Best Management Practices for Embalming Facilities

Embalming operations discharging blood, body fluids and various preservation chemicals used in the embalming process present a potential problem to the proper treatment of sanitary wastewater. JEA, as the control authority, regulates discharges from embalming facilities to ensure these discharges do not have a negative impact on the treatment works or the local waterways. By following these best management practices, embalming facilities may be exempt from obtaining a JEA Industrial User Discharge Permit.

Policy

It is the policy of the JEA Industrial Pretreatment program that embalming facilities discharging to the sanitary sewer system must implement these best management practices.

Required Practices for Embalming Wastes

- To reduce waste, minimize spills and lower exposure, mix the smallest possible volume of embalming solution required to do the job effectively. One-half to one gallon of embalming solution should be sufficient in most cases.[1,2]
- To eliminate spills and overflows, use caution during dilution of embalming solutions and filling of machines; use small quantities of chemicals for easy and safe handling; and perform preventative maintenance on embalming equipment.
- In lieu of disposal, store excess embalming solutions in approved, properly labeled containers for future use.
- Store embalming fluids and other chemicals away from drains or in spill containment units to prevent accidental spills from entering the sanitary sewer.
- Do not dispose solvents or chemicals containing chlorinated hydrocarbons in the sanitary sewer. Follow appropriate procedures for collection and management of all hazardous and non-hazardous chemicals. Properly collect, segregate, store, label and dispose of all wastes.[1]
- All discharges to the JEA sanitary sewer system must comply with JEA's Prohibited Discharge Standards (see attachment).

Suggested Pollution Prevention Practices

- Substitute safer, less toxic materials wherever possible. Use embalming fluid substitutes containing ethyl alcohol, polyethylene glycol and phenoxyethanol to replace embalming solutions containing formaldehyde, methanol, and phenol. Less toxic high-level disinfectants are available including those containing acetic acid, peracetic acid, hydrogen peroxide, alcohols, or ketones.
- Incorporate a multi-functional product to replace multiple cleaning (shampoos, soaps, shaving cream) and disinfecting products. A single anti-viral, antibacterial, germicidal product could serve as a shampoo, soap, shaving cream and disinfectant, all in one.
- Prevent discharge of concentrated embalming chemicals by rinsing empty chemical containers with water and emptying the rinse water into the embalming machine for reuse.
- Purchase pre-diluted solutions to eliminate spills during dilution of embalming solutions and to prevent storage of excess embalming solutions.
- Develop procedures to contain spills, decontaminate work areas and dispose of waste in areas where spills occur.
- Use minimal amount of solution or lower concentrations of hazardous chemicals (formaldehyde, phenol, etc.) in embalming solutions.

For More Information

Contact us at JEA Industrial Pretreatment 21 W. Church St., T-8, Jacksonville, FL 32202/ (904) 665-5326
Please visit our website at jea.com

References

[A] National Funeral Home Directors Association. 1995. "Funeral Home Waste Stream Audit Report." June 9, 1995.
[2] New York State Funeral Directors Association. 2003. "Best Management Practices for Funeral Homes." January 2003

Industrial Pretreatment

Appendix A

PROHIBITED DISCHARGES AND LOCAL LIMITS

1. Prohibited Discharges

In accordance with §2.1 of JEA's *Industrial Pretreatment Regulation*, no user shall introduce or cause to be introduced into JEA's Wastewater Treatment Facilities (JEAWWF) any pollutant or wastewater which causes pass-through or interference or shall introduce or cause to be introduced pollutants, substances, or wastewater that have not been processed or stored in such a manner that they could be discharged to JEAWWF. No significant industrial user shall discharge to JEAWWF without authorization from JEA. These general prohibitions apply to all users of JEAWWF whether or not they are subject to categorical pretreatment standards or any other Federal, State, or local pretreatment standards or requirements.

Additionally, no user shall introduce or cause to be introduced into JEAWWF the following pollutants, substances, or wastewater:

(1) Pollutants which create a fire or explosive hazard in JEAWWF, including, but not limited to, waste streams with a closed-cup flash point of less than 140°F (60°C) using the test methods specified in 40 CFR 261.21.

(2) Wastewater having a pH lower than 5.5 or higher than 12.0, or otherwise causing corrosive structural damage to JEAWWF or equipment.

(3) Any solids or viscous substances that may cause obstruction to flow or be detrimental to sewerage system operations. These objectionable substances include, but are not limited to, asphalt, dead animals, offal, ashes, sand, mud, straw, industrial process shavings, metals, glass, rags, feathers, tar, plastics, wood, whole blood, paunch manure, bones, hair and fleshings, entrails, paper dishes, paper cups, milk containers, or other similar paper products, either whole or ground.

(4) Any animal or vegetable-based oils, fats, or greases whether or not emulsified, which would tend to coat or clog, cause interference, pass through, or adverse effects on JEAWWF. Grease removed from grease traps or interceptors shall not be discharged to JEAWWF.

(5) Pollutants, including oxygen-demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which, either singly or by interaction with other pollutants, will cause interference with JEAWWF.

