

THE DORAL INCINERATOR FIRE



**Documenting health risks and environmental hazards
during the three-week fire at the Miami-Dade County
waste incinerator in February to March of 2023**

THIS REPORT WAS PREPARED BY EARTHJUSTICE IN PARTNERSHIP WITH FLORIDA RISING, AS PART OF ITS JUSTICE ON EVERY BLOCK CAMPAIGN, TO PROTECT COMMUNITIES FROM WASTE INCINERATORS; TRANSITION TO A CLEAN, JUST, AND SUSTAINABLE ZERO WASTE FUTURE; AND TO ENSURE CLEAN AIR FOR ALL RESIDENTS OF MIAMI-DADE COUNTY AND BEYOND.

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Cover photo: **Firefighters work to put out a fire at the Covanta incinerator plant in Doral, Florida. The fire started on Feb. 12, 2023 and burned for more than a week.** *Miami-Dade Fire Rescue*

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ABBREVIATIONS – KEY

ATSDR	Agency for Toxic Substances and Disease Registry
CDC	Centers for Disease Control and Prevention
Cl ₂	Chlorine
DEP	Florida Department of Environmental Protection
DERM	Department of Environmental Resources Management (Miami-Dade County)
EPA	U.S. Environmental Protection Agency
H ₂ S	Hydrogen Sulfide
HCl	Hydrogen Chloride
LEL	Lower Explosive Limit
O ₂	Oxygen
PCBs	Polychlorinated biphenyl
PM _{2.5}	Particulate matter less than 2.5 microns in size
RER	Miami-Dade County Department of Regulatory and Economic Resources
RRF	Miami-Dade County Resources Recovery Facility (the incinerator)
SVOCs	Semi-Volatile Organic Compounds
TSS	Total Suspended Solids
VOCs	Volatile Organic Compounds

LINK TO PUBLIC RECORDS CITED IN REPORT

The data and information in this report are based on air monitoring reports posted on Miami-Dade County’s website, <https://www.miamidade.gov/global/solidwaste/wastefire/home.page>, and data and records obtained by Earthjustice from Miami-Dade County DERM in response to a public records request under Chapter 119, Florida Statutes. The air monitoring reports and public records cited in this report are located here: https://drive.google.com/drive/folders/1dJJbJA-9PkOZ_xxOBDvNWhx1MlwmlnRy.



The Miami-Dade County Resources Recovery Facility during a fire in February of 2023. Juan Carlos Esquivel

INTRODUCTION

On February 12, 2023, around 2:15 p.m., a massive fire broke out at the Miami-Dade County Resources Recovery Facility¹ (Doral incinerator) and burned continuously for nearly three weeks, resulting in dangerous smoke conditions made worse by the presence of known and unknown pollutants in the air.

Covanta reported that the fire was caused by “refuse-derived fuel,” or processed waste, catching fire on the conveyor belt at the Garbage Processing part of the facility, which then set the facility’s large garbage pit ablaze.² According to Miami-Dade Fire Rescue, “a mechanical or electrical event” on or adjacent to the “tail of [a] conveyor” was the probable cause of the fire, “with no exact ignition source... determined.”³ What followed was a 4-alarm fire that caused the roof of the trash storage area to collapse, the walls on the south and east side of the facility to cave in, and the collapse of the garbage pit.⁴ Because of the collapse, emergency demolition of the garbage receiving area and pit were required so that firefighting operations could continue. The fire burned for almost three weeks and was finally placed under control on March 2, 2023.⁵

¹ The Miami-Dade County Resources Recovery Facility, located at 6990 N.W. 97th Avenue in Doral, Florida, is a county-owned waste incinerator that was operated by the company Covanta Energy. The incinerator was an aging facility that began operations in 1985 and burned hundreds of thousands of tons of waste every year.

² DERM email dated 2/13/23, “Fwd: 0250348 MDRRF – Notification of Fire Event;” DERM Email dated 2/15/23, “FW: FINAL UPDATE / Miami-Dade / Industrial Fire / DEM-Thomas.”

³ Miami-Dade Fire Rescue, Incident Narrative at 1, 4 (Feb. 12, 2023) (the narrative also notes at page 3 that while the fire was observed as early as 2:09 p.m., it was not reported to 911 until 2:16 p.m.).

⁴ DERM email dated 2/13/23, “Re. Recycling Plant Fire – All Companies Operating;” DERM Email dated 2/14/23, “2-14-2023_Re_Demolition Letter Language.”

⁵ According to a Miami-Dade Fire Rescue report, the fire was placed under control on March 2, 2023 at 3 p.m.; Miami-Dade Fire Rescue, “Demobilization Plan_Covanta Plant Fire” (Mar. 27, 2023).



From left: **Interior of the Miami-Dade County Resources Recovery Facility after a fire in February of 2023;** **Exterior of the Miami-Dade County Resources Recovery Facility after a fire in February of 2023.** *Miami-Dade County Department of Environmental Resources Management*

Despite early official reports that the air quality was not at levels of concern and there were no environmental impacts,⁶ air monitoring reports from various sites around the incinerator and nearby community show otherwise: that air quality was often at unhealthy levels, with high spikes in particulate matter that could have been hazardous.

Additionally, asbestos were located in the part of the incinerator facility that was demolished and taken to the Medley Landfill, and water runoff from the fire to onsite retention ponds logged high levels of chemicals such as sulfates, boron, copper, lead, and zinc. These test results are documented and mapped in the pages that follow.

HARMS TO RESIDENTS

Residents endured thick, heavy smoke conditions for days, reporting seeing and smelling smoke even when inside. The County maintained a hotline for residents to call in to express their questions, concerns, and complaints. Some residents experienced eye, nose, and throat irritation from the incident. One resident reported

that her child had a neurological disorder and her lungs were affected. Many residents had nowhere else they could go and had no choice but to endure these impacts.

Other reports of health impacts to community members include eye conditions and ongoing hoarse voice that continued beyond the three weeks of the fire. One resident reported having to be hospitalized during the fire because her asthma became worse, while another reported experiencing skin rashes.

These complaints are just the ones we know of and are a snapshot of the many ways that individuals and families were harmed by this fire. In fact, on February 16, the County received so many calls that it was unable to enter in all the complaints, to the point that the employee receiving the calls reportedly “had to log out... mid-afternoon” and stop reporting complaints.⁷

PAST FIRES AND VIOLATIONS

This fire at the Doral incinerator was one of five in recent years. In July 2022, a fire broke out at

⁶ DERM email dated 2/17/2023, “FW: Complaint Desk Script-,” *see* attachment: “Fire Update – Script 02172023;” *see also* DERM email dated 2/13/23, “FW: UPDATE 3 / MiamiDade / Industrial Fire / DEM-Farestvedt.” The County eventually updated its messaging following EPA air monitoring results to remove the statement that the air quality was not at levels of concern. *See* DERM email dated 2/17/23, “RE: Complaint Desk Script-,” *see* attachment: “Fire Update – Script 02172023-2.”

⁷ DERM email dated 2/16/23, “RE: Complaints of Odors and Air Quality – Covanta.”

the facility in a similar way to this recent one, with waste (“refuse-derived fuel”) on a conveyor belt catching fire.⁸ In 2021, two small fires broke out, one in February in the trash pit, and another in March on a conveyor belt.⁹ And in June of 2019, a fire broke out on one of the shredder lines at the facility.¹⁰


On August 26, 2022, DEP sent a warning letter to the Miami-Dade Department of Solid Waste Management, following an inspection at the incinerator in which DEP found a **“failure to submit quarterly/annual reports that include a fire inspection survey report for fire safety,” “failure to have an updated Emergency Preparedness Manual... in the event of a fire,”** and **“failure to have a clear fire lane on-site.”**¹¹

On February 24, 2023, DEP sought civil penalties from the Department of Solid Waste Management in the amount of \$11,250 for these violations of Florida’s regulations.¹²

NEVER AGAIN: ZERO WASTE NOW

No community should have to endure years of odor and pollution impacts and *then* suffer a worst-case scenario fire such as this one. The incinerator had been operating less than a mile from residential communities, and in recent years, it has been the subject of a growing movement to shut it down and have the County transition to a Zero Waste future.

Zero Waste, discussed in more detail in the Conclusion section of this report, focuses on waste reduction, reuse, and waste diversion methods such as recycling and composting – and it does not include burning trash. This fire demonstrates that waste incinerators do not belong in any community, and the best and safest options for waste management – for people, the environment, climate, and our future – are Zero Waste options.



NO COMMUNITY SHOULD HAVE TO ENDURE YEARS OF ODOR AND POLLUTION IMPACTS AND THEN SUFFER A WORST-CASE SCENARIO FIRE SUCH AS THIS ONE.

