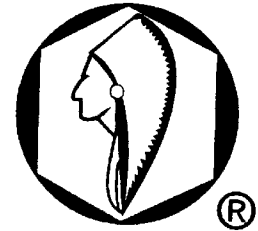


Piston Pumping Solutions - Sideslope

*Difficult Pumping Applications from
Blackhawk Environmental Company*



THERE'S NO GOLD IN THESE CALIFORNIA HILLS; INSTEAD YOU'LL FIND LANDFILL LEACHATE THAT NEEDS TO BE PUMPED LONG DISTANCE— 4,000 FEET TO BE EXACT

Why would anyone need to go to such great length to pump landfill leachate? Outside the burgeoning Sacramento metropolitan area, the terrain is so flat that the Placer County, Calif. mixed solid-waste landfill is the sum of 14

modular landfills, 6 out of the 14 have been filled up to 60 feet above grade and created by excavating 45 feet down into the land. As the need for more landfill space arises, new modules are created behind the first. The further

out the hills go, the longer the distance in which the leachate from them must be pumped to a manhole discharge in order to keep the liquid at the government-mandated levels. This is no easy task considering that in the most challenging case to date at Placer County, the leachate is pumped to 45

feet from the bottom of a module to

the surface and then an additional 4,000 feet to the manhole discharge and into the municipal wastewater treatment system at the desired rate of three to five gallons per minute. Of course, the leachate is constantly analyzed to ensure that it can be discharged safely into the municipal system.



Close-up of the Side Slope Anchor Pump 102A manhole discharge

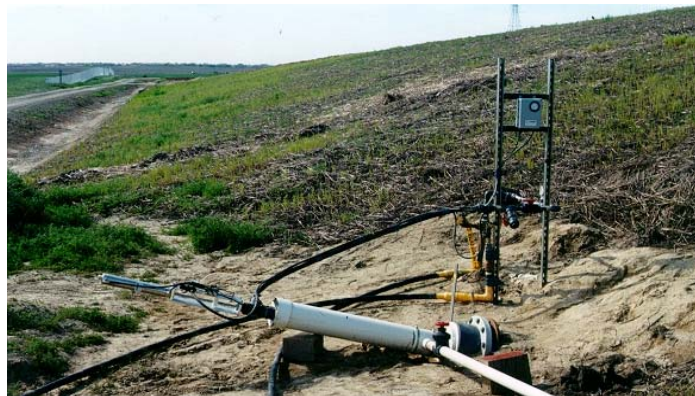
Before a permanent pumping solution was found at Placer County, more than a year was spent studying two different types of pumps. The first pneumatic pump the landfill operators tried could neither pump the required distance nor maintain the desired flow rate. This pump also discharged air into the well, which caused the leachate to oxidize, creating sediment that clogged the pump and required it to be constantly cleaned and flushed. The second pump the operators used was a stopgap measure. An electric pump powered by a portable generator was installed temporarily at the site to help pump the leachate to the manhole discharge. The electric pump worked well and did not experience the same problems as the pneumatic pump, however, it was too costly to operate. Because running a permanent power line out to the module was impractical due to the distance involved, the obvious solution for the long haul was a pneumatic pump.

The pneumatic Anchor Pump 102A designed and developed by Blackhawk Environmental Co., Glen Ellyn, Ill. was determined by far a pump that could go the distance and pump on an angle. Blackhawk Environmental worked with the engineering technicians at the Placer County landfill to ensure that they got the right pump. The resulting custom-designed, side-slope application, pneumatic Anchor 102A Pump features an above-well motor assembly that draws the leachate from an existing 14"-diameter pipe which runs from outside the landfill to the level below the waste where the leachate collects, then pumps it another 4,000 feet to the manhole discharge. None of the problems experienced with the initial two pumps has occurred with the Anchor Pump 102A.

Blackhawk Environmental's Anchor Pump 102A consumes and discharges air without the air entering the well, thus eliminating the need for such time-consuming maintenance. Additionally, the Anchor Pump 102A works smoothly, pumping at the desired flow rate, regardless of how much dirt, slime, grime, heat or even cold is involved.

Pneumatic Anchor Pump 102As were installed at two different Placer County modules in 2001. Although the landfill-engineering technicians considered increasing the diameter of the pipe running from the Anchor Pump 102As to the manhole discharge in order to speed the flow rate, this extra step proved unnecessary.

Plans are in the works to add a third pneumatic Anchor Pump 102A—thanks to its easy on-site maintenance and installation, uncomplicated controls, and non-clogging piston drive assembly that goes to great lengths to defy malfunction and deliver the desired flow rate—at Placer County when the need arises.



The Anchor Pump 102A is a positive displacement piston pump powered by a pneumatic top head drive motor which can be easily viewed during operation. Constructed of stainless steel or high-strength, impact resistant thermoplastic, the Anchor 102A holds up exceptionally well to heat, solvent and organic stressors. Its motor is fully protected from harm by the elements and is not affected by well pressure changes.

The Anchor Pump 102A is easy to install and maintain. The non-clogging, surface-driven pump can be installed vertically or horizontally and operates when a well is wet or dry. The mechanical drive mechanism resides outside the well, and therefore no power cords or air lines enter the well.

Blackhawk Environmental Co. specializes in manufacturing quality pumps and controls for demanding pumping applications. Blackhawk pumps can be powered pneumatically or electrically and can work in hazardous or potentially hazardous environments. For over ten years, Blackhawk pumps have been successfully operating in a wide range of pumping applications across the United States. Blackhawk's pumps are custom manufactured



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