9444.1994(04)

DEFINITION OF RCRA WASTE K050

June 3, 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
Office of Solid Waste and Emergency Response

MEMORANDUM

TO: Robert L. Duprey
Director, Hazardous Waste
Management Division,
Region VIII

FROM: David Bussard
Director,
Characterization and
Assessment Division

SUBJECT: Definition of RCRA Waste K050

This responds to your memorandum dated November 12, 1993 requesting an interpretation regarding the applicability of the K050 waste code to sludges from double pipe (referred to as single pipe in the State of Utah letter) heat exchange units.

A double-piped unit consists of a concentric pipe configuration with the inner pipe having either a bare tube or a tube with longitudinal fins on the outside for improved heat transfer. As you know, the description of the K050 waste code (at 40 CFR 261.32) is "heat exchanger bundle cleaning sludge from the petroleum refining industry." This description is supported by the "Listing Background Document: Petroleum Refining," prepared as part of the May 19, 1980, final rule.

Our interpretations on the applicability of RCRA waste codes are based on the consideration of 1) the descriptive regulatory language and 2) the regulatory intent of the original listing, and 3) facts specific to the waste stream at issue.

The inclusion of the word "bundle" in the K050 description

suggests that the waste code is specifically applicable to cleaning sludge from shell and tube heat exchanger units. These units consist of a "bundle" of tubes which are bound together and inserted into a "shell" which makes up the outer part of the unit. Since the applicability of a RCRA waste code is determined in the first instance by the descriptive regulatory language, it may be difficult to interpret the K050 waste code to apply to double-pipe units. The key consideration regarding this interpretation is whether the inside tube of a double-pipe unit is considered a "bundle" or not. In our opinion, it is not a "bundle" based on the dictionary definition of the word "bundle" [a group of things bundled together for convenient handling]; the double-pipe unit consists of a single tube inside an outer concentric tube and is not consistent with the definition.

This interpretation is also consistent with the intent behind the original listing of the K050 waste code. The toxicity concerns on which the K050 listing were predicated do not appear to be present for the sludges from double-pipe units.

As described in the listing background document, K050 was listed because of concerns posed by its chromium content; 40 CFR Part 261, Appendix VIII lists hexavalent chromium as the sole hazardous constituent for which K050 was listed. Based on Agency experience, most of the chromium present in heat exchanger sludge is derived from the chromate-based corrosion inhibitors utilized in cooling water. It is our position that the concern behind the K050 listing was to regulate chromium-bearing sludges derived from units in cooling water service.

Because double-pipe units are typically used in non-cooling water service where chromium-based corrosion inhibitors are not present, the relative chromium toxicity of the sludges derived from double-pipe units is expected to be significantly less than that from those derived from shell and tube units in cooling water service. Typically, a shell and tube "bundle" unit is used for low-pressure, high efficiency (more tubes for maximum surface area) applica-tions such as coolers and condensers which use cooling water. A double-pipe unit is typically used for high pressure, high-temperature, low-efficiency non-cooling water applications such as in lube oil wax extraction service.

In conclusion, based on both the descriptive regulatory language of the listing description and our position that the

listing is intended to regulate chromium-bearing sludges from heat exchangers in cooling water service, our interpretation is that the K050 waste code does not apply to the double-pipe units described in your letter. This interpretation should have minimal impact on refinery hazardous waste management because of the smaller number of applications for the double-piped units in petroleum refining and the fact that these units will typically be managed the same as shell and tube units at most refineries. Furthermore, the sludges at issue are likely to be TC hazardous (benzene and other heavy organics), and therefore subject to RCRA Subtitle C standards even if they are not K050 listed hazardous wastes.

If you have any questions or further concerns, please contact Max Diaz at (202) 260-4786.

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Attachment
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November 12, 1993

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MEMORANDUM

TO: David Bussard, Director
Characterization and
Assessment Division
(OS-330)

FROM: Robert L. Duprey, Director
Hazardous Waste
Management Division
(8HWM)

SUBJECT: Definition of RCRA Waste K050

We have recently received a request from the State of Utah for a determination regarding the applicability of the waste code K050 (heat exchanger bundle cleaning sludge from the petroleum refining industry).

Specifically, during a recent inspection of a Salt Lake City petroleum refinery, the State inspector observed finned heat exchanger pipe(s), removed from a double pipe heat exchanger, on a heat exchanger bundle cleaning pad. For enforcement purposes, the State has questioned whether the sludge present on the finned heat exchanger pipe(s) meets the definition of K050 (heat exchanger bundle cleaning sludge from the petroleum refining industry.) A copy of Utah's letter is attached. As background information, it appears that this refinery does not use hexavalent chromium compounds as a corrosion inhibitor in the cooling water (review of the RCRA Background Document indicates that these chromium compounds are the constituents for which this waste was listed.) The State has not conducted hazardous waste characterization testing of the sludge on these pipe(s) to date.

From our recent discussions with Max Diaz of the Waste Identification Branch, it appears that a formal policy does not exist on this issue. We believe that double pipe heat exchangers are capable of producing sludge similar to that produced by shell and tube heat exchangers, so that the sludge in question would be considered a K050 waste. We would appreciate a formal written interpretation on this issue as soon as possible, to allow the State of Utah to proceed with the appropriate enforcement action. Please contact Mindy Mohr at (303) 293-1840 for further information on our request.

cc: Max Diaz (OS-333)
Dennis Downs, UDEQ

Enclosure

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Attachment
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October 26, 1993

State of Utah
Department of Environmental Quality
Division of Solid and Hazardous Waste
288 North 1460 West
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Larry Wapensky, Chief
Utah/North Dakota Section
U.S. EPA Region VIII, 8HWM-HW
999 18th Street Suite 500
Denver, Colorado 80202-2405

Dear Mr. Wapensky:

Representatives of the Utah Division of Solid and Hazardous Waste conducted a compliance evaluation inspection of the Big West Oil Company Flying J Refinery, 333 W. Center St., North Salt Lake, Utah, on September 24, 1993. During the inspection, fin heat exchangers were observed at the bundle cleaning pad at the refinery. The unit is composed of a single pipe, but serves the same function as a heat exchanger bundle. The Division of Solid and Hazardous Waste would like to know if sludge present on the fin heat exchangers meets the definition of K050 (heat exchanger bundle cleaning sludge from the petroleum refining industry.

Please address any questions to John Waldrip at (801) 538-6170.

Sincerely,

Dennis Downs, Director
Utah Division of Solid and Hazardous Waste

DRD/JTW/jtw