(6) No user shall discharge into a sewer line or other appurtenance of the JEAWWF any wastewater having a temperature greater than 140^{o}F (60^{o}C) or which will inhibit biological activity in the treatment plant resulting in interference, but in no case wastewater which causes the temperature at the introduction into the treatment plant to exceed 104 ^{o}F (40^{o}C). If a lower temperature limit is required than 140^{o}F at the point of connection to JEAWWF, then the limit shall be depicted in the user's wastewater discharge permit.

(7) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin at a total concentration exceeding 150 mg/l.

(8) Wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with a wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of JEAWWF, causing the treatment plant to fail a toxicity test or exceed the limitation set forth in a categorical pretreatment standard.

(9) Storm water, surface water, ground water, artesian well water, roof runoff, subsurface drainage, condensate, deionized water, non-contact cooling water, and unpolluted wastewater, unless specifically authorized by JEA.

(10) Pollutants which result in the presence of toxic gases, vapors, or fumes within JEAWWF in a quantity that may cause acute worker health and safety problems. Acute worker health and safety problems may be defined using the most recent information on TWA-TLV, TWA-STEL, and IDLH from the American Conference of Governmental Industrial Hygienists (ACGIH), National Institute for Occupational Safety and Health (NIOSH), EPA, and the Occupational Health and Safety Administration (OSHA).

(11) Trucked or hauled pollutants, except at discharge points designated by JEA in accordance with §6.3 of JEA's *Industrial Pretreatment Regulation*.

(12) Noxious or malodorous liquids (City of Jacksonville, City Odor Ordinance, Chapter 376, Ordinance Code), gases, solids, or other wastewater which, either singly or by interaction with other wastes, are sufficient to create a public nuisance or a hazard to life, or to prevent entry into the sewers for maintenance, inspection or repair.

(13) Wastewater which imparts color that cannot be removed by the treatment process, and causes a violation of JEAWWF's NPDES permit such as, but not limited to, dye wastes and vegetable tanning solutions.

(14) Wastewater containing any radioactive wastes or isotopes except in compliance with applicable Federal and State regulations or permits issued by Federal and State Agencies and specifically authorized by JEA.

(15) Sludge, screenings, or other residues from the pretreatment of industrial wastes.

(16) Medical or infectious wastes, except as specifically authorized by JEA in a wastewater discharge permit

(17) Detergents, surface-active agents, or other substances which may cause excessive foaming and cause interference and pass-through JEA Wastewater Treatment Plants.

(18) Waters or wastes containing phenol or other taste- or odor-producing substances in such concentrations exceeding limits established by JEA, as necessary after treatment of the composite sewage to meet requirements of Federal, State or other public agencies having jurisdiction for the discharge to the receiving waters.

(19) Garbage that has not been properly shredded to such a degree that all particles will be carried freely in suspension under flow conditions normally prevailing in JEAWWF. At no time shall the concentration of properly ground garbage exceed a level that would prevent JEAWWF from maintaining the required efficiency or cause operational difficulties.

(20) Swimming pool drainage unless specifically authorized by JEA. No person who fills a swimming pool with non-metered water may discharge swimming pool drainage to a sanitary sewer without a JEA wastewater discharge authorization.

(21) It shall be unlawful for silver-rich solution from a photographic processing facility to be discharged or otherwise introduced into JEAWWF, unless such silver-rich solution is managed by the photographic processing facility in accordance with the most recent version of the Silver CMP prior to its introduction into JEAWWF.

2. Local Limits

The following pollutant limits are established to protect against pass-through and interference. No person shall discharge wastewater containing in excess of the following:

Maximum Allowable Discharge Limits

POLLUTANTS	BUCKMAN ST WWF	DISTRICT II WWF	SOUTHWEST WWF	ARLINGTON EAST WWF	MANDARIN WWF
Cadmium (mg/l)	1.20	1.20	1.20	1.20	1.20
Chromium (mg/l)	10.00	10.00	10.00	10.00	10.00
Copper (mg/l)	3.38	0.82(1)	none	3.38	3.38
Cyanide (mg/l)	3.38	3.38	3.38	3.38	3.38
Lead (mg/l)	1.40	0.70	1.90	1.17	1.90
Mercury (mg/l)	0.006(1)	0.006(1)	0.006(1)	0.006(1)	0.006
Molybdenum (mg/l)	2.66(1)	0.741 lb/day(1) (2)	none	none	none
Nickel (mg/l)	3.98(1)	3.98	3.98	3.98	3.98
Silver (mg/l)	0.43	0.43	0.43	0.43	0.43
Zinc (mg/l)	2.61	2.61	2.61	2.61	2.61

(1) Limits for contributory flow users only. Industrial user will be notified by JEA regarding its status as a contributory user.
(2) Limitations applied in IU permits as determined by JEA.

The above limits apply at the point where the wastewater is discharged to JEAWWF. All concentrations for metallic substances are for "total" metal unless indicated otherwise. JEA may impose mass limitations in addition to, or in place of, the concentration-based limitations above.