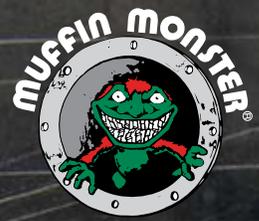


## SLUDGE THICKENING

# Durango Foils Energy Heist and Lowers Maintenance Costs



### Circa 2006

Durango, Colorado, is an historic town in the Rocky Mountains whose heyday hinged on the silver mining boom of the late 1800's. Then, Butch and Sundance and other tough hombres roamed these parts, and each small town lived with the threat some of these characters would show up looking for the easy pickings. Nowadays, the well-being and wealth of the town folk are not much bothered by shoot-it-out violence of yesteryear. The modern usurpers of community cash, like in most places, is the high energy cost. This report is about how a couple of 'deputy sheriff' types down at the local wastewater treatment plant put a stop to a money grab.

### Problem

The Durango wastewater treatment facility is a traditional waste-activated system. The bio-solids (WAS) is collected from secondary clarifiers, treated with flocculants and thickened before anaerobic digestion. Centrifuges have been used for the thickening process which took the WAS to a 12-15% consistency. The plant has three, 50 hp units, one or two of which were operated under supervision (8:00 am to 4:00 pm) each day. Typical energy draw was in the range of 75 kW. That is a big fraction of the plant power usage. Additionally, the centrifuges were requiring more maintenance than ever. The service costs, spare parts, and downtime were taking a considerable portion of the maintenance budget.

**PROBLEM:** High power consumption and maintenance costs for WAS thickening equipment

**SOLUTION:** Monster Drum Thickener

### Solution

Plant engineers determined that the anaerobic digesters would not be adversely impacted if the bio-solids feed was at 6 – 8% consistency. Some research was undertaken to determine alternate equipment or method. Also, a new set of chemical trials found flocculants with tighter solids formation. The Durango WWTP engineers decided on a rotary drum thickener to best meet their needs. Noteworthy, is that this equipment operates with only 1.5 hp, so the #1 challenge of lowering energy consumption would be addressed. Durango WWTP commissioned a JWC Environmental Monster Drum Thickener in June, 2006. This is a standard unit with the base mounting modified to fit on the existing centrifuge pad which it replaced, minimizing installation cost. In the three months since start up, operating parameters have been optimized. The unit processes 80 GPM of 1% WAS, thickened to 6.5 – 7%. Polymer consumption costs are improved from that used on the centrifuge process. Energy consumption on the total thickening process dropped from 75 kW to 3 kW.



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### Epilogue

It won't take long for the WWTP to recover the expenditure on its new sludge thickening equipment. This is following tradition, as Durango itself has been more than compensated for all the expense with dealing with the wild fellows of its colorful past. Tourists now arrive on a steady basis to recapture some of the old boomtown spirit. Occasionally, big budget Hollywood shows up, with its free-reining scriptwriters and all, to spin the latest, most marketable rewrite of the past troubles. And while the action is mostly invention and talk, a whiff of sorts is in the air of a strike of a new mother lode.

Unlike the wild bunch of a century ago, the energy gang still ride menacingly into town. When trouble's a brewing, anywhere, with weather or war or rumor of such, a spur or two of reminder is heeled into the flanks of the community's budget. When it comes time to divvy up the pot, their cut doesn't end until they can leave town with their saddlebags full. We reckon they'll be around for some time. Hollywood probably won't be taking much interest in how they foiled that little energy "heist" at the WWTP. No matter, operators down there are just happy that come sundown, they're not still fussin' with all the old, high maintenance equipment and maybe cutting into time spent at the good fishing holes of the high country fresh, Animas River. Like a great little mountain pack horse, the JWC Monster Drum Thickener is pulling more than its share and without much bother to anyone. What's more, it is plenty tough enough to survive in this little town for a good long spell.

JWC Environmental is a world leader in solids reduction and removal system for municipal wastewater collections, headworks and bio-solids operations. We offer our legendary Muffin Monster grinders and Monster Separation Screening systems, and IPEC industrial screens systems to solve unique wastewater processing situations.

JWC Environmental also services commercial and industrial applications with our Monster Industrial, and IPEC products. We are ready to take on challenging size reduction problems in industrial processes as well as help customers run efficient and compliant industrial wastewater treatment operations.

JWC Environmental is headquartered in Santa Ana, California, and has a global network of representatives, distributors and regional service centers to provide customer support. For more information, visit us at [www.jwce.com](http://www.jwce.com).

