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Review of documents relating to the proposed shipments of LANL TA-55-43 Wastes to the Waste Isolation Pilot Plant

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1 Introduction

Los Alamos National Laboratory proposes to ship waste from the TA-55 facility to the Waste Isolation Pilot Plant prior to WIPP receiving a Resource Conservation and Recovery Act (RCRA) permit. According to LANL, this waste consists of retrievably stored debris waste designated as waste stream TA-55-43 and is not regulated under RCRA. This claim is made by what LANL calls using "Acceptable Knowledge" of the waste generation process.

The purpose of this report is to provide an analysis of whether this waste may actually be subject to RCRA regulation. There are two issues that will be examined. First, we will show that the waste may actually fall under RCRA regulation because it exhibits the characteristics of hazardous waste. Second, we will show that flaws in the documentation of the waste LANL proposes to ship are substantial enough to invalidate LANL's claim that it has "Acceptable Knowledge" that the wastes are not hazardous.

2 Review of Characteristics for Hazardous Waste

The "Acceptable Knowledge Summary Report"[1] claims that, based on process knowledge, TA-55 waste contains no listed hazardous wastes. It further claims that, based on process knowledge, the waste does not exhibit the characteristics of hazardous waste as defined in 40CFR261, Subpart C of ignitability, reactivity, corrosivity, and toxicity. The report also states a crucial limitation of the process knowledge approach:

"Compounds formed through radiolytic decomposition would not be noted in the process knowledge for the waste generation process." (p.19)

In order to determine whether or not the waste is in fact subject to RCRA it is therefore essential to review the potential for radiolytic decomposition of the waste and the extent that it may change the characteristics of the waste. The following sections include an analysis of the TA-55 waste in this regard.

2.1 Corrosivity

40CFR261.22 (Characteristic of corrosivity)[2] states:

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:
(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,'' EPA Publication SW–846, as incorporated by reference in § 260.11 of this chapter.

[1] Los Alamos National Laboratory Transuranic Waste Characterization/Certification Program. Acceptable Knowledge Summary Report for Combustible/Noncombustible, Metallic, and HEPA Filter Waste Resulting from ^{238}Pu Fabrication Activities, TWCP-1042, p. 19

[2] [45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM–01–69 as standardized in ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,'' EPA Publication SW–846, as incorporated by reference in § 260.11 of this chapter.

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

The Acceptable Knowledge Summary Report"[3] for the TA-55 waste appears imply that non-aqueous wastes do not have to be tested for corrosivity by pH[4] and that LANL's definition of "aqueous" means presence of "dampness" or free liquids. If true, this would mean that wastes without free liquids could never be corrosive. Apparently, pH was only measured for one container (BFB-234) which contained one can of wet material with a pH of 3[5]. (This waste container is apparently not part of the waste stream designated by DOE as non-RCRA.)

The presence of free liquids, however, is not an essential characteric of corrosivity of a waste. Were that the case, a waste producer could circumvent the corrosivity determination by simply allowing the waste to dry to the extent that no free liquids are present. It is the pH of the waste that is a crucial characteristic in regard to corrosivity.

The need to test waste for pH even if it does not have free liquids is acknowledged in the testing procedures for TA-55 wastes[6] for "damp" rags which came into contact with nitric and hydrofluoric acid. No definition of "damp" is provided. The pH of "damp" rags is first checked by squirting a few drops of Methyl Orange indicator solution in several locations on the rag. If the Methyl Orange tests indicates the presence of acids, further analysis is done with pH paper. The procedures specifies: "If the rags are not damp enough to wet the paper, dampen the paper with distilled water".[7]

The above-mentioned procedure was not followed in the determination of corrosivity of the rags contained in TA-55 waste. The Acceptable Knowledge Report (TWCP-1042) notes on page 7 that "damp rags presented for disposal have inadequate liquid to allow testing for pH and therefore cannot exhibit the corrosive characteristic." However, LANL could have determined the pH by dampening the pH paper with distilled water. According to TWCP-1042, LANL failed to follow this procedure. This strongly suggests that an evaluation of the corrosivity of the rags was not conducted.

In addition to the rags which came into contact with nitric and hydrofluoric acid, other components of the waste have potentially corrosive characteristics. The plastic material

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[3] Los Alamos National Laboratory Transuranic Waste Characterization/Certification Program. Acceptable Knowledge Summary Report for Combustible/Noncombustible, Metallic, and HEPA Filter Waste Resulting from ^{238}Pu Fabrication Activities, TWCP-1042, p. 19

[4] It should be noted that WIPP Waste Acceptance Criteria allow up to 2 liters of liquid in a drum.

[5] Warren J.L. and Yerwekh Al (1985) TRU Waste Sampling Program, Los Alamos National Laboratory, LA-1047-MS, TWCP-1028, p.55

[6] Los Alamos National Laboratory, Waste Management Quality Assurance Work Instructions. Inspecting and Packaging Combustible and Noncombustible Transuranic Waste from WIPP, TRUWM-TA-55-DP-01-R01, 10/2/96, p. 17

[7] ibid. p.17

in the waste is a mixture of various materials including polyvinylchloride (PVC). In a 1986 publication, Arakawa et al., point out: "It is known that hydrogen chloride (HCl) is the major product from poly(vinyl)chloride from irradiation. The evolved HCl is so corrosive that the metals around a nuclear reactor would be damaged." In addition, other chlorine-containing plastic materials present in TA-55 waste have the potential to produce HCl during radiolysis. Specifically, chloroprene rubber (Neoprene) and chlorosulfonated polyethylene (Hypalon) are commonly used in nuclear facilities. From the documents provided, we were unable to determine the precise composition of plastic materials. However, it is evident that TA-55 TRU waste has the potential to generate HCl and thus H^+ ions if the waste is mixed with water. This would lower the pH of the materials in the package.

It is scientifically indefensible not to test waste without free liquids for corrosivity. The RCRA philosophy of waste characterization for toxicity and reactivity presumes the presence of water. It is for this reason that test methods require the use of water. If water were to be added, the leachate of dry corrosive waste will be corrosive - just as the leachate of dry toxic waste would similarly be toxic.

The "EPA RCRA PERMIT POLICY COMPENDIUM DOCUMENT RETRIEVAL AND SEARCH SYSTEM" provides further guidance on the issue of which wastes need to be tested for corrosivity[8]:

"Although there is no regulatory definition of the term "aqueous," for purposes of the corrosivity characteristic an aqueous waste is defined as a waste for which pH is measurable. (…) This working definition of aqueous means that aqueous wastes can be in nonliquid form. Suspensions, soils, or gels for which pH is measurable are examples of aqueous nonliquids."

The essence of this guidance is clear: even dry waste should be tested for corrosivity if the pH can be measured. Even though the TA-55 TRU waste stream does not appear to have free liquids, its pH can be determined using EPA Method 9045C[9]. The EPA Method 9045C is specifically designed to allow the determination of pH in waste materials without free liquids. The method requires the mixing 20 g of waste with 20 mL of water. The pH is determined in the supernatant.

EPA Method 9045C has been selected in determining the corrosivity characteristic of wastes in a recently published proposed compliance ruling in which the EPA proposes to grant a petition submitted by Occidental Chemical Corporation[10] to exclude (that is, to delist) certain solid wastes from the list of hazardous wastes. In order to do so, it must

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[8] EPA RCRA Permit Policy Compendium, Document Retrieval and Search System, 9443.1992(05), " RCRA/Superfund/OUST Hotline Monthly Report Question September 1992. (Attachment 1)
The introduction to the compendium states "The Compendium includes documents that set forth policies and interpretations relevant to the RCRA permit program. (…) Only those documents providing a clear interpretation of Agency policy or procedures have been compiled."

[9] EPA Method 9045C, "Soil and waste pH", Revision 3, January 1995, in: EPA Publication SW-846 (Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Version 2, December 1997) (Attachment 2)

[10] Federal Register: May 11, 1998 (Volume 63, Number 90), Proposed Rules, page 25797-25811 (Attachment 3)

be demonstrated that the waste does not exhibit any of the hazardous waste characteristics. In support of their petition, Occidental Chemical determined the corrosivity of the wastes using SW-846 Method 9045 which is only applicable to wastes without sufficient liquids. EPA Method 9045 (identified in the current version of SW-846 as Method 9045C) is thus an accepted method for compliance determination of the corrosivity criterion. It should be applied to determine corrosivity characteristic for the TA-55 waste stream as well.

We reviewed the potential that TA-55 waste could exhibit the corrosivity characteristic, that is, a pH of less than 2. A pH of 2 equals 0.01 mol of H^+ ions in 1 liter of an aqueous liquid. Using EPA Method 9045C, a solid waste would likely have a pH of less than 2 if one kg of the waste contains 0.01 mol of H^+ since the H^+ ions would be present in the water and not in the plastic waste material.

Arakawa et al.[11] determined the production of HCl resulting from irradiation of some plastic materials. Their results are summarized in Table 1. It is interesting to note that HCl production is markedly decreased in formulated plastics (due to addition of plasticizers, vulcanizers and stabilizers). The documented amount of Pu-238 in the drums ranges from 0.21 to 3.4 g with an average of ~1.6 g. The amount of plastic materials ranges from 0 to ~26 kg with an average of ~10.7 kg. The amount of rubber materials ranges from 0 to ~26 kg with an average of ~4.7 kg. The average specific concentration of Pu-238, is ~0.18 g/kg of plastic material. In the subsequent calculations, a rounded value of 0.2 g/kg is used. The energy of Pu-238 decay is ~5.6 MeV. After one year of irradiation of 1 kg of waste material contaminated with 0.2 g Pu-238, the absorbed dose is ~$2.2*10^{16}$ MeV/g or ~360 Mrad.[12]

Table 1 Production of HCl after irradiation of plastic materials

Material	**Mol of HCl per gram of material** [a] **at 1 Mrad**	**Mol of H^+ per kg after 1 year at 360 Mrad**
Pure PVC	$1.9 * 10^{-5}$	6.8
PVC (model formulated)	$2.7 * 10^{-6}$	0.97
PVC (special formula A)	$2.3 * 10^{-7}$	0.08
PVC (special formula B)	$1.9 * 10^{-7}$	0.07
Chloroprene rubber (pure)	$3.1 * 10^{-6}$	1.1
Chloroprene rubber (model formulated)	$5.0 * 10^{-8}$	0.02
Chloroprene rubber (special formulated)	$7.0 * 10^{-8}$	0.02
Chlorosulfonated polyethylene (pure)	$3.1 * 10^{-6}$	1.1
Chlorosulfonated polyethylene (model formulated)	$5.0 * 10^{-8}$	0.02
Chlorosulfonated polyethylene (special formulated)	$7.0 * 10^{-8}$	0.02

a) at room temperature in oxygen atmosphere, from Arakawa et al. (1986)

[11] Arakawa K., Seguchi T., Yoshida K. (1986). Radiation-induced gas evolution in chlorine-containing polymer. Poly(Vinyl chloride), chloroprene rubber, and chlorosulfonated-polyethylene, Radiat. Phys. Chem. Vol. 27, No.2, pp.157-163 (Attachment 4)

[12] Due to lack of data provided, self absorption of alpha particles could not be quantified. It could potentially reduce the dose absorbed by the plastic material by 50% or more. Our calculations are based on one year of irradiation. Thus, at a rate of 50% self-absorption, the results would reflect the HCl production after 2 years of irradiation.

For the specific contamination in the documented waste from TA-55 (average ~0.2 g Pu-238 per kg of waste material), we calculated the H^+ production after one year of irradiation, as shown in the last column of Table 1. After just one year of irradiation, all types of plastic materials have $\geq$0.01 mol of H+ per kg, equivalent to a pH of $\leq$2. It is therefore likely that chlorinated plastic material in TA-55 waste will release enough hydrogen chloride so that it exhibits the corrosivity characteristic. Further, the production of HCl increases over time – the longer the material is irradiated, the more corrosive it becomes.

The available documents do not allow us to quantify the type and the amount of chlorinated plastic materials in the TA-55 waste stream and the specific contamination of chlorinated plastic materials that contain Pu-238. Even if only a part of the plastic waste is chlorinated, there is sufficient potential for HCl production to render the entire waste corrosive within a relatively short period after generation, and well before it is sent to WIPP. Moreover, due to the relatively long half-life of Pu-238 (about 87 years), HCl will continue to be generated at annual rates comparable to those cited above for decades.

In our opinion, it is more likely than not that part of the documented TA-55 waste stream would be determined to be hazardous waste because it fulfills the RCRA criterion of corrosivity. Thus, knowledge of the process of radiolytic decomposition leads directly to the presumption that, in the absence of testing, the waste must be assumed to be hazardous.

2.2 Toxicity

40CFR261.24 (Characteristic of toxicity)[13] states:

(a) A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure (…) the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentrations equal or greater than the respective value given in that table.

The TA-55 waste stream has a significant potential of toxicity according to 40CFR261.24 for two constituents in table 1: vinyl chloride and benzene.

2.2.1 Vinyl Chloride

Vinyl chloride is the monomer compound used in the production of PVC. It is contained in PVC in varying amounts depending on the production methods used. Radiolysis or other external factors may enhance the release of vinyl chloride from the PVC.

The most recent Toxicological Profile for Vinyl Chloride by the Agency for Toxic Substances and Disease Registry[14] states that "vinyl chloride has been detected in various foods and bottled drinking water as a result of migration from PVC food wrappings and containers". Vinyl chloride has been found in vinegar at levels up to 98,000 µg/L, in edible oils at 300-1,800 µg/L, and in alcoholic beverages at up to 8,400 µg/L when these foods were packaged and stored in PVC containers. By comparison, the toxicity criterion using the Toxicity Characteristic Leaching Procedure (TCLP) is 200 µg/L.. The TCLP is the promulgated procedure for testing. Thus, some of the concentrations found in food significantly exceed this limit. It should be noted that at present, FDA regulates the use of PVC polymers in food packaging materials as well as the amount of the residual monomer, so that levels noted above apply to past packaging materials.

As an alternative to the TCLP, the toxicity of the material can be determined by total analysis of the waste under the conservative assumption that all toxic waste material ends up in the leachate. Since the TCLP requires using one unit of waste with 20 units of reagent, a TCLP limit of 200 µg/L corresponds to a maximum concentration in waste of 4 mg/kg.

The available documentation about the TA-55 TRU waste stream does not contain precise data on the amount of PVC or the residual monomer concentration. The waste stream may contain significant amounts of vinyl chloride the release of which may be enhanced by radiolysis to render it hazardous under the toxicity criterion based on the values found in liquids which were packaged in PVC.

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[13] [45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

[14] U.S. Department of Health and Human Services, Agency of Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Vinyl Chloride (Update)., September 1997 (Attachment 5)

2.2.2 Benzene

Radiolytic decomposition of plastic waste results in a variety of volatile organic compounds, among them benzene. The generation of gases from radiolytic decomposition is usually expressed with "G" values (gas molecules formed for each 100eV of absorbed energy).

Reed and Molecke[15] published the G value for H_2 and CO_2, but not for benzene, as the result of radiolytic decomposition of WIPP plastic and rubber material. Benzene is a liquid at room temperature and only a fraction of benzene will be present in air. The data in Reed and Molecke's article allow calculation of the G value (for gaseous benzene only) based on the relative volume of hydrogen and benzene in the gas phase after 60 days of irradiation. The G value for hydrogen production from radiolysis of polyethylene in nitrogen atmosphere is reported to be 3.0 molecules of H_2 per 100 eV; the H_2 concentration in the corresponding gas phase after 60 days is 0.53 mole-%. Using the ratio

$$\frac{\text{G value for } H_2 \text{ (molecules per 100 eV)}}{H_2 \text{ concentration after 60 days (mole-\%)}}$$

the G value for benzene can be inferred from measurements of benzene in the gas phase after 60 days. Reed and Molecke report the benzene concentration after 60 days of irradiation of PVC in air to be 1.1 ppmV (=0.00011 mole-%). The G-factor for gaseous benzene at the temperature in the experiment (about 30 °C) can thus be calculated to be ~0.00062 (molecules of gaseous benzene per 100 eV).[16]

The energy release of the TA-55-43 contaminated plastic material over one year is ~$2.2*10^{16}$ MeV/g. For the PVC fraction, the G factor of 0.00062 molecules of benzene per 100 eV translates into $1.4*10^{17}$ molecules of benzene produced per g of PVC waste during one year of irradiation with the assumed typical amount of Pu-238 contamination. The mass of $1.4*10^{17}$ benzene molecules is ~18 µg. Thus, the specific production of gaseous benzene in PVC waste with a contamination of 0.2 g of Pu-238 concentration per kg of waste is ~18 µg per g (= 18 mg per kg) of waste. The amount of liquid benzene in waste could not be determined based on this data. It is likely to be larger than the benzene in gaseous form, given the complex multiple layers of waste packaging and because it is a liquid at room temperature. Its boiling point is 80.1 °C.

