

# Odor Complaint Procedures Training



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# The "FIDO" Chart

(Frequency, Intensity, Duration, Offensiveness)

## ODOR COMPLAINT INVESTIGATION PROCEDURES FIDO CHART

ODORS CHARACTERIZED AS **HIGHLY OFFENSIVE**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	VS	S	M
	10 minutes	NA	VS	S	M	L
	1 hour	VS	S	M	L	VL
	4 hours	S	M	L	VL	VL
	12 hours+	M	L	VL	VL	VL

ODORS CHARACTERIZED AS **OFFENSIVE**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	VS	S
	10 minutes	NA	NA	VS	S	M
	1 hour	NA	VS	S	M	L
	4 hours	VS	S	M	L	VL
	12 hours+	S	M	L	VL	VL

ODORS CHARACTERIZED AS **UNPLEASANT**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	NA	VS
	10 minutes	NA	NA	NA	VS	S
	1 hour	NA	NA	VS	S	M
	4 hours	NA	VS	S	M	L
	12 hours+	VS	S	M	L	VL

ODORS CHARACTERIZED AS **NOT UNPLEASANT**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	NA	NA
	10 minutes	NA	NA	NA	NA	NA
	1 hour	NA	NA	NA	NA	VS
	4 hours	NA	NA	NA	VS	S
	12 hours+	NA	NA	VS	S	M

INTENSITY LEGEND
VS
Very Strong
S
Strong
M
Moderate
L
Light
VL
Very Light



# Odor Characterization Examples

## ODOR COMPLAINT INVESTIGATION PROCEDURES (cont'd) ODOR CHARACTERIZATION EXAMPLES

January 3, 2005

<u>Highly Offensive</u>	<u>Offensive</u>	<u>Unpleasant</u>	<u>Not Unpleasant</u>
Blood Drying Operations Undigested or Untreated Sewage Treatment Primary Sludge	Paper Mill Black Liquor Landfill Garbage/waste Waste and Wastewater Handling	Well Digested or Chemically- Treated Sludge APD Operation under Best Mgmt. Practices	Ketones, Esters, Alcohols Fresh-cut Grass or Hay Normal Coffee Roasting Normal Food Preparation
Rendering Plant Processes and Wastewater	Decaying Silage/Composting	Waste-activated Sludge Processes	Bakery Perfume
Decaying Animals/Fish	Typical Grease Trap Odor	Water-based Painting	Spice Packaging
Hale Processing	Rubber/Plastic/Tire Burning	Styrene	Winery
Rancid Grease	Organic Acids	Gasoline, Diesel Fuel	
Acrolein	Aldehydes	Diesel Exhaust	
Landfill Gas and Leachate	Acrylates	Asphalt Odors	
H <sub>2</sub> S	Septic Systems	Domestic Waste Burning	
	Organic Solvents (Oil-based) Painting	Burned Coffee/Food Ammonia Chlorine Brushwood Burning	

### DETERMINING FREQUENCY/DURATION

#### Plant Processes

Constant, seasonal, intermittent (e.g. reactor top opened), upset  
condition, etc.

Process and environmental controls  
Best Management Practices  
Sampling/CEM data

#### Weather

Wind rose from source to receptor  
Temperature variation affecting intensity vs climate data  
Wind speed day, night, summer, winter  
CAMS Station/NWS data

#### Terrain

Low areas/draws/valleys where odors can funnel  
Changes that could affect local wind patterns

#### Complaint Information

Statements as to frequency, duration, intensity and character  
Statements as to effects - how have odors interfered with normal  
use and enjoyment of property  
Logs - time, effects, source operations, weather conditions  
Knowledge of source operations - times, processes  
Neighbor corroboration  
Client corroboration

### HOW TO USE THE FIDO CHART

Each of the four tables on this FIDO Chart represents a level of offensiveness (Highly Offensive, Offensive, Unpleasant, and Not Unpleasant). The intensity of the observed odor is documented using the legend on the right side of the chart, with "VS" representing Very Strong odors, "S" for Strong, "M" for Moderate, "L" for Light, and "VL" for Very Light. The frequency and duration are then plotted on the horizontal and vertical axes of the appropriate table. If the odor situation is at least as intense as the colored block in which it is plotted for the corresponding duration and frequency, it is considered a nuisance odor. If the plot falls outside the colored area of the table (NA), the odor does not represent a nuisance.