⁸ Covanta email dated 7/22/22, [“July 2022 Fire Event Notification.”](#)

⁹ Miami-Dade County Solid Waste Dept. email dated 3/25/21, Subject: [“Small fire notification incident at Resources Recovery Facility 3/24/21.”](#)
Miami-Dade County Solid Waste Dept. email dated 2/8/21, Subject: [“Resources Recovery Facility minor fire incident notification.”](#)

¹⁰ Covanta email dated 6/28/19, Subject: [“0250348-012 Miami-Dade RRF Fire event 06272019.”](#)

¹¹ DEP, Letter to Miami-Dade County Solid Waste dated 8/26/22, Subject: [“Warning Letter... Dade County Resources Recovery.”](#)

¹² DEP, Letter to Miami-Dade County Solid Waste dated 2/24/23, Subject: [“Department of Environmental Protection v. Dade County Resource Recovery, OGC File No.: 23-0085.”](#)



First responders respond to a fire at the Miami-Dade County Resources Recovery Facility in February of 2023. Nestor Perez / Earthjustice

AIR QUALITY FOLLOWING THE FIRE

Following Earthjustice’s call to the Environmental Protection Agency’s (EPA) Emergency Response hotline on February 12, 2023, EPA representatives came to Miami and began monitoring air quality at the incinerator site and at various locations throughout the nearby community. All monitoring reports assessed in this report can be accessed and downloaded [here](#).¹³

Monitoring began on February 13, 2023, and during the first week of the fire, EPA conducted air quality monitoring at the incinerator site over **hourly** and **24-hour periods**, measuring pollutants including **particulate matter** smaller than 2.5 microns in size (PM_{2.5}), **volatile organic compounds** (VOCs), **chlorine** (Cl₂), **hydrogen sulfide** (H₂S), **hydrogen cyanide** (HCN), and **carbon monoxide** (CO).

In addition to measuring for pollutants, the air monitoring also assessed oxygen (O₂) levels in the air and lower explosive limit (LEL), or how flammable vapor gases are.

EPA then handed off air quality monitoring to the company CTEH,¹⁴ selected and contracted by Covanta, to continue air monitoring over 24-hour periods at four onsite and nine offsite locations, from February 18, 2023 to March 30, 2023.

¹³ Earthjustice also reviewed Florida Department of Environmental Protection (DEP) air monitor data from stations around Miami-Dade County, outside of Doral. Though no exceedances were noted, on February 14, 2023, DEP also did not publish data from the [Kendall air monitoring station](#), reportedly because of scheduled maintenance that resulted in a maintenance error to the monitor. According to DEP, this error meant air quality data from February 14-16, 2023 from this air monitoring station was “aberrant” and not accurate.

¹⁴ CTEH, or Center for Toxicology and Environmental Health, is a private company that was selected by Covanta to continue doing air monitoring. CTEH has been the subject of news report accounts that the company serves corporate interests rather than public health in its data reporting. See Kanekoa, East Palestine toxicology test relies on controversial consulting firm accused of serving corporate interest rather than public health, HJ News (Feb. 19, 2023), https://www.hjnews.com/east-palestine-toxicology-test-relies-on-controversial-consulting-firm-accused-of-serving-corporate-interest-rather/article_ca1f7f34-b08b-11ed-9d22-2f8c218f9b96.html; Elena Schor, Record of BP’s Gulf Worker-Testing Firm Raises Conflict-Of-Interest Questions, New York Times (June 18, 2010), <https://archive.nytimes.com/www.nytimes.com/gwire/2010/06/18/18greenwire-record-of-bps-gulf-worker-testing-firm-raises-84788.html?pagewanted=1>.

SUMMARY OF AIR MONITORING RESULTS

Despite early official reports that the air quality was not at levels of concern and there were no environmental impacts,¹⁵ the data – mapped below – show instances where the 24-hour averages for particulate matter exceeded a “moderate” level of concern and the air quality was instead **unhealthy for sensitive groups, unhealthy (in general), very unhealthy, or hazardous**. Concentrations of particulate matter in the “unhealthy” category were observed onsite as early as February 14, 2023, despite early official reports that there was no cause for concern with the air quality.

There were also concentrations of **volatile organic compounds, chlorine, carbon monoxide, and hydrogen cyanide** at levels that exceeded action levels selected by EPA, meaning there were instances when these pollutants were present at concentrations at or exceeding the threshold at which they could no longer be considered safe for human exposure.

About the Pollutants:

- **Particulate matter** at or smaller than 2.5 microns, or PM_{2.5}, is microscopic particle pollution that is so small that it is over 30 times smaller than the width of human hair. It is one of the biggest pollution threats to health from smoke.¹⁶ Because particulate matter is so small, it can be inhaled into the lungs and can enter the bloodstream. Exposure to particle pollution has been linked to aggravated asthma, eye irritation, irritation of airways, coughing, difficulty

breathing, decreased lung function, irregular heartbeat, and more.¹⁷

- **Chlorine:** Exposure to low levels of chlorine gas can result in nose, throat, and eye irritation. Exposure to high levels may result in breathing changes, coughing, and lung damage. As with PM_{2.5}, those who suffer from respiratory conditions tend to experience more severe impacts than healthy individuals.¹⁸
- **VOCs** are a class of organic chemicals that readily evaporate.¹⁹ Certain VOCs are linked to short- and long-term health effects; however, impacts vary according to what chemical an individual is exposed to and for how long.²⁰ VOCs can cause eye, nose, and throat irritation; headaches, loss of coordination, and nausea; damage to liver, kidney, and central nervous system; and cancer. Symptoms of VOC exposure include eye, nose, and throat irritation; headache; skin reactions; and other harms.²¹
- **Carbon monoxide** is a colorless, odorless toxic gas that can be found in vehicle exhausts, coal burning power plants, fuel-burning furnaces, and small gasoline engines. Exposure to carbon monoxide impedes the blood’s ability to carry oxygen to body tissues and vital organs; even small amounts of carbon monoxide can reduce hemoglobin’s ability to transport oxygen. Symptoms of carbon monoxide exposure are headache, nausea, rapid breathing, weakness, exhaustion, dizziness, and confusion. It can also be dangerous during pregnancy for both the mother and fetus.²²

¹⁵ DERM email dated 2/13/23, “FW: UPDATE 3 / Miami-Dade / Industrial Fire / DEM-Farestvedt,” (“2023 02 13 – Update 3 Industrial Fire”); See also DERM email dated 2/17/2023, “FW: Complaint Desk Script-“: see attachment: “Fire Update – Script 02172023.”

¹⁶ EPA, “How Smoke From Fires Can Affect Your Health”, https://19january2021snapshot.epa.gov/pm-pollution/how-smoke-fires-can-affect-your-health_.html (last visited 5/1/23)

¹⁷ EPA, Particulate Matter (PM) Pollution, Health and Environmental Effects of Particulate Matter (PM), <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (last visited 5/1/23); see also CDC, Particle Pollution, https://www.cdc.gov/air/particulate_matter.html (last visited 5/1/23)

¹⁸ CDC, Chlorine – ToxFAQs, <https://www.atsdr.cdc.gov/toxfaqs/tfacts172.pdf> (last visited 5/1/23)

¹⁹ Agency for Toxic Substances and Disease Registry, Volatile organic compounds, <https://wwwn.cdc.gov/TSP/substances/ToxChemicalListing.aspx?toxid=7> (last visited 5/1/23)

²⁰ Miami-Dade County, Fire at County Waste-to-Energy Facility, <https://www.miamidade.gov/global/solidwaste/wastefire/home.page> (last visited 5/1/23)

²¹ EPA, Volatile Organic Compounds’ Impact on Indoor Air Quality, Health Effects, https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality#Health_Effects (last visited 5/1/23)

²² CDC, National Institute for Occupational Safety and Health, Carbon Monoxide, <https://www.cdc.gov/niosh/topics/co-comp/default.html> (last visited 5/2/23).

- **Hydrogen cyanide** is a colorless or pale-blue liquid or gas with a bitter, almond-like odor. It interferes with the body's use of oxygen and may cause harm to the brain, heart, blood vessels, and lungs.²³

Another pollutant detected in the air monitoring readings, though not at levels that exceeded action levels, was **hydrogen sulfide** (H₂S). Hydrogen sulfide is a toxic gas known for its pungent, rotten egg odor. Exposure at even low concentrations can cause mild responses such as headaches or eye irritation to more serious reactions such as unconsciousness.²⁴

PARTICULATE MATTER COMMUNITY ACTION THRESHOLDS

For PM_{2.5}, EPA has acknowledged evidence that suggests that stronger standards and community

action thresholds than the current standards in the chart below are needed to better reflect harms and impacts to people from PM_{2.5} exposure.²⁵

Nevertheless, based on the current standards for PM_{2.5}, to determine whether a reading from a monitor is within a certain health risk range requires cross-referencing the **average** air monitoring reading, in micrograms per cubic meter (µg/m³), for a certain period of time (one hour or 24 hours) with the chart from EPA, at Table 1 below.

For instance, if an air monitoring report shows that the average level of PM_{2.5} in a 24-hour period (or the "24-Hour Average") is 60 µg/m³, then the air quality according to the Community Action Threshold chart is "unhealthy;" people may begin to experience health effects, and communities should consider closing schools, cancelling

Table 1. EPA Region 4 Community Action Threshold Levels for PM_{2.5}

PM _{2.5} (Particulate Matter ≤ 2.5 microns) Community Action Threshold Levels				
1-Hour Average (µg/m ³)	24-Hour Average (µg/m ³)	Level of Health Concern	Meaning	Action
0.0 - 40.0	0.0 - 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk.	Implement communication plan.
40.1 - 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Issue public announcement about health effects. Stay out of areas with visible smoke.
80.1 - 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations.
175.1 - 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
>500.0	>250.5	Hazardous	Health alert: everyone may experience more serious health effects.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhoods.