The RCRA TCLP criterion for benzene is 0.5 mg/L. As an alternative to the TCLP, the toxicity of the material can be determined by total analysis of the waste, under the conservative assumption that all toxic waste material ends up in the leachate. Since the TCLP requires using one unit of waste with 20 units of reagent, a TCLP limit of 0.5 mg/L corresponds to a maximum concentration in waste of 10 mg of benzene per kilogram of

[15] Reed D.T. and Molecke M.A. (1994). Generation of Volatile organic Compounds by Alpha Particle Degradation of WIPP Plastic and Rubber Material. Mat. Res. Soc. Symp. Proc. Vol. 333, pp. 233-240 (Attachment 6)

[16] Due to lack of data provided, self-absorption of alpha particles could not be quantified. It could potentially reduce the dose absorbed by the plastic material by 50% or more. Our calculations are based on one year of irradiation. Thus, at a rate of 50% self-absorption, the results would reflect the benzene production after 2 years of irradiation.

waste (mg/kg). The calculations presented above indicate that radiolysis of typical PVC waste over one year will produce 18 mg/kg. Since the cumulative benzene produced increases over time, PVC wastes that have been subject to radiolysis over many years are likely to have specific benzene concentrations in excess of the toxicity criterion of 10 mg/kg.

Consequently, if a drum with an amount of say, 5 kg of plastic material contains more than 50 mg of benzene, it would fulfill the toxicity criterion. Headspace analysis of the TA-55-43 waste drums indicate the presence of benzene (above the minimum detection limit of 1.25 ppmv) in 7 out of 36 drums for which data was supplied. The concentrations found in the headspace range from 2 to 5 ppmv. (At standard temperature and pressure, 1 ppmv of benzene is equal to 3.24 mg/m^3). The free volume of drums is in the order of 90%. A 55 gallon drum thus has ~0.19 m^3 of free volume. At a benzene concentration of 5 ppmV, the free volume would contain ~3 mg of benzene. Given the multiple types of packaging (many sealed with tape), it is reasonable to assume that only a fraction of the benzene generated by radiolysis would actually make its way into the headspace. Only a total waste analysis can provide a conclusive answer. On this basis, it is unscientific and incorrect to conclude that one can declare the waste to be non-hazardous based on "Acceptable Knowledge." In fact, knowledge of the process of radiolysis would lead to the contrary conclusion in the absence of definitive test results.

2.3 Reactivity

40CFR261.23 (Characteristic of reactivity)[17] states:

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

(…)

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

The reactivity characteristic can be met because of the presence of benzene and vinyl chloride in the wastes. Both substances are highly toxic and would constitute a hazard to human health. If the waste drums were to be filled with water, these gases would be driven out of the waste drums, contaminating the surrounding air.

[17] [45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

3 TA-55-43 Waste Stream Barrel Documentation

This section reviews the data packages on the drums that Los Alamos intends to ship to the Waste Isolation Pilot Plant. These drums are supposed to contain waste categorized as the TA-55-43 waste stream (Combustible/Non-combustible waste). The drums from this waste stream have been identified by the Department of Energy as the first shipment of waste to the Waste Isolation Pilot Plant.[18] We have not been provided with an official list of all drums associated with this waste stream and therefore cannot determine if we are in possession of documentation for all drums. We have been provided a total of 36 data packages, one for each drum. Our only indication that these 36 data packages comprise the entire list is that the drums for which we have data packages match those on the list of drums for which we have real-time radiography data.[19] However, they do not match any of the drum numbers for the non-destructive analysis (FRAM) data we were provided.[20]

It should be noted that five drums reviewed here do not appear to belong to waste stream TA-55-43. According to the Acceptable Knowledge Summary report provided by LANL, these five drums contain HEPA filters. HEPA filters are in waste stream TA-55-47, not TA-55-43.[21] It is not known why these drums were included in the 36 data packages we have received. Since these drums were also included in the radiography data batch report, it would appear that DOE intends to ship these drums as well. Despite the fact that these drums are not part of the TA-55-43 waste stream, they are included in our analysis.

Since Los Alamos National Laboratory has based their RCRA determination on Acceptable Knowledge, we have undertaken a review of their documentation. The purpose of our review was to determine whether there were problems in the documentation indicative either of potential flaws in LANL Acceptable Knowledge or of Quality Assurance problems.

According to NMT-7 Procedure document "Inspecting and Packaging Combustible and Noncombustible Transuranic Waste for WIPP" (TRUWM-TA-55-DP-01-R01) the following documents must be completed and included in the data package for each drum:

- *TRU Waste Storage Record* (TWSR). From the data packages reviewed it appears there are two versions of this form. The first is a two-page written form with information on Special Nuclear Material (SNM) isotopic composition; health physics data, signatures for inspections, etc. The second is a printed version.[22]
- *Discardable Waste Log Sheet* (DWLS). From the data packages reviewed it appears there are two versions of this form. The original is a written DWLS

[18] Letter by M.A. Sullivan (DOE) to Tom Udall (Attorney General, NM), May 18, 1998
[19] TWCP-1109 and TWCP-1110, RTR Batch Data reports.
[20] TWCP-1180.
[21] These drums are LA55605, 55695, 55696, 55938, 56053.
[22] The printed version contains a subset of this information, as well as information that does not appear on the written version. On earlier drums this printed version was part of the waste drum report which also included information from the DWLS (see below). On later drums the name on the printout is changed to TWSR. This printed sheet appears to act as a cover sheet for the drum packages.

and the second appears to be a computer generated printout of portions of the DWLS. On some earlier drums this information was contained in a form called the Waste Drum Report.
- Waste Origination Disposition Form (WODF) for each package in the drum. This form includes information on the weight of the waste package, its SNM content, the presence of organics, etc.
- Nonconformance report (NC) and/or corrective action reports (CAR), as necessary.

In addition, the data packages include various other supporting memos, spreadsheets, shipping manifests, etc. One form present in almost all data packages is the Waste Profile Form (or in some cases a printout of the information from the Waste Profile System). This form is important as it provides documentation of Acceptable Knowledge (the form applies to a particular area and waste stream for TA-55 and has a barcode sticker with the drum number attached).

There are three categories of documentation problems found with the data packages corresponding to the drums Los Alamos National Laboratory plans to ship to the Waste Isolation Pilot Plant. These categories are 1) Missing documentation; 2) Incomplete Documentation; 3) Documents with conflicting information. These are discussed, with examples, below. Appendix A is a list of problems for each drum.

3.1 Missing Documentation

There are two types of missing documentation. The first is when a data package is missing a form in its entirety. For example, Drum LA55666 is missing the Waste Origination and Disposition Form for one of the waste packages in the drum. Forms that are missing from at least one data package include the following:

- Waste Origination and Disposition Form
- Transuranic Waste Storage Record
- Waste Profile Form
- Memo NMT-7-WM/EC-95-269 (Lower Detection Limit of assay instruments): Some drums report zero SNM for certain waste packages. According to this memo, the procedure in these cases requires use of the lower detection limit of the assay instrument (as provided in the memo).
- Written Discardable Waste Log Sheet. Computer print-out of DWLS should not act as a substitute as it does not provide the required information as per TRUWM-TA-55-DP01-R01 pp. 21-24 (e.g. printed DWLS does not include the required signatures)
- Waste Drum Report/Printed TWSR. Some information (such as confirmatory assays) are only presented on these forms and do not appear on their written counterparts. In cases where these cover sheets were missing it was impossible to determine if there was agreement between estimates of the amount of Special Nuclear Material in the drum (see below).

The second type of missing documentation is when a portion of a form is missing. A number of drum data packages are missing the second page of the Transuranic Waste Storage Record and/or the Waste Profile Form. In the case of the TWSR this appear to indicate that there is no record that the waste drums were shipped to TA-54 (the TRU

waste storage site) and properly inspected at the storage site. In the case of the Waste Profile Form, an important part of the Acceptable Knowledge procedure, significant information is missing when the second page is missing (including the presence of RCRA materials and the necessary signatures).

3.2 Incomplete Documentation

Incomplete documentation consists of sections of forms being incomplete, missing signatures, or missing data entries. One example of incomplete forms is the second page of the Transuranic Waste Storage Record. It is blank for all drums (except those in which the second page is completely missing). It is not clear at this time why this page is always either blank or missing. Again, this shows a lack of documentation on the storage of TA-55-43 waste at the TA-55 storage area. Signatures are missing from a number of Document Traveler forms, as well as TRU Waste Manifest forms and one DWLS.

The following are examples of missing data entries:

- Presence of Organics: Some versions of the WODF contain two boxes to check for the presence of organics (one for yes and one for no). In a number of WODF, these boxes are blank.
- Volume of organics: This information was not provided on some WODF. In some cases the WODF did not contain a space to fill in this information, in others it was left blank and in others N/A was entered. See below for cases where incorrect numbers were entered.
- The weight measurements of individual packages are not always complete. In many cases the gross weight was either not measured and/or not recorded. Furthermore, blank entries are assumed to be zero in adding the gross weights and therefore the total of the gross weight is in error in these cases. In at least one case the gross weight was measured and recorded on the WODF but not on the DWLS printout.

3.3 Conflicting/Improper Documentation

In some cases there are conflicts between information presented either on the same form or different forms or there is information which is not reported in a proper manner.

- Conflicting Amounts of Special Nuclear Materials: There are generally two different figures that report the total amount of SNM. The first is the SNM in each waste package and the second is from a confirmatory assay. The totals should match (within the uncertainty limits). In some cases there is also a memo about the differences between the amounts on the MASS computer program and from initial assays. This number should also match the above two figures. However, there are cases in which these numbers do not match. In a few cases the confirmatory assay is zero, though an uncertainty is presented.
- Zero SNM: In some cases the amount of Special Nuclear Materials for a data package is reported as zero. The proper procedure in this case is to use the Lower Detection Limit for the particular assay instrument used. In some

cases where a zero is reported the data package includes a memo on the LDL (without actually changing the zeros on the documentation or in the addition of SNM). In other cases this memo is not attached.

- FRAM Data: Los Alamos provided non-destructive assay data on six drums. However, these drums did not match any of the drum numbers for which we were provided data packages or the drums for which RTR was done. It is not known if the drums in the FRAM report are supposed to be part of this proposed shipment. We are also still missing NDA on the 36 drums.
- Presence of Organics: Some WODF indicate that there are no Organics and then present an amount in the Volume % and/or the Weight boxes.
- Vol%/Weight Organics: On some WODF the Volume % of Organics and the weight of Organics is the same number. It appears that this number corresponds to the weight of the Organics.
- TRUCON Codes: There appears to be conflicting and incomplete information about the shipping codes DOE assigns (see below).

In addition to the problems noted above, we would like to highlight two other important issues: Drum Repackaging and Shipping Codes.

Drum Repackaging: There are 5 drums which appear to have been repackaged. The original drum number has been scratched off the WODF and DWLS and a new drum number entered. The time between original packaging (as determined from the WODF) and the repackaging (as determined from the Waste Profile Form and Transuranic Waste Storage Record) is from 2-6 years (there is no documentation as to the reason for repackaging). For these repackaged drums, the documentation from the original drum is not included (except for the WODF for each package and the DWLS). New Waste Profile Forms and TWSR were created. It is particularly problematic that the original Waste Profile Form is not included since this is the basis of the Acceptable Knowledge approach that the waste is not hazardous under RCRA.

Shipping Codes: There is an inconsistency in the documentation of the shipping codes LANL uses for this waste. All TRU waste to be shipped to WIPP is assigned a three-digit TRUCON code according to the waste stream.[23] This code begins with a one (1) for newly generated waste and a two (2) for retrievably-stored waste.

LANL has assigned the TA-55-43 waste stream the TRUCON code LA-116.[24] However, this code is valid only for newly generated debris waste since it begins with a one (1). LANL has stated that it intends to ship retrievably stored legacy waste (this is the only

[23] See "TRUPACT-II Content Codes (TRUCON)" DOE/WIPP 89-004 Rev. 10, December 1996 for the listing of TRUCON codes for all sites. As far as we have been able to determine Rev. 10 is the most recent revision and was the revision provided by LANL. For TRUCON codes for Los Alamos (including TA-55) see "Los Alamos National Laboratory Transuranic Waste Certification Plan" TWCP-PLAN-0.2.4-001.R.1, Section 4, pp. 30-34.

[24] It should be noted that the HEPA filter drums are assigned the LA119 TRUCON code. A similar argument about this TRUCON code can be made. We are also ignoring the fact that there are subcategories to the TRUCON codes designated by a, b, c, etc. (e.g. LA116c). We have not been able to find documentation on the differences between these subcategories, but it appears to have something to do with the packaging of the waste. However, in at least one case there is a discrepancy between the subcategory assigned to the waste by the Waste Profile Form and the subcategory assigned to the waste on the TWSR.

waste that WIPP has certified LANL to ship).[25] Therefore, one would expect the TRUCON code to be LA-216 rather than the 116 code recorded in the drum data packages.

However, LA-216 is not a code that appears in the TRUCON list written by DOE/WIPP and provided to us by LANL. The LANL guidelines on inspecting and packaging waste from TA-55 for shipment to WIPP does list a LA-216 code, but not for the waste stream TA-55-43. In fact, the TA-55-43 waste stream is not listed at all in LANL guidelines for inspecting and packaging waste from TA-55 for shipment to WIPP and therefore does not appear to have an associated code. In conclusion, as far as we have been able to determine, documentation of a valid TRUCON shipping code for this waste stream has not been provided. Despite the fact that LANL has assigned the 216 code to other waste streams (even though it does not appear in the TRUCON list) LANL has not used it for the TA-55-43 waste stream. Instead LANL is using the shipping code that would apply if the waste were categorized as newly-generated waste. LANL's certification from the Carlsbad Area Office explicitly excludes newly-generated waste. EPA's certification decision also explicitly states that it covers legacy debris at LANL and does not apply to other waste streams from LANL (including newly-generated waste) or to waste streams from other facilities.[26]

In conclusion, there are a number of documentation problems with the data provided by LANL. These documentation issues make LANL use of Acceptable Knowledge problematic.

[25] Letter from George Dials, Manager, DOE Carlsbad Area Office, to G. Thomas Todd, Area Manager, Los Alamos Area Office (and attachments). Sep. 12, 1997.

[26] Federal Register: May 18, 1998. Part III. Environmental Protection Agency (40 CFR Part 194). Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance With the Disposal Regulations: Certification Decision; Final Rule. See p. 27390.

Appendix A: Documentation Problems by Drum

Drum ID Number	Comments
LA52686	-TRU Waste Storage Record Page 1: Mainly illegible. Cannot read isotopic composition. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo attached) -TRU Waste Storage Record Page 2: Missing. -WODF: No Organics checkboxes -Discardable Waste Log Sheet: No signature
LA55400	NOTE: This is a repackaged drum. Waste Generated in 1991, Summary Forms (including Waste Profile Form) not created until 1994. -WODF: Same signature for both Operator and Supervisor. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo not attached) -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -One WODF missing -WODF: Organics checkboxes not filled in. -Document Traveler missing dates and initials.
LA55401	NOTE: This is a repackaged drum. -Waste Generated in 1991, Summary Forms (including Waste Profile Form) not created until 1994. WODF: Same signature for both Operator and Supervisor -TRU Waste Storage Record Page 2: Not filled in, No signatures. -WODF: Organics checkboxes not filled in. -Document Traveler missing dates and initials.
LA55403	NOTE: This is a repackaged drum. Waste Generated in 1991, Summary Forms (including Waste Profile Form) not created until 1994. -TRU Waste Storage Record Page 2: Not filled in, No signatures. -Reports Zero SNM for one waste Package instead of Lower Detection Limit (LDL Reference Memo not attached) -Document Traveler missing dates and initials. -Waste Origination and Disposition Form: Same signature for both operator and supervisor.
LA55406	NOTE: This is a repackaged drum. Waste Generated in 1992, Summary Forms (including Waste Profile Form) not created until 1994. -TRU Waste Storage Record Page 2: Not filled in, No signatures. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference memo not attached) -WODF: Nine of eleven Organics checkboxes not filled in. -Document Traveler missing dates and initials.

LA55431	-Confirm Assay shows zero uncertainty. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF: One Organics checkbox not filled in, four with no checkboxes. -Document Traveler missing dates and initials.
LA55437	-SNM Contents from Various Forms do not match. SNM for some packages in Printed Discardable Waste Log Sheet are different than entry in written Log Sheet. Results of decay (MASS memo) match written log sheet as does total from isotopic composition on TWSR. Confirm Assay does not match any of the other numbers. -Printed Log Sheet has blanks in Gross Weight Column. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF: No Organics checkboxes -Document Traveler missing dates and initials.
LA55439	-TRU Waste Storage Record Page 2: Not filled in, No signatures. -WODF: Three forms with no Organics checkboxes, three others not filled in. -Document Traveler missing dates and initials.
LA55451	-Confirm Assay does not match SNM from log sheets or MASS memo. -Printed Log Sheet has blanks in both Net Weight and Gross Weight Columns. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF Organics Checkboxes: Six (of eight) not filled in. -Document Traveler missing dates and initials.
LA55452	-TRUCON shipping code from Waste Profile Form (LA116B) does not match TRUCON code on the Transuranic Waste Storage Record (LA116C) -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -Document Traveler missing dates and initials.
LA55476	-Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference memo not attaached) -Blank entries in both Net and Gross weight columns of printed DWLS. -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: Not filled in
LA55558	-Printed Log Sheet missing from Waste Storage Record -TRU Waste Storage Record Page 2: Not filled in, No signatures. -WODF Organics Checkboxes: One no box, One not filled in.

