



December 9<sup>th</sup>, 2022

# **St Marys Cement Plant**

## **Community Liaison Committee Meeting**



# Agenda

- ❖ **Welcome and Introductions**
- ❖ **Complaints 2022 Year to Date**
- ❖ **Odour Mitigation Investigation**
- ❖ **SMC Dust Complaints**
- ❖ **Dust Collectors**
- ❖ **Questions Brought Forward in Advance of Today's Meeting**
- ❖ **Round Table**
- ❖ **Closing Remarks**



# Welcome and Introductions



## Community Liaison Committee

The next Community Liaison Committee Meeting is going to be held on **December 9th at 10am**. Members of the public who wish to observe as the members of the Committee discuss information with respect to St Marys Cement can watch the live meeting online. Please see the Town of St Marys Events Calendar for the link to the online meeting.

Please submit any questions and concerns for the meeting by December 7th to [kara.terpstra@vcimentos.com](mailto:kara.terpstra@vcimentos.com).

- ❖ **Thank you to the Town of St Marys for allowing us to use their Youtube Channel**
- ❖ **Round Table Introductions**
- ❖ **New to our CLC we have Councillor Rob Edney**
- ❖ **Gratitude to Marvin Arthur and Tony Winter**
- ❖ **Did anyone have questions/concerns about the September 16<sup>th</sup> Meeting Minutes**
- ❖ **New Votorantim Cimentos Logo**







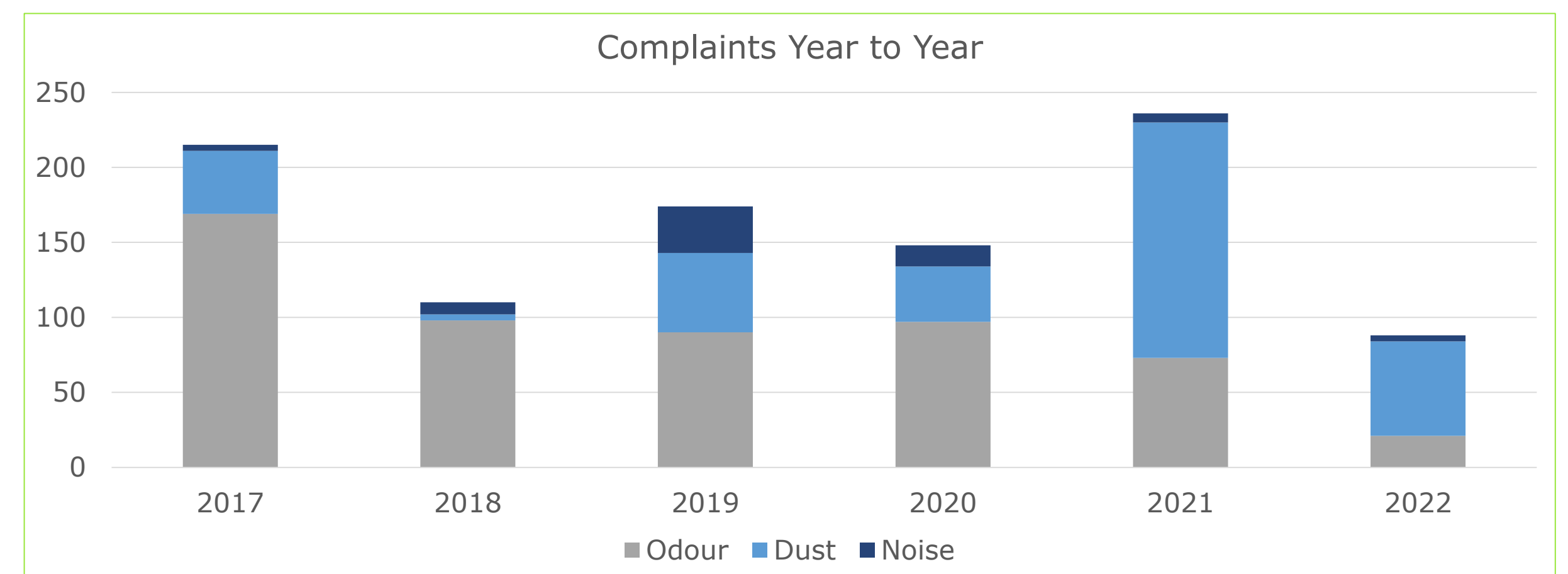
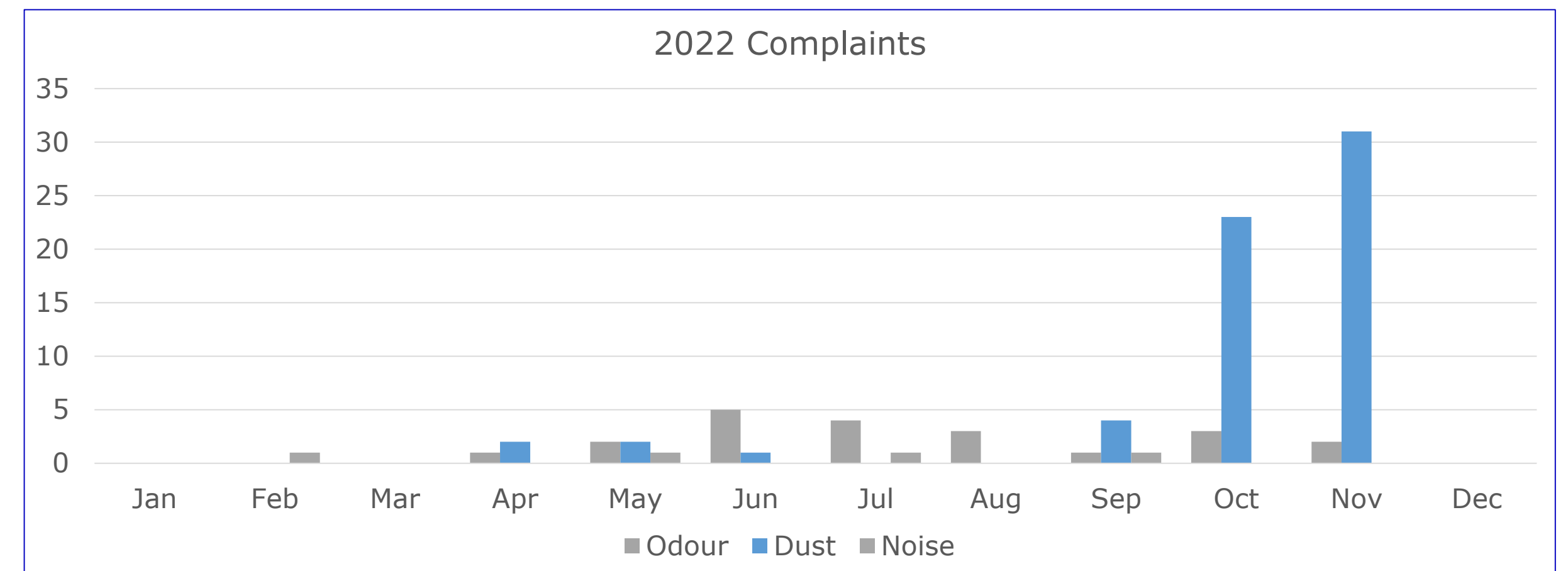
# Complaints Received 2022 YTD

		Odour*	Mention Health**	Dust ***	Noise
2022	<b>Total</b>	<b>21</b>	<b>6</b>	<b>61</b>	<b>4</b>
	<b>January</b>	0	0	0	1
	<b>February</b>	0	0	0	0
	<b>March</b>	0	0	0	0
	<b>April</b>	1	0	2	0
	<b>May</b>	2	0	0	1
	<b>June</b>	5	2	1	0
	<b>July</b>	5	2	0	1
	<b>August</b>	3	2	0	1
	<b>September</b>	1	0	4	1
	<b>October</b>	3	0	23	0
	<b>November</b>	2	0	31	0
	<b>December</b>				

\* Odour complaints reviewed on the next slides

\*\*Complaints which 'Mention Health' are counted when a resident calls with an odour complaint and highlights that they have health concerns. They are not separate complaints received by the plant.

\*\*\*Dust Complaints reviewed on next slides





# Odour Monitoring using Enviro-Suite Software



## Likely Originated from SMC

The trajectory generated by Enviro-Suite aligns with the location of the stack.



## Possibly Originated from SMC

The trajectory generated by Enviro-Suite is close to aligning with the location of the stack.



