Quick Response Task

Analysis of the Delisting Petition Data Management System (DPDMS) to Identify Potential Hazards Posed by Denied and Dismissed "Mixture" and "Derived-from" Wastes

September 30, 1998

Submitted to:

Tracy Atagi, EPA WAM
Environmental Protection Agency
Washington, D.C.

Submitted by:

Science Applications International Corporation
11251 Roger Bacon Drive
Reston, VA 20190

EPA Contract No: 68-W4-0042
Quick Response Task No: Task No. 2, QRT No. 4
SAIC Project No: 01-0825-08-3262-204
SAIC Work Assignment No: 3-19

Quick Response Task -Analysis of Delisting Petitions

1. Introduction

This Quick Response Task (QRT) is prepared for the purpose of providing EPA with available information on the potential hazards of industry wastes captured by the "mixture" and "derived-from" rules promulgated under 40 CFR Part 261. The information contained in this QRT provides a summary of the case-study examples of such wastes that are archived in the Delisting Petition Data Management System (DPDMS), which was developed to track the status of petition reviews under EPA's Delisting Program. Files used from the DPDMS data base to identify the petitions that were denied and dismissed, which contain data current through 1995, include HISTORY.xls, STREAMS.xls, and PETLIST.xls. Other sources of information used include contractor-prepared "fact sheets", which provide brief summaries of petitions and petition review activity, Federal Register notices, and an EPA Summary of Delisting Petition Rulemaking Activities.

The results of this analysis show that a total of 111 delisting petitions were denied and a total of 34 delisting petitions were dismissed. Denied delisting petitions are discussed in Section 2. The rationale for petition denial is presented in Table 1 according to petition number, and a profile description of the denied wastes that are classified as "mixture" or "derived-from" is provided in Section 2.2. Section 3 provides a discussion on dismissed petitions, and Table 2 provides a list of the dismissed petitions. Conclusions drawn from this analysis are provided in Section 4.

2. Denied Delisting Petitions

2.1. Summary of All Denied Petitions

The results of the analysis using the DPDMS show a total of 111 delisting petitions were denied. Of these, 83 petitions were denied based on a lack of information and 29 were denied for other reasons. EPA's Summary of Delisting Petition Activities were used to determine that petitions were denied based on a lack of information. To determine the rationale for delisting petition denial of the remaining 29 denied petitions, Federal Register (FR) notices for the proposed and final delisting of each waste were reviewed. These 29 denied petitions were denied based on risk analyses determining the toxicity and leaching potential of hazardous constituents in the waste. Of these 29 denied petitions, 12 were "mixture" wastes and 1 was a "derived-from" waste. These 13 wastes are highlighted in Table 1; Table 1 also shows all wastes that were denied. Table 1 provides the EPA hazardous waste code associated with the denied waste, an indication of whether the waste is a "mixture", "derived-from", or listed waste, and the basis for petition denial. Section 2.2 provides a profile for each of the 13 wastes identified as "mixture" and "derived-from".

The Agency performed their evaluation of denied wastes using various analyses. Waste characterization data was provided by each company, and in some cases, EPA conducted "spot check visits" of petitioner data by sampling and analyzing the waste independently. Data and

analyses used for determining the hazardous characteristics of the wastes for delisting purposes included total analyses, as well as EP toxicity and Oily Waste Extraction Procedure (OWEP) leachate test data. Additionally, EPA used the Organic Leachate Model (OLM) to determine the leaching potential of organic hazardous waste constituents, and used the Vertical and Horizontal Spread (VHS) model to assess the potential for inorganic and organic constituents to reach a drinking water receptor well. In most cases, delisting of the petitioned waste was denied based on VHS modeling where one or more inorganic and/or organic hazardous waste constituents at a modeled compliance point exceeded the National Interim Primary Drinking Water Standards (NIPDWS).

The analysis of denied delisting petitions revealed three discrepancies in coding the status of petitions. One discrepancy occurred between the older and the recent versions of DPDMS used to identify denied petitions. Petition number 0652 was recorded in the older version as denied, and recorded in the recent version as dismissed (the petition was actually denied, then dismissed, and is included in Table 1). The remaining two errors appear to be in the coding of the petitions when recorded in the database. Petition numbers 0334 and 0344 where recorded as denied, but were actually granted an exclusion. These two records are not included in Table 1.

Table 1. History of Denied Delisting Petitions

Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Basis for Petition Denial, and Description for Mixture or Derived-from Wastes
0020B	F006	listed	Denied based on excessive concentration levels of metals.
0022	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of nickel, mercury, benzo(a)pyrene, reactive sulfide, and the possibility for hydrogen sulfide gas generation. Wastewater treatment sludge partially generated from electroplating operations.
0035A			Denied based on lack of information.
0035B			Denied based on lack of information.
0050			Denied based on lack of information.
0069			Denied based on lack of information.
0074	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of organics. Impoundment waste solids from electroplating and paint operations.
0078	K069	listed	Denied based on excessive concentration levels of metals.
0116	F006	listed	Denied based on excessive concentration levels of metals.
0129	F006	listed	Denied based on the unexplained presence of Appendix VIII organics and a lack of information.
0142			Denied based on lack of information.
0143	F006	listed	Denied based pm excessive concentration levels of metals and organics.
0147	K047	listed	Denied based on excessive levels of lead, cadmium, cyanide and an insufficient number of samples tested for reactivity.
0153			Denied based on lack of information.
0156	F019	listed	Denied based on excessive concentration levels of nickel.

