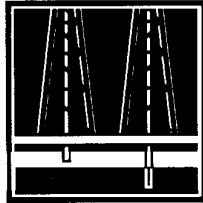


WASTE MINIMIZATION

OIL & GAS FIELD SERVICES



BACKGROUND

Because of the products and materials involved, the oil and gas field service industry generates substantial quantities of potentially hazardous waste. However, the volume of these wastes can be minimized through the implementation of an easy-to-follow waste management program.

Typically, oil and gas field services generate the following wastes:

- used lubrication oils containing toxic heavy metals
- vehicular wastes (lead-acid batteries, tires, antifreeze, oil filters)
- toxic, flammable solvents used for degreasing and cleaning

- plastic containers
- wooden pallets
- metal oil drums
- absorbent material
- potentially toxic paints
- paper products (office paper, paper towels, cardboard packaging)

This information sheet is intended to help oil and gas field service personnel minimize waste. The suggestions presented here have been used successfully by other companies to decrease waste volumes and reduce disposal costs. Commitment to an effective waste minimization program helps protect the environment, reduces liability and can enhance a company's image within its community.

WASTE MINIMIZATION OPPORTUNITIES

The three main ways in which wastes can be minimized are, in order of importance:

1. **Reduce** - change practices, policies and habits which cause wastes to be produced.
2. **Reuse** - recover waste materials and use them "as is" for similar or other purposes.
3. **Recycle** - collect waste materials and process them for use as raw materials or new products.

This section provides many specific suggestions for minimizing the wastes produced by oil and gas field services. Many other practices can also be effective and should be considered in implementing an overall waste minimization program.

REDUCE

- Use an inexpensive oil analysis service to help prolong the life of motor oils, oil filters, and engines.
- Implement a preventive maintenance program for vehicles and machinery.
- Switch to more efficient engines to reduce fuel consumption, and oil and filter waste.
- Reduce solvent evaporation by covering degreasing tanks.
- Use a parts basket over soak tanks to let solvent drip off the parts and back into the tank.
- Use a single solvent in shop operations to minimize disposal costs and reduce the risk of cross-contamination.
- Replace toxic solvents with less toxic cleaners. Biodegradable industrial cleaners and degreasers

are available which are phosphate and caustic soda free.

- If an effective waste water disposal system exists, use high pressure water cleaning as an alternative to solvents.
- Use absorbent materials with high absorption capacities to reduce the amount of material needed to clean-up spills. Natural products are available which are made from 100% wood fibre.
- Buy raw materials in bulk to reduce packaging.
- Use reusable rags instead of disposable ones.
- Purchase and use only as much paint as required.
- Use non-aerosol paints or compressed-air sprayers. If aerosols must be used, buy products with a low volatile organic compound (VOC) content.
- When using a spray gun, use low air pressure to reduce paint loss from overspray.
- Substitute less toxic water-based paints for oil-based paints.
- Top up new cans of primer with the remnants of old cans.

REUSE

- Have old vehicle batteries reconditioned.
- Use a multi-stage technique for cleaning with solvents. Set up 3 or 4 containers of solvent ranging from dirty to clean. Wash parts in dirty solvent, then move from container to container until clean solvent is used for the final stage of cleaning. As the solvent becomes dirty, move it down the cleaning line.

- Ask suppliers to take back empty containers and reuse remaining containers.
- Repair and reuse wooden pallets or use a pallet recycling service.
- Reuse cardboard boxes for storage and packaging.
- Use both sides of paper when photocopying or use used-on-one-side paper for notes.

RECYCLE

- Have used lubrication oil picked up for recycling.
- Sell used lead-acid batteries to recyclers.
- Top up antifreeze and, if necessary, put in new additive package rather than changing it.
- Have used solvents picked up for recycling. Separating them by type (chlorinated versus non-chlorinated) will lower recycling costs.
- Sell scrap metals to recyclers. Segregating metals according to type and size will increase prices paid.
- Collect waste materials for recycling where facilities exist. Participate in the development of a community recycling program if none exists.
- Take small amounts of waste paper to a recycling depot. For large amounts of paper and cardboard, recycling services are available.