## Probably did not Originate from SMC

The trajectory generated by Enviro-Suite is not close to the stack but direction of the trajectory is towards SMC.



## Did Not Originate from SMC

The trajectory generated by Enviro-Suite is clearly not in the direction of the stack.





## Odour Complaints Received

Date	Enviro-Suite Results
Friday, September 16, 2022	Likely Originated from SMC
Thursday, October 6, 2022	Likely Originated from SMC
Sunday, October 9, 2022	Likely Originated from SMC
Saturday, October 15, 2022	Likely Originated from SMC
Saturday, November 12, 2022	Likely Originated from SMC
Sunday, November 20, 2022	Likely Originated from SMC

Enviro-Suite Results		
	2021 YE*	2022 YTD
Likely Originated from SMC	20	17
Possibly Originated from SMC	4	3
Did not Originate from SMC	6	1
Location not Provided	4	0

\* Out of Enviro-Suite complaints generated using the Enviro-Suite Software

# Next Steps: Odour Monitoring Using Ambient Field Readings

**Presented by: Joe Frost**

**VCNA Corporate Environmental Specialist**

Joe Frost worked for RWDI Air Testing for 8 years prior to joining St Marys Cement in 2021. His background in air testing has provided him with background knowledge which can be used in conjunction with the Enviro-Suite software.





# Odour Monitoring Using Ambient Field Readings

The Enviro-Suite Software allows the facility to validate whether or not a perceived odour originated from the facility, but it does not provide information to the strength of the odour being perceived.

As part of next steps for odour abatement, St Marys Cement is compiling a database of ambient field odour readings to compare to the trajectories generated by Enviro-Suite.

Additional next steps include upgrading the field sensors to incorporate sensors which detect NO<sub>x</sub> and SO<sub>2</sub> and can correlate ambient readings to plant emission levels.

Ambient field odour readings are completed by a certified technician who uses the Nasal Ranger to take measurements of odour.

Using the Enviro-Suite software SMC can correlate the strength of odour with the inputs of the nasal ranger.

# What is a Nasal Ranger?

**Engineered and Manufactured by St Croix Sensory Inc.**

Nasal Ranger is the “state-of-the-art” in field olfactometry used for confidently measuring and quantifying odor strength in the ambient air. The portable Nasal Ranger Field Olfactometer determines ambient odor Dilution-to-Threshold (D/T) concentration objectively with your trained nose.

For over twenty years, the Nasal Ranger has been successfully measuring odors around the world and enabling communities to make decisions based on scientific data rather than subjective observations. Used in a variety of industries, from regulation enforcement to proactive odor monitoring, the effect of collecting objective odor data is the same: accountable neighbors.

<https://www.fivesenses.com/>

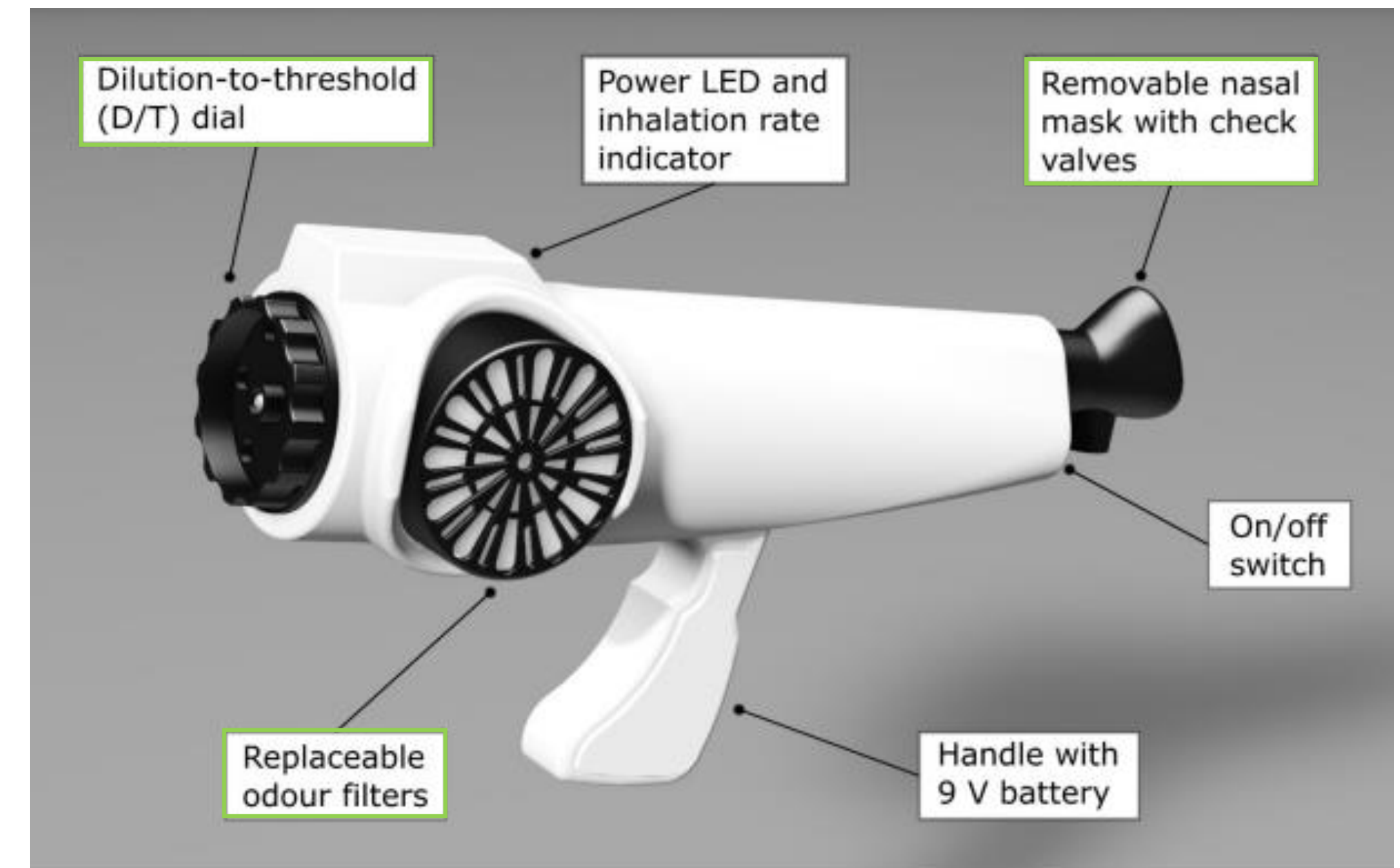




# What is a Nasal Ranger?

## What are the Device Specifications?

- The Nasal Ranger is composed of 3 main components
  1. Replaceable odour Filters
  2. Dilution to Threshold Dial
  3. Removable Nasal Mask with Check Valves
- Users become certified to use the Nasal Ranger by attending Training with St Croix Sensory Inc.
- The Nasal Ranger is capable of determining the odour reading from 0-60 odour units.
- 1 odour unit is the level where half a given population can detect an odour
- 15 odour units is considered a nuisance (as per St Croix Sensory)

