



Oregon Applied Sustainability Experience

2021 Host Business Project Descriptions

****NOTE:** Due to the evolving COVID-19 situation, all projects are subject to change or cancellation without notice. For the latest updates please check back frequently at <https://seagrant.oregonstate.edu/OASE/> **

1. Willamette Falls Paper Company; West Linn, OR
2. Pacific Seafood; Newport, OR – 2 POSITIONS
3. Tofurky; Hood River, OR
4. TE Connectivity; Wilsonville, OR
5. Boeing; Portland, OR

1. Willamette Falls Paper Company

Willamette Falls Paper Company (WFPC) produces nearly 100,000 tons of paper each year. Our final products come in the form of large rolls of paper that might weigh a ton and be four feet in diameter. These rolls are sold to converters that produce final products for consumers. The "legacy grades" utilize bleached fibers and include clay-coated papers, offset, and envelope papers. The consumer products one might see from these would include magazines, election mailings, and business envelopes. Our exciting new "packaging and specialty grades" utilize recycled fiber that is largely unbleached (brown). The consumer products one might see from these would include brown bags, restaurant service takeout, masking tape backing, and food wrap.

How will these projects support the industry mission and goals?

WFPC takes great pride in both its sustainability practices and adherence to emission standards for both air and water.

The primary project (Boiler Optimization and Emissions Control) will provide us a more complete understanding of how boiler operations, and burner configuration specifically, correlates to emissions of the key pollutants nitrogen oxides (NOx) and carbon monoxide (CO). These pollutants are measured periodically by an external company and used to confirm our compliance with emissions standards. As an example, a recent study showed our NOx emissions varying by almost two orders of magnitude for unknown reasons. This project will help us reduce, then maintain, both low concentrations (ppm) and emissions (lb/hr) of both NOx and CO. It will also produce modifications to operations manuals to ensure continued lower emissions.

The secondary (The Effect of Paper Recycling on Waste Water Clarification) seeks to preemptively address a potential environmental challenge. Historically, our wastewater treatment process has been largely concerned with fiber and clay coating materials that escape the process and must be removed in the water treatment plant. Our new packaging and specialty paper grades, however, utilize large amounts of recycle paper from boxes and bags. This recycled paper, as one can begin to understand by looking into their co-mingled recycled bin, has contamination that must be removed. That contamination includes plastics and adhesives. Similar to unintentional loss of fiber and clay coating, we need to understand whether these plastics are escaping and how to measure it (in lb/hr).

Projects goals and outcome

Primary: Boiler Optimization and Emissions Control

WFPC uses two natural gas boilers to generate steam for use in papermaking. Key boiler performance parameters include efficiency and emissions control (CO and NOx). These boilers are believed to be running sub-optimally, particularly as it pertains to fuel nozzle configuration and operation. The Sustainability Intern will understand and model boiler operations and process, understand and experiment with key boiler process parameters, and communicate and execute recommended changes in boiler operation to improve efficiency and emissions control. As appropriate, the Intern may also build process monitoring outputs to better inform operators and engineers.

Secondary: The Effect of Paper Recycling on Waste Water Clarification

WFPC is making exciting extensions to their product portfolio by developing paper grades in the packaging and specialties arena that utilize high percentages (even 100%) of recycled paper fiber from post-industrial waste. This recycled fiber comes with contaminants such as plastic and adhesives, and it is critical that we understand the fate of these materials in our water treatment process. The Sustainability Intern will complete a process flow chart and material balance, identify key sampling locations, develop simple tests to measure non-fiber contamination, and communicate and recommend process changes required.

OASE project details

Primary: Boiler Optimization and Emissions Control

1. Conduct background research and combustion/efficiency calculations
2. Study historical documents and studies
3. Spend copious time in boiler control room meeting operators
4. Learn how to configure and operate NO_x and CO meter(s)
5. Design systematic tests to correlate boiler operations to NO_x and CO emissions
6. Modify boiler operations manuals to reflect improved understanding
7. Investigate possible development of monitoring displays
8. Write a succinct two-page report with appendices summarizing findings

