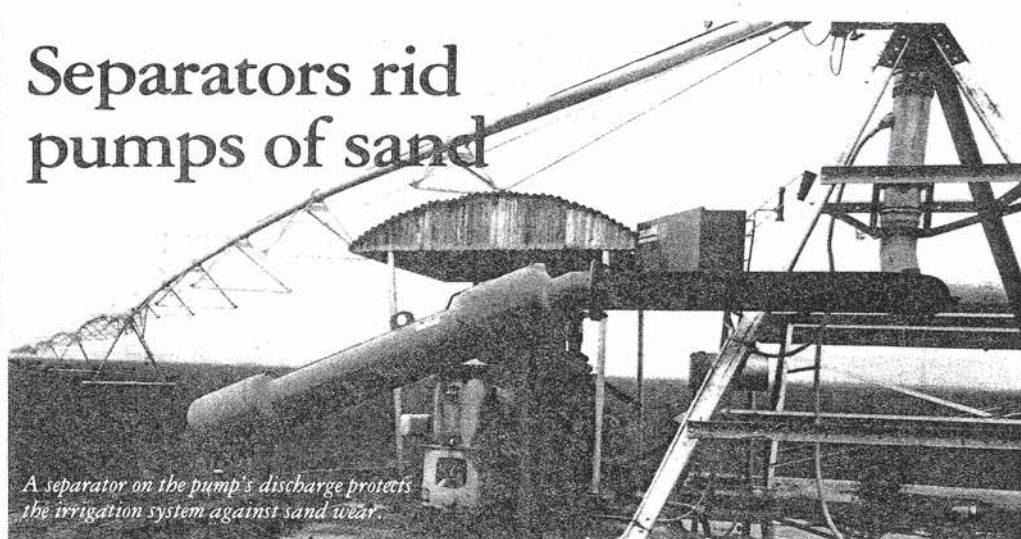


Separators rid pumps of sand



A separator on the pump's discharge protects the irrigation system against sand wear.

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THE ENTIRE structure of SAADCO's 25,000 cow farm complex located at Al Kharj, south of Riyadh, was threatened with seizing up in its early days through the infiltration of sand in the vital pumping equipment. The US firm of Lakos Separators was called in to remedy a situation which was rapidly becoming desperate when it was found that because sand in the large water-bearing aquifer below the complex was not being screened out there was excessive wear to the turbine pumps.

So severe was the problem that one pump actually became sand blocked on start up and had to be serviced even before delivering any water. Other pumps functioned for very short periods at a low level of efficiency, while the whole of the centre pivot irrigation system on which the production of fodder for milk production was dependent was suffering from plugged and worn nozzles, uneven water spreading patterns and excessive maintenance cost.

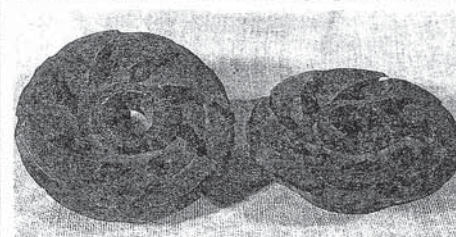
At that stage the alternative of drilling a series of new water wells would have been exorbitantly expensive. The provision of settling tanks as a possible solution was examined but rejected, since pumps would still not be protected from undue wear; and even if they were, high evaporation rates would waste much of the water. Equally unsatisfactory was the recommendation of introducing a conventional screen and cartridge filter, since it was felt unlikely to be

Sand purged from well water.



able to cope with the volume and concentration of sand, and it would require heavy labour costs to keep the filters clean.

At this point Lakos Separators was asked to install, directly into the suction casing of turbine or submersible pumps, equipment which centrifugally removes abrasive sand particles, and which was described in AWA Vol 1, No 10, page 40. By taking out virtually all the abrasive sand particles before well water actually reaches the pump's intake, routine maintenance was avoided. In some cases, where pump wear was not of prime concern, the separator was installed only at the discharge point where



Forced to pump sandy water, a pump's impellers soon become worn and inefficient.

it could remove up to 98% of all sand and silt down to 200 mesh — the size at which abrasive wear becomes of little significance.

SAADCO's pump records show the dramatic consequences. Not only did pumps last four or five times longer, but critical shutdowns at peak irrigation periods were avoided. In some cases the sand load on the first separator was such as to make it necessary to install further separators at the discharge point as a protection to the centre pivots.

With 52 wells supplying 52 centre pivots over an area of 2,500 ha, tapping an aquifer at a depth of between 100 and 150 metres, the task facing Lakos warranted modification of the product's physical dimensions, so that it could be accommodated within the relatively narrow well casings required for such a high flow rate.

Circle 13 on the tear-out reply card.