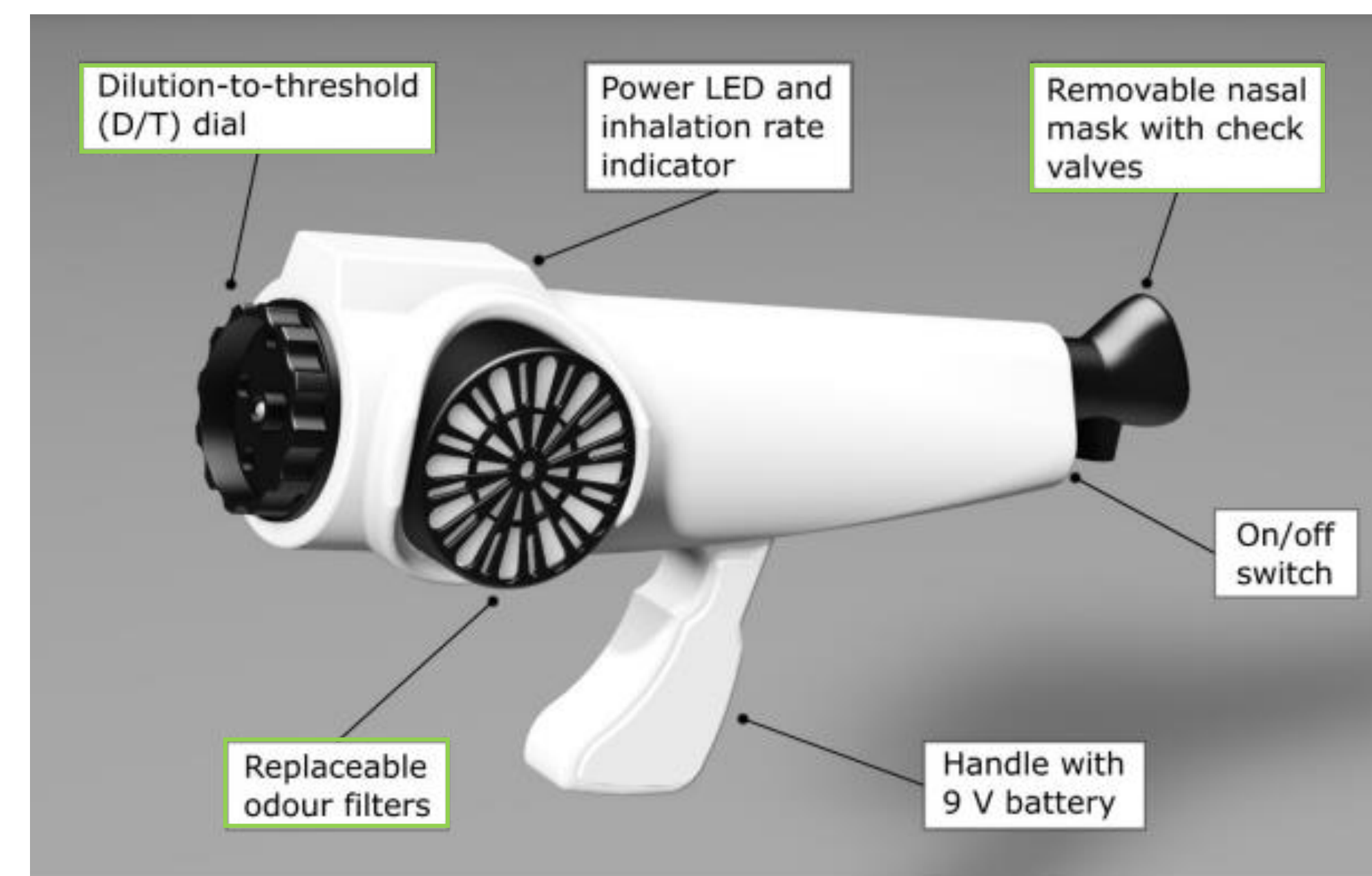


# What is a Nasal Ranger?

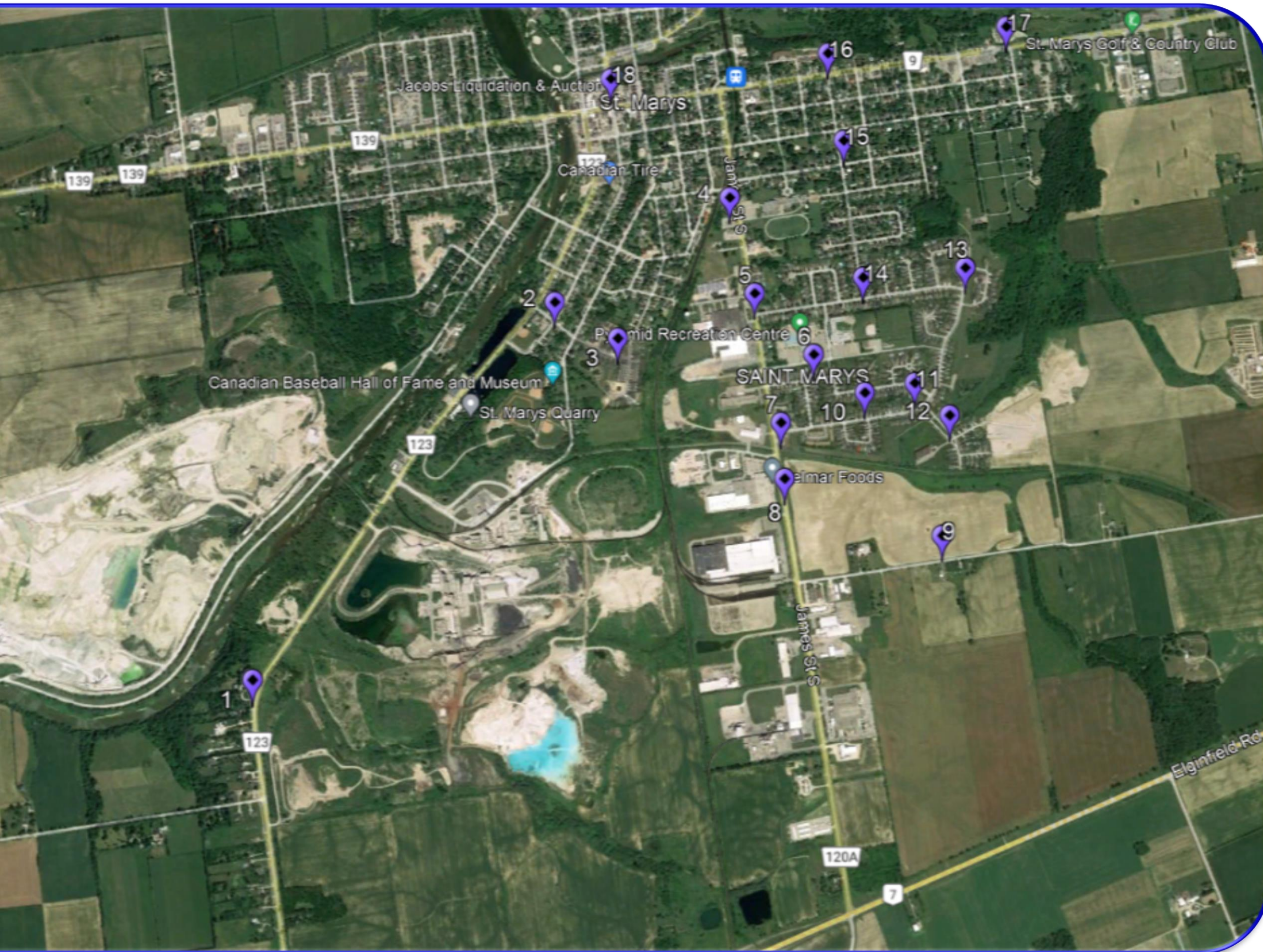
## How do you take Ambient Field Odour Readings?

When using the Nasal Ranger for monitoring ambient field odour readings the certified user does the following;

1. Locate an area in the field where odour is present.
2. Adjust the Dilution to Threshold dial to the maximum dilution, ensuring the air being tested is completely passed through the odour filters.
3. Place the nasal ranger on the nose ensuring the nasal mask is creating a seal against the face so the only air being detected by the user is air that has passed through the nasal ranger.
4. Inhale for 1 minute through the Nasal ranger to remove any residual ambient odour from the user's nasal passage.
5. Decrease the Decrease Threshold dial to the next highest level, repeating until the ambient odour is detected.
6. Note the odour level and continue to the next sampling location.







## St Mary Cement

# Ambient Field Odour Readings Using the Nasal Ranger



# Ambient Air Readings

## September – November 2022

- Over the last 3 months Joe has been conducting periodic ambient field odour observations in St Marys. Dates have been selected based off of plant conditions and weather forecasts, and locations were chosen for general locations around St Marys.
- As per the presentation on Weather Conditions and Air Dispersion (BCX Engineering – CLC meeting March 14, 2020) cloud coverage and incoming storms can impact dispersion.
- YTD Joe has been on site for 10 different days; taking a total of 104 odour readings. Of these readings, the Nasal Ranger was able to determine odour readings for 11.

