COMPLETE	20406 HUFSMITH KOHRVILLE RD

The foregoing are all good cause for waiver of the 180-day time limitation.

[30] Data available at TCEQ New Source Review Air Permit Search, Concrete Batch Plant Standard Permit Search by date 9/22/2021, available at: https://www2.tceq.texas.gov/airperm/index.cfm?fuseaction=airpermits.start

III. THE CONCRETE BATCH PLANT STANDARD PERMIT IN TEXAS

Concrete batch plants ("CBPs") are sites constructed to produce concrete. Producing concrete generally requires mixing water, cement, and other aggregates such as sand and gravel, into a large drum.[31] The cement is stored in silos, while the sand, gravel, and other aggregate materials are stored in bins, before all being combined into the drum, then into concrete trucks to be mixed with the water.[32] The concrete is then transported to construction sites.[33]

The concrete production process causes significant air pollution in the neighborhoods where CBPs are sited.[34] Emissions include cement dust, crystalline silica, coarse and fine particulate matter ("PM"), which can be emitted during transfer or mixing of materials, truck loading, or simply from wind blowing through stockpiles.[35] Due to the air pollution caused by CBPs, the facilities must obtain air permits to operate.

A. TCEQ's Broad Authority to Issue Standard Permits

TCEQ is tasked with administering the requirements of the Texas Clean Air Act ("TCAA"), which is designed to safeguard the state's air resources from pollution.[36] Under the TCAA, a permit is required for any person to construct a new facility or modify an existing facility that may emit air contaminants.[37] TCEQ is authorized to issue standard permits for the construction or modification of new or existing similar facilities that have similar operations, processes, and emissions, such as CBPs.

Under Texas law, standard permits must be enforceable, include adequate monitoring, and apply best available control technology ("BACT"). TCEQ must grant an application for a CBPSP if it finds that it will satisfy BACT and there is "no indication that the emissions from the facility will contravene the intent of [the TCAA], including protection of the public's health and physical property."[38]

As described more fully below, TCEQ began issuing a new type of standard permit for CBPs in the year 2000, with some amendments to the permit over the last 22 years.

B. The CBPSP from 2000-2011

In 2000, TCEQ issued a new air quality standard permit for CBPs effective September 1, 2000 which was applicable to permanent, temporary, and specialty CBPs.[39] The new CBPSP was the result of a "protectiveness review" to determine whether the conditions of the standard permit would comply with all applicable state and federal air quality standards and be protective of the

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[31] Guide to Air Quality Permitting for Concrete Batch Plants, University of Texas at Austin Environmental Clinic, First Edition at 2 (2018), available at https://law.utexas.edu/wp-content/uploads/sites/11/2019/01/2019-EC-ConcreteBatchPlantsGuide.pdf.
[32] *Id.*
[33] *Id.*
[34] *Id.* at 4.
[35] *Id.*
[36] TEX. HEALTH & SAFETY CODE § 382.002.
[37] TEX. HEALTH & SAFETY CODE § 382.0518(a); 30 TEX. ADMIN. CODE § 116.110.
[38] TEX. HEALTH & SAFETY CODE § 382.0518(b).
[39] APPX_000225-75.

general health and welfare of the public.[40] Beginning around 1996 until the issuance of the 2000 standard permit, CBPs were reviewed against property-line standards, the National Ambient Air Quality Standards ("NAAQS"), and health effects guidelines of the Texas Natural Resource Conservation Commission ("TNRCC"), the predecessor agency of TCEQ.[41]

In relevant part, the 2000 CBPSP required the following:

> Administrative Requirements
>
> The facilities shall be registered in accordance with 30 TAC § 116.611 "Registration Requirements" […]. Facilities which meet the conditions of this standard permit do not have to meet the emissions and distance limitations listed in 30 TAC § 116.610(a)(1).[42]

Under 30 TAC § 116.610(a)(1), "any project that results in a net increase in emissions of air contaminants…must meet the emission limitations of § 106.261…". In turn, 30 TAC § 106.261(a)(1) states that facilities or changes thereto shall be located at least 100 feet from any residence. The statute also states that total new or increased emissions, including fugitives, shall not exceed 6.0 pounds per hour and ten tons per year for numerous materials, including cement dust.[43] Additionally, total new or increased emissions, including fugitives, shall not exceed 1.0 lb/hr of any chemical having a limit value greater than 200 mg/ m^3 as listed and referenced in Table 262 of § 106.262.[44] The statute also bans emissions of a chemical with a limit value of less than 200 mg/m^3.[45] TCEQ alleged that when it created the new standard permit an "extensive protectiveness review" was completed which addressed emissions and distance limitations for CBPs.[46] In effect, CBPs did not have to comply with the foregoing statutory limitations.

In 2003, TCEQ amended the CBPSP to "expedite the authorization process for concrete batch plant public works projects."[47] It was specifically designed to ease requirements for registering temporary batch plants, but "[g]eneral requirements concerning distance limitations, emission limits, control requirements, and recordkeeping" remained unchanged.[48] CBPs continued to be exempt from statutory requirements related to air emissions and distance limitations, and TCEQ did not conduct a new protectiveness review before passing the 2003 amendment.[49]

C. The CBPSP from 2012-2020

In 2012, the CBPSP issued by TCEQ underwent significant amendments. According to TCEQ, while the standard permit was protective of public health, amendments were made to account for

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[40] *Id*.
[41] *Id*.
[42] APPX_000262.
[43] 30 TEX. ADMIN. CODE § 106.261(a)(2).
[44] 30 TEX. ADMIN. CODE § 106.261(a)(3).
[45] *Id*.
[46] APPX_000230.
[47] APPX_000276-99.
[48] APPX_000276.
[49] APPX_000276-99.

the 2006 AP-42 emission factors and engine requirements as promulgated by EPA.[50] TCEQ stated pollutants of concern included particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) as well as PM_{10}.[51] TCEQ performed an air quality analysis of emission generating facilities and activities, including material handling operations, truck loading, stockpiles, and cement silos.[52] The evaluated air contaminants were carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), $PM_{2.5}$, PM_{10}, nickel particulate, and formaldehyde.[53] TCEQ concluded the CBPSP was protective with respect to the evaluated pollutants.[54]

The 2012 amendment provided preconstruction authorization for any concrete batch plant complying with the standard permit but *did not relieve CBP owners and operators from any other additional state or federal regulations*.[55] In relevant part, the 2012 CBPSP amendment to the "Administrative Requirements" removed the language exempting facilities from the emissions and distance limitations listed in 30 TAC §116.610(a)(1).[56] In effect, CBPs operating with standard permits were now required to be located at least 100 feet from any residence, could not emit total new or increased air pollutants such as cement dust at more than 6.0 pounds per hour and ten tons per year, could not emit total new or increased air pollutants of any chemical having a limit value greater than 200 mg/m^3 as listed and referenced in Table 262 at more than 1.0 lb/hr, and could not emit chemicals with a limit value of less than 200 mg/m^3.[57]

Despite removing the exemption, TCEQ did not enforce the emissions and distance limitations listed in 30 TAC § 116.610(a)(1) (and therefore did not enforce the limitations in 30 TAC § 106.261) in issuing CBP permits. In 2018, when the CBP applicant, Bosque Solutions LLC applied with TCEQ for a CBPSP, Bosque was met with major resistance.[58] Protestants of the CBPSP application contended that Bosque misrepresented in its application that the limitations set forth in 30 TAC §§ 106.261 and 106.262 did not apply to its proposed concrete batching facility, noting the removal of the exemption in 2012.[59] Protestants had significant concerns about emissions of crystalline silica and cement dust.[60]

The Bosque protestants were granted a contested case hearing on the merits in front of SOAH, and the record closed on September 25, 2020, after a 2-day hearing.[61] In November 2020, the ALJ concluded the 2012 CBPSP amendment expressly incorporated the emissions limitations set forth in 30 TAC §§ 106.261 and 106.262.[62] The ALJ also found that emissions of crystalline

[50] APPX_000300-28.
[51] *Id.*
[52] *Id.*
[53] *Id.*
[54] APPX_000310.
[55] APPX_000318.
[56] TCEQ maintains the removal of this language was inadvertent. APPX_000395. Nevertheless, even though TCEQ removed the exemption to the referenced emissions and distance limitations, TCEQ failed to follow its own regulatory change. For over eight years, until Bosque, TCEQ was issuing CBPSP that failed to comply with TCEQ's own regulations.
[57] 30 TEX. ADMIN. CODE § 106.261(a)(1-3).
[58] APPX_000125-64.
[59] *Id.*
[60] *Id.*
[61] *Id.*
[62] APPX_000146.

silica pose a danger to human health and safety.[63] As Bosque failed to demonstrate its concrete batch plant would be constructed and operated in accordance with required emissions limitations, the ALJ proposed TCEQ deny the application to construct and operate the Bosque CBP.[64] TCEQ denied Bosque's CBPSP application in June 2021.[65]

D. The CBPSP 2021 Amendment

On May 28, 2021, shortly before denying Bosque's CBPSP, TCEQ issued a "Notice of Request for Public Comment and Notice of a Public Meeting on a Proposed Amendment to the Air Quality Standard Permit for Concrete Batch Plants."[66] TCEQ's notice stated the amendment would "add the exemption from emissions and distance limitations in 30 TAC § 116.601(a)(1)" which was "inadvertently removed during the 2012 amendment."[67]

The 2021 amendment heavily relied on the protectiveness review conducted between 1996 and 2000 in developing the 2000 CBPSP.[68] TCEQ also noted the 2012 supplemental protectiveness review showed that concentrations of $PM_{2.5}$ were below NAAQS.[69] According to TCEQ, its outdated air dispersion modeling ("ISCST3") from over 20 years prior was sufficient to reinstate an exemption that would allow CBPs to bring even more harm to affected communities than they already cause.[70]

TCEQ received several comments from advocacy groups, local governments, elected officials, and Texas residents concerned that the 2000 protectiveness review was outdated and the CBPSP was not protective of public health and safety, especially with respect to crystalline silica emissions.[71] These groups also expressed concerns with the cumulative impacts of the numerous CBPs located in specific geographic areas.[72] Despite the concerns raised and without conducting a new protectiveness review or providing affected parties with adequate responses to their valid health concerns, TCEQ passed the 2021 amendment, reinstating the exemption first set forth over 20 years ago.[73]

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[63] APPX_000161.
[64] APPX_000125-64.
[65] Magaly Ayala, "Mansfield neighbors relieved after permit for concrete batch plant in their neighborhood is denied." Spectrum News (June 12, 2021) available at https://spectrumlocalnews.com/tx/south-texas-el-paso/news/2021/06/11/mansfield-neighbors-relieved-after-permit-for-concrete-batch-plant-in-their-neighborhood-is-denied.
[66] APPX_000105-09.
[67] *Id.*
[68] APPX_000329-69, 370-94.
[69] *Id.*
[70] APPX_000342-43.
[71] APPX_000332-33.
[72] *Id.*
[73] APPX_000791.

IV. COMPLAINANTS

Despite being the fourth most populous city in America, the City of Houston is the only major American city that has no zoning regulations.[74] Moreover, the City of Houston makes up the majority of Harris County (roughly the size of the State of Rhode Island), which also has no zoning protections. Due to Houston's lax zoning, the effects of systemic discrimination persist and are evident today.

One of the few tools that exists to combat the lack of zoning are deed restrictions. Deed restrictions are a legal mechanism which limit land uses in certain geographic areas to prevent unwanted and incompatible land uses. However, in the early 20th century, nearly all communities afforded the protection of deed restrictions were also perpetuating discrimination.[75] Complainants' communities are historically unprotected and without deed restrictions. Because deed restrictions were originally a repugnant tool to keep people of color out of White neighborhoods, many historically Black and Hispanic communities of Houston remain unprotected today. This discrimination forced communities of color out into unrestricted areas. According to the Federal Housing Authority's ("FHA") underwriting manual at the time, "inharmonious racial groups" could cause "instability and a decline in values."[76] The FHA recommended that subdivision developers with federally-backed construction loans use deed restrictions to control the race of residents.[77]

Below is a demonstrative map showing the approximate location of Complainants' communities and illustrating that while these communities span across Houston, these communities are all affected by TCEQ's faulty Rulemaking Amendment.

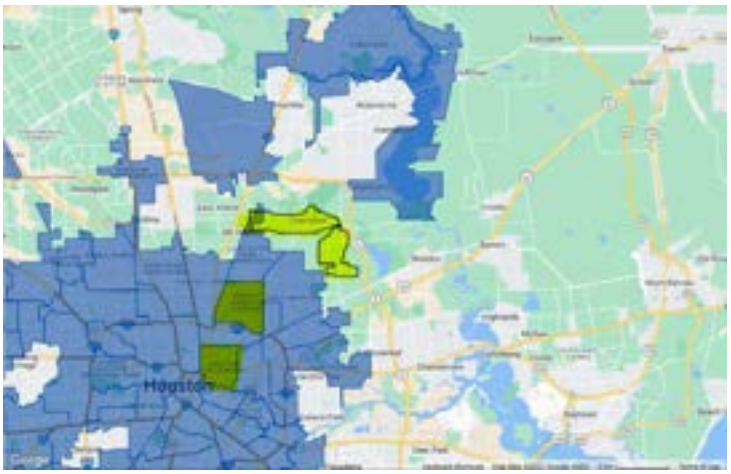

Figure 1: Impacted Communities Represented in Yellow

[74] Robert D. Bullard & Beverly Wright, *The Wrong Complexion for Protection: How the Government Response to Disaster Endangers African American Communities*, 13, (2012).
[75] R.A. Schuetz, "'It's so damn offensive': More Houston neighborhoods push to remove racist deed language" The Houston Chronicle (Apr. 16, 2021).
[76] FHA 1938a, sec. 937.
[77] R.A. Schuetz, "'It's so damn offensive': More Houston neighborhoods push to remove racist deed language" The Houston Chronicle (Apr. 16, 2021).

Since there are no regulations and Complainants are historically unrestricted communities, nothing exists to protect these communities from undesirable and incompatible land uses in their area. This circumstance, in turn, has subjected predominately minority communities in what should be residential neighborhoods to unprecedented amounts of environmental, health, and safety hazards at the hands of industrial and commercial businesses. Because these deed restricted communities originally excluded minorities, Complainants' communities predominately include undervalued and unrestricted land. In Houston, Complainants are also specifically victim to concrete batch plants which are incentivized by TCEQ to choose these communities over sites in White, more affluent neighborhoods, where restrictions historically insulated these communities from industry encroachment. Today, there are over 100 permitted concrete batch plants in Harris County affecting environmental justice communities. The following subsections profile the specific Impacted Communities by geography, history, their challenges with concrete batch plants, and demographics.

