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# RSCS Inc. Constructs Mobile Nuclear Chemistry Laboratory

**R**adiation Safety & Control Services Inc. (RSCS) was contracted by Energy Solutions LLC to design and build a custom mobile laboratory to support the chemistry and radiation protection departments during D&D and FSS activities at the Kewaunee Power Station (KPS). The Environmental & Engineering (E&E) department of RSCS was tasked with the planning, design, procurement, management, and oversight of the project. The E&E Team at RSCS has considerable experience in nuclear site characterization, establishment of radiological environmental monitoring programs, GIS, and field sampling. E&E team members have developed and audited radiological environmental monitoring programs for several nuclear sites around the US. Our corporate environmental and engineering team includes a broad range of professional disciplines including:

- Environmental Scientists
- Soil Scientists
- Hydrogeologists/Professional Geologists (PG)
- Licensed Environmental Professionals (LEP)
- Geochemists
- Certified Groundwater Professionals (CGWP)
- Civil Engineers
- BIM/CAD engineers
- Qualified GIS [data] Analysts

- Architects
- Certified health physicists (CHPs)
- Nuclear Engineers

The team's experience in D&D and combined disciplines provided many practical inputs and design considerations to ensure that the client would have a mobile, modern state-of-the-art laboratory facility that would suit their needs for years to come.

Standard D&D activities require the demolition of all buildings on site including any existing chemistry and count room facilities, therefore, a temporary mobile solution needed to be employed to ensure that routine and D&D-related analytical analyses could continue throughout the entire D&D and license termination processes at the site. During operation, the trailer will house equipment and personnel responsible for the analysis of Radiological Environmental Monitoring Program (REMP) samples, routine radiation protection counting support, monitoring well samples, stormwater/lake discharges, various other water, soil, and air samples, final status survey (FSS) sample media, and overall support of the site survey and sampling plans to meet eventual License Termination.

Based on operating experience from previous D&D projects, a 53-foot semi-trailer was chosen to provide a stable workspace to meet the needs of a busy chemistry

count room during active D&D operations. Through a detailed, iterative drafting process that included client and design team input, the final design arrangement was determined and used to coordinate and execute multi-disciplinary construction and assembly activities throughout the project. All construction and assembly activities were conducted at the RSCS corporate headquarters in Seabrook, N.H.

To support the immense weight of the larger counting equipment (gamma caves, smear counters, liquid scintillation counters, etc.), the trailer floor required extensive reinforcement to support the static point loads of this heavy equipment. The trailer is also equipped with a deionized water purification system, portable eyewash station, radiological source locker, and integrated fume hood. The mobile facility is operation-ready and can be fully functional within a few days of arrival. The design of this trailer required additional considerations to those of a standard commercial laboratory facility. Located on the shore of Lake Michigan in Carlton County, WI, KPS experiences dramatic weather events regularly.

the personnel that will be occupying the space. The layout of the doors and windows relative to laboratory equipment, bench, and office space was critical to managing the frequent foot traffic in and out of the trailer necessary to handle the high throughput of samples during D&D and FSS activities. Additional adjustable office desks were supplied for the employees to use. Frequent communication and feedback from the client along with an understanding of the application and use of the laboratory was critical in ensuring the design and specifications of the final product would suit the demands of the D&D project.

This chemistry trailer will be the last facility to leave the site when both D&D and FSS activities are complete. At which time, this unique mobile laboratory could be re-deployed anywhere around the country to support similar projects. Mobile laboratories provide projects with the need for high-volume, analytical results with rapid turnaround times, flexibility, and cost savings compared to the logistics and delays incurred by sending large volumes of samples to a satellite laboratory for analysis.



Temperatures can easily rise to 100°F in the summer, and with wind chill, can fall below -40°F in the winter, environmental extremes that can wreak havoc on sensitive analytical equipment. A mobile office HVAC unit was added to the trailer at a size capable of handling these extreme conditions. However, the heating and air conditioning challenges extend beyond just the needs of the personnel occupying the space. The trailer was also equipped with three cage-mounted intermediate bulk containers (IBC totes) for wastewater management that required their own custom heating and insulation solutions. The sinks will handle either standard wastewater or radiological waste separated by a Radiologically Controlled Area (RCA) boundary. Security doors and windows were also added to support

RSCS, Inc. was established in 1989 and was a small business owned and operated by three principals (Executive Directors) until July 2022 when RSCS was acquired by Allied Power. Our team has experience in virtually all areas of nuclear and radiological operations and decommissioning including nuclear power, industrial, medical, research, instrumentation, calibrations, engineering support, site characterization, remediation, decontamination, and decommissioning.

For more information and details on how RSCS can help you with mobile analytical solutions visit our website [www.radsafety.com](http://www.radsafety.com) or call 1-800-525-8339.

