REGULATORY ISSUES

Hazardous Waste Listing for Dye and Pigment Production Wastes Finalized

As required by a 1991 consent decree, EPA recently finalized its hazardous waste listing determination for wastes that are generated during the production of dyes and pigments. On February 24, 2005 (70 FR 9138–9180), the agency listed nonwastewaters from the production of certain dyes; pigments; and Food, Drug, and Cosmetic (FD&C) colorants. The dye and pigment production wastewaters were added to the RCRA list of hazardous wastes from specific sources in §261.32(a), with the hazardous waste number of K181. EPA also finalized its decision not to list wastewaters from the production of dyes and pigments.

The K181 listing establishes annual mass loading levels for seven constituents of concern. Wastes that exceed the limits must be regulated as hazardous, unless they are disposed in certain landfills or treated by certain combustion units. The final rule also establishes land disposal restrictions (LDR) treatment standards for the newly listed waste, and adds the waste to the list of CERCLA hazardous substances. The final rule, which affects 40 CFR Parts 148, 261, 268, 271, and 302, becomes effective August 23, 2005.

Applicability

The February 24, 2005 final rule applies to entities that generate and manage certain organic dye and/or pigment production wastes. This includes manufacturers of synthetic organic dyes, and synthetic organic pigments, lakes, and toners. EPA estimates that 31 facilities will be directly affected by the rule.

In addition, EPA is promulgating new LDR treatment standards for seven chemicals; adding seven constituents to Part 261, Appendix VII as the basis for the new listing; and adding five additional chemicals to the Part 261, Appendix VIII list of hazardous constituents. Therefore, entities that generate wastes containing these constituents of concern may be indirectly affected by the rule. Landfill owners/operators who previously accepted K181 wastes will also be affected. However, EPA estimates that the rule will indirectly affect fewer than 50 chemical manufacturers, manufacturers of other chemicals and allied products, and solid waste landfills.

Additional References

The following articles from the Hazardous Waste Consultant may be helpful when reviewing the February 24, 2005 final rule:

- “Dye and Pigment Production Wastes Proposed for Listing” (59 FR 66072; December 22, 1994), Volume 13, Issue 2, page 2.29;
- “Two Additional Dye and Pigment Production Wastes Proposed for Part 261 Listing” (64 FR 40192; July 23, 1999), Volume 17, Issue 7, page 2.28;
- “Dye and Pigment Production Wastes Proposed for Hazardous Waste Listing” (68 FR 66164; November 25, 2003), Volume 22, Issue 1, page 2.16; and

The Dye and Pigment Industry

Dyes are used to color fabrics and other textiles, leather, paper, ink, plastics, varnishes and other coatings, cosmetics, and some food items. Pigments differ from dyes because they are insoluble in the substrate (e.g., fabric, paper) during the coloring process, while dyes penetrate the substrate in a soluble form. FD&C colorants are placed in a separate class because they are used for human consumption. These colorants are similar or identical to industrial colorants; however, because they must be approved by the Food and Drug Administration (FDA), they require additional purification.

In the United States, approximately 66% of dyes are used to dye fabrics for the textiles industry; 17% are used for coloring paper; and the remainder is used mainly to produce organic pigments, and to dye leather and plastics. Pigments are primarily used in printing inks.

Three general classes of dyes and pigments are used for industrial coloring:

1. **Anthraquinones**—These colorants are used mainly for coloring cotton, cellulose, and synthetic fibers, and for providing color in automotive paints. They tend to be relatively expensive to produce. This class is believed to include perylenes, although there is some controversy over this issue.

2. **Azos**—The largest of the three classes, these dyes and pigments are used to color textiles, leather, paper, ink, plastics, and coatings.

3. **Triarylmethanes**—These products are used primarily in the textile industry, and for color printing and duplicating ink.

Regulatory Background

RCRA Section 3001(e)(2), which was added by the Hazardous and Solid Waste Amendments of 1984 (HSWA), required EPA to make hazardous waste
determinations for a number of waste types, including dye and pigment production wastes. However, the agency did not meet the statutory deadline for making the dye and pigment hazardous waste determinations. As a result, the Environmental Defense Fund (now called Environmental Defense) filed a lawsuit against EPA in 1989 to enforce the RCRA Section 3001(e)(2) statutory deadlines for listing decisions (Environmental Defense v. Whitman, U.S. District Court for the District of Columbia, Docket Number: 89-0598).

As part of a 1991 consent decree, EPA agreed to evaluate and determine whether or not to list wastes from the production of dyes and pigments. According to the consent decree, the following types of dye and/or pigment production wastes must be addressed by EPA’s listing determination:

“...[S]pent catalysts, reactor still overhead, vacuum system condensate, process waters, spent adsorbent, equipment cleaning sludge, product mother liquor, product standardization filter cake, dust collector fines, recovery still bottoms, treated wastewater effluent, and wastewater treatment sludge.”

The decree has been amended several times to revise the deadlines for EPA action. The final revision required EPA to propose a listing determination and LDR treatment standards for azo/benzidine, anthraquinone, and triarylmethane dye and pigment production wastes by November 10, 2003, and promulgate a final rule by February 16, 2005.