A. Super Neighborhood 48 "Trinity / Houston Gardens"

1. Current Geography

"Super Neighborhoods" in Houston were created to "encourage residents of neighboring communities to work together to identify, prioritize and address the needs and concerns of the broader community."[78] SN 48 is otherwise known as Trinity / Houston Gardens takes its name from two communities: Trinity Gardens and Houston Gardens.[79] SN 48 is within City Council District B and comprises 4,395 acres (6.87 sq. miles) in the Northeastern part of the City of Houston, Texas.[80]

SN 48 is among the Houston residential neighborhoods subject to industrial encroachment, as shown below in purple in Figure 2:

[78] Super Neighborhoods Guidelines, https://www.houstontx.gov/superneighborhoods/guidelines.html.
[79] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Trinity_Gardens_Final.pdf.
[80] *Id*.

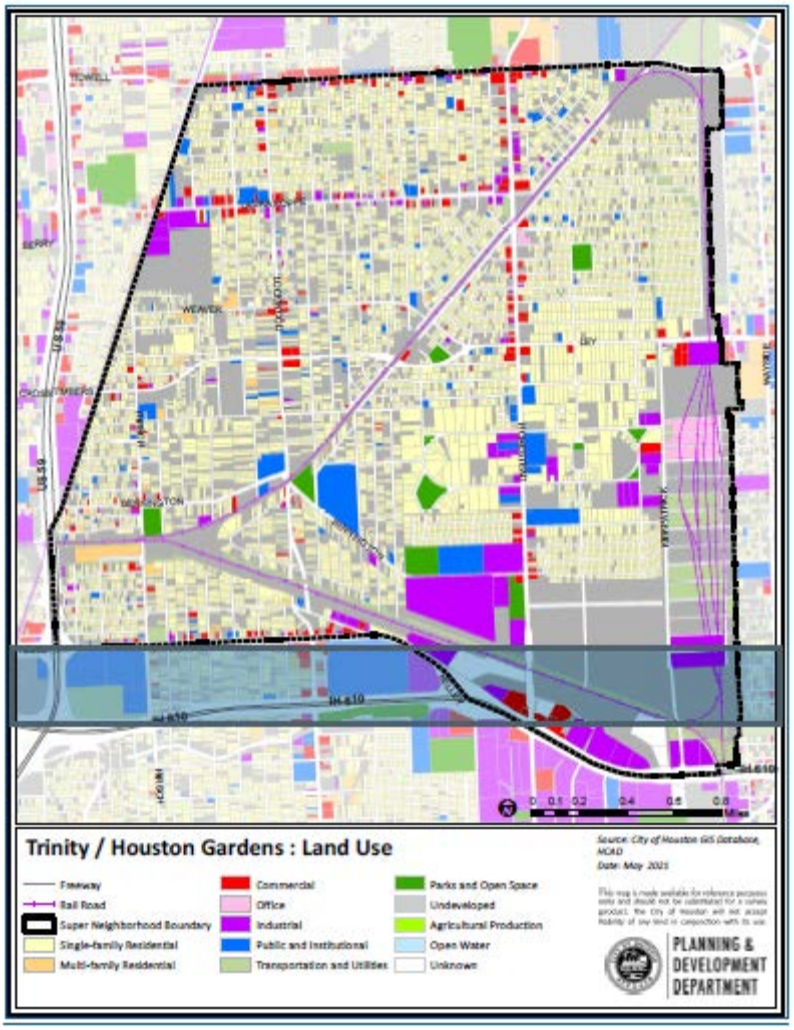

Figure 2: Land Use within the boundaries of SN 48[81]

One of these industrial uses includes the inundation of concrete batch plants. Presently, Table 2 lists the eight CBPs within the 6.87 sq. miles boundaries of SN 48:

Concrete Batch Plant	**Location within SN 48**
Alamo Ready Mix	5303 S Lake Houston Pkwy (77049)
Best Redi-Mix	7119 Kindred St. (77049)
Queen Ready Mix	8702 Liberty Rd. (77028)
Cemtex Concrete Ready Mix	5716 Jensen Dr. (77026)
Texas Concrete Ready Mix	6001 Homestead Rd. (77028)
Texas Concrete Ready Mix	6523 Homestead Rd. (77028)
Texas Concrete Ready Mix	3315 Carr St. (77026)
Five Star Ready Mix	8001 Ley Rd. (77028)

Table 2: Concrete Batch Plants Within the Boundaries of SN 48

[81] *Id.*

2. History

In 1940, the City of Houston annexed Trinity / Houston Gardens.[82] Census data from 1950 reported that the area at this time was predominately White. In 1960, Houston Independent School District ("HISD") began to make its first integration attempts and the first Black student to attend an all-White school in the City was enrolled at Kashmere Elementary School, less than a mile from the Gardens neighborhood.[83] Integration attempts throughout Houston triggered "white flight" causing Whites to move out of neighborhoods they previously stayed in, in fear of more Blacks moving in.[84] By 1960, most of the Gardens neighborhoods population, 71% was Black. Since then, due to both de jure and de facto segregation, SN 48 has remained a predominately Black community. Houston's history of redlining and White flight to suburbs north of SN 48 likely created the community's majority-minority demographic.

Today, SN 48 is comprised of leaders and community activists who have continually battled with the City to improve the existing living conditions of their community. Many of these residents were born and raised in the community and have lived there their entire lives, showing their commitment to investment in the community. These residents are property owners, parents, grandparents, retirees, and church leaders, with both personal and commercial interests at stake as a result of the continuous disinvestment in their community.

One of the threats to the quality of life in SN 48 is the proliferation of CBPs. The Rulemaking Amendment's emissions exemption adds to a larger environmental and public health problem that disproportionately impacts this minority low-income community. TCEQ has already permitted more than one concrete batch plant for every square mile in this community. In fact, two of the concrete batch plants are located next to each other on Homestead Road and operated by the same company, Texas Concrete Ready Mix. Recent air pollution monitoring observed within the boundaries of the neighborhood exemplifies the cumulative impacts resulting from TCEQ's failure to consider environmental injustice in the Impacted Communities.
In May 2021, TCEQ installed a state-run air monitor at the edge of SN 48 to measure certain constituents—like coarse and fine particulate matter.[85] The monitor is located at 7330 ½ N. Wayside Drive, Houston, TX 77028 ("North Wayside Monitor").[86] The North Wayside Monitor began measuring $PM_{2.5}$ using Federally Equivalent Methods ("FEM") beginning on May 4, 2021.[87] Since this monitor was installed, the $PM_{2.5}$ readings have consistently exceeded NAAQS standards.[88] According to TCEQ, the readings from the North Wayside Monitor exceed

[82] https://www.houstontx.gov/planning/Annexation/docs_pdfs/HoustonAnnexationHistory.pdf.
[83] University of Houston, Collaborative Community Design Initiative. No. 5, Kashmere Gardens | Trinity / Houston Gardens: Super Neighborhood 52 and 48, Briefing Book at 13 (2018).
[84] *Id.*
[85] TCEQ Annual Air Monitoring Network Plan (Jul. 1, 2021) at 17.
[86] *Id.*
[87] *Id.*
[88] "2012 PM2.5 NAAQS: Primary Annual Standard: 12.0 micrograms per cubic meter (µg/m3); Secondary Annual Standard: 15.0 µg/m3; Primary and Secondary 24-Hour Standard: 35 µg/m3; 2012 PM10 NAAQS: Primary and Secondary Standard 15.0 µg/m3; On December 18, 2020, the United States Environmental Protection Agency (EPA) published a final rule retaining the primary and secondary standards for both PM2.5 and PM10." TCEQ Presentation to Houston-Galveston Area Council Houston PM Advance Committee, "Houston North Wayside Particulate Matter" (Feb. 7, 2022). (hereinafter "TCEQ HGAC PM2.5 Presentation").

the NAAQS standard for $PM_{2.5}$, averaging at 12.5.[89] As a result, TCEQ identified several industrial users responsible for the problem—including three concrete batch plants in or near SN 48.[90] The following concrete batch plants are located near the North Wayside Monitor:

- Five Star Ready Mix is .37 miles NE of the North Wayside Monitor at 8001 Ley Rd. Houston, TX 77028;
- Texas Concrete Ready Mix is 1.4 Miles SW of the North Wayside Monitor at 6001 Homestead Rd. Houston, TX 77028;
- Texas Concrete Ready Mix is 1.4 Miles SW of the North Wayside Monitor at 6523 Homestead Rd., Houston, TX 77028; and
- The Queen Ready Mix is 1.75 miles SE from the North Wayside Monitor at 8702 Liberty Rd. Houston, TX 77028.

Based on the data from the North Wayside Monitor, TCEQ has begun to identify individual members of industry in hopes of resolving the current NAAQS violations that are significantly burdening SN 48's air quality and throwing the region out of compliance. However, this does not resolve the deficient CBPSP, nor does it slow TCEQ's issuance of this standard permit to concrete batch plant operators. Because the CBPSP specifically exempts CBPs from emissions limitations and the batch plants cluster in communities of color, it is significantly deteriorating air quality in these overburdened areas—as evidenced by the NAAQS exceedances. This Complaint targets the heart of problem: the Rulemaking Amendment's revived emissions exemptions without scientific support. TCEQ failed to conduct an adequate protectiveness review of the CBPSP.

3. Neighborhood Demographics

In April 2021, the City of Houston Planning and Development Department assessed the demographics of SN 48 using 2019 statistics and U.S. Census Bureau estimates, noting SN 48 had a total population of 17,485 at the time.[91] The combination of a high concentration of minority and low-income residents in conjunction with a high concentration of large industrial polluters is indicative of an environmental justice community, the statistics below illustrate SN 48's demographics.

[89] TCEQ Presentation, North Wayside Monitor Update May 2021-January 2022, (Feb. 8, 2022) at 3.
[90] *Id.* at 13.
[91] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Trinity_Gardens_Final.pdf.

Ethnicity[92]

Ethnicity	**Percent of Total Population**
Non-Hispanic Whites	2%
Non-Hispanic Blacks	**63%**
Hispanics	**34%**
Non-Hispanic Others	1%

Languages Spoken at Home[93]

Language	**Percent of Total Population**
English	67%
Spanish	**32%**
Other	1%

Housing[94]

Housing	**Statistic**
Total Housing Units	6,975
Median Housing Value	$72,852

B. Dyersforest Heights Civic Club

1. Current Geography

Dyersforest Heights Civic Club is a nonprofit civic club incorporated under the laws of Texas and created to promote civic and social welfare and well-being of the residents and property owners in the Dyersforest Heights community. Dyersforest Heights includes: Dyersdale, Forest Acres, and Houston Heights subdivisions which are all situated in the historic Dyersdale area in Houston and Harris County, Texas.[95,96] According to the U.S. EPA EJ Screen, 75-77% of the population in Dyersdale lives below 200% of federal poverty guidelines. Below is a map

[92] *Id.*
[93] *Id.*
[94] *Id.*
[95] The Dyersforest community is in the Extraterritorial Jurisdiction ("ETJ") of the City of Houston, and so demographic and other statistical information is included in affected Census Block Group Nos. (482012320002, 482012312001, 482012320001) or other federal databases, rather than from the City of Houston Planning Department.
[96] Extraterritorial Jurisdiction ("ETJ)": Houston's extraterritorial jurisdiction is essentially a five-mile band around the City's general-purpose boundaries, with the exception of instances when that band intersects another municipality or its ETJ. Within its ETJ, Houston has limited regulatory authority. Defined on the City of Houston's Planning & Development Website, available at: https://www.houstontx.gov/planning/Annexation/#:~:text=Houston's%20extraterritorial%20jurisdiction%20(ETJ)%20is,Houston%20has%20limited%20regulatory%20authority.

showing the demographic index[97] of the Dyersforest community according to EPA's EJ Screen tool.

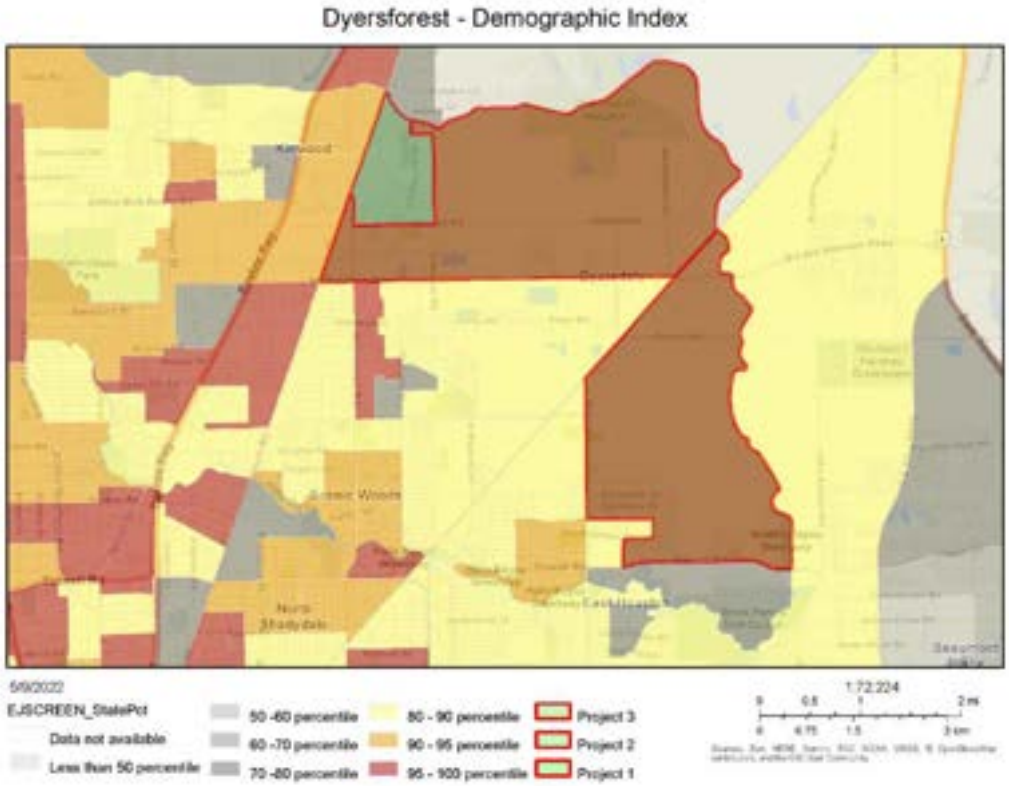

Figure 3: Dyersforest Civic Club Demographic Index from EPA's EJ Screen Tool

2. History

Dyersforest residents have a long history of trying to keep their community free from concrete facilities. In 2016, the community began submitting comments and engaging with the public participation process in efforts stop a massive concrete crushing plant, Cherry Crushed Concrete ("Cherry"), from becoming its neighbor. The Harris County's Attorney Office ("Harris County" or the "County") additionally submitted comments which included a public meeting and hearing request to TCEQ regarding Cherry's permit application.[98] The County expressed concerns that the concrete facility would share a fenceline with residential properties, the facility's air emissions modeling was inaccurate, and that air emissions calculations excluded the existing soil stabilization plant emissions.[99] In its comments, Harris County requested that additional modeling be completed to include particulate emissions from in-plant roadways and the soil stabilization plant.[100]

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[97] Demographic Index refers to Socieconomic Indicators – Demographic Index: combination of percent low income and percent minority. U.S. EPA's Environmental Justice Screening and Mapping Tool available at: https://ejscreen.epa.gov/mapper/ejscreen_v1/index.html.

