

Industrial Services



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HCR provides sludge removal and waste minimization services with expertise in the full suite of dewatering services, customized to accomplish each customer's specific goals.

Handex Consulting & Remediation, LLC (HCR)

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Industrial Sludge Removal & Waste Minimization Services



Specialized services include the removal and processing of sludge from oil refineries and industrial plant wastes.

Sludges processed by HCR include:

- API separator sludge
- Benzene contaminated sludge
- DAF sludge
- Mixed sludge
- Cooling tower sludge
- Paint sludge
- Biosolid sludge
- Drinking water treatment residuals
- Alum sludge
- Industrial sludges

HCR offers a broad range of experience in handling tank bottoms, which includes sludge removal, processing, transportation and disposal of waste materials.

HCR starts by understanding the problem and coming up with an appropriate solution. Services begin with preliminary bench scale evaluation of a representative sample to determine the most appropriate and cost-effective dewatering technology content.

In most cases, the processing of tank bottoms through mechanical separation of the liquid and solid phases is the most cost-effective approach when compared to the costs associated with pumping and trucking off-site for disposal.

Processing and volume reduction is accomplished by plate and frame filter presses, centrifuges, belt filter-presses and geomembranes.

Additional equipment can be added to the process treatment train to remove low-level contaminants in the liquid phase prior to discharge. Solid filter cake is loaded into containers for shipment and disposal or recycling, which can be arranged by either HCR or the client.

HCR utilizes equipment which complies with Benzene NESHAPS and secondary treatment of the process effluent to meet refinery requirements.

All HCR personnel have extensive training in Health and Safety, including Confined Space Entry and OSHA 40-Hour HAZWOPER and annual OSHA 8-hour refreshers.

This includes:

- Up to 80% volume reduction
- Treatability testing of sludge to achieve the optimum process choice and filter aids
- Sludge removal
- Sludge pretreatment
- Waste handling and disposal
- Completely mobile and self-contained equipment for remote locations
- Treatment and discharge/disposal of filtrate

Pit/Pond/Lagoon Cleanup and Closure



HCR performs lagoon closures as well as interim sludge removal. Sludge removal services are performed as a routine maintenance task to maintain freeboard or facilitate liner inspection or repairs. Sludge removal may be required for concrete basin or liner inspection or liner removal and relining.

HCR services encompass all aspects of the closure from planning to transportation and disposal of the lagoon waste. HCR utilizes a network of subcontractors to provide relining services for lagoons and concrete basins.

Dredging – Remediation Support



A cutter-head dredge enables the removal of sludge and sediment at a fixed or variable depth over the surface area of a lagoon.

The dredge is used on basins where the agitation of the sludge and sediments is necessary to achieve effective removal, and where there is an adequate layer of surface water to float the dredge.

Dredges are also appropriate for a lagoon where a water layer is required to maintain odor control. The dredge can cut a swath eight feet wide and as deep as thirteen feet below the surface.

Dewatering Technologies



HCR comprehensive sludge dewatering technologies reduce volumes of liquid/solid mixtures by up to 80%. The end result is a reduction in transportation and disposal costs, and a step towards compliance with the EPA regulations to minimize waste generation. HCR dewatering options include High Pressure Plate and Frame Filter pressing, Belt Press filtering, Centrifuge processing and Geomembrane solutions.

Treatability testing provides information on a pilot scale for selection of the best dewatering equipment and costs associated with alternative equipment and filter aids to meet client specifications.

We offer the following 4 types of dewatering services:

- | | |
|-----------------|-----------------|
| 1. Filter Press | 3. Centrifuge |
| 2. Geomembrane | 4. Belt Presses |

► Filter Press

High Pressure (up to 225psi) Plate & Frame Filter Press

- Produces a filter cake from 40-70% solids by weight.
- High Pressure is achieved with a Piston Diaphragm Pump. This type of processing is generally used on sludge where the solids are disposed of as a hazardous waste by High Temperature Incineration or Secure Landfill and the highest volume reduction is desired. In addition, high pressure is effective in breaking out bi-products that are entrained in the sludge. For many waste streams, steam enhancement is utilized to change the physical characteristics of the sludge prior to dewatering. Steam enhanced pre-treatment has proven cost effective for Oily Sludge where dewatering is difficult under ambient temperatures and would require higher quantities of additives.

Low Pressure (100psi) Plate & Frame Filter Press

- Produces a filter cake from 25-50% solids by weight.
- Pressure is achieved by double diaphragm or self-priming trash pumps.
- Process is generally used:
 - Where sludge characteristics do not require high pressure to achieve a good quality filter cake.
 - On non-hazardous waste streams where transportation and disposal/recycling costs are not as high as that of hazardous waste streams.

▶ Geomembrane

Geomembranes are used for dewatering, stabilization, separation and containment of various types of sludges including municipal treatment, sediments, industrial, construction and for remediation activities. HCR has experience in many applications of geomembranes for dewatering including using tubes, bags and other membrane technology. Used independently or in concert with other treatment mechanisms, these applications can be tailored to meet a wide variety of client needs.

Geomembranes can also be used for applications where a high volume of water and low volume of solids need to be effectively treated such as:

- Water filtration plant residuals
- Biosolids
- Wastewater residuals
- Ash residuals
- Settling pond residuals

▶ Centrifuge

High RPM Centrifuge processing is utilized for certain oily sludge. This process produces 25-40% solids by weight and employs separation of different specific gravities. Centrifuges are utilized for applications where oil recovery is a priority and the residual solids quality is not of major concern.

▶ Belt presses

The Belt Press is typically used where high-moisture content is acceptable in the filter cake (18-25% solids by weight). The belt process is continuous and effective on high volume waste streams where maximum production of a lower quality filter cake is acceptable. Typical applications include Digester Sludge, Paper Mill Sludge, River Silt and Biological Sludge.