Technology Talk

Converting Scrap Tires into Energy

-PARS Staff-

In the Spring/Summer 2012 “Technology Talk” section of The PARS Reporter, a sustainable Waste to Energy (W2E) technology was explained. This W2E technology is a plant that transforms any type of organic waste into diesel fuel or electricity. Recall that there are numerous acceptable feedstock for this technology, such as municipal solid waste, food residues, and plastics. In this article, we focus on the benefits of converting scrap tires—a feedstock with an extremely high BTU (British Thermal Unit) value—into energy.

One of the many pressing challenges that scrap tire management facilities must face today is to secure end markets for the tire chips they produce or the whole tires they receive. Fortunately, scrap tire market conditions have improved greatly over the past decade. According to the Recycling Research Institute, end markets were secured for 70% of the scrap tires generated in the United States. The largest end use of scrap tires continues to be as alternative fuel, also known as tire derived-fuel (TDF). Slightly less than half the scrap tires diverted to end markets were consumed as TDF. The use of scrap tires in civil engineering applications continues to grow as this end market accounts for 26% of the scrap tires diverted for recycling or reuse. Furthermore, ground rubber applications represent 17% of the market, while miscellaneous markets, such as the export and agricultural market, account for 9% of the scrap tires diverted for recycling or reuse.

While these end markets are stable, existing end markets need to be further expanded while new end markets need to be established in order to create market demand that can keep pace with the increasing scrap tire supply. The NJDEP has several market development initiatives underway that will hopefully lead to new and expanded end markets for scrap tires. For example, the NJDEP is working to promote the use of scrap tire chips in various county landfill construction applications. Thus far, Salem County has used scrap tire chips as a protective layer over the leachate collection system and as bedding for the leachate recirculation/gas collection system. While other counties are considering such civil engineering applications, no other projects are pending.

Scrap tires can be utilized more efficiently and cost-effectively by being converted to energy (diesel fuel, electricity, steam or heat) using high efficiency, state-of-the-art gasification technology.

The term Gasification basically means the thermal conversion of carbonaceous solid and non-solid waste into fuel gas, synthesis gas or producer gas using direct and/or indirect heating source(s). Various gasification technologies can employ little (sub stoichiometric) or no oxygen, depending on the desired quality of the fuel or synthesis gas.

Generally speaking, gasification technologies produce more energy than incineration. The generation of nitrogen oxides is also substantially less due to the reduced oxidation requirements. Gasification also generates less carbon dioxide (CO₂) emissions; this is especially true in the conversion of synthesis gas into hydrocarbons (diesel fuel/paraffin). The potential for halogenated dioxins is greatly reduced due to the absence of oxygen.

Pars Hosts Special Program

On June 21, PARS conducted a workshop on Federal Government contracting and programs for small businesses. The main topics of discussion were the new Women-Owned Small Business Program, the Economically Disadvantaged Women-Owned Small Business Program, the HubZone program, and the 8(a) certification program. Mr. Sanford Gerber, an 8(a) Business Development Specialist for the U.S. Small Business Administration, was the keynote speaker at the event. During the program, he shared the insight accrued from his 25 years of experience with the Federal Government and involvement in helping hundreds of small businesses use Small Business programs to secure Federal contracts.

-Ryan Swink-

Editorial

I am extremely pleased that PARS has seen significant growth since the Spring/Summer issue of The PARS Reporter. PARS has recently been awarded several large contracts, including the following:

• In September, PARS was awarded a contract for mold remediation at Joint Base Langley Eustis, Newport News, VA.
• In September, PARS was awarded a contract for Underground Storage Tank Removal, Remedial Investigation/Interim Removal Action Removal, and Compliance Restoration Program Tasks at Joint Base McGuire-Dix-Lakehurst, NJ.
• Also in September, several private-sector clients awarded PARS contracts to provide Licensed Site Remediation Professional (LSRP) services in NJ.
• In August, the USACE, Louisville District, awarded PARS a contract for providing Environmental Condition of Property Investigations and Reports, Non-BRAC Disposal Documentation and Architectural and Archeological Assessments for the 99th Regional Support Command.

