

AT A MEETING OF THE NEW RIVER RESOURCE AUTHORITY  
HELD ON WEDNESDAY, MAY 24, 2023, AT NOON,  
NRRRA ADMINISTRATION BUILDING,  
DUBLIN, VIRGINIA:

- PRESENT: Mr. Paul Baker, Chairman  
Mr. Steve Fijalkowski, Vice-Chairman  
Mr. Robert Asbury, Secretary  
Mr. Dirk Compton, Member  
Mr. Barry Helms, Member  
Mr. Tye Kirkner, Member (until 1:04 pm)  
Mr. Tom Starnes, Member  
Mr. Jonathan Sweet, Member
- STAFF: Mr. Joseph Levine, NRRRA Executive Director  
Ms. Marjorie Atkins, NRRRA Recording Secretary  
Mr. David Rupe, NRRRA Administrative & Compliance Manager  
Mr. Howard Estes, NRRRA Legal Counsel  
Ms. Sherry Johnson, NRRRA Administrative Assistant  
Ms. Monica Furrow, NRRRA Administrative Assistant  
Mr. Michael Strickland, NRRRA Equipment Operator
- GUESTS: Mr. Brian Tew, Thompson & Litton, Inc.  
Mr. Brandon Atkins, Thompson & Litton, Inc.  
Ms. Edith Hampton, Town of Dublin (until 1:04 pm)  
Mr. Bob Dick, SCS Engineers  
Ms. Quinn Bernier, SCS Engineers

Chairman Baker called the meeting to order.

The motion to approve the May 24, 2023, agenda was made by Mr. Helms. The motion was seconded by Mr. Starnes and approved by a recorded roll call vote of the Authority as follows:

Mr. Asbury	<u>yes</u>	Mr. Kirkner	<u>yes</u>
Mr. Compton	<u>yes</u>	Mr. Starnes	<u>yes</u>
Mr. Fijalkowski	<u>yes</u>	Mr. Sweet	<u>yes</u>
Mr. Helms	<u>yes</u>	Mr. Baker	<u>yes</u>

Mr. Levine recognized Mr. Strickland for five years of service with NRRRA.

The motion to approve the minutes of the April 26, 2023, Board Meeting, as presented, was made by Mr. Fijalkowski. The motion was seconded by Mr. Compton and approved by a recorded roll call vote of the Authority as follows:

Mr. Asbury	<u>yes</u>	Mr. Kirkner	<u>yes</u>
Mr. Compton	<u>yes</u>	Mr. Starnes	<u>yes</u>
Mr. Fijalkowski	<u>yes</u>	Mr. Sweet	<u>yes</u>
Mr. Helms	<u>yes</u>	Mr. Baker	<u>yes</u>

No Old Business was presented on the agenda.

New Business and Administrative Items included Items of Consent.

The Check List for the month of April 2023 was included in the agenda.

The motion to approve the Check List for the month of April was made by Mr. Helms. The motion was seconded by Mr. Asbury and approved by a recorded roll call vote of the Authority as follows:

Mr. Asbury	<u>yes</u>	Mr. Kirkner	<u>yes</u>
Mr. Compton	<u>yes</u>	Mr. Starnes	<u>yes</u>
Mr. Fijalkowski	<u>yes</u>	Mr. Sweet	<u>no</u>
Mr. Helms	<u>yes</u>	Mr. Baker	<u>yes</u>

The draft Financial Statements for April were presented. Mr. Levine noted that the revenues were 37% above projections and that the expenses were 15% below projections.

The motion to approve the draft Financial Statements for April, as presented was made by Mr. Starnes. The motion was seconded by Mr. Sweet and approved by a recorded roll call vote of the Authority as follows:

Mr. Asbury	<u>yes</u>	Mr. Kirkner	<u>yes</u>
Mr. Compton	<u>yes</u>	Mr. Starnes	<u>yes</u>
Mr. Fijalkowski	<u>yes</u>	Mr. Sweet	<u>yes</u>
Mr. Helms	<u>yes</u>	Mr. Baker	<u>yes</u>

The motion to approve Area D Pay Request 32 in the amount of \$37,265.00 was made by Mr. Asbury. The motion was seconded by Mr. Helms and approved by a recorded roll call vote of the Authority as follows:

Mr. Asbury	<u>yes</u>	Mr. Kirkner	<u>yes</u>
Mr. Compton	<u>yes</u>	Mr. Starnes	<u>yes</u>
Mr. Fijalkowski	<u>yes</u>	Mr. Sweet	<u>yes</u>
Mr. Helms	<u>yes</u>	Mr. Baker	<u>yes</u>

Mr. Levine referenced the Saturday tonnage analysis. Tonnage received on Saturdays averages sixty to sixty-five tons. Four hundred tons were needed to pay expenses incurred for opening on Saturdays. Following discussion regarding the impacts to members, the item was tabled until the next meeting.

Mr. Levine presented the Executive Director's report. 14,532.80 tons of waste was managed in April. On April 20, Mr. Eddie Shelton with VRSA conducted a safety inspection of the facility. April 27, NRRRA, with assistance from Labella, submitted the annual groundwater monitoring report to DEQ. The annual recycling rate was forty-one percent. Mr. Levine reported that Area D was operational and had been receiving waste for approximately two weeks. Mechanical issues with the Bomag compactor were reported at the last meeting. The repairs to the compactor had been completed. On May 2, Nichole Tilley with DEQ conducted site inspections at Ingles Mountain and NRSWMF. A report from the inspection had not been received. On May 10, Floyd County toured the site.