[98] APPX_000055–58.

[99] APPX_000055–56.

[100] *Id.*

The community requested and received a public meeting on January 9, 2017. During the meeting, a representative of Dyersforest Heights Civic Club, Ms. Dejean, expressed community concerns about Cherry taking up residency in her neighborhood. On June 15, 2017, she submitted a hearing request as an affected person on the basis that Cherry would further compromise the community's air quality and violate both NAAQS and the Clean Air Act given the number of pollutants and quantities of pollutants to which Cherry would likely be subjecting the community.[101] Mrs. Dejean also expressed environmental justice concerns related to her fenceline community, deficient air emissions calculations, as well as the impacts Cherry would have on the community's health. She further asserted that 110 residents in Dyersforest did not have access to city water as the community is in the ETJ, and that the Cherry plant had the potential to contaminate residents' drinking water.[102]

Despite these concerns, TCEQ issued the permit to Cherry in 2018 and placed 7,947,739 square foot Concrete Crushing Plant[103] at the Western boundary of this community. While the community vehemently expressed opposition, TCEQ still granted Cherry a permit to operate without concern for the environmental justice community next door.

TCEQ's Health Effects Review of 2017-2019 Ambient Air Network Monitoring Data mentions the closest monitor in Aldine. Specifically, in TCEQ's Memorandum dated May 12, 2021, Dr. Tracie Phillips, Ph.D, and Distinguished Toxicologist, noted that the 2018 values of Chromium exceed regular levels. Cement includes many heavy metals, including hexavalent chromium.[104] Notably, the 2018 chromium $PM_{2.5}$ annual average concentration was 0.0060 ppbv at Houston Aldine, which is 1.4x greater than the Air Monitoring Comparison Value ("AMCV")[105] of 0.0043 ppbv.[106] Interestingly, chromium was not noted for above average values at the Houston-Aldine Monitor in the 2016 Health Effects Review for the Ambient Air Network—before Cherry moved into the community.

History repeated itself in 2020-2022 when another concrete facility, Rhino Ready Mix ("Rhino"), applied for a CBPSP in the Dyersforest community, to be located directly next to Cherry. The community amplified and echoed its concerns from 2016-2017 to TCEQ because Rhino's proposed location was mere feet away from the existing Cherry. The figure below illustrates the problematic location of the concrete facilities within this neighborhood.

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[101] APPX_000062–63.

[102] *See* Hearing Request submitted by Mrs. Carol Dejean, Administrator & Organizer of Dyersforest Heights Civic Club, to TCEQ Docket No. 2017-0906-AIR (Jun. 15, 2017).

[103] Harris County Appraisal District information for Account No. 0411050000001, available at: https://arcweb.hcad.org/parcelviewer/.

[104] J. Leem, Epidemiology: The Health Effect of Chromium Containing Cement Dust Assessed by Combined Methods of Epidemiologic and Toxicologic Approach, (Nov. 2008), Volume 19, Issue 6, available at: https://journals.lww.com/epidem/fulltext/2008/11001/The_Health_Effect_of_Chromium_Containing_Cement.648.aspx.

[105] TCEQ and EPA use AMCVs to evaluate the potential for effects to occur as a result of exposure to concentrations of constituents in the air. AMCVs are based on data concerning health effects, odor, and vegetation effects. They are not ambient air standards. If predicted or measured airborne levels of a constituent do not exceed the comparison level, adverse health or welfare effects would not be expected to result. *See* https://www.tceq.texas.gov/cgi-bin/compliance/monops/agc_amcvs.pl.

[106] TCEQ Memorandum Health Effects Review of 2017 through 2019 Ambient Air Network (May 21, 2021), available at: https://www.tceq.texas.gov/assets/public/implementation/tox/monitoring/evaluation/multi/reg12.pdf.

Figure 4: HCAD Map showing Cherry Crushed Concrete, Rhino Ready Mix's Proposed CBP Site and the neighboring Dyersforest Heights Community highlighted in yellow.[107]

As illustrated, Cherry and Rhino would now create a concrete batch plant border on the entire Western edge of the Dyersforest residential community. Without the community raising any concerns, Rhino's application for a CBPSP would likely be issued by TCEQ, despite the problematic siting issue. Therefore, representatives of Dyersforest again submitted hearing requests to TCEQ related to Rhino Ready Mix and voiced their concerns. These hearing requests detailed the community's specific concerns such as Rhino's proximity to sensitive populations, their environmental justice community unfairly burdened by concrete facilities and toxic air emissions, the potential health risks from cumulative impacts of collocated facilities, and the health impacts that the community was already suffering from as a result of Cherry's activities.[108]

The community specifically expressed concerns about particulate matter, chromium, formaldehyde, and other metal oxides like—calcium oxide, silicon oxide, aluminum trioxide, ferric oxide, magnesium oxide, and crystalline silica—all known concrete batch plants

[107] HCAD Parcel Viewer, search for 920 Winfield Road, Houston TX 770050 available at: https://arcweb.hcad.org/parcelviewer/.
[108] *See* Hearing Requests submitted by Ms. Carol Dejean, Administrator & Organizer of Dyersforest Heights Civic Club, to TCEQ Docket No. 2021-1465-AIR (Oct. 31, 2020 & Nov. 6, 2020).

emissions.[109] The community members were concerned about these toxins getting into the air they breathe and the water they drink.

Ultimately, TCEQ voided Rhino's permit after the applicant failed to publish required notices for the contested case hearing or attend the preliminary hearing scheduled in front of SOAH.[110] The lot Rhino intended to use for a batch plant, however, remains unoccupied, and a new batch plant could apply for a permit at any time. This temporary victory means that the Dyersforest community is subject to an uncertain future. Moreover, with TCEQ's revival of harmful emissions exemptions via the CBPSP Rulemaking Amendment, the community's air quality hangs in the balance.

3. Neighborhood Demographics

Like SN 48, the combination of a high concentration of minority and low-income residents in conjunction with a high concentration of large industrial polluters qualifies the Dyersforest community's status as an environmental justice community.

Ethnicity[111]

Ethnicity	**Percent of Total Population**
Non-Hispanic Whites	1.5%
Non-Hispanic Blacks	**55%**
Hispanics	**44%**
Non-Hispanic Asians	0%
Non-Hispanic Others	0%

Languages Spoken at Home[112]

Language	**Percent of Total Population**
English	31.3%
Spanish	**72.3%**
Other	27.6%

[109] APPX_000075 –76.
[110] TCEQ Docket No. 2021-1465-AIR SOAH Order No. 1 Memorializing Preliminary Hearing and Granting Motion for Remand (Apr. 7, 2022) and TCEQ Letter Permit No. 162413 Void (Apr. 20, 2022).
[111] EJ Screen ACS Summary Report (2015-2019) averages from relevant Block Groups 482012320001, 482012312001, 482012320002.
[112] *Id.*

Housing[113]

Housing	Statistic
Total Housing Units	2,362
Median Housing Value	$84,900

C. Progressive Fifth Ward Community Association & Prince Square Civic Association (Greater Fifth Ward)

1. Current Geography

Progressive Fifth Ward is an incorporated community association focused on revitalizing the Fifth Ward community, and Prince Square Civic Association is a civic association recognized by the City of Houston. Both of these community organizations serve Greater Fifth Ward, also known as Super Neighborhood 55. Greater Fifth Ward is within City Council District B & H and comprises 3,192 acres (4.99 sq. miles) in the Northeastern part of the City of Houston, Texas.[114]

Like SN 48, Greater Fifth Ward has also found itself amongst one of the Houston residential neighborhoods with industrial land use surroundings, as shown below in purple in Figure 5: [115]

[113] *Id.*
[114] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at http://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Greater_FifthWard_Final.pdf.
[115] *Id*.

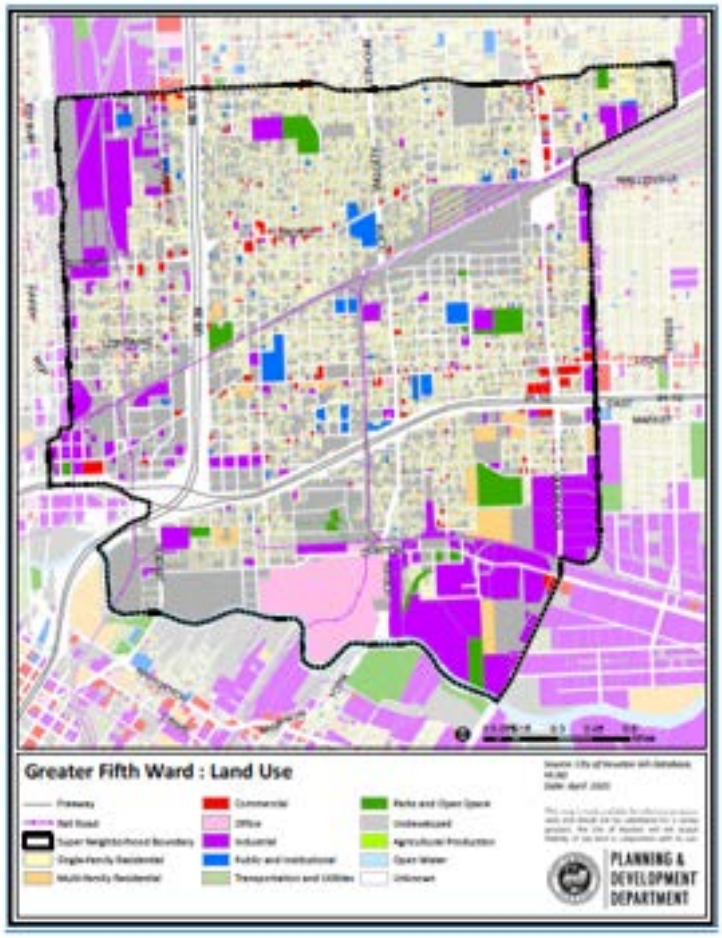

Figure 5: Land Use within the boundaries of Greater Fifth Ward

One of these industrial uses includes the inundation of concrete batch plants. Presently, Table 3 lists the three CBPs affecting Progressive Fifth Ward and Prince Square:

Table 3: Concrete Batch Plants Within the Boundaries of Greater Fifth Ward

Concrete Batch Plant	**Location within Greater Fifth Ward**
Texas Concrete Enterprise	3506 Cherry St. (77026)
Texas Concrete Enterprise	3508 Cherry St. (77026)
Cemtech Concrete Ready Mix Inc.	3116 Jensen Rd. (77026)

2. History

Former slaves settled Fifth Ward beginning in 1865, post-Civil War, and the area was established as one of Houston's original six wards in 1866.[116] By 1870, the population was approximately half White and half Black, with 578 Black residents and 561 White residents.[117] In 1876, two

[116] Tyina Steptoe, *Fifth Ward, Houston, Texas*, Blackpast (April 19, 2015), available at https://www.blackpast.org/african-american-history/fifth-ward-houston-texas-1866/.
[117] Diana Kleiner, *Fifth Ward, Houston*, Texas State Historical Association (January 1, 1995), available at https://www.tshaonline.org/handbook/entries/fifth-ward-houston.

segregated schools existed in the community.[118] The population quickly evolved, and by 1880 the population was predominantly Black.[119]

The government has neglected Fifth Ward since its early days. In both 1875 and 1883, the community threatened to secede from the City of Houston.[120] Despite the tax collected from the community, the City of Houston failed to adequately provide basic municipal services to the community, such as paved roads and utilities.[121] In the 1940's, during the continuing period of segregation, the City offered less than 200 hospital beds to serve the entire Black population of the City of Houston, including residents of Fifth Ward.[122] In the 1960's, Interstate 10 and Highway 59 were constructed in the heart of the ward, displacing families and businesses.[123] The construction was also completed in such a way to divide residential areas from business districts, ultimately causing an economic loss for the community.[124] Today, Greater Fifth Ward remains a neglected and low-income minority community.

Fifth Ward shares a history with concrete facilities that is similar to Dyersforest. Like Dyersforest, Fifth Ward is a smaller community, a little less than 5 square miles with predominantly minority low-income residents. The EJ Screen Demographic Index is below, for reference.

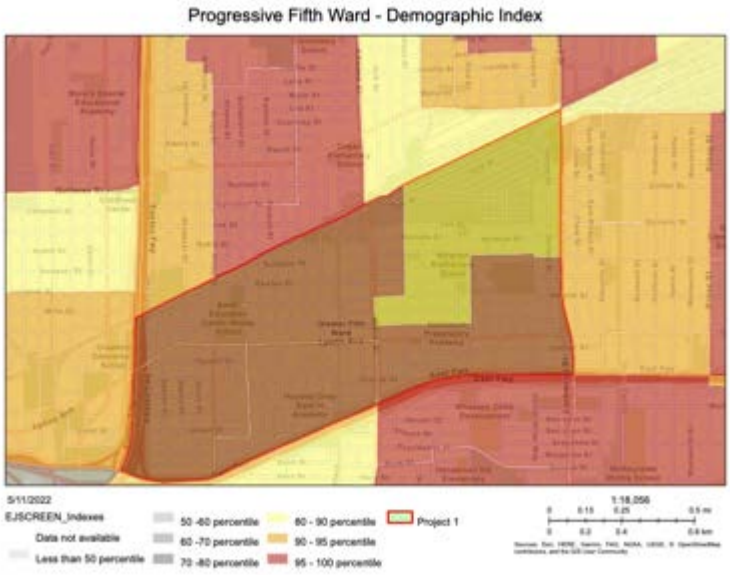

Figure 6: Fifth Ward Demographic Index from EPA's EJ Screen Tool

[118] *Id*.
[119] Tyina Steptoe, *Fifth Ward, Houston, Texas*, Blackpast (April 19, 2015).
[120] Patricia Pando, *When There Were Wards: A Series—In the Nickel, Houston's Fifth Ward*, Houston History Vol. 8 No. 3 at 34 (Summer 2021), available at https://houstonhistorymagazine.org/wp-content/uploads/2011/07/Fifth-Ward.pdf.
[121] *Id*.
[122] *Id*. at 35.
[123] *Id*.
[124] *Id*. at 37.

CBP Applicant Soto Ready Mix ("Soto") has faced challenges finding a home in Houston's minority low-income neighborhoods for years. Originally, Soto Ready Mix sought to open shop in Acres Home, a historically Black community, but after legislators, the Mayor of Houston, and other local advocates intervened, Soto withdrew its application in early 2020 and attempted to move somewhere else.[125] After the first withdrawal, Soto targeted Houston's Fifth Ward "subbing one less-protected community for another."[126] Once operational, Soto would be the fourth concrete batch plant in the Greater Fifth Ward's less than five-square-mile footprint.

