**Essential Research Skills**

**Topic**: Saratoga Biochar Solutions

**Essential Question:** Should the DEC approve permits for Saratoga Biochar Solutions to convert Municipal Sewage Sludge into Biochar fertilizer in Moreau Industrial Park?

[“Residents continue to push back against Saratoga Biochar Project”](https://www.youtube.com/watch?v=etgi4HyTRMw&t=5s)

Over the past few years, you may have heard about the battle happening in Moreau, just to our west, over the Hudson River. A new company by the name Saratoga Biochar Solutions submitted an application to the Town of Moreau planning board three years ago requesting a permit to set up their factory in the Moreau Industrial park. The company wishes to convert 15% of New York States ***sewage sludge*** into a ***biochar fertilizer*** using a process called pyrolysis. This process has never been successfully completed at full scale in the United States and therefore, has community members concerned. Not only is its location right next to the Hudson River, it is also very close to residents of the Town of Moreau, Fort Edward, Glens Falls and Hudson Falls.

This week you will hone your research skills as you go on an interactive quest to uncover the truth about Saratoga Biochar Solutions and its claims to an environmentally friendly process. What research do they have to support their claims? Is their information reliable? Can we ever know if their process is safe and environmentally friendly?

End your week by sending your questions and concerns by mail or email to the director of Region 5 at the DEC, Erin Burns. Compile all of your research together to make a claim about the viability of this project and whether or not you think it should be granted the permits it needs from the Department of Environmental Conservation to move forward with its plan. Support your claim with three pieces of evidence from your research and your reasoning for why the evidence supports your claim.

Thank you for your participation in this project and good luck. Please reach out to us if you have any questions.

Best Regards,

Hands off the Hudson

<http://handsoffthehudson.org>

**Day 1: Getting Familiar with the Problem (RW)**

Let's start our journey with an exploration of what sewage sludge is and why New York State is in desperate need of a way to manage it. Read the following two articles: **What is Wastewater and Why Treat it?** **EPA** and **Basic Information about Sewage Sludge.** Take notes in the space below about some of the dangers of wastewater/sewage sludge when it is not treated properly and about the other problems it poses.

| [**Wastewater**](https://docs.google.com/document/d/1CIfA5ahxLiioWqGg6XsWBE-cKKa0a51-ezmsxllPBFc/edit) | [**Sewage Sludge**](https://docs.google.com/document/d/18YvQLpIfXmdhw_q0Tg9alo_truteufkVHdHWeCwW6UQ/edit) |
| --- | --- |
| **Summary**: | **Summary:** |
| **Key Word and Definitions:** | **Key Word and Definitions:** |
| **Questions:** | **Questions:** |

**Day 1: Getting Familiar with the Process (S)**

In March of 2023, Saratoga Biochar held Public Information Sessions in Hudson Falls, to help clarify its proposed process and answer questions from the community. Locate the full recordings at [**https://saratogabiochar.com/public-participation-meeting-march-2023/**](https://saratogabiochar.com/public-participation-meeting-march-2023/)

During each meeting, Saratoga Biochar explained the process and how they were going to use pyrolysis to heat sewage sludge, turning it into a type of Biochar Fertilizer. Watch the first 30 minutes of the video to get a better understanding of the process being proposed. What are some of the proposed benefits of using Sewage sludge to make biochar fertilizer?

| **Summary:** 1. Saratoga Biochar wants to set up a Carbon Fertilizer Facility in Moreau Industrial Park. They will receive wastewater. They have submitted applications to the DEC. They are located within 2 miles of Hudson Falls which is a Disadvantaged Community due past pollution.

2.3.4.5.**Key Terms and Definitions:****What are some of the proposed benefits of using Sewage sludge to make biochar fertilizer?** |
| --- |

Explore the website to gather three additional findings about what the company says it is capable of doing. Look particularly closely at the FAQ’s section to see frequently asked questions and the answers provided. Here is the link to Saratoga Biochar website: <https://saratogabiochar.com/>

| **Summary:****Key Terms and Definitions:****Questions and Concerns** |
| --- |

**Day 2: Analyzing Sources (RW)**

As with any research, it is important to analyze the sources from which information is being derived. When navigating through Saratoga Biochars resources, <https://saratogabiochar.com/resources/> you will see many types of sources.

| **What sources do you trust and why?** |
| --- |

Whenever possible, we should get our information from independent sources that are not tied to the franchise. Resources are made available, however, when reading through each separate article, not one of them is in specific regards to the process Saratoga Biochar is proposing.

| **What concerns or questions arise in light of this analysis of the sources?** |
| --- |

**Day 2: Getting Familiar with the Company (S)**

Meet the faces of Saratoga Biochar through this interactive quest to better understand the executive boards background and qualifications. Locate the about section on the Saratoga Biochar Website, <https://northeasternbiochar.com/about/>

**Use google to see if you can verify the information listed on their website.**

| **Raymond Apy** | **Bryce Meeker** | **Lee Wulfekuhle** |
| --- | --- | --- |
|  |  |  |

**Investigative Report:**

Further investigative reporting brought many issues with the executive board's background, read the article using this link <https://poststar.com/news/local/the-cleanup-crew-leaders-behind-controversial-ny-biochar-business-have-ties-to-troubled-nebraska-ethanol/article_569bdb78-7523-11ed-8d0d-7b4d376faf5d.html> and summarize your findings in the space below.

| **Summary:****Key Terms and Definitions:****Questions and Concerns:**  |
| --- |

**Day 3: Getting Familiar with the Location (RW)**

In this section, you will explore how far the Saratoga Biochar facility would be from where you live and then research the pollutants that it will be emitting from its smoke stacks. End your day by asking questions and posing your concerns about your proximity to the facility.