Secondary: The Effect of Paper Recycling on Waste Water Clarification

1. Conduct background research into post-industrial waste forms such as DLK and KGB
2. Spend copious time studying recycling system repulper, screening, and detrasher operations
3. Develop a methodology for measure contamination in the form of plastic, adhesive, pitch, and other
4. Complete a estimated material balance to understand fiber and contaminant pathways in the recycling process
5. Spend time understanding primary clarifier and potential sampling locations
6. Determine whether contaminants can be measured in the clarifier inlet and/or outlet streams
7. Complete a estimated material balance to understand fiber and contaminant pathways at the clarifier
8. Write a succinct two-page report with appendices summarizing findings

Tertiary: Evaluation of 2017 OASE Project Regarding Saveall

1. Read and understand previous work
2. Achieve some familiarity with relevant process equipment
3. Determine applicability to current process
4. Complete basic assessment of previous project success

Degree/Skills identified by host

Engineering

Skills, experience, and knowledge needed for this internship are as follows:

Minimum qualifications:

- Rising senior in chemical or environmental engineering
- Skilled in material balances and combustion stoichiometry
 - Socially comfortable in a manufacturing and production environment
 - Spatial awareness with a focus on safety
 - Demonstrated ability to write succinct and clear emails and short reports

Other optional qualifications:

- Familiar with the Woodburn/Mollala/Canby area communities
- Fluent in Spanish

Additional considerations

International students are eligible to apply

Student is expected to work on site, COVID protocol apply

Drug or other background testing is required

2. Pacific Seafood

Founded in 1941 by the Dulcich Family, Pacific Seafood is a family-owned and operated company dedicated to providing the healthiest protein on the planet. Pacific Seafood manages all parts of the supply chain from harvesting/fishing to processing, and distribution in order to provide customers with fresh, sustainable, high-quality products. Pacific Seafood Group is headquartered in Clackamas, Oregon. We employ more than 3,000 team members across 41 facilities in 11 states. Visit www.pacificseafood.com to learn more.

How will these projects support the industry mission and goals?

Pacific Seafood is focused on sustainability and conservation at all levels of its business operations. Two internship opportunities for 2021 are available to support these initiatives.

Project 1: Chemical types, quantities, and usage practices vary from site to site within the Pacific Seafood Group and currently, there is not a standardized, corporate management system in place to track and, ultimately, reduce and/or substitute chemicals. Project 1 will support overall conservation goals by providing the framework to manage chemical usage in a more sustainable, cost-effective, and environmentally responsible manner. Reducing or replacing toxic chemicals with less harmful alternatives, reducing overuse and spills, and responsibly managing chemicals are an integral part of meeting environmental regulations, improving the environmental impact of Pacific Seafood facilities, and potentially saving costs/energy.

Project 2: Seafood processing requires an incredible amount of fresh water to sort, clean, and process raw product into finished product. Traditionally, the seafood processing industry was not focused on minimizing water usage, especially since the industry developed along shorelines and in areas of abundant water resources. Therefore, many processes, equipment, and methods employed at facilities have developed over time without water conservation in mind. This project seeks to investigate the current methodologies, practices, and equipment used in processing and sanitation activities to identify creative solutions to minimize water usage and increase sustainable business practices.

Project goals and outcomes

Project 1: Reduce chemical usage, increase recycling and reuse of empty containers, improve chemical management and storage practices.

Project 2: Reduce water usage at processing facilities.

OASE project details

Project 1: This internship is positioned within the corporate office, working in the Environmental Health and Safety department. Some travel to processing facilities, aquaculture sites, and distribution centers in Oregon and Washington will be required. The intern will determine opportunities and return on investment for: automated dilution equipment and/or improved mixing procedures, recycling programs of empty containers, standardized

procurement of chemicals, increasing the use of bulk containers, and improving chemical storage to reduce spills and improve safety and compliance.

Project 2: This internship is located out of Newport, Oregon and will work closely with engineering, value creation, management, and EHS team members to identify major sources of water use and identify creative programmatic and/or technical solutions to prevent and reduce consumption. The intern will collaborate with and attend stakeholder meetings of the Oregon Mid Coast Water Planning Partnerships to inform their work.

Degrees identified by host

Project 1: Business/Economics/Management/Policy, Sustainability, Environmental Science, Physical Science, or related.

Project 2: Environmental/Mechanical Engineering, Environmental Science/Sustainability, Physical science, or related.

