

# Fenimore Landfill

## Roxbury Township, NJ

### *The Failures, Issues, Concerns, and History*



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## Executive Summary

Fenimore Landfill, like the Rahway River Landfill, was a “fill and cap” project using contaminated soil, construction and demolition screenings, and other types of fill. When capped with Processed Dredge Material (PDM), it was to create a “proper cap.” Fenimore Landfill was also designated for redevelopment as a solar farm (part of New Jersey’s efforts to convert landfills and brownfields to solar farms).

Fenimore Landfill, located on Mountain Road in Roxbury Township, NJ accepted municipal trash from 1950 until 1979. The site was never formally closed or capped, but was tested throughout the years after it closed. A site investigation in 1993 resulted in its removal from the U.S. Environmental Protection Agency (EPA) national priorities list. In 2005, a subsequent investigation by the NJ Department of Environmental Protection (DEP) concluded that the site posed no threat to the environment or to human health.

In 2011, the NJ DEP suddenly declared the site a brownfield in order to obtain a Highlands Council waiver and approval for the development of a solar farm project. The new landfill owner, Strategic Environmental Partners (SEP) obtained approval by the NJ DEP via an Administrative Consent Order (ACO) to accept approximately 1.2 million cubic yards of fill material including Construction & Demolition (C&D) debris in order to level the land for the solar panels and fund the operation by collecting “tipping” fee’s. The C&D material contains wallboard and the sulfates in the wallboard are currently decomposing and emitting hydrogen sulfide gas (H<sub>2</sub>S). This toxic gas has been polluting the township of Roxbury and surrounding communities since November 2012.

Approximately 950 school children live within one mile of the landfill and hundreds of residents live with within a few hundred feet of the landfill. Acute H<sub>2</sub>S concentrations have been measured on town monitors in excess of safe limits set by the EPA and the Agency for Toxic Substances and Disease Registry (ATSDR). Area schools have also been affected with recurring acute exposure.

Many residents and children in the community are experiencing health issues such as headaches, nausea, respiratory issues and increased asthma attacks since the H<sub>2</sub>S problem started. Some children are being sent home from school after exposure on their bus stops and en route to school. Bus drivers have noted a significant increase in the number of bloody noses on their school busses. A few residents have more severe symptoms that have developed and are being treated at Environmental Health & Toxicology Clinics. The daily rotten egg odors resulted in a large impact to quality of life and enjoyment of property.

In June 2013, the NJ DEP took over the site from the landfill owner by issuing an Emergency Order. Initially, they tried multiple remedies (a posi-shell cap and solar spark flares) to control the gas emissions which failed. Now, they have installed large industrial equipment including a scrubber and oxidizer to treat the hydrogen sulfide gas (H<sub>2</sub>S) which produces Sulfur Dioxide as its by product. A beautiful, rural town is being turned into an industrial area and property values have severely declined resulting in large economic impacts to area residents and businesses.

In the Fall of 2013, an independent air-quality test, paid for by donations made to the Roxbury Environmental Action Coalition (R.E.A.C.T.), was performed by the same laboratory used by the NJ Department of Health to test air quality in Roxbury schools at the time, suggested issues with the Department of Health's school testing for sulfur compounds. The test also indicated a strong presence of formaldehyde which was detected at one hundred times over the NJ DEP long term health benchmark and approaching the 8-hour Reference Exposure Level set by the Office of Environmental Health Hazard Assessment (OEHHA). Low levels of exposure to formaldehyde can cause eye irritation and asthma-like respiratory symptoms. Formaldehyde is a known human carcinogen.

While the industrial scrubber and oxidizer have reduced H<sub>2</sub>S odors in the area, the town remains exposed to low levels of toxic gas *in excess of EPA safe chronic health values* as documented in a letter sent by the NJ DOH to the Township of Roxbury on February 4, 2014.