TCEQ issued a permit to Soto for its proposed Fifth Ward location; however, the plant required a variance from the City of Houston to use a street that dead-ended into its lot. In May 2021, the Houston Planning Commission entertained Soto's request for a variance, but the residents of Fifth Ward opposed it, and ultimately Soto withdrew its variance request to the City.[127] To date, Soto has not yet built its permitted facility: the lot currently remains vacant. Like Dyersforest, there is uncertainty for this community about the potential for harmful air emissions from another emissions-exempt concrete batch plant in their neighborhood.[128]

3. Neighborhood Demographics

In April 2021, the City of Houston Planning and Development Department assessed the demographics of Greater Fifth Ward using 2019 statistics and US Census Bureau estimates, noting Greater Fifth Ward had a total population of 19,391 at the time.[129] Like SN 48 and Dyersforest Heights, the combination of a high concentration of minority and low-income residents in conjunction with a high concentration of large industrial polluters also qualifies the Greater Fifth Ward as an environmental justice community.

Ethnicity[130]

Ethnicity	**Percent of Total Population**
Non-Hispanic Whites	4%
Non-Hispanic Blacks	**43%**
Hispanics	**51%**
Non-Hispanic Asians	1%
Non-Hispanic Others	1%

[125] TCEQ Docket No. 2019-0903-AIR, Order No. 2 Granting Motion to Remand and Dismissing Case (Jan. 22, 2020).
[126] Emily Foxhall, "Houston's dangerous concrete plants are mostly in communities of color. Residents are fighting back." Houston Chronicle. (Apr. 10, 2022).
[127] City of Houston Planning Commission Agenda No. 149 (May 27, 2021).
[128] City of Houston Planning Commission Agenda No. 127 (Jun. 10, 2021).
[129] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Greater_FifthWard_Final.pdf.
[130] *Id*.

Languages Spoken at Home[131]

Language	**Percent of Total Population**
English	54%
Spanish	**45%**
Other	1%

Housing[132]

Housing	**Statistic**
Total Housing Units	8,376
Median Housing Value	$90,165

V. TITLE VI VIOLATIONS UNDER EPA REGULATIONS

As noted above, EPA implements Title VI of the Civil Rights Act of 1964 under 40 C.F.R. § 7.10 *et seq*. Under its Title VI regulations, EPA's investigations can cover certain types of discrimination including: intentional discrimination and actions causing disparate impact.[133] In assessing whether a recipient has intentionally discriminated, the agency investigates whether the recipient intentionally treated individuals or a class of individuals differently or otherwise knowingly caused them harm because of their race, color, or national origin (including limited English proficiency).[134] However, in assessing whether a recipient's actions have a disparate impact and are thereby discriminatory, the agency investigates if an implemented regulation has the effect of subjecting individuals to discrimination because of their race, color, or national origin (including limited English proficiency).[135]

A. Intentional Discrimination

In an intentional discrimination case, EPA will evaluate the "totality of the relevant facts," including direct, circumstantial, and statistical evidence, to determine whether a recipient engaged in intentional discrimination.[136] Direct evidence is often unavailable, but EPA will evaluate evidence such as: statements by decision makers, historical background and sequence of the events at issue, legislative or administrative history, foreseeability of the consequences, and the history of discriminatory or segregated conduct.[137]

[131] *Id*.
[132] *Id*.
[133] EPA Case Resolution Manual, at 26-27 (January 2021), available at https://www.epa.gov/sites/default/files/2021-01/documents/2021.1.5_final_case_resolution_manual_.pdf.
[134] *Id.*
[135] *Id*.
[136] U.S. EPA's External Civil Rights Compliance Office Compliance Toolkit, at 3 (January 2017), available at http://www.epa.gov/sites/default/files/2017-01/documents/toolkit-chapter1-transmittal_letter-faqs.pdf.
[137] *Id*.

B. Disparate Impact

40 C.F.R. § 7.35(b) specifically prohibits the following:

> A recipient shall not use criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex[…]

In a disparate impact case, EPA uses a 4-step model to determine whether a recipient uses a "facially neutral" policy or practice that has a sufficiently adverse and disproportionate effect based on race, color, or national origin:[138]

1. Identify the specific policy or practice at issue;
2. Establish adversity/harm;
3. Establish disparity; and
4. Establish causation.

The focus in a disparate impact case is on the consequences of a recipient's policy or decisions.[139] A facially neutral policy can be affirmatively undertaken by a recipient, *or it can be based on a recipient's failure to take action or adopt an important policy*.[140] EPA then determines whether the recipient can show the policy has a substantial legitimate justification.[141] If so, EPA ascertains whether there are less discriminatory alternatives to the policy.[142]

VI. TCEQ'S TITLE VI VIOLATIONS

By approving the Rulemaking Amendment exempting CBPs from air pollutant emissions and distance limitations without conducting a new protectiveness review, TCEQ all but ensured environmental justice communities such as SN48, Dyersforest, and Greater Fifth Ward, are disproportionately exposed to toxic air pollutants. Not only did TCEQ approve a rule that would disproportionately impact minority communities, but it also failed to provide proper notice in other languages to these communities, depriving LEP residents of the opportunity to express their everyday experiences with the pollution from CBPs. TCEQ's actions and inactions with respect to the Rulemaking Amendment demonstrate a failure by the Agency to fulfill its obligations to ensure compliance with Title VI. Instead, the effects of the Rulemaking Amendment will disparately impact Black and Hispanic residents of the Impacted Communities who continue to suffer from health issues and decreased property values at higher rates than Whiter, more affluent communities nearby.

[138] *Id*. at 8.
[139] *Id*. at 9.
[140] *Id*.
[141] *Id.*
[142] *Id.*

A. TCEQ's Rulemaking Amendment exempting CBPs from air pollutant emissions and distance limitations violates Title VI.

1. Concrete batch plants cause major air pollution that will remain rampant due to the affirmative undertaking by TCEQ in passing the Rulemaking Amendment.

CBPs cause air pollution concerns, but CBPs are cause for heightened concerns related to coarse and fine particulate matter (specifically PM_{10} and $PM_{2.5}$ and), crystalline silica, and cement dust. CBPs are known emitters of both particulate matter and crystalline silica. The inhalation of these pollutants are associated with heart and lung disease, increased respiratory symptoms, and other chronic diseases. Furthermore, cement dust can be composed of many harmful constituents in undefined quantities, for example: metal oxides including calcium oxide, silicon oxide, aluminum trioxide, ferric oxide, magnesium oxide, sand and other impurities.[143] EPA regulates particulate matter whereas crystalline silica and cement dust are both pollutants regulated under Title 30 of the TAC with regulatory authority delegated to TCEQ. However, with TCEQ's approval of the Rulemaking Amendment, CBPs are exempted from meeting these regulated emissions limitations. This development is significant because TCEQ now clearly authorized CBPs to emit these pollutants in an almost unrestricted manner, without any corresponding reporting requirements.[144]

Photograph of Concrete Batch Plant in Houston (Credit: Houston Air Alliance)

[143] Arshad H. Rahmani, "Effect of Exposure to Cement Dust among the Workers: An Evaluation of Health-Related Complications." Open Access Maced J Med Sci. 2018 Jun 20; 6(6): 1159–1162, available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6026423/.

[144] APPX_000341 ("In fact, the commission explicitly noted that the standard permit 'eliminates any requirement for an applicant to submit modeling and impact analysis...'. . . ").

a. Particulate Matter[145]

Particulate matter (PM) is a mixture of solid particles and liquid droplets found in the air. PM includes PM_{10}, which are inhalable particles with diameters that are generally ten micrometers and smaller, such as dust, pollen, and mold. PM also includes $PM_{2.5}$, which are fine inhalable particles that are generally 2.5 micrometers and smaller, such as combustion particles, organic compounds, and metals. Most PM forms in the atmosphere from complex reactions of chemicals in industrial sites.

Inhalation of PM is linked directly to causing serious health problems as they can get deep into the lungs and the bloodstream. Exposure to PM is linked to premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, including irritation of airways, coughing, or difficulty breathing. $PM_{2.5}$ poses the greatest risk to health due to its size. $PM_{2.5}$ is also the main cause of haze in the United States.

Data maps extracted from EJ Screen confirm that the City of Houston has some of the worst exposure to $PM_{2.5}$ in Texas:

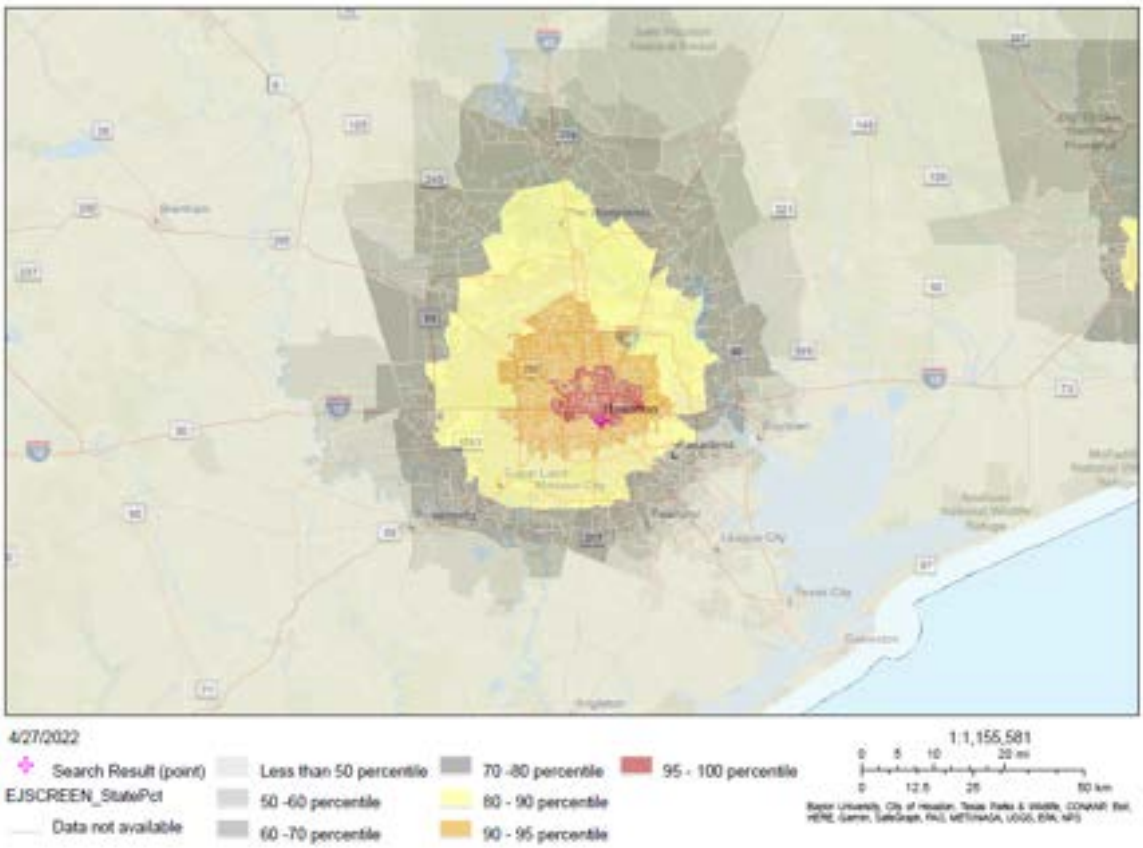

Figure 7: City of Houston Exposure to $PM_{2.5}$

[145] Sources for information in this section are available at EPA's webpage, available at https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects.

The map demonstrates Houston falls within the 95th to 100th of geographic areas exposed to $PM_{2.5}$ in the air compared to the rest of the state.

EPA regulates inhalable PM_{10} and $PM_{2.5}$ pursuant to the Clean Air Act ("CAA"), which requires EPA to set NAAQS for pollutants considered harmful to public health and the environment. CAA also requires EPA to periodically review NAAQS to ensure that they provide adequate health and environmental protection, and to update the standard, as necessary. NAAQS for PM is also further determined by whether the PM is directly emitted from a source ("primary") or formed by a chemical reaction ("secondary"). NAAQS for PM was first established in 1971. The following table demonstrates NAAQS for PM since 2006:

Final Rule and Date	**Primary/ Secondary**	**Type of Particulate Matter**	**Averaging Time**	**PM Standard Level**
71 FR 61144 10/17/2006	Primary & Secondary	$PM_{2.5}$	24 hour	35 mg/m^3
71 FR 61144 10/17/2006	Primary & Secondary	$PM_{2.5}$	Annual	15 mg/m^3
71 FR 61144 10/17/2006	Primary & Secondary	PM_{10}	24 hour (annual revoked)	150 mg/m^3
78 FR 3085 01/15/2013	Primary	$PM_{2.5}$	Annual	12 mg/m^3
78 FR 3085 01/15/2013	Secondary	$PM_{2.5}$	Annual	15 mg/m^3
78 FR 3085 01/15/2013	Primary & Secondary	$PM_{2.5}$	24 hour	35 mg/m^3
78 FR 3085 01/15/2013	Primary & Secondary	PM_{10}	24 hour	150 mg/m^3
85 FR 82684 12/18/2020	Primary & Secondary	$PM_{2.5}$ and PM_{10}	24 hour and annual ($PM_{2.5}$) and 24 hour (PM_{10})	Previous Retained

Table 4: NAAQS for PM Since 2006[146]

EPA has re-evaluated NAAQS for PM several times over the last 50 years, including in 2013 and as recently as 2020.

A primary pollutant of concern from CBPs is PM, consisting of cement, pozzolan dust,[147] coarse aggregate, and sand dust emissions. PM is emitted during the transfer of cement and pozzolan material to silos, which are then vented to a fabric filter. Fugitive sources of PM from CBPs include the transfer of sand and aggregate, cement unloading to storage silos, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles.

[146] U.S. EPA, Particulate Matter (PM) National Ambient Air Quality Standards (NAAQS), available at https://www.epa.gov/pm-pollution/timeline-particulate-matter-pm-national-ambient-air-quality-standards-naaqs.
[147] Pozzolan minerals include fly ash, ground granulated blast-furnace slag, and silica fume.

b. Crystalline Silica

Another pollutant of concern from CBPs is crystalline silica.[148] Crystalline silica is a natural mineral found in sand and concrete, among other construction materials. While crystalline silica comes in several forms, its most usual form is quartz. Quartz dust, otherwise known as respirable crystalline silica or silica dust, is created when cutting, sawing, grinding, drilling, and crushing stone, rock, concrete, brick, block and mortar.