Open your browser and ask google for a map of where Moreau Industrial Park is located. If possible, switch to the satellite image of the area.

1. Zoom out until you can see where your residents are located or use the navigation on the right to enter your address for directions.
2. Next, take a screenshot of the map and paste it in the space below.
3. Use a scrap piece of paper to mark the distance from point A to point B as a straight line. Mark the scale in the bottom right on another scrap sheet of paper and estimate the distance between the two points.

| [insert map here] |
| --- |
| **Questions and Concerns:** |

**Day 3: Getting Familiar with the Locations Pollution (RW)**

Go to the website [https://www.handsoffthehudson.org/](https://www.handsoffthehudson.org/moreau-biochar.html) and navigate to the Moreau Biochar page to find ways to build maps of our area that illustrate not only our denotation as Disadvantaged Community but also all of the current big polluters in our region. You can also choose layers that show where current clean up efforts are underway and where past decontamination has been attempted.

1. Pay close attention to Title V. factories, these are big polluters in the state. Click on their information links to see what they are emitting into the air that we are already breathing everyday.
2. You also have the ability to select all of the current and past clean up efforts as the DEC and EPA work to contain or remove contaminants from past polluters like General Electric who dumped millions of gallons of PCBs into Hudson Falls’ water, air, and soil.
3. When you are done building your map, take a screenshot and paste it in the space below.

|  |
| --- |
| **Summary:****Key Terms and Definitions:****Questions and Concerns:** |

**Day 3: Getting Familiar with Emissions (S)**

Now let's look at what the facility will be emitting into the air and its potential impacts on human health and the environment.

Navigate to the following document, available on the Town of Moreau's Website:

<https://www.townofmoreau.org/Planning%20Board%20Supporting%20Docs/2022-03-31%20Saratoga%20Biochar%20Moreau%20Air%20Facility%20Permit%20Updated.pdf>

Whoa! There is a lot of information, but we bypass much of it so that we can just focus on the particles and chemicals that the company will be emitting into the air. Find four emissions that you would like to research further. Once you have a list of emissions, use google to locate reliable sources explaining the impacts each of the contaminants has on human health or the health of the environment.

| **Emission** | **Impact on Humans or the Environment** |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
| **Summary:****Questions and Concerns:** |

**Day 4: Current State of Health (RW)**

Now that we have all of the information we need about the problem, we need to layer it on top of our already existing problem with human health in our area. The Department of Health issued a Report in 2018 listing Warren County (primarily Glens Falls) as the top cancer county in the entire state. You can read the report using this link:

<https://www.health.ny.gov/diseases/cancer/docs/warren_executive_summary_2019.pdf>

| **Summary:****Key Terms and Definitions:****Questions and Concerns:**  |
| --- |

After the report was issued, the Department of Health (DOH) explained the results as an outcome of poor diet and lifestyle. Over the years, many experts questioned the legitimacy of these claims. Just by looking at a map of the area, it is clear that the Glens Falls/Hudson Falls region is inundated with pollution. Current big polluters like the Title V. factories you found on the DEC map, and past polluters like GE who dumped millions of tons of PCB’s into the river and soil for over 50 years. PCB’s continue to be an issue as they continue to leak from the foundations at the Fenemore dam, and clean up efforts proved unsuccessful. Read more about the impact industrialization has had on our community and summarize impressions below.

**Day 4 and 5 : Writing your Letter (S)**

It is important to think about the reader of your letter and their perspective so that you can make the most of your first impression. Review any information about the application process that has already been completed using the resources provided on the Town of Moreau’s website by scrolling down to the bottom of the page: <https://www.townofmoreau.org/planningboard_agenda.asp>

1. Start by stating your claim about whether or not you think the DEC should approve the permits for Saratoga Biochar.
2. Support your claim by using the information you have gathered this week.
3. As you explain each of your concerns or questions, anticipate the response that Saratoga Biochar would have to answer your question and provide evidence as to why you might not value the information they provide.
4. Remember to cite your sources as you go. Copy and paste links to websites you used to gather information and include a summary as to the reliability of the sources.
5. End your letter by restating your claim and briefly summarizing your evidence and reasoning.

**Peer Review**

Don’t send your letter off just yet! The last and one of the most important steps in your research process is a thorough peer review. Find a partner and send your email to them. As they read through your letter, ask them to clarify any questions they have and point out any grammatical errors that should be corrected. Ask them what they think was the strongest part of the letter and how you could improve any parts that are confusing or weak. Once they are done revising, have them send it back and have your teacher take one final look before sending it to the Regional Director of the DEC to be entered as public comment in the hearing for Saratoga Biochar Permit Approval!

**Rubric for Letter**

| **Essential Research Skills Culminating Letter Rubric** | **Somewhat** | **Consistently** | **Yes!** |
| --- | --- | --- | --- |
| Content: Academic Vocabulary & Sources | Letter includes definitions and explanations of at least FIVE vocabulary words related to your topic. At least THREE sources used from research shows an understanding of important ideas and issues |  |  |  |
| Content: Images & Graphics | The letter is effective balance between the visuals (images and graphs) and written information. Images are neat and appealing. All font is easy to read. Any graphic elements (colors, arrows, shapes, etc.) interest the reader and draw attention to important information (not distract from it). |  |  |  |
| Organization: Structure & Organization | The format is structured to make the ideas and information easier to understand and organized; like ideas are grouped together Information is labeled or titled as necessary. |  |  |  |
| Conventions: Grammar, Usage, and Mechanics | The basic conventions have been edited for; capitalization, usage, punctuation, spelling, |  |  |  |
| Works Cited | Included a Works Cited page for all sourcesIncluded in-text citations to show which information was borrowed from each source. |  |  |  |