In addition, PARS has demonstrated exemplary work on several projects, including the following:

• Trench Excavation for the USACE, Huntington District. PARS was brought in on short notice and consolidated 3 weeks of work into 1. PARS completed waste classification so as not to delay the subsequent channel widening contract. The very prompt response received high praise from the Corps.
• The Cleaning, Inspection, and Repair of Oil/Water Separator Systems at McGuire Air Force Base, NJ. The quality, prompt response, and cost-effective measures were all commended.

-Ryan Swink, Editor-in-Chief
Welcome New Employees!

Ryan Swink, Proposal Coordinator/Marketing Assistant

Ryan Swink has worked in various marketing/sales positions. Before joining PARS in May 2012, he was the Operations Manager/Marketing Assistant at a start-up pharmaceutical company. Mr. Swink is a member of The Phi Beta Kappa Society.

Michael Abramowitz, Senior Associate

Michael Abramowitz has 27 years of experience in environmental consulting. He began his career with the New York City Department of Environmental Protection before joining an environmental consulting firm in 1989. He left government service to join a firm that manufactured and constructed systems for industry and government. He joined PARS in 2011. Mr. Abramowitz was a Division Manager for a firm specializing in assessing, testing, and consulting in environmental, geotechnical engineering, and construction materials testing and inspection. Mr. Abramowitz is currently Chair of the Plainsboro Environmental Advisory Committee.

Margaret Halasnik, Principal Environmental Scientist

Margaret Halasnik has 26 years of experience in the environmental consulting industry. Before joining PARS in October 2012, Ms. Halasnik served as Director of Compliance Services for a regional environmental consulting firm providing services throughout NJ, NY, and CT, among others. She has expertise in Environmental Health and Safety Compliance, Phase I Environmental Site Assessments, Phase II Site Investigations, Asbestos & Mold Investigations & Remediation, EHS Training, Data Validation, Quality Assurance, and Project Management. She is certified as an AHERA Accredited Asbestos Building Inspector and AHERA Accredited Management Asbestos Supersvisor both by the EPA and New York State Department of Labor. She is the Chair of The Auditing Roundtable for the NJ/NY Region. She has authored many articles, including "Global Harmonization System: The New Look of Chemical Classification and Labeling."

Mary Hewitt Daly, Principal Environmental Engineer

Ms. Daly joined PARS in August 2012 and has over 25 years of engineering experience in the air quality field. She has widespread experience in air quality regulatory compliance, permitting and negotiation with various regulatory agencies across the USA. Her experience also includes facility wide audits, air emission inventories/statements, BACT/MACT evaluations, air pollution control evaluations, stack testing oversight and management, air quality monitoring programs, and management of air quality impact analyses. She provides services to federal, municipal, and industrial clients.

PARS Supports Hopewell Valley’s Green Initiatives

On October 3, Michael Moore, Project Manager, and PARS President Kiran Gill attended the "Tour of the Toll Gate Grammar School." The Hopewell Valley Regional School District is part of the NJ Sustainable Schools Project, a 3 year study of sustainably operated schools that will assess the health and educational benefits that “green schools” provide for their students. Mr. Moore and Ms. Gill went to the Toll Gate Grammar School to check out and support their green initiatives, such as recycling, composting, gardening, green cleaning and a variety of energy savings improvements that work within older facilities to offer a better indoor environment while reducing operational expenses. -Ryan Swink

Recent Certifications

Kirin Gill, President of PARS, and Ramjee Raghavan, Program Manager, both earned their LEED Certifications. They earned the LEED Green Associate by passing a two-hour, computer-based exam consisting of 100 multiple choice questions. This certification signifies one’s basic knowledge of green design, construction and operations. This achievement underscores their commitment to sustainability in their professional, as well as personal, lives.