Use checklist to document the following:

1. Characterize the odor to determine which offensiveness table to use (Not Unpleasant to Highly Offensive)
2. Assess intensity of odor (Very Light to Very Strong)
3. Determine the total duration of the odor(s) (1 minute to 24 hours)
4. Evaluate the frequency of odor occurrence (Single Occurrence to Daily)
5. Using Steps 1-4 above including previous investigation results, identify the block that corresponds with the information collected in order to determine if a nuisance condition exists.

# Odor Log

## ODOR LOG

DATE START TIME	WIND SPEED/ DIRECTION	WEATHER CONDITIONS CLOUD COVER, TEMP, ETC.	INTENSITY VS - S - M - L - VL	OFFENSIVENESS HO - O - UNP - NOT UNP	DURATION HOURS/MINUTES	SYMPTOMS/ EFFECTS	POSSIBLE SOURCE

COMMENTS:

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from Rendering Plant: Example 1, Scenario 1

- “Horrible odors” from a nearby rendering plant; occurs every morning around 10:00 am and lasts about 1 hour
- At complainant’s house, odor is consistent with improperly treated wastewater from rendering plant. Odor characterized as highly offensive with strong intensity. Odor mostly gone by 11:00 am
- A daily process at rendering plant is confirmed to be the odor source. Investigator determines that a strong, highly offensive odor is likely to affect complainant on almost a daily basis under current operating conditions

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from Rendering Plant: Example 1, Scenario 1 (con't)

- A highly offensive odor lasting about 1 hour in a single occurrence must be at least Very Strong to be considered a nuisance - not a nuisance here according to FIDO chart
- BUT, a strong, highly offensive odor for 1 hour daily only has to occur as often as quarterly to be considered a nuisance and justify a violation
- OR, a highly offensive odor only has to have a Very Light intensity to be considered a nuisance if it occurs for 1 hour on a daily basis

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from Paint & Body Shop: Example 2, Scenario 3

- Complaint of strong paint odors from nearby auto body shop; occur occasionally throughout the day, about 1 day a week, lasting about 10-15 minutes
- No odor detected at complainant's house due to wind shift
- However, strong, offensive odors from spray painting operation confirmed at a point downwind of facility at the same distance as the complainant's house

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from Paint & Body Shop: Example 2, Scenario 3 (con't)

- Complainant's house not downwind of body shop according to prevailing wind direction, but was when complaint was made
- Meteorological data shows complainant's house typically downwind of facility about 1 day each week
- Investigation reveals painting occurs off and on during each work day, with limited dispersion from short paint booth stack



## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from Paint & Body Shop: Example 2, Scenario 3 (con't)

- Investigator concludes strong, offensive odors likely impact complainant for 10-15 minute periods throughout any day when the wind direction puts the residence downwind of the body shop
- An offensive odor with strong intensity on a weekly basis for 10 minutes or more is considered a nuisance

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from a Landfill: Example 3, Scenario 2

- Complaint of “sickeningly sweet” garbage odors from a nearby landfill; odors are worse in cool, calm weather, especially late evening/early morning
- No odors noted at complainant’s house, but garbage odors of Light intensity, lasting about 10 minutes, noted during drive-through of neighborhood. Odors characterized as offensive

## Application of the FIDO Chart During Odor Complaint Investigations

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### Odors from a Landfill: Example 3, Scenario 2 (con't)

- 3 follow-up investigations during next 3 weeks:
  - ▶ No odors detected
  - ▶ Odor of Light intensity lasting less than 10 minutes
  - ▶ Odor of Light intensity lasting about 2 hours
- Although some odor is frequently noted, the intensity and duration are insufficient to confirm a nuisance condition

# Application of the FIDO Chart During Odor Complaint Investigations

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## Odors from a Landfill: Example 3, Scenario 2 (con't)