LA55605	NOTE: This drum is filled with HEPA filters and should be in waste stream TA-55-47 rather than TA-55-43. -Uncertainties in SNM measurements are 6-11 times the measurements themselves making it difficult to determine if there is consistency in the measurements. -Gross weight measurements are missing from waste log. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo not attached) -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -On one WODF the same person signed as both Operator and Supervisor. -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA55614	-Gross weight entries missing on printed Waste Log Sheet -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: No box -Document Traveler missing dates and initials.
LA55615	-Gross Weights scratched out on printed Discardable Waste Log Sheet. -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA55625	-Gross Weights scratched out on printed Discardable Waste Log Sheet. -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA55631	-Gross weight entries on printed DWLS include zeros. -TRU Waste Storage Record Page 2: Missing -WODF Organics Checkboxes: no box
LA55663	-Confirm Assay does not match SNM amounts from other forms. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo not attached) -WODF Organics Checkboxes: five (of six) no box -TRU Waste Storage Record Page 2: Not Filled in
LA55666	-Missing the WODF for one of the waste packages -Confirm Assay does not match SNM amounts from other forms. -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: Three no box, One not filled in
LA55668	-Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference memo not attached) -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF Organics Checkboxes: no box

LA55683	-Blank entries in Gross weight column of printed DWLS. -Printed DWLS missing one waste package PLS-202 (this is noted in writing on DWLS). This causes slight discrepancy between SNM counts. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF Organics Checkboxes: no box
LA55695	NOTE: This drum is filled with HEPA filters and should be in waste stream TA-55-47 rather than TA-55-43. -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF Organics Checkboxes: no box
LA55696	NOTE: This drum is filled with HEPA filters and should be in waste stream TA-55-47 rather than TA-55-43. -Zeros in Gross weight column of printed DWLS. -Confirm Assay is Zero. -TRU Waste Storage Record Page 2: Missing -Waste Profile Form Page 2: Missing -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA55836	-TRU Waste Storage Record Page 2: Not Filled in -Document Traveler missing dates and initials. -WODF Organics Checkboxes: no box
LA55922	-Confirm Assay does not match other forms. -Blank entries in Gross weight column of printed DWLS. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference memo not attached) -TRU Waste Storage Record Page 2: Not Filled in -No Waste Profile Form (was it replaced by waste profile system? But waste profile system doc. Refers to a WPF) -One WODF has same signature for both operator and supervisor. -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA55938	NOTE: This drum is filled with HEPA filters and should be in waste stream TA-55-47 rather than TA-55-43. -Confirm Assay is zero. -One WODF (for HEPA-43 package) is missing. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference memo not attached) -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Missing -WODF Organics Checkboxes: six no box -No Waste Profile Form (was it replaced by waste profile system? But waste profile system doc. Refers to a WPF)

LA56000	-TRU Waste Storage Record Page 2: Missing -Blank entries in Gross weight column of printed DWLS. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo attached) -Spreadsheet of Isotopic Values is missing. Only uncertainties are presented. -Printed DWLS: Package weight of one package is off by two decimal places. 244 kg entered instead of 2.44 kg (as confirmed by checking with WODF). -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56019	NOTE: THIs is a repackaged drum. Waste Generated in 1990, Summary Forms (including Waste Profile Form) not created until 1996. -Confirm Assay does not match SNM from other forms. -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Not Filled in -WODF have same signature for both operator and supervisor. -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56053	NOTE: This drum is filled with HEPA filters and should be in waste stream TA-55-47 rather than TA-55-43. -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Not Filled in -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56090	-Blank entries in Gross weight column of printed DWLS. -WODF indicate no Organics but provide Weight of Organics -WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56091	-Cover sheet missing. -Written DWLS missing -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Reference Memo attached) -TRU Waste Storage Record Page 2: Missing -WODF indicate no Organics but provide Weight of Organics -WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.

LA56142	-Reports Zero SNM for waste Packages instead of Lower Detection Limit (Find Reference Memo which states to use LDL) -Blank entries in Gross weight column of printed DWLS. -TRU Waste Storage Record Page 2: Not Filled in -WODF indicate no Organics but provide Weight of Organics -WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56225	-WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -Cover sheet missing. -Written DWLS missing -TRU Waste Storage Record Page 2: Missing -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures. -WODF Organics Checkboxes: no box
LA56283	-Cover sheet missing. -Written DWLS missing -TRU Waste Storage Record Page 2: Missing -WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -Reports Zero SNM for waste Packages instead of Lower Detection Limit (LDL Memo referenced but not attached) -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.
LA56397	-Cover sheet missing. -Written DWLS missing -TRU Waste Storage Record Page 2: Missing -WODF: Volume of Organics not given. Weight of Organics is entered in both volume and weight boxes. -WODF Organics Checkboxes: no box -Document Traveler missing dates and initials.
LA56638	-Cover sheet missing. -Written DWLS missing -TRU Waste Storage Record Missing -Waste Profile Form Missing -WODF: Organics Volume Box Blank -WODF Organics Checkboxes: no checkboxes -Document Traveler missing dates and initials. -TRU Waste Manifest missing signatures.

Attachment 1

EPA RCRA Permit Policy Compendium, Document Retrieval and Search System, 9443.1992(05), RCRA/Superfund/OUST Hotline Monthly Report Question, September 1992.

Attachment 1

EPA RCRA PERMIT POLICY COMPENDIUM
DOCUMENT RETRIEVAL AND SEARCH SYSTEM

Main Menu
The RCRA Permit Policy Compendium
- Overview
- Key Word System
- Reference Number System
- Subject Category Number System
- Disclaimer

Help for First Time Users

+--+
| EPA RCRA PERMIT POLICY COMPENDIUM |
| DOCUMENT RETRIEVAL AND SEARCH SYSTEM |
| MAIN MENU |
+--+

KEY WORDS
- Key Word List
- Key Word Index

DOCUMENTS
- List by Document Date
- List by Document Reference Number

OSWER DIRECTIVES
- List by Directive Date
- List by Directive Number

OVERVIEW

The RCRA Permit Policy Compendium is a reference for Regional and State permit writers which consists of Headquarters' permitting policies and procedures. The Compendium includes documents that set forth policies and interpretations relevant to the RCRA permit program. Documents are obtained from the files of EPA Headquarters Office of Solid Waste Divisions and Branches. The Compendium was originally compiled in late 1985. Currently, the updated Compendium includes documents issued through June 30, 1996.

The Compendium incorporates a wide variety of documents that may be useful to staff working in the field of RCRA permitting. The Compendium includes

relevant RCRA permitting memoranda, letters, OSWER Directives, Regulatory Interpretive Letters (RILs), Program Interpretation Guidelines (PIGs), RCRA Reauthorization Statutory Interpretations (RSIs), RCRA/Superfund Hotline Monthly Summary Reports, and Summaries of Permit Assistance Team (PAT) Comments. Although the Compendium includes RILs, PIGs, RSIs, and PATs from the previous years, the Office of Solid Waste no longer issues these documents.

The Compendium does not include documents that are internal Headquarters correspondence or express preliminary thoughts or comments. Only those documents providing a clear interpretation of Agency policy or procedures have been compiled.

DISCLAIMER

The compilation of documents in the Compendium, as well as the policies, procedures and interpretations outlined in the documents themselves, is intended solely for the guidance of employees of the U.S. Environmental Protection Agency. This compilation may not include all documents discussing Agency views on particular subjects. In addition, these documents are not intended and cannot be relied upon to create any rights, substantive or procedural, enforceable by any party in litigation with the United States. The views expressed in these documents do not necessarily reflect the current position of the Agency, and EPA reserves the right to act at variance with these views or to change them at any time without public notice.

Also, all documents in this electronic version of the Compendium have been rekeyed or scanned from photocopies of the original documents.

9443.1992(05)

RCRA/Superfund/OUST Hotline Monthly Report Question

September 1992

2. "Aqueous" as Applied to the Corrosivity Characteristic

According to 40 CFR §261.22, a solid waste exhibits the characteristic of corrosivity if it has either of the following properties:

- It is aqueous and has a pH less than or equal to 2.0 or greater than or equal to 12.5 (261.22(a)(1))

- It is a liquid which corrodes steel at a rate greater than 6.5 mm (0.250 inch) per year (§261.22(a)(2)).

Many aqueous wastes are liquids. Must aqueous liquid wastes be evaluated for both pH and rate of steel corrosion?

While nonaqueous liquids need only be tested using the steel corrosion test, aqueous liquids must be evaluated for both pH and rate of steel corrosion. If an aqueous liquid has a pH less than or equal to 2.0 or greater than or equal to 12.5, or corrodes steel at a rate greater than 6.35 mm per year, it is regulated as a corrosive waste (D002). Therefore even if an aqueous liquid passes the §261.22(a)(1) pH test (pH greater than 2.0 and less than 12.5), if it corrodes steel at a rate greater than 6.35 mm per year, it exhibits the characteristic of corrosivity.

According to the background document for this characteristic, Corrosivity Characteristic: Identification and Listing of Hazardous Waste Under RCRA Subtitle C, Section 3001, an aqueous waste with a pH between 2.0 and 12.5 may, under certain conditions, corrode steel at a rate greater than 6.35 mm per year. Several factors influence the rate of metal corrosion. In addition to pH, other important factors include temperature, metal(s) involved, and aeration and composition of the corrosive medium. The background document indicates that although alkaline solutions, in practice, do not severely damage steel, " . . a corrosive material with a pH less than 4.0 will cause iron to dissolve rapidly." In other words, although an aqueous waste in liquid form that has a pH between 2.0 and 4.0 (i.e., an acidic solution) passes the pH test, the waste may nonetheless fail the steel corrosion test and be regulated as a corrosive (D002) hazardous waste.

Although there is no regulatory definition of the term "aqueous," for purposes of the corrosivity characteristic an

aqueous waste is defined as a waste for which pH is measurable. Since not all liquid wastes are in a form amenable to pH measurement, this operational definition of aqueous implies that the presence or absence of measurable dissociated hydrogen ions divides the universe of liquid wastes into two mutually exclusive categories: aqueous and nonaqueous. While all liquid wastes must be evaluated for rate of steel corrosion, those liquid wastes classified as aqueous are subject to both the pH and steel corrosion tests. The background document explains that those who generate or manage a waste can best determine whether it is in a form suitable for pH measurement, and therefore an aqueous waste requiring the pH test.

This working definition of aqueous means that aqueous wastes can be in nonliquid form. Suspensions, soils, or gels for which pH is measurable are examples of aqueous nonliquids. The background document for the corrosivity characteristic states that during a pH determination, the form of the waste should be taken into account. As nonaqueous liquids are subject to the steel corrosion test only, aqueous nonliquids only require evaluation for pH. Therefore, by definition, an aqueous nonliquid with a pH greater than 2.0 and less than 12.5 cannot be regulated as D002, since §261.22(a)(2) applies only to liquids that corrode steel.

The operational definition of aqueous for the characteristic of corrosivity differs from the meaning of aqueous as the term applies to the ignitability characteristic. Under §261.21(a)(1), aqueous solutions containing less than 24 percent alcohol by volume are excluded from regulation as ignitable liquids. In an Internal Agency memorandum clarifying this exclusion, an aqueous solution is defined as a solution which contains at least 50 percent water by weight. Applying this 50 percent water stipulation to define "aqueous" in the context of §261.22(a)(1) is inappropriate. Instead, for purposes of the corrosivity characteristic, aqueous means in a form amenable to pH measurement.

Attachment 2

EPA Method 9045C, “Soil and waste pH”, Revision 3, January 1995, in: EPA Publication SW-846 (Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Version 2, December 1997)

METHOD 9045C

SOIL AND WASTE pH

1.0 SCOPE AND APPLICATION

1.1 Method 9045 is an electrometric procedure for measuring pH in soils and waste samples. Wastes may be solids, sludges, or non-aqueous liquids. If water is present, it must constitute less than 20% of the total volume of the sample.

2.0 SUMMARY OF METHOD

2.1 The sample is mixed with reagent water, and the pH of the resulting aqueous solution is measured.

3.0 INTERFERENCES

3.1 Samples with very low or very high pH may give incorrect readings on the meter. For samples with a true pH of >10, the measured pH may be incorrectly low. This error can be minimized by using a low-sodium-error electrode. Strong acid solutions, with a true pH of <1, may give incorrectly high pH measurements.

3.2 Temperature fluctuations will cause measurement errors.

3.3 Errors will occur when the electrodes become coated. If an electrode becomes coated with an oily material that will not rinse free, the electrode can (1) be cleaned with an ultrasonic bath, or (2) be washed with detergent, rinsed several times with water, placed in 1:10 HCl so that the lower third of the electrode is submerged, and then thoroughly rinsed with water, or (3) be cleaned per the manufacturer's instructions.

4.0 APPARATUS AND MATERIALS

4.1 pH Meter with means for temperature compensation.

4.2 Glass Electrode.

4.3 Reference electrode: A silver-silver chloride or other reference electrode of constant potential may be used.

> NOTE: Combination electrodes incorporating both measuring and referenced functions are convenient to use and are available with solid, gel-type filling materials that require minimal maintenance.

4.4 Beaker: 50-mL.

4.5 Thermometer and/or temperature sensor for automatic compensation.

4.6 Analytical balance: capable of weighing 0.1 g.

5.0 REAGENTS

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Reagent water. All references to water in this method refer to reagent water, as defined in Chapter One.

5.3 Primary standard buffer salts are available from the National Institute of Standards and Technology (NIST) and should be used in situations where extreme accuracy is necessary. Preparation of reference solutions from these salts requires some special precautions and handling, such as low-conductivity dilution water, drying ovens, and carbon-dioxide-free purge gas. These solutions should be replaced at least once each month.

5.4 Secondary standard buffers may be prepared from NIST salts or purchased as solutions from commercial vendors. These commercially available solutions, which have been validated by comparison with NIST standards, are recommended for routine use.

6.0 SAMPLE PRESERVATION AND HANDLING

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in Chapter Nine of this manual.

6.2 Samples should be analyzed as soon as possible.

7.0 PROCEDURE

7.1 Calibration:

7.1.1 Because of the wide variety of pH meters and accessories, detailed operating procedures cannot be incorporated into this method. Each analyst must be acquainted with the operation of each system and familiar with all instrument functions. Special attention to care of the electrodes is recommended.

7.1.2 Each instrument/electrode system must be calibrated at a minimum of two points that bracket the expected pH of the samples and are approximately three pH units or more apart. Repeat adjustments on successive portions of the two buffer solutions until readings are within 0.05 pH units of the buffer solution value. If an accurate pH reading based on the conventional pH scale [0 to 14 at 25°C] is required, the analyst should control sample temperature at 25±1°C when

sample pH approaches the alkaline end of the scale (e.g., a pH of 11 or above).

7.2 Sample preparation and pH measurement of soils:

7.2.1 To 20 g of soil in a 50-mL beaker, add 20 mL of reagent water, cover, and continuously stir the suspension for 5 minutes. . Additional dilutions are allowed if working with hygroscopic soils and salts or other problematic matrices.

7.2.2 Let the soil suspension stand for about 1 hour to allow most of the suspended clay to settle out from the suspension or filter or centrifuge off the aqueous phase for pH measurement.

7.2.3 Adjust the electrodes in the clamps of the electrode holder so that, upon lowering the electrodes into the beaker, the glass electrode will be immersed just deep enough into the clear supernatant solution to establish a good electrical contact through the ground-glass joint or the fiber-capillary hole. Insert the electrodes into the sample solution in this manner. For combination electrodes, immerse just below the suspension.

7.2.4 If the sample temperature differs by more than 2°C from the buffer solution, the measured pH values must be corrected.

7.2.5 Report the results as "soil pH measured in water at __ °C" where "__°C" is the temperature at which the test was conducted.

7.3 Sample preparation and pH measurement of waste materials:

7.3.1 To 20 g of waste sample in a 50-mL beaker, add 20 mL of reagent water, cover, and continuously stir the suspension for 5 minutes. . Additional dilutions are allowed if working with hygroscopic wastes and salts or other problematic matrices.

7.3.2 Let the waste suspension stand for about 15 minutes to allow most of the suspended waste to settle out from the suspension or filter or centrifuge off aqueous phase for pH measurement.

NOTE: If the waste is hygroscopic and absorbs all the reagent water, begin the experiment again using 20 g of waste and 40 mL of reagent water.

NOTE: If the supernatant is multiphasic, decant the oily phase and measure the pH of the aqueous phase. The electrode may need to be cleaned (Step 3.3) if it becomes coated with an oily material.