Mr. Levine presented the Engineering Section of the Agenda.

Mr. Tew reported that the Certificate to Operate Area D had been received. The litter fence project will begin when all the poles are delivered.

Mr. Levine corrected the report in April that the Authority had sold 85,000 carbon credits; it was 80,000 and would be reported in the SCS presentation.

Mr. Dick and Ms. Bernier presented information on carbon credits, landfill gas (LFG) and green house gas (GHG). A copy of this presentation is attached to these minutes. Mr. Dick noted that SCS had been a consultant for NRRRA for twenty years, primarily for landfill gas. The Authority remained eligible to sell credits because its gas system is voluntary. Five-year periodic testing is required, and the next sampling (2025) results could be over the threshold and place the Authority into mandatory landfill gas collection. SCS recommended that the Authority increase allocations and savings for future LFG related endeavors. SCS will keep the Authority updated on the latest industry news and standards including PFAS in leachate and gas emissions, organics diversions, renewable natural gas and the escalation of closure and post closure costs. Mr. Dick discussed the City of Bristol landfill and the problems with its landfill. The landfill has been ordered closed by DEQ.

Mr. Asbury asked if the Authority was relying too much on scientific predictions for how long liabilities last, for example, leachate and fugitive gases, to be a liability to the landfill? Mr. Dick answered, yes, what had been relied on for scientific modeling and research that would consider the amount of trash and type and how long it would take to decay and produce gas and leachate was changing with new technology. Now satellites and drones are being used to model how much is being emitted. Mr. Asbury stated that he thought that the best way to do things in the past would change as more information was gathered, as more empirical information became available. Mr. Dick answered yes and the best advice to the Authority would be to stay adaptable. Mr. Asbury stated yes that the Authority could be faced with extreme liability.

Mr. Sweet asked, "Is it suffice to say that homogenizing PDR funds that we set aside for post closure liability, homogenizing that with the overall Resource Authority's post closure care funds; does that help mitigate the risk for the Authority or put the Authority at greater risk?" Mr. Levine answered that he did not quite follow the question but the reserve funds that have been established, some based on the Articles of Incorporation (\$1 million reserve funds for Ingles Mountain and NRSWMF). The Authority has reserve funds that are collecting and building so that knowns and unknowns in the future will be funded. Building the funds together allows the Authority to invest better, finance better and plan better. With merging environmental funds, the Authority still has independent "insurance policies", financial assurance and reserve funds. Mr. Asbury asked if the three original members' liability was reduced by having the Authority assume all the risk? Mr. Sweet stated that he was trying to understand the value of homogenizing approximately \$4.5 million into the overall NRRRA reserve fund and what benefit that had to individual members. Mr. Levine answered it was not individual liability it was the Authority's liability.

Mr. Estes noted that there could be residual liability for the members if the Resource Authority's resources were not adequate to secure the environmental liability. The State could pursue individual members for breach of fiduciary duties. The State would have to demonstrate a breach of fiduciary obligation or a gross negligence or mismanagement of the Authority and its resources. The purpose of creating an Authority was to preclude liability of the member jurisdictions. When questions were asked about how it would be decided the amount each Authority member would have to pay.

Mr. Levine stated that the Authority needed to plan more annually, quarterly and with budgets, long term programs and capital programs to try to plan for unknowns and have a "war chest built up" as recommended.

Mr. Levine provided the example of Waters of the US during the building of Area C, regulations and interpretations of Waters of the US and streams had changed. Nine hundred acres at NRSWMF had to be delineated, property in Floyd had to be bought and \$2 million dollars of reserve money had to be spent on the project, but the Authority did not request additional funds from the members or raise rates to fund the project. Mr. Sweet stated that he disagreed with that; he stated changing the policy regarding Pulaski, Dublin and Radford funds was a substantial shift. Mr. Levine replied that did not happen. Mr. Baker stated that the Board was not discussing those topics at this time. Mr. Sweet stated that he wanted the record to reflect that \$4.5 million of public funds were missing from the Authority.

The Chairman invited Public Comments.

No comments were presented.

Mr. Baker noted that there was no pressing business for June and that the June meeting was canceled. He noted that the next meeting would be the July 26, 2023, meeting.

Mr. Sweet requested a personnel matter be discussed at the July meeting.

Mr. Baker stated that personnel matters should be handled through the Authority's HR Department.

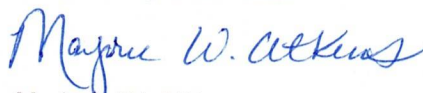
Mr. Sweet requested the Authority Board put together a Whistle Blower Policy. Mr. Estes stated that there was an existing Code of Virginia Statute that covered Authority employees. Mr. Sweet asked that the Statute be shared with all Authority employees and Board members. Mr. Estes will share the Code with staff and the Board.

The meeting was adjourned by consensus.

The meeting adjourned at 1:18 pm.