Date of Odour Observation	Number of Locations	Sensed Odour	Weather
Tuesday, August 2, 2022	11	1	Rain shifting to clear
Thursday, August 4, 2022	19	4	Cloudy
Thursday, August 11, 2022	11	1	Cloudy
Wednesday, August 17, 2022	6	0	Cloudy
Thursday, September 29, 2022	9	2	Cloudy
Wednesday, October 5, 2022	14	0	Clear
Thursday, October 13, 2022	11	1	Cloudy
Monday, October 24, 2022	7	1	Clear
Friday, October 28, 2022	8	0	Cloudy
Wednesday, November 9, 2022	8	1	Clear
	<b>104</b>	<b>11</b>	



# Ambient Air Readings and Enviro-Suite

## September – November 2022

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Date	Time	Nasal Ranger Odour Units	Enviro-Suite Correlation
Tuesday, August 2, 2022	4:14 PM	<2	Likely Originated from SMC
Thursday, August 4, 2022	7:34 AM	2	Likely Originated from SMC
Thursday, August 4, 2022	7:42 AM	<2	Likely Originated from SMC
Thursday, August 4, 2022	8:42 AM	<2	Likely Originated from SMC
Thursday, August 4, 2022	8:47 AM	<2	Likely Originated from SMC
Thursday, August 11, 2022	1:00 PM	<2	Likely Originated from SMC
Thursday, September 29, 2022	10:05 AM	<2	Likely Originated from SMC
Thursday, September 29, 2022	10:15 AM	<2	Likely Originated from SMC
Thursday, October 13, 2022	4:18 PM	<2	Likely Originated from SMC
Monday, October 24, 2022	2:30 PM	<2	Likely Originated from SMC
Wednesday, November 9, 2022	3:35 PM	<2	Likely Originated from SMC

As per St Croix Sensory; 15 odour units or more is considered a nuisance. However this also depends on the type of odour.

# Enviro-Suite and Nasal Ranger

## Next Steps

- The Nasal Ranger is being used to further the correlation between the Enviro-Suite software and detectable odours.
  - Upgrading the ambient sensors to include NO<sub>x</sub> and SO<sub>2</sub> will automate the Enviro-Suite verification process.
- Confirming the software outputs will be used to further illustrate that the odour perceived in town is at low levels.
- The Enviro-Suite software will be used to further validate that the dispersion from St Marys Cement is within MECP odour dispersion compliance guidelines.





## Dust Complaints Received

	Date	Number of Complaints	Results	Source	Corrective Actions
<b>October</b>	1 <sup>st</sup>	4	Cementitious	Finish Mill System	Maintenance of the finish mill system including baghouse repairs and optimization. *
	6 <sup>th</sup>	1	Cementitious	Finish Mill System	Maintenance of the finish mill system including baghouse repairs and optimization. *
	7 <sup>th</sup> to 11 <sup>th</sup>	18	3 Cementitious 15 Not Cementitious	Finish Mill System	Maintenance of the finish mill system including baghouse repairs and optimization. *
<b>November</b>	2 <sup>nd</sup> -3 <sup>rd</sup>	29	12 Cementitious 17 Not Cementitious	Finish Mill System	Maintenance of the finish mill system including baghouse repairs and optimization. *
	9 <sup>th</sup>	1	Not Cementitious	Finish Mill System	Maintenance of the finish mill system including baghouse repairs and optimization. *
	22 <sup>nd</sup>	1	Not Cementitious	Finish Mill System	Full replacement of the finish mill baghouse.

\*SMC has a program to keep spare bags on site for repairs to baghouses. The finish mill baghouse was inspected 3 times in October and 4 times in November. A full set of bags was ordered for the finish mill. Bags arrived on November 25<sup>th</sup> and were replaced in full on November 28<sup>th</sup>.

# Dust Collectors

**What is a dust collector, how are they are used at St Marys Cement, and what ongoing maintenance and improvements are conducted to improve overall dust management at the plant.**

**Presented by: Sundar Mani; Mechanical Maintenance Manager for St Marys Cement Plant**





# Sundar Mani

## Mechanical Maintenance Manager, St Marys Plant

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Sundar is a mechanical expert with international experience and proven success in solving complex technical issues in cement plants, including expertise in mechanical maintenance of cement plant equipment and contract management. He has worked in the cement industry for 37 years and has held roles at India Cements Ltd, Lafarge Asia, Lafarge Canada, and Lafarge Holcim North America.

Sundar has been with the St Marys Team since October 2020.

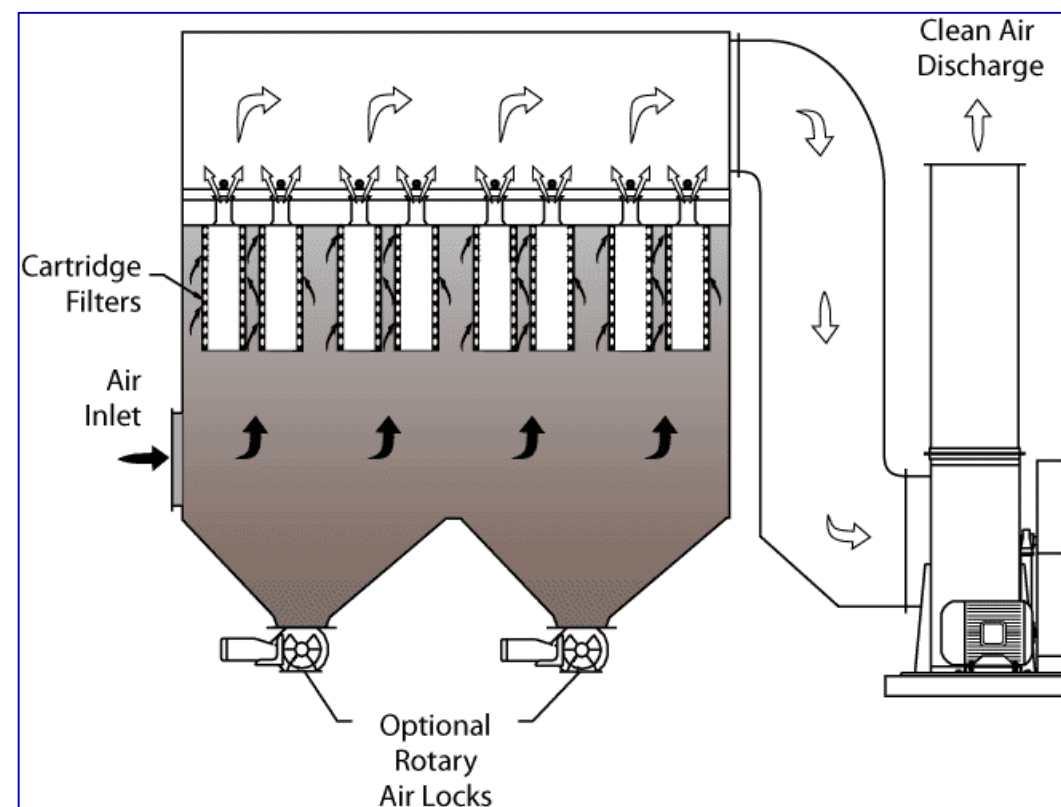


# What is a Dust Collector?

- **An industrial dust collector is a type of air pollution control equipment used in factories, plants, warehouses and other industrial or commercial settings to meet environmental and workplace safety requirements.**
- **The equipment is specifically designed to purify and filter hazardous dust and fine particulate contaminant matter released into the work environment or atmosphere to maintain and improve air quality.**

