

TABLE 1.—TECHNOLOGIES USED FOR SURROGATE SLUDGE TREATMENT

Comparison factor	Vendor			
	A	B	C	D
Process Overview	Sulfur amalgamation followed by thermoplastic encapsulation.	Formation of mercuric sulfide followed by micro- and macroencapsulation with proprietary binders and coating agents.	Sulfur amalgamation followed by addition of proprietary precipitation reagent.	Formation of mercuric sulfide followed by solidification with a proprietary cement-containing stabilization agent.
Reagents	Sulfur polymer, organic modifier, and proprietary additives.	Sulfide and proprietary binders and coating agents.	Sulfur and proprietary precipitation reagent.	Sulfide and proprietary cement-containing stabilization agent.
Waste Loading** (on dry basis).	30 wt%	72 wt%	44.9–47 wt%	25.4 wt%.
Final Form	Uniform solid mass	Uniform solid mass	Granular	Uniform solid mass.

** Waste loading is the percentage of waste in the treated residue.

Three of the vendors also participated in the treatment of elemental mercury. Vendor D did not participate in this study. Vendors A and B used the same

general process for elemental mercury. However, Vendor C used a process that differed from what was used in the surrogate sludge treatment. The

following table presents a comparison of the technologies used in the treatment of elemental mercury.

TABLE 2.—TECHNOLOGIES USED FOR ELEMENTAL MERCURY TREATMENT

Comparison factor	Vendor		
	A	B	C
Process Overview	Sulfur amalgamation followed by thermoplastic encapsulation.	Formation of mercuric sulfide followed by micro- and macroencapsulation with proprietary binders and coating agents.	Amalgamation followed by addition of proprietary precipitation reagent.
Reagents	Sulfur polymer, organic modifier, and proprietary additives.	Sulfide and proprietary binders and coating agents.	Amalgamation agent and proprietary stabilization reagent.
Waste Loading** (on dry basis)	33 wt%	44 wt%	20.1 wt%.
Final Form	Uniform solid mass	Uniform solid mass	Uniform solid mass.

** Waste loading is the percentage of waste in the treated residue.

H. What Were the Study Results?

1. What Were the Study Results for the Surrogate Mercury Waste?

Presented in Table 3 and discussed below are the constant pH leaching results for the surrogate mercury waste. Additional testing results (raw data, tables, and graphs) are presented in the report "Technical Background Document: Mercury Wastes—Evaluation of Treatment of Surrogate Mercury Wastes," available in the docket for today's notice.

TABLE 3.—SURROGATE MERCURY WASTE TREATMENT STUDY—CONSTANT LEACHING RESULTS (MG/L MERCURY)

pH	Vendor A **		Vendor B	Vendor C		Vendor D	
	Pellets	Crushed		Batch 1	Batch 2	Batch 1	Batch 2
2*	0.00251/ 0.00856	0.00682/ 0.00294	1.92/ 0.617	0.356/ 13.9	4.39/ 1.11	0.127/ 0.0775	0.257/ 0.130
4	0.00483	0.00555	0.137	0.0816	0.0340	2.63	4.35
6	0.00425	0.0140	0.102	0.0441	0.118	0.240	0.289
8*	0.0127/ 0.00424	0.00180/ 0.00139	0.0873/ 0.0753	0.0391/ 0.0206	0.0106/ 0.00797	0.0603/ 0.0594	0.0724/ 0.0658
10	0.00734	0.00378	0.0577	0.0108	0.00337	2.17	0.0204
12*	0.111/ 0.157	0.781/ 0.136	0.00885/ 0.00609	0.0353/ 0.0336	0.00239/ 0.00264	0.0156/ 0.0109	0.0250/ 0.0193

* Duplicate analyses were performed at pH levels 2, 8 and 12.

** Vendor A provided cast <9mm pellets and a larger material that was crushed to yield a <9 mm form for analysis.

Each vendor's treatment of surrogate waste achieved a significant reduction in mercury release in comparison to the untreated waste form. However, there are significant differences in the

effectiveness of the various technologies. Vendor A's stabilized

waste leached less than 0.025 mg/L ¹³

¹³ The current treatment standard for low-level mercury wastes that have not undergone roasting or
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