The next scheduled meeting of the Authority is scheduled for Wednesday, July 26, 2023, 12:00, NOON at 7100 Cloyd's Mountain Road.

Respectfully Submitted,



Marjorie W. Atkins  
NRRRA Recording Secretary

Approved at 7/26/2023 Board Meeting.

Paul Baker

Paul Baker, Chairman

Robert P. Asbury Jr.

Robert P. Asbury, Secretary



**CLIMATE  
ACTION  
RESERVE**

# NRRA

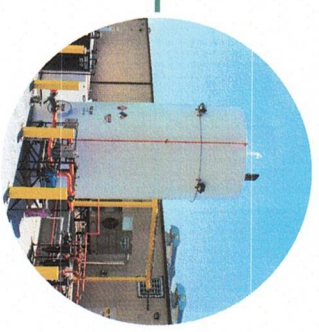
## Landfill Gas Carbon Credit Update

5/24/23

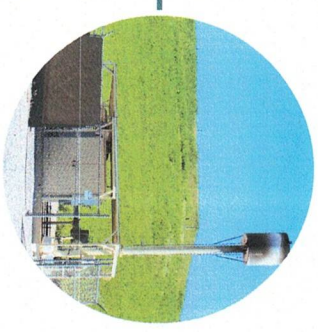


**SCS ENGINEERS**

# LFG Destruction at NRRA Landfill



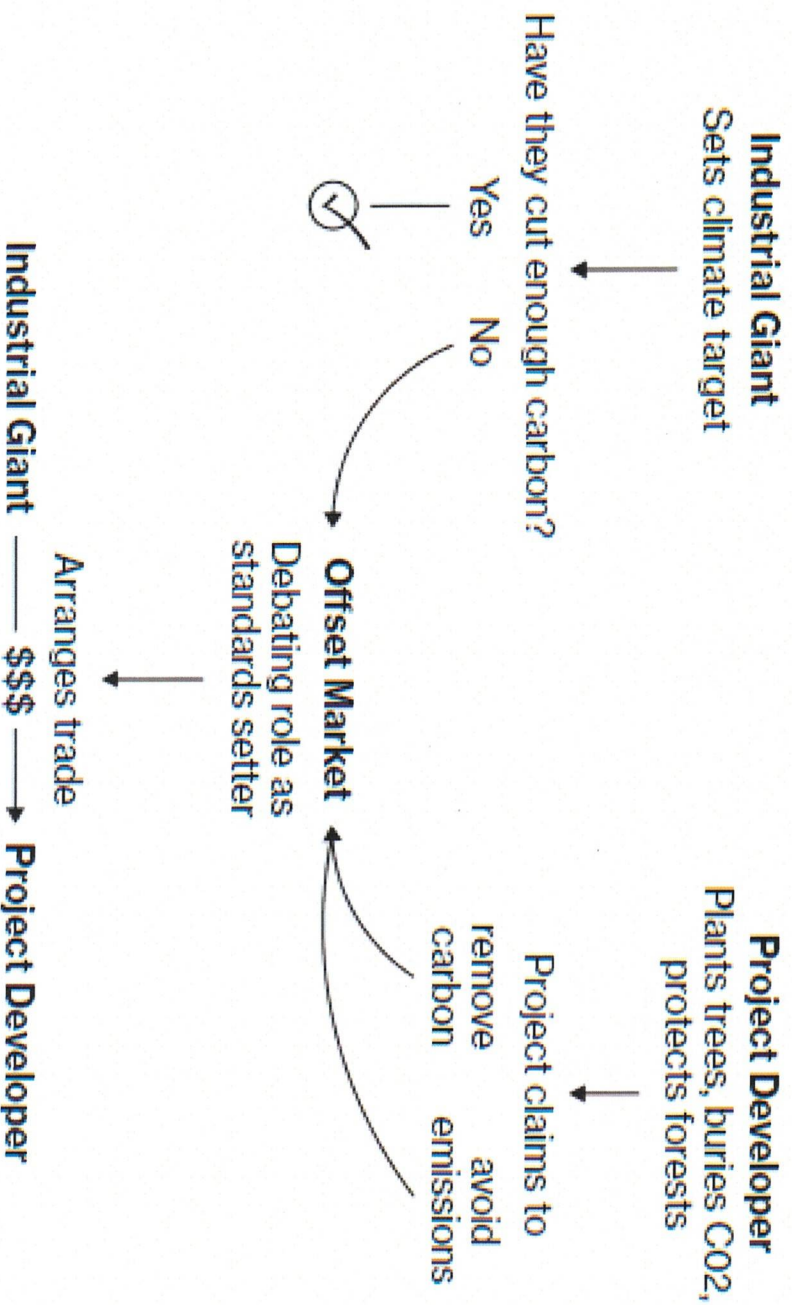
Power  
Generation



Flare

# What is a Carbon Credit?

- Unit of CO<sub>2</sub> equivalent (GHG potential)