7.3.3 Adjust the electrodes in the clamps of the electrode holder so that, upon lowering the electrodes into the beaker, the glass electrode will be immersed just deep enough into the clear supernatant to establish good electrical contact through the ground-glass joint or the fiber-capillary hole. Insert the electrode into the sample solution

in this manner. For combination electrodes, immerse just below the suspension.

7.3.4 If the sample temperature differs by more than 2°C from the buffer solution, the measured pH values must be corrected.

7.3.5 Report the results as "waste pH measured in water at __ °C" where "__°C" is the temperature at which the test was conducted.

8.0 QUALITY CONTROL

8.1 Refer to Chapter One for the appropriate QC protocols.

8.2 Electrodes must be thoroughly rinsed between samples.

9.0 METHOD PERFORMANCE

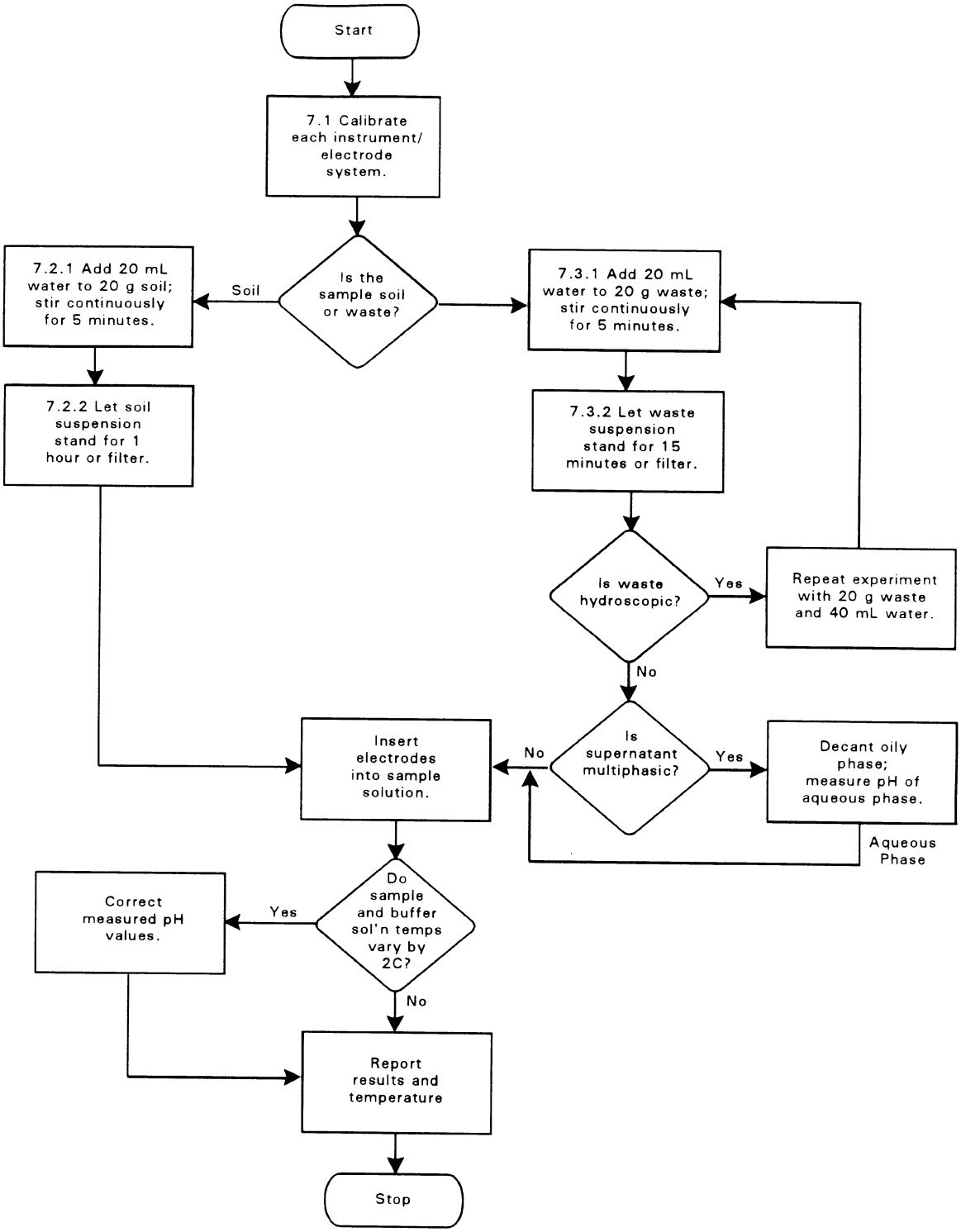
9.1 No data provided.

10.0 REFERENCES

1. Black, Charles Allen; Methods of Soil Analysis; American Society of Agronomy: Madison, WI, 1973.

2. National Bureau of Standards, Standard Reference Material Catalog, 1986-87, Special Publication 260.

SOIL AND WASTE pH



Attachment 3

Federal Register: May 11, 1998 (Volume 63, Number 90), Proposed Rules, page 25797-25811

because the Agency views this as a noncontroversial revision and anticipates no adverse comments. The rationale for the approval is set forth in the direct final rule. If no relevant adverse comments are received in response to this proposed rule, no further activity is contemplated in relation to this proposed rule. If the EPA receives relevant adverse comments, the EPA will publish a timely withdrawal in the **Federal Register.** All relevant public comments received during the 30-day comment period set forth below will be addressed in a subsequent final rule based on this proposed rule. Any parties interested in commenting on this action should do so at this time.

DATES: Comments on this proposed rule must be received in writing by June 10, 1998.

ADDRESSES: Written comments on this action should be addressed to Thomas H. Diggs, Chief, Air Planning Section, at the EPA Region 6 Office listed below. Copies of the documents relevant to this proposed rule are available for public inspection during normal business hours at the following locations. Anyone wanting to examine these documents should make an appointment with the appropriate office at least two working days in advance.

Environmental Protection Agency, Region 6, Air Planning Section (6PD–L), Multimedia Planning and Permitting Division, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202–2733.

Air Quality Division, Louisiana Department of Environmental Quality, 7290 Bluebonnet Boulevard, Baton Rouge, Louisiana 70810.

FOR FURTHER INFORMATION CONTACT: Mr. Eaton R. Weiler, of the EPA Region 6 Air Planning Section at the above address, telephone (214) 665–2174.

SUPPLEMENTARY INFORMATION: See the information provided in the direct final rule which is published in the Rules and Regulations section of this **Federal Register**.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference, Ozone, Reporting and recordkeeping requirements, Volatile organic compounds.

Authority: 42 U.S.C. 7401–7671q.

Dated: April 23, 1998.

Lynda F. Carroll,

Acting Regional Administrator, Region 6.

[FR Doc. 98–12431 Filed 5–8–98; 8:45 am]

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[SW–FRL–6012–3]

Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Proposed Exclusion

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule and request for comment.

SUMMARY: The EPA is proposing to grant a petition submitted by Occidental Chemical Corporation (Occidental Chemical), to exclude (or delist) certain solid wastes generated at its Ingleside, Texas, facility from the lists of hazardous wastes contained in 40 CFR 261.24, 261.31, and 261.32, (hereinafter all sectional references are to 40 CFR unless otherwise indicated). This petition was submitted under § 260.20, which allows any person to petition the Administrator to modify or revoke any provision of parts 260 through 266, 268 and 273, and under § 260.22, which specifically provides generators the opportunity to petition the Administrator to exclude a waste on a ''generator specific'' basis from the hazardous waste lists. This proposed decision is based on an evaluation of waste-specific information provided by the petitioner. If this proposed decision is finalized, the petitioned waste will be excluded from the requirements of hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA). The EPA is also proposing the use of a fate and transport model to evaluate the potential impact of the petitioned waste on human health and the environment, based on the waste-specific information provided by the petitioner. This model has been used in evaluating the petition to predict the concentration of hazardous constituents that may be released from the petitioned waste, once it is disposed. The EPA is requesting public comments on this proposed decision and on the applicability of the fate and transport model used to evaluate the petition.

DATES: Comments will be accepted until June 25, 1998. Comments postmarked after the close of the comment period will be stamped ''late.''

Any person may request a hearing on this proposed decision by filing a request with Acting Director, Robert E. Hannesschlager, Multimedia Planning and Permitting Division, whose address appears below, by May 26, 1998. The request must contain the information prescribed in § 260.20(d).

ADDRESSES: Send three copies of your comments. Two copies should be sent to the William Gallagher, Delisting Section, Multimedia Planning and Permitting Division (6PD–O), Environmental Protection Agency EPA, 1445 Ross Avenue, Dallas, Texas 75202. A third copy should be sent to the Texas Natural Resource Conservation Commission, 12100 Park 35 Circle, Austin, Texas 78753. Identify your comments at the top with this regulatory docket number: ''F–97–TXDEL–OCCIDENTAL.''

Requests for a hearing should be addressed to the Acting Director, Robert E. Hannesschlager, Multimedia Planning and Permitting Division (6PD), Environmental Protection Agency, 1445 Ross Avenue, Dallas, Texas 75202.

The RCRA regulatory docket for this proposed rule is located at the Environmental Protection Agency Region 6, 1445 Ross Avenue, Dallas, Texas 75202 and is available for viewing in the EPA Library on the 12th Floor from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding Federal holidays. Call (214) 665–6444 for appointments. The public may copy material from any regulatory docket at no cost for the first 100 pages, and at fifteen cents per page for additional copies.

FOR FURTHER INFORMATION CONTACT: For technical information concerning this notice, contact Jon Rinehart, Multimedia Planning and Permitting Division, Environmental Protection Agency, Region 6, 1445 Ross Avenue, Dallas, TX 75202, (214) 665–6789.

SUPPLEMENTARY INFORMATION:

I. Background

A. Authority

On January 16, 1981, as part of its final and interim final regulations implementing section 3001 of RCRA, EPA published an amended list of hazardous wastes from non-specific and specific sources. This list has been amended several times, and is published in 261.31 and 261.32. These wastes are listed as hazardous because they typically and frequently exhibit one or more of the characteristics of hazardous wastes identified in subpart C of part 261 (i.e., ignitability, corrosivity, reactivity, and toxicity) or meet the criteria for listing contained in § 261.11(a)(2) or (a)(3).

Individual waste streams may vary however, depending on raw materials, industrial processes, and other factors. Thus, while a waste that is described in these regulations generally is hazardous, a specific waste from an individual facility meeting the listing description

may not be. For this reason, §§ 260.20 and 260.22 provide an exclusion procedure, allowing persons to demonstrate that a specific waste from a particular generating facility should not be regulated as a hazardous waste.

To have their wastes excluded, petitioners must show that wastes generated at their facilities do not meet any of the criteria for which the wastes were listed. See § 260.22(a) and the background documents for the listed wastes. In addition, the Hazardous and Solid Waste Amendments (HSWA) of 1984 require the EPA to consider any factors (including additional constituents) other than those for which the waste was listed, if there is a reasonable basis to believe that such additional factors could cause the waste to be hazardous. Accordingly, a petitioner also must demonstrate that the waste does not exhibit any of the hazardous waste characteristics (i.e., ignitability, reactivity, corrosivity, and toxicity), and must present sufficient information for the EPA to determine whether the waste contains any other toxicants at hazardous levels. See § 260.22(a), 42 U.S.C. 6921(f), and the background documents for the listed wastes. Although wastes which are ''delisted'' (i.e., excluded) have been evaluated to determine whether or not they exhibit any of the characteristics of hazardous waste, generators remain obligated under RCRA to determine whether or not their waste remains nonhazardous based on the hazardous waste characteristics.

In addition, mixtures containing listed hazardous wastes are also considered hazardous wastes as are wastes derived from the treatment, storage, or disposal of listed hazardous waste. See § 261.3(a)(2)(iv) and (c)(2)(i), referred to as the ''mixture'' and ''derived-from'' rules, respectively. Such wastes are also eligible for exclusion and remain hazardous wastes until excluded. On December 6, 1991, the U.S. Court of Appeals for the District of Columbia vacated the ''mixture/derived from'' rules and remanded them to the EPA on procedural grounds. *Shell Oil Co.* v. *EPA.*, 950 F.2d 741 (D.C. Cir. 1991). On March 3, 1992, EPA reinstated the mixture and derived-from rules, and solicited comments on other ways to regulate waste mixtures and residues (57 FR 7628). These rules became final on October 30, 1992 (57 FR 49278). These references should be consulted for more information regarding mixtures and residues.

B. Approach Used to Evaluate This Petition

Occidental Chemical's petition requests a delisting for listed hazardous wastes. In making the initial delisting determination, the EPA evaluated the petitioned wastes against the listing criteria and factors cited in § 261.11(a)(2) and (a)(3). Based on this review, the EPA agreed with the petitioner that the waste is nonhazardous with respect to the original listing criteria. (If the EPA had found, based on this review, that the wastes remained hazardous based on the factors for which the wastes were originally listed, EPA would have proposed to deny the petition.) The EPA then evaluated the wastes with respect to other factors or criteria to assess whether there is a reasonable basis to believe that such additional factors could cause the wastes to be hazardous. The EPA considered whether the wastes are acutely toxic, and considered the toxicity of the constituents, the concentration of the constituents in the wastes, their tendency to migrate and to bioaccumulate, their persistence in the environment once released from the wastes, plausible and specific types of management of the petitioned wastes, the quantities of wastes generated, and waste variability.

For this delisting determination, the EPA used such information gathered to identify plausible exposure routes (i.e., ground water, surface water, air) for hazardous constituents present in the petitioned wastes. The EPA determined that disposal in a Subtitle D landfill/surface impoundment is the most reasonable, worst-case disposal scenario for Occidental Chemical's petitioned wastes, and that the major exposure route of concern would be ingestion of contaminated ground water. Therefore, the EPA is proposing to use a particular fate and transport model, the EPA Composite Model for Landfills (EPACML), to predict the maximum allowable concentrations of hazardous constituents that may be released from the petitioned wastes after disposal and to determine the potential impact of the disposal of Occidental Chemical's petitioned wastes on human health and the environment. Specifically, the EPA used the maximum estimated waste volumes and the maximum reported extract concentrations as inputs to estimate the constituent concentrations in the ground water at a hypothetical receptor well downgradient from the disposal site. The calculated receptor well concentrations (referred to as compliance-point concentrations) were then compared directly to the health-based levels at an assumed risk of 10^{-6} used in delisting decision-making for the hazardous constituents of concern.

The EPA believes that this fate and transport model represents a reasonable worst-case scenario for disposal of the petitioned wastes in a landfill/surface impoundment, and that a reasonable worst-case scenario is appropriate when evaluating whether a waste should be relieved of the protective management constraints of RCRA Subtitle C. The use of a reasonable worst-case scenario results in conservative values for the compliance-point concentrations and ensures that the waste, once removed from hazardous waste regulation, may not pose a threat to human health or the environment. In most cases, because a delisted waste is no longer subject to hazardous waste control, the EPA is generally unable to predict, and does not presently control, how a waste will be managed after delisting. Therefore, EPA currently believes that it is inappropriate to consider extensive site-specific factors when applying the fate and transport model.

The EPA also considers the applicability of ground water monitoring data during the evaluation of delisting petitions. In this case, the EPA determined that it would be unnecessary to request ground water monitoring data. Specifically, Occidental Chemical currently disposes of a part of the petitioned wastes (Rockbox Residue and Limestone Sludge) generated at its facility in an off-site, RCRA hazardous waste landfill (which is not owned/operated by Occidental Chemical).[1] This landfill did not begin accepting this petitioned waste generated by the Occidental Chemical facility until 1991. This petitioned waste comprises a small fraction of the total waste managed in the unit. Therefore, the EPA, believes that any ground water monitoring data from the landfill would not be meaningful for an evaluation of the specific effect of this petitioned waste on ground water. Finally, there are presently no data from groundwater monitoring wells available, therefore there is no data to evaluate.

From the evaluation of Occidental Chemical's delisting petition, a list of constituents was developed for the verification testing conditions. Proposed maximum allowable leachable concentrations for these constituents were derived by back-calculating from

[1] The other portion of waste proposed to be excluded is not disposed but is instead treated onsite prior to discharge. Discharge of the waste is regulated under Section 402 of the Clean Water Act.

the delisting health-based levels through the proposed fate and transport model for a landfill management scenario. These concentrations (i.e., ''delisting levels'') are part of the proposed verification testing conditions of the exclusion.

Similar to other facilities seeking exclusions, Occidental Chemical's exclusion (if granted) would be contingent upon the facility conducting analytical testing of representative samples of the petitioned wastes at Ingleside. This testing would be necessary to verify that the treatment system is operating as demonstrated in the petition submitted on January 3, 1997. Specifically, the verification testing requirements, would be implemented to demonstrate that the processing facility will generate nonhazardous wastes (i.e., wastes that meet the EPA's verification testing conditions). The EPA's proposed decision to delist wastes from Occidental Chemical's facility is based on the information submitted in support of today's rule, i.e., description of the wastewater treatment system and analytical data from the Ingleside facility.