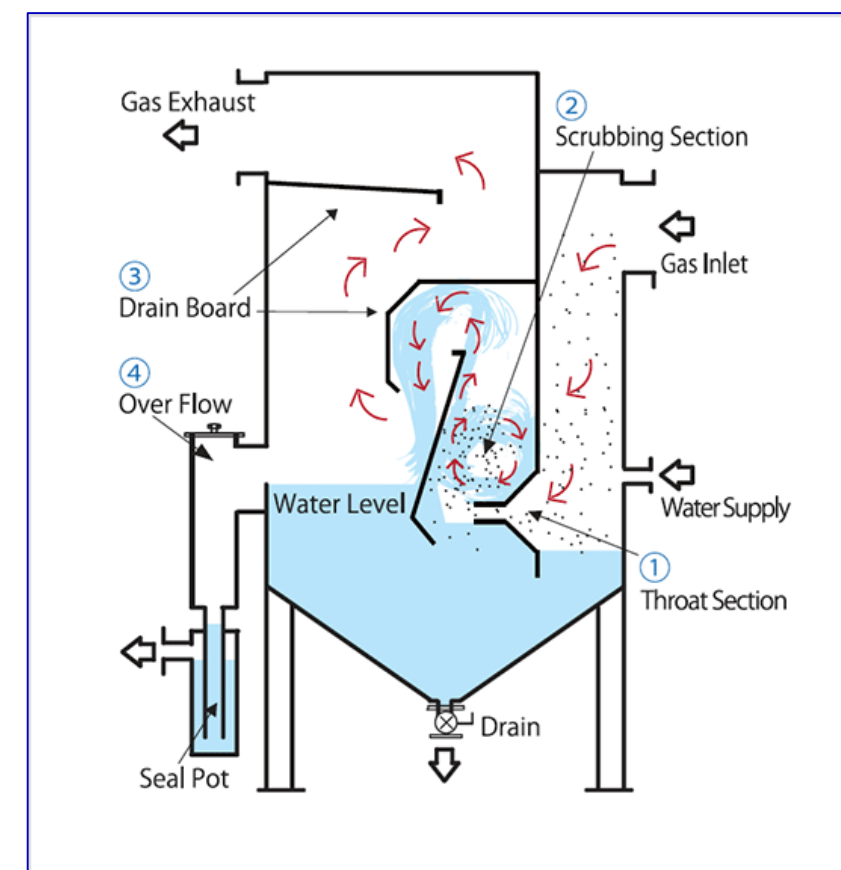


# Basic Types of Dust Collectors



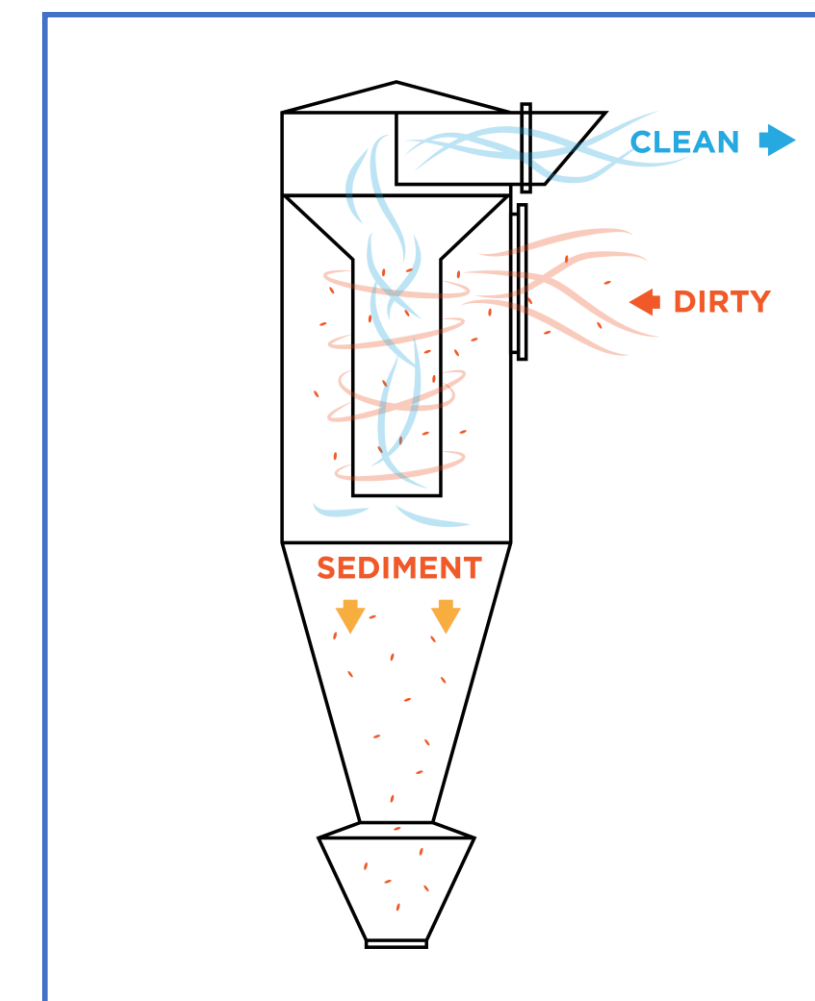
## Bag Filter Dust Collector

Dirty air passes through filter bags which act as a vacuum cleaner to remove dust. The collected material is returned to the process.



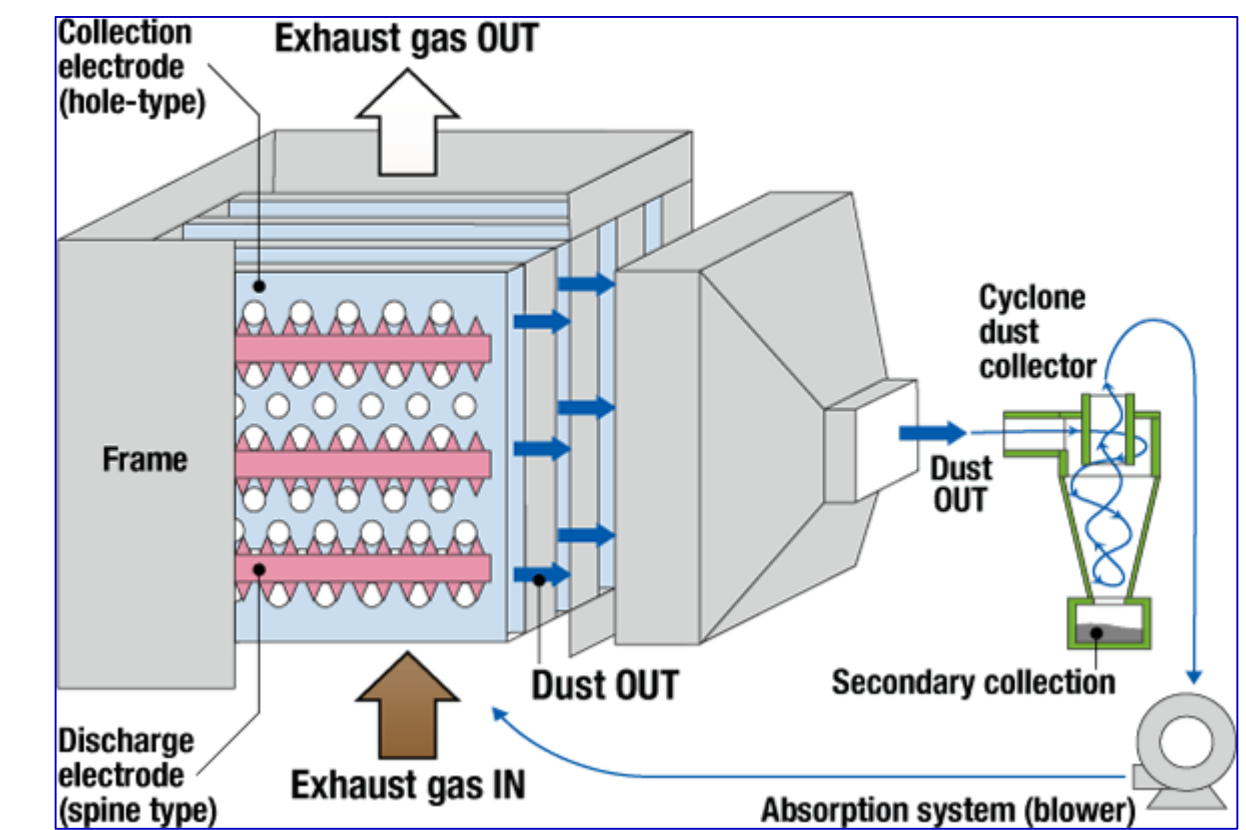
## Wet Scrubber Dust Collector

Dirty air is bubbled through water and the particles are trapped in the water and removed as a slurry.



## Centrifuge Filter Dust Collector

Dirty air is directed along the outside of a cyclone. The particles settle with gravity through the base of the cyclone, and the clean air exits the top.



## Electrostatic Precipitator

Dirty air is directed between metal sheets. The sheets are induced with an electric charge causing the dust to stick by static. The sheets are vibrated and the dust rolls down the sheets to be returned to the process.