Exposure to and inhalation of airborne crystalline silica is extremely hazardous to human health. Since 1997, the International Agency for Research on Cancer ("IARC") has classified crystalline silica inhaled from occupational sources in the form of quartz as a Group 1 carcinogen. According to the Occupational Safety & Health Administration ("OSHA"), breathing in respirable crystalline silica particles causes multiple diseases, including silicosis, an incurable lung disease that leads to disability, and ultimately death.[149] Silicosis can take 15-20 years to occur, therefore the effects are revealed long after exposure.[150] Respirable crystalline silica exposure also causes lung cancer, chronic obstructive pulmonary disease ("COPD"), and kidney disease.[151] Furthermore, exposure to respirable crystalline silica is related to the development of cardiovascular impairment.[152]

Concrete batch plants emit ambient crystalline silica during the concrete production process, which requires the transfer, mixing, loading, and storage of cement, sand, and gravel. The concrete production process exposes nearby communities to crystalline silica, a hazardous carcinogen. Emissions of crystalline silica are incorporated into TCEQ's rules regarding environmental quality, found in Title 30 of the TAC. Chapter 116 of the TAC sets forth regulations related to the control of air pollution by permits for new construction or modification. As demonstrated in Section III(B) above, 30 TAC § 116.610(a)(1) requires any project that results in a net increase in emissions of air contaminants to meet the emission limitations of 30 TAC § 106.261. 30 TAC § 106.261 bans emissions of a chemical with a limit value of less than 200 mg/m^3.[153] The TWA TLV of crystalline silica is 25 mg/m^3. Accordingly, any emission of crystalline silica is a violation of this chapter.[154]

The amount of crystalline silica involved at a facility will also vary depending on the sand used by the facility. Data sheets showing the composition of the sand potentially used by the CBP should be disclosed and reviewed by the Agency to make a proper protectiveness determination to cover these contingencies in the CBPSP, which it admitted was not done. Thus, it is not apparent that the current CBPSP is prepared to address this variety, and the Agency did not do a

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[148] APPX_000143.
[149] OSHA, Safety and Health Topics, available at https://www.osha.gov/silica-crystalline/health-effects.
[150] *Id*.
[151] *Id*.
[152] *Id*.
[153] While crystalline silica is not explicitly regulated under this chapter and does not have a listed limit value, 30 TAC § 106.262 states the time weighted average (TWA) Threshold Limit Value (TLV) published by the American Conference of Governmental Industrial Hygienists (ACGIH) shall be used for compounds not included in this section of the statute. This section cannot be used if the compound is not listed in the table or does not have a published TWA TLV, STEL, or Ceiling Limit in the ACGIH TLVs and BEIs guide. As crystalline silica has a published TWA TLV, it is incorporated into the regulation.
[154] APPX_00143-47.

protectiveness review of crystalline silica that would model the distinct types of sand that could potentially be used in CBP operations under a CBPSP.

c. Cement Dust

Cement dust is a primary pollutant of concern found at CBPs. Under 30 TAC § 106.261(a)(2)-(3), total new or increased emissions for cement dust shall not exceed 6.0 pounds per hour and ten tons per year. However, TCEQ has not defined the term "cement dust" in any of its rules or regulations. Thus, it is difficult to determine what products at a CBP must be included in these calculations to ensure that these limitations are met.

Further, the calculation should be tied to effects screening levels ("ESL") for the specific pollutant. As stated above, cement dust can be made up of many other harmful constituents. Thus, there are significant questions raised as to what constitutes "cement dust". Part of any revision to the CBPSP because of this Complaint should include a clarification of what comprises "cement dust" and publication of guidance for making ESL determinations. Otherwise, the standard in CBPSP cannot be considered "standard" if each applicant is free to determine what constitutes cement dust. Given the potential harmfulness of these pollutants, the CBPSP lacks the specificity required to ensure sufficient protectiveness.

2. TCEQ's failure to conduct a new protectiveness review before passing the Rulemaking Amendment was discriminatory.

In determining whether a policy is discriminatory, EPA may also focus on a recipient's failure to act. In this instance, TCEQ failed to conduct a new protectiveness review before passing the Rulemaking Amendment exempting CBPs from statutory emissions and distance limitations, further violating Title VI. The failure to conduct a current or adequate protectiveness review was problematic as it resulted in TCEQ primarily relying on an outdated protectiveness review from over 20 years ago.[155] TCEQ further failed to grant Complainants a rehearing, despite the highlighted deficiencies with TCEQ's approval of the Rulemaking Amendment and the potential health impacts on the Impacted Communities where the Agency had already permitted CBPs and would likely be approving more.[156]

a. The 2000 protectiveness review did not evaluate PM2.5, crystalline silica, or cement dust and is outdated.

The technical requirements of the CBPSP issued in 2000 were stated to be the result of the TNRCC protectiveness review conducted from 1996-2000.[157] TCEQ asserted the review determined the ability of different types of CBPs to meet the requirements of 30 TAC § 111.155,[158] off-property concentration limits for total suspended PM (400 mg/m^3 for a 1-hour period and 200 mg/m^3 for a 3-hour period), NAAQS for PM_{10} (150 mg/m^3 for a 24-hour period and 50 mg/m^3 annually), and applicable TNRCC toxicology and risk assessment health effects guidelines.[159]

[155] APPX_00336.
[156] APPX_00395- 402.
[157] APPX_00237.
[158] Repealed 2005.
[159] APPX_00237.

According to TCEQ, emissions were calculated based on "reasonable worst-case assumptions of design, layout, and operation."[160] EPA's ISCST3 (version 99155) full air dispersion modeling was used to evaluate each CBP configuration.[161] In the 2000 protectiveness review, there is no mention of evaluating $PM_{2.5}$, crystalline silica, or cement dust.[162]

Because crystalline silica is a known carcinogen and the TAC clearly instructs the Agency to consider it a pollutant of concern, the Agency should have conducted a comprehensive evaluation of both emissions and distance limitations required for a standard concrete batch plant permit to be safe, before creating the original standard permit in 2000. Furthermore, given that the amount of crystalline silica involved will vary depending on the type of sand used by the facility, data sheets showing the composition of the sand being emitted by the CBP should be disclosed and reviewed to make a protectiveness determination. "Standard" limits for the CBPSP cannot be considered "standard" at all for crystalline silica given that each facility may be using diverse types of sand that include different ratios of this carcinogen in their operations. Evaluating crystalline silica emissions from CBPs is necessary and will remain an environmental justice concern until TCEQ thoroughly addresses whether such emissions are within statutory limitations and, in fact, protective of public health.

Similarly, evidence of protectiveness from cement dust also should have been and should be required for a CBP facility to acquire a permit. This would, of course, first require TCEQ to define "cement dust" in its regulations and publish related guidance for making ESL determinations. Otherwise, the factors considered to be "standard" for the CBPSP cannot be considered "standard" for cement dust either, as each applicant for a CBPSP may choose its own definition of cement dust. Further, if TCEQ has not done any modeling to determine a limit of cement dust which is protective for the CBPSP, such work needs to be done before limits set forth in the TAC are allowed to be permanently exempted.

b. The 2012 protectiveness review does not meet current NAAQS for $PM_{2.5}$, used inappropriate factors in calculating emission rates, and again failed to evaluate crystalline silica or cement dust.

In 2012, TCEQ conducted a limited protectiveness review using EPA guidance on emission factors and methodology to significantly amend the CBPSP.[163] TCEQ stated pollutants of concern included $PM_{2.5}$ as well as PM_{10}.[164] Specifically, TCEQ asserted it amended the standard permit to account for EPA's 2006 AP-42 emission factors, and to address 24-hour $PM_{2.5}$, annual $PM_{2.5}$, and NAAQS.[165] As TCEQ noted, EPA no longer allowed use of the 1997 policy that granted permitting authorities to demonstrate meeting NAAQS requirements for $PM_{2.5}$ by showing compliance with NAAQS requirements for PM_{10}.[166]

[160] *Id.*
[161] *Id.*
[162] *See generally* APPX_000225–75.
[163] APPX_000300–28.
[164] APPX_000300.
[165] *Id.*
[166] *Id.*

Major amendments to the CBPSP included new efficiency requirements of filter systems to specifically address $PM_{2.5}$, new visible emission standards, requirements for silo loading operations, and site production limits.[167] Given the changes made to the standard permit, the removal of the exemption for CBPs to comply with the emissions and distance limitations in 30 TAC §116.610(a)(1) (which TCEQ now states several years later was a clerical error) appeared very much in line with TCEQ's attempt to comply with federal guidelines and NAAQS.

TCEQ's 2012 limited protectiveness review fell short. TCEQ published notice of the amended standard permit on August 27, 2012, with an effective date of December 21, 2012.[168] As Table 4 above demonstrates, EPA promulgated new NAAQS for $PM_{2.5}$ on January 15, 2013. Specifically, the new standards lowered the annual emissions for $PM_{2.5}$ from a primary source from 15 mg/m^3 to 12 mg/m^3. It is impossible for TCEQ's 2012 protectiveness review to adequately address NAAQS for annual $PM_{2.5}$, as these standards were amended less than a month after the 2012 CBPSP became effective.[169]

Furthermore, TCEQ was aware that EPA was preparing to publish new NAAQS for annual emissions for $PM_{2.5}$ and was strongly opposed to this change.[170] During EPA's comment period on its revised NAAQS in 2012, TCEQ expressed the view that the 2006 standards provided the requisite degree of public health protection.[171] Specifically, TCEQ opined that there was no evidence of greater risk since the 2006 review to justify tightening the annual $PM_{2.5}$ standard. Neither the protectiveness review from 2000 nor 2012 can be considered current with respect to particulate matter.[172]

Additionally, TCEQ heavily relied on EPA's 2006 AP-42 emission factors in its 2012 protectiveness review.[173] However, EPA has made clear the AP-42 emission factors are not a replacement for more source-specific emission values to demonstrate compliance with federal regulations. In fact, as recently as November 2020, EPA published an Enforcement Alert entitled "EPA Reminder About Inappropriate Use of AP-42 Emission Factors."[174] In the alert, EPA expressed concerns that permitting agencies were incorrectly using AP-42 factors as said factors were "not likely to be accurate predictors of emissions from any one specific source, except in very limited scenarios" and therefore should be used as a last resort. Specifically, EPA issued the following warning:

Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, *a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance*.[175]

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[167] APPX_000304 –05.
[168] APPX_000311.
[169] 78 Fed. Reg. 3,086 (Jan. 15, 2013).
[170] 78 Fed. Reg. 3,111 (Jan. 15, 2013).
[171] *Id.*
[172] *Id.*
[173] APPX_000302–03.
[174] APPX_000451–54.
[175] APPX_000451 (emphasis added).

Accordingly, half the concrete batch plants being permitted under the CBPSP are potentially out of compliance. Furthermore, most of the emission factors in the AP-42 related to concrete batch plants are rated "D" or "E," meaning the quality of the factor is either below average or poor.[176] A below average rating ("D") is a factor based on a small number of facilities, with reason to suspect the facilities do not represent a random sample of the industry.[177] A poor rating ("E") is a factor developed from either tests based on an unproven/new methodology or a generally unacceptable method.[178] Therefore, TCEQ's reliance on the AP-42 Emissions Factors during its protectiveness review in creating its 2012 CBPSP is questionable at best.

Finally, in the limited 2012 protectiveness review, there is again no mention of evaluating crystalline silica or cement dust, known pollutants emitted by concrete batch plants.[179] Furthermore, there is no mention of evaluating distance limitations of CBPs with respect to key locations of concern, such as residences, schools, and community centers.[180] In theory, the 2012 amended standard permit indirectly addressed these emissions and distance limitations by removing the CBP exemption and requiring CBPs to comply with the emissions and distance limitations of in 30 TAC §116.610(a)(1).[181] However, based on the Bosque decision and TCEQ's actions thereafter (discussed more fully in section III(C) above), it did not appear TCEQ ever intended to enforce this exemption.[182] Accordingly, the 2012 CBPSP remained inadequately protective of human health and safety.

c. TCEQ's response to public concern with the protectiveness of the 2021 amendment was inadequate.

In 2021, TCEQ again amended the CBPSP to reinstate the exemption from the emissions and distance limitations in Chapter 30 of TAC, which were originally developed 21 years ago and removed from the standard permit 9 years prior. TCEQ cited little reason for this amendment, other than the exemption was "inadvertently removed" in 2012. The public notice describing this Rulemaking Amendment read as follows:

> The Texas Commission on Environmental Quality is providing an opportunity for the public to comment on a proposed amendment to the air quality standard permit for concrete batch plants.
>
> TCEQ originally issued the concrete batch plant standard permit in 2000, amended it in 2003, and again in 2012.
> This proposed amendment will update the standard permit to add the exemption from emissions and distance limitations in 30 TAC § 116.610(a)(1). This exemption was inadvertently removed during the 2012 amendment. [183]

[176] APPX_000454.
[177] *Id.*
[178] *Id.*
[179] *See generally* APPX_000300–28.
[180] *Id.*
[181] *See, supra*, III(C) at 9.
[182] *Id*.
[183] APPX_000106.

It was evident that this sudden reinstatement of the exemption was in direct response to the Bosque application, which pointed out the deficiencies in the standard permit related to crystalline silica. There was no new protectiveness review conducted prior to the approval of the 2021 amendment. The last protectiveness review for crystalline silica was in 2000 and is outdated. The limited protectiveness review from 2012, which did not include crystalline silica, did not justify this change. The Agency had no science prior to 2000 to support its effort to "fix" the alleged error.

During the comment period, TCEQ received over fifty comments from politicians, numerous community members, and many advocacy groups, all expressing concerns with the proposed amendment.[184] Specifically, these interested parties requested a new protectiveness review, referencing the insufficient protectiveness reviews of 2000 and 2012 and updates in science. They also expressed concerns that the amendment would diminish TCEQ's consideration of crystalline silica emissions in its issuance of permits to CBPs.[185]

TCEQ did little to address these concerns. TCEQ responded that as it conducted an "extensive protectiveness review" during the adoption of the initial CBPSP (over 20 years ago) to ensure emissions from CBPs are protective of public health and welfare, it was unnecessary to conduct another review.[186] It also briefly noted the supplemental protectiveness review in 2012 showed that the concentrations of $PM_{2.5}$ emitted by CBPs were below the levels of NAAQS.[187] TCEQ admitted it has not explicitly modeled the levels of crystalline silica emitted by a CBP for purposes of the standard permit, despite acknowledging it is potentially a more toxic particle.[188] Ultimately, TCEQ declined to conduct a new protectiveness review, as "there [had] been no changes since the last update to the standard permit that would require updating the protectiveness review."[189]

This statement is inaccurate for several reasons. First, TCEQ's substantial reliance on the 2000 protectiveness review to endorse the 2021 amendment is a poor demonstration of keeping up with new developments in science. The 2000 protectiveness review was done long before permitting agencies were even required to demonstrate compliance with NAAQS for $PM_{2.5}$. It also used an outdated air dispersion modeling (EPA's ISCST3 version 99155) to evaluate each CBP configuration.[190] This air dispersion modeling is not considered a preferred/recommended model by EPA.[191]

Second, the 2012 protectiveness review was conducted shortly before EPA published new NAAQS for $PM_{2.5}$.[192] Accordingly, for that reason alone, a new protectiveness review is warranted.

[184] APPX_000331–33.
[185] *See generally* APPX_000329–69, 370–94.
[186] APPX_000339, 341.
[187] APPX_000345.
[188] APPX_00344, 346.
[189] APPX_000342.
[190] APPX_000342-43.
[191] APPX_000342.
[192] APPX_000311 *compare with* 78 Fed. Reg. 3,086 (Jan. 15, 2013).

Finally, the scientific community continues to study the dangers of crystalline silica, especially with respect to ambient exposure of crystalline silica. Accordingly, a protectiveness review from over twenty years ago does not withstand the test of time with respect to toxic air emissions from concrete batch plants.

3. The adverse effects of the exemption and failure to conduct a new protectiveness review will disproportionately affect Black and Hispanic communities.