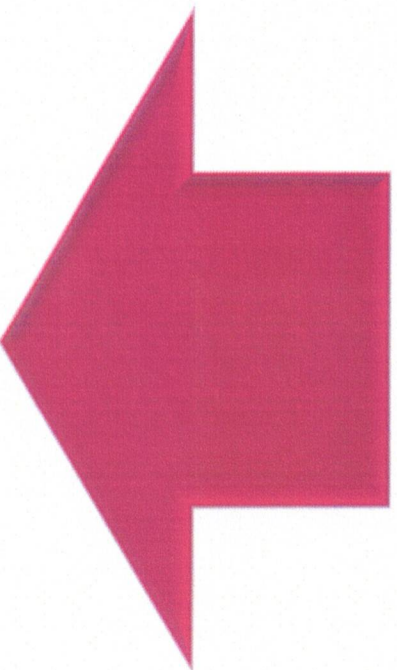
<https://www.bloomberg.com/news/features/2021-06-02/carbon-offsets-new-100-billion-market-faces-disputes-over-trading-rules>



# Crediting Process

1. Registration
2. Monitoring Plan + Routine O&M/Data Gathering
3. Build Report (annual or biannual)
4. Third Party Verification
5. Climate Action Reserve Review/Approval
6. Distribution of Credit/Sale

# Cost-benefit Analysis

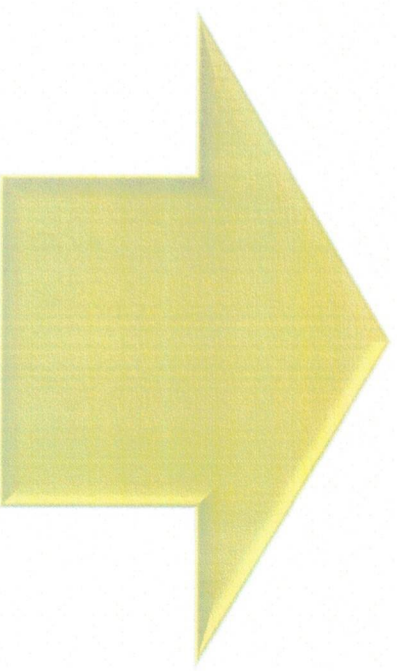


## Costs

- Additional monitoring/calibrations
- Additional infrastructure
- Verification/reporting process

## Benefits

- Credit sale revenue
- ~4 years before regulatory applicability runs out (2022-2025)



