Kesselring Site Refueling and Overhaul of the S8G Prototype

The Kenneth A. Kesselring Site in West Milton, NY has an operating nuclear propulsion plant (also known as a prototype) that provides hands-on training to United States' Naval nuclear operators. The prototype also provides a platform for operational testing of new designs and technologies. In order to extend the operation of the S8G prototype for an additional 20 years, the nuclear propulsion plant needs to be refueled and overhauled. Refuelings and overhauls are well-developed processes and are safe for the community.

This edition (February 2020) updates the write-up following the successful transport of the first five shipping containers from the Ballston Spa Industrial Track to the Kesselring Site in West Milton in 2018 and 2019 in preparation for the resumption of shipments during 2020.

What is a Refueling and Overhaul?

Refuelings and Overhauls are well-developed processes performed on nuclear-powered Naval aircraft carriers and submarines at nuclear-capable shipyards and the prototypes at the Kesselring Site. Refuelings and Overhauls involve the replacement of nuclear fuel and general maintenance, renovation, and modernization of the entire prototype or ship. Throughout the last sixty years the Naval Nuclear Propulsion Program has successfully completed more than 450 refueling and defuelings. As part of that accomplishment, the Kesselring Site has conducted ten refueling and defuelings in its history and this will be the second refueling overhaul performed on the S8G prototype.

Kesselring has completed construction of several new work facilities which will ensure that the process can be completed safely and efficiently. Refueling equipment that has successfully been used at shipyards is being sent to Kesselring and used during the refueling operations. Conservative and precise procedures that incorporate years of operational experience are being used to complete the refueling work tasks. Skilled and experienced Shipyard workers from Newport News Shipbuilding, Norfolk Naval Shipyard, and Portsmouth Naval Shipyard are present at Kesselring to perform the defueling and refueling work. Both Newport News Shipbuilding personnel from the Virginia Shipyard and those hired locally are performing the majority of the overhaul work. They are completing extensive familiarization training to perfect their skills using mock-ups in advance of actual work.

What will I see driving around town?

The vast majority of the work will occur at the Kesselring Site. To support the refueling, equipment is being shipped to the Kesselring Site from nuclear-capable shipyards and vendors. Some of the equipment shipments are large and since the Kesselring Site is not directly serviced by a rail line, the Ballston Spa Industrial Track has been identified as the best location to transfer the shipments from a rail car to a heavy haul vehicle. The Kesselring Site has used this Ballston Spa Industrial Track many times over the years, most recently in 2004.

Twelve railcar shipments total (six to the site, and six from the site) of equipment and material are required to support the refueling. These shipments include large and heavy pieces of equipment and associated shipping containers. For example, the largest shipment weighs over 600,000 pounds. Some of the shipments contain radioactive material (e.g., the shipment of the spent nuclear fuel from the Kesselring Site to the Rail Siding).

The incoming equipment will arrive at the Ballston Spa Industrial Track, where it will be transferred to the Kesselring Site via heavy haul vehicles (See Figures 1-4). All shipments will be in full compliance with all federal, state, and local requirements. The travel route for the heavy haul vehicle is shown in Figure 5. The Heavy Haul vendor will coordinate the shipments with the New York State Department of Transportation, Saratoga County, and the Village of Ballston Spa.

When will this work be done?

The Refueling and Overhaul activity at the Kesselring Site has begun (September 2018). The one remaining rail shipment from the Ballston Spa Industrial Track to the Kesselring Site will occur in the winter of 2020. Shipments of material from the Kesselring Site to the Ballston Spa Industrial Track will occur between the Spring 2020 and the Fall 2020. The Kesselring Site will contract with a subcontractor (Lucia Specialized Hauling) to move the shipments to and from the Ballston Spa Industrial Track and the Kesselring Site and that subcontractor will obtain the proper permits and coordinate with local authorities. As such, all shipments will comply with Federal and New York State requirements and regulations.

What work will happen at the Ballston Spa Industrial Track?

