U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

MAR 21 2000

Mr. Carlos Arozarena
U.S. Geological Survey
Box 25046 M.S. 407
Denver Federal Center
Denver, CO 80225-0046

Ref. No. 99-0293

Dear Mr. Arozarena:

This is in response to your letter of December 14, 1999, and subsequent telephone conversations with Michael Johnsen, of my staff, concerning the classification of water samples under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). You provided the following table of water samples regularly shipped by the USGS and its clients:

Analysis Type	**Water Sample Preparation**	**Preservative Concentration (% by weight)**
Oil and Grease	2 ml H_2SO_4 (18M) / L sample	0.35
Phenol	1 ml H_2SO_4 (18M) / 500 ml sample	0.35
Nutrient	1 ml H_2SO_4 (1:7) / 125 ml sample	0.20
Cyanide	5 ml NaOH (5N) / 240 ml sample	0.42
Volatile Organics	0.1 ml HCL (12M) / 40 ml sample	0.11
Metals (RA/FA)	2 ml HNO_3 (7.6) / 250 ml sample	0.40
Mercury Sample	10 ml HNO_3 (15.8M) / 240 ml sample 0.035 g $K_2Cr_20_7$	4.15 0.014

In addition, you included a letter issued by this office on December 13, 1993, which listed several corrosive materials that were so dilute they are excepted from the HMR. According to our letter, H_2SO_4 (sulfuric acid) in water solutions at concentrations of 0.35% by weight or less are excepted from the HMR.

From the information you have provided, we have made the following recommendations for classifying these materials:

990293

172.101

* Based on this exception, three of the Analysis Types in question which contain H_2SO_4 (Analysis Type: Oil and Grease; Phenol; and Nutrient) are not regulated by the HMR.

* Three water samples (Analysis Type: Cyanide; Volatile Organics; and Metals (RA/FA)) should be tested to determine if they meet the definition for corrosive material. It is the opinion of this Office that these three samples are not corrosive to skin. However, these preparations may be corrosive to metal (steel and/or aluminum).

* The sample containing HNO_3 (nitric acid) and $K_2Cr_20_7$ (potassium dichromate) (Analysis type: Mercury Sample) is a corrosive material. Tests for skin corrosion should be conducted to determine the packing group.

I hope this satisfies your request.

Sincerely,

Delmer F. Billings
Chief , Standards Development
Office of Hazardous Materials Standards

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Box 25046 M.S. 407
Denver Federal Center
Denver, Colorado 80225-0046

December 14, 1999

Mike Johnson
U.S. DOT/RSPA (DHM-10)
400 7th Street S.W Suite 8422
Washington, D.C
20590-0001

Dear Mr. Johnson:

As we discussed on November 4th, 1999, The United States Geologic Survey is presently reviewing and standardizing its procedures for the shipment of environmental samples. Many of these materials contain chemical preservatives. Consequently, our greatest influence with this endeavor will be how the Hazardous Material Regulations (HMR) of 49 CFR apply.

On at least one occasion (RSPA file #7326), the Department of Transportation has evaluated the content of water sample solutions and, for those specific materials, has offered full relief from the HMR. Although we recognize that the burden for hazard class determination lies with the Survey, any similar relief you can offer would result in considerable savings to the public.

The table below identifies many solutions regularly shipped by the USGS and it's clients. The first three line items have been addressed in the above-mentioned RSPA file. Please review the remainder of the information provided and base your evaluations solely on the concentration of the preservatives. We are aware that your conclusions may not apply if the water sample itself is known or suspected to fit HMR hazard class criteria.

Analysis Type	Water Sample Preparation	Preservative Concentration (% by weight)
Oil and Grease	2 ml H_2SO_4 (18M) / L sample	0.35
Phenol	1 ml H_2SO_4 (18M) / 500 ml sample	0.35
Nutrient	1 ml H_2SO_4 (1:7) / 125 ml sample	0.20
Cyanide	5 ml NaOH (5N) / 240 ml sample	0.42
Volatile Organics	0.1 ml HCL (12M) / 40 ml sample	0.11
Metals (RA/ FA)	2 ml HNO_3 (7.6M) / 250 ml sample	0.40
Mercury Sample	10 ml HNO_3 (15.8M) / 240 ml sample 0.035 g $K_2Cr_2O_7$	4.15 0.014

If unable to offer full relief from the HMR, please provide suggestions regarding the most logical avenue to pursue, whether it be testing, application for exemption, or full compliance with the HMR.

We greatly value your assistance.

Regards,

Carlos Arozarena, Safety Manager