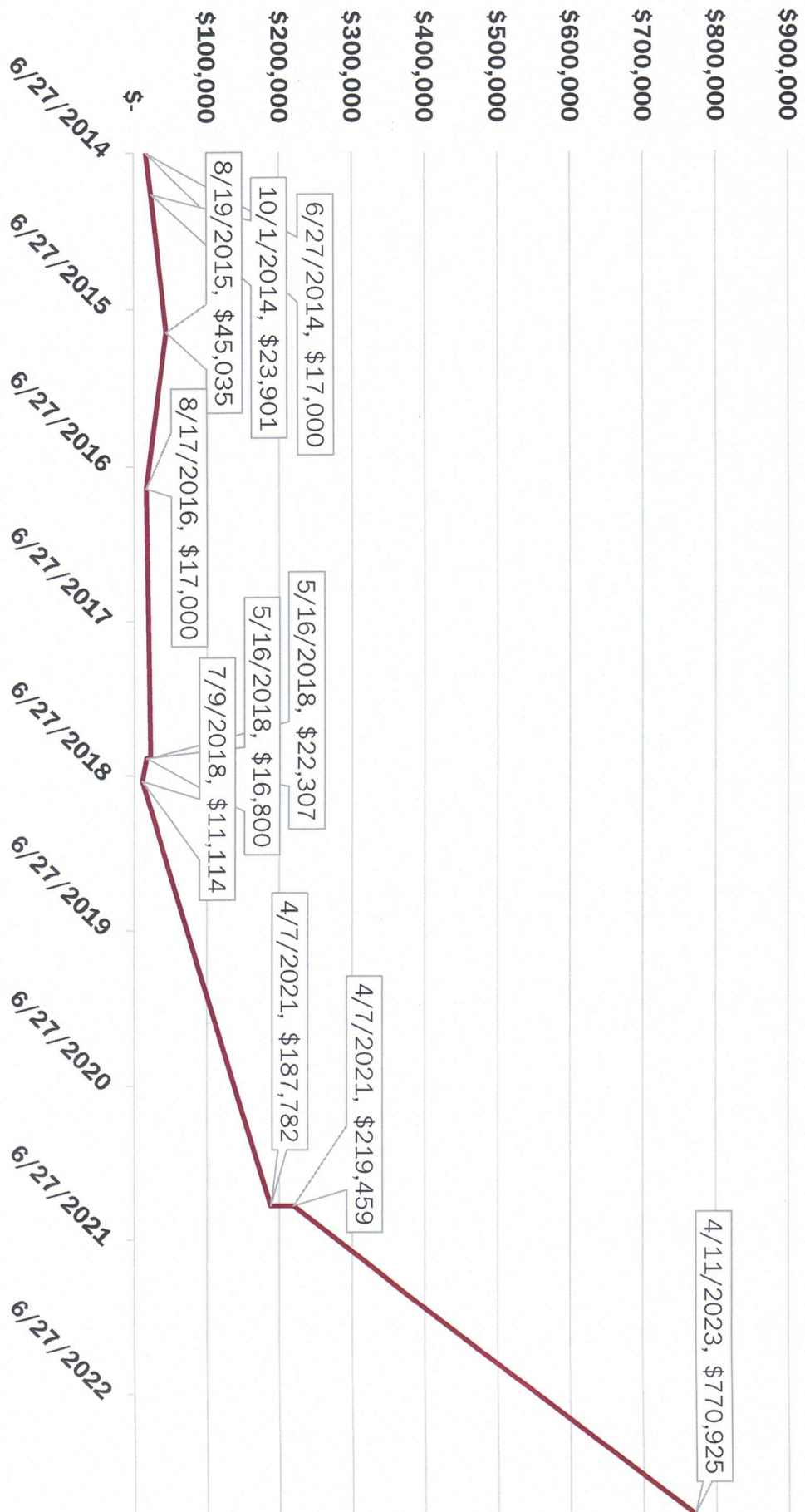


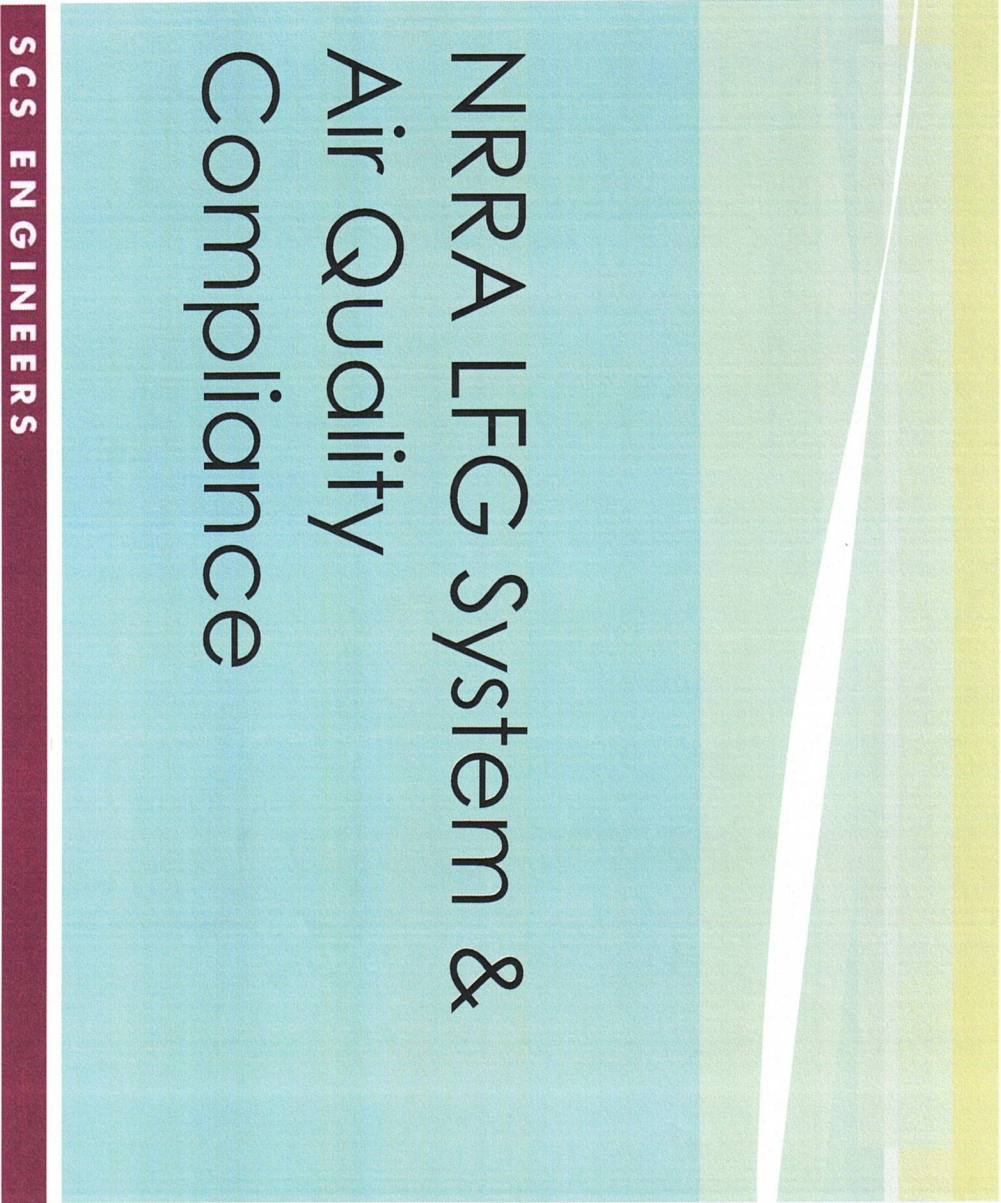
**RUBY CANYON ENVIRONMENTAL**  
 — Turning Emissions Into Assets —



<b>2021 Carbon Credits</b>	<b>81,150 CO<sub>2</sub>e</b>
<b>Total Credit Sale Price</b>	<b>\$770,925</b>
<b>Offset Program Admin Fees</b>	<b>\$18,353</b>
<b>Monitoring</b>	<b>\$0</b>
<b>3rd-Party Verification</b>	<b>\$8,000</b>
<b>Brokerage Fee</b>	<b>\$20,000</b>
<b>SCS Fee</b>	<b>\$11,000</b>
<b>Total Costs</b>	<b>\$57,353</b>
<b>Net Revenue</b>	<b>\$713,572</b>