²³ CDC, National Institute for Occupational Safety and Health, Hydrogen Cyanide, [https://www.cdc.gov/niosh/topics/hydrogen-cyanide/default.html#:~:text=Hydrogen%20cyanide%20\(HCN\)%20is%20a,from%20exposure%20to%20hydrogen%20cyanide](https://www.cdc.gov/niosh/topics/hydrogen-cyanide/default.html#:~:text=Hydrogen%20cyanide%20(HCN)%20is%20a,from%20exposure%20to%20hydrogen%20cyanide) (last visited 5/16/23).

²⁴ U.S. Dept. of Labor, Occupational Safety and Health Administration, Hydrogen Sulfide, [https://www.osha.gov/hydrogen-sulfide#:~:text=Hydrogen%20sulfide%20\(also%20known%20as,Mining](https://www.osha.gov/hydrogen-sulfide#:~:text=Hydrogen%20sulfide%20(also%20known%20as,Mining) (last visited 4/29/23).

²⁵ 88 Fed. Reg. 5558, 5620 (Jan. 27, 2023) (following 2-hour exposures to PM_{2.5} of 120 µg/m³, studies show that healthy people have impaired cardiovascular function, and that at 2-hour exposures of 149 µg/m³, studies demonstrate that healthy people also have impaired vascular function; though this does not correlate directly to the 1-hour and 24-hour averages in the Community Action Threshold chart, it demonstrates that lower concentrations of PM_{2.5} than the current standards can cause worrisome health impacts).

outdoor events, and sheltering in place.

MAPS OF POLLUTION INCIDENTS

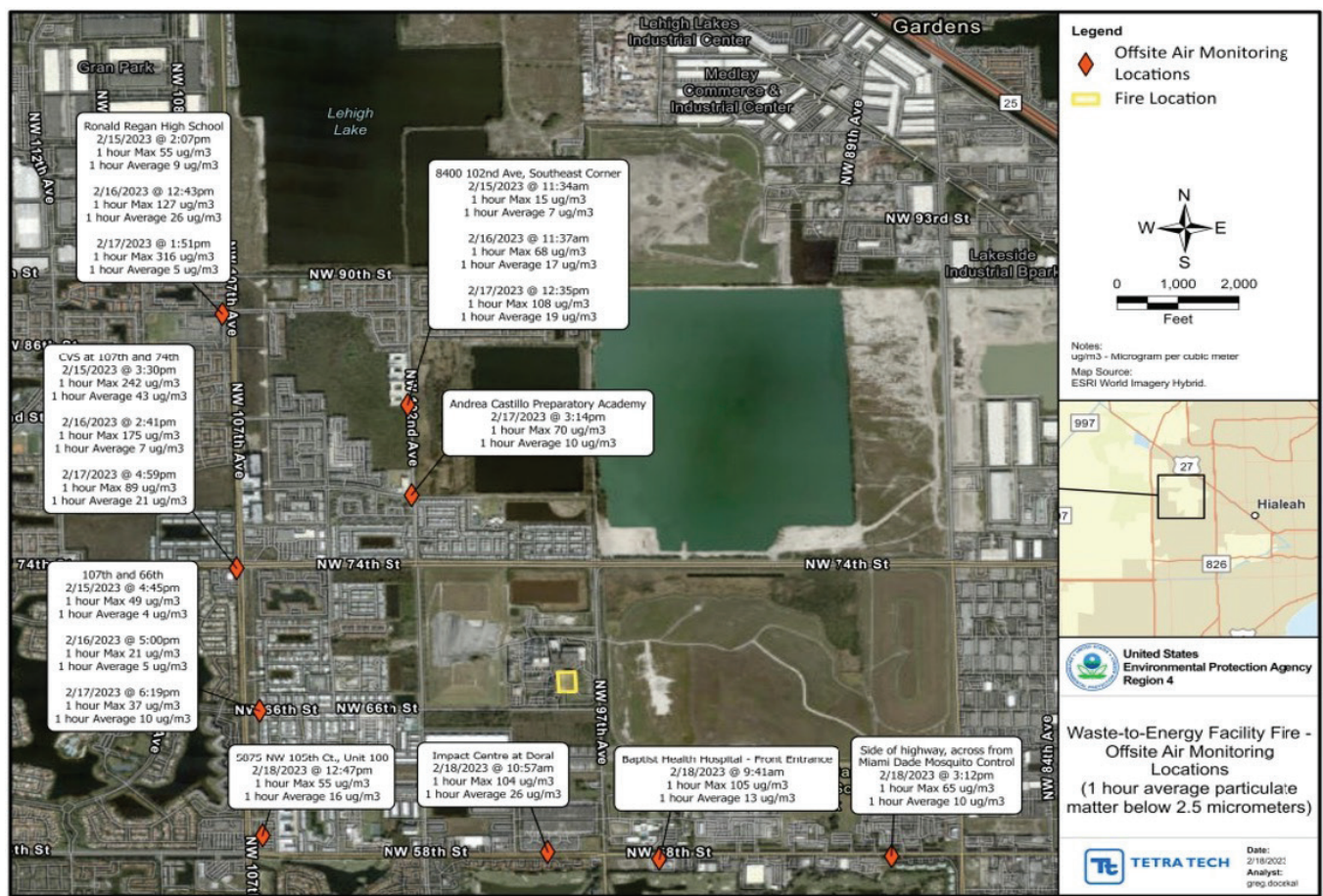
The following are maps of air monitoring pollution incidents, assessing both hourly testing of air quality and daily reports of air quality.

For the daily testing of air quality, we have mapped the instances when $PM_{2.5}$ exceeded the “moderate” range and were instead **unhealthy for sensitive groups, unhealthy (in general), very unhealthy, or hazardous**, according to the Community Action Threshold chart, above. These

maps also include the maximum concentration of $PM_{2.5}$ logged when the averages exceeded a “moderate” health risk level, as well as noteworthy spikes (maximums) in $PM_{2.5}$ concentrations even when the averages did not exceed the “moderate” health risk level.

The maps documenting daily testing exceedances also include data about action level exceedances for **chlorine, VOCs, carbon monoxide, and hydrogen cyanide**, and this section also documents instances when **oxygen** was deficient.

Figure 1. EPA 1-hour air monitoring conducted throughout the surrounding community.



Hourly Testing of Air Quality

The air monitoring data for $PM_{2.5}$ primarily looked at 24-hour averages, with the exception of the chart below, showing EPA’s one-hour testing of $PM_{2.5}$ during the first few days of the fire.

The *one-hour average* readings did not fall into the unhealthy or hazardous ranges when compared with the EPA Community Action Threshold chart above. However, for many of these readings, **the maximum**

concentration of particulate matter represented high spikes in pollution that often greatly exceeded the average. Nine of the of the 17 readings, or over half, logged a maximum concentration of particulate matter at over 80 micrograms/cubic meter ($\mu\text{g}/\text{m}^3$) and up to $316 \mu\text{g}/\text{m}^3$.

Daily Testing of Air Quality

From February 13, 2023 to March 30, 2023, EPA and then the company CTEH conducted daily* air monitoring tests at the incinerator's perimeter and at locations in the nearby community. EPA conducted air monitoring from February 13, 2023 to February 19, 2023, and CTEH conducted air monitoring from February 17, 2023 to March 30, 2023. Because the fire was placed under control on March 2, 2023, Earthjustice assessed air monitoring reports around that timeframe, up until March 8, 2023. For overlapping dates of air monitoring (February 17-19), the entity that did the testing is in parentheses next to the reading (EPA or CTEH).

As the maps and data below show, official air monitors registered exceedances of PM_{2.5} concentrations, at levels deemed **unhealthy for sensitive groups, unhealthy (in general), very unhealthy, or hazardous**, in accordance with EPA's Community Action Threshold chart, above.

Additionally, the maps contain certain PM_{2.5} entries in which the **averages** for did not reach an unhealthy level, but they are still included for reference because they show a high **maximum concentration** of PM_{2.5} in that 24-hour monitoring period.

Lastly, as shown in Figure 2 (Map 1) and Figure 3 (Map 2) and the charts below them, **chlorine, VOCs, carbon monoxide, and hydrogen cyanide were also present in the air** on certain dates at levels that exceeded action levels, or the threshold at or above which a pollutant can no longer be considered safe for human exposure. This section also documents instances when **oxygen** was deficient.

* The vast majority of data readings were over a 24-hour period, with the exception of certain readings which were from a period of time less than 24 hours. Readings that were from a period of time less than 24 hours are denoted with an asterisk (*) in the maps below, and the reader should cross-reference with the air monitoring report for that day for more information.