Table 1. History of Denied Delisting Petitions			
Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Basis for Petition Denial, and Description for Mixture or Derived-from Wastes
0177	F006	listed	Denied based on excessive concentration levels of metals.
0183			Denied based on lack of information.
0187			Denied based on lack of information.
0190	F019	listed	Denied based on excessive concentration levels of chromium.
0195	K044 and K046	mixture as defined by the mixture rule	Denied based on excessive concentration levels of chromium and 2,4-dinitrotoluene. Biological sludge from explosives manufacture.
0198			Denied based on lack of information.
0202	K048 and K051		Denied based on excessive concentration levels of metals.
0205	K048 and K051		Denied based on excessive concentration levels of metals.
0206	F019	listed	Denied based on excessive concentration levels of chromium and cadmium.
0213	F006	listed	Denied based on excessive concentration levels of nickel.
0220			Denied based on lack of information.
0222	F006	listed	Denied based on excessive concentration levels of cadmium, chromium and lead.
0224	F006	mixture as defined by the mixture rule	Denied based on exceeding concentration levels of several inorganic and organic contaminants. Landfilled electroplating sludge.
0225			Denied based on lack of information.
0226	F006	listed	Denied based on excessive concentration levels of nickel.
0227			Denied based on lack of information.
0229			Denied based on lack of information.
0234			Denied based on lack of information.
0235B			Denied based on lack of information.
0237	K049, K050, K051	listed	Denied based on lack of information.
0239	F006	listed	Denied based on the variability of the waste generated and on excessive concentration levels of barium and chromium.
0240	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of 1,1-dichloroethane. Sludge from electroplating and machining operations.
0244			Denied based on lack of information.
0245	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of metals. Sludge from electroplating and other facility operations.
0250	K061	listed	Denied based on excessive concentration metals.
0256	F006 and F019	listed	Denied based on excessive concentration levels of cadmium, nickel, lead and methylene chloride.
0260			Denied based on lack of information.
0261			Denied based on lack of information.

Table 1. History of Denied Delisting Petitions			
Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Basis for Petition Denial, and Description for Mixture or Derived-from Wastes
0264	K048, K049, K051	listed	Denied based on excessive concentration levels of metals and organic constituents.
0267	F006	listed	Denied based on excessive concentration levels of nickel and chromium.
0268			Denied based on lack of information.
0271	F006	listed	Denied based on excessive concentration levels of nickel, 2-chlorophenol and 2,4-dinitrotoluene.
0274			Denied based on lack of information.
0288			Denied based on lack of information.
0295			Denied based on lack of information.
0301			Denied based on lack of information.
0302			Denied based on lack of information.
0312	K104	listed	Denied based on excessive concentration levels of nitrobenzene, tetrachloroethylene, chloroform, and carbon tetrachloride.
0315			Denied based on lack of information.
0317			Denied based on lack of information.
0318			Denied based on lack of information.
0325	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of metals. Wastewater treatment sludge partially generated from electroplating operations.
0329			Denied based on lack of information.
0342			Denied based on lack of information.
0343			Denied based on lack of information.
0349			Denied based on lack of information.
0350			Denied based on lack of information.
0351	K049, K050, K051	listed	Denied based on lack of information.
0355			Denied based on lack of information.
0363			Denied based on lack of information.
0368	F006		Denied based on excessive concentration levels of metals.
0370			Denied based on lack of information.
0382			Denied based on lack of information.
0383			Denied based on lack of information.
0385			Denied based on lack of information.
0392	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of metals, and on a lack of information. Wastewater treatment sludge partially generated from electroplating operations.
0397			Denied based on lack of information.
0403			Denied based on lack of information.
0407			Denied based on lack of information.

Table 1. History of Denied Delisting Petitions			
Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Basis for Petition Denial, and Description for Mixture or Derived-from Wastes
0412			Denied based on lack of information.
0417			Denied based on lack of information.
0418			Denied based on lack of information.
0426			Denied based on lack of information.
0429	F006	mixture as defined by the mixture rule	Denied based on excessive concentration levels of metals. Wastewater treatment sludge partially generated from electroplating operations.
0433			Denied based on lack of information.
0436			Denied based on lack of information.
0441			Denied based on lack of information.
0447			Denied based on lack of information.
0448			Denied based on lack of information.
0452			Denied based on lack of information.
0453			Denied based on lack of information.
0456			Denied based on lack of information.
0466			Denied based on lack of information.
0469			Denied based on lack of information.
0480			Denied based on lack of information.
0481			Denied based on lack of information.
0483			Denied based on lack of information.
0484			Denied based on lack of information.
0487			Denied based on lack of information.
0493			Denied based on lack of information.
0530			Denied based on lack of information.
0533			Denied based on lack of information.
0546			Denied based on lack of information.
0547	K060	mixture as defined by the mixture rule	Denied based on excessive concentration levels of metals, cyanide, and benzo(a)pyrene. Landfilled K060, where waste comprises 2% of landfill contents.
0549	F006		Denied based on excessive concentration of metals.
0551			Denied based on lack of information.
0552			Denied based on lack of information.
0556			Denied based on lack of information.
0557			Denied based on lack of information.
0561			Denied based on lack of information.
0574			Denied based on lack of information.
0588			Denied based on lack of information.
0599	F006	listed	Denied based on lack of information.