# LFG Carbon Credit Sale Value Trend





# NRRA LFG System & Air Quality Compliance

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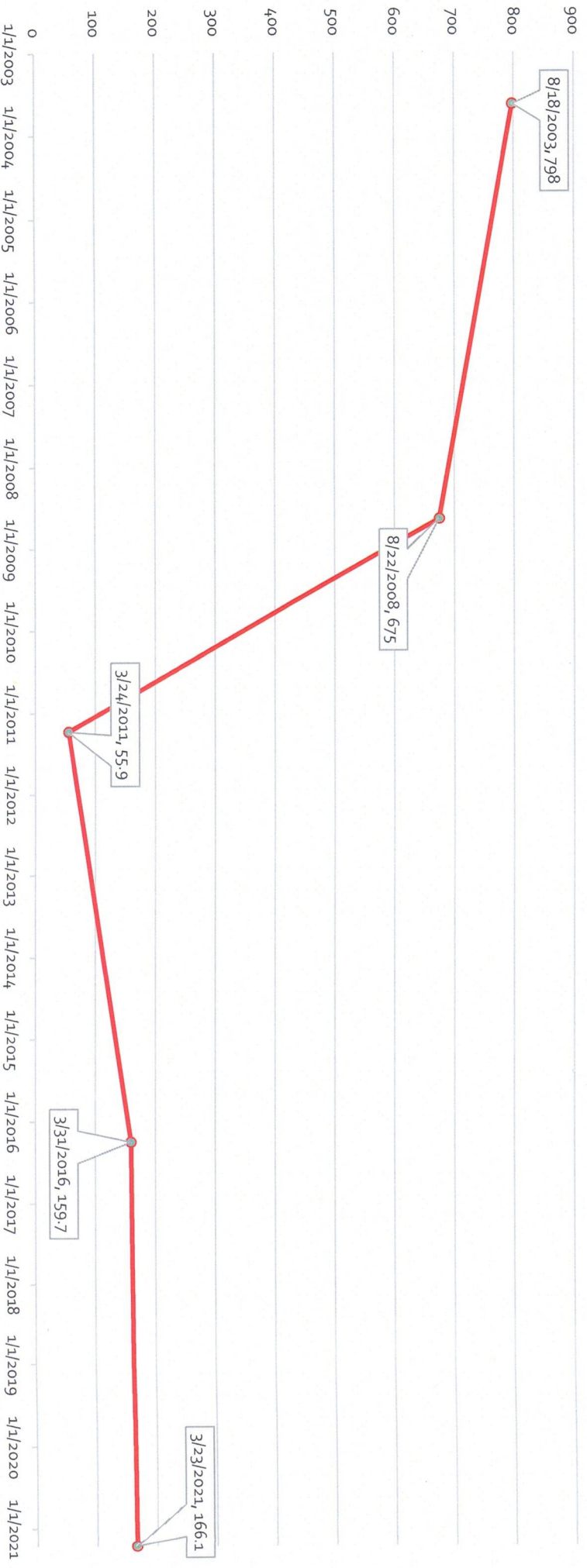
# NRRA LFG & Air Quality History & Benefits

- Periodic NMOC Sampling Since 2003
- Enabled Deferral of Mandatory LFG System for 25+ Years
- LFG system installed in 2007 (considered “voluntary” from Air Quality perspective)
- Carbon Credit Monetization under CAR Commenced in January 2008
- LFG Sales to Ingenco Commenced November 2012
- LFG-Fueled Renewable Power Generation Since January 2015

# NRRA NMOCC Concentrations

- 2021 NMOCC Concentration = 166.1 ppmv as hexane

NRRA Historical NMOCC Concentration (ppmv as Hexane)