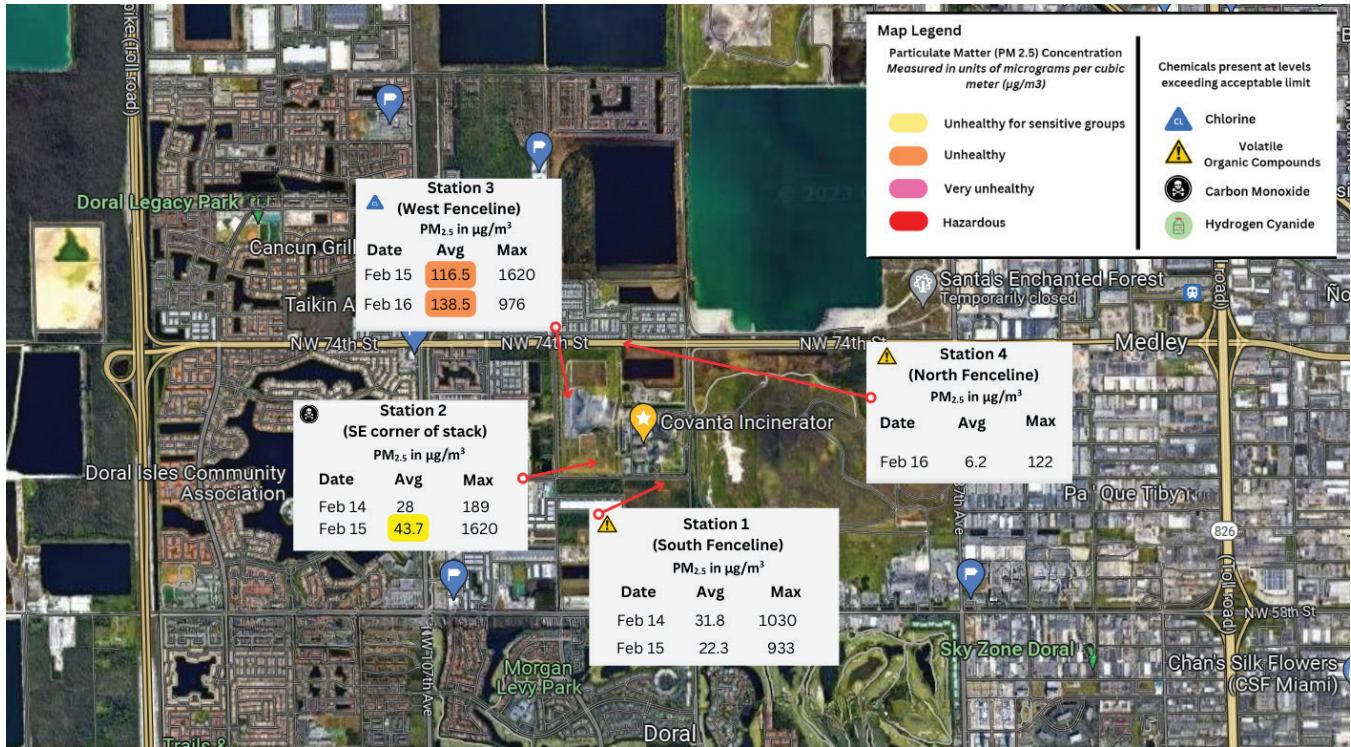
EXCEEDANCES MAP 1

February 13, 2023 to February 14, 2023 (Feb 14)

February 14, 2023 to February 15, 2023 (Feb 15)

February 15, 2023 to February 16, 2023 (Feb 16)

Figure 2. Map of EPA air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.



Instances of oxygen deficiencies were also recorded on February 14, 2023:

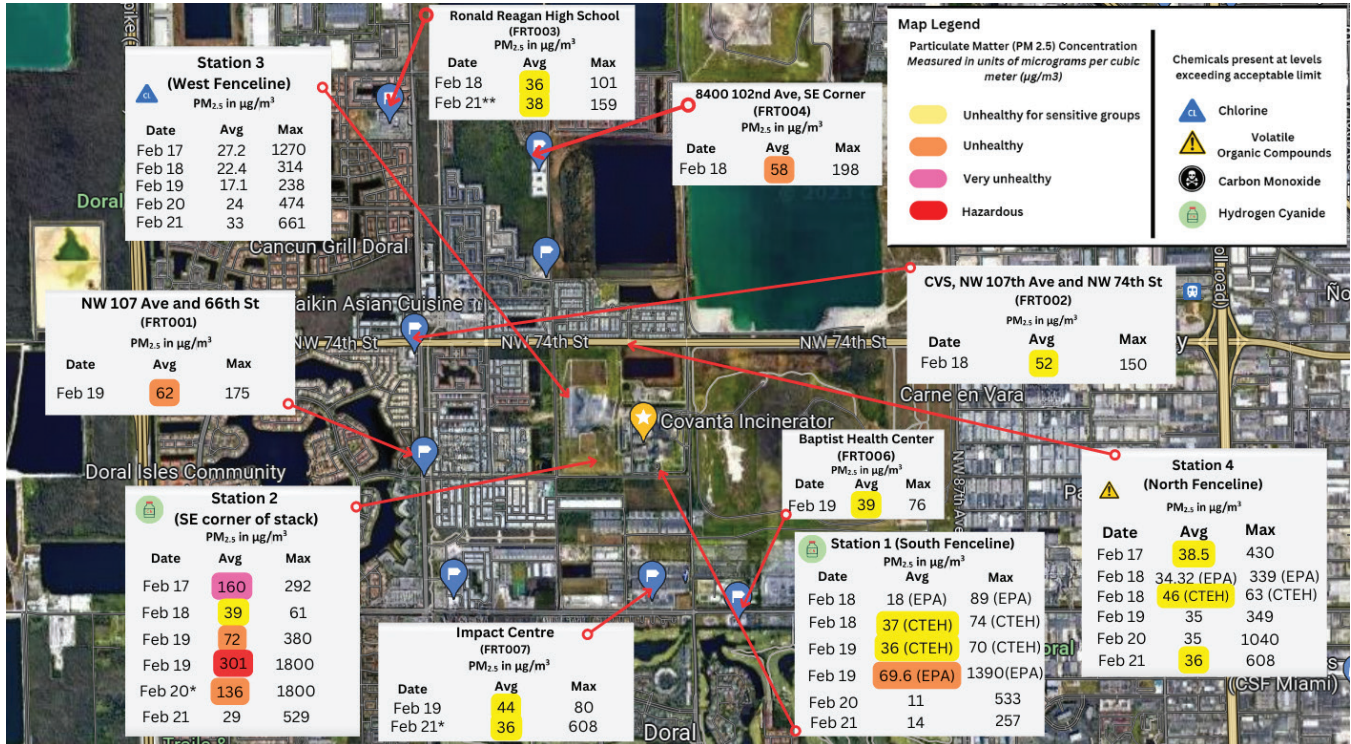
Table 2. Oxygen deficiencies recorded by EPA Air Monitoring, in accordance with the action level contained in 29 C.F.R. 1910.146, Confined Spaces. Any value outside of this range may cause hazardous conditions.

Parameter	Normal Concentration Range	Air Monitoring Reading Date	Lowest Concentration	Location
Oxygen (O ₂)	< 19.5% or > 23%	2/14/23	2.7%	Station 2
		2/14/23	2.1%	Station 3

EXCEEDANCES MAP 2

- February 16, 2023 to February 17, 2023 (Feb 17)
- February 17, 2023 to February 18, 2023 (Feb 18)
- February 18, 2023 to February 19, 2023 (Feb 19)
- February 19, 2023 to February 20, 2023 (Feb 20)
- February 20, 2023 to February 21, 2023 (Feb 21)

Figure 3. Map of EPA and CTEH air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.



Data for other pollutants shown in Figure 2 (Map 1) and Figure 3 (Map 2), above, that exceeded action levels are as follows:

Table 3. Air pollutants other than PM_{2.5} that exceeded EPA action levels. All action levels were selected in coordination with EPA Region 4's on-scene coordinator. Chlorine and hydrogen cyanide limits reference Acute Exposure Guideline Level (AEGL-1) 1 hour action level. VOC limits reference the Temporary Emergency Exposure Limit (TEEL-0). Carbon monoxide action levels reference the AEGL-2 1-hr limit.

Pollutant	EPA Standard	Air Monitoring Reading Date	Maximum Concentration	Location
Chlorine (Cl ₂)	0.5 parts per million (ppm)	2/15/23	1.1 ppm	Station 3
		2/16/23	0.5 ppm	Station 3
		2/17/23	0.7 ppm	Station 3
VOCs	1000 parts per billion (ppb) or 1 ppm (parts per million)*	2/15/23	2,022 ppb	Station 1
		2/16/23	1,150 ppb	Station 1
		2/16/23	1,932 ppb	Station 4
		2/17/23 (EPA)	1,666 ppb	Station 4
		2/18/23 (CTEH)	3.2 ppm (3,200 ppb)	Station 2
		2/18/23 (CTEH)	5.1 ppm (5,100 ppb)	Station 3
Carbon Monoxide (CO)	27** parts per million (ppm)	2/14/23	28 ppm	Station 2
		2/18/23	28 ppm	Station 1
Hydrogen Cyanide (HCN)***	2 parts per million (ppm)	2/18/23	4 ppm	Station 1
		2/18/23	2 ppm	Station 2

* For VOCs, different action levels were utilized. From 2/13/23-2/14/23, EPA used the Temporary Emergency Exposure Limit (TEEL-0), 8-hour average for Benzene, which has an action level of 9,000 ppb, or 9 ppm. This is a higher threshold for a pollutant concentration to be considered harmful than the action level EPA and CTEH used after 2/14/23, which was the TEEL-0, 15-minute average for Benzene, which has an action level of 1,000 ppb, or 1 ppm. EPA reported readings for VOCs in parts per billion, while CTEH reported readings in parts per million. For the purposes of this report, all instances when VOCs exceeded the lower threshold of 1,000 ppb were assessed and documented.