Table 1. History of Denied Delisting Petitions			
Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Basis for Petition Denial, and Description for Mixture or Derived-from Wastes
0618A	F006	listed	Denied based on excessive concentration levels of metals and organics. Landfilled electroplating sludge.
0618B		derived from	
0652 [1]	F006		Petitioned process wastewater sludges denied based on exceeding concentrations of metals.
0677	U080, U226, U213, U002	derived from	Denied based on high levels of inorganics and organics in groundwater, and in waste. Industrial waste landfill leachate.

Highlighted rows indicate the waste is described in Section 2.2.
Blanks indicate that information was not available in the source documents.

2.2. Profiles of Denied "Mixture" and "Derived-from" Wastes

To provide EPA with available information on the potential hazards of industry wastes captured by the "mixture" and "derived-from" rules promulgated under 40 CFR Part 261, this section provides waste profiles for 12 "mixture" and 1 "derived-from" waste that were denied for delisting. The profiles include:

- Ten F006 wastewater treatment sludges,
- Two wastes petitioned from landfills, and
- One profile for a K044/K046 waste.

Three of the F006 petitions (numbers 0224, 0618A, and 0618B) were for the same waste and petitioned by one company, Monroe Auto. Thus these three petitions are discussed under one profile. The delisting petitions for wastes contained in landfills include a K060-ammonia still lime sludge, and a landfilled waste bearing hazardous waste codes U002-acetone, U080-methylene chloride, U213-tetrahydrofuran and U226-1,1,1-trichloroethane. The profiles includes a description of the petitioned waste, how the waste is generated/treated/managed, volume of waste, what constituents were analyzed for, and why the waste was denied. These profiles are excerpted from the relevant Federal Register (FR) notices.

2.2.1. F006 Waste Profiles

Petition Number: 0022 [1]

Waste description:

Dewatered wastewater treatment sludge (vacuum filter sludge) from electroplating operations listed as F006. John Deere combines several waste streams into their treatment

[1] John Deere Des Moines Works, Des Moines, IA. Proposed Denial 10/8/86 (51 FR 36024), Final Denial 11/14/86 (51 FR 41315).

system. These include wastewaters from the manufacturing processes and miscellaneous utilities such as non-contact process cooling and boiling blowdown.

How the waste is generated/treated/managed:

John Deere manufactures farm equipment and machinery. Processes include metal machining and heat treating, iron and zinc phosphate coating, metal cleaning, metal painting, and chrome and zinc electroplating. Generated wastewaters are collected and treated in John Deere's wastewater treatment facility. Approximately half of the wastewater is generated from electroplating operations. Treatment of the wastewater involves equalization, free floating oil removal, chrome reduction using sulfuric acid and sodium metabisulfite, lime and acid neutralization, polymer flocculation, filtration, and clarification. The wastewater treatment sludge is pumped into a mixing chamber, and then into a rotary vacuum filter tank, where it receives additional mixing and is dewatered. The homogeneous mixture of dewatered sludge is released to a conveyor belt and is stored in a collection hopper prior to disposal.

Volume of waste:

Combined streams generate a maximum of 1,050 tons of sludge annually. The average solids content of the sludge is 37.6 percent.

What constituents the waste was analyzed for:

- 14 organic compounds,
- EP toxic metals [2],
- cyanide, nickel and sulfide, and
- oil and grease content.

Why the waste was denied:

The waste's maximum sulfide level (600 mg/kg) was of regulatory concern with respect to hydrogen sulfide gas generation and the waste was considered reactive due to its high content of reactive sulfide. EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for nickel, mercury, and benzo(a)pyrene exceeded the regulatory standards.

---

[2] EP toxic metals include: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

Petition Number: 0074[3]

Waste description:

F006 wastewater treatment sludges mixed with paint wastes contained in a sludge holding basin and batch dump lagoon.

