Waste Management and Handling

I. Exempt Exploration and Production Wastes

In 1988, EPA issued a Regulatory Determination stating that certain exploration and production wastes were exempt from regulation as hazardous wastes under RCRA Subtitle D. In order to qualify for the exemption the wastes must subscribe to the general categories of drilling fluids, produced water, and associated wastes. The basis for the exemption is that these are high volume, low toxicity wastes and would quickly overwhelm the existing disposal facility capacity if regulated as hazardous wastes. The terminology “associated wastes” has been further interpreted to include wastes from primary production of crude oil and natural gas. The list below includes the more common E&P wastes, sometimes also referred to as non-hazardous oilfield wastes or “NOW”, that may be generated in Apache operations.

**EXEMPT OILFIELD WASTES**

- Produced water
- Drilling fluids and cuttings
- Rigwash
- Well completion, treatment, and stimulation fluids (returns from downhole)
- Workover fluids (returns from downhole)
- Basic sediment and water and other tank bottom sludge from storage facilities that hold product and exempt wastes
- Crude oil-contaminated soils
- Accumulated materials such as hydrocarbons, solids, sands and emulsion from production separators, fluid treating vessels and production impoundments
- Paraffin
- Pit sludges and contaminated bottoms from storage or disposal of exempt wastes
- Gas plant dehydration wastes, including glycol-based compounds, glycol filters, filter media, backwash and molecular sieves
- Gas plant sweetening wastes for sulfur removal, including amine, amine filters, amine filter media, backwash, precipitated amine sludge, iron sponge and hydrogen sulfide scrubber liquid and sludge
- Cooling tower blowdown
- Spent filters, filter media and backwash (assuming the filter itself is not hazardous and the residue in it is from an exempt waste stream)
- Packer fluids (returns from downhole)
- Produced sand and proppant from hydraulic fracturing
- Pipe scale, hydrocarbon solids, hydrates and other deposits removed from piping and equipment prior to transportation.
- Pigging wastes from gathering lines
- Wastes from subsurface gas storage and retrieval, except for the listed non-exempt wastes
- Constituents removed from produced water before it is injected or otherwise disposed
- Liquid hydrocarbons removed from the production stream but not from oil refining
- Gases removed from the production stream, such as hydrogen sulfide and carbon dioxide and volatilized hydrocarbons
- Materials ejected from a producing well during a blowout
- Waste crude oil from primary field operations and production
- Light organics volatilized from exempt wastes in reserve pits or impoundments or production equipment
- Liquid and solid wastes generated by crude oil and tank bottom reclaimers
II. Non Hazardous Oilfield Waste (NOW) (E&P Exempt) Waste Handling

E&P wastes generated in Federal OCS or state waters must be properly handled and disposed. The procedures listed below should be followed to insure that operations are in compliance with all applicable federal and/or state laws.

A. Segregation

Keep hazardous and non-hazardous wastes segregated. Intentional mixing of such wastes or mixing hazardous wastes with marketable hydrocarbons is prohibited. In addition, mixing an exempt waste with a non-exempt waste may create a mixture which must be managed and disposed of as a hazardous waste. Disposal of such mixtures is very costly. Mixing wastes with hydrocarbon co-products can also result in a loss of marketability.

The MSDS on each product describes the reactivity of the product. Materials to be avoided and the hazardous decomposition of products are noted. To keep incompatible materials segregated:

1) Do not place incompatible wastes in the same tank or container.

2) Do not place wastes in an unwashed tank or container that previously held an incompatible material.

3) Storage containers holding wastes that are incompatible with other stored materials must be kept apart from those materials or otherwise protected from them to avoid chemical reactions in the event of leakage.

4) Storage containers shall be labeled with its contents to prevent the mixing of incompatible materials.

To keep hazardous and non-hazardous wastes segregated:

1) Designate special containers or tanks to be used for each waste or material and ensure they are properly labeled.