Project Management Institute

In addition, the Project Management Institute (PMI) has awarded Ms. Gill and Dr. Raghavan with Project Management Professional (PMP) certifications, the “most important industry-recognized certification for project managers.”

Congratulations to Tom Dobinson for obtaining his license as a Professional Engineer. Tom has been with PARS for 7 years and is currently a Project Manager.

Ryan Swink

Tough Mudder

This past May, project manager Eric White ran the New England Tough Mudder at Mount Snow, Vermont. Tough Mudder events are hardcore 10-12 mile obstacle courses designed by British Special Forces. These courses test one’s all-around toughness while raising millions of dollars to provide combat stress recovery programs, adaptive sports programs, benefits counseling, and employment services for our injured veterans returning from the battlefield. Eric is a glutton for punishment and will also be participating in the Tri-State Tough Mudder in Englishtown, NJ in October. Visit www.woundedwarriorproject.org for more information. -Eric White, PG

Trenton Thunder Game

PARS had its second annual summer employee outing at the Trenton Thunder minor league baseball game on Thursday, May 31st. We cheered our Thunder on as they cruised to an 11-0 victory over the Erie SeaWolves. Another highlight of the event was seeing The Batmobile (from Christopher Nolan’s Batman films) on display in front of the park. With the luck we brought them this game, the Thunder are surely hoping we come and cheer them on again! -Ryan Swink
Health and Safety Corner

Aside from the HAZWOPER requirements, what’s the point in having an H&S plan? The Health and Safety Plan (the planning process) comes from the realization that emergencies are never planned. No one plans for things to go wrong; they just do.

Consider this: something spills in the kitchen and now there’s a fire in your house. It’s a small fire, but we all know fires get bigger and can do so rapidly. It’s not the time to run to Home Depot and buy a fire extinguisher (let alone read the instructions for use while quickly driving home).

Planning for the possibility that things could go wrong: that’s what safety plans are all about. Are there chemical hazards associated with your work? How can they affect you? Are there physical or biological hazards associated with your work? Working outside can bring many potential hazards: weather, allergies, poison ivy, and stray animals.

What goes on around us while we’re working is a factor in whether or not we’re working safely. That’s what we try to consider and capture in the development of a plan. We carry a spare tire in our cars, so why not a first aid-kit? Are we taking a large quantity of tools (sampling equipment, bailers, etc.) to a project site? How about chemical preservatives, et al.?

A Health and Safety Plan allows us time to ask these questions. Finding the answers is the key to a safe and straight-forward project. Take some time to consider what we do routinely. Identify the hazards associated with your work; traffic, noise, vibration, moving equipment. All of these things need consideration. If you need assistance doing a hazard assessment, let us know. That’s what we’re here for.

This is what safety plans are about; and be sure you buy that fire extinguisher and read the instructions before an annoying little fire appears.

-Mark Lawless, CHI

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PARS’ Research on Non-Pyrolitic Process at University of Louisville

PARS is conducting research in collaboration with the University of Louisville on technologies for non-pyrolitic processes for nitrocellulose-based materials. The objective of the research is to find and verify an improved non-pyrolitic disposal process for nitrocellulose-based explosives and rocket propellants. Phase 1 of this research involves a literature search of existing technologies. This will lead to further research to identify the most efficient and cost effective treatment and remediation technologies that are in compliance with current environmental regulations. Key participants in the research include Prof. Thomas Rockaway and Prof. Jerry Willing from the University of Louisville and Dr. Harsh Gill from PARS. -PARS Staff

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Generally speaking, gasification technologies produce more energy than incineration. The generation of nitrogen oxides is also substantially less due to the reduced oxidation requirements. Gasification also generates less carbon dioxide (CO2) emissions; this is especially true in the conversion of synthesis gas into hydrocarbons (diesel fuel/paraffin). The potential for halogenated dioxins is greatly reduced due to the absence of oxygen.

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