Finally, the HSWA specifically require the EPA to provide notice and an opportunity for comment before granting or denying a final exclusion. Thus, a final decision will not be made until all timely public comments (including those at public hearings, if any) on today's proposal are addressed.

II. Disposition of Delisting Petition

Occidental Chemical Corporation, Ingleside, Texas 78362.

A. Petition for Exclusion

Occidental Chemical Corporation, located in Ingleside, Texas, petitioned the EPA for an exclusion for 128 cubic yards of Rockbox Residue, 148,284 cubic yards of Caustic Neutralized Wastewater, and 1,114 cubic yards Limestone Sludge per calendar year resulting from its hazardous waste treatment process. The resulting wastes are presently listed, in accordance with § 261.3(c)(2)(i) (i.e., the ''derived from'' rule), as EPA Hazardous Waste No. K019, K020, F001, F003, F005, and F025. The listed constituents of concern for these waste codes are listed in Table 1.

TABLE 1.—HAZARDOUS WASTE CODES ASSOCIATED WITH WASTEWATER STREAMS

Waste code	Basis for characteristics/listing
K019/K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
F001	Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.
F003	N.A Waste is hazardous because it fails the test for the characteristic of ignitability, corrosivity, or reactivity.
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, 2-nitropropane.
F025	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene,1,1-dichloroethane,1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichlorothylene, 1,1,1-trichloroethane,1,1,2-trichloroethane, trichlorothylene, 1,1,1,2-tetrachloroethane,1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, 3-chloropropene, dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, benzene, chlorobenzene, dichlorobenzene, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.

Occidental Chemical petitioned to exclude the Rockbox Residue, Caustic Neutralized Wastewater, and Limestone Sludge treatment residues because it does not believe that the petitioned wastes meet the criteria for which they were listed. Occidental Chemical further believes that the wastes are not hazardous for any other reason (i.e., there are no additional constituents or factors that could cause the wastes to be hazardous). Review of this petition included consideration of the original listing criteria, as well as the additional factors required by the HSWA. See section 222 of HSWA, 42 U.S.C. § 6921(f), and 40 CFR 260.22(d)(2)–(4). Today's proposal to grant this petition for delisting is the result of the EPA's evaluation of Occidental Chemical's petition.

B. Background

On January 3, 1997, Occidental Chemical petitioned the EPA to exclude from the lists of hazardous waste contained in §§ 261.31 and 261.32, an annual volume of Rockbox Residue, Caustic Neutralized Wastewater, and Limestone Sludge which are generated as a result of the treatment of offgases from onsite incinerators. Specifically, in its petition, Occidental Chemical requested that the EPA grant an exclusion for 128 cubic yards of Rockbox Residue, 148,284 cubic yards of Caustic Neutralized Wastewater, and 1,114 cubic yards of Limestone Sludge generated per calendar year.

In support of its petition, Occidental Chemical submitted: (1) Descriptions of its wastewater treatment processes and the incineration activities associated with petitioned wastes; (2) results of the total constituent list for 40 CFR part 264 Appendix IX volatiles, semivolatiles, and metals except for pesticides, herbicides and PCBs; (3) results of the constituent list for Appendix IX on Toxicity Characteristic Leaching Procedure (TCLP) extract for volatiles, semivolatiles, and metals; (4) results for reactive sulfide, (5) results for reactive cyanide; (6) results for pH; (7) results of the total basis for dioxin and furan; and (8) results of dioxin and furan TCLP extract.

Occidental Chemical is an active plant that produces ethylene dichloride (EDC), vinyl chloride monomer (VCM), chlorine, and caustic soda. The plant utilizes chlorine, ethylene, and oxygen as feedstock and utilizes two permitted, onsite RCRA incinerators to burn process vent gases, intermediate wastes generated during the production of EDC and VCM (K019, K020, and F025), waste paint thinner (F001, F003, F005), and occasionally waste oil. These two incinerators have been in continuous operation since 1991. Occidental Chemical has previously classified three waste streams (Rockbox Residue, Caustic Neutralized Wastewater and Limestone Sludge) generated from the treatment of the offgas from the incinerators as hazardous based on the ''derived from'' rule in § 261.3(c)(2)(i).

The combustion products from the incinerators contain hydrochloric acid (HCl). Incinerator offgases are treated in the Incinerator Offgas Treatment System. In this system, the emissions are passed through absorption columns, dehumidifier columns, and caustic scrubbers to remove the HCl. Blowdown

water from the dehumidifier columns and caustic scrubber columns are routed to the Rockbox Tank (the Rockbox) as the first step in neutralizing the HCl. Excess HCl from the aqueous HCl storage tanks is commingled with the blowdown water and routed to the Rockbox. The influent to Rockbox normally contains 3 to 7 percent HCl. At times when excess HCl is not produced, the influent to the Rockbox is predominantly blowdown from the dehumidifier and caustic scrubber columns.

The Rockbox contains crushed limestone with small amounts of inert materials (silica oxide). These inert materials accumulate in the bottom of the Rockbox as the crushed limestone is utilized in the neutralization process. The accumulation of inert materials is the Rockbox Residue. The Rockbox Residue is a ''third generation'' waste since it is the residue of treating wastewater used to quench gaseous emissions from the incineration of listed wastes.

The pH of the effluent leaving the Rockbox is between 1 and 5. The effluent is passed through a primary pH adjustment tank where air is released into the water to remove carbon dioxide. Additionally, sodium hydroxide may be added to this tank. Mixing with air minimizes the formation of calcium carbonate precipitate upon introduction of caustic soda. The effluent is then passed through the secondary pH adjustment tank where caustic soda (sodium hydroxide) is added to raise the pH of the water to a pH between 7 and 9. The stream, consisting of water and calcium carbonate precipitant in suspension, flows through a clarifier where the sludge is settled out. The aqueous effluent from the clarifier tank is the Caustic Neutralized Wastewater which Occidental Chemical seeks to delist. This waste stream consists of an aqueous phase that no longer exhibits the hazardous waste characteristic of corrosivity.

The settled solids (calcium carbonate) from the clarifier are dewatered on a belt filter press and are dropped directly into rolloff bins for disposal. Water removed during the operation of the filter press is returned to the clarifier. The remaining filter cake is the Limestone Sludge, which Occidental Chemical also seeks to delist.

Rockbox Residue is generated on a batch basis every one to two years. For the past two years (1995 and 1996), the Rockbox Residue was generated annually. This is probable due to a higher than average concentration of inerts in the limestone purchased for the Rockbox. The Rockbox Residue is disposed of in an offsite permitted hazardous waste landfill.

Caustic Neutralized Wastewater and Limestone Sludge are generated on a continuous basis. The Caustic Neutralized Wastewater is treated in an onsite unit which has in an National Pollution Discharge Elimination System (NPDES) permitted outfall. The Limestone Sludge is transported to an offsite hazardous waste landfill for disposal.

Occidental Chemical developed a list of constituents of concern from comparing a list of all raw materials used in the plant that could potentially appear in the petitioned waste with those found in 40 CFR part § 264, as well as dioxins and furans. Based on the knowledge of process they determined that herbicides, pesticides and PCBs would be excluded from the Appendix IX analyte list. The EPA has included the dioxins and furans on the list, due the incineration of chlorinated compounds. Using the list of constituents of concern, Occidental analyzed the four composite samples for the total concentrations (i.e., mass of a particular constituent per mass of waste) of the volatiles and semivolatiles, and metals from Appendix IX. These four samples were also analyzed to determine whether the waste exhibited ignitable, corrosive, or reactive properties as defined under 40 CFR 261.21, 261.22, and 261.23, including analysis for total constituent concentrations of cyanide, sulfide, reactive cyanide, and reactive sulfide. These four samples were also analyzed for Toxicity Characteristic Leaching Procedure (TCLP) concentrations (i.e., mass of a particular constituent per unit volume of extract) of all the volatiles, semivolatiles, and metals on the Appendix IX list. This list was developed based on the availability of test methods and process knowledge. Two sampling events were conducted, one in 1995 and one in 1996.

C. EPA Analysis

Occidental Chemical used SW–846 Methods 8260A, 8270B, 6010, 8290 to quantify the total constituent concentrations of 40 CFR part 264, Appendix IX Volatiles (including 2-ethoxyethanol, chloroethylene, vinyldene chloride and trichloromethane), Appendix IX Semivolatiles (excluding PCBs, Pesticides, Herbicides) Appendix IX Metals, and Appendix IX Dioxins/Furans. Occidental Chemical used SW–846 Methods 9045, 9030, 9010, 1311 to quantify pH, Reactive Sulfide, and Reactive Cyanide. Occidental Chemical used SW–846 Methods 8260A, 8270B, 6010, 8290 to quantify the constituents from the TCLP extract. These analyses were performed on all three of the petitioned wastes: the Rockbox Residue, Limestone Sludge, and the Caustic Neutralized Wastewater. The Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater do not meet the definitions for reactivity and corrosivity as defined by §§ 261.22 and 261.23. Table 2 presents the maximum total constituent and leachate concentrations for the Rockbox Residue.

TABLE 2.—MAXIMUM TOTAL CONSTITUENT AND LEACHATE CONCENTRATIONS ROCKBOX RESIDUE [2]

Constituents	Total constituent analyses (mg/kg)	Leachate analyses (mg/l)
Acetone	<0.02	<0.1
Bromodichloromethane	0.007	<0.02
Bromoform	0.022	0.02
Bromomethane	<0.01	<0.05
Chlorodibromomethane	0.027	<0.02
Chloroform	0.008	<0.02
Dichloromethane	<0.005	0.11
Ethylbenzene	<0.005	0.04
2,3,7,8-TCDD Equivalent	0.000321	0.00000000531
Barium	1.5	0.666
Chromium	<1.0	0.13
Copper	1.1	<0.25
Lead	<1.0	<0.07

TABLE 2.—MAXIMUM TOTAL CONSTITUENT AND LEACHATE CONCENTRATIONS ROCKBOX RESIDUE [2]—Continued

Constituents	Total constituent analyses (mg/kg)	Leachate analyses (mg/l)
Selenium	<1.0	0.11
Tin	2	<0.10
Vanadium	1.3	<0.50
Zinc	23	<0.4
Reactive Sulfide	<50	
Reactive Cyanide	<10	
pH	3.19	

< Denotes that the constituent was not detected at the detection limit specified in the table.
[2] These levels represent the highest concentration of each constituent found in any one sample. These levels do not necessarily represent the specific levels found in one sample.

Tables 3 and 4 present the maximum total constituent and leachate concentrations for the Limestone Sludge. Table 5 presents the maximum total constituent and leachate concentrations for the Caustic Neutralized Wastewater.

TABLE 3.—MAXIMUM TOTAL ORGANIC CONSTITUENT AND LEACHATE CONCENTRATIONS LIMESTONE SLUDGE [3]

Constituent	Total constituent analyses (mg/kg)	Leachate analyses (mg/l)
Acetone	0.034	0.27
Bromoform	0.031	<0.02
Chlorodibromomethane	0.012	<0.02
Dichloromethane	<0.005	0.54
Ethylbenzene	<0.005	0.03
1,1,1-Trichloroethane	0.011	<0.1
Toluene	<0.005	1.8
Trichlorofluoromethane	0.011	<0.02
Xylene	<0.020	0.11
Diethylphthalate	<0.00001	<0.04
2,3,7,8-TCDD Equivalent	0.00135	0.00000000018
Reactive Sulfide	<50	.....
Reactive Cyanide	<10	.....
pH	9.55	.....

< Denotes that the constituent was not detected at the detection limit specified in the table.
[3] These levels represent the highest concentration of each constituent found in any one sample. These levels do not necessarily represent the specific levels found in one sample.

TABLE 4.—MAXIMUM TOTAL INORGANIC CONSTITUENT AND LEACHATE CONCENTRATIONS LIMESTONE SLUDGE [4]

Constituent	Total constituent analyses (mg/kg)	Leachate analyses (mg/l)
Antimony	2.6	<0.6
Arsenic	18.4	<0.1
Barium	15.2	0.14
Beryllium	0.5	<0.1
Chromium	25.2	<0.1
Cobalt	2.4	<0.1
Copper	41.2	<0.1
Lead	13	<0.1
Nickel	64.4	0.47
Selenium	<0.001	0.1
Silver	1.1	<0.1
Vanadium	138	<0.1
Zinc	58	0.11

< Denotes that the constituent was not detected at the detection limit specified in the table.
[4] These levels represent the highest concentration of each constituent found in any one sample. These levels do not necessarily represent the specific levels found in one sample.

TABLE 5.—MAXIMUM TOTAL CONSTITUENT CONCENTRATIONS CAUSTIC NEUTRALIZED WASTEWATER [5]

Constituent	Total constituent analyses
Acetone	0.01
Bromoform	0.054
Chlorodibromomethane	0.015

TABLE 5.—MAXIMUM TOTAL CONSTITUENT CONCENTRATIONS CAUSTIC NEUTRALIZED WASTEWATER [5]—Continued

Constituent	Total constituent analyses
2,3,7,8-TCDD Equivalent	0.0000000006
Arsenic	0.01
Barium	0.18
Lead	0.1
Silver	0.08
Vanadium	0.007
Zinc	0.49
Reactive Sulfide	<50
Reactive Cyanide	<10
pH	11.8

<Denotes that the constituent was not detected at the detection limit specified in the table.
[5] These levels represent the highest concentration of each constituent found in any one sample. These levels do not necessarily represent the specific levels found in one sample.

Occidental Chemical used SW–846 Methods 8260A and 8270B to quantify the total constituent concentrations of 54 volatile and 117 semivolatile organic compounds, respectively in the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater. This suite of constituents included all of the nonpesticide organic constituents listed in § 261.24. Also, Occidental Chemical used SW–846 Methods 8260A and 8270B to quantify the leachable concentrations of 54 volatile and 117 semivolatile organic compounds, respectively, in the Rockbox Residue, Limestone Sludge, and the Caustic Neutralized Wastewater, following extraction by SW–846 Method 1311 (TCLP). This suite of constituents included all of the organic constituents listed in § 261.24 (except the pesticides). In addition, the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater were analyzed for TCLP metals.

Occidental Chemical submitted a signed certification stating that, based on projected annual waste generation, the maximum annual generation rate will be 128 cubic yards of Rockbox Residue, 148,284 cubic yards of Caustic Neutralized Wastewater, and 1,114 cubic yards of Limestone Sludge. The EPA reviews a petitioner's estimates and, on occasion, has requested a petitioner to reevaluate the estimated waste volume. The EPA accepted Occidental Chemical's certified estimates. The EPA does not generally verify submitted test data before proposing delisting decisions. The sworn affidavit submitted with this petition binds the petitioner to present truthful and accurate results. The EPA, however, has maintained a spot-check sampling and analysis program to verify the representative nature of the data for some percentage of the submitted petitions. A spot-check visit to a selected facility may be initiated before finalizing a delisting petition or after granting an exclusion.

D. EPA Evaluation

The EPA considered the appropriateness of alternative waste management scenarios for Occidental Chemical's Rockbox Residue, Caustic Neutralized Wastewater, and Limestone Sludge. The EPA decided, based on the information provided in the petition, that disposal of the Rockbox Residue and Limestone Sludge in a municipal solid waste landfill is the most reasonable, worst-case scenario for the Rockbox Residue and the Limestone Sludge. The disposal of the Caustic Neutralized Wastewater in a surface impoundment would be the most reasonable worst case scenario. Under a landfill/surface impoundment disposal scenario, the major exposure route of concern for any hazardous constituents would be ingestion of contaminated ground water. The EPA, therefore, evaluated Occidental Chemical's petitioned wastes using the modified EPA Composite Model for Landfills/ Surface Impoundments (EPACML) which predicts the potential for ground water contamination from wastes that are landfilled/placed in a surface impoundment. See 56 FR 32993 (July 18, 1991), 56 FR 67197 (December 30, 1991) and the RCRA public docket for these notices for a detailed description of the EPACML model, the disposal assumptions, and the modifications made for delisting. This model, which includes both unsaturated and saturated zone transport modules, was used to predict reasonable worse-case contaminant levels in ground water at a compliance point (i.e., a receptor well serving as a drinking-water supply). Specifically, the model estimated the dilution/attenuation factor (DAF) resulting from subsurface processes such as three-dimensional dispersion and dilution from ground water recharge for a specific volume of waste. The EPA requests comments on the use of the EPACML as applied to the evaluation of Occidental Chemical's petitioned wastes (Rockbox Residue, Caustic Neutralized Wastewater, and Limestone Sludge).

For the evaluation of Occidental Chemical's petitioned wastes, the EPA used the EPACML to evaluate the mobility of the hazardous constituents detected in the extract of samples of Occidental Chemical's Rockbox Residue and the Limestone Sludge. The total analysis was utilized for the Caustic Neutralized Wastewater. Typically, the EPA uses the maximum annual waste volume to derive a petition-specific DAF. The DAFs are currently calculated assuming an ongoing process generates wastes for 20 years.