2) Prohibit employees from dumping hazardous wastes in:

   (a) trash dumpsters or containers
   (b) drains
   (c) hydrocarbon storage tanks
   (d) surrounding waters
   (e) rig mud systems
3) Keep all wastes, such as those listed below, in separate containers to reduce offsite disposal costs:

(a) Paint thinners and painting equipment cleaners, antifreeze, varsol, used oil, and acetone
(b) Hazardous degreasing solvents
(c) Spill cleanup residues such as absorbent
(d) Waste oil

B. Storage

1) Containers must be in good condition and free of leaks. If a container is found to be leaking, the waste must be transferred to another container or the leaking container must be placed in an overpack salvage drum.

2) Monitor what wastes are placed in containers.

3) Containers should be labeled with an indelible marker or paint. The label must show the company name, rig or platform number and container contents. Containers holding hazardous wastes must be labeled “Hazardous”. Containers holding NOW must be labeled “NOW”. Container holding NORM must be labeled “NORM”.

4) NOW may be stored or shipped in cutting boxes or DOT specification 1A2 drums. Consideration should be given to using slick walled containers to aid in wash out.

5) Store NOW over secondary containment, such as a skid pan, to prevent spills.

6) Containers must be kept closed except when wastes are removed or added.

7) Containers must be handled so as not to cause a rupture or leak.

8) Containers accumulating hazardous wastes must be located away from sparks, or other ignitable sources and protected from extreme temperatures.

9) Containers must be inspected weekly for signs of corrosion or leaks.

10) Empty product drums or other product containers must be either neatly stored for reuse or reconditioning by a drum reconditioner or disposed of as soon as practicable.

11) All trash must be placed in designated container to prevent spread of insects and rodents and to prevent trash from becoming windblown. Open burning is prohibited.
III. Manifesting, Transporting and Disposal of Non-Hazardous Oilfield Waste (NOW)

NOW may be disposed of at licensed commercial NOW facilities in Texas and Louisiana. Transporters must be approved by the applicable state agencies to transport NOW waste.

Note: The transporter is that entity which delivers the material to the disposal site. The vessel which delivers the waste to shore may or may not be the transporter.

Example: If the material is delivered directly from the rig to the disposal facility via workboat, the workboat is the transporter. If, however, the material is brought to shore and transferred to a truck or another boat for delivery to the disposal site, the truck or second boat is the transporter.

A. Disposal / Shipping in Louisiana

The following is required for shipping:

If the NOW is being shipped to a Louisiana transfer location or disposal facility, a five (5) part Louisiana Oilfield Waste Shipping Control Ticket (Form UIC-28) and, in some cases, an approved Louisiana Request to Dispose of “NOW” at a Commercial Facility, Form UIC-23, must accompany the shipment. Copies of the completed UIC-28 must be retained by the generator, transporter and disposal facility for at least three (3) years.

The following procedure is suggested:

1) Determine if Operator has a LA Operator Code Number. If not, obtain an approved UIC-23 before the shipment is taken to the disposal facility.

   Apache’s LA Operator Code Number is: 0152
   Apache Deepwater LLC’s Operator Code Number is: EP0068

2) Complete and sign Part I of Louisiana Oilfield Waste Shipping Control Ticket (Form UIC-28). Refer to the back of the UIC 28 form for detail instructions to properly complete the form. Use the operator’s LA operator code number as the generator number unless the operator does not have one. In this event, use Code 9999 as the generator code and attach an approved UIC-23 to UIC-28.

3) Obtain the green copy of the manifest from the transporter after he has completed and signed Part II. Retain this copy at the location. Make sure all other copies of the manifest leave the location with the transporter.
Maintain records of all NOW generated and shipped during operations. Prior to 6 months after date total depth of well reached or end of completion or workover operations an End of Well Waste Disposition Report, Form ENG-16, is required to be submitted to Louisiana Office of Conservation, Injection & Mining Division.

**B. Disposal in Texas**

1) If the NOW is being shipped to a Texas transfer location or disposal facility, complete the disposal company’s shipping control ticket. This ticket will accompany the shipment to the disposal facility.

**Note:** Texas does not have a government administered manifest system in place for generators of NOW. However, the state holds the generator responsible for ensuring that the disposal facility selected is properly licensed and/or permitted.

2) The generator is also required to keep records of the amount and kind of waste shipped.

**IV. Other Waste**

Non-exempt wastes which are not classified as hazardous waste may be disposed of at approved commercial facilities in Texas and Louisiana provided the facility will accept the material. The list below identifies a number of common oilfield wastes that are not exempt under RCRA Subtitle D. These wastes can generally be disposed of as solid, or industrial wastes, and may be required to be tested for hazardous characteristics.