The Ballston Spa Industrial Track is owned by Canadian Pacific. Canadian Pacific and a qualified subcontractor have inspected and refurbished and/or replaced the rail track, ballast, and ties to meet the requirements of the upcoming shipments that will occur. In addition, Canadian Pacific and a subcontractor will clear brush in the area as needed to ensure adequate space exists for the work and shipments that have to occur. Protective barriers will be installed to limit access and ensure safety in the vicinity of the work area. There are no plans for heavy industrial work to occur during evening and weekend hours.

When the shipments arrive at the Ballston Spa Industrial Track the normal sequence is to mobilize the Heavy Haul subcontractor on-site and have the railcar delivered to the Ballston Spa Industrial Track and conduct arrival inspections on the first day. Over the course of the next several days, the subcontractor will transfer the shipment from the rail to the Heavy Haul vehicle. On the final day, the Heavy Haul vehicle will be inspected to ensure it meets DOT requirements and then the shipment is transported from the Ballston Spa Industrial Track to the Kesselring Site. The Heavy Haul vehicle will travel very slowly (approximately five miles per hour). The reverse of the sequence of operations will occur on outgoing shipments from the Kesselring Site. Consistent with our normal procedures, Federal Couriers will continuously escort the shipments of nuclear fuel.

How will the shipments travel to the Kesselring Site?

Shipments to the Kesselring Site will normally start after the morning traffic rush and school bus drop-off period and will take several hours. The travel route for the heavy haul vehicles is shown in Figure 5. The Kesselring Site has used this same route previously. The travel route will be surveyed for any interferences (e.g., traffic lights, utility cables) in advance of the scheduled shipment to allow time to make any adjustments and on the day of the transport, support vehicles from the utilities will lift and relocate wires and obstacles as necessary. Figure 6 shows what a typical equipment shipping container looks like and Figure 3 illustrates the July 2018 heavy haul shipment that crossed the intersection of Routes 50 and 67 in Ballston Spa, NY.

What happens to the spent nuclear fuel after it leaves Kesselring?

All of the United States Naval spent nuclear fuel is shipped to the Naval Reactors Facility on the Idaho National Laboratory reservation. The shipments occur via rail and are always accompanied by Federal Couriers. Since 1957, the Naval Nuclear Propulsion Program has made over 880 container shipments of Naval spent nuclear fuel to the Idaho National Laboratory. These shipments have all been done safely with no release of radioactivity and no injury to the workers or the public.

How do I know I will be safe?

Shipping containers for spent nuclear fuel are very robust and have been rigorously analyzed and tested to demonstrate performance in a range of situations. The Naval spent nuclear fuel shipping containers are certified as Type B NRC/DOE containers and are manufactured from solid stainless steel. Each shipment is made in compliance with applicable DOT, DOE, NRC, and state regulations and pose no danger to the public. Because of the robust design and the fact that the containers are at least 14" thick solid stainless steel, if you stood six feet away from a loaded shipping container for a full day you would receive approximately the same amount of radiation that is involved with a typical chest x-ray (10 millirem). Everyday life exposure to radiation is about 300 millirem/year from soil, rocks, cosmic rays and radon.

Who operates the Kesselring Site?

The Naval Nuclear Laboratory operates the site. The Naval Nuclear Laboratory is dedicated solely to the support of the United States Naval Nuclear Propulsion Program and is operated by Fluor Marine Propulsion LLC, a wholly owned subsidiary of Fluor Corporation.

What communications have been conducted with surrounding Local, County, State and Federal officials?

The Naval Nuclear Laboratory conducts routine meetings, training, and information exchange sessions with surrounding Local, County, State and Federal officials. For the S8G Prototype Refueling and Overhaul general discussions have been on-going for several years to lay the groundwork for the project and specific discussions began in early 2017. These discussions will continue at key milestones throughout the project. The intent of these discussions is to ensure that stakeholders are aware of the events supporting the S8G Prototype Refueling and Overhaul.

Has there ever been an issue with the shipment of Naval spent nuclear fuel?

Over 880 shipments of Naval spent nuclear fuel have all been completed without incident and the fuel has safely arrived at the Naval Reactors Facility in Idaho without any impact to the public or the environment.

Who do we talk to if we have any questions?