# St Marys Cement

## Dust Collectors

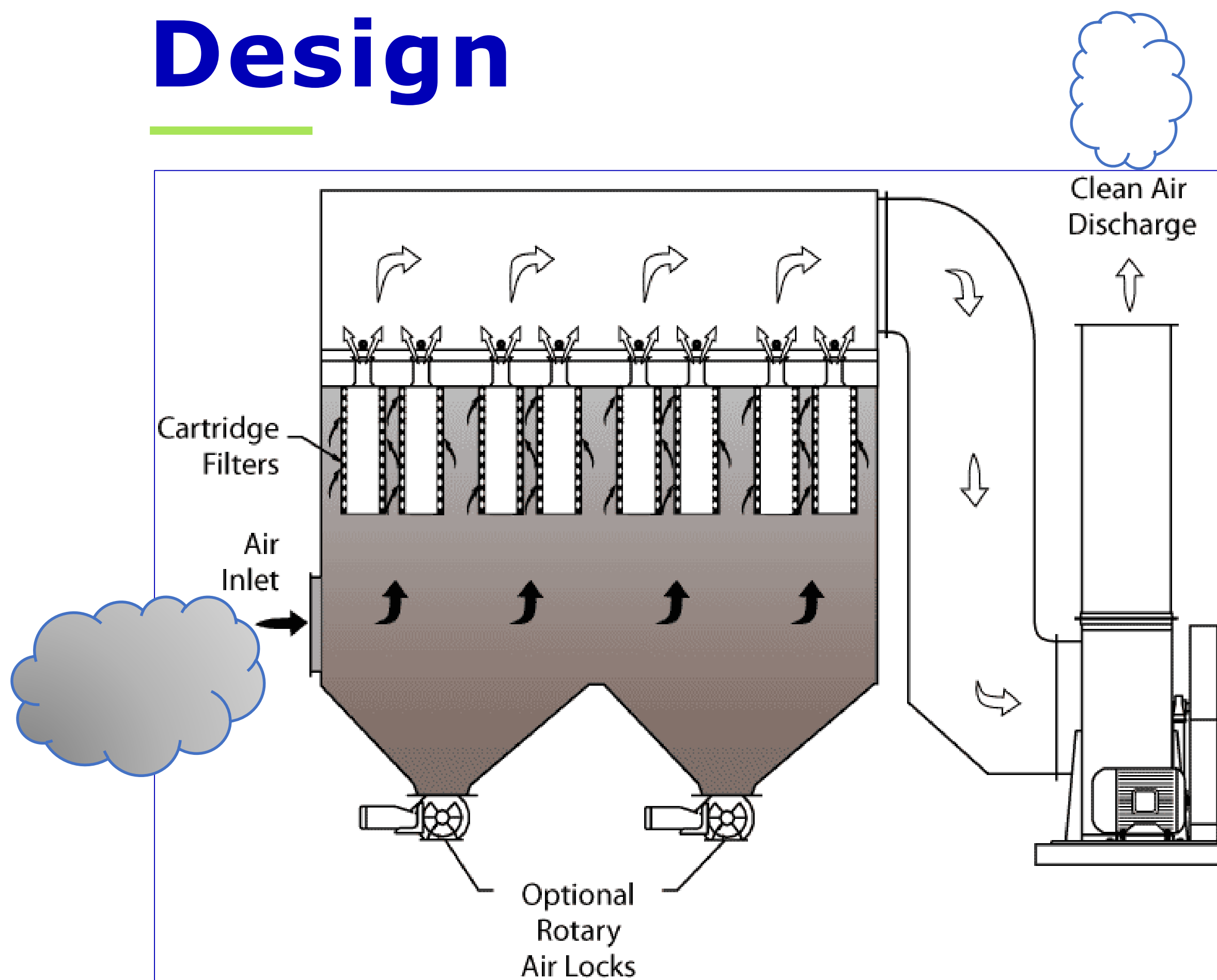
- St Marys Cement has over 70 Dust Collectors on site, primarily Bag Filter Baghouses
- Baghouses are located at any spot where there would be a transfer of material that could generate movement of dust causing it to become airborne.
- St Marys Cement's Air Permit requires the facility to monitor the operations and maintenance of these baghouses to ensure optimal performances





# Dust Collectors

## Design

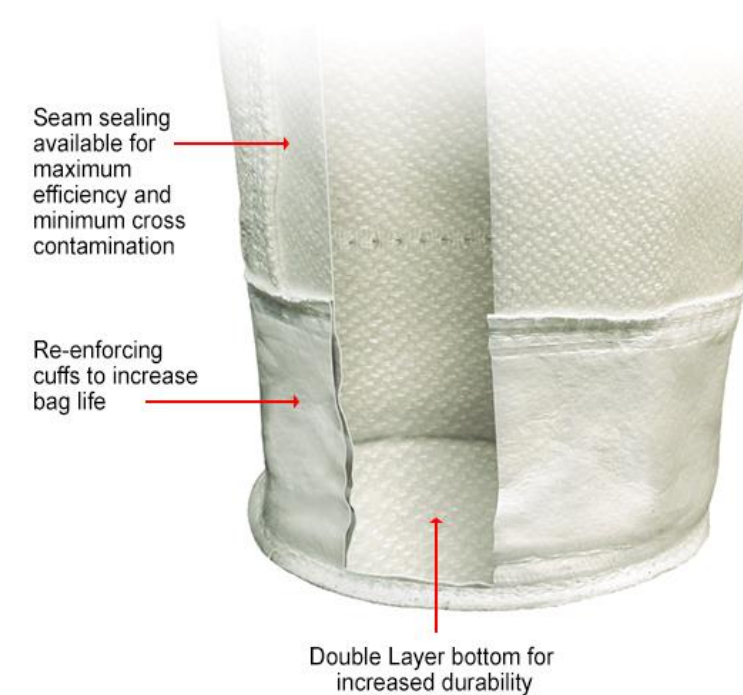


- Dust collectors are designed based off the equipment that they service.
- The equipment will dictate flow rate of the baghouse, operating temperature, pressure drop in the baghouse, volumetric flow rate, type of material, pulse rate of the cartridges, and way the material is returned.
- The bag selection is also based off the flow rate of the baghouse, operating temperature, and type of material.

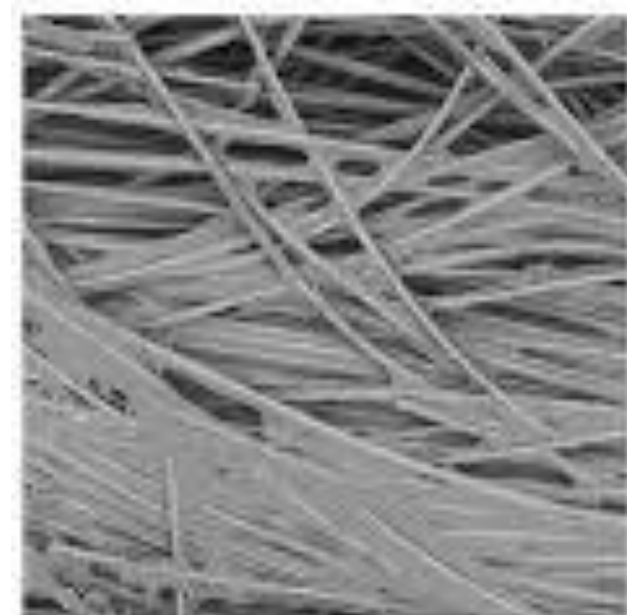




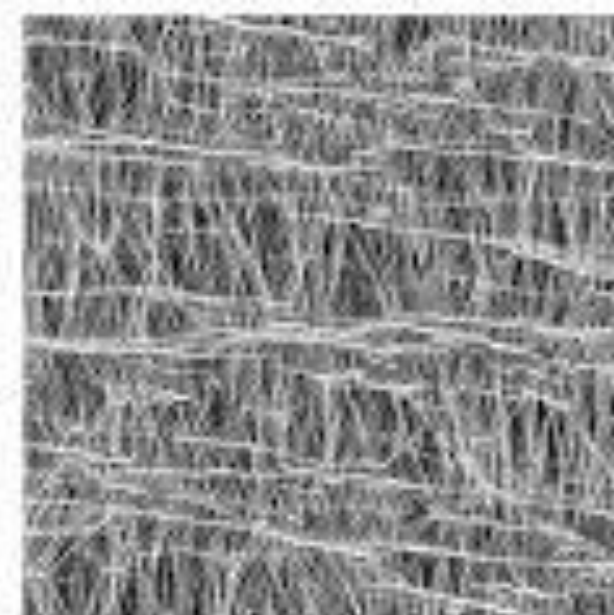
# Dust Collectors Design



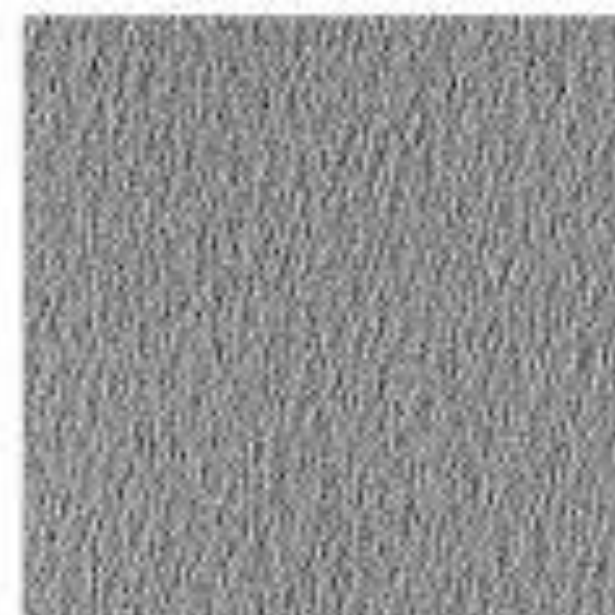
- The bag selection is also based off the flow rate of the baghouse, operating temperature, and type of material.
- Design of the bag itself including number of layers, type of membrane, positioning of the seams and cuffs, and installation requirements.