**NON-EXEMPT WASTES**

- Batteries: lead acid
- Batteries: nickel-cadmium
- Cement, unused and surplus slurry from testing cementing equipment
- Chemicals, surplus
- Chemicals, unusable (including waste acids)
- Compressor oil, filters, and blowdown waste
- Debris, lube oil contaminated
- Drilling fluids, unused
- Drums/containers, containing chemicals
- Drums/containers, containing lubricating oil
- Drums, empty (and drum rinsate)
- Filters, lubrication oil (used)
- Hydraulic fluids, used
- Mercury
- Methanol, unused
- Oil, equipment lubricating (used)
- Paint and paint wastes
- Pesticide and herbicide wastes
- Pipe dope, unused
- Radioactive tracer wastes
- Sandblast media
NON-EXEMPT WASTES (Cont’d)

- Scrap metal
- Soil, chemical-contaminated (including spilled chemicals)
- Soil, lube oil-contaminated
- Soil, mercury-contaminated
- Solvents, spent (including waste solvents)
- Thread protectors, pipe dope contaminated
- Vacuum truck rinsate from tanks containing nonexempt waste
- Well completion, treatment and stimulation fluids, unused

Disposal of Non-Exempt Wastes

1) Determine if a generator number must be obtained from the Solid Waste Divisions of the LA DEQ and/or TCEQ. The applicable agency may require testing of the material to prove that it is not hazardous.

2) Determine if a manifest is required for the waste. Some shipments require only the transporter’s shipping control ticket. However, some disposal facilities will not accept waste without a manifest.

3) Sanitary waste may generally be discharged overboard unless expressly prohibited by the applicable EPA or LA DEQ permit. Operations in sensitive areas of Louisiana and Texas state waters may specify “no discharge”. In that event, waste must be collected and transported to shore for disposal.

V. NORM

Naturally occurring radioactive materials (NORM) that are produced with formation waters may cause troublesome waste management and regulatory compliance concerns. When NORM contaminates production equipment and sites, it poses a special waste management problem and falls under Louisiana, and Texas Rule 94 Regulations.

Deposition of NORM is primarily controlled by pressure and temperature changes and commingling of incompatible formation waters. Radon gas co-produced with natural gas is also a source of NORM. While the presence of NORM in reservoir water and gas cannot be eliminated, the volume of NORM-contaminated waste that is generated can be reduced through control of its deposition.

In Louisiana and Texas, NORM-contaminated waste or materials must be first tested then manifested to a licensed disposal facility. In Louisiana, NORM-contaminated materials must be manifested to a designated commercial facility using the Louisiana NORM Waste Manifest and depending on the level of radioactivity; a hazardous waste manifest may also need to be completed.
NOTE: Please contact your Apache EH&S Specialist for additional information or visit the Apache SEMS website to view the waste management, handling & shipping procedures section for a detailed description on handling and shipping materials.
GUIDELINES FOR COMPLIANCE WITH EPA HAZARDOUS WASTE REGULATIONS

Exploration & Production Wastes

Drilling and other downhole fluids, agents, and additives used in drilling and production are exempt as hazardous material, but are regulated under the EPA NPDES Permit as outlined in the EPA Permit Section. Other materials, however, such as paints, solvents, lubricating oils and hydraulic fluids generated at well sites are hazardous wastes and require special handling and storage. The EPA defines a HAZARDOUS WASTE as “Any solid or liquid waste that is either listed by the agency or is ignitable, corrosive, reactive or toxic”. The table below summarizes the status of common exploration and production waste products.