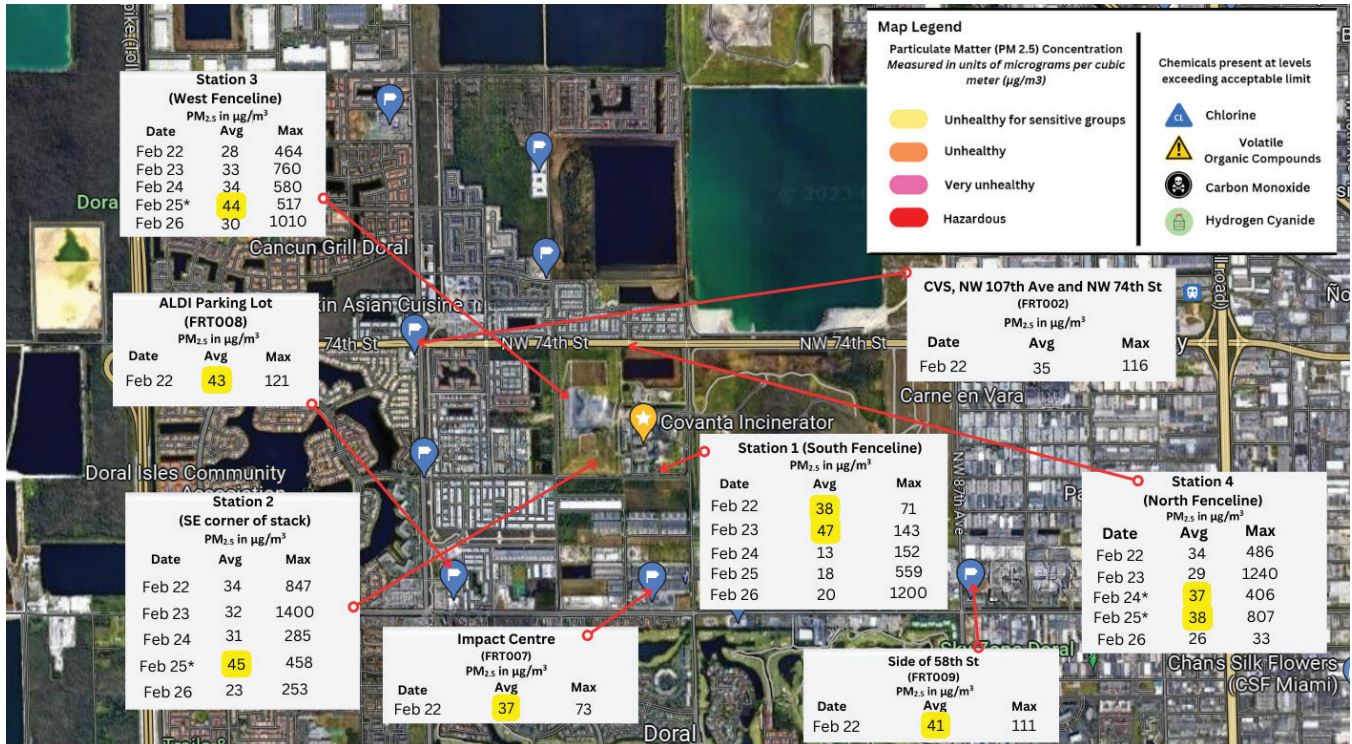
** For carbon monoxide, both EPA and CTEH used the Acute Exposure Guideline Levels to determine the action levels, or thresholds at or above which pollutant concentrations could no longer be considered safe for human exposure. EPA began measuring carbon monoxide by looking at the 8-hour average action level, which is 27 ppm. The action level changed after 2/14/23 when EPA, and later CTEH, began using a higher action level of 83 ppm, the action level for 1-hour averages of data. For the purposes of this report, all instances when carbon monoxide exceeded the lower threshold of 27 ppm were assessed and documented.

***EPA did not test for hydrogen cyanide, and so data about this pollutant is not available from 2/13/23, when EPA began testing air quality, to 2/17/23, when CTEH began testing air quality.

EXCEEDANCES MAP 3

- February 21, 2023 to February 22, 2023 (Feb 22)
- February 22, 2023 to February 23, 2023 (Feb 23)
- February 23, 2023 to February 24, 2023 (Feb 24)
- February 24, 2023 to February 25, 2023 (Feb 25)
- February 25, 2023 to February 26, 2023 (Feb 26)

Figure 4. Map of CTEH air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.



EXCEEDANCES MAP 4

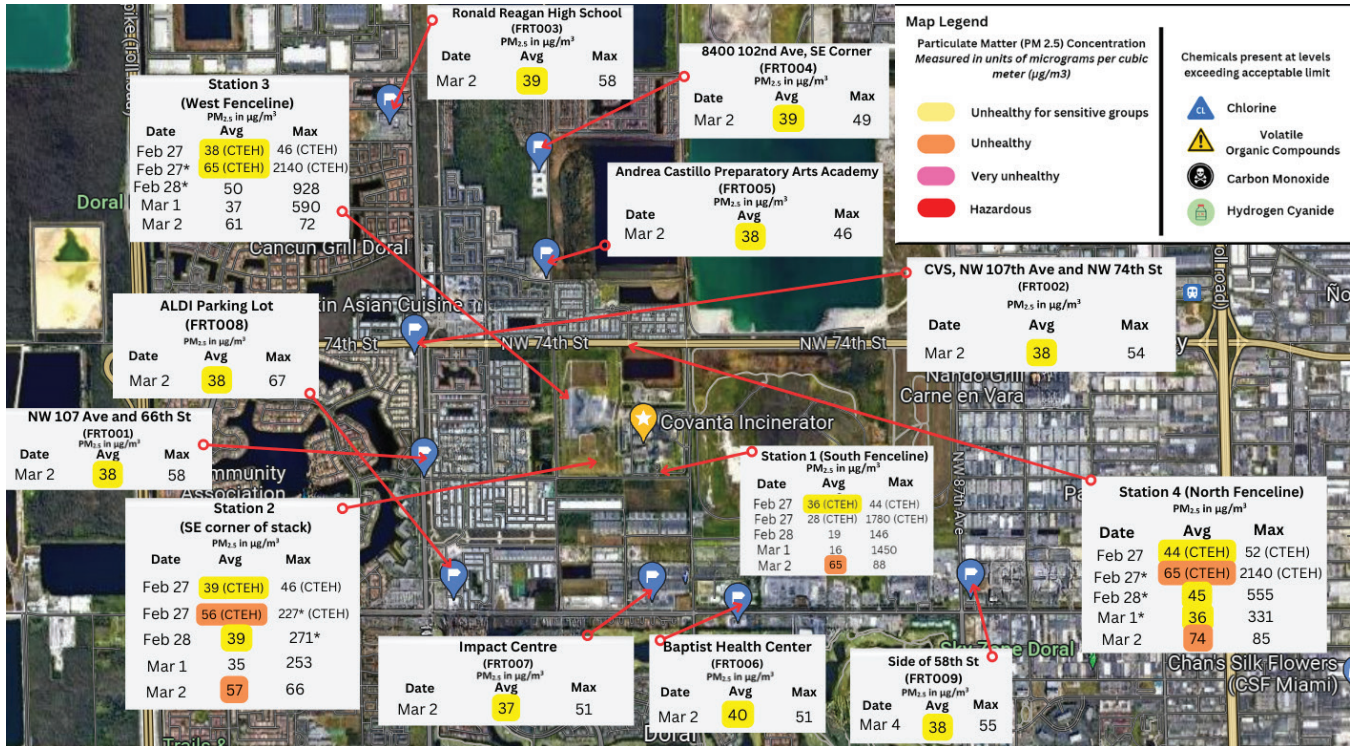
February 26, 2023 to February 27, 2023 (Feb 27)

February 27, 2023 to February 28, 2023 (Feb 28)

February 28, 2023 to March 1, 2023 (Mar 1)

March 1, 2023 to March 2, 2023 (Mar 2)

Figure 5. Map of CTEH air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.