How the waste is generated/treated/managed:

ITE manufactures electrical products for use in industrial and commercial applications, specifically a product known as "electrical bus" or "lighting duct." The product has a steel casing that surrounds copper on aluminum bars that are protected by insulation. The bars are electroplated. Copper, cyanide, silver, acids, and alkalines are used in the electroplating processes. Electroplating waste containing cyanide are subjected to pH adjustment and chlorination in a series of two cyanide destruction units. These wastes are then combined with acid and alkaline wastes in an equalization basin. Subsequent treatment includes addition of alum, additional pH adjustment steps, addition of polymer, and clarification. The sludge from the clarifier is pumped to an 8,650 cubic yard capacity clay-lined holding basin. Prior to disposal, the sludge is further dewatered to approximately 40 percent solids with a mobile filter press. Adjacent to the sludge holding basin is a batch dump lagoon. The batch dump lagoon is connected to the holding basin by an emergency overflow. The batch dump lagoon occasionally received paint wastes.

Volume of waste:

Estimated annual F006 sludge production of 375 cubic yards.

What constituents the waste was analyzed for:

- EP toxic metals,
- cyanide, nickel, and sulfide,
- organic compounds typically found in paint wastes, and
- oil and grease content.

Why the waste was denied:

EPA evaluated ground water monitoring data for the site. This evaluation showed significant concentrations of organic constituents downgradient of the basin including chloroform, methylene chloride, trichloroethylene, and 1,1-dichloroethylene.

---

[3] I-T-E Electrical Apparatus Division of Siemens Energy and Automation, Inc. (Siemens-Allis, Inc.), Spartanburg, SC. Proposed Denial 11/3/86 (51 FR 39968), Final Denial 11/14/86 (51 FR 41319).

Petition Numbers: 0224, 0618A and 0618B[4]

Three delisting petition numbers are covered in this Federal Register Notice, the filter cake, the surface impoundment sludge, and sludge disposed at the Sandhills Landfill

Waste description:

Alum treated sludge stored in two on-site surface impoundments was originally petitioned for an exclusion that was granted by EPA in December 1982. The petition at that time did not cover the material removed from the impoundments and disposed at an off-site landfill area (Sandhills Landfill). This petition was submitted for an exclusion of the F006 wastewater treatment sludge that was landfilled, re-treated surface impoundment sludge stored in the two on-site impoundments, and vacuum filtered sludge.

How the waste is generated/treated/managed:

Monroe manufactures shock absorbers for automobiles, trucks, and tanks. Purchased coils of steel are drawn through a cold forming tube mill and subject to continuous electrical resistance welding. The steel tubes are cut to the required lengths. Pistons are manufactured by injecting iron powder into molds, which are then baked to harden the powder metal parts. Rod for pistons is purchased as bar stock, cut to length, threaded and ground, then hard-chromium plated. The dirt shield tubes are attached to the piston rods by electric resistance welding and the shock absorber tubes are filled with either hydraulic fluid or pressurized air. The shock absorbers are assembled and checked for leaks, then phosphated and painted.

The rinse waters from the chrome plating lines are collected and then pumped to the wastewater treatment facility for hexavalent chromium reduction. Spent chromium baths are sent off-site for reclamation and chromic acid etch baths waters are reduced in-tank prior to discharging to the hexavalent chromium reduction unit (at the wastewater treatment facility). Process rinse waters from the alkaline dip tanks (paint removal operations), vertical seam welder, shock oil room and separator, zinc phosphating line, air compressors, air conditioners, pressure tube washer, and non-oily vat wastewater all flow to the wastewater treatment facility. All emulsified oils used in the zinc phosphating line, and grinding/milling operations are collected in three rancid oil sumps. The rancid oil is then pumped to an oil cracker which separates the oil and water emulsions. The separated oil is shipped off-site for recycling and the water layer is sent to the wastewater treatment facility. The reduced wastewater from the chrome reduction unit and the process wastewaters are combined at the treatment facility, where the wastewater is neutralized. Flocculants and polyelectrolytes are added, and the resulting mixture is clarified. Sludge from the clarifier is dewatered by vacuum filtration, and the resulting filter cake is dropped into one cubic yard bags for off-site disposal.

[4] Monroe Auto Equipment, Cozad, NE. Proposed Denial 11/3/86 (51 FR 39968), Final Denial 11/14/86 (51 FR 41319).

In the past, the facility did not use vacuum filtration but disposed its alum sludge in two surface impoundments. Over a period of five years, surface impoundment solids were removed and disposed in an offsite landfill.

Volume of waste:

Monroe claimed that the two on-site surface impoundments and the Sandhills Landfill area contained approximately 3,270 and 895 cubic yards, respectively; and that a maximum of 87 cubic yards of vacuum filter cake was generated annually.

What constituents the waste was analyzed for:

- EP toxic metals,
- cyanide and nickel,
- volatile organic compounds (VOCs), and
- the characteristics of reactivity, ignitability and corrosivity.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for chromium, barium, 1,1-dichloroethane, 1,2-dichloroethane, trichloroethylene, tetrachloroethylene, 1,1-dichloroethylene, benzo(a)pyrene, and vinyl chloride exceeded the regulatory standards for the surface impoundment sludge. For the landfilled sludge, receptor well concentrations of chromium, lead, 1,1-dichloroethylene, 2-chlorophenol, 1,1-dichloroethane, and tetrachloroethylene exceeded regulatory standards. In addition, the Agency believed that Monroe's demonstration was incomplete.

