



Horizontal Plate Clarifiers Treat Power Plant Stormwater

CHALLENGE

A coal fired power plant needed an upgraded stormwater treatment system to properly deal with high levels of coal ash (from coal pile run-off), solids, and oil prior to discharge.

The plant had previously collected run-off and stormwater into in-ground basins that were then pumped through a coalescing (CPI) oil/water separator. The ash and other solids in the stream plugged the coalescing packs, causing the pollutants to bypass the packs and flow out with the effluent. (This is a common problem with coalescing media packs which cannot handle solids – unlike the **Monroe Environmental**[®] cross flow separation plates). As a result, the plant had visible oil and solids in the effluent which required correction.

The plant hired a consulting engineer to assess the existing process and make recommendations for improvement. As clarification experts, Monroe Environmental was called in by the engineer and owner to assist in the process evaluation.

SOLUTION

After a thorough evaluation and pilot testing with a Monroe horizontal plate clarifier rental, in partnership with the consultant, the Monroe Horizontal Plate Clarifier was selected to operate as an enhanced solids and oil separation stage prior to the CPI separator. This would allow the solids and much of the free oil to be removed from the stream before reaching the coalescing packs, increasing their efficiency and lowering maintenance requirements. Adding just this single process stage also was most cost-effective because the existing in-ground basins and CPI separators could remain in place but perform better. Alternative treatment options could have required the demolition of these stages and required substantial civil, piping, and process

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Case Study: Horizontal Plate Clarifier

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re-work. The site chose to utilize redundant Horizontal Plate Clarifiers to allow for process flexibility and maintenance without needing to come offline.

Due to existing space constraints, Monroe engineers and field technicians worked with the site team and engineer to layout the system avoiding existing support beams, piping, cable trays, etc. – but still providing all the necessary access points and system capacities. Every inch of available space was utilized.

New access ladders and platforms were provided around the total periphery of the system. In total, Monroe design and furnished (2) Horizontal Clarifiers, a flocculation tank/splitter box with redundant mixers, and an oil collection tote. Monroe also assisted the consulting engineer in coordinating other required parts of treatment process – chemical treatment, dewatering/solids handling, and related processes.

RESULT

With the Monroe Horizontal Plate Clarifiers doing the heavy lifting of effectively removing bulk solids and oil, a much cleaner stream was sent on to the oil/water separators. This allowed the CPI separators to remove the oil more efficiently, and it extended the life of the coalescing packs by preventing clogging.

As a result, the owner was able to bring their effluent TSS and oil levels into compliance, while simultaneously lowering their maintenance and CPI media replacement costs.

Monroe's field service technicians and design engineers maintained a constant presence at the plant throughout the initial design phase, installation, and start-up (even periodically throughout initial months of operation) to assist plant operators and optimize performance.