# NRRA NMOOC Emissions

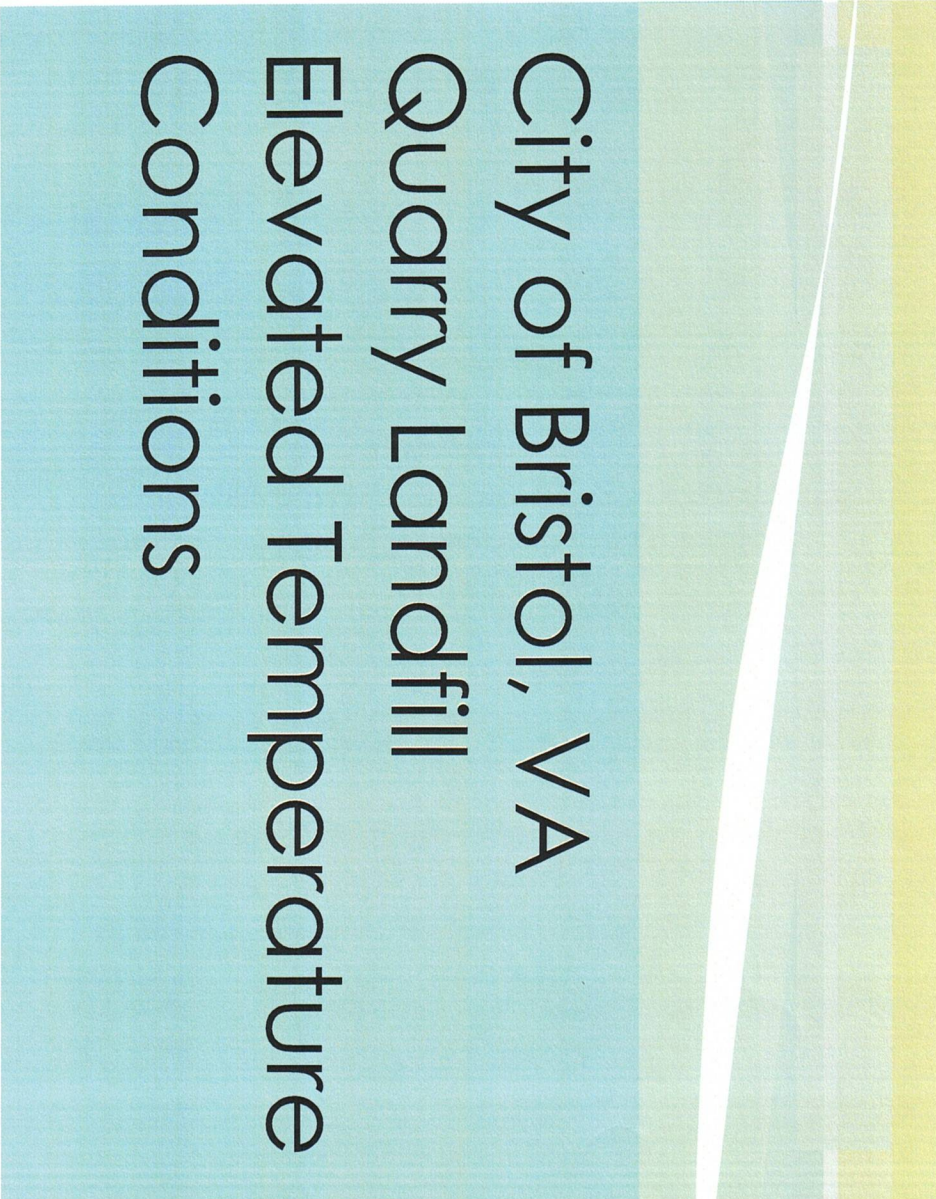
- Trigger Threshold = 34 MG/yr

Year	Refuse In-Place on Jan. 1 (U.S. tons)	Refuse In-Place on Jan. 1 (Mg)	NMOOC Emissions (Mg/yr)
2021	3,507,771	3,182,196	19.9
2022	3,695,007	3,352,054	20.6
2023	3,900,966	3,538,897	21.5
2024	4,127,521	3,744,424	22.5
2025	4,376,732	3,970,504	23.6
2026	4,650,863	4,219,192	24.9



# NRRA LFG & Air Quality Future Actions

- LFG Collection System Expansion
- LFG Blower/Flare Station Improvements / Replacement
- Costs for CAA-Mandated LFG System Infrastructure, Monitoring, Reporting, & Recordkeeping are **SIGNIFICANT**
- SCS Advocates that NRRA Increase Allocations & Savings for Future LFG-Related Endeavors... Build Your "War Chest" Now!



City of Bristol, VA  
Quarry Landfill  
Elevated Temperature  
Conditions

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# Ortho Site Photo



# ETLF Common Characteristics

- Large, Deep Waste Mass
- Wet Waste Mass
  - Saturated (> “field capacity”)
  - Perched leachate levels
- Insufficient extraction of fluids (gas & liquids)
- Heat Accumulation
- Triggering Event
  - Aluminum Dross or Metals Waste
  - Slope Failure (“slide”)
  - MSW Incinerator or CCB Ash = Ash Hydration / Carbonization
  - Others are Undetermined...Just Typical MSW

# Classic ETLF Symptoms

- Elevated subsurface and LFG wellhead temperatures (>170 F)
  - **Both ETLF and SSO**
- Poor LFG quality (low methane)
  - **Both ETLF and SSO**
- Inverted CH<sub>4</sub>:CO<sub>2</sub> ratios (<1.0)
  - **Both ETLF and SSO**
- H<sub>2</sub> Concentration > Non-Detect
  - **Strictly ETLF, not SSO**

# Classic ETLF Symptoms

- Dramatic and pronounced settlement (not necessarily rapid localized subsidence)
  - **Settlement is ETLF; Rapid localized settlement is typically SSO**
- Pressurized liquids
  - **Atypical for SSO**
- Unique atypical odors
  - **Either ETLF or SSO**
  - **“Chemical” Odor vs. “Burning” Odor**