Petition Number: 0240[5]

Waste description:

F006 wastewater treatment sludge mixed with oily wastes prior to being treated.

How the waste is generated/treated/managed:

Harrison manufactures automotive air conditioning compressors, accumulator-dehydrators, and related components. Manufacturing processing include chromium, zinc, and tin plating, and electrocleaning. Harrison claimed that no cyanide was used in the manufacturing processes. Plating wastes resulting from the electroplating operations contain chromium, zinc, and tin. Plating wastes are treated by the reduction of hexavalent chromium with sodium

---

[5] Harrison Radiator, Dayton, OH. Proposed Denial 11/3/86 (51 FR 39968), Final Denial 11/14/86 (51 FR 41319).

metabisulfite, pH adjustment using lime, and flocculation with polymers. Oily wastes result from machining operations, spray cleaning, electrocleaning, airless painting, mechanical deburring, and floor cleaning. These oily wastes are subjected to gravity separations, de-emulsification, and phase separation. Effluents from the plating and oily waste treatment streams are mixed for equalization and pH adjustment. Wastewater is discharged to the municipal sewer system after filtration. The resulting metal hydroxide sludge and oily sludge are mixed, lime and polymers are added, and the sludge is dewatered in filter presses. The dewatered sludge is loaded into open-top luggers and sent to a Subtitle C disposal facility.

Volume of waste:

Approximately 600 cubic yards per year of the filtered sludge were claimed to be generated annually by Harrison.

What constituents the waste was analyzed for:

- EP toxic metals,
- cyanide and nickel, and
- organics.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentration for 1,1-dichloroethane exceeded the regulatory standards.

Petition Number: 0245[6]

Waste description:

Sludge cake consisting of F006 wastewater treatment sludge, generated from electroplating waters combined with other manufacturing processes wastes.

How the waste is generated/treated/managed:

Delco manufactures industrial electric motors, automotive shock absorbers, other automotive energy absorbing devices, and miscellaneous automotive component parts. Process wastewaters from manufacturing operations are sent to the plant's on-site pretreatment facility. These wastewaters are segregated prior to neutralization, chromium reduction, and destruction of cyanide. All wastes are transferred to a blend tank after treatment. Here the waste undergoes final pH adjustment, defoaming agent addition, and coagulant aid addition. This stream overflows

[6] Delco Products Div./GMC, Dayton, OH (Ketering, OH). Proposed Denial 10/21/86 (51 FR 37299), Final Denial 11/17/86 (51 FR 41493).

into a clarifier. The supernatant is discharged to a wastewater treatment plant and the precipitated solids are pumped to a sludge thickener where it is combined with the grit separator sludge. The sludge is passed through a grinder and pumped through a filter press. The resulting sludge averages 37 percent solids by weight.

Volume of waste:

Maximum volume of 7,200 cubic yards of sludge cake per year.

What constituents the waste was analyzed for:

- EP toxic metals,
- nickel and cyanide, and
- organic constituents including toluene, methylene chloride, and tetrachloroethylene.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for cadmium, chromium and lead exceeded the regulatory standards.

Petition Number: 0325[7]

Waste description:

F006 wastewater treatment sludge resulting from the treatment of combined wastes.

How the waste is generated/treated/managed:

Harrison operates the Moraine wastewater pretreatment facility serving the following GM plants: the Harrison Radiator-Moraine Plant, the Chevrolet-Moraine Truck Assembly Plant, and the Chevrolet-Moraine Engine Plant. The Moraine pretreatment facility receives wastewater in two segregated streams- a general waste stream and an oily waste stream. The general waste stream is primarily generated at the Chevrolet-Moraine Assembly Plant and mainly consists of wastewater from painting, phosphate coating, and assembly operations. Additionally, acidified water, resulting from treatment of the oily waste stream, is added to the general waste stream at the pretreatment facility.

The general waste stream is treated by addition of a cationic polymer to remove any residual oil. Lime is then used for purposes of pH adjustment and an anionic polymer is added to facilitate coagulation. The resultant floc is removed in a clarifier/thickener. Sludge from the

---

[7] Harrison Radiator, Moraine, OH. Proposed Denial 11/3/86 (51 FR 39968), Final Denial 11/14/86 (51 FR 41319).

clarifier/thickener is pumped to one of two centrifuges. The dewatered sludge is discharged from the centrifuges to luggers for disposal.

The oily waste stream is generated at the Harrison Radiator-Moraine and Chevrolet-moraine Engine Plants and is chiefly comprised of water-soluble coolants and oily emulsions. The oily wastewater from machining and assembly operations is treated by adding alum and anionic and cationic polymers to break the oil emulsion. Dissolved air flotation is used to phase separate the mixture and remove the resulting float oils. The float oils are processed with a "cooking" operation, which consists of sulfuric acid addition, polymer treatment, heating with steam, and settlement to produce a recoverable oil. The acidic wastewater generated by this process is added to the general waste stream.

Volume of waste:

The estimated annual sludge generation rate of the general waste stream was 5,400 tons per year.