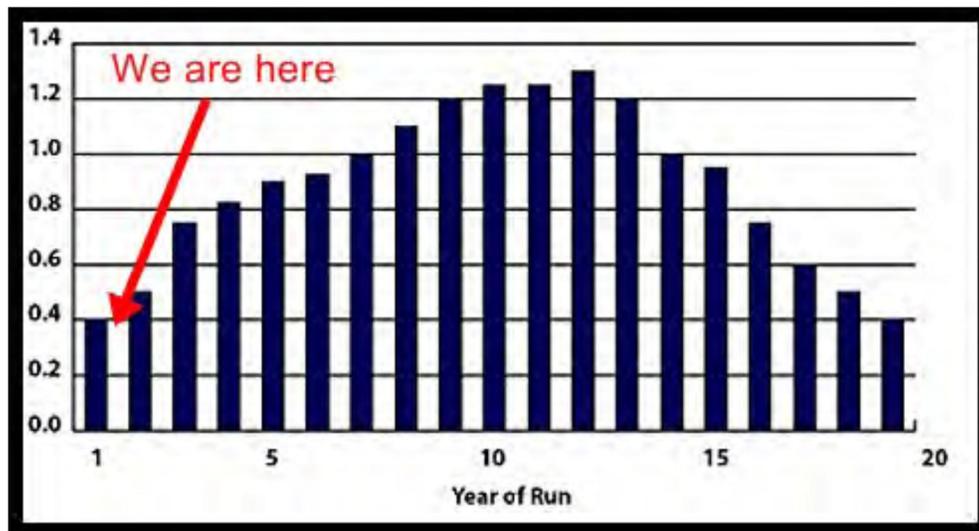
The NY/NJ Baykeepers are right to raise concern about the Rahway River Landfill project, especially if concerns about the project's impacts or potential issues are being ignored. There IS a pattern with the Christie administration, and something smells even worse than the "lightly contaminated" soil the administration approves for dumping at these sites.

## Toxic Emissions

Even though it is known that wallboard decomposing to form H<sub>2</sub>S gas was dumped at the site, and that asbestos was also discovered at the site, nobody knows exactly what was dumped during the re-opening of Fenimore Landfill.

- *Hydrogen Sulfide* or H<sub>2</sub>S is formed by the decomposition of sulfates contained in wallboard.
- H<sub>2</sub>S is a poisonous gas with a characteristic odor of rotten eggs.
- Exposure to low concentrations causes:
  - Irritation to eyes, nose, and throat
  - Headaches & Nose Bleeds
  - Nausea
  - Difficulty breathing for asthmatics
- From February 2013 to present, town monitoring stations measure H<sub>2</sub>S levels in residential areas up to 1,100 ppb.
- 60 minute averages have been as high as 500 ppb.
- Concentrations on the landfill have been measured at greater than 187,000 ppb which is dangerous to human life.
- Area schools have kept children indoors from gym and recess to avoid exposure.

- H<sub>2</sub>S exposure guidelines:
  - The California EPA set an exposure level of 30 ppb for one hour to protect against adverse health effects.
  - The US EPA set a chronic exposure level of 1 ppb over long periods to protect sensitive people such as children, the elderly, and asthmatics.
  - The ATSDR set an acute Minimum Risk Level of 20 ppb for H<sub>2</sub>S exposure.
  - The NYS DEC has an acute air quality standard of 10 ppb over one hour to protect the public from interference with comfortable enjoyment of life and property.
  - The World Health Organization (WHO 1981) advises ambient concentration levels should not exceed 5 ppb for 30 minutes to avoid nuisance odor.
- The amount of H<sub>2</sub>S gas generated will increase for the first 10 years:



**Hydrogen Sulfide (H<sub>2</sub>S) Gas Emission Over Time**

## Key Issues

- The Fenimore Landfill project created multiple public health, safety, and other issues:
  - Trucks filled with construction debris including Superstorm Sandy debris, asbestos, and other potentially contaminated material residential streets (Asbestos was discovered in some of the incoming material in July 2012).
  - Families, including children and pets, are being exposed to toxic gas at levels above EPA-stated guidelines for chronic exposure.
  - Parents are unable to protect their children from what's in the air.
  - Parents are sending children to school without assurance that the environment is safe for bus transportation or at the schools.
  - Town council members are frustrated and have repeatedly stated that the Fenimore Landfill project was “shoved down our throats” by the NJ DEP.
- The Fenimore Landfill botched project is costing NJ taxpayers millions. The State may pursue similar projects on over 800 New Jersey closed landfills and an estimated 10,000 brownfields (“NJ landfills, brownfields emerge as new frontier for solar farms,” Alexi Friedman; The Star-Ledger; May 26, 2013)
- The mismanagement and missteps by the Christie administration are numerous:
  - The designation of the site as a brownfield – even though it was not a brownfield – was sudden and did not follow protocol.
  - NJ DEP entered into agreements with a former Federal Felon (convicted of bribing a local official) even though State law prohibits convicted criminals from operating landfills in NJ.
  - The DEP authorized debris known to cause poisonous gas emissions with no provisions for mitigation included in the agreements other than controlling odors with daily cover.
  - The DEP and DOH refused to hold a public meeting in Roxbury despite requests from residents and a resolution issued by the town council until recently when the DEP announced it will come to Roxbury to present their long-term solution on March 11, 2014. The DOH has yet to come to Roxbury to talk to residents with health concerns.
  - Governor Christie and Lt. Governor Guadagno avoid the area, cancelling nearby appearances.
  - Governor Christie has publicly stated that there's no reason for him to come to Roxbury; that he's not an engineer so there's nothing he could do to fix the problem even if he did come (although expertise in home construction or boardwalk construction didn't preclude him from repeatedly visiting shore towns).
  - The DOH refuses to visit Roxbury and perform a health survey and has not responded to hundreds and hundreds of calls and letters about the situation.

- A DEP spokesperson, Lawrence Ragonese, stated that the DEP would never again speak to a media outlet (my9News) because the news agency continued to air stories about Fenimore and the DEP's mishandling of it ("[Roxbury Runaround From DEP](#);" Bill Anderson; my9NJ; November 13, 2013).
- The DEP commonly attributes high readings of H<sub>2</sub>S gas to malfunctioning equipment or to sources other than the landfill (such as a water plant as far away as Pennsylvania). During the weekend of January 24, 2014, an H<sub>2</sub>S monitor spiked to 2,500 ppb which was attributed to a malfunctioning monitor. After the monitor was replaced, the same H<sub>2</sub>S monitor showed 21,000 ppb on February 5, 2014. As stated by Dr. Tierney, Superintendent of Roxbury Public Schools, "We all know where the H<sub>2</sub>S is coming from." Prior to the DEP takeover of the site in June 2013, the integrity of these monitors were never called into question by the DEP or Roxbury Twp. Officials
- NJ DEP continues to ignore a town council request for a side-by-side comparison of the long-term options for the site including an option to truck the post-2010 debris out of the site.
- The DEP has contracted with The Louis Berger Group, Inc. to develop a long-term plan for the site. The Louis Berger Group was ordered to pay over \$60 million in criminal and civil penalties in 2010 for business misconduct and fraud on federal overseas contracts. The Louis Berger Group was also involved in the 2005 study of Fenimore Landfill that determined that the site posed no immediate environmental concern.
- The DEP is not allowing independent experts (hired by the town), one of which has vast experience with C&D landfills to complete bore samplings on the site
- The DEP continues to dismiss a resident petition and the town's request to truck the post-2010 material out of the site which would solve the problem forever. The DEP hasn't been receptive to this option due to cost. They also claim that it would be too dangerous an operation, exposing residents to even higher levels of toxins. *These claims are not true and have been easily proven false.*
- The DEP has been unable to abate the gas to non-chronic exposure levels. With its most recent mitigation equipment (the scrubber and flare stack), the community now monitors exposure to sulfur dioxide (SO<sub>2</sub> or "acid rain") in addition to hydrogen sulfide (H<sub>2</sub>S). The equipment on the site currently generates 7,000 gallons of contaminated wastewater per day that must be trucked offsite.
- The DEP has been unable to abate the H<sub>2</sub>S gas to non-chronic exposure levels. While the industrial scrubber and oxidizer have reduced H<sub>2</sub>S odors in the area, the town remains exposed to low levels of toxic gas *in excess of EPA safe chronic health values.*