EXCEEDANCES MAP 5

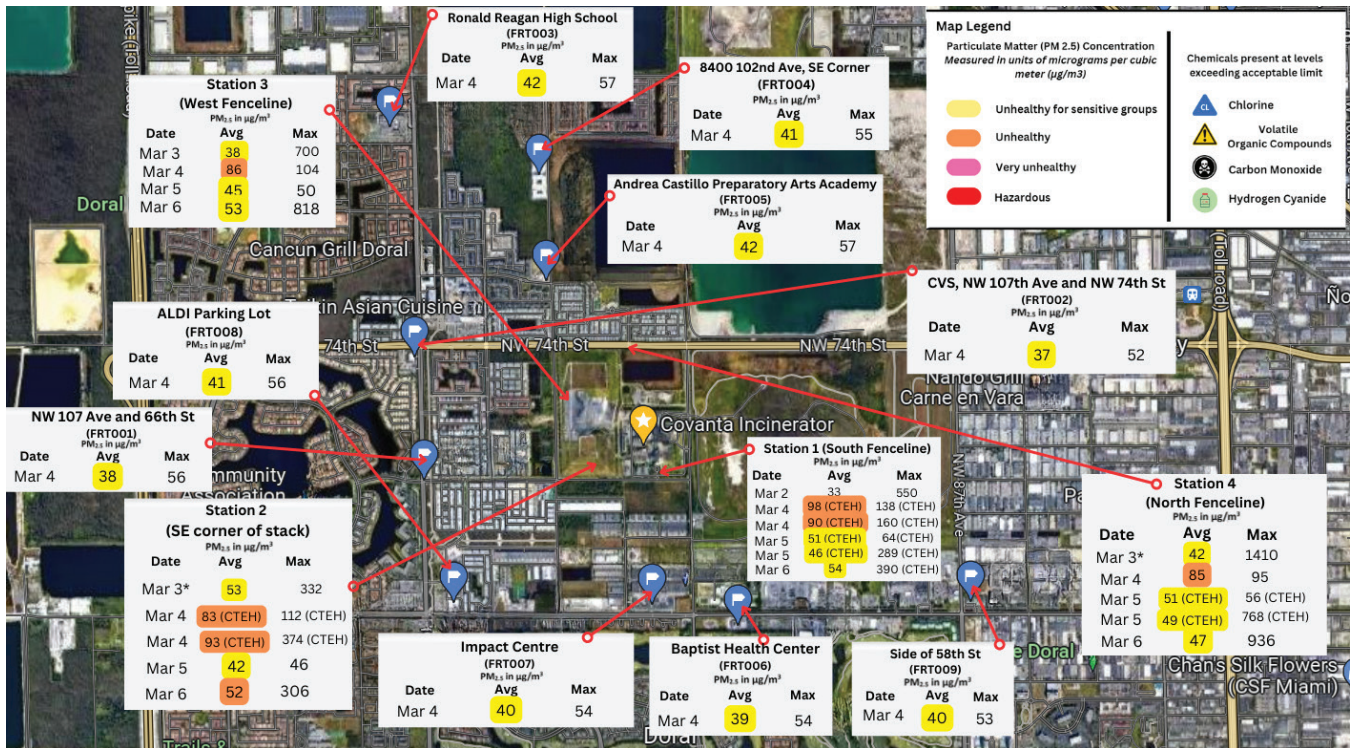
March 2, 2023 to March 3, 2023 (Mar 3)

March 3, 2023 to March 4, 2023 (Mar 4)

March 4, 2023 to March 5, 2023 (Mar 5)

March 5, 2023 to March 6, 2023 (Mar 6)

Figure 6. Map of CTEH air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.

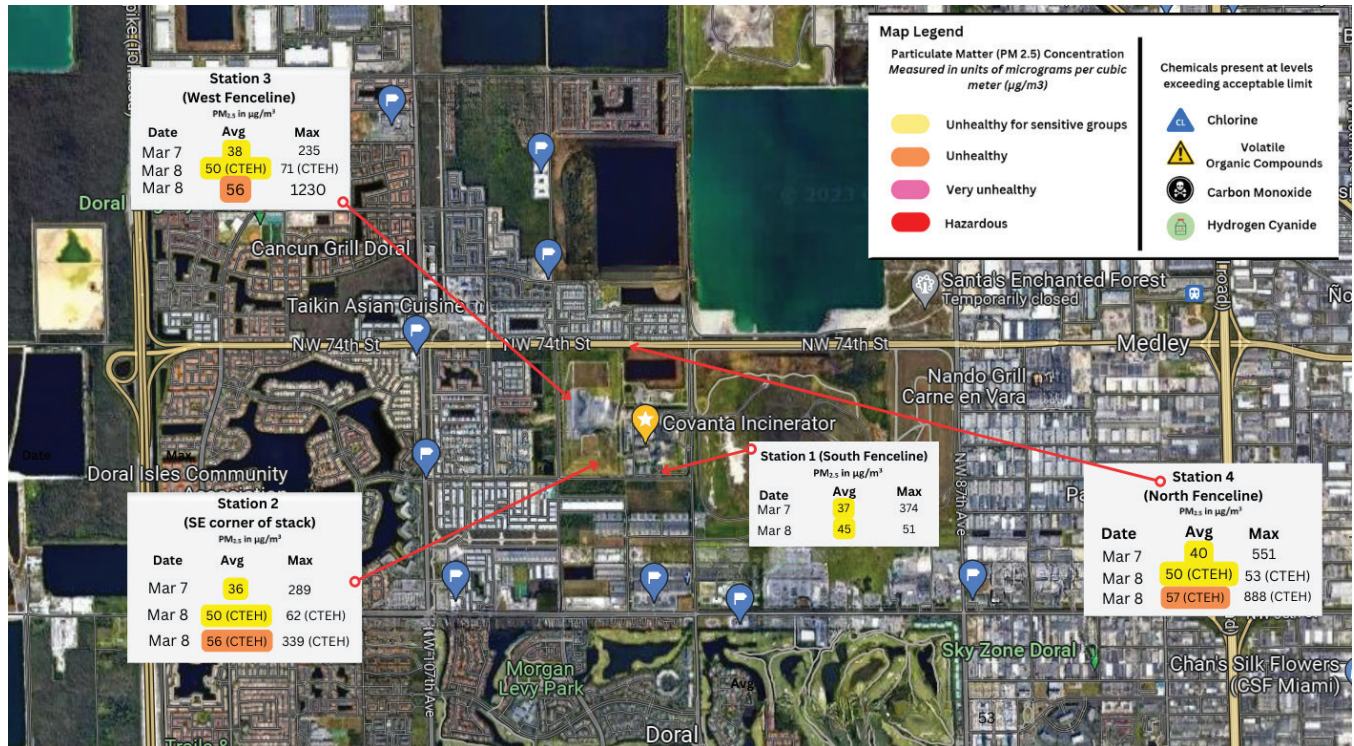


EXCEEDANCES MAP 6

March 6, 2023 to March 7, 2023 (Mar 7)

March 7, 2023 to March 8, 2023 (Mar 8)

Figure 7. Map of CTEH air monitor readings that exceeded “moderate” limits for PM_{2.5} or action levels for other pollutants tested.





The Miami-Dade County Resources Recovery Facility during a fire in February of 2023. Juan Carlos Esquivel

WATER QUALITY FOLLOWING THE FIRE

DERM also tested water at the incinerator facility site, after first responders had concerns over cyanide runoff from the fire.²⁶ At the incinerator site, there is a stormwater management system (SWMS) with lined retention ponds that filter and store runoff and stormwater and collects treated leachate²⁷ from the onsite ash landfill.²⁸ During the fire, contaminated water from these onsite sources were discharged to the Central District Wastewater Treatment Plant through the pump station on the Southwest corner of the property²⁹ (see figure below).

During the fire, the retention ponds onsite received contaminated runoff from the firefighting activities. Yet to out the fire, fire rescue used the water from the onsite ponds, which contained runoff, in the firefighting activities. They also pulled public water from fire hydrants as needed.³⁰

DERM sampled the following at the incinerator site: Total Suspended Solids (TSS), cyanide (CN), dioxin and furans, Polychlorinated Biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Total Recoverable Petroleum Hydrocarbon (TRPH), RCRA metals,³¹ copper, zinc, boron, Nitrate + nitrite (NOX-N), sulfates, ammonia, and formaldehyde.

²⁶ DERM email dated 2/13/23, "FW Parameters for Fire."

²⁷ Leachate is water that has passed through solid waste.