What constituents the waste was analyzed for:

- EP toxic metals,
- cyanide and nickel, and
- organic compounds.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for chromium, mercury, nickel, cadmium, lead, and methylene chloride exceeded the regulatory standards.

Petition Number: 0392[8]

Waste description:

Electroplating wastewater treatment sludge, listed as F006.

How the waste is generated/treated/managed:

PEC manufactures printed wiring boards for use in automobiles, weigh scales, and other electronic equipment. PEC's manufacturing process includes several different plating operations: electroless copper plating, electrolytic copper and solder plating, and electroless nickel (nickel-

[8] PEC Industries, Orlando, FL. Proposed Denial 9/22/86 (51 FR 33628), Final Denial 11/13/86 (51 FR 41100).

gold tab) plating. These lines contribute a number of compounds to the waste stream, including cleaners, strippers, and acids, in addition to the plating baths. The plating of gold is the only plating operation containing cyanide, and the gold plating tank is never introduced into the waste treatment system.

Tank dumps and rinse waters from the plating processes are pumped into a treatment tank and mixed with waste acid and alkaline solutions. Sodium hydroxide is used to adjust the pH, and ferrous sulfate is added in proportion to the quantities of wastewaters from electroless copper solutions entering the treatment system. Outflow from the tank goes to a pH adjustment tank, where pH is brought to a range of 9-11 in order to precipitate the metal hydroxides. The wastes are held in the tank until they are pumped to one of two vertical leaf horizontal tank pressure filters. Prior to filtration, diatomaceous earth is added as a filter aid. Effluent from the treatment system is further pH-adjusted and discharged to the City of Orlando's municipal sewers. Sludge from the filter presses is deposited in a dumpster prior to final off-site disposal.

Volume of waste:

Claimed by petitioner to generate a maximum of 720 tons of sludge annually.

What constituents the waste was analyzed for:

- EP toxic metals, and
- nickel and cyanide (total and free).

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for chromium and nickel exceeded the regulatory standards. EPA also collected spot-check samples of the petitioned waste. The waste leachate exceeded the EP toxicity characteristic for lead; additionally, the receptor well concentrations for nickel and lead exceeded regulatory standards as evaluated by the VHS model.

Petition Number: 0429[9]

Waste description:

Oily dissolved air floatation (DAF) sludge generated from the electroplating wastewater treatment system classified as F006, generated from several combined waste streams including wastewaters from electroplating, washing, and phosphating; powerhouse and cooling tower

[9] General Motors Corporation, Saginaw Steering Gear Division, Saginaw, MI. Proposed Denial 11/27/85 (50 FR 48911), Final Denial 4/2/86 (51 FR 15887).

blowdown; and oil-based coolants. Sludge composites were estimated to contain between 10 and 49 percent oil.

How the waste is generated/treated/managed:

GMC manufactures steering columns, linkages and gears, drive shafts, and pumps. Waste treatment included use of an API gravity separator to remove free-standing oils from the waste stream, addition of alum and a polymeric emulsion breaker, pH adjustment, addition of an anionic polymer to aid flocculation, and dissolved air floatation (DAF) processing to separate the sludge from the effluent. Treated effluent is sent to the City of Saginaw sanitary sewer, while the DAF floc is held in storage until removal by tanker truck.

Volume of waste:

The combined streams, when treated, generated between 1.8 and 2.5 million gallons of sludge per year (a maximum of 12,500 cubic yards annually).

What constituents the waste was analyzed for:

- EP toxic metals, and
- cyanide and nickel.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for cadmium, chromium, and lead exceeded the regulatory standards. In addition, GMC failed to submit additional information requested by EPA. Thus the petition was also denied based on a lack of information.

2.2.2. Petitioned Wastes from Waste Management Units

Petition Number: 0547[10]

Waste description:

K060-Ammonia still lime sludge from coking operations, contained in an on-site 5.4 acre landfill. BSC claimed that only 2 percent of the waste in the landfill was the ammonia still lime sludge, which is mixed with other solid waste. The remaining 98 percent of the landfilled solid waste rendered hazardous by the K060 sludge included blast furnace thickener sludge, basic oxygen furnace thickener sludge, cold rolling mill wastewater treatment sludge, and dredging spoils from Smokes Creek.

[10] Bethlehem Steel Corporation (BSC), South Lackawanna, NY. Proposed Denial 4/7/89 (54 FR 14101), Final Denial 8/26/91 (56 FR 41944).

How the waste is generated/treated/managed:

Bethlehem (BSC) was engaged in primary metal-making and coke-making operations prior to 1983. In October 1983, BSC discontinued its primary metal-making operations and modified its coking processes so that the ammonia still lime sludge was no longer generated. BSC's steel-making process involved refining molten iron with molten iron with oxygen, flux (i.e., dolomite or lime), and alloying materials in a basic oxygen furnace to produce carbon steels. BSC's iron-making process involved smelting of iron bearing materials (i.e., iron ore, sinter, and scrap) with coke, flux (i.e., dolomite and lime), and preheated air in blast furnaces. The blast furnace slurry disposed of in BSC's landfill originated from the water scrubbing of blast furnace gas.