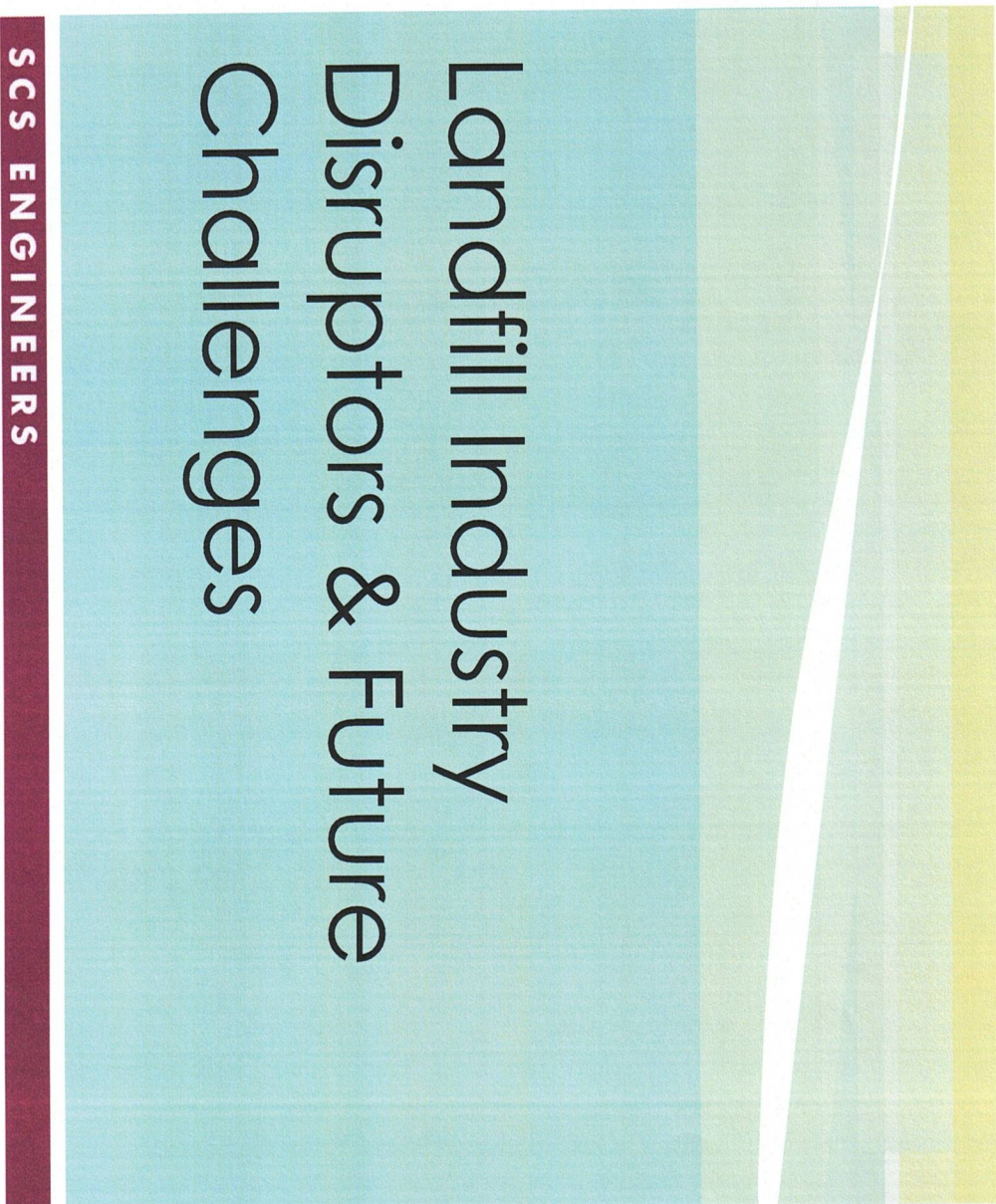
# Site Photo



# Well Drilling Photo







# Landfill Industry Disruptors & Future Challenges

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# LF Industry Disruptors & Challenges

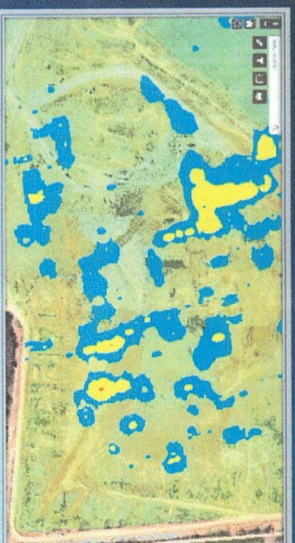
- Elevated Temperature Landfills
- Methane Emissions Mapping
- Low-Altitude Imaging
- High-Altitude Imaging

## SnifferDRONE™ for Methane Emission Studies


- Automated tool for collecting comprehensive methane emissions data helpful to:
- Better identify overall methane emissions over landfill site
  - Isolate leak locations that may also emit odor causing gases
  - Improve gas collection via design and O&M improvements
  - Prepare for increased methane emissions scrutiny



- Consistent monitoring pathways
- Complete project traversal



Heat maps for  
dispersion modeling



# LF Industry Disruptors & Challenges

- PFAS in Leachate (& LFG Emissions)
- Organics Diversion
- RNG under the RFS & LCFS
- Escalation of Closure & Post-Closure Costs

**NRRA**  
**PUBLIC COMMENT**  
**REGISTRATION**  
**MAY 24, 2023**

Please register below if you wish to speak during the “Public Comment” portion of the Agenda. Speakers are limited to five minutes.

**NAME:** \_\_\_\_\_ **ADDRESS:** \_\_\_\_\_ **PHONE OR EMAIL:** \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

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