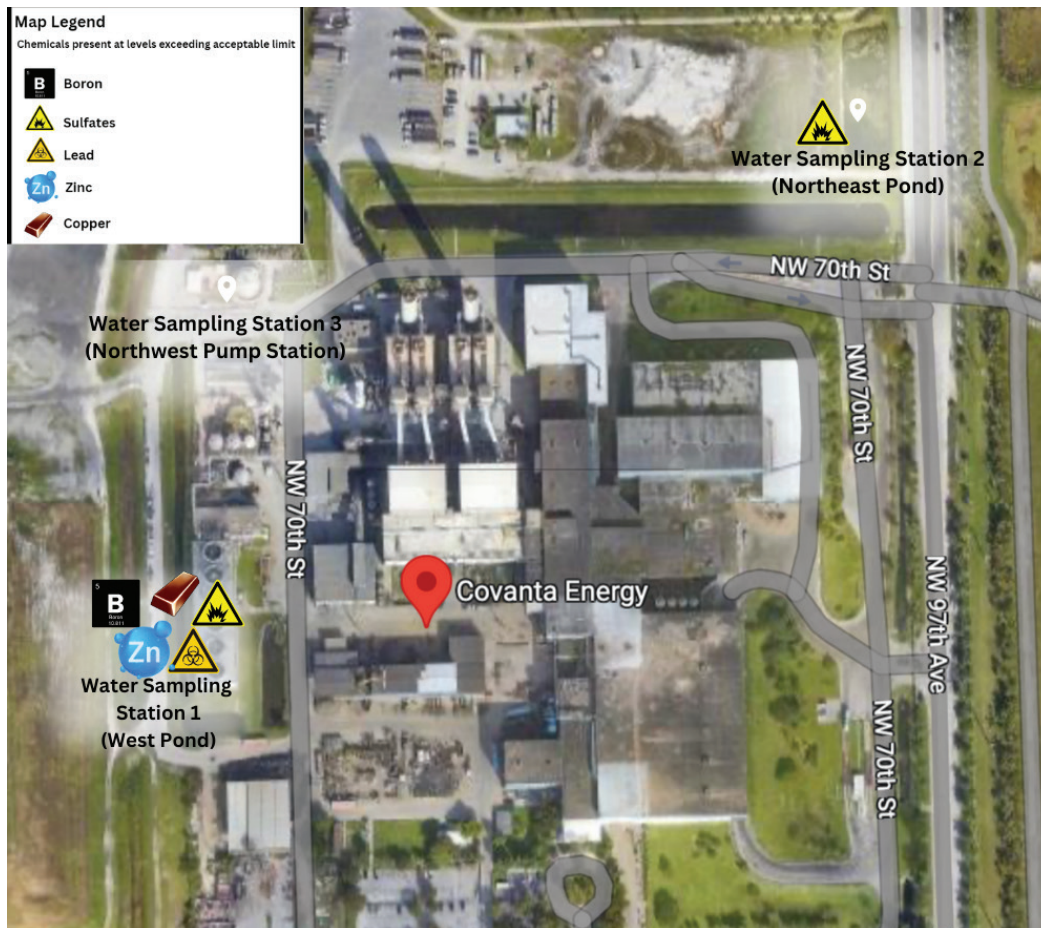
²⁸ DERM email dated 2/13/23, "RE: Covanta stormwater ponds SWM-9702051," see attachment: "TECHNICAL REPORTS – 2023 02-13T125751.706;" DERM email dated 2/13/23, "2-13-2023_To FDEP-SED_Ref Building Demolition"

²⁹ DERM email dated 2/21/23, "RE COVANTA FIRE," see also attachment: "IWP-309_Inspection Report_11_16_22." ;" DERM email dated 2/21/23, "RE analytical results (Sulfate) for the rush samples collected from February 14th -16th 2023(7);" DERM email dated 2/17/23, "FW: FINAL UPDATE / Miami-Dade / Industrial Fire / DEM-Thomas."

³⁰ DERM email dated 2/21/23, "RE COVANTA FIRE."

³¹ Or, metals monitored under the Resource Recovery and Conservation Act (RCRA), which are: Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Lead (Pb), Mercury (Hg), Selenium (Se), and Silver (Ag).

Figure 8. Map of locations on the incinerator facility site where DERM conducted water monitoring test. This map was created by Earthjustice based on DERM records reviewed.



Testing revealed exceedances of sanitary sewer standards for copper, lead, and zinc, and exceedances of groundwater standards for sulfates and boron, as follows:

Table 4. Table of all pollutants found to be in exceedance of sanitary sewer standards in onsite retention ponds after Covanta incinerator fire.³²

Pollutant	Sewer Limit (mg/L)	Water Monitoring Date	Concentration (mg/L)	Location
Copper	0.5	2/14/23	0.867	Station 1
Lead	0.7	2/14/23	0.813	Station 1
Zinc	6.8	2/14/23	16.2	Station 1

³² Miami-Dade Environmental Protection Ordinance Chapter 24, Article III, Division 1, Sec.24-42.4, accessed at https://library.municode.com/fl/miami-dade_county/codes/code_of_ordinances?nodeId=PTIIIICOOOR_CH24ENPRBIBAENDEAQPACOARBIBAENENTRFUENENLAPR_ARTIIIWASOQU_DIV1WAQUWASASEPRST_S24-42.4SASEDILIPRST (last visited 5/31/23).

Table 5. Table of pollutants that exceeded limits of groundwater standards are shown here. The reference value for Boron and Sulfates in groundwater is from Miami Dade Environmental Protection Ordinance Chapter 24, Article III, Division 3, Sec, 24-44, Table 1 Groundwater and Surface Water Clean-up Target Levels.³³

Pollutant	Groundwater Standards	Water Monitoring Date	Concentration	Location
Sulfates	250 mg/L	2/14/23	531 mg/L	Station 1
		2/15/23	280 mg/L	Station 2
		2/15/23	260 mg/L	Station 1
		2/16/23	289 mg/L	Station 2
Boron	1,400 µg/L	2/14/23	2,480 µg/L	Station 1

Because there are no sanitary sewer standards that apply to sulfates and boron, they were assessed in comparison to groundwater standards.

DERM, in reviewing these water monitoring results, raised concerns that sulfates can cause acidic conditions that can kill the good bacteria in the treatment plant and lead to corrosion.³⁴

Other chemicals present in the water samples from the onsite sampling, though not at levels that exceeded contamination standards, were: total suspended solids (TSS), cyanide (CN), dioxins and furans, several VOCs, total recoverable petroleum hydrocarbon (TRPH), several metals regulated by RCRA, semi-volatile organic compounds (SVOCs), nitrate + nitrite (NOX-N), ammonia, and formaldehyde.

³³ Miami-Dade Environmental Protection Ordinance Chapter 24, Article III, Division 3, Sec. 24-44, accessed at https://library.municode.com/fl/miami-dade_county/codes/code_of_ordinances?nodeId=PTIII00OR_CH24ENPRBIBAENDEAQPACOARBIBAENENTRFUENENLAPR_ARTIIIWASOQU_DIV3COSICL_S24-44CLTALECTPRSIREACSR (last visited 5/31/23).

³⁴ DERM email dated 2/21/23, "RE: analytical results (Sulfate) for the rush samples collected from February 14th – 16th, 2023."



The Miami-Dade County Resources Recovery Facility during a fire in February of 2023. *Gina Romero / Florida Rising*

NO OFFICIAL SOIL SAMPLING

A review of DERM records revealed the County considered sampling soil during the fire; however, Earthjustice was not in receipt of any soil sampling records. According to DERM correspondence dated March 2, 2023, DERM questioned whether

it would be “worth measuring” chemicals in the soil and whether they would be attributable to the fire.³⁵ It therefore does not appear that any soil sampling was conducted, since these records were specifically requested.

³⁵ DERM email dated 3/2/23, “RE_Doral Fire question_.”



Exterior of the Miami-Dade County Resources Recovery Facility after a fire in February of 2023.
Miami-Dade County Department of Environmental Resources Management

EMERGENCY DEMOLITION & ASBESTOS

Early on, the fire caused the roof of the trash storage area of the incinerator to collapse, the walls on the south and east side of the facility to cave in, and the garbage pit to collapse.³⁶ These collapses and hazards made the facility

structurally unsound and in danger of imminent collapse, necessitating emergency demolition of the building containing the garbage pit (including the large metal structure around it) so that firefighting operations could continue.³⁷ The

³⁶ DERM email dated 2/13/23, “Re. Recycling Plant fire – All Companies Operating”; *see also* Miami-Dade Fire Rescue, Letter dated 2/14/23, “Notification and request of partial demolition.”

³⁷ Miami-Dade Fire Rescue, Letter dated 2/14/23, “Notification and request of partial demolition.”

Demolition Plan is documented in emails and the applications for emergency demolition.³⁸

On February 15, 2023, Covanta signed an agreement for “Phase 1” of the demolition – to

Figure 9. Covanta demolition plan.⁴¹

COVANTA DEMOLITON PLAN

PHASE I GARBAGE RECEIVING:

CONTRACTOR WILL START ON THE NORTH END OF GARBAGE RECEIVING FLOOR, USING A “BUCKET AND THUMB” WILL REMOVE THE EXTERIOR PANELS. THE PANELS ARE PRIMARILY STEEL PANELS; HOWEVER, THE TOP BAND IS TRANSITE, ASBESTOS CONTAINING MATERIAL. THESE PANELS WILL CONTINUOUSLY WETTED DURING REMOVAL, PROPERLY SEGREGATED, AND PLACED IN LINED 40 CY ROLL-OFF CONTAINERS. WASTE MANAGEMENT WILL TRANSPORT AND DISPOSE OF MATERIAL AT MEDLEY LANDFILL.

FOLLOWING REMOVAL OF THE EXTERIOR PANELS, THE CONTRACTOR WILL CUT AND REMOVE THE STRUCTURAL STEEL COLUMNS AND ROOF STEEL PROGRESSING ONE BAY AT A TIME USING HYDRAULIC SHEARS. EACH BAY IS APPROXIMATELY 25'-0" x 90'-0". THE STRUCTURAL STEEL WILL BE PLACED ALONG THE EAST SIDE OF THE BUILDING AND WILL BE TRANSPORTED BY THE CONTRACTOR FOLLOWING COMPLETION OF THE DEMOLITION. THE PROCESS WILL CONTINUE SOUTH UNTIL THE COMPLETION OF PHASE I.