Minority communities within the un-zoned boundaries of the City of Houston are disproportionately burdened with the air pollution and health issues caused by industrial land use, which also results in decreased property values. The decreased property values entice additional industrial players to continue buying land in these communities to operate facilities, causing a vicious cycle of pollution, health issues, and the decline of property values. The excessive number of CBP facilities present in Complainants' communities already causes adverse effects in emitting particulate matter, crystalline silica, cement dust, and other pollutants. These effects will only be exacerbated by the exemptions CBPs are afforded under TCEQ's Rulemaking Amendment, and TCEQ's disregard of community concerns regarding the protectiveness of the same.

As TCEQ continues to pass regulations that ease pollution and distance limitations without any scientific support and simplify the processes major polluters must follow, those most affected are communities of color, specifically Black and Hispanic communities. Data extracted from EPA's EJScreen further supports the assertion that Black and Hispanic communities, such as SN 48, Dyersforest, and Greater Fifth Ward, are disproportionately burdened by the adverse effects of CBPs emitting air pollutants because the number of CBPs are far concentrated in these lower-income neighborhoods. Contrast the profiles of the Impacted Communities from Section IV with the statistics below for two wealthier, whiter neighborhoods in Houston, less than 15 miles away, and the relative number of CBPs in each of these neighborhoods.

- Greater Heights or Super Neighborhood 15 ("SN15") in Central Houston in City Council District C & H. Based on the 2019 data available from the City of Houston, SN15 is 65% White, with 74% of the total population mainly speaking English at home.[193]

- Afton Oaks/ River Oaks or Super Neighborhood 23 ("SN23") is also in Central Houston in City Council District G & C. Based on the 2019 data available from the City of Houston, SN23 is 72% White, with 77% of the total population mainly speaking English at home.[194]

[193] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Greater_Heights_Final.pdf.

[194] City of Houston Planning & Development Department Super Neighborhood Resource Assessment available at https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Afton%20Oaks%20River%20Oaks_Final.pdf.

Table 5: Comparison for Numbers of Concrete Batch Plants within Super Neighborhood Boundaries

Super Neighborhood	Population	Geographic Area	Number of CBPs
SN23 – Afton Oaks/ River Oaks	15,477	3.61 sq miles	0
SN48 – Trinity /Houston Gardens	17,485	6.87 sq miles	8
SN15 – Greater Heights	43,899	7.32 sq. miles	0
SN 55 – Greater Fifth Ward	19,391	4.99 sq miles	3

Further, compared with these two, Whiter wealthier neighborhoods and even Houston or Harris County as a whole, the resulting disparities in Impacted Communities reflected in both property values and health outcomes are concerning:

a. Comparison of Cumulative Health Impacts Lived in Impacted Communities

Asthma is a health condition in which a person's air passages become inflamed, and the narrowing of the respiratory passages makes it difficult to breathe. The Houston Health Department (HHD) states symptoms of asthma can include tightness in the chest, coughing, and wheezing and are often brought on by exposure to inhaled allergens, such as dust, pollen, mold, cigarette smoke, and animal dander.[195] According to HHD, reducing exposure to poor housing conditions, traffic pollution, secondhand smoke and other factors impacting air quality can help prevent asthma and asthma attacks.[196] In some cases, asthma symptoms are severe enough to warrant hospitalization, and can result in death.

HHD compiles data to summarize city-wide statistics on various health conditions, including asthma. The most recent data available is from 2019, reflected below in Table 6, which shows the contrast between neighborhoods with CBPs (red) and without CBPs (green). EJScreen confirms that the rates found in the Impacted Communities are in the 80th-95th percentile or higher nationally of neighborhoods wherein asthma is prevalent among adults.

Table 6: Comparison of Rates of Asthma in Adult Population[197]

Comparison of Rates of Asthma in Adult Population		Relative Ranking
Nationally	7%	50% Best Neighborhoods in Texas Counties
SN15 – Greater Heights	7.2%	
SN23 – Afton Oaks/ River Oaks	7.2%	
Harris County	8%	
Dyersforest	10%	25% Worst Neighborhoods in Texas Counties
Greater Fifth Ward	10.9%	
SN48 – Trinity /Houston Gardens	11.3%	

[195] As defined by HHD on https://www.houstonstateofhealth.com/.
[196] *Id.*
[197] Data compiled using https://www.houstonstateofhealth.com/tiles/index/display?alias=neighborhood.

Since 2006, EPA has conducted research and funded studies to further understand the link between air pollution and heart disease.[198] In 2016, a study funded by EPA revealed a direct link between air pollution and atherosclerosis, a buildup of plaque in the coronary artery that can affect heart health.[199] Specifically, the study found that long-term exposure to particulate matter and nitrogen oxides at levels close to NAAQS can prematurely age blood vessels and contribute to a more rapid building of calcium in the coronary artery, increasing the likelihood of cardiac events.[200]

Concrete batch plants emitting scarcely monitored or controlled particulate matter under standard permits can further contribute to the prominent levels of cardiac diseases. HHD data from 2019 reflected in Table 7 below reflects the relative rates of coronary heart disease between the comparison neighborhoods with CBPs in red and without CBPs in green.

Table 7: Comparison of Rates of Coronary Heart Disease in Adult Population[201]

Comparison of Rates of Coronary Heart Disease in Adult Population		**Relative Ranking**
SN15 – Greater Heights	3.6%	50% Best Neighborhoods in Texas Counties
Harris County	5.1%	
SN23 – Afton Oaks/ River Oaks	5.2%	
Nationally	6.2%	
Dyersforest	6.7%	25% Worst Neighborhoods in Texas Counties
Greater Fifth Ward	8.3%	
SN48 – Trinity /Houston Gardens	9%	

In 2019, UT Southwestern Medical Center ("UTSMC") published a report demonstrating that life expectancy in the State of Texas varies by zip code and confirming health disparities are significant between different geographical areas of the state.[202] Again, Table 8 illustrates the apparent disparities in life expectancy between neighborhoods (in green) without significant industrial encroachment and those with a multitude of CBPs and other environmental hazards (in red).

[198] According to EPA's webpage "Linking Air Pollution and Heart Disease" available at https://www.epa.gov/sciencematters/linking-air-pollution-and-heart-disease.
[199] *Id*.
[200] *Id*.
[201] Data compiled using https://www.houstonstateofhealth.com/tiles/index/display?alias=neighborhood.
[202] Katie Watkins, Life Expectancy In Houston Can Vary Up To 20 Years Depending On Where You Live, Houston Public Media, March 19, 2019, accessed at: https://www.houstonpublicmedia.org/articles/news/harris-county/2019/03/04/323859/life-expectancy-in-houston-can-vary-up-to-20-years-depending-on-where-you-live/.

Table 8: Comparison of Relative Life Expectancies in Years by Zip Code[203]

SN 55 Greater Fifth Ward	SN48 Trinity/ Houston Gardens	Texas	Harris County	SN15 Greater Heights	SN23 Afton Oaks/ River Oaks
77020: 76.8	77016: 70.2	78.5 years	78.9 years	77007: 89.1	77027: 84.6
77026: 69.8	77026: 69.8			77008: 80.9	77019: 84.9
	77028: 71.0			77009: 76.9	

The data shows a significant disparity between the life expectancy of members of SN 48 in comparison to Harris County or the State of Texas. The disparity widens when comparing the life expectancy of Black members of SN 48 to the average person in Harris County or the State of Texas. A Black individual from SN 48 has a reduced life expectancy of approximately 8-10 years from the county or the state.[204] A Black or Hispanic individual from Greater Fifth Ward has a reduced life expectancy of approximately 1-7 years from the county or the state.[205]

Even more jarring is the disparity between the average life expectancy of persons of color from SN 48 or Greater Fifth Ward compared to that of any individual from Greater Heights or Afton Oaks / River Oaks, both predominantly White neighborhoods less than 15 miles away. The average life expectancy of a Black individual from SN 48 or Greater Fifth Ward can be up to *21 years lower* than that of a resident of Greater Heights, and up to *17 years lower* than that of a resident of Afton Oaks/River Oaks.[206] The average life expectancy of a Hispanic individual from Greater Fifth Ward can be up to *11 years lower* than that of a resident of Greater Heights, and up to *7 years lower* than that of a resident of Afton Oaks/River Oaks.[207]

Other cumulative impacts of the proliferation of industrial actors like CBPs in residential neighborhoods show up in relative cancer rates. In March 2020, the Texas Department of State Health Services ("TDSHS") published a study evaluating the occurrence of cancer across twenty-one census tracts in Houston, Texas.[208] The State's investigation surveyed data related to nine types of cancer over 17 years. A cancer cluster is defined by the Center for Disease Control and Prevention and the Council of State and Territorial Epidemiologists "as a greater than expected number of cancer cases that occurs within a group of people in a geographic area over a defined period of time."[209] This Texas study found that the rates of acute myeloid leukemia, esophagus, larynx, liver, and lung and bronchus cancers were "statistically significantly greater

[203] Data compiled using interactive map Life Expectancy by Zip-Cde in Texas, available at https://www.texashealthmaps.com/lfex.
[204] *Id*.
[205] *Id*.
[206] *Id*.
[207] *Id*.
[208] Texas Department of State Health Services, *Assessment of the Occurrence of Cancer: Houston, Texas 2000-2016*, (March 20, 2020) available at https://www.dshs.texas.gov/epitox/CancerClusters/Assessment-of-Occurrence-of-Cancers,-Houston,-Texas---2000-2016.pdf.
[209] Kashmere Gardens Trinity / Houston Gardens Super Neighborhoods 52 and 48, Collaborative Community Design Initiative No. 5, Community Design Resource Center, Univ. of Houston, 13 (Special Edition: Harvey ed. 2018).

than expected based on cancer rates in Texas."[210] Furthermore, the study cited multiple cancer clusters located in census tracts in both Greater Fifth Ward and SN 48.[211]

b. Comparison of Disparate Property Values in the Impacted Communities

Decades of rampant air pollution and neglect of the Black and Hispanic communities of Greater Fifth Ward have also resulted low in property values, especially when compared with the overall property values in the City of Houston.

Years of underregulated or unregulated air pollution and neglect of the Black and Hispanic communities of Super Neighborhood 48 have also resulted in inexpensive property values in comparison with overall property values in the City of Houston. Moreover, as illustrated by the relative, recent changes in property values over the past 20 years shown in Table 9, the Impacted Communities have not enjoyed the same growth either.

Table 9: Comparing Relative Changes in Property Values between Impacted Communities and Across Houston[212]

Neighborhood[213]	**2000**	**2019**	**Relative Change**
SN48 – Trinity /Houston Gardens	$33,739	$72,852	Under $40,000
SN 55 – Fifth Ward	$28,977	$90,165	Under $61,000
City of Houston	$79,300	$171,800	Over $100,000

With the inexpensive property values, industrial actors continue to acquire land in the Greater Fifth Ward and SN48, causing additional air pollution and aggravating the adverse effects of the same. Similarly, and as evidenced by the Dyersforest community's recent CBP challenge to Rhino Ready Mix in 2020-2022, industrial actors are also attracted to the devalued unregulated properties available in Dyersforest. Approval of the CBPSP Rulemaking Amendment exempting applicants from air pollutant emissions and distance limitations only eases what little restrictions CBPs must comply with to construct and operate their facilities on acquired land. This circumstance all but ensures that SN 48, Greater Fifth Ward, and Dyersforest will continue to be disproportionately burdened by air pollution, health issues, and low property values in comparison to their White counterpart neighborhoods continue to soar in value and experience higher than average life expectancies.

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[210] *Assessment of the Occurrence of Cancer: Houston, Texas 2000-2016*, (March 20, 2020) at 4.
[211] *Id*. at 10.
[212] Data compiled using each neighborhood's respective City of Houston Planning & Development Department Super Neighborhood Resource Assessment, available at https://www.houstontx.gov/planning/Demographics/super_neighborhoods_3.html.
[213] The ACS historical data has been decommissioned, so this information is not available for relevant Census blockgroups that make up Dyersforest. However, Dyersforest's current median home value is $84,000, making it well below the average home price for a home in the City of Houston.

4. TCEQ had less discriminatory alternatives to passing the Rulemaking Amendment.

TCEQ rushed through the administrative process to adopt the Rulemaking Amendment so that it could keep issuing permits for CBPs. TCEQ even states as much in its Executive Summary supporting the Rulemaking Amendment's adoption: "if the amendment to this standard permit does not move forward, applicants could be required to demonstrate the emission from the CBP meet the emission and distance limitations in § 116.610(a)(1)."[214] The need to continue easily issuing permits became paramount for the Agency over public health and the civil rights of Impacted Communities and LEP persons. There is no excuse for the Agency not conducting a protectiveness review for the 2021 Rulemaking Amendment when it had just been through a contested case hearing in Bosque Solutions, LLC and knew it did not have the science to support the current exemption for crystalline silica that it claims should have been in the CBPSP but of a clerical error.[215] Thus, in its rush to fix the error, the Agency unnecessarily compromised public health by failing to conduct a protectiveness review, given the outdated and ill-conceived protectiveness review of 2012 prior to the NAAQS amendments.

a. New Protectiveness Review in 2021

TCEQ should have affirmatively conducted a new and relevant protectiveness review prior to proposing and ultimately approving the Rulemaking Amendment. The last full protectiveness review of the CBPSP was conducted from 1996-2000. TCEQ, however, insists on its 20-year-old review as support justifying its approval of the 2021 amendment that exempts CBPs from statutory air pollutant emissions and distance limitations—all while TCEQ ignores the intervening federal regulatory changes in air modeling standards and intervening changes to NAAQS requirements for $PM_{2.5}$.

b. Enforce the emissions and distance limitations of 30 TAC §§ 106.261 and 106.262.

Despite the removal of the exemption in 2012, TCEQ did not enforce the emissions and distance limitations of 30 TAC §§ 106.261 and 106.262 in issuing CBP standard permits for several years. However, in 2020, the conclusion of the Bosque matter brought this enforcement failure to TCEQ's attention when the ALJ found the 2012 CBPSP amendment expressly incorporated the emissions limitations set forth in 30 TAC §§ 106.261 and 106.262, and by reference, required a demonstration that crystalline silica emissions would comply with said limitations.

Instead of enforcing the limitations that were clearly set forth in the 2012 CBPSP and reinforced by the ALJ, TCEQ opted to immediately issue a "Notice of Request for Public Comment and Notice of a Public Meeting on a Proposed Amendment to the Air Quality Standard Permit for Concrete Batch Plants" to reinstate the exemption it had first issued over 20 years ago.[216] While it would have been less burdensome on the affected minority communities for TCEQ to finally impose the statutory limitations on owners and operators of CBP facilities with respect to the air pollutants emitted and the siting of these facilities, TCEQ chose to categorize the 2012 amendment as a "clerical error," requiring nothing but a simple reversal to permitting language from 2000.