The DAF for the waste volume of Rockbox Residue is 128 cubic yards/ year assuming 20 years of generation is 100. The DAF for the waste volume of Caustic Neutralized Wastewater is 148,284 cubic yards/year assuming 20 years of generation is 7. The DAF for the waste volume of Limestone Sludge is 1,114 cubic yards/year assuming 20 years of generation is 100.

The EPA's evaluation of the Rockbox Residue using a DAF of 100, a maximum waste volume estimate of 128 cubic yards, and the maximum reported TCLP concentrations (see Table 2), yielded compliance point concentrations (see Table 5) that are below the current health based levels.

The EPA's evaluation of the Limestone Sludge using a DAF of 100, for the Limestone Sludge a maximum waste volume estimate of 1,114 cubic yards, and the maximum reported TCLP concentrations (see Tables 3 and 4), yielded compliance point concentrations (See Table 7) that are below the current health based levels.

The EPA's evaluation of the Caustic Neutralized Wastewater using a DAF of

7, a maximum waste volume estimate of 148,284, cubic yards, and the maximum reported TCLP concentrations (see Table 5), yielded compliance point concentrations (See Table 8) that are below the current health based levels.

TABLE 6.—EPACML: CALCULATED COMPLIANCE-POINT CONCENTRATIONS ROCKBOX RESIDUE

Constituents	Compliance point concentrations (mg/l) [6]	Levels of concern (mg/l) [7]
Acetone	0.00106	4.0
Bromdichloromethane	0.0002	0.0014
Bromoform	0.0002	0.01
Bromomethane	0.0005	0.05
Chlorodibromomethane	0.0002	0.001
Chloroform	0.0002	0.01
Dichloromethane	0.0011	0.01
Ethylbenzene	0.0004	0.7
2,3,7,8-TCDD Equivalent	0.0000000000531	0.0000000006
Barium	0.0066	2.0
Chromium	0.0013	0.1
Copper	0.0025	1.3
Lead	0.0005	0.015
Selenium	0.0011	0.05
Tin	0.0010	2.1
Vanadium	0.005	0.3
Zinc	0.004	10.0

[6] Using the maximum TCLP leachate concentration, based on a DAF of 100 for a maximum annual volume of 128 cubic yards.
[7] See ''Docket Report on Health-Based Levels and Solubilities Used in the Evaluation of Delisting Petitions,'' May 1996 located in the RCRA Public Docket for today's notice.

TABLE 7.—EPACML: CALCULATED COMPLIANCE-POINT CONCENTRATION LIMESTONE SLUDGE

Constituents	Compliance point concentrations (mg/l) [8]	Levels of concern (mg/l) [9]
Acetone	0.0027	4.0
Bromoform	0.0002	0.01
Chlorodibromomethane	0.0002	0.001
Dichloromethane	0.0054	0.01
Ethylbenzene	0.0003	0.7
1,1,1-Trichloroethane	0.0002	0.2
Toluene	0.02	7.0
Trichlorofluoromethane	0.0002	10.0
Xylene	0.0011	20.0
Diethyl phthalate	0.0001	30.0
2,3,7,8-TCDD Equivalent	0.00000000000183	0.0000000006
Antimony	0.06	0.006
Arsenic	0.0005	0.05
Barium	0.0014	2.0
Beryllium	0.0005	0.004
Chromium	0.0005	0.1
Cobalt	0.005	2.1
Copper	0.0025	1.3
Lead	0.0005	0.015
Nickel	0.0047	0.7
Selenium	0.001	0.05
Silver	0.00025	0.02
Vanadium	0.005	0.3
Zinc	0.0011	10.0

[8] Using the maximum TCLP leachate concentration, based on a DAF of 100 for a maximum annual of 1,114 cubic yards.
[9] See Table 6.

TABLE 8.—EPACML: CALCULATED COMPLIANCE-POINT CONCENTRATIONS CAUSTIC NEUTRALIZED WASTEWATER

Constituents	Compliance point concentrations (mg/l) [10]	Levels of concern (mg/l) [11]
Acetone	0.00143	4.0
Bromoform	0.01	0.01
Chlorodibromomethane	0.001	0.001
2,3,7,8-TCDD Equivalent	0.00000000012	0.0000000006
Arsenic	0.00143	0.05
Barium	0.03	2.0

TABLE 8.—EPACML: CALCULATED COMPLIANCE-POINT CONCENTRATIONS CAUSTIC NEUTRALIZED WASTEWATER—Continued

Constituents	Compliance point concentrations (mg/l) [10]	Levels of concern (mg/l) [11]
Lead	0.01	0.015
Silver	0.01	0.02
Vanadium	0.001	0.3
Zinc	0.07	10.0

[10] Using the maximum total concentration, based on a DAF of 7 for a maximum annual volume of 148,248 cubic yards.
[11] See Table 6.

The maximum reported or calculated leachate concentrations of bromoform, chlorodibromomethane, dichloromethane, ethylbenzene, 2,3,7,8-TCDD Equivalent, barium, chromium, and selenium in the Rockbox Residue yielded compliance point concentrations well below the health based levels used in the delisting decision-making. The EPA did not evaluate the mobility of the remaining constituents (e.g., acetone, bromodichloromethane, copper, lead) from Occidental Chemical's waste because they were not detected in the leachate using the appropriate analytical test methods (see Table 2). The EPA does not evaluate nondetectable concentrations of a constituent of concern in its modeling efforts if the nondetectable value was obtained using the appropriate analytical method; the EPA then assumes that the constituent is not present and therefore does not present a threat to human health or the environment.

The maximum reported or calculated leachate concentrations of acetone, bromoform, chlorodibromomethane, 2,3,7,8-TCDD Equivalent, arsenic, barium, lead, silver, vanadium, and zinc in the Caustic Neutralized Wastewater yielded compliance point concentrations well below the health based levels used in the delisting decision-making.

The maximum reported or calculated leachate concentrations of acetone, dichloromethane, ethylbenzene, toluene, xylene, 2,3,7,8-TCDD Equivalent, barium, nickel, selenium, and zinc in the Limestone Sludge yielded compliance point concentrations well below the health based levels used in the delisting decision-making. The EPA did not evaluate the mobility of the remaining constituents (e.g., bromoform, beryllium, chromium, cobalt, copper, lead) from Occidental Chemical's waste because they were not detected in the leachate using the appropriate analytical test methods (see Table 3). As explained above, the EPA does not evaluate nondetectable concentrations of a constituent of concern in its modeling efforts if the non-detectable value was obtained using the appropriate analytical method.

The EPA concluded, after reviewing Occidental Chemical's processes that no other hazardous constituents of concern, other than those for which tested, are likely to be present or formed as reaction products or by products in Occidental Chemical's wastes. In addition, on the basis of explanations and analytical data provided by Occidental Chemical, pursuant to § 260.22, the EPA concludes that the petitioned wastes do not exhibit any of the characteristics of ignitability, corrosivity, or reactivity. See §§ 261.21, 261.22, and 261.23, respectively.

During the evaluation of Occidental Chemical's petition, the EPA also considered the potential impact of the petitioned wastes via non-ground water routes (i.e., air emission and surface runoff). With regard to airborne dispersion in particular, the EPA believes that exposure to airborne contaminants from Occidental Chemical's petitioned wastes is unlikely. Therefore, no appreciable air releases are likely from Occidental's wastes under any likely disposal conditions. The EPA evaluated the potential hazards resulting from the unlikely scenario of airborne exposure to hazardous constituents released from Occidental Chemical's wastes in an open landfill. The results of this worst-case analysis indicated that there is no substantial present or potential hazard to human health and the environment from airborne exposure to constituents from Occidental Chemical's Rockbox Residue, Caustic Neutralized Wastewater, or the Limestone Sludge. A description of the EPA's assessment of the potential impact of Occidental Chemical's wastes, regarding airborne dispersion of waste contaminants, is presented in the RCRA public docket for today's proposed rule.

The EPA also considered the potential impact of the petitioned wastes via a surface water route. The EPA believes that containment structures at municipal solid waste landfills can effectively control surface water runoff, as the Subtitle D regulations (See 56 FR 50978, October 9, 1991) prohibit pollutant discharges into surface waters. Furthermore, the concentrations of any hazardous constituents dissolved in the run-off will tend to be lower than the levels in the TCLP leachate analyses reported in today's notice due to the aggressive acidic medium used for extraction in the TCLP. The EPA believes that, in general, leachate derived from the wastes is unlikely to directly enter a surface water body without first traveling through the saturated subsurface where dilution and attenuation of hazardous constituents will also occur. Leachable concentrations provide a direct measure of solubility of a toxic constituent in water and are indicative of the fraction of the constituent that may be mobilized in surface water as well as ground water.

Based on the reasons discussed above, EPA believes that the contamination of surface water through runoff from the waste disposal area is very unlikely. Nevertheless, the EPA evaluated the potential impacts on surface water if Occidental Chemical's waste were released from a municipal solid waste landfill through runoff and erosion. See, the RCRA public docket for today's proposed rule. The estimated levels of the hazardous constituents of concern in surface water would be well below health-based levels for human health, as well as below the EPA chronic Water Quality Criteria for aquatic organisms (USEPA, OWRS, 1987). The EPA, therefore, concluded that Occidental Chemical's Rockbox Residue, the Caustic Neutralized Wastewater, and the Limestone Sludge wastes are not a present or potential substantial hazard to human health and the environment via the surface water exposure pathway.

E. Conclusion

The EPA believes that the descriptions of the Occidental Chemical hazardous waste process and analytical characterization, in conjunction with the proposed verification testing requirements (as discussed later in this notice), provide a reasonable basis to grant Occidental Chemical's petition for an exclusion of the Rockbox Residue, Limestone Sludge, and Caustic Neutralized Wastewater. The EPA believes the data submitted in support of the petition show Occidental Chemical's process can render the Rockbox Residue, Limestone Sludge, and Caustic Neutralized Wastewater non-hazardous. The EPA has reviewed the sampling procedures used by Occidental Chemical and has determined they satisfy EPA criteria for collecting representative samples of the variations in constituent concentrations in the Rockbox Residue, Limestone Sludge, and Caustic Neutralized Wastewater. The data submitted in support of the petition show that constituents in Occidental Chemical's waste are presently below health-based levels used in the delisting decision-making. The EPA believes that Occidental Chemical has successfully demonstrated that the Rockbox Residue, Limestone Sludge, and Caustic Neutralized Wastewater is non-hazardous.

The EPA's decision to exclude this waste is based on descriptions of the incineration and the wastewater treatment activities associated with the petitioned waste and characterization of the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater. If the proposed rule is finalized, the petitioned wastes will no longer be subject to regulation under parts 262 through 268 and the permitting standards of part 270. The EPA therefore, proposes to grant an exclusion to the Occidental Chemical Corporation, located in Ingleside, Texas, for the Rockbox Residue, Limestone Sludge, and Caustic Neutralized Wastewater described in its petition.

F. Verification Testing Conditions

(1) *Delisting Levels:* All concentrations for the following constituents must not exceed the following levels (ppm). For the Rockbox Residue and the Limestone Sludge, constituents must be measured in the waste leachate by the method specified in 40 CFR § 261.24. The constituents for the Caustic Neutralized Wastewater must be measured in total constituents.

(A) Caustic Neutralized Wastewater
(i) Inorganic Constituents
Arsenic—0.35; Barium—14; Lead—0.11; Silver—0.14; Vanadium—2.1; Zinc—70
(ii) Organic Constituents
Acetone—28; Bromoform—0.07; Chlorodibromomethane—0.01; 2,3,7,8-TCDD Equivalent—0.00000004
(B) Rockbox Residue
(i) Inorganic Constituents
Barium—100; Chromium—5; Copper—130; Lead—1.5; Selenium—1; Tin—210; Vanadium—30; Zinc—1000
(ii) Organic Constituents
Acetone—400; Bromodichloromethane—0.14; Bromoform—1.0; Chlorodibromethane—0.1; Chloroform—1.0; Dichloromethane—1.0; Ethylbenzene—70; 2,3,7,8-TCDD Equivalent—0.000000531
(C) Limestone Sludge
(i) Inorganic Constituents
Antimony—0.6; Arsenic—5; Barium—100; Beryllium—0.4; Chromium—10; Cobalt—210; Copper—130; Lead—1.5; Nickel—70; Selenium—1; Silver—2.0; Vanadium—30; Zinc—1000
(ii) Organic Constituents
Acetone—400; Bromoform—1, Chlorodibromomethane—0.10; Dichloromethane—1.0; Ethylbenzene—70; 1,1,1—Trichloroethane—20; Toluene—700; Trichlorofluoromethane—1000; Xylene—2000; Diethyl phthalate—3000; 2,3,7,8—TCDD Equivalent—0.0000006

This paragraph provides the levels of constituents for which Occidental Chemical must test the leachate from the Rockbox Residue, and the Limestone Sludge, and the water in the Caustic Neutralized Wastewater, below which these wastes would be considered non-hazardous. The exclusion is effective when it is signed, but the disposal can not be implemented until the verification sampling is completed. If these constituent levels are exceeded then that waste is considered to be hazardous and must be managed as hazardous waste. If the annual testing of the waste does not meet the delisting requirements described in Paragraph 1, the facility must notify the Agency according to the Paragraph 6. The exclusion will be suspended until a decision is reached by the Agency. The facility shall provide sampling results which support the rationale that the delisting exclusion should not be withdrawn. The EPA selected the set of inorganic and organic constituents specified after reviewing information about the composition of the waste, descriptions of Occidental Chemical's treatment process, previous test data provided for the three waste and the respective health-based levels used in delisting decision-making. The EPA established the proposed delisting levels for this paragraph by back-calculating the Maximum Allowable Leachate (MALs) concentrations from the health-based levels for the constituents of concern using the EPACML chemical-specific DAFs of 100, 100, and 7 (See, previous discussions in Section D—*Agency Evaluation*) i.e., MAL = HBL × DAF). These delisting levels correspond to the allowable levels measured in the TCLP extract of the waste.

(2) *Waste Holding and Handling:* Occidental Chemical must store in accordance with its RCRA permit, or continue to dispose of as hazardous all Rockbox Residue and the Limestone Sludge generated, and continue to discharge the Caustic Neutralized Wastewater generated in compliance with Occidental Chemical's NPDES permit until the verification testing described in Condition (3)(A) and (B), as appropriate, is completed and valid analyses demonstrate that condition (3) is satisfied. If the levels of constituents measured in the samples of the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater do not exceed the levels set forth in Condition (1), then the waste is nonhazardous and may be managed and disposed of in accordance with all applicable solid waste regulations. Occidental Chemical must continue to treat and discharge the Caustic Neutralized Wastewater as provided by the terms of its NPDES permit. If constituent levels in a sample exceed any of the delisting levels set in Condition (1), the waste generated during the time period corresponding to this sample must be managed and disposed of in accordance with Subtitle C of RCRA and Occidental Chemical's NPDES permit.

The purpose of this paragraph is to ensure that any Rockbox Residue and Limestone Sludge which might contain hazardous levels of inorganic and organic constituents are managed and disposed of in accordance with Subtitle C of RCRA. Holding the Rockbox Residue and Limestone Sludge until characterization is complete will protect against improper handling of hazardous material. Further, inasmuch as Occidental Chemical has a permit to discharge under the NPDES program, it must continue to fully meet those permit requirements and may, according to this exception, only dispose of the Caustic Neutralized Wastewater as provided by that permit. If the EPA determines that the data collected under this condition do not support the data provided for the petition or Occidental Chemical is no longer meeting the terms of its NPDES permit, the exclusion will not cover the three wastes.

(3) *Verification Testing Requirements:* Sample collection and analyses, including quality control procedures, must be performed according to SW–846 methodologies. If EPA judges the incineration process to be effective under the operating conditions used during the initial verification testing, Occidental Chemical may replace the testing required in Condition (3)(A) with the testing required in Condition (3)(B). Occidental Chemical must continue to test as specified in Condition (3)(A) until and unless notified by EPA in writing that testing

in Condition (3)(A) may be replaced by Condition (3)(B).

(A) *Initial Verification Testing:* (i) During the first 40 operating days of the Incinerator Offgas Treatment System after the final exclusion is granted, Occidental Chemical must collect and analyze composites of the Limestone Sludge, and the Caustic Neutralized Wastewater. Daily composites must be composed of representative grab samples collected every 6 hours during each unit operating cycle. The two wastes must be analyzed, prior to disposal, for all of the constituents listed in Paragraph 1. Occidental Chemical must report the operational and analytical test data, including quality control information, obtained during this initial period no later than 90 days after the generation of the two wastes.

(ii) When the Rockbox unit is decommissioned for cleanout after the final exclusion is granted, Occidental Chemical must collect and analyze composites of the Rockbox Residue. The waste must be sampled after each decommissioning. Two composites must be composed of representative grab samples collected from the Rockbox unit. The waste must be analyzed, prior to disposal, for all of the constituents listed in Paragraph 1. No later than 90 days after the Rockbox is decommissioned for cleanout the first two times after this exclusion becomes final, Occidental Chemical must report the operational and analytical test data, including quality control information.

