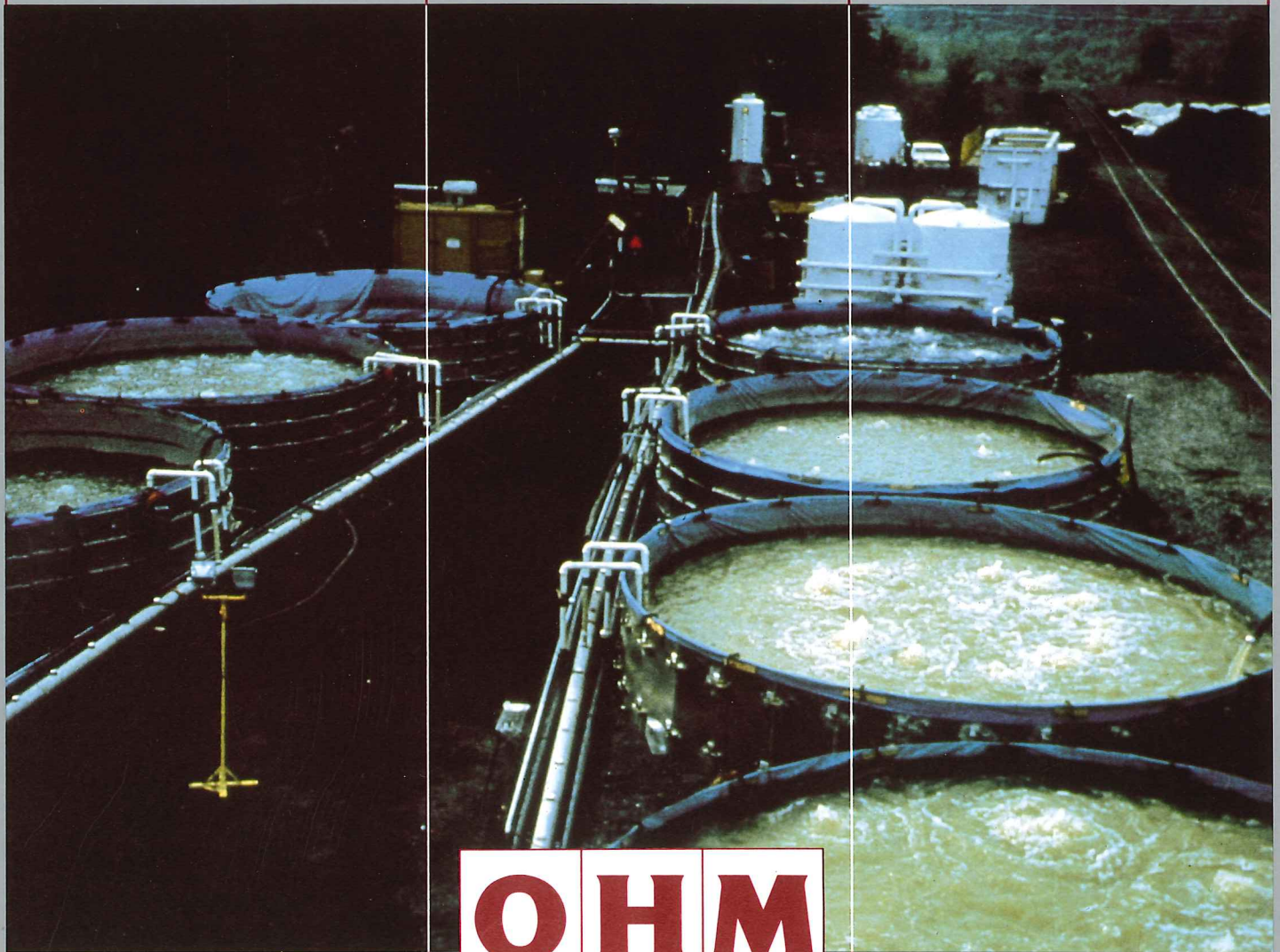


# O.H. MATERIALS

**Innovative  
Solutions to  
Contaminated  
Ground water**



**OHM**

THE ENVIRONMENTAL SERVICES COMPANY

## There is no substitute for experience

Ground water contamination can be one of the most difficult environmental problems to solve. When you have a ground water problem, you need experience to treat it effectively and minimize current and future liabilities.

OHM offers the experience of thousands of successfully completed environmental projects throughout the United States and Canada since 1969, including hundreds of projects involving contaminated ground water.