[214] APPX_000334-35.
[215] APPX_00143-47
[216] APPX_000105-09.

c. Alternate Solutions to Address Environmental Justice Concerns

Not only did TCEQ refuse to conduct a new protectiveness review or enforce the emissions and distance limitations of 30 TAC §§ 106.261 and 106.262, but it also failed to consider *any* other alternate solutions or revisions to the CBPSP to address the environmental justice concerns raised by many interested parties. In its public comments to the Rulemaking Amendment, Complainants proposed several recommendations for TCEQ to consider in its standard permitting process with respect to CBPs.[217] These recommendations included:

- Siting controls which consider communities without zoning;
- Evaluating the number of industrial operations already in particular areas of concern;
- Evaluating applicants for CBPSPs for history of violations before issuing permits;
- Restricting hours of CBP operations;
- Increasing TCEQ oversight of "standard" CBP facilities;[218] and
- Conducting third-party independent research studies on ambient crystalline silica emissions on residential communities near CBPs.[219]

Despite these proposals, TCEQ did not consider any of the above before reverting to its standard permit from 2000. TCEQ overlooked an ideal opportunity to effectuate change in minority communities facing daily environmental justice concerns, but instead TEQ moved forward in a manner demonstrating complete disregard for issues plaguing the Impacted Communities.

B. TCEQ's failure to publish notice the Rulemaking Amendment in languages other than English violates Title VI.

TCEQ's rush to fix the error further compromised the civil rights of LEP persons in the Impacted Communities directly affected by existing CBPs in their neighborhood as well those living in areas where CBPs are likely to be proposed. The absence of zoning in Houston puts these communities at extreme risk within Harris County because residential or recreational areas in Houston are not immune or insulated from having a CBP sited in their neighborhoods. There are no local restrictions that can prevent a CBP from being located in a predominantly residential area or directly across the street from a public park or school. These failures of the system have a disproportionate effect on these communities, which typically have a higher-than-average Spanish-speaking population as demonstrated in the Impacted Communities joining in this Complaint. Under Title VI and as a recipient of Federal financial assistance, TCEQ has a duty to provide LEP persons with equal access to its programs and activities. In conducting the Rulemaking Amendment, TCEQ failed to fulfill this duty.

1. TCEQ failed to implement its 2020 Informal Resolution with EPA to ensure meaningful access for individuals with Limited English Proficiency.

EPA makes clear that discrimination on the basis of national origin includes discrimination against individuals with Limited English Proficiency. In fact, EPA investigated TCEQ in 2019 for alleged discrimination against LEP individuals in the administration of its permitting and

[217] APPX_000023-53.
[218] *Id*.
[219] APPX_000095.

public engagement programs once before.[220] Therefore, TCEQ has been on notice that EPA and others recognize TCEQ has been excluding LEP individuals for decades, and TCEQ should have reflected on this problem when providing notice on the Rulemaking Amendment.

In November 2019, Texas Environmental Justice Advocacy Services ("t.e.j.a.s.") and Sierra Club filed a complaint against TCEQ for failing to provide the non-English-speaking community of Texas with public notices in alternative languages, excluding LEP community members from meaningful participation in public meetings.[221] The complaint highlighted TCEQ's failure to properly notice in alternative languages in instances as far back in time as 2014. The complaint emphasized TCEQ's pattern of exclusion contributed to the perpetuation of disproportionate pollution burdens in environmentally overburdened immigrant and Latinx communities. Contemporaneously, t.e.j.a.s and Sierra Club also filed a petition for a rulemaking amendment with TCEQ, requesting the commission adopt rules extending the existing alternative language requirement beyond those for publications of Notice of Receipt of Application and Intent to Obtain Permit ("NORI") and Notice of Application and Preliminary Decision (NAPD). Specifically, the request was to extend the alternative language requirement to public meetings held under 30 TAC § 55.154.

The 2019 complaint resulted in an Informal Resolution (the "Resolution") executed on November 3, 2020.[222] As a part of the Resolution, TCEQ specifically committed to a plan to ensure meaningful access for individuals with LEP.[223]

Through the Resolution, TCEQ vowed to "develop, publicize, and implement written procedures to ensure meaningful access to all TCEQ programs and activities by all persons, including access by individuals with LEP, at no cost to those individuals."[224] TCEQ was to develop a language access plan consisted with EPA's LEP Guidance, which was established in 2004.[225] Critical elements of TCEQ's commitment to this resolution included agreeing to translate vital documents into prominent and/or particular languages for LEP individuals.[226]

Following the Resolution, TCEQ established its Language Access Plan ("LAP") to "establish guidance to better ensure individuals with LEP may meaningfully access TCEQ programs, activities, and services in a timely and effective manner."[227] Notably, TCEQ agreed to prioritize written translation of vital documents related to significant Agency decisions if 5% or more of the affected (or expected to be affected) population comprised of LEP individuals who share a common non-English language.[228] Among other factors, TCEQ also agreed to assess: (1) the number or proportion of LEP individuals in Texas eligible to be served or likely to encounter

[220] APPX_000111.
[221] *See generally* APPX_000110-24.
[222] APPX_000110-24.
[223] APPX_000116-22.
[224] APPX_000119.
[225] *Id*.
[226] APPX_000120.
[227] TCEQ Language Access Plan, available at https://www.tceq.texas.gov/downloads/agency/decisions/participation/language-access-plan-gi-608.pdf.
[228] *Id*.

TCEQ services and (2) the nature and importance of TCEQ programs, activities, and services to the LEP population.[229]

Despite knowledge of its years of disenfranchising LEP individuals, committing to the Resolution to address its actions, and working on the development of a language access plan, TCEQ again failed the communities of SN 48, Dyersforest, and Greater Fifth Ward when it passed the Rulemaking Amendment to the CBPSP without proper notice of a public meeting in Spanish. On May 28, 2021, TCEQ issued its "Notice of Request for Public Comment and Notice of a Public Meeting on a Proposed Amendment to the Air Quality Standard Permit for Concrete Batch Plants" in the Texas Register.[230] The notice stated the proposed amendment to the air quality standard permit was subject to a 30-day comment period ending on June 29, 2021.[231] It also stated the public meeting was scheduled for June 28, 2021.[232] The notice was issued in English only, and the notice did not even reference alternative languages or interpretation services.[233] TCEQ was preparing to completely alter the air emissions and distance limitations concrete batch plants were bound to, facilities which are disproportionately located in Hispanic communities throughout Texas, and once again ensured the Spanish-speaking population was excluded from participating in the permitting process. TCEQ's actions demonstrated a clear disregard of its own commitment from only six months prior to translate vital documents into prominent and/or particular languages for LEP individuals. TCEQ also clearly failed to evaluate the nature and importance of this amendment to the CBPSP.

Furthermore, throughout the comment period, TCEQ received comments from elected officials, local governments, advocacy groups, and citizens of Texas, expressing concern as the notice did not include representation of non-English speaking communities.[234] These groups emphasized that concrete batch plants are often located in underserved neighborhoods, rural communities, communities of color, and low-income areas with a lack of resources, understanding, limited representation, or an inability to participate in the permitting process.[235]

In spite of the impassioned comments regarding the importance of an alternate language notice for this proposed amendment, TCEQ simply responded "[b]ilingual notice was not required per state statute or rule."[236] TCEQ's apathetic response after having notice of years of its exclusion of LEP individuals confirmed that at best, it is unconcerned with the disparate impact the amendment has on Spanish-speaking communities, and at worst, it is deliberately excluding minority communities from public participation.

[229] *Id*.
[230] APPX_000108-09.
[231] *Id*.
[232] *Id*.
[233] *Id*.
[234] APPX_000356.
[235] *Id*.
[236] APPX_000357.

2. Complainants are all Impacted Communities with significant Spanish-speaking populations.

Nationally, populations who speak English less than very well is 8.2% of the total population.[237] In Texas, statewide this percentage is higher than the nation at 13.3%. In the Resolution, TCEQ agreed to prioritize written translation of vital documents related to significant Agency decisions if 5% or more of the affected (or expected to be affected) population comprised of LEP individuals who share a common non-English language.[238] TCEQ further agreed to assess the number or proportion of LEP individuals eligible to be served or likely to encounter TCEQ services utilizing US Census Bureau data.[239] Specifically, TCEQ defines individuals who speak English less than "very well" as LEP. It is evident TCEQ did not evaluate these criteria before issuing a notice regarding its Rulemaking Amendment to the CBPSP.

The American Community Survey ("ACS") is an official, ongoing survey conducted by the US Census Bureau that collects and produces information on social, economic, housing, and demographic characteristics about the nation's population every year, including language proficiency. The ACS creates period estimates representing the characteristics of the population and housing over a specific data collection period, either 1-year or 5-years. The most current ACS represents 5-year data collected from 2016-2020 for the estimated number of Spanish-Speaking individuals who speak English less than "very well" in Harris County, Texas is 19.8% and within the City of Houston this number is 22.2%. Table 10 reflects these comparable percentages in the Impacted Communities:

Table 10: Comparison of Spanish-Speaking Populations in Impacted Communities

SN48			**Dyersforest Blockgroups**			**Greater Fifth Ward Zip Codes**		
Zip Code	**Total Pop.**	**Percent of Total**	**Blockgroup**	**Total Pop.**	**Percent of Total**	**Zip Code**	**Total Pop.**	**Percent of Total**
77016	4,487	15.9%	482012320002	1,054	**42%**	77020	7,324	**30.7%**
77026	4,145	**20.6%**	482012312001	399	12%	77026	4,145	20.6%
77028	2,052	11.8%	482012320001	77	5%			

[237] Source for information cited in this section is from: https://www.census.gov/acs/www/about/why-we-ask-each-question/language/
[238] APPX_00119-20.
[239] APPX_000118-19.

Spanish Spoken at Home	Percent of Total Population
Dyersforest **(Blockgroups 482012320002, 482012320001, and 482012312001)**	**100.00%** **100.00%** **17.00%**
Greater Fifth Ward	**45.0%**
Houston, Texas	38.2%
Harris County	35.0%
SN 48	**32.0%**
Texas	28.8%
National	13.2%

3. TCEQ had less discriminatory alternatives in how it procedurally noticed the Rulemaking Amendment.

TCEQ's public outreach and notice for the CBPSP Rulemaking Amended excluded LEP individuals. Under Title VI, TCEQ must provide LEP persons with equal access to its programs and activities. All of TCEQ's communications regarding the Rulemaking Amendment were in English, including the permit itself.[240] On June 28, 2021, TCEQ held a telephonic public meeting that was also in English, and no information was provided to attendees regarding any accommodations for LEP persons.[241]

a. Providing Notice in an Alternative Language

To comply with the Resolution and Title VI, TCEQ should have provided notice of the Rulemaking Amendment in alternative languages, and specifically in Spanish, to ensure participation in the rulemaking process by the Spanish-speaking populations of SN 48, Dyersforest, and Greater Fifth Ward. During the Public Comment Period, many commenters, including Complainants[242] and Harris County,[243] asked the Agency to: (1) re-notice the Rulemaking Amendment with English and Spanish notice, (2) conduct another public meeting with live two-way Spanish professional interpretation, and (3) translate the CBPSP into Spanish.[244] TCEQ refused to do any of the foregoing.

b. Extend Alternative Notice Requirements to 30 TAC § 116.603

In response to t.e.j.a.s and Sierra Club's petition for a rulemaking amendment extending the alternative language requirement, TCEQ amended 30 TAC § 55.154 relating to public meetings

[240] APPX_000105-09, 329-94, 449-50.
[241] APPX_000010-12.
[242] APPX_000337-38.
[243] *Id*.
[244] APPX_000023-53; *see also* APPX_000434.

for hazardous air pollutant permits, among other types of permits.[245] The amendment, effective September 16, 2021, requires notice of a public meeting related to hazardous air pollutant permits to comply with the alternative language requirements of 30 TAC § 39.426(d).[246] This requirement includes a published alternative language notice of public meeting on TCEQ's website.[247] Similar alternative language requirements should also be required for issuing and amending standard permits related to air pollution.

TCEQ was firm in its position that "[b]ilingual notice was not required per state statute or rule"[248] with respect to the Rulemaking Amendment. According to TCEQ, it had provided notice of the change to the standard permit in accordance with 30 TAC § 116.603—Public Participation in Issuance of Standard Permits; and, therefore, as if it had learned nothing from its ongoing informal resolution process, the Agency professed it had fulfilled its obligations to the members of all affected communities. However, the Agency can still violate the civil rights of LEP persons even when it follows the law. A manageable, and clearly less discriminatory alternative to this procedure would have been to extend alternative language notice requirements to public participation in air pollution standard permits, as they were extended to public meetings related to hazardous air pollutant permits. Therefore, TCEQ should be required to revise its statutory requirements related to public participation in the issuance of standard permits to incorporate the needs of LEP populations.

VII. RELIEF REQUESTED

To resolve the violations detailed in this Complaint against TCEQ, Complainants ask EPA to:

1) Investigate the allegations in this Complaint regarding the discriminatory actions by TCEQ taken against the communities represented by Complainants where TCEQ has permitted CBPs;

2) Abate TCEQ's issuance of any permits for proposed CBPs or amendments in Houston pending any EPA investigation of this Complaint;

3) Require TCEQ to define "cement dust" with respect to the CBPSP;

4) Require TCEQ to conduct an updated protectiveness review for the CBPSP for particulate matter, crystalline silica, and cement dust impacts from CBP operations;

5) Require TCEQ to re-evaluate the conditions of the CBPSP to address environmental justice concerns;

6) Require TCEQ to revise its public participation requirements for the issuance of standard permits to ensure access for LEP populations; and

[245] TCEQ Docket No. 2020-0040-RUL, Decision of the Commission Regarding the Petition filed by t.e.j.a.s and Sierra Club, Public Notice at 4 (Dec. 18, 2019).
[246] TCEQ Docket No. 2020-0040-RUL, Commission Approval for Rulemaking Adoption, Interoffice Memorandum (Aug. 6, 2021) at 1-2.
[247] *Id.*
[248] APPX_000357.

7) Provide a new notice and comment period with respect to the Rulemaking Amendment on the CBPSP which complies with TCEQ's Informal Resolution Agreement with EPA regarding Limited English Proficiency and with TCEQ's Language Access Plan.

Complainants would further request any other and further relief that EPA feels they are entitled to after conducting its investigation to remedy TCEQ's discriminatory actions in adopting the Rulemaking Amendment.

VIII. CONCLUSION

For these reasons, Complainants Super Neighborhood 48 Trinity / Houston Gardens, Dyersforest Heights Civic Club, Progressive Fifth Ward Community Association, and Prince Square Civic Association ask EPA to investigate TCEQ's process and approval of the Rulemaking Amendment for the CBPSP in 2021 and its discriminatory impact on the communities outlined in this Complaint. For more information, please contact the undersigned counsel for Complainants.

Respectfully submitted,

cc: VIA EMAIL TO EPA ADMINISTRATORS

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Re: Shared Comments by Community Advocacy Organizations on the TCEQ Concrete Batch Plant Air Quality Standard Permit Amendment Process - Non-Rule Project No. 2022-033-OTH-NR

Dear Ms. Ricco,

We, the undersigned organizations - Texans for Responsible Aggregate Mining (TRAM), Air Alliance Houston, Public Citizen, Environmental Defense Fund, the Lone Star Chapter Sierra Club, and Environment Texas - submit the following shared technical comments in response to the TCEQ Concrete Batch Plant (CBP) Air Quality Standard Permit Amendment Process (2022-033-OTH-NR). As organizations dedicated to safeguarding the air quality and public health of communities across Texas, we aim to provide valuable input that ensures the protection of our environment while promoting responsible development.