<table>
<thead>
<tr>
<th>Hazardous Material (non-exempt)</th>
<th>Special Regulated* (exempt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radioactive Tracer Wastes</td>
<td>Drilling Fluids</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Drill Cuttings</td>
</tr>
<tr>
<td>Sanitary Waste</td>
<td>Rig Wash</td>
</tr>
<tr>
<td>Waste Solvents</td>
<td>Produced Water</td>
</tr>
<tr>
<td>Used Lubrication Oils</td>
<td>Completion Fluids</td>
</tr>
<tr>
<td>Used Hydraulic Fluids</td>
<td>Treatment Fluids</td>
</tr>
<tr>
<td>Painting Wastes</td>
<td>Workover Wastes</td>
</tr>
<tr>
<td>Unused Fracturing Fluids</td>
<td>Packer Fluids</td>
</tr>
<tr>
<td>Empty Drums</td>
<td>Produced Sand</td>
</tr>
<tr>
<td>Drum Rinsate</td>
<td>Stimulation Fluids</td>
</tr>
<tr>
<td>Sandblast Media</td>
<td>BS&amp;W</td>
</tr>
<tr>
<td>Spilled Chemicals</td>
<td>Glycols</td>
</tr>
<tr>
<td>Waste Acids</td>
<td>Pigging Wastes</td>
</tr>
<tr>
<td>Rust Inhibitors</td>
<td>Blowdown Wastes</td>
</tr>
<tr>
<td></td>
<td>Excess Cement Slurry</td>
</tr>
<tr>
<td></td>
<td>Bilge Water</td>
</tr>
<tr>
<td></td>
<td>Blowout Preventer Fluids</td>
</tr>
<tr>
<td></td>
<td>Pipeline Hydrotest Water</td>
</tr>
<tr>
<td></td>
<td>Subsea Control Fluids</td>
</tr>
</tbody>
</table>

*Disposal regulated by Offshore NPDES Permit.
Waste Minimization

Disposal of hazardous waste is very expensive. The cost of disposing a 55-gallon drum of hazardous waste can range from $100 to $800. The cost may increase by as much as $100 to $1200 if an analysis of the waste is required to determine waste contents. Segregation of waste minimizes disposal cost. Commingling of any hazardous waste with a non-hazardous waste will require the entire waste volume to be disposed of as hazardous waste. Commingling may also eliminate the ability to recycle certain wastes, such as used motor oils and paint thinners. For this reason, it is very important that hazardous waste be stored at designated, posted hazardous waste staging areas and that all the containers are properly marked to prevent commingling of waste materials. Waste can be minimized by following the steps below:

1. Purchase only what is needed to do the job. If possible, select products with non-hazardous components.

2. Reuse products such as degreasers or paint thinners, whenever possible.

3. Monitor the shelf-life of products. If a product cannot be used before its shelf-life expires, contact another facility to see if they can use the product.

4. Do not discard the product container until it has been thoroughly emptied. Portable tanks, 55-gallon drums, and similar type containers which have contained hazardous material are classified as empty containers only when they contain less than one (1) inch of residue. Use a practical means of emptying the container such as pouring, pumping, etc.

5. Avoid spilling mud or additives. They may mix with rain (or wave wash).

6. Maintain a good preventive maintenance and inspection program. Repair ruptured hoses, valves, and connections immediately.

7. Use drip pans for leaks and return spilled material to container.

8. Return used batteries for exchange or recycling.

9. Avoid overfilling and runover in bulk fuel and chemical storage.

10. Communicate waste minimization goals to all parties onsite.
Hazardous Waste Handling

Containers/Storage

1. Containers must be in good condition and free of leaks. If container is found to be leaking, the waste must be transferred to another container or the leaking container must be placed in an overpack salvage drum.

2. Monitor what wastes are placed in containers.

3. Containers holding hazardous waste must be properly label with contents.

4. Keep containers closed unless adding or removing waste.

5. Handle container so as not to cause rupture or leak.

6. Containers accumulating hazardous waste must be labeled and stored in designated posted areas which must be located away from sparks, or other ignitable sources and protected from extreme temperatures.

7. Containers must be inspected weekly for signs of corrosion and leaks.

Transportation of Hazardous Waste

1. Hazardous Waste must be shipped by Transporters permitted and authorized to handle hazardous waste.

2. All hazardous waste shipments must be accompanied by an EPA Uniform Hazardous Waste Shipping Manifest.

Waste Disposal

1. All hazardous waste must be disposed of at facilities permitted and authorized to handle hazardous waste.

2. Liability for hazardous waste remains with the generator from cradle to grave.

NOTE: Please contact your Apache EH&S Specialist for additional information or visit the Apache SEMS website to view the waste management, handling & shipping procedures section for a detail description on handling and shipping materials.