Conventional Filter



Standard Membrane



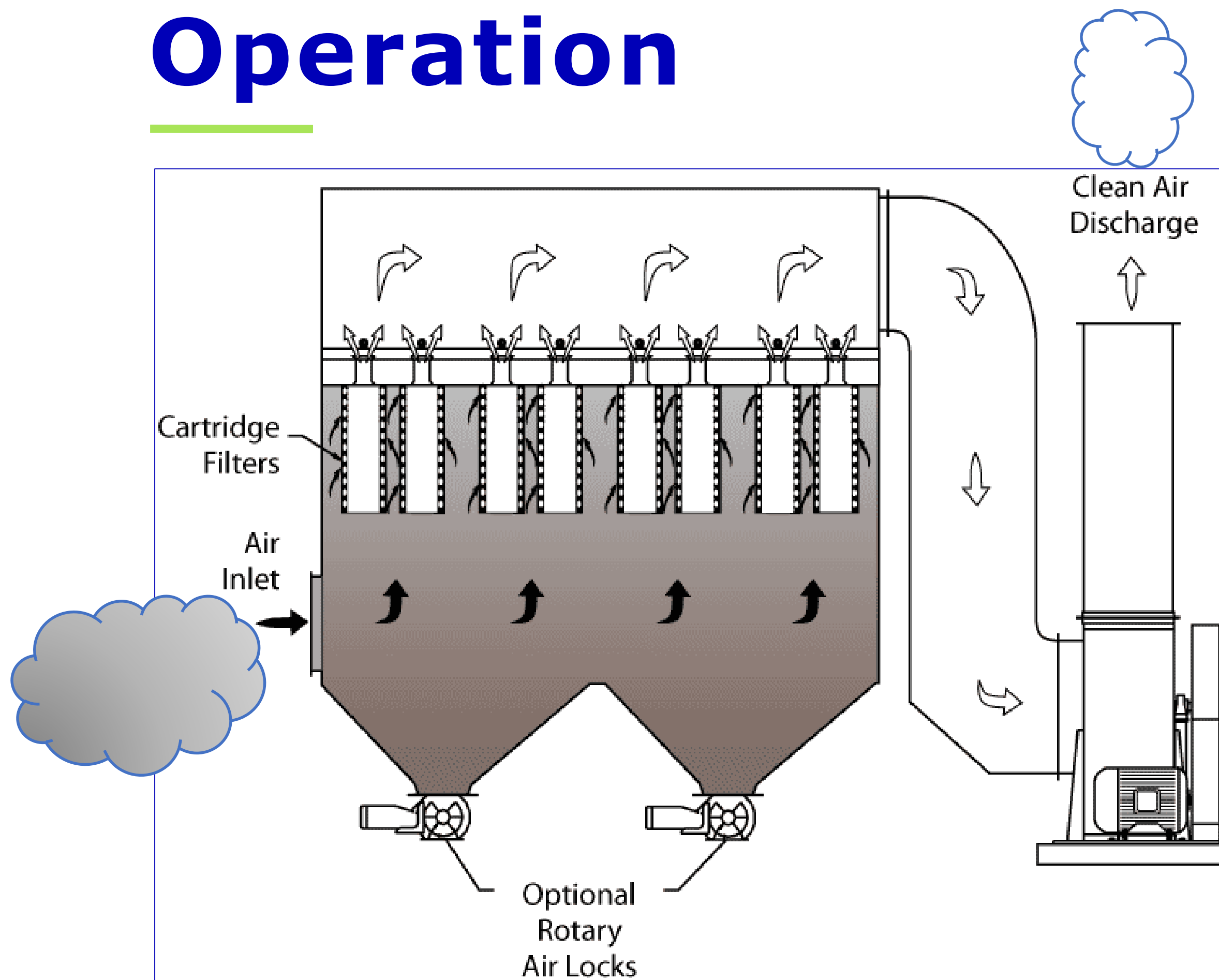
GORE LOW DRAG Filter Membrane





# Dust Collectors

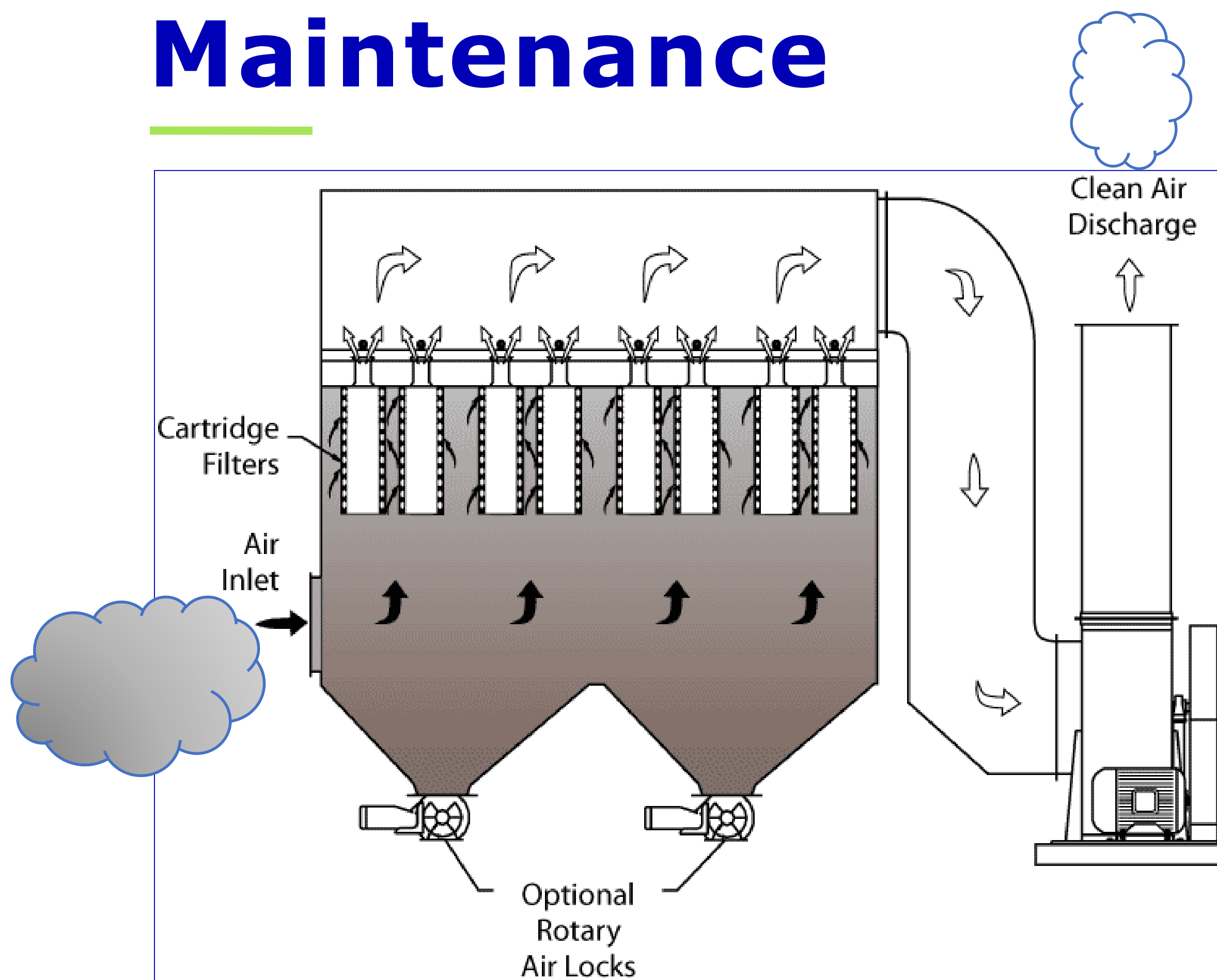
## Operation



- Dust collectors on site are interlocked to the equipment that they service. Ie. If the belt stops moving underneath a dust collector, the collector will stop. Similarly, if a dust collector has issues and will stop, the belt will also stop.
- Baghouses have pulsing valves located at the filter outlets that are used to remove the buildup of dust off the bags to be collected and injected back into the system.
- If operational issues are noted creating potential for an increase in dust emissions then St Marys Cement will first examine the equipment being serviced for modifications, then it will look at the dust collector for changes to be made in the pulse rate or flow rate of the blower.