We recognize the importance of CBPs in supporting economic growth and infrastructure development but firmly believe that their operation must not compromise the health and well-being of Texas residents. It is in this spirit of collaboration and shared commitment to the well-being of our communities that we offer our technical comments, providing evidence-based analysis, recommendations, and solutions to address the potential environmental impacts of the proposed amendment.

Overall Response to Proposed Amendment

We believe that the proposed amendments to the CBP Standard Permit process are timely and needed. However, the amendments do not go far enough to protect the public given the massive growth in many areas of Texas and the concentration of Aggregate Production Operations (APOs), including CBPs next to many of these high population growth areas.

Here is a summary of the significant and essential changes we recommend including in the proposed amendment to enhance effectiveness. Each change is described in greater detail below.

- The TCEQ should immediately use AERMOD for dispersion modeling instead of the older ISCST3 (Version 02035) model that was used for the Protectiveness Review.

- The addition of best management practices (BMPs) is good, but again the proposed BMPs do not go far enough. Comprehensive BMPs should be included in model runs to determine if they should be included in permitting. We offer a listing of additional BMPS related to air management in a section below.

- Fenceline monitoring devices should be installed to confirm that model results align with actual air quality once the CBP is operational. The Protectiveness Reviews should also include up-to-date data on PM10 and PM2.5 background levels including new levels

proposed in the updates National Ambient Air Quality Standards (NAAQS) for PM expected later this year. Use of existing and/or part-time operated TCEQ air monitors at large distances from the proposed CBP does not sufficiently represent the background air quality at or near the CBP site.

- It is crucial to resolve the confusion surrounding the standard permit application process for "regular" CBPs under 30 TAC §116.610(a)(1), Texas Clean Air Act §382.05195, and the application for standard permits for "certain concrete plants" under §382.05198. The TCEQ refers to concrete plants under §382.05198 as "CBPs with enhanced controls," despite the absence of this term in the regulations.

- The inclusion of cumulative impacts from PM emissions should be an integral part of Protectiveness Reviews, especially for multiple APOs located in close proximity to populated areas and other sources of PM pollution, such as highways and refineries. It is crucial to consider the impacts of nearby aggregate mines, including the mining and crusher "facilities," as well. In addition, the particulate dispersion modeling should incorporate hot mix asphalt plants and other nearby CBPs, rather than solely focusing on modeling a single CBP and assuming everything is satisfactory.

Comments on Section 5 of the Proposed Amendment

I. Multiple plants on one site (5)(J)

From the proposed amendment: “When operating multiple concrete batch plants on the same site, the owner or operator shall comply with the appropriate site production and setback limits specified in sections (8), (9), or (10) of this standard permit.”

Before a permit is approved for a 2nd or multiple CBPs (where each is permitted at the max individual standard permit operating rate) on the same site, a site specific TCEQ Protectiveness Review, including dispersion modeling, will be conducted to access the cumulative particulate concentrations in the surrounding areas adjacent to the plant. This updated Protectiveness Review is needed to determine the cumulative emission impacts of multiple CBPs (including existing and proposed) at the same site.

Comments on Section 8: Operational Requirements for Permanent and Temporary Concrete Plants

I. Set uniform setback distances and apply state-wide in (8)(A)

Tables 1,2, and 3 on page 9 of the Proposed Amendment specifies different setback distances for different counties. Our recommendation is for a ***unified setback distance of 300 feet*** be adopted and applied state-wide. This would allow for a more consistent application of this rule across the state.

In the alternative, we suggest setback distances that are related to PM nonattainment status based on the proposed new NAAQS for PM. The counties singled out for larger setbacks seem to be those that are likely to be designated nonattainment of a lower PM2.5 standard. If this is the logic behind applying larger setbacks to those counties, then the agency should be able to carry that logic forward into the future. We recommend either a period review of nonattainment status to adjust the county-by-county setbacks, or simply applying the setbacks based on PM nonattainment status.

II. Require all dust controls in (8)(G)

New section (8)(G) of the proposal lists operational requirements that are intended to prevent tracking of dust onto roadways and reduce the generation of dust. Preventing dust tracking on roadways is an important strategy to reduce ambient particulate matter generally. Once dust is on a public road, traffic on that road causes more dust in the air through entrainment.

Each of the strategies listed in this section will limit dust tracking onto roadways. Subsections (i) and (iii) will limit dust accumulation on roadways. Subsections (ii) and (iv) will reduce dust on the wheels and undercarriages of trucks. Rather than allowing any one of these four strategies, we recommend all four of them be required (by simply changing the “or” in subsection (iii) to “and”). At a minimum, we suggest requiring one of either strategy (i) and (iii) (focused on the roads) and one of either strategy (ii) and (iv) (focused on the trucks). This approach will limit dust accumulation on the road more than one single strategy would.

III. Support (8)(J) - paving all traffic and parking areas within a facility

We support the requirement in section (8)(J) to pave all entry and exit roads and main traffic routes. Unpaved roads and paved roads with accumulated aggregate material lead to particulate matter entering the air through entrainment.

There are additional strategies that could increase the effectiveness of this approach. First is to pave all traffic areas, not simply allow the less effective control strategies in section (5)(E) for certain areas. Another strategy is lower speed limits, such as 5 mph, within the entire facility. Lower speed limits reduce entrainment.

IV. Additional Best Management Practices for Consideration under Section 8

In addition to the list of proposed BMPs in Section 8(B)-8(J), we recommend that additional BMPs be included:

- Install effective dust removal devices like bag houses on vents from transfer systems, considering oversized dust collectors for proper ventilation.
- Use curtains or socks during truck loading and consider deploying side skirts for better dust enclosure.
- Minimize surface areas of aggregate storage piles and locate them in sheltered areas.
- Implement wind fences in high persistent wind areas.
- Install a metal "barn" cover for mixing hoppers to minimize dust dispersion and enhance dust collector efficiency, orienting it towards prevailing winds.
- Install and maintain tire cleaning grids/cattle guards at plant exits.
- Regularly sweep paved areas to remove accumulated dust.
- Establish and maintain vegetative windbreaks (trees) around the facility perimeter.
- Implement fence line air particulate monitoring for existing facilities within communities.
- Use automated sprinkler systems for dust suppression on stockpiles and other emission sources.
- Cover and/or spray conveyor belts for dust suppression.
- Utilize on-site bulk water trucks or sprinklers to water down flat plant areas and minimize dust.

Considering that the proposed amendments exclusively concern air quality, the list above is specifically tailored to address this particular issue. A more extensive list of BMPs compiled by the TRAM coalition, in collaboration with various stakeholders across the state, will be submitted separately for the public record by TRAM. We endorse these practices as measures which can improve CBP water conservation and management, as well as the mitigation of noise and light disturbances, all aimed at fostering better community relations.

Comments on Section 9: Additional Requirements for Specialty Concrete Batch Plants

We recommend a 300-foot setback from the property line for exhaust from batch mixer feed (9B) and a 100-foot setback from any property line for operating vehicles used for operation on CBPs (9E).

Additional Recommendations

Model Considerations to improve the Protectiveness Review

As a group, we affirm and endorse the recommendation made by Dr. Christina Schwerdtfeger to expand the Protectiveness Review to include Hexavalent Chromium and ask for an additional comment period following those results.

The TCEQ should adopt AERMOD for dispersion modeling instead of the older ISCST3 (Version 02035) model that was used for the Protectiveness Review. A technical paper published in the Journal of the Air & Waste Management Association conducted an analysis to determine the sensitivity of AERMOD to various inputs and compared the highest downwind concentration to those predicted by the ISCST3 model[1] *(see Attachment 1)*. The study found that AERMOD was more sensitive to small changes in wind speed and surface roughness, as well as to changes in albedo, temperature, and cloud cover. The study goes on to conclude that when AERMOD is used to determine property line concentrations, small changes in these variables may affect the distance within which concentration limits are exceeded by several hundred meters. As of December 2006, AERMOD replaced the ISCST3 dispersion model as the EPA preferred regulatory model.

To address the cumulative impacts of multiple PM emitters in proximity to one another, sometimes adjacent to one another, the TCEQ should require regionally appropriate AERMOD air dispersion modeling at the expense of the applicant if their application is for a permit within five miles of another TCEQ permitted source. The modeling must include the identified sources within five miles.

More Explicit Requirements for Opacity Observers

As a group, we affirm and endorse the recommendation made by Dr. Christina Schwerdtfeger to more explicitly describe the qualifications and training requirements for opacity observers for EPA Test Method 22.

[1] William B. Faulkner , Bryan W. Shaw & Tom Grosch (2008) Sensitivity of Two Dispersion Models (AERMOD and ISCST3) to Input Parameters for a Rural Ground-Level Area Source, Journal of the Air & Waste Management Association, 58:10, 1288-1296, DOI: 10.3155/1047-3289.58.10.1288

Fenceline Monitoring Requirements

Fenceline monitoring devices should be installed to confirm that model results align with actual air quality once the CBP is operational. Mid-range PM monitoring equipment such as light scattering monitors provide real-time data, cost only a few thousand dollars, and are easy to operate and maintain without expertise. Monitors should be placed with consideration given to wind direction. It would be prudent to require both upwind and downwind monitors. A requirement for fenceline monitoring could also be met through a contract with a third-party monitoring company.

Requesting Clarification of "Enhanced Controls" Term

As mentioned earlier, it is crucial to resolve the confusion surrounding the standard permit application process for "regular" CBPs under 30 TAC §116.610(a)(1), Texas Clean Air Act §382.05195, and the application for standard permits for "certain concrete plants" under §382.05198. The TCEQ refers to concrete plants under §382.05198 as "CBPs with enhanced controls," despite the absence of this term in the regulations. This discrepancy needs to be addressed.

We propose that the TCEQ clarify its definition of "enhanced controls" to include a comprehensive list of equipment, processes, and operating procedures that are required. Currently, a permit holder or affected party has to become familiar with both the regulations and TCEQ rules to develop this understanding. We also suggest aligning the amendments to permits for "regular" CBPs with the permit rules for §382.05198 CBPs to ensure consistency. This would include enumeration of specific equipment, processes, operating procedures and a comprehensive list of required BMPs

Cumulative Impacts

The TCEQ's modeling efforts conducted during their Protectiveness Review for the proposed rule changes lack consideration for cumulative impacts of closely clustered plants or proximity of plants to other sources of air pollution such as highways or refineries. Taking cumulative impacts into account is crucial when conducting protectiveness reviews for densely populated areas where multiple CBPs are being installed.

The Commission argues that its use of data from the highest nearby ambient PM2.5 monitor makes its modeling approach conservative. This is untrue for the simple reason that ambient PM2.5 monitors are not located close to concrete batch plants.

Particulate matter emissions from a concrete batch plant are localized. Most particulate matter falls out of the air within 1,000 feet of its emission source. The state legislature recognized this when it set the distance for residences that qualify to request a contested case hearing at 440 yards.

For this reason, an ambient air monitor that is several miles away from a concrete batch plant is not representative of local air quality, even if it does have the highest monitored concentrations in the region. This leads to absurd results in permitting. For example, for several years in Houston the agency has permitted facilities using ambient air monitoring data that puts annual PM2.5 concentrations in excess of 11 $\mu g/m^3$–very close to the current NAAQS of 12 $\mu g/m^3$. It

wasn't uncommon for the agency to model a newly proposed facility as contributing another 0.8 or 1.0 μg/m^3 of PM2.5, leading to a permit that estimates that local concentrations will be just barely under the PM2.5 NAAQS of 12 μg/m^3. The problem is that the agency occasionally did this with multiple facilities in a small geographic area. Here is an example, the Aurora Ready Mix facility, which was permitted in Houston's Third Ward (a black community) in 2018:

Notice that there are five other concrete batch plants within about a mile. It simply isn't possible that each of these facilities could contribute 0.8 μg/m^3 or so of PM2.5 to the region when the ambient concentrations are in excess of 11 μg/m^3 without the cumulative effects of these facilities violating the NAAQS.

Another example of this is in Gunter, Texas, north of the Dallas area. A 2022 study found that the cumulative impact from multiple CBPs in close proximity exceeds the NAAQS limits for PM2.5, PM10, and NOx *(see Attachment 2)*.

Two lawsuits from Houston have also shown with modeling that the cumulative impact of PM2.5, PM10, and crystalline silica emissions from multiple CBPs in close proximity far exceeds the current NAAQS standards and this will grow greater when the standard is revised later this year *(see Attachment 3 and 4)*.

There is a simple solution: **a concrete batch plant that chooses to locate within a specified distance of other sources of PM should be required to conduct a modeling analysis that includes as inputs the permitted emissions rates of all nearby sources, including non-CBPs, such as recycling facilities, chemical plants, and refineries**. This requirement could be limited to a short list of sources within the aggregate production industry.

In closing, we very much appreciate the opportunity to provide comments on the CBP Air Quality Standard Permit Amendment and we kindly request that our technical comments be given due consideration. We also express our willingness to further engage with the

Commission, should you require additional information, clarification, or collaborative opportunities to address the concerns raised in our comments.

Thank you for your attention to this matter. We look forward to a productive and fruitful collaboration with the Commission and appreciate the opportunity to contribute to the decision-making process.

Sincerely,

Tsion Amare
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Coordinator
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Neil Carman, PhD
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Jennifer Hadayia
Executive Director
Air Alliance Houston

Luke Metzger
Executive Director
Environment Texas

Adrian Shelley
Texas Director
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Attachments uploaded separately include:

Attachment 1: William B. Faulkner , Bryan W. Shaw & Tom Grosch (2008) Sensitivity of Two Dispersion Models (AERMOD and ISCST3) to Input Parameters for a Rural Ground-Level Area Source, Journal of the Air & Waste Management Association, 58:10, 1288-1296, DOI: 10.3155/1047-3289.58.10.1288

Attachment 2: Air Quality Dispersion Modeling Report Concrete Batch Plant Cluster – Gunter, Texas. Prepared by Air Resource Specialists. January 2022.

Attachment 3: Complaint 05RNO-22-R6 Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d, 40 CFR. Part 7 from Redacted Name to USEPA External Civil Rights Compliance Office (ECRCO) (April 4, 2022) accessed at: https://www.epa.gov/system/files/documents/2022-06/05RNO-22-R6%20Complaint_Redacted.pdf

Attachment 4*:* Complaint 06RNO-22-R5 Under Title VI of the Civil Rights Act of 1964, by Impacted Communities Against TCEQ for Actions Related to a Rulemaking Amendment to the CBP Standard Permit from Redacted to USEPA External Civil Rights Compliance Office (ECRCO) (May 17, 2022) accessed at: https://www.epa.gov/system/files/documents/2022-06/06RNO-22-R6%20Complaint_Redacted.pdf