If the EPA determines that the data from the initial verification period demonstrates the treatment process is effective, Occidental Chemical may request that EPA allow it to perform verification testing on a quarterly basis for the Limestone Sludge and the Caustic Neutralized Wastewater. The Rockbox Residue will be sampled during periodic maintenance. If approved in writing by EPA, then Occidental Chemical may begin verification testing quarterly of the Limestone Sludge and the Caustic Neutralized Wastewater.

The EPA believes that an initial period of 40 days is sufficient for a facility to collect sufficient data to verify the data provided for the Limestone Sludge and the Caustic Neutralized Wastewater in the 1997 petition is representative of the waste to be delisted. If the EPA determines that the data collected under this condition do not support the data provided for the petition, the exclusion will not cover the generated wastes. If the EPA determines that the data from the initial verification period reflected in (3)(A)(i) demonstrates that the treatment process is effective, EPA will notify Occidental Chemical in writing that the testing conditions in (3)(A)(i) may be replaced with the testing conditions in (3)(B). EPA also believes it is sufficient for Occidental Chemical to collect verification data for the Rockbox Residue when the Rockbox unit is decommissioned for cleanout.

(B) *Subsequent Verification Testing:* Following written notification by EPA, Occidental Chemical may substitute the testing conditions in (3)(B) for (3)(A)(i). Occidental Chemical must continue to monitor operating conditions, and analyze samples representative of each quarter of operation during the first year of waste generation. The samples must represent the waste generated over one quarter. (This provision does not apply to the Rockbox Residue.)

The EPA believes that the concentrations of the constituents of concern in the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater may vary somewhat over time. As a result, in order to ensure that Occidental Chemical's treatment process can effectively handle any variation in constituent concentrations in the three wastes, the EPA is proposing a subsequent verification testing condition. The proposed subsequent testing would verify that the incinerator offgas system is operated in a manner similar to its operation during the initial verification testing and that the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater, do not exhibit unacceptable levels of toxic constituents. Therefore, the EPA is proposing to require Occidental Chemical to analyze representative samples of the Limestone Sludge, and the Caustic Neutralized Wastewater on a quarterly basis during the first year of waste generation (commencing on the anniversary date of the final exclusion) as described in Condition (3)(B). The Rockbox Residue will be sampled when the unit is out of commission for routine maintenance.

(C) *Termination of Organic Testing for Limestone Sludge and Caustic Neutralized Wastewater:* Occidental Chemical must continue testing as required under Condition (3)(B) for organic constituents specified in Condition (1)(A)(ii) and (1)(C)(ii) until the analyses submitted under Condition (3)(B) show a minimum of two consecutive quarterly samples below the delisting levels in Conditions (1)(A)(ii) and (1)(C)(ii). Occidental Chemical may then request that quarterly organic testing be terminated. After EPA notifies Occidental Chemical in writing it may terminate quarterly organic testing. Following termination of the quarterly testing, Occidental Chemical must continue to test a representative composite sample for all constituents listed in Condition (1) on an annual basis (no later than twelve months after final exclusion). If the waste exceeds the delisting levels then the waste will not be delisted.

The EPA is proposing to terminate the subsequent testing conditions for organics as allowed in Condition (1)(A)ii and (1)(C)(ii) after Occidental Chemical has demonstrated the delisting levels for the waste are consistently met. If the annual testing of the wastes does not meet the delisting requirements described in Paragraph 1, the facility must notify the Agency according to the requirements in Paragraph 6. The exclusion will be suspended until a decision is reached by the Agency. The facility shall provide sampling results which support the rationale that the delisting exclusion should not be withdrawn. In order to confirm that the characteristics of the wastes do not change significantly over time, Occidental Chemical must continue to analyze a representative sample of the wastes for organic constituents on an annual basis (no later than twelve months after the final exclusion). If Occidental Chemical changes operating conditions as described in Condition (4), then Occidental Chemical must reinstate all testing in Condition (3)(A), pending a new demonstration under this condition for termination. Occidental Chemical must continue Organic Testing of the Rockbox Residue for that waste to be excluded.

(4) *Changes in Operating Conditions*: If Occidental Chemical significantly changes the process described in its petition or implements any processes which generate(s) the waste(s) and which may or could affect the composition or type waste(s) generated as established under Condition (1) (by illustration, but not limitation, change in equipment or operating conditions of the treatment process), or its NPDES permit is changed, revoked or not reissued, or if it intends to manage the Caustic Neutralized Wastewater other than by discharge under its NPDES permit, Occidental Chemical must notify the EPA in writing and may no longer handle the wastes generated from the new process, or no longer discharge as nonhazardous until the wastes meet the delisting levels set in Condition (1) and it has received written approval to do so from EPA.

Condition (4) would allow Occidental Chemical the flexibility of modifying its processes (e.g., changes in equipment or change in operating conditions) to improve its treatment process. However, Occidental Chemical must demonstrate that the change would not affect the composition or type of waste and request approval from the EPA. Wastes generated during the new process demonstration must be managed as a hazardous waste until written approval has been obtained and Condition (1) is satisfied. If Occidental Chemical changes operating conditions as described in Condition (5), then Occidental Chemical must reinstate all testing in Condition (3) pending a new

demonstration under this condition for termination.

(5) *Data Submittals*: The data obtained through Condition 3 must be submitted to Mr. William Gallagher, Chief, Region 6 Delisting Program, EPA, 1445 Ross Avenue, Dallas, Texas 75202–2733, Mail Code, (6PD-O) within the time period specified. Records of operating conditions and analytical data from Condition (1) must be compiled, summarized, and maintained on site for a minimum of five years. These records and data must be furnished upon request by EPA, or the State of Texas, and made available for inspection. Failure to submit the required data within the specified time period or maintain the required records on site for the specified time will be considered by EPA, at its discretion, sufficient basis to revoke the exclusion to the extent directed by EPA. All data must be accompanied by a signed copy of the following certification statement to attest to the truth and accuracy of the data submitted:

Under civil and criminal penalty of law for the making or submission of false or fraudulent statements or representations (pursuant to the applicable provisions of the Federal Code, which include, but may not be limited to, 18 U.S.C. 1001 and 42 U.S.C. 6928), I certify that the information contained in or accompanying this document is true, accurate and complete.

As to the (those) identified section(s) of this document for which I cannot personally verify its (their) truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate and complete.

In the event that any of this information is determined by EPA in its sole discretion to be false, inaccurate or incomplete, and upon conveyance of this fact to the company, I recognize and agree that this exclusion of waste will be void as if it never had effect or to the extent directed by EPA and that the company will be liable for any actions taken in contravention of the company's RCRA and CERCLA obligations premised upon the company's reliance on the void exclusion.

To provide appropriate documentation that Occidental Chemical's facility is properly treating the waste, all analytical data obtained through Condition (3), including quality control information, must be compiled, summarized, and maintained on site for a minimum of five years. Condition (5) requires that these data be furnished upon request and made available for inspection by any employee or representative of EPA or the State of Texas.

If made final, the proposed exclusion will apply only to 128 cubic yards of Rockbox Residue, 1,114 cubic yards of Limestone Sludge, and 148,284 cubic yards of Caustic Neutralized Wastewater generated annually at the wastewater system at the Occidental Chemical facility after successful verification testing. Except as described in Condition (4), the facility would be required to submit a new petition if the treatment process specified for the Incinerator Offgas Treatment System is significantly altered. Occidental Chemical would be required to file a new delisting petition for any new manufacturing or production process(es), or significant changes from the current process(es) described in its petition which generates the three wastes or which may or could affect the composition or type of waste generated. Additionally if there is any change to Occidental Chemical's NPDES permit or if it wishes to manage the Caustic Neutralized Wastewater other than by discharge under its NPDES permit, except as provided in Condition (4), Occidental would also be required to file a new delisting petition. The facility must manage any of the waste in excess of 128 cubic yards of Rockbox Residue, 1,114 cubic yards of Limestone Sludge, and 148,284 cubic yards of Caustic Neutralized Wastewater generated from a changed process as hazardous until a new exclusion is granted.

Although management of the wastes covered by this petition would not be subject to Subtitle C jurisdiction upon final promulgation of an exclusion, the generator of a delisted waste must either treat, store, or dispose of the waste in an on-site facility, or ensure that the waste is delivered to an off-site storage, treatment, or disposal facility, either of which is permitted, licensed, or registered by a State to manage municipal or industrial solid waste.

(6) *Reopener.*

(a) If Occidental Chemical discovers that a condition at the facility or an assumption related to the disposal of the excluded waste that was modeled or predicted in the petition does not occur as modeled or predicted, then Occidental Chemical must report any information relevant to that condition, in writing, to the Regional Administrator or his delegate within 10 days of discovering that condition.

(b) Upon receiving information described in paragraph (a) regardless of its source, the Regional Administrator or his delegate will determine whether the reported condition requires further action. Further action may include repealing the exclusion, modifying the exclusion, or other appropriate response necessary to protect human health and the environment.

The purpose of paragraph 6 is to require Occidental Chemical to disclose new or different information related to a condition at the facility or disposal of the waste if it had or has bearing on the delisting. This will allow EPA to reevaluate the exclusion if new or additional information is provided to the Agency by Occidental Chemical which indicates that information on which EPA's decision was based was incorrect or circumstances have changed such that information is no longer correct or would cause EPA to deny the petition if then presented. Further, although this provision expressly requires Occidental Chemical to report differing site conditions or assumptions used in the petition within 10 days of discovery, if EPA discovers such information itself or from a third party, it can act on it as appropriate. The language being proposed is similar to those provisions found in RCRA regulations governing no-migration petitions located at § 268.6.

EPA has recognized that current delisting regulations contain no express procedure for reopening a decision if additional information is received and although it believes that it has the authority under RCRA and the Administrative Procedures Act, 5 U.S.C. 551 (1978), *et seq.* (APA), to take this action, EPA believes that a clear statement of its authority in the context of delistings is merited in light of Agency experience. (*See, e.g.*, Reynolds Metals Company at 62 FR 37694 and 62 FR 63458 where the delisted waste did not leach in the actual disposal site as it had been modeled thus leading the Agency to repeal the delisting.) Until such time as EPA codifies an express reopener provision in the exclusion regulations, EPA will include language similar to that expressed above in delistings. EPA is considering the inclusion of a more specific regulatory process both defining when a delisting should be reopened and the result of reopening a granted exclusion and is soliciting comments on this process. Since each delisting is waste-specific and facility-specific or process-specific, EPA is currently reluctant to adopt a rule which might inadvertently, for example, cause an immediate repeal where specific circumstances would not merit so precipitous a result. In the meantime, in the event that an immediate threat to human health or the environment presents itself, EPA will continue to rely on its authority under the APA to make a good cause finding to justify an emergency rulemaking suspending notice and comment. APA section 553(b).

(7) *Notification Requirements*: Occidental Chemical must provide a one-time written notification to any State Regulatory Agency to which or through which the delisted waste described above will be transported for disposal at least 60 days prior to the commencement of such activities. Failure to provide such a notification will result in a violation of the delisting petition and a possible revocation of the decision.

IV. Effective Date

EPA intends that this rule, should become effective immediately upon final publication. The Hazardous and Solid Waste Amendments of 1984 amended section 3010 of RCRA to allow rules to become effective in less than six months when the regulated community does not need the six-month period to come into compliance. That is the case here, because this rule, if finalized, would reduce the existing requirements for persons generating hazardous wastes. In light of the unnecessary hardship and expense that would be imposed on this petitioner by an effective date six months after publication and the fact that a six-month deadline is not necessary to achieve the purpose of section 3010, EPA believes that this exclusion should be effective immediately upon final publication. These reasons also provide a basis for making this rule effective immediately, upon final publication, under the Administrative Procedure Act, 5 USC 553(d).

V. Regulatory Impact

Under Executive Order (EO) 12866, EPA must conduct an ''assessment of the potential costs and benefits'' for all ''significant'' regulatory actions. The proposal to grant an exclusion is not significant, since its effect, if promulgated, would be to reduce the overall costs and economic impact of EPA's hazardous waste management regulations. This reduction would be achieved by excluding waste generated at a specific facility from EPA's lists of hazardous wastes, thereby enabling this facility to manage its waste as nonhazardous. There is no additional impact therefore, due to today's proposed rule. Therefore, this proposal would not be a significant regulation and no cost/benefit assessment is required. The Office of Management and Budget (OMB) has also exempted this rule from the requirement for OMB review under Section (6) of Executive Order 12866.

VI. Children's Health Protection

Under EO 13045, for all significant regulatory actions as defined by EO 12866, EPA must provide an evaluation of the environmental health or safety effect of a proposed rule on children and an explanation of why the proposed rule is preferable to other potentially effective and reasonably feasible alternatives considered by EPA. This proposal is not a significant regulatory action and is exempt from EO 13045.

VII. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act, 5 U.S.C. 601–612, whenever an agency is required to publish a general notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis which describes the impact of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions). No regulatory flexibility analysis is required however if the Administrator or delegated representative certifies that the rule will not have any impact on small entities.

This rule if promulgated, will not have an adverse economic impact on small entities since its effect would be to reduce the overall costs of EPA's hazardous waste regulations. Accordingly, I hereby certify that this proposed regulation, if promulgated, will not have a significant economic impact on a substantial number of small entities. This regulation therefore, does not require a regulatory flexibility analysis.

VIII. Paperwork Reduction Act

Information collection and record-keeping requirements associated with this proposed rule have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96–511, 44 U.S.C. 3501 *et seq.*) and have been assigned OMB Control Number 2050–0053.

IX. Unfunded Mandates Reform Act

Under section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, which was signed into law on March 22, 1995, EPA must prepare a written statement for rules with Federal mandates that may result in estimated costs to State, local, and tribal governments in the aggregate, or to the private sector of $100 million or more in any one year. When such a statement is required for EPA rules, under section 205 of the UMRA, EPA must identify and consider alternatives, including the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. EPA must select that alternative, unless the Administrator explains in the final rule why it was not selected or it is inconsistent with law. Before EPA establishes regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must develop under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, giving them meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising them on compliance with the regulatory requirements. The UMRA generally defines a Federal mandate for regulatory purposes as one that imposes an enforceable duty upon State, local, or tribal governments or the private sector. The EPA finds that today's proposed delisting decision is deregulatory in nature and does not impose any enforceable duty upon State, local, or tribal governments or the private sector. In addition, the proposed delisting does not establish any regulatory requirements for small governments and so does not require a small government agency plan under UMRA section 203.

X. Intergovernmental Partnership

Under EO 12875, EPA may not promulgate any regulation which creates an unfunded mandate upon state, local or tribal government. EPA finds that today's proposed delisting decision is deregulatory in nature and does not impose any enforceable duty upon state, local or tribal governments (See Section IX (UMRA) above) and accordingly, this action is exempt from the requirements of EO 12875.

List of Subjects in 40 CFR Part 261

Environmental protection, Hazardous waste, Recycling, Reporting and recordkeeping requirements.

Authority: Sec. 3001(f) RCRA, 42 U.S.C. 6921(f).

Dated: April 17, 1998.

Robert Hannesschlager,

Acting Director, Multimedia Planning and Permitting Division.