# Dust Collectors

## Maintenance



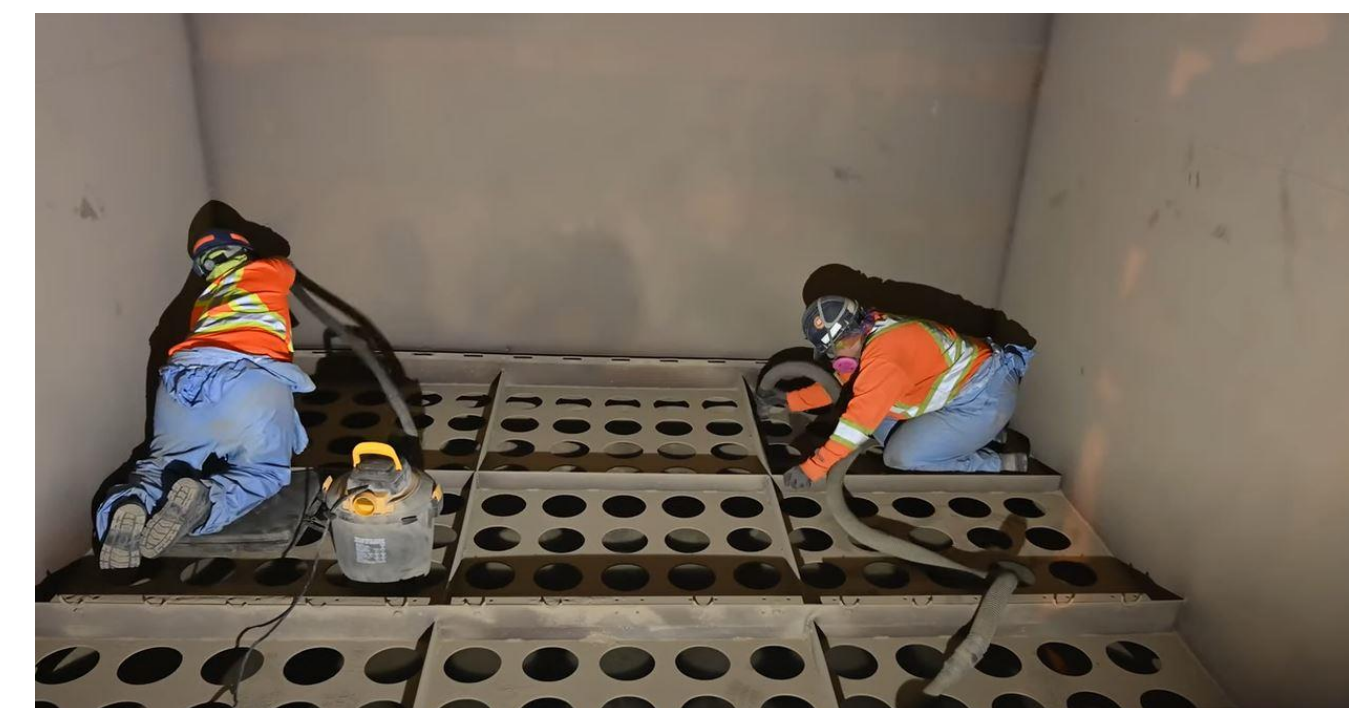
- If operational modifications cannot be made to improve the performance of the baghouse then maintenance will be done as required.
- Maintenance can include replacing the cartridge filters, replacing the fans, or modifying baffles within the housing to streamline air flow.
- Preventative maintenance is also done regularly on baghouses for measuring and confirming that operational parameters are verified and recorded as required.
- A dust collector must be designed, operated, and maintained properly for optimal dust collection results.



# Main Baghouse

## Operations and Maintenance

- The largest baghouse on site is the Main Baghouse, which processes 300,000m<sup>3</sup>/hour
- There are 12 different compartments in the main baghouse with 274 bags in each, totaling 3288 bags.
- Maintenance and inspection can be done on the main bag house during production, however bag replacement is typically done during a shutdown period.
- To replace the bags in the baghouse each one needs to be removed from the tube sheet. Each bag is removed from the cages, a new one is put on, and
- The baghouse is continuously monitored for a variety of parameters including
  - Flow
  - Temperature In
  - Temperature Out
  - Oxygen Content
  - Differential Pressure
  - Dust concentration on the outlet





# Questions



# Questions Brought Forward in Advance

To Kara, St. Marys Cement Plant and the Community Liaison Committee

It has now been almost 900 days since I began asking for relief from the unbearable vibrations bombarding my home and unavoidably me within my home. I do not understand why it would be thought that I would be putting myself out there if it was that I had a dislike for what the plant was doing. It is not a dislike, it is about the pain! It is about my health, both physical and mental. I am physically ill from the constant shaking. My head hurts, my heart hurts, my eyes hurt, my stomach feels ill, my ears burn and I have constant ringing in my ears. I live in hope that someone will understand and get to the bottom of this insidious condition that is causing the whole of St. Marys to vibrate. To vibrate through distorting the air and to vibrate the ground beneath. There must be in today's day and age an instrument that could measure what my human body can detect. There must be. My husband and I spent many hours driving around to see if there was another possible source, because there is a source. A 1800 ft house can not vibrate on its own. We drove and recorded, and when other plants were not running, but St. Marys Cement was, the vibrations existed. On the flip side, in February of 2021 when the Cement Plant was shut down for three weeks, my head went quiet. I believe very strongly that there is a connection between the operation of the Cement plant and the pain I am being forced to live with. I am not the only one who has developed constant ringing in the ear, I know of another frustrated person who has lived here her whole life and has only experienced the constant ringing since the extension of the tower. I am not the only one who has felt the vibration in the ground. What about the babies and toddlers who can't speak for themselves and might be experiencing headaches like myself? I wake up in the middle of the night with such a feeling of illness that I don't know how I'm going to make it through til morning. Please come talk to me.

Very Sincerely Barb Reinwald

# Questions Brought Forward in Advance

To the Resident;

We acknowledge that you are experiencing discomfort and have health concerns. As per previous presentations and discussions, SMC encourages residents to bring their medical concerns to their primary care providers.

SMC has provided resources and best available technology for testing which was conducted at the resident's home and has not detected any noise or vibration that is attributable to St Marys Cement Plant. In addition the facility monitors all blasts performed in the quarry and has numerous vibration analysis monitors on site monitoring the process.

The facility has been shut down several times over the last few years and one of those times it was noted that the vibration was still present. As a result this and of the testing (of which reports have been shared with the resident), no correlation to St Marys Cement has been found.

The Community Liaison Committee was established as a way to discuss concerns of residents regarding Cement Plant operations. If other residents in town have concerns they wish to bring to the Committee or the plant they are encouraged to do so, as the plant has always strived to maintain open dialogue with residents.

Regards,

St Marys Cement



# Questions Brought Forward in Advance

Would it be possible to get a year end summary of all the projects, what was the goal on each and where we stand?

Obviously not all the plant projects, just the noise, odour, dust, etc. that sort.

If items were not resolved, why and what we can expect in 2023.

Status	
<b>Odour</b>	Enviro-Suite and Nasal Ranger presentation
<b>Noise</b>	SMC is reviewing the requirements for Main ID fan Noise Abatement. 4 Other silencers have been installed on site for Phase 3, and more will be installed over the upcoming months.
<b>Dust</b>	SMC conducts ongoing dust control monitoring and improvements as required. As an initiative for dust improvement SMC is examining modifications that can be done to the main baghouse.
<b>General Projects</b>	SMC is installing a new roll crusher and a new hot gas system which will allow for improved efficiency on the finish mill system. The Alternative Low Carbon Fuels Permit (which was submitted on March 31 <sup>st</sup> , 2022) is still pending with the MECP.
<b>Year End</b>	2022 was a very successful year at the plant as sales were high and production ran smoothly.



# Round Table



**For any Questions or Concerns related to  
St Marys Cement Plant Operations please  
contact**

**Kara Terpstra – Environmental Manager  
at 519-284-1020 x 235  
or at  
[kara.terpstra@vcimentos.com](mailto:kara.terpstra@vcimentos.com)**