## Open Questions

- The volume of H<sub>2</sub>S gas will increase with time.
  - What will happen during power outages when the scrubber goes down?
  - Will residents have to depend on live monitors and the threat of an evacuation for the next 10-20 years as the exposure potential worsens?
- Who will be responsible for maintaining and funding operation of the mitigation equipment? How will they be able to afford it if the landfill is closed and bringing in no revenue?
- Does the DEP guarantee funding for the operation and maintenance of the equipment, as well as air monitoring, for as long as necessary? Will the cost fall to the town (resident taxes) if the landfill owner abandons the site?
- The newest lawsuit brought by the State against SEP demands that SEP appoint a receiver to complete the capping project.
  - Is this suggesting that dumping will re-commence on the remaining acres of the site?
  - Is this how the DEP plans to enable the landfill owner to afford the operation and maintenance of the mitigation equipment?
- Who will pay for residents diminished property values now that industrial equipment and smoke plumes will exist hundreds of feet from homes? How is this better than the dormant, wooded site that existed prior to this failed project?
- Where is the scrubber waste going to be dumped?
- Most C&D landfills pre-treat the incoming gas to remove H<sub>2</sub>S because it is very corrosive to metal.
  - Why is an SO<sub>2</sub> scrubber being used instead of an H<sub>2</sub>S scrubber?
  - By using a downstream SO<sub>2</sub> scrubber, won't the result be increased maintenance and more frequent replacement of equipment?
- The scrubber and flare system can only destroy the gas that the collection system is able to collect. Currently only 9 collection wells are predominantly located on one section of the site that accounts for less than 10-20% of the total area.
  - Who will drill additional wells as the remainder of the material starts to decompose? Who will pay for it?
  - Why isn't the DEP installing the proper piping matrix now that covers the entire area of the site so the issue is prevented later on?

- The DEP keeps saying that removing the material is not practical but we have yet to see a side-by-side cost and logistics comparison.
  - When will this be available?
- When will the DOH hold a public meeting in Roxbury?
- Why did the NJ DEP ignore its own 2005 findings (which The Louis Berger Group was also involved in) and declare the site a brownfield in 2011 so that the project could obtain a Highlands Council waiver and be approved?
- Governor Christie was quoted in the Star Ledger and on NJ101.5 saying, “SEP broke the law in terms of the things they brought in there.”
  - What materials is the Governor referring to?
- The DEP fact sheet from September 24, 2013, states that only C&D debris and solid waste was found during excavation of the gas collection wells. The fact sheet goes on to say that additional bore sampling may occur when maintenance of the landfill cap is required.
  - Why isn't more core sampling being conducted if there is reason to believe that unauthorized materials were brought in?
- What is the purpose of the canister testing that occurred in the schools?
  - If the wind direction isn't right and the odor isn't present, of course the test isn't going to detect anything. This gives parents and teachers a false sense of security.
    - When will 24/7 monitors be installed in the schools to investigate the maximum exposure potential?
- Is Governor Christie's administration only trying to cover their own inexplicable mismanagement of the situation or was corruption present in the process?
  - Residents cry for a full investigation have gone unheeded.
  - What happened at Fenimore Landfill (and continues to happen) may not have scandal tied to it that's easy to uncover, but even without an “obvious” scandal:
    - Isn't a total disregard for public health and safety by the very agencies charged with protecting them scandal enough?
    - Isn't the physical, environmental, and economic destruction of a once-lovely town recognized as one of the 2011 America's Promise Alliance 100 best communities for young people – scandal enough?
    - Isn't the devastating impact to individuals in the community – which may be far worse than being jeopardized in retaliatory traffic jams – scandal enough?

## Detailed Timeline

- **1950s – 1979:** Fenimore Landfill active until the site was closed in 1979.
- The site was tested and found to be safe multiple times after closure:
  - 1982: Internal and external springs and water sources test acceptable.
  - 1993: EPA removes Fenimore site from its National priorities list.
  - 1995: Roxbury Health Department tests surface water. No trouble found.
  - 2001: Roxbury Health Department tests drinking water near the site. No trouble found.
  - 2005: The NJ DEP commissions an assessment (IEC) of the site, and the site is determined to be no threat to the environment or human health. The test results state the following:
    - “Based on the results of the potable well, surface water, sediment, leachate and soil gas samples collected, no conditions were found at the site that pose an acute, direct threat to human health. Accordingly, this Site does not pose an Environmental Concern (IEC) as defined by NJDEP.”
- **1979 – 2011:** In 30+ years, grass and mature trees formed and residential neighborhoods were built on both sides of the closed landfill site.
- **February 2010:** “Disturbance” permits are issued to SEP as the land owners (even though they did not own the land yet).
- **January 2011:** The ownership of the site is transferred to SEP (Marilyn Bernardi) from Sussex & Warren Holding Corporation.
- **February 2011:** DEP letter to SEP designates the site as a brownfield.
- **October 2011:** Administrative Consent Order (ACO) is finalized between the DEP and SEP, and a Highlands Waiver is signed removing protection from the site so it can be redeveloped. Fill materials allowed include recyclable masonry brick, block and glass, water treatment plant residue, chipped tires, Construction and Demolition (C&D) screenings, construction site fill, and materials obtained from Areas of Concern (AOC) as defined in the NJDEP Technical Requirements at N.J.A.C. 7:26B et seq. “Area of concern” means any location where contaminants are or were known or suspected to have been discharged, generated, manufactured, refined, transported, stored, handled, treated, or disposed, or where contaminants have or may have migrated.
- **December 2011:** 50 to 100 trucks per day begin roaring down quiet, residential streets carrying capping material.