For the reasons set out in the preamble, 40 CFR part 261 is proposed to be amended as follows:

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

1. The authority citation for part 261 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, and 6938.

2. In Tables 1 and 2 of Appendix IX of part 261 it is proposed to add the following waste stream in alphabetical order by facility to read as follows:

Appendix IX to Part 261—Wastes Excluded Under §§ 260.20 and 260.22

TABLE 1. WASTES EXCLUDED FROM NON-SPECIFIC SOURCES

Facility	Address	Waste description
*	* *	* * * * *
Occidental Chemical,	Ingleside, Texas	Limestone sludge, (at a maximum generation of 1,114 cubic yards per calendar year) Rockbox Residue, (at a maximum generation of 128 cubic yards per calendar year) and Caustic Neutralized Wastewater, (at a maximum generation of 148,282 cubic yards per calendar year) generated by Occidental Chemical using the wastewater treatment process to treat the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater (EPA Hazardous Waste No. F025, F001, F003, and F005) generated at Occidental Chemical. Occidental Chemical must implement a testing program that meets the following conditions for the exclusion to be valid: (1) *Delisting Levels:* All concentrations for the following constituents must not exceed the levels (ppm). For the Rockbox Residue and the Limestone Sludge, constituents must be measured in the waste leachate by the method specified in 40 CFR Part 261.24. The constituents for the Caustic Neutralized Wastewater must be measured in total constituents. (A) Caustic Neutralized Wastewater. (i) Inorganic Constituents Arsenic-0.35; Barium-14; Lead-0.11; Silver-0.14; Vanadium-2.1; Zinc-70. (ii) Organic Constituents Acetone-28; Bromoform-0.07; Chlorodibromomethane-0.01; 2,3,7,8-TCDD Equivalent-0.00000004. (B) Rockbox Residue. (i) Inorganic Constituents Barium-200; Chromium-10; Copper-130; Lead-1.5; Selenium-1; Tin-210; Vanadium-30; Zinc-1000. (ii) Organic Constituents Acetone-400; Bromodichloromethane-0.14; Bromoform-1.0; Chlorodibromethane-0.1; Chloroform-1.0; Dichloromethane-1.0; Ethylbenzene-70; 2,3,7,8-TCDD Equivalent-0.000000531. (C) Limestone Sludge. (i) Inorganic Constituents Antimony-0.6; Arsenic-5; Barium-200; Beryllium-0.4; Chromium-10; Cobalt-210; Copper-130; Lead-1.5; Nickel-70; Selenium-1; Silver-2.0; Vanadium-30; Zinc-1000. (ii) Organic Constituents Acetone-400; Bromoform-1, Chlorodibromomethane-0.1; Dichloromethane-1.0; Ethylbenzene-70; 1,1,1-Trichloroethane-20; Toluene-700; Trichlorofluoromethane-1000; Xylene-2000; Diethyl phthalate-3000; 2,3,7,8-TCDD Equivalent-0.0000006. (2) *Waste Holding and Handling:* Occidental Chemical must store in accordance with its RCRA permit, or continue to dispose of as hazardous waste all Rockbox Residue, and the Limestone Sludge generated, and continue to discharge the Caustic Neutralized Wastewater generated in compliance with Occidental Chemical's NPDES permit until the verification testing described in Condition (3)(A) and (3)(B), as appropriate, is completed and valid analyses demonstrate that condition (3) is satisfied. If the levels of constituents measured in the samples of the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater do not exceed the levels set forth in Condition (1), then the waste is nonhazardous and may be managed and disposed of in accordance with all applicable solid waste regulations. Occidental Chemical must continue to treat and discharge the Caustic Neutralized Wastewater as provided by the terms of its NPDES permit. If constituent levels in a sample exceed any of the delisting levels waste generated during the time period corresponding to this sample must be managed and disposed of in accordance with Subtitle C of RCRA and Occidental Chemical's NPDES permit. (3) *Verification Testing Requirements:* Sample collection and analyses, including quality control procedures, must be performed according to SW–846 methodologies. If EPA judges the incineration process to be effective under the operating conditions used during the initial verification testing, Occidental Chemical may replace the testing required in condition (3)(A) with the testing required in Condition (3)(B). Occidental Chemical must continue to test as specified in Condition (3)(A) until and unless notified by EPA in writing that testing in Condition (3)(A) may be replaced by Condition (3)(B). (A) *Initial Verification Testing:* (i) During the first 40 operating days of the Incinerator Offgas Treatment System after the final exclusion is granted, Occidental Chemical must collect and analyze composites of the Limestone Sludge, and the Caustic Neutralized Wastewater. Daily composites must be composed of representative grab samples collected every 6 hours during each unit operating cycle. The two wastes must be analyzed, prior to disposal, for all of the constituents listed in Paragraph 1. Occidental Chemical must report the operational and analytical test data, including quality control information, obtained during this initial period no later 90 days after the generation of the two wastes.

TABLE 1. WASTES EXCLUDED FROM NON-SPECIFIC SOURCES—Continued

Facility	Address	Waste description
		(ii) When the Rockbox unit is decommissioned for cleanout, after the final exclusion is granted, Occidental Chemical must collect and analyze composites of the Rockbox Residue. Two composites must be composed of representative grab samples collected from the Rockbox unit. The waste must be analyzed, prior to disposal, for all of the constituents listed in Paragraph 1. No later than 90 days after the Rockbox is decommissioned for cleanout the first two times after this exclusion becomes final, Occidental Chemical must report the operational and analytical test data, including quality control information. (B) *Subsequent Verification Testing:* Following written notification by EPA, Occidental Chemical may substitute the testing conditions in (3)(B) for (3)(A)(i). Occidental Chemical must continue to monitor operating conditions, analyze samples representative of each quarter of operation during the first year of waste generation. The samples must represent the waste generated over one quarter. (This provision does not apply to the Rockbox Residue.) (C) *Termination of Organic Testing for the Limestone Sludge and the Caustic Neutralized Wastewater:* Occidental Chemical must continue testing as required under Condition (3)(B) for organic constituents specified in Condition (1)(A)(ii) and (1)(C)(ii) until the analyses submitted under Condition (3)(B) show a minimum of two consecutive quarterly samples below the delisting levels in Condition (1)(A)(ii) and (1)(C)(ii), Occidental Chemical may then request that quarterly organic testing be terminated. After EPA notifies Occidental Chemical in writing it may terminate quarterly organic testing. Following termination of the quarterly testing, Occidental Chemical must continue to test a representative composite sample for all constituents listed in Condition (1) on an annual basis (no later than twelve months after the final exclusion). (4) *Changes in Operating Conditions:* If Occidental Chemical significantly changes the process which generate(s) the waste(s) and which may or could affect the composition or type waste(s) generated as established under Condition (1) (by illustration, but not limitation, change in equipment or operating conditions of the treatment process), or its NPDES permit is changed, revoked or not reissued, or if it intends to manage the Caustic Neutralized Wastewater other than by discharge under its NPDES permit, Occidental Chemical must notify the EPA in writing and may no longer handle the wastes generated from the new process or no longer discharges as nonhazardous until the wastes meet the delisting levels set in Condition (1) and it has received written approval to do so from EPA. (5) *Data Submittals:* The data obtained through Condition 3 must be submitted to Mr. William Gallagher, Chief, Region 6 Delisting Program, U.S. EPA, 1445 Ross Avenue, Dallas, Texas 75202–2733, Mail Code, (6PD-O) within the time period specified. Records of operating conditions and analytical data from Condition (1) must be compiled, summarized, and maintained on site for a minimum of five years. These records and data must be furnished upon request by EPA, or the State of Texas, and made available for inspection. Failure to submit the required data within the specified time period or maintain the required records on site for the specified time period or maintain the required records on site for the specified time will be considered by EPA, at its discretion, sufficient basis to revoke the exclusion to the extent directed by EPA. All data must be accompanied by a signed copy of the following certification statement to attest to the truth and accuracy of the data submitted: Under civil and criminal penalty of law for the making or submission of false or fraudulent statements or representations (pursuant to the applicable provisions of the Federal Code, which include, but may not be limited to, 18 USC § 1001 and 42 USC § 6928), I certify that the information contained in or accompanying this document is true, accurate and complete. As to the (those) identified section(s) of this document for which I cannot personally verify its (their) truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate and complete. In the event that any of this information is determined by EPA in its sole discretion to be false, inaccurate or incomplete, and upon conveyance of this fact to the company, I recognize and agree that this exclusion of waste will be void as if it never had effect or to the extent directed by EPA and that the company will be liable for any actions taken in contravention of the company's RCRA and CERCLA obligations premised upon the company's reliance on the void exclusion. (6) *Reopener.* (a) If Occidental Chemical discovers that a condition at the facility or an assumption related to the disposal of the excluded waste that was modeled or predicted in the petition does not occur as modeled or predicted, then Occidental Chemical must report any information relevant to that condition, in writing, to the Director of the Multimedia Planning and Permitting Division or his delegate within 10 days of discovering that condition. (b)Upon receiving information described in paragraph (a) from any source, the Director or his delegate will determine whether the reported condition requires further action. Further action may include revoking the exclusion, modifying the exclusion, or other appropriate response necessary to protect human health and the environment.

TABLE 1. WASTES EXCLUDED FROM NON-SPECIFIC SOURCES—Continued

Facility	Address	Waste description
		(7) *Notification Requirements:* Occidental Chemical must provide a one-time written notification to any State Regulatory Agency to which or through which the debited waste described above will be transported for disposal at least 60 days prior to the commencement of such activities. Failure to provide such a notification will result in a violation of the delisting petition and a possible revocation of the decision.
*	* * * * * * *	

TABLE 2. WASTES EXCLUDED FROM SPECIFIC SOURCES

Facility	Address	Waste description
*	* * * * * * *	
Occidental Chemical	Ingleside, Texas	Limestone sludge, (at a maximum generation of 1,114 cubic yards per calendar year) Rockbox Residue, (at a maximum generation of 128 cubic yards per calendar year) and Caustic Neutralized Wastewater, (at a maximum generation of 148,282 cubic yards per calendar year) generated by Occidental Chemical using the wastewater treatment process to treat the Rockbox Residue, the Limestone Sludge, and the Caustic Neutralized Wastewater (EPA Hazardous Waste No. K019, K020. Occidental Chemical must implement a testing program that meets conditions found in Table 1. Wastes Excluded From Non-Specific Sources for the petition to be valid.
*	* * * * * * *	

[FR Doc. 98–12427 Filed 5–8–98; 8:45 am]
BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR 61

[IB Docket No. 98–60; FCC 98–78]

Policies and Rules for Alternative Incentive Based Regulation of Comsat Corporation

AGENCY: Federal Communications Commission.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Commission has issued a notice of proposed rulemaking to consider replacing traditional rate of return regulation with an alternative incentive based regulation plan for Comsat Corporation (''Comsat'') with respect to Comsat's provision of INTELSAT switched voice, private line and occasional-use video services to those markets where the Commission finds it dominant. The Commission believes that its current rate of return regulation that would be applicable to Comsat's dominant markets may no longer be an efficient or effective means of regulating Comsat's rates and may not create adequate efficiency incentives for Comsat. Therefore, the Commission invites interested parties to file comments in response to the Commission's tentative conclusions set forth in the notice of proposed rulemaking regarding alternative incentive based regulation for Comsat's dominant markets.

DATES: Interested parties may file comments by May 26, 1998 and reply comments by June 5, 1998.

ADDRESSES: Office of the Secretary, Federal Communications Commission, 1919 M Street, NW., Washington, D.C. 20554.

FOR FURTHER INFORMATION CONTACT: Daniel Connors, International Bureau, Satellite Policy Branch, (202) 418–0755; or Kathleen Campbell, International Bureau, Satellite Policy Branch (202) 418–0753.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking in IB Docket No. 98–60 that is contained in the Commission's Order and Notice of Proposed Rulemaking; FCC 98–78, adopted April 24, 1998, and released April 28, 1998. The complete text of the Order and Notice of Proposed Rulemaking is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, NW. Washington, D.C., and from the Commission's world-wide-web page on the Internet (http://www.fcc.gov), and also may be purchased from the Commission's copy contractor, International Transcription Service, (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, D.C. 20037. Because this Notice of Proposed Rulemaking contains information collections that affect less than 10 persons and, therefore, is not subject to the Paperwork Reduction Act of 1995, Public Law 104–13. As required by section 603 of the Regulatory Flexibility Act, the Commission has prepared an Initial Regulatory Flexibility Certification certifying that the proposed rule will not impact small entities.

1. The Initial Regulatory Flexibility Certification necessary to comply with the Regulatory Flexibility Act, 5 U.S.C. § 601 *et seq.*, is set forth below.

2. The Paperwork Reduction Act does not apply to the rules adopted herein because such rules apply to less than 10 persons.

Initial Regulatory Flexibility Certification

3. The Regulatory Flexibility Act (''RFA'') requires that an initial regulatory flexibility analysis be prepared for notice-and-comment rulemaking proceedings, unless the agency certifies that ''the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.'' U.S.C. § 605(b). The RFA generally defines ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' *Id.* § 601(6). In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. *Id.* § 601(3). A small business concern is one which: (a) is

Attachment 4

Arakawa K., Seguchi T., Yoshida K. (1986). Radiation-induced gas evolution in chlorine-containing polymer. Poly(Vinyl chloride), chloroprene rubber, and chlorosulfonated-polyethylene, Radiat. Phys. Chem. Vol. 27, No.2, pp.157-163.

[Not reproduced here.]

Attachment 5

U.S. Department of Health and Human Services, Agency of Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Vinyl Chloride (Update), September 1997, title page and pages 165 and 166

Attachment 5

TOXICOLOGICAL PROFILE FOR VINYL CHLORIDE

Prepared by:

Sciences International, Inc.
Under Subcontract to:

Research Triangle Institute
Under Contract No. 205-93-0606

Prepared for:

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry

September 1997

5.4.3 Sediment and Soil

Monitoring data for vinyl chloride in soil were not located in the available literature.

5.4.4 Other Environmental Media

In the past, vinyl chloride has been detected in various foods and bottled drinking water as a result of migration from PVC food wrappings and containers (Benfenati et al. 1991; Gilbert et al. 1980). Vinyl chloride has been found in vinegar at levels up to 98,000 µg/L (98 ppm), in edible oils at 300–1,800 µg/L (0.3–1.8 ppm), and in alcoholic beverages at 0.0–8,400 µg/L (0.0–8.4 ppm) when these foods were packaged and stored in PVC containers (Williams 1976; Williams and Miles 1975). Current data on levels of vinyl chloride in different foods were not located. At present, FDA regulates the use of PVC polymers in food packaging materials and the amount of residual monomer in polymers. In a modeling study using liquid chromatography to simulate migration conditions of vinyl chloride from PVC in actual food packaging and storage, it was shown that at the very low concentrations (less than 1 ppm) of residual vinyl chloride monomer in PVC packaging material, "essentially zero" migration of the vinyl chloride monomer into foods occurs (Kontominas et al. 1985). Vinyl chloride levels were determined in Italian drinking water bottled in PVC; levels ranged from 13 to 83 ppt (mean, 48 ppt) (Benfenati et al. 1991). It was also determined that there was a progressive migration of vinyl chloride from the bottle to the water, which occurred at a rate of 1 ng/L/day (Benfenati et al. 1991).

Vinyl chloride has been detected in drinking water. A study by EPA (1982f) estimated that 12 of 11,202 public water supplies that used surface water as their primary source had levels of vinyl chloride between 1.0 µg/L (0.001 ppm) and 5.0 µg/L (0.005 ppm); none had levels above 5 µg/L (0.005 ppm). Another study found that drinking water that ran through PVC pipes contained vinyl chloride at 1.4 µg/L (0.0014 ppm), whereas water that ran through a PVC system 9 years older contained 0.03–0.06 µg/L (0.03–0.06 ppb) (Dressman and McFarren 1978). The amount of vinyl chloride migrating from rigid PVC water pipes into drinking water was directly proportional to the residual level of vinyl chloride in the pipe itself. Current data on levels of vinyl chloride in drinking water and on the potential for leaching of vinyl chloride monomer from PVC pipes were not located. Under certain test conditions, vinyl chloride monomer in drinking water reacts with chlorine and is converted to chloroacetaldehyde and chloroacetic acid (Ando and Sayato 1984). Information

concerning the effect of this reaction on drinking water supplies that are treated with chlorine and the extent of this reaction was not stated.

During an EPA study, detectable levels of vinyl chloride monomer were found in indoor air samples taken from two of seven new 1975 model cars. Levels of vinyl chloride in indoor air in the two cars ranged from 400 to 1,200 µg/L (0.4–1.2 ppm). Ventilation of the car interiors led to the dissipation of vinyl chloride. The cars involved in the study had a high ratio of plastic to interior volume and were expected to provide worst-case concentrations for vinyl chloride in interior car air (EPA 1976b). Because of the limited nature of these data and the fact that this study is somewhat dated, no conclusions can be drawn regarding levels of vinyl chloride monomer in interior air of cars currently being produced.

Vinyl chloride has been detected in tobacco smoke. Cigarette smoke and smoke from small cigars has been found to contain 5.6–27 ng vinyl chloride per cigarette (Hoffman et al. 1976). The study authors suggested that the inorganic chloride concentrations in the tobacco determine the amount of vinyl chloride formed upon combustion of tobacco and released into the smoke (Hoffman et al. 1976).

5.5 GENERAL POPULATION AND OCCUPATIONAL EXPOSURE

Inhalation is the most probable route of exposure for the general population. Typical values for the average daily intake of vinyl chloride by inhalation in urban/suburban and rural/remote areas not near emission sources have been estimated to be essentially zero. Assuming that the average adult intake of air is 20 m^3/day, the average daily intake of vinyl chloride by people living in the vicinity of emission sources has been estimated to range from trace amounts to 2,100 µg (EPA 1979a, 1982f; Gordon and Meeks 1977). The majority of drinking water supplies in the United States do not contain detectable levels of vinyl chloride (EPA 1982f; Westrik et al. 1984). Based on this conclusion, it is estimated that the average daily intake of vinyl chloride by ingestion of drinking water for most people in the United States is essentially zero (at or below 0.028 µg/kg/day [EPA 1982f]). Estimates provided by EPA (1985b) indicate that 0.9% of the U.S. population is exposed to levels of vinyl chloride in drinking water greater than or equal to 1.0 µg/L, and 0.3% of the population is exposed to levels greater than 5 µg/L.

Attachment 6

Reed D.T. and Molecke M.A. (1994). Generation of Volatile organic Compounds by Alpha Particle Degradation of WIPP Plastic and Rubber Material. Mat. Res. Soc. Symp. Proc. Vol. 333, pp. 233-240.

[Not reproduced here.]