



11. CONSTITUENTS OF CONCERN (CONTINUED)

PROCESS  
KNOWLEDGE ANALYSIS

- > H. SULFUR: <0.7%\_\_\_\_, 0.7-10%\_\_\_\_, >10%\_\_\_\_ \* \*  
 > I. LEAD: <100 PPM\_\_\_\_, >100 PPM\_\_\_\_ \* \*  
 > J. MERCURY: <100 PPM\_\_\_\_, >100 PPM\_\_\_\_ \* \*  
 K. NITROGEN: <1%\_\_\_\_, 1-10%\_\_\_\_, >10%\_\_\_\_ \* \*  
 12. EF TOXIC? YES\_\_\_\_/NO\_\_\_\_  
 13. REACTIVITY:\_\_\_\_\_  
 14. PHYSICAL STATE (AT 70 DEG F.)  
 LIQUID\_\_\_\_ SOLID\_\_\_\_ SLUDGE\_\_\_\_ SLURRY\_\_\_\_  
 SINGLE PHASE\_\_\_\_ MULTI-PHASE\_\_\_\_ OIL/WATER\_\_\_\_  
 15. PUMPABLE AT 70 DEG F.\_\_\_\_\_  
 16. HEAT OF COMBUSTION (BTU/LB): <5000\_\_\_\_\_  
 5000-15000\_\_\_\_, >15000\_\_\_\_ \* \*  
 17. EXPLOSION/FIRE HAZARD:\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

18. PERSONAL HANDLING EXPOSURE/PRECAUTIONS:\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

19. HOW CONTAINED NOW:\_\_\_\_\_  
 20. REQUIRED PACKAGING:\_\_\_\_\_  
 \_\_\_\_\_

21. VOLUME OF WASTE MATERIAL (IN POUNDS):  
 INVENTORY:\_\_\_\_ PER YEAR:\_\_\_\_\_  
 22. MATERIAL COMPATIBILITY:\_\_\_\_\_  
 23. ANNUAL REVIEW DATE/INITIAL:  
 \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

> \*ANALYSIS REQUIRED FOR EPA HAZARDOUS WASTES GENERATED OUTSIDE  
 LOUISIANA DIVISION. SEE ITEM 24 FOR SUPPLYING THIS INFORMATION.

\_\_\_\_\_  
 SOURCE PLANT SUPERINTENDENT DATE

\_\_\_\_\_  
 ENVIRONMENTAL OPERATIONS SUPERINTENDENT DATE

(DISPOSAL METHOD:\_\_\_\_\_) )

ENVIRONMENTAL OPERATIONS WASTE CHARACTERIZATION SUMMARY  
ANNUAL ANALYSIS UPDATE

>24. ANALYTICAL INFORMATION (REQUIRED FOR EPA HAZARDOUS WASTES GENERATED OUTSIDE LOUISIANA DIVISION)

TEST TO BE REPEATED ANNUALLY FOR ITEMS A & E. ITEMS B, C & D TO BE REPEATED ONLY IF PROCESS CHANGE OCCURS THAT WOULD RESULT IN SULFUR, LEAD, AND MERCURY BEING PRESENT. ANY PROCESS CHANGE RESULTING IN A CHANGE IN WASTE CHARACTERISTICS REQUIRES A NEW COMPLETED WASTE CHARACTERIZATION SUMMARY TO BE SUBMITTED.

|                                                                                                                                                                                                                      | TEST METHOD | RESULT |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|
| A. TOTAL HALOGEN CONTENT<br>(WT % AS CHLORIDE)                                                                                                                                                                       | -----       | -----  |
| B. SULFUR CONCENTRATION<br>(WT %)                                                                                                                                                                                    | -----       | -----  |
| C. LEAD CONCENTRATION<br>(WT %)                                                                                                                                                                                      | -----       | -----  |
| D. MERCURY CONCENTRATION<br>(WT %)                                                                                                                                                                                   | -----       | -----  |
| E. HHV (BTU/#)                                                                                                                                                                                                       | -----       | -----  |
| F. PROCESS CHANGE WITHIN 12 MONTHS THAT WOULD CHANGE WASTE CHARACTERISTICS WITH REGARD TO SULFUR, MERCURY, AND LEAD?<br>YES _____ NO _____ IF "NO", REPEAT OF ANALYSIS FOR<br>SULFUR, MERCURY AND LEAD NOT REQUIRED. |             |        |

I CERTIFY THAT THE INFORMATION IN THIS SECTION IS TRUE, ACCURATE AND COMPLETE.

-----  
SIGNATURE AND TITLE

-----  
DATE

## WASTE ANALYSIS METHODS

- I. HEAT OF COMBUSTION - Oxygen Bomb Calorimeter  
ASTM D 240-76  
ASTM D 2015
- II. % TOTAL HALOGENS - By Oxygen Bomb Combustion/  
10407 B Mercuric Nitrate or  
equivalent.
- III. LEAD AND MERCURY - Oxygen Bomb Combustion/  
Total Metals: Digested  
Lead - Inductively Coupled Plasma  
EPA Method 200.7  
  
\*AA direct Aspiration EPA 239.1  
\*Furnace EPA Method 239.2  
  
Mercury - Cold Vapor  
\*EPA Method 245.1 or 245.2.
- IV. SULFUR - Oxygen Bomb Combustion/  
1426C Turbidimetric Method or  
Equivalent.

<sup>1</sup> Standard methods for the examination of water and  
wastewater 15th edition.

\* EPA 600-4-79-020 Methods for chemical analysis of water  
and waste.

## SUMMARY OF METHODS

After ignition of the bomb, the contents are vented into a beaker containing 300 ml. of 2%  $\text{Na}_2\text{CO}_3$  with a teflon tube. The contents of the bomb are inspected for complete combustion of the sample. The BTU determination is made on this sample with two exceptions to the specified ASTM procedures: (1) No correction for heat of formation of nitric acid, (2) No correction for heat of formation of sulfuric acid.

Total organic halogens, surfuric and metal analysis utilizing an oxygen bomb combustion calarimeter require that the sample be totally combusted. This may require the addition of an auxillary fuel to ensure complete combustion (diesel oil or white oil). A blank analysis will be necessary to subtract for possible interferences contributed from the auxillary fuel and  $\text{Na}_2\text{CO}_3$ .

The 300 ml. of bomb scrubber water from the complete combustion sample is used to rinse the bomb cylinder and cup. Transfer 50 ml. to a 250 ml. volumetric flask and dilute with DI water. Aliquots from this sample are to be used for % total organic halogen content expressed as chloride. Both organic and inorganic halogenated compounds in the waste are determined.

For lead and mercury analysis transfer 200 ml. of bomb scrubber water to a container that has been pre-rinsed with 1:1  $\text{HNO}_3$ . Acidify the sample with  $\text{HNO}_3$  to a pH < 2. Consult methods specified for digestion and analysis.

Sulfur analysis is performed on the remaining 50 ml. of bomb scrubber solution. The turbidmetric method is based on the principle that sulfate ion in an  $\text{HCl}$  medium with  $\text{BaCl}_2$  with form  $\text{BaSO}_4$  crystals of uniform size. A spectrophotometer is used to measure absorbance of the  $\text{BaSO}_4$  crystals. The sample may require filtration prior to acidification with  $\text{HCl}$  if color or suspended matter is present in large amounts.