Air Dispersion Conditions & Outlook Form **EXPLANATION**

"This AM Sfc. Inv." = Morning (7 a.m. EST) surface temperature inversion conditions when they exist. The conditions include how strong the surface inversion is (in ^{o}C), how high the inversion extends above the surface (in meters), and when the inversion is expected to break (in clock time). Included is whether or not a substantial upper-level inversion or inversions exist, starting at below about 1000 meters (330 ft) *MSL*. (*Note: To capture more upper-level inversions that can contribute to poor air quality at the surface, the 1000 mMSL level will likely be increased and conditions for upper-level inversion(s) redefined, beginning in 2021.*)

"Sfc. Inv. Characterization" = Description of surface inversion strength, either "None" or "Slight" (~0.2 ^{o}C ~ 0.9^{o}C) or Weak" (~1^{o}C ~ 2.9^{o}C) or "Moderate" (~3^{o}C ~ 4.9^{o}C) or "Strong" ($\geq$ ~5^{o}C).

"Forecast Period" = Period that includes "TODAY" and "TMRW," which are anticipated dispersion conditions for today and tomorrow during the daytime.

"Dispersion Potential" = Qualitative assessment of dispersion conditions for today and tomorrow ranging from "Good" to "Fair" to "Poor." This potential is based on the "Ventilation Rate" (see below), where Ventilation Rate (mph-ft) $\leq$ 29,000 = Poor; >29,000 to $\leq$ 59,000 = Fair; and, > 59,000 = Good.

"Mixing Height (ft)" = Afternoon height above ground through which pollutants can mix.

"Transport Wind (dir, mph)" = Afternoon wind direction (**direction *from which* the wind is coming**) and speed through mixing layer.

"Ventilation Rate (mph-ft)" = Product of Mixing Height and Transport Wind.

"Wind (dir, mph)" = Daytime wind direction and speed across Allegheny County.

"Nite Wind (dir, mph)" = Evening and overnight wind direction and speed across the county.

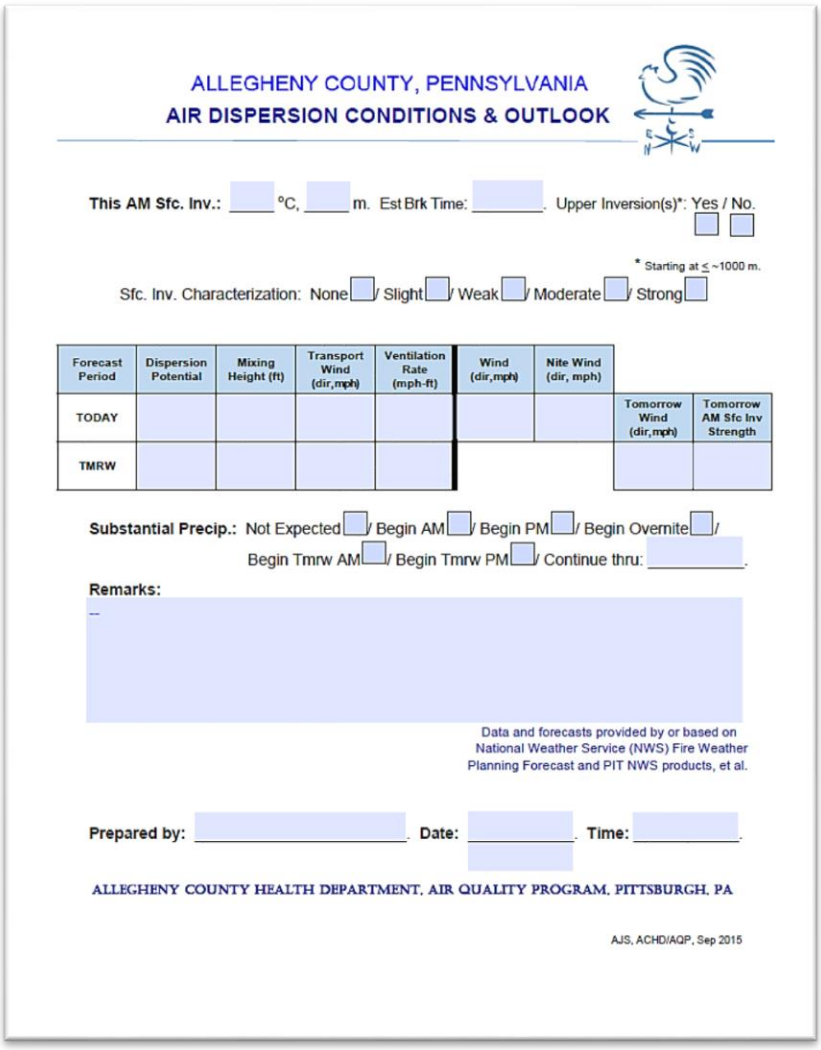
"Tomorrow Wind (dir, mph)" = Tomorrow's wind direction and speed across the county.

"Tomorrow AM Sfc Inv Strength" = Prediction of tomorrow morning's surface inversion strength, ranging from "None" to "None to Weak" (~0.2 ^{o}C ~ 2.9^{o}C) to "Weak" (~1^{o}C ~ 2.9^{o}C) to "Weak to Moderate" (~1^{o}C ~ 4.9^{o}C) to "Moderate" (~3^{o}C ~ 4.9^{o}C) to "Moderate to Strong" (~3^{o}C ~ $\geq$ 5^{o}C) to "Strong" ($\geq$ ~5^{o}C).

"Substantial Precip." = Outlook for whether a sufficient amount of precipitation will be occurring within the next two days or will continue through the stated time period. For this form, "substantial precip." is precipitation greater than about 0.01 inch per hour and rather steady throughout most of the county.

"Remarks" = Additional information important to air dispersion in the county and/or pertinent National Weather Service (NWS) Watches/Warnings.

Note that most of the data in the report are extracted or derived from NWS products, including those from the Pittsburgh (PIT) forecasting office in Moon Township.



ALLEGHENY COUNTY, PENNSYLVANIA
AIR DISPERSION CONDITIONS & OUTLOOK

This AM Sfc. Inv.: _____ °C, _____ m. Est Brk Time: _____. Upper Inversion(s)*: Yes / No.

* Starting at ≤ ~1000 m.

Sfc. Inv. Characterization: None / Slight / Weak / Moderate / Strong

Forecast Period	Dispersion Potential	Mixing Height (ft)	Transport Wind (dir,mph)	Ventilation Rate (mph-ft)	Wind (dir,mph)	Nite Wind (dir, mph)	Tomorrow Wind (dir,mph)	Tomorrow AM Sfc Inv Strength
TODAY								
TMRW								

Substantial Precip.: Not Expected / Begin AM / Begin PM / Begin Overnite / Begin Tmrw AM / Begin Tmrw PM / Continue thru: _____.

Remarks:

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Data and forecasts provided by or based on National Weather Service (NWS) Fire Weather Planning Forecast and PIT NWS products, et al.

Prepared by: _____. **Date:** _____. **Time:** _____.

ALLEGHENY COUNTY HEALTH DEPARTMENT, AIR QUALITY PROGRAM, PITTSBURGH, PA

AJS, ACHD/AQP, Sep 2015

AJS, ACHD/AQP, Oct. 29, 2020

For more information, see additional documents on the ACHD Air Quality website that discuss “temperature inversions,” which are important to air dispersion conditions; or, contact Tony Sadar at Anthony.Sadar@AlleghenyCounty.US (412-578-8125).