From this extensive experience, we have developed a wide range of action oriented services to help clients solve ground water contamination problems. These services include:

- Hydrogeological investigations
- Evaluation of remedial action alternatives
- Product recovery
- On-site treatment systems

Clients may use these OHM services individually or in combination to fit their needs. Or, our full range of ground water services with project management can significantly reduce costs and speed project completion by eliminating or minimizing subcontractor involvement.



Customized mobile treatment system—clarifier, retention pool and air stripper—addressing solvents leaking from an underground tank

## Hydrogeological Investigations

These investigations identify and quantify the type and extent of contamination. Every OHM field investigative team is headed by an experienced hydrogeologist or a geotechnical engineer.

All types of drilling services are provided, as well as more sophisticated services such as ground water modeling. OHM has experienced sampling crews versed in proper techniques and chain of custody requirements, equipped with specialized sampling equipment for soils, water, and phased products.



Wells are drilled for both hydrogeological investigations and ground water recovery

OHM's fixed laboratories excel in all aspects of environmental and analytical chemistry. Equipped with the most advanced organic/inorganic analytical instrumentation, including AA, GC, GC/MS and other wet methods and instrument techniques, we routinely provide analyses on complex matrices.

When rapid turnaround time and high sample volumes are required, we can provide on-site analysis from one of our highly specialized field analytical units. All sampling is performed under our corporate health and safety program and analysis is governed by an EPA QA/QC program to insure reliable results.

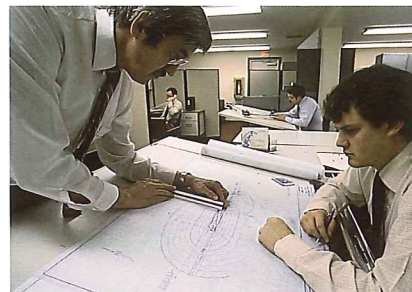


Fully equipped mobile lab for on-site analysis

## Evaluation of Remedial Action Alternatives

OHM's assessment and evaluation services are based on hundreds of man years of actual ground water project experience by our extensive staff of degreed professionals which includes:

- Hydrogeologists
- Geotechnical engineers
- Civil/mechanical engineers
- Chemical/environmental engineers
- Chemists/microbiologists



Development of remedial action plan alternatives

These professionals combine their expertise to provide a full scope of evaluation services including:

- Review extent/urgency of situation
- Environmental risk assessment
- Remedial alternatives identification
- Evaluation of alternatives
- Preliminary/final cost estimates
- Pilot testing programs
- Detailed engineering design
- Remedial action plan
- Agency/client negotiations assistance

OHM is familiar with all proven remediation technologies and is not tied to any particular type of treatment. This enables us to offer our client the most objective evaluation of alternatives and most cost efficient remedial action plan.

## Product Recovery

OHM's experience in ground water projects has involved a wide range of organic and inorganic contaminants including petroleum fuels, petrochemicals, solvents, pesticides, metals, PCBs and other toxic substances.



OHM's patented Underground Recovery and Treatment System in operation following a transportation incident

Our approach to recovery of contaminants is based on the specific objectives of each project. These objectives typically include:

- Source removal
- Recovery of phased liquids
- Recovery/treatment of contaminated ground water
- Flushing of residuals
- Removal/treatment of soils

Projects directed toward recovery of pure or phased products on the ground water surface usually involve automated recovery systems. Aquifer decontamination efforts often require more complex recovery systems which may include:

- Interceptor/recovery drains
- Interceptor/recovery wells
- Injection recovery points
- Skimmer/scavenger wells
- Biologically enhanced flushing systems
- Containment walls/barriers

These systems, with the addition of dynamic flushing with OHM's patented Underground Recovery and Treatment System, may also be used to decontaminate unsaturated zones.

## On-Site Treatment

Our approach is to use proven technology whenever possible. OHM is a recognized leader in developing innovative treatment methods that lead to cost effective solutions.

In keeping with our philosophy of on-site treatment, OHM has designed and fabricated a wide range of mobile treatment equipment which can be operated in virtually any location to concentrate, neutralize, immobilize, detoxify, destroy, or reduce in volume contaminants in any known contaminant matrix. Mobile treatment equipment includes:

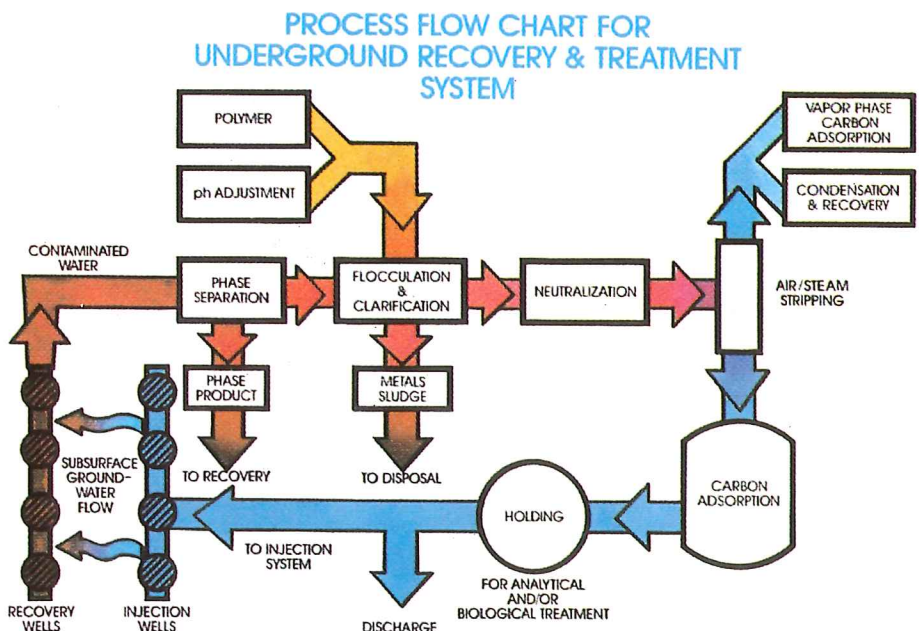
- Carbon adsorption filters
- Clarifiers and separators
- Multimedia prefilters
- Polymeric exchange adsorbers
- Equilization/aeration vessels
- Air and steam stripping units
- Mixing/transfer equipment
- Bio-reaction vessels
- Retention pools
- Solids dewatering systems

The traditional technology of removing organic chemicals from ground water by activated carbon filtration can be made

much more cost effective by using physical and chemical pre-treatment techniques prior to carbon filtration. Biological treatment, as an alternative or polishing technique, can also be used with a growing number of contaminants to increase treatment efficiency.

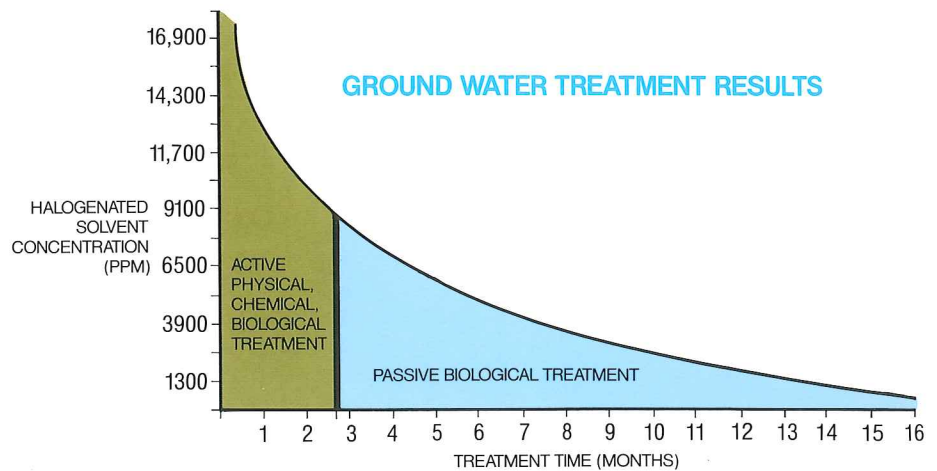
OHM's mobile treatment units can be linked to form custom treatment systems on-site when multiple treatment technologies are required. To insure that the most efficient treatment system is designed for each project, bench and/or pilot scale studies are performed. Our treatment systems reduce cost by decreasing transportation and disposal requirements, and more importantly, reduce or eliminate the liability associated with off-site disposal.

If post-construction monitoring is required to verify containment and reduction of residual contaminants, OHM can develop monitoring plans, install monitoring wells, provide sampling, analysis and on-going evaluation data.





Custom designed air stripping tower removing TCE and other volatile organics from ground water



Results of OHM ground water treatment following contamination by a halogenated solvent spill. Similar reductions have been achieved with many other contaminants.

## OHM is your total-scope environmental services company.

In addition to ground water recovery and treatment, our scope of services includes:

- On-site Treatment Equipment
- Facilities Decontamination
- Hazardous Waste Site Cleanup
- Biological Treatment
- Technical Advisory Services
- Laboratory Services
- Management of Underground Storage Tanks
- Emergency Response
- Surface Impoundment Restoration
- Explosives/Reactives Handling

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