PHASE II GARBAGE PIT:

IT IS ANTICIPATED THAT MOST OF PHASE II HAS COLLAPSED. THE CONTRACTOR WILL START FROM THE SOUTH AND REMOVE THE STRUCTURAL COLUMNS AND ROOF STEEL IN A SIMILAR MANNER AS PHASE I WHILE REMAINING ON THE GARBAGE RECEIVING FLOOR AND REACHING OVER THE GARBAGE PIT. THE STRUCTURAL STEEL WILL BE PLACED ALONG THE EAST SIDE OF THE BUILDING AND WILL BE TRANSPORTED BY THE CONTRACTOR FOLLOWING COMPLETION OF THE DEMOLITION.

demolish the garbage receiving area of the building – and on February 16, 2023, demolition began.³⁹ On February 18, 2023, Covanta signed an agreement for “Phase 2” of the demolition – to demolish the garbage pit.⁴⁰

In a February 14, 2023 meeting, representatives from Covanta, Miami-Dade County, and the company hired to do the demolition discussed that the building to be demolished contained **asbestos-lined siding and roofing**,⁴² creating the risk of asbestos being released during demolition. As a result, the demolition debris was considered asbestos-containing waste, subject to specific regulations for their handling and disposal.⁴³

Asbestos are naturally occurring fibrous minerals that if disturbed, are released into the air. When asbestos are breathed in, they may get trapped in the lungs and remain there for a long time. Exposure to asbestos can cause mesotheliomas and cancers of the lung, larynx, and ovary.⁴⁴

The demolition schedule was interrupted, however, because of an issue with the disposal of the asbestos-contaminated steel from the structure of the building. The company hired by Covanta to do the demolition had improperly shipped some of the asbestos-containing metal structure to be recycled, without DEP approval.⁴⁵

The asbestos-containing waste from the incinerator was otherwise taken to the Medley Landfill.⁴⁶ The Medley Landfill is located one mile from the Doral incinerator and is another major source of air pollution in the vicinity. In recent years, DEP approved expansion of Medley Landfill to a height that would make it the second-highest point in the state.

³⁸ See footnotes 36, 37. See also Demolition permit application package, “Plan Review_Permit 2023029641 (Process#C2023063038);” DERM email dated 2/22/23, “2-22-23_Demo Notice Revision #3,” attached notice.

³⁹ Covanta email dated 2/25/23, “FW: Demolition” (Email from William Meredith, subject: “Demolition”); DERM email dated 2/21/23, “2-21-2023 Sent to FDEP_SED_Covanta Demo Plans.”

⁴⁰ See footnote 39.

⁴¹ Demolition permit application package, “Plan Review_Permit 2023029641 (Process#C2023063038);” DERM email dated 2/21/23, “2-21-2023 Sent to FDEP_SED_Covanta Demo Plans.”

⁴² Covanta email dated 2/25/23, “FW: Demolition” (Email from William Meredith, subject: “Demolition”).

⁴³ See footnote 38.

⁴⁴ National Institutes of Health, National Cancer Institute, Asbestos, <https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/asbestos> (last visited 4/29/23).

⁴⁵ Covanta email dated 2/25/23, “FW: Demolition” (Email from William Meredith, subject: “Demolition”).

⁴⁶ DERM email dated 2/22/23, “2-22-23_Demo Notice Revision #3,” attached notice, Sec. VIII, “Waste Disposal Site.” Despite asbestos being a hazardous substance, they are not considered hazardous waste in Florida but are subject to specific federal laws and state and local regulations for their disposal.



Exterior of the Miami-Dade County Resources Recovery Facility after a fire in February of 2023.
Miami-Dade County Department of Environmental Resources Management

CONCLUSION

The fire at the Doral incinerator was an event that no one should have to endure in the places where they live, work, worship, go to school, and play. This was not just a building on fire; it was a waste incinerator – and the trash within it – burning and releasing smoke and pollution into a nearby community.

Florida has the most municipal waste incinerators of any state aside from New York. In Florida, 70% of waste incinerators are in communities of color and disproportionately harm communities where there is limited English proficiency.⁴⁷ Yet last year, the Florida Legislature passed a law to incentivize municipal waste incinerators,⁴⁸ something the state is poised to move forward on if the Legislature decides to allocate that funding.⁴⁹

⁴⁷ Florida Rising, Civil Rights Complaint against FDEP at 9-15, (March 31, 2022), https://earthjustice.org/wp-content/uploads/civil_rights_complaint_against_fdep_florida_rising.pdf.

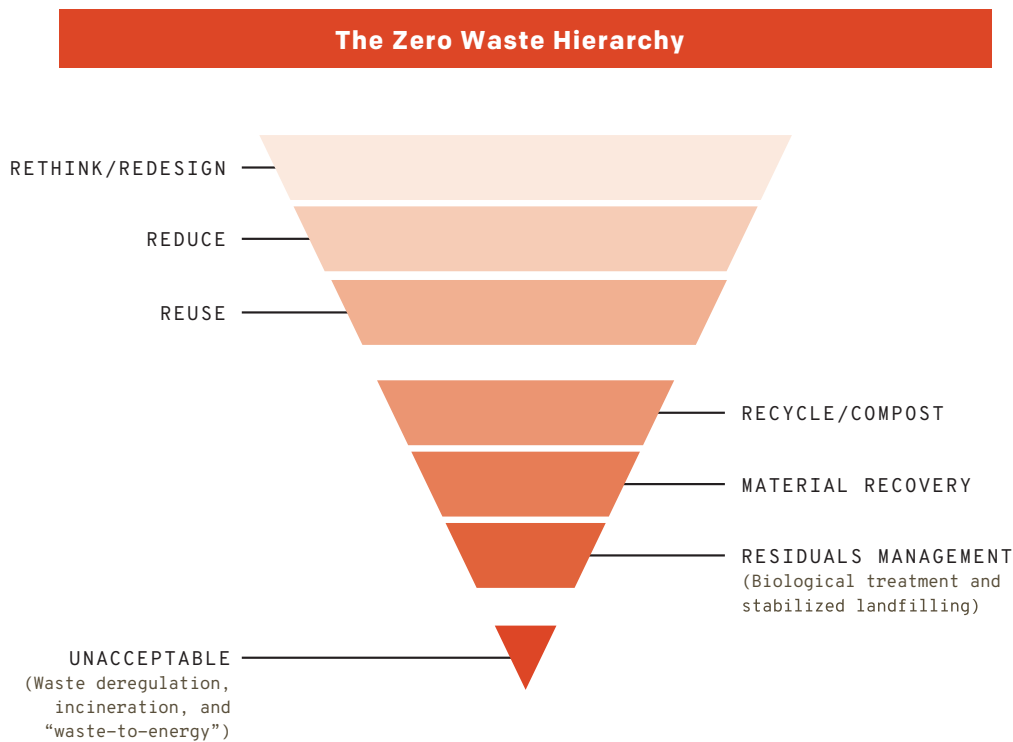
⁴⁸ Fla. Stat. § 377.814 (2022).

⁴⁹ Florida Dept. of Agriculture and Consumer Services (FDACS), [Notice of Proposed Rulemaking, Rule No. 5O-6.002](#), Municipal Solid Waste-to-Energy Grant Program (Nov. 1, 2022).

We call on Florida and Miami-Dade County to reverse course on the buildout and incentivizing of garbage-burning incinerators and instead, commit to the health of communities and the environment by establishing and funding Zero Waste goals and initiatives,⁵⁰ which include:

- **Rethink/Redesign** how we develop and design products and services in a way that creates less waste from the beginning. One way to incentivize this is extended producer responsibility, which makes producers responsible for the entire product lifecycle, including disposal
- **Reduce** consumption of non-biodegradable products, such as plastic, by buying reusable grocery bags or jars for fruits, vegetables, nuts, etc., and reduce food waste by incorporating food recovery and food co-op programs to redistribute “waste” items from businesses to those who need them
- **Reuse** household products such as clothing, furniture, etc. to reduce waste
- **Recycle** all recyclable materials through a mandatory municipal recycling program instead of throwing them into the trash. If public dumpsters are available, ensure that public recycling bins are also made available
- **Compost** by putting organic materials back into the soil to provide nutrients, reduce waste and greenhouse gas emissions, and increase infiltration of rainwater
- **Recover** materials through processes that separate used materials, such as metals, to be reintegrated into new products; and
- **Manage** residuals to place them back into the natural environment in a sustainable and non-polluting way, taking environmental and health factors into account.

Figure 10. The Zero Waste hierarchy, which does not include waste incineration.⁵¹



⁵⁰ Earthjustice et al., *New Jersey’s Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey’s Frontline Communities* at 13-14 (“What is Zero Waste?”), https://earthjustice.org/wp-content/uploads/nj-incinerator-report_earthjustice-2021-02.pdf.

⁵¹ See Footnote 50 at 14.

THE FIRE AT THE DORAL INCINERATOR WAS AN EVENT THAT NO ONE SHOULD HAVE TO ENDURE IN THE PLACES WHERE THEY LIVE, WORK, WORSHIP, GO TO SCHOOL, AND PLAY. THIS WAS NOT JUST A BUILDING ON FIRE; IT WAS A WASTE INCINERATOR – AND THE TRASH WITHIN IT – BURNING AND RELEASING SMOKE AND POLLUTION INTO A NEARBY COMMUNITY.

We call on Miami-Dade County to transition to Zero Waste now.

To stay in the loop about Florida Rising’s Justice on Every Block clean air campaign, visit <https://floridarising.org/justice-on-every-block/>

To show your support for Florida Rising’s platform for Justice on Every Block in Miami-Dade, including for clean air and Zero Waste transition, **sign the petition here!**