Minimum qualifications:

Project 1:

- Organizational skills
- Policy and program design and implementation
- Capable of collecting managing data
- Data analysis such as return-on-investment, usage and efficiency statistics, and process improvements to achieve desired result
- Flexible schedule; capable of attending one to two graveyard shifts for observation and data collection
- Interpersonal skills
- Strategic and creative thinking
- Research skills
- Knowledge of toxic chemicals

Project 2:

- Excellent data collection and mathematical analysis
- Coursework and/or experience in mechanical processes and design
- Strategic thinking
- Observant
- Creative problem-solver
- Self-motivated
- Interpersonal communication
- Comfortable working in wet and/or humid environments
- Knowledge of and genuine interest in water conservation

Additional considerations

International students are eligible to apply

Interns will have the opportunity to work on site in Newport and telework

The position is located in Newport Oregon where you must secure housing (if locating housing will be a challenge, please note that in your application)

When teleworking, a computer will be provided

Drug tests or other tests are required for access to the work location

Drivers license required, vehicle preferred but not required

3. The Tofurky Company

Tofurky was founded in 1983 on the principle that the current global food system is not sustainable and that nutritious protein alternatives with less inputs were needed to curb the environmental impacts of animal agriculture. Almost 40 years later, the mission remains the same - to reduce the environmental impact of our food system by making delicious plant-based foods. Furthermore, and more recently, Tofurky became a B- Corporation and is fully committed to continuously reducing and preventing our environmental impact and achieve as many of the 17, 2030 Sustainability Development Goals (SDGs) put out by the UN.

How will this project support the industry mission and goals?

As a mission-based, triple bottom line B-Corporation, sustainability is part of our ethos. Our general sustainability goals are to prevent waste (food and packaging) wherever possible, limit our energy use, thus greenhouse gas emissions, and prevent our water usage wherever possible. Finding ways to reduce or change process to prevent hazardous chemicals use needed for food safety and sanitation, is also top of mind. These projects will be an important step along our journey towards our vision of a more sustainable global food system.

Projects goals and outcome

The outcomes of both of these projects will need to be aligned to Tofurky's environmental and sustainability policy and long-term goals, and to the five UN Sustainability Development Goals (SDGs) that Tofurky has elected to pursue by 2030. In other words, your analysis, goal selection, and recommendations need to contribute to Tofurky's vision of a thriving planet, a generation of people embracing friendlier eating, and a business that is contributing to society rather than taking from it.

OASE project details

There will be two projects assigned to the OASE summer sustainability intern at The Tofurky Company. Both are to satisfy the environmental and sustainability reporting requirements of one of Tofurky's largest customers. These requirements from the food distribution system are a growing trend that is good for the planet, but a challenge for Tofurky to complete, and are designed to increase the sustainability performance of the supply chain in our food system.

Project #1 will be to complete the analysis needed to set science-based SMART goals for Project Gigaton and make recommendations to keep Tofurky on track towards achieving these goals. Using data provided to you from Tofurky's Environmental Management System (EMS) and internal teams, you will use the information and calculators provided by Project Gigaton to set these goals. Project Gigaton will provide training materials and tools needed to complete this project.

Project #2 will be to gather and analyze limited, but key information across Tofurky's value chain -- from sourcing, manufacturing, and transportation, and then benchmark our environmental and sustainability performance using The Sustainability Insight System (THE SIS) Index. Data from our manufacturing setting will be provided, but it will be up to you to determine what can be measured in our sourcing and transportation chains. Training, methodology and tools will all be provided to you from The Sustainability Consortium. After completing the analysis, you will work with our supply chain and executive teams to develop SMART goals and recommend strategies to integrate annual sustainability assessments into our operations and set Tofurky on a track to improve their THE SIS scores year over year.

Degree/Skills identified by host

Environmental Science/Sustainability, Economics/Business, Supply chain management/sustainability

Skills needed for this internship are as follows:

Minimum qualifications:

- Ability to analyze numerical data and use Excel
- Capable of accurate data collection
- Experience conducting research and writing reports
- Excellent interpersonal skills
- Communicate well verbally and in writing
- Self-directed and independent learner
- Have strong interest in sustainability and environmental protection
- Interest in preventing GHG emissions, water usage and hazardous chemical (for sanitation) use
- Understand concepts of preventing waste (pollution prevention/source reduction)

Other optional qualifications:

- Knowledge of B Corporation and LEED certification criteria
- Sustainability Development Goals (SDGs) set forth by the UN
- Basic knowledge of food manufacturing process steps (have they read The Goal?)
- Understanding of the EPA Food Recovery Hierarchy
- Understanding of SQF and FDA food production guidelines for plant-based food

Additional considerations

International students are eligible to apply

COVID-19 training required prior to on-site work

The intern will need to work on site occasionally and can telework the rest of the time

A laptop and software will be provided for teleworking

Vehicle recommended due to plant location in Hood River

The B Corporation Certification is a third-party certification administered by the non-profit B Lab, based in part on a company's verified performance on the B Impact Assessment. The benefit corporation is a legal structure for a business, like an LLC or a corporation. Benefit corporations are legally empowered to pursue positive stakeholder impact alongside profit.

4. TE Connectivity

Solutions that power electric vehicles, aircraft, digital factories, and smart homes. Innovation that enables life-saving medical care, sustainable communities, efficient utility networks, and the global communications infrastructure. For more than 75 years, we have partnered with customers to produce highly engineered connectivity and sensing products that make a connected world possible. Our focus on reliability and durability, our commitment to progress, and the unmatched range of our product portfolio enables companies large and small to turn ideas into technology that can transform how the world works and lives tomorrow.

How will this project support the industry mission and goals?

By minimizing isopropyl alcohol (IPA) usage and waste and reducing costs

Projects goals and outcome

The specific goals include understanding the quantity of IPA usage and waste throughout the plant, understanding TEC's largest waste streams, and ultimately developing equipment that will prevent excessive hazardous wastes and save costs.

OASE project details

Develop a process map highlighting usage and waste of IPA to characterize the two largest IPA waste streams in the plant. Develop equipment and process spec for regenerating 99% IPA via vapor distillation, and be able to say "this equipment will prevent XX gallons of IPA hazardous waste and save YY dollars annually."

Degree/Skills identified by host

Engineering, chemical engineering

Skills needed for this internship are as follows:

Minimum qualifications:

- completed coursework in ChemE Thermodynamics

Other optional qualifications:

- 4th year or graduate student preferred
- coursework in unit operations preferred

Additional considerations

International students are eligible to apply

Intern may work on site or remotely

Daily COVID health screening required

All PPE provided, including 2 COVID masks/day, safety glasses, gloves, and work boots

5. Boeing

Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners, defense, space and security systems, and service provider of aftermarket support. As America's biggest manufacturing exporter, the company supports airlines and U.S. and allied government customers in more than 150 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training. Boeing Portland is part of the Commercial Airplane Fabrication Division. The plant supplies parts and sub-assemblies for all the current Commercial Aircraft.

How will this project support the industry mission and goals?

Boeing's site and corporate targets include reducing hazardous waste shipped off site and reducing solid waste. By working the identified projects, the intern will assist in helping the site meet those targets.

Projects goals and outcome

Hazardous Waste - Work with chemical processing and quality assurance teams to conduct and document heat of neutralization testing precipitate generation, and other chemical reaction byproducts.

Solid waste - The intern would identify accumulation containers and solid waste containers areas to survey, develop data collection forms, assist EHS staff sorting and classifying wastes. The Boeing Portland facility currently is diverting over 99% of all solid waste from the landfill.

Blast media project- the intern would help document the current process of blast media recycling and develop a training document that to be used by new and existing employees to properly manage the blast media.

OASE project details

1. Conduct elementary neutralization chemistry study of alkaline freeze out slurry (D002) to allow for this waste to be shipped off site as non hazardous waste.
2. Complete additional alkaline soap testing for in tank neutralization previously started by OASE intern.
3. Assist with solid and hazardous waste survey to identify segregation opportunities to identify solid waste streams entering hazardous waste streams and divert recyclable wastes being placed into solid waste stream.
4. Document the spent blast media recycling process that was identified by the site's previous OASE intern

Degree/Skills identified by host

Engineering, chemical engineering, chemistry

Skills needed for this internship are as follows:

Minimum qualifications:

- 3 years of physical science or engineering courses
- Good interpersonal skills

Other optional qualifications:

- technical skills to complete the laboratory testing
- technical skills to help to interpret the testing results
- ability to draft the laboratory report

Additional considerations

US Citizens only

Combination of on site and teleworking

Computer and phone provided

Intern must pass a background check

Safety toed shoes required for access to the factory (intern must provide)

COVID masks required in all areas of the facility