- To be considered a nuisance:
  - ▶ An offensive odor occurring weekly for 1 hour at Moderate intensity
  - ▶ An offensive odor occurring weekly for at least 4 hours at Light intensity
  - ▶ 1 hour on a daily basis at Light intensity

# Odor Complaint Investigation Procedures

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## Structure of Document

- Detection of Odor & Initial Response
- Investigation / Data Gathering
- Investigation Followup

# Odor Complaint Investigation Procedures

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## Detection of Odor

- Initiated by a Citizen Complaint
  - ▶ To pursue a nuisance violation successfully, there must be an identifiable complainant (not anonymous)
- Detected by Investigator or Anonymous Complaint
  - ▶ Determine cause of odor and require corrective action, rather than documenting nuisance conditions
  - ▶ If citizen is identified during the course of investigation, proceed with odor investigation procedures to document the presence or absence of nuisance odors

# Odor Complaint Investigation Procedures

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## Initial Response

IF ODOR IS DETECTED BY COMPLAINANT:

- Potential Health Effects?  
**Immediate Investigation**
- Potential Nuisance/Rule/Permit Violation?  
**Prioritize complaint incident per TCEQ Complaint Manual**

# Odor Complaint Investigation Procedures

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## Initial Response

IF ODOR IS DETECTED BY INVESTIGATOR:

- Potential Health Effects?
  - ▶ **Immediate Investigation**
  
- Potential Nuisance/Rule/Permit Violation?
  - ▶ **Special Project incident according to CCEDS priorities**



# Odor Complaint Investigation Procedures

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## Investigation / Data Gathering Complaint Information

- Name, address, telephone number
- Location where complainant experienced odor
- Note odor dates, times, frequency, duration
- Interference with normal use and enjoyment of property, animals, vegetation
- Alleged source of odor

# Odor Complaint Investigation Procedures

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## Investigation / Data Gathering (con't) Data Information

- Try to duplicate the complainant's experience (unless potentially unsafe)
- Use FIDO (Frequency, Intensity, Duration, Offensiveness) chart terminology to describe intensity and offensiveness
- Describe any physical adverse effects experienced during investigation

# Odor Complaint Investigation Procedures

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## Investigation / Data Gathering (con't)

### Data Information

- Describe normal use of property affected by odor and interference of usage
- Map odor plume; survey should include upwind and downwind observations
- Attempt to locate the odor source(s)
- Pinpoint the cause of the odor

# Odor Complaint Investigation Procedures

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## Investigation / Data Gathering (con't) Data Information

- Gather local meteorological data
- Describe terrain features which could influence plume
- Compare to prior observations

# Odor Complaint Investigation Procedures

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## Investigation / Data Gathering (con't) Data Information

- Collect information about frequency and duration of odors during investigation, and from complainant and/or source
- Request complainant maintain odor log, if appropriate
- Interview other citizens in area if necessary--be careful not to “solicit” complaints

# Odor Complaint Investigation Procedures

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## Investigation Follow-up

- Confirm presence/absence of nuisance condition
- Based on statutory and regulatory language, a nuisance odor exists if an odor has been emitted in such concentration and duration as to:
  - ▶ Be injurious to or adversely affect human health, welfare, animal life, vegetation, or property, or
  - ▶ Interfere with normal use and enjoyment of animal life, vegetation, or property

# Odor Complaint Investigation Procedures

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## Investigation Follow-up (con't)

- Adverse Impacts/Injury
  - ▶ Immediate remedial action to mitigate odor
  - ▶ Enforcement action, if appropriate or necessary
  
- Normal Use and Enjoyment Issues
  - ▶ Conduct odor evaluation based on frequency, intensity, duration, and offensiveness
  - ▶ Use FIDO chart

# Summary of Key Factors

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- Manner of Detection
- Nature of Impacts/Priority
- Data, Information, Facts
- Preponderance of Evidence
- FIDO Chart



# Exhibits

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- Odor Checklist
- Butanol Solution for Odor Kit
- Odor Investigation Report Example
- Map
- Odor Protocol Document can be found at:
  - ▶ [http://www.tceq.state.tx.us/compliance/complaints/protocols/odor\\_protodf.html](http://www.tceq.state.tx.us/compliance/complaints/protocols/odor_protodf.html)

# Map

