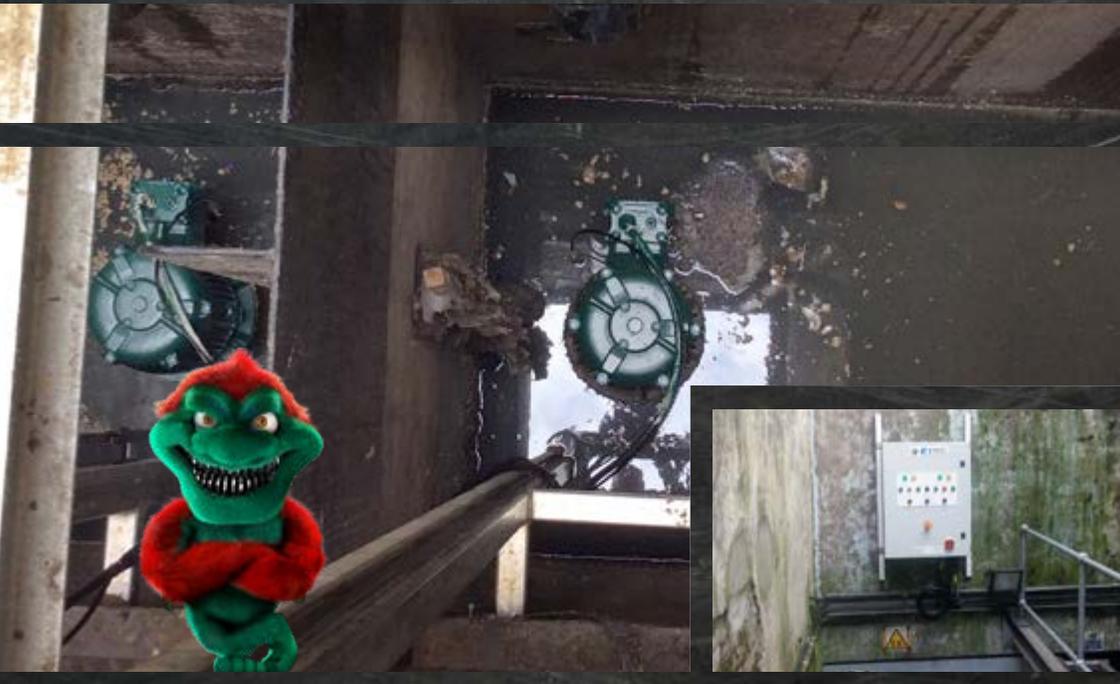


Monsters protect pump station, weather storms in Scotland - Mossie, Scotland



Pump blockages and rags are a significant barrier to energy and operational efficiencies at pump stations, causing unscheduled shut downs, safety hazards for operators, costly equipment repairs and increased power usage due to a decrease in the pumps' hydraulic performance. Scottish Water observed these negative effects caused by an influx of wipes and rags throughout a network of area pump stations. Engineers looked to a proven, powerful solution in the form of two JWC Environmental Channel Monster® grinders at one of their most problematic sites.

Mossie Sewage Pump Station has been in operation since 1961 and comprises three submersible pumps (duty/standby/assist) installed in the facility's wet well to process a flow rate of 31 MGD (489 m³/hr). Over the last few years, Mossie has experienced a heavier than usual volume of rags and solids flowing into the station. This debris is especially problematic during heavy storms, as the material would create a "raft" of solids which lead to pump blockages during peak capacity periods, and cause sewage to overflow in and around the pump station. This required the Scottish Water operators to attend the site on a regular basis to uplift and unblock the submersible pumps and also clean up the spillages — a time-consuming and unpleasant task.

The submersible pumps were originally protected by a coarse

PROBLEM: Rag ingress of Inlet Channel, blockage of Transfer Pumps

SOLUTION: 2 x JWC Channel Monster CMD3210 c/w 3.7kW IP68 Motors & Dual JWC Controller

manually-raked bar screen, yet the volume of rags was so heavy that there were safety concerns for the operators who had to manually remove large amount of debris from the below grade Mossie station. They realized that the bar screen alone wouldn't be enough to deal with this volume of debris, so Scottish Water looked for an effective, reliable solution that would immediately resolve the issues.

Scottish Water was familiar with the screening and grinder product families from JWC Environmental — a Muffin Monster® in channel grinder had been successfully operating at another installation in the area since 2007. They appreciated the practical, reliable and economical solution that JWC Environmental provided for that site and looked for a similar system to be installed at Mossie. Scottish Water contacted WGM Engineering (WGM), the local distributor for JWC Environmental in Scotland, to offer a solution that would resolve the rag build-up and pump blockage issues. WGM undertook a thorough assessment and their design engineers recommended that the manual bar screen be removed, the levels



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of the wet well walls and access flooring be raised to accommodate high-capacity periods, and that two JWC Environmental Channel Monsters be installed in the wet well, each on a guide rail system to facilitate easy installation.

The Channel Monster features a rotating screening drum complete with 6mm perforations, which allow small particles to pass through, while capturing and feeding the larger debris into a dual-shafted grinder. This allows the Channel Monster to shred solids effectively and completely, while maintaining proper flow rates so capacities at pump stations are not compromised by clogs and equipment breakdowns. The system is also a durable, cost-effective and versatile solution to protect valuable pumps, pipelines and other treatment equipment from the harmful effects of wipes and other debris. The patented design of the screening drums accommodates periods of high-flow and is especially suited for pump stations, headworks, fine screen protection and treatment plants. The automated controller is adaptive to specific application requirements and plant SCADA systems, and stores operational information so operators can observe performance data over time

Since its founding in 1973, JWC Environmental has become a world leader in solids reduction and removal for the wastewater industry with its Muffin Monster grinders and Monster Separation Systems for screening, compaction and washing. JWC also solves challenging size reduction and processing problems in commercial and industrial applications through its Monster Industrial division.

JWC Environmental is headquartered in Costa Mesa, California, and has a global network of representatives, distributors and regional service centers to provide customer support. For more information, visit JWC Environmental at www.jwce.com.



Since the installation of the two Channel Monsters in March 2014, Mosside has seen a massive drop in the number of pump blockages, freeing up operators from having to attend site unblock the submersible pumps. Graham Black, the area manager for Scottish Water, expressed appreciation for the full-scale solution provided by JWC Environmental and WGM. "The grinders have made a difference to both our operational and overtime costs, freeing up a lot of our operator time to concentrate on other sites. They have taken away the fear of being called to Mosside time and time again."

In addition to the reduction in unscheduled maintenance, the installation of the Channel Monsters has allowed Scottish Water to cancel other planned capital investments downstream in its catchment area, which were no longer required due to the pre-conditioning of the rags being pumped from the facility. The significant capital and cost-savings advantages, coupled with eliminating the necessity for operators to manually unblock the pumps and clean up raw sewage from overflows, made this project a success for everyone involved.