BSC's coke-making involved cooling hot coke oven gas by spraying it with recycled flushing liquor consisting of a weak ammonia liquor (WAL) solution. WAL not recycled back to the coke oven gas cooling was processed by solvent extraction to recover phenol or sodium phenolate. The excess WAL was then processed by steam stripping to release aqueous ammonia into the gas phase in an ammonia still. In the lower portion of the still, fixed ammonia compounds were dissociated by adjusting the pH with lime slurry and then injecting steam. The spent ammonia still lime slurry was then drawn off and discharged to settling basins. The sludge that settles out in these basins was the waste placed in the on-site landfill.

Volume of waste:

Estimated by BSC to be 2 percent of a 5.4 acre on-site landfill.

What constituents the waste was analyzed for:

- EP toxic metals,
- nickel, cyanide (total) and sulfide, and
- benzene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, benzo(a)pyrene, phenols, and tetrachloroethylene.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for lead, mercury, selenium, cyanide, chromium, and benzo(a)pyrene exceeded the regulatory standards. EPA also reviewed the ground-water monitoring data available for BSC's landfill. Data from the analysis of samples collected from the existing ground-water monitoring system at the landfill indicate that the petitioned unit may have contributed to ground-water contamination at the site.

Petition Number: 0677[11]

Waste description:

Leachate originating from the North Parcel Landfill which contained a mixture of solid wastes and the following hazardous wastes: U002-Acetone (basis for listing-ignitability), U080-Methylene chloride (basis for listing-toxicity), U213-Tetrahydrofuran (basis for listing-ignitability), and U226-1,1,1-Trichloroethane (basis for listing-toxicity).

How the waste is generated/treated/managed:

The Acme Fill Corporation operates its North Parcel Landfill which accepts industrial wastes, household garbage, demolition debris, "California-designated" wastes (i.e., specific hazardous wastes listed under Article 15, section 66900 of the California Administrative Code), and at one time selected hazardous wastes. Industrial hazardous and solid wastes, and refuse are codisposed and not separated according to waste type.

Volume of waste:

Not provided. The leachate is generated from the landfill with an estimated waste volume of 584,000 cubic yards.

What constituents the waste was analyzed for:

- EP toxic metals, and
- organics.

Why the waste was denied:

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for antimony, barium, thallium, bis(2-ethylhexyl)-phthalate, chlorobenzene, 1,2-dichloropropane, and fluorene exceeded the regulatory standards. EPA also denied the petition based on ground-water monitoring data that demonstrated arsenic, barium, benzene, cadmium, chromium, lead, selenium, silver, and tetrachloroethylene to exceed delisting health-based levels. Thus the Agency determined that the landfill leachate is contributing to ground-water contamination, and that the leachate should continue to be subject to regulation.

2.2.3. K044/ K046

[11] Acme Fill Corporation, Martinez, CA. Proposed Denial 5/1/90 (55 FR 18132), Final Denial 8/19/91 (56 FR 41072).

Petition Number: 0195[12]

Waste description:

K044-Wastewater treatment sludges from the manufacturing of explosives (listed for reactivity), and K046-Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds (listed for lead).

How the waste is generated/treated/managed:

Olin manufactures BALL POWDER® propellant for fastening devices. The manufacturing of BALL POWDER® propellant involves dissolving nitrocellulose to form a lacquer (the nitrocellulose is obtained by extraction from surplus cannon powder, extraction from reject powder, and bought as pure nitrocellulose). The lacquer is continuously extruded into small cylinders, shaped into balls, and then hardened. The grains are separated, nitroglycerine and deterrent are added, and the propellent is then dried and packaged. All of the aqueous waste streams flow to the wastewater treatment unit.

The wastewater is then fed to an extended aeration system where it is biologically treated. The treated wastewater is separated from the biological mass and entrained solids in a clarifier. The wastewater is disinfected with chlorine, sent to a polishing pond, and enters a spray field. Sludge is periodically emptied from the bottom of the clarifier to an aerobic digester. After digestion, the sludge is dumped on drying beds; the effluent is collected and returned to the wastewater treatment unit. The sludge is shoveled from the beds and disposed of on the land adjoining the drying beds. This sludge was the subject of the delisting petition.

Volume of waste:

Olin claimed to generate a maximum of 240 tons of waste annually, and approximately 2,800 tons of the waste were currently deposited on site.

What constituents the waste was analyzed for:

- EP toxic metals,
- nickel, and cyanide and sulfide,
- organic constituents including benzene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, di-n-butyl phthalate, diphenylamine, and nitroglycerine,
- the characteristic of reactivity, and
- oil and grease content.

Why the waste was denied:

[12] Olin Corp./Smokeless Powder Plant, St. Marks, FL. Proposed Denial 10/22/86 (51 FR 37420), Final Denial 11/14/86 (51 FR 41313).