New York State, Saratoga County, and Ballston Spa have all been briefed on the Refueling and Overhaul Project. Specific questions can be sent to:

- Mr. Carl Zeilman, Saratoga County Emergency Services
  email: czeilman@saratogacountyny.gov; phone: (518) 885-2232
- Mayor Larry Woolbright, Ballston Spa
  email: bspavillage@yahoo.com; phone: (518) 885-5711
- Supervisor Eric Connolly, Town of Ballston Spa
  email: econnoly@townofballstonny.org; phone: (518) 490-2780
- Mr. Gene Terwilliger, Naval Nuclear Laboratory Spokesperson
  email: NNLpublicaffairs@unnpp.gov; phone: (518) 395-4413
- Supervisor Benny Zlotnick, Town of Milton
  email: bzlotnick@townofmiltonny.org; phone: (518) 885-9220

Figure 1 Heavy Haul Convoy Transporting Shipping Container (June 2018)

Figure 2 Heavy Haul Convoy Transporting Shipping Container (June 2018)

Figure 3: Heavy Haul Tractor Pulling Trailer through Intersection of Routes 50 and 67

Figure 4: Multi-Axle Heavy Hauler Trailer Used for Shipments To/From Kesselring

Figure 5: Expected Travel Route for Heavy Haul Vehicle from Ballston Spa Industrial Track to the Kesselring Site

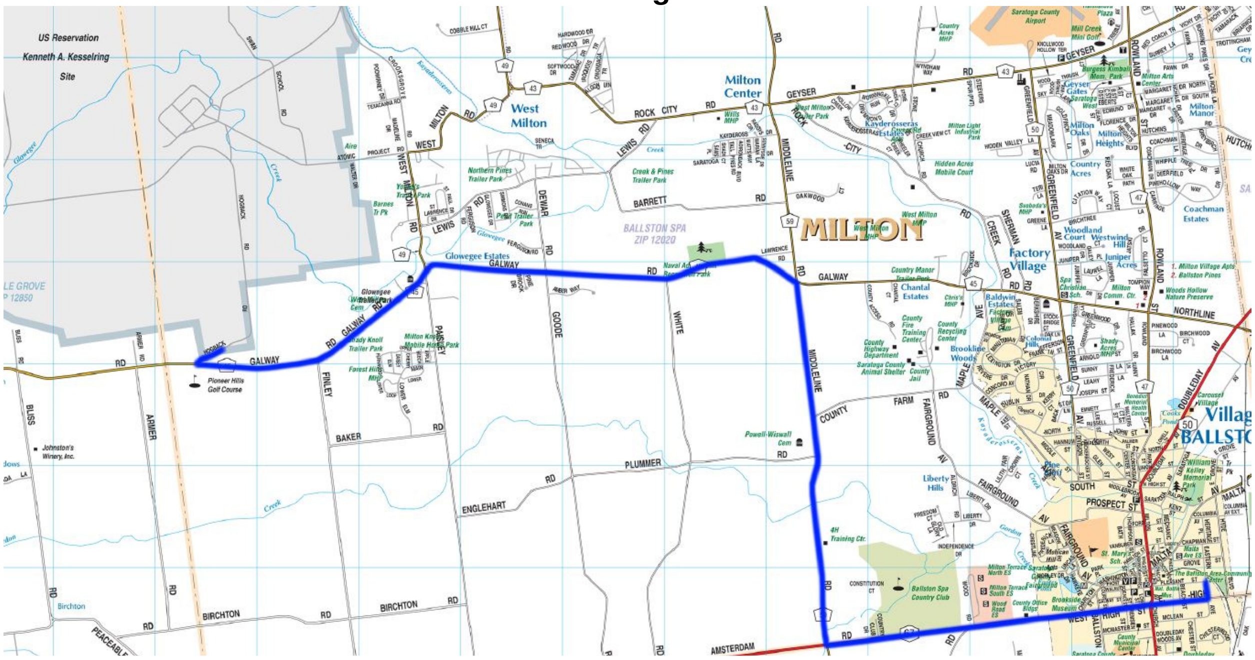

Figure 6: Shipping Container at the Ballston Spa Industrial Track Being Transferred to Heavy Haul Vehicle