
THE GAMGRAM

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WASTE FUEL = WASTED MONEY

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There is a story about two men repairing a fuel system. The young one, new to the job, remarked that the fuel smelled awful. The older one smiled and answered, "It may smell awful to you but it smells like money to me". Fuel is an expensive part of aviation operations. In the life of an aircraft, fuel is the single greatest expense.

You would never throw away money, would you? Well maybe you do and possibly more than you realize. There are many ways to be "penny wise and pound (or dollar) foolish" in our industry. Our industry's habits are rooted in the past. Many people still treat fuel as if it cost 10 cents a gallon. Do you?

WASTE FUEL = MONEY

When you decide to call fuel "WASTE" or "SLOP", use your head and not tradition. A lot of people now find themselves paying big money to have this fuel removed and disposed of. Remember, the moment you call it "waste" or "slop" fuel, it may legally become HAZARDOUS WASTE! What's the difference? Plenty! You will likely not be ALLOWED (by law) to recover this fuel -- even for diesel or fuel oil use. You should call this fuel either "fuel" or, if you must, "downgrade fuel".

DEFINITIONS

Waste (slop) Fuel: This is fuel unacceptable for aircraft or ground equipment use and must be disposed of accordingly. Waste fuel cannot be reclaimed or recovered by the facility operator for aircraft use. Waste fuel is generally contaminated fuel resulting from exposure to biological degradation, surfactants, oily water separator systems, chemicals, product mixtures, yard (surface) drains, spills, or from other various contamination sources that can be detrimental to fuel quality and flight safety.

Sump and Sample Test Fuel: This is reusable fuel removed from facilities and equipment while performing routine quality control testing or when performing fueling equipment maintenance. Sump (sample/test) fuel is generally considered aircraft quality after removing small quantities or traces of water and/or solid particles that may result from testing or draining of equipment. Fuel removed from filter vessel drains, jar and bucket sampling, filter membrane testing, sump (tank bottom) drains on fuel storage point vents, low point drains, and other fuel samples from locations where the fuel is generally considered clean and dry, is usually of excellent quality. This fuel can be returned to the storage tanks (you may want to filter it first) or use as a ground equipment fuel.

IMPORTANT: Sump/sample fuel becomes waste fuel only if it becomes unacceptable for aircraft or ground equipment use. The point here is that there is, most likely, nothing wrong with at least 99% of that fuel. Think about it! In most fuel systems, your samples are all perfectly clean and pure. IS IT REALLY NO GOOD WHEN IT COMES OUT OF THE FILTER DRAIN PERFECTLY CLEAN?

Many people consider the fuel from a filter membrane test (Millipore® or MiniMonitor®) to be slop fuel. The truth is that it is surely the cleanest fuel you have. The membrane is a VERY fine filter. Fuel released from air eliminators and pressure relief valves is clean fuel. Sump samples from tank or filter drains rarely contain more than traces of dirt or water.

You not only lose the cost of the fuel, but the waste hauler's charge and your mark-up, because you could have sold that fuel. We have heard of people having to pay over \$3.00 per gallon to have waste fuel removed.

A common practice is to run pipes from filter accessories (air eliminators, pressure relief and automatic water drain valves) to the slop tank. Eventually these items leak, filling the slop tank or oily water recovery system quickly. We know of a location where over 1,000,000 gallons/year was wasted in this way. The use of inline flow indicators can help you discover such leaks.

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SIMPLE SOLUTIONS

We recommend you spend a little time and money now, to save a lot of money later. BE SURE YOU CONTACT YOUR AIR LINE AND OIL COMPANY FUEL QUALITY PEOPLE FIRST! Be sure to meet all state and local requirements with any system changes.

1. Connect the air eliminator and pressure relief valve outlets together with pipe or metal tubing and run this back to the storage tanks (DO NOT DO THIS WITH AUTOMATIC WATER DRAINS). If you have above-ground tanks, you must mount a check valve at the tank.
2. When you drain a filter to change elements, take sump samples (start with a clean bucket) until you get a clean sample, then use a CLEAN hose, tubing, bucket or other means to put the rest of the fuel back into the storage tank. If you have underground tanks, you can install two manual drains. Connect the extra drain valve to the air eliminator and pressure relief tube we recommended in Solution #1. It might be a good idea to use a self-closing, spring-loaded valve so that it will be unlikely to be left open. Then you can drain the vessel very easily and cleanly, directly to storage.
3. Filter membrane samples (MiniMonitor® or Millipore®) are collected in buckets. If you clean the bucket before the test, you can return the fuel to storage. If you use automatic drain systems, they should be connected to the slop tank or a sump separator. If you run the auto-drain to a slop tank, it is a good idea to mount a flow indicator on the pipe so you can see if the valve leaks.
4. Sump samples (white bucket) can have dirt or water in them, but usually no more than traces. Start with a clean bucket and after the test you can let the bucket settle a half hour and return a majority of the fuel to storage, then pour the sediment into the slop tank or drum.
5. Review your operations carefully, and check your slop removal costs. As you can see, a majority of these changes cost very little to implement. Many military services, air lines, and oil companies follow such practices. We recommend you re-think your policies if you are throwing money away. Also, let's face it: even with our knowledge of environmental damage, some people still dump fuel on the ground. WE MUST CHANGE THIS HABIT!

Bucket samples or fuel drained from a filter separator must never be allowed to splash into a storage tank because of the danger of an electrostatic explosion. However, this operation can be performed safely by using a connection added to the storage tank fill piping (if you have an underground tank). If you have above ground tankage, this problem can be handled by a Sump Separator with a pump).

We would be remiss if we didn't mention our Sump Separator fuel recovery unit ([see our Bulletin 22](#)).

The Sump Separator fuel recovery unit is basically a heavy gauge steel tank, bright white epoxy lined, with a cone bottom. It is specially designed to serve as fuel recovery unit, reducing "slop" to a minimum. The Sump Separator valve mechanism is specially designed to concentrate sediment and water. You can run air eliminators, pressure relief, automatic water drains, etc. to a sump separator. You can also pour white bucket samples and filter membrane test buckets into your sump separator. After settling, you can recover at least 95% of the good fuel. Options include filters, pumps, etc., so you can be confident of not putting dirt or water back into the storage tank.

Following these practices can reduce your wasted fuel and save money.

NOTE: If you don't want to reuse this fuel as jet fuel, you may consider using it as fuel for diesels or oil furnaces. At many airports, the only fuel used in diesel refueler trucks and tugs is Jet A. Consult the manufacturer of the furnace or engine. You may want to blend jet fuel with diesel for engine use. Also, if you use it as motor fuel, for use in vehicles which go on the public roads, you will have to keep careful records and pay taxes. You will still save a lot of money.