- **May 2012:** DEP files motion to revoke permits and terminate the project due to non-conformance of commercial requirements. The DEP termination letter lists the following ACO non-compliance:
  - SEP's Financial Plan submittals have failed to demonstrate that it has secured sufficient funding to ensure completion of the landfill closure
  - SEP has not deposited money into the established escrow account as required
  - SEP has not provided the Department with an executed contract [with solar developer] as required
  - SEP has not timely provided the Department with comprehensive reports [of material accepted at the site and daily logs of work] as required
  - SEP has not complied by providing a financial summary detailing the revenues received...and expenditures associated with the landfill
- **July 2012:** Asbestos is detected in newly dumped material at the site. DEP files a cease and desist order to stop SEP operations.
- **July 27, 2012:** Judge Deanne M. Wilson puts the case on the calendar and reschedules it for 8/24, 12/7, 12/14, and then 12/21. DEP has the option to fine SEP up to \$50K per day and restrict what SEP can dump, but they do nothing.
- **October 2012:** Hydrogen Sulfide ("rotten eggs") odor begins to plague residents.
- **November 30, 2012:** DEP Commissioner Bob Martin calls for an emergency hearing to discuss odors for December 5, 2012. Judge Wilson postpones judgment until December 10<sup>th</sup> at which time she gives SEP until close of business on December 12<sup>th</sup> to cover the site.
- **December 12, 2012:** Judge Wilson visits the site which has been covered. She takes no further action even though the site and surrounding towns still smell.
- **January 2013:** DEP report measures ambient H<sub>2</sub>S levels and deems them a hazard to public health. Schools issue Honeywell alert.
- **January 2013:** Residents file class action lawsuit against SEP.
- **February 2013:** Roxbury (at its own expense) installs monitors to measure the hydrogen sulfide gas levels in residential neighborhoods.
- **March 2013:** Citizens advisory group, Roxbury Action Coalition (R.E.A.C.T.) is formed.
- **May 2013:** Hundreds of calls and letters were sent to the NJ DOH asking for guidance on potential health impacts, and to hold a public meeting. 150 residents attend Senate hearing to educate Senate on landfill issues.

- **June 2013:** Governor Christie signs S-2861 into law and DEP takes control of the site via an Emergency Order.
- **June – September 2013:** DEP attempts to resolve H<sub>2</sub>S and odor problem without success.
- **August 2013 – present:** REACT petitions NJDEP to truck out post 2012 material. To date over 2,400 signatures.
- **August 2013:** REACT has rally at Horseshoe Lake in Roxbury. 400+ people attend.
- **September 2013:** DOH issues fact sheet on H<sub>2</sub>S and claims no long term health impacts. Residents submit petition to truck out the post-2010 debris – the H<sub>2</sub>S-generating material.
- **Early October 2013:** [Small scrubber up and running at Fenimore dump in Roxbury.](#)
- **October 2013:** Independent tests funded by donations to the Roxbury Environmental Coalition (REACT) are performed by the same laboratory used by the NJ DOH for testing in the schools. Test results suggest issues with DOH school testing for sulfur compounds, and they also indicate a strong presence of formaldehyde – a known human carcinogen.
- **October 2013:** Phone/Email campaign to Governor Christie, NJDEP, and NJDOH generate hundreds of phone calls and close to a thousand emails.
- **November 2013:** REACT Rally in Trenton in front of NJ Statehouse and NJDEP offices demanding they truck the material out of Fenimore. Over 50 attendees.
- **December 2013:** [Custom Scrubber begins 24/7 operations on 12/12/2013.](#)

# Photos

