PPP PPE Recycling

Creating a circular economy for used PPE

What is the Programme and Project Partners (PPP)?

Sellafield is home to the largest and most complex nuclear facility in the United Kingdom, and what was once the first commercial nuclear power station, is now cleaning up the birthplace of the UK’s nuclear industry. With an annual spend of £2.2bn, the UK Government expects Sellafield Ltd to deliver projects faster and provide better value for money for the taxpayer. In response, Sellafield Ltd created an industry-leading approach to procurement, forming the Programme and Project Partners (PPP). Sellafield Ltd has one of the most complex portfolios of construction projects in the world. In pursuit of its mission to create a clean and safe environment for future generations, PPP is responsible for delivering projects faster and with better value for money. The partnership brings together KBR, Jacobs, Morgan Sindall Infrastructure, Altrad Babcock and Sellafield Ltd, as one team, to deliver up to £7 billion of critical national infrastructure, differently, over a span of 20 years.

What was the challenge that needed to be solved?

It is estimated that Sellafield Ltd directly purchases 50 tonnes of PPE (Personal Protective Equipment) per year, with seven tonnes of this being polyester – all of which is lost to the organisation and society through disposal to landfill. Any used construction PPE is disposed of as non-contaminated waste in landfill sites. Disposal of material in this way creates issues not just for the current generation, but also leaves a legacy for future generations. For example, a rubber boot sole can take between 50 and 80 years to decompose and synthetic clothing such as polyester can take up to 200 years to biodegrade. Prior to the implementation of this project, the volume of used PPE sent to landfill, and therefore the impact to society, was unknown.

What was the goal or objective of the scheme?

As part of the Programme Project Partners (PPP) at Sellafield’s commitment to zero harm and sustainability, the SIXEP Continuity Plant (SCP) project introduced a new PPE pilot recycling service. As the pilot scheme gets underway, the initial objective was to quantify how much can be recycled and explore the possibilities to expand this further in the future.

Who was involved?

The work to implement the PPE recycling scheme was shared across the organisation. Through collaborative working between the PPP Site-Wide Improvements team, Environmental Specialists, PPP Commercial team, PDD Client, and SCP project teams, and the PPE suppliers, Greenhams, all waste PPE materials are set to be collected from new bins located around the SCP project site.

What approach was taken?

The PPP chosen method needed to maximise the volume of PPE collected without disrupting project operations. For example, finding suitable locations for collection bins, preparing communications and briefs to workers, and generally setting up so we could start minimising our environmental footprint as soon as possible.

The initial research and planning led PPP to partnering with Greenham to provide a service for the safe recycling of all types of PPE, with the SCP project volunteering to host the two-year pilot. Workers across SCP were briefed on the PPE recycling scheme, setting out what can be recycled and the locations, awareness of the trial was also briefed more widely across PPP. Feedback is to be collected throughout the two-year pilot from workers and our partner, Greenham, to maximise the volume of PPE collected but also the amount of material that is recycled and reused. As the pilot progresses, we will be recording volumes of used PPE for the first time on a Sellafield major project. By doing this, we can better understand the hidden costs of sending used PPE to landfill, but also our environmental impact, saving carbon and water in the process.

Were there any barriers to overcome?

Before implementing a PPE recycling scheme, PPP needed to understand the availability of recycling technology, the volume of PPE waste produced, and what potential partners would do with the material once it is no longer needed on the Sellafield site. The research showed that data on the volumes of PPE used was vital, data we didn’t yet have, limiting our options. PPP also wanted to maximise the reuse and recycling of the material, rather than solely incinerate the used PPE. Finally, we wanted to reuse and recycle all our used PPE, not just the polyester. This planned approach could reduce waste and create a circular economy.

What was the outcome?

For the first time on a Sellafield major project, used PPE is being diverted from landfill sites and instead being recycled and reused. This recycling moves beyond typical clothing recycling and includes branded and unbranded workwear, helmets and accessories, eyewear, footwear (even if they have metal toecaps), gloves and ear defenders and plugs. The waste is recycled into various products, such as materials used in partition walls, insulation and sound proofing material.

The new recycling service will ensure PPP at Sellafield is taking extra steps to limit its impact on the environment and to minimize our impact on future generations. The first quarter produced 648kg of used PPE; all the PPE was diverted away from landfill to be shredded and recycled (where possible), with estimated savings of 8242kg C02 released to air and 648l water use (from textile manufacture). As the pilot progresses, we plan to roll-out this initiative to other PPP project sites and potentially to the wider Sellafield site.