EPA used the Vertical and Horizontal Spread (VHS) model and Organic Leaching Model to evaluate risks at downgradient wells used for drinking water. The resulting receptor well concentrations for cadmium and 2,4-dinitrotoluene exceeded the regulatory standards.

3. Dismissed Delisting Petitions

The results of the DPDMS analysis identified 34 delisting petitions that were dismissed by EPA. Table 2 provides a list of the petitions that were dismissed from delisting consideration. When a petition was dismissed, a letter was the medium of transmission for indicating the dismissal. In this case, no announcement was made in the Federal Register. For this reason, the rationale for dismissing a petitioned waste for delisting could not be investigated easily. In the absence of available information useful for determining whether dismissed wastes are "mixture" or "derived-from", best engineering judgement based on a summary waste description available in DPDMS and information from fact sheets was used to determine waste classification. Of the 34 dismissed wastes, 6 are "derived-from" and 7 are "mixture" wastes.

Table 2. History of Dismissed Delisting Petitions

Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Waste Description
0269	F006	mixture as defined by the mixture rule	vacuum filter sludge resulting from treatment of general wastes, cyanide wastes, fluoroborate wastes, and scrubber wastes.
0366	F006	derived-from	waste from treatment of plating wastes
0373	F002, F003	derived-from	bottom ash generated from incineration of wastewaters.
0486B	K049, K051	mixture as defined by the mixture rule	API separator sludges, slop oil emulsion solids, and sludge contained in the sludge disposal impoundment.
0539			
0540	K061	listed	emission control dust from production of steel in electric furnaces.
0542	F005, K052	mixture as defined by the mixture rule	pond sludge and clay liner, and tank bottoms (leaded) from the petroleum refining industry.
0543	F011	listed	spent cyanide solutions from salt bath pot cleaning from metal heat treating operations
0545			
0564A	F002, F003, F005	derived-from	incinerator ash generated from a rotary kiln incinerator which burns 99 percent trash and production waste and 1 percent of ignitable or toxic materials, including filter cakes, activated carbon, laboratory samples, etc.
0566		derived-from	liquid effluent (supernatant) from the lime-stabilized waste pickle liquor sludge treated in several on-site lagoons (unlined) before NPDES discharge.
0575	F006	listed	wastewater treatment sludge from phosphating and bright dipping processes

Table 2. History of Dismissed Delisting Petitions			
Petition Number	EPA Hazardous Waste Code(s)	Waste Classification	Waste Description
0587			
0591			
0630	F006	listed	filter press sludge classified as wastewater treatment sludge from electroplating processes
0646	F006	mixture as defined by the mixture rule	BOD reduction impoundment floc because a portion of the influent was electroplating wastewater
0650	F001, F002, F005, K009, K010, and 32 U wastes	mixture as defined by the mixture rule	150 waste streams consisting of 30 listed waste streams
0657B	F006, F008, F009	mixture as defined by the mixture rule	sludges generated from the electroplating of metallic hardware for the garment industry
0691A			
0691B			
0701	F003	listed	distillation residues (still bottoms) from recovery of waste acetone
0710	F006	Dec. 1986 F006 reinterpretive rule	F006 stored in surface impoundments and drying beds, with no ground water monitoring system in place
0712	F006	listed	wastewater treatment sludges from electroplating process plant disposed in a hopper
0732	K106	listed	wastewater treatment sludges from the mercury cell process in chlorine production
0733	F006	listed	filter press sludge generated from the treatment of process wastewater from the chemical conversion coating of mill finished aluminum
0744	K048, K051	mixture as defined by the mixture rule	resubmittal of #510-portion of waste pile containing K051 and K048 sludges
0748	F006	derived-from	soils and solids originating from wastewater treatment of electroplating solutions
0749	F006	derived-from	Tyvek filter media (filter paper take-up rolls)
0762			
0777			
0785			
0789			
0803			
0839			

Blanks indicate no available information for the dismissed petition.

4. Conclusions

Out of a total of 145 delisting petitions that were denied and dismissed, 18 of these wastes are “mixture” and 7 are “derived-from”. Of these, information was only available for describing the denied petition waste profiles totaling 13 “mixed” and 1 “derived-from”. Wastes described in denied petition profiles were generally denied due to the potential for hazardous waste constituents to leach and contaminate ground water. Nine of the wastes exceeded levels of concern for metals, nine for organics, and one for reactive sulfide. Of these wastes, four were generated with a mixture of oily wastes, and one with a mixture of paint. Other mixture waste were comprised of non-hazardous wastes such as sanitary sewer wastes or cooling waters contaminated by the hazardous waste.

The primary data gap that prevented the dismissed petitions from being evaluated and described in waste profiles results from the fact that when a petition is dismissed, no federal register notice or “fact sheet” is prepared. A letter informing of petition dismissal is sent to the company. Further information for the remaining 11 wastes are available from petition files. Investigating this source was outside the scope of the QRT because the information is archived and not readily accessible. However, investigation of this source would be extremely useful for assessing the relatively small number of petitions that were dismissed and appear to be examples of mixture or derived-from wastes.