1994 Proposed Listings

On December 22, 1994 (59 FR 66072), EPA proposed hazardous waste listings for the following five wastes generated during the production of azo and triarylmethane dyes and pigments:

- **K162**—Wastewaters from the production of azo pigments;
- **K164**—Wastewater treatment sludge from the production of azo dyes, excluding FD&C colorants;
- **K165**—Wastewaters from the production of azo dyes, excluding FD&C colorants; and
- **K166**—Still bottoms or heavy ends from the production of triarylmethane dyes or pigments.

Based on risk assessments, EPA determined that K162–K166 wastes should be listed due to their toxicity. However, due to insufficient waste characterization and/or toxicological data, EPA decided not to propose listings for spent filter aids, diatomaceous earth, adsorbents, and wastewater treatment sludges associated with the production of anthraquinone, azo, and triarylmethane dyes and pigments.

1999 Proposed Listings

On July 23, 1999 (64 FR 40192), after gathering further information on dye and pigment wastes, EPA proposed adding two more dye and pigment production wastes to the hazardous waste listings. The proposed listings were:

1. **K167**—Spent filter aids, diatomaceous earth, or adsorbents used in the production of anthraquinone, azo, or triarylmethylene dyes, pigments, or FD&C colorants; and
2. **K168**—Wastewater treatment sludges from the production of triarylmethylene dyes and pigments (excluding triarylmethylene pigments using aniline as a feedstock).

CBI Lawsuit

When gathering the information necessary to make the listing determinations, EPA requested that dye and pigment manufacturing industries complete a RCRA Section 3007 questionnaire. Some of the submitted information was claimed as confidential business information (CBI).

In 1994, just before EPA issued the first listing proposal for dye and pigment production wastes, several pigment manufacturers filed a lawsuit against EPA (Magruder Color Co. v. EPA, U.S. District Court for New Jersey, Docket Number: 94-5768). The complaint sought an injunction prohibiting EPA from releasing information that the companies had submitted to EPA and claimed as CBI. The claim was successful and the court enjoined EPA from disclosing any of the claimed CBI. EPA subsequently redacted underlying data from both the 1994 and 1999 proposed listing determinations. Members of the public (including Environmental Defense) informed EPA that they could not adequately comment on the proposals without access to the redacted data.

This left EPA in a quandary over the proposed rules. Consequently, in 2002, the agency decided to try a new strategy—issuing a completely new proposal that did not rely on data subject to the Magruder injunction. On June 30, 2003, EPA reached a settlement with the plaintiffs that stayed the litigation during the new rulemaking and allowed the agency to disclose certain waste data.

2003 Proposed Listings

As a result of the Magruder injunction, EPA issued a new listing proposal on November 25, 2003 (68 FR 66164). The 2003 proposal was completely independent of the 1994 and 1999 proposals, and superseded them completely. For the new proposal, the agency conducted new analyses, prepared new background documents, and reached new conclusions.

The November 25, 2003 rule proposed to list certain nonwastewaters from the production of dyes and/or pigments with waste code K181. Under the proposed listing, nonwastewater dye and pigment production wastes would be hazardous only if their annual mass loading levels meet or exceed the proposed regulatory limits for any of the eight constituents of concern: 1) aniline; 2) o-anisidine; 3) 4-chloro-
aniline; 4) \( p \)-cresidine; 5) 2,4-dimethylaniline; 6) 1,2-phenylenediamine; 7) 1,3-phenylenediamine; and 8) toluene-2,4-diamine. However, the listing provided a conditional exemption that would allow the wastes to be considered nonhazardous, even if the loading limits are exceeded, if disposed in certain landfill cells.

**Basis for Proposed Listing**

The proposed K181 listing limits were created based on risk assessments that incorporated the §261.11(a)(3) hazardous waste listing criteria. The mass loading limits represent the concentrations of individual constituents that can be present in a waste and remain below a specific level of risk to both humans and the environment.

When performing the risk assessments, EPA:

- Selected constituents of potential concern in the covered dye and pigment production wastes,
- Evaluated plausible waste management scenarios,
- Calculated exposure concentrations by modeling the release and transport of the constituents from the waste management unit to the point of exposure,
- Calculated waste constituent loadings that are likely to pose unacceptable risk,
- Made a final selection of the constituents of concern based on the waste loadings, and
- Conducted a screening level ecological assessment to ensure that the loading limits were protective of the environment.

**Constituents of Concern**

First, EPA identified a list of chemicals that could reasonably be expected to be associated with wastes from the production of azo, triarylmethane, perylene, or anthraquinone dyes or pigments. A total of 35 constituents of concern were identified and further evaluated in the risk assessments.

**Waste Management Scenarios**

For purposes of the November 25, 2003 proposal, EPA grouped dye and pigment production wastes into two categories: wastewaters and nonwastewaters. EPA estimated that dye and/or pigment production facilities generate up to 22 million metric tons (MTs) of wastewater and 69,000 tons of nonwastewaters per year. Wastewaters are typically managed in tanks or surface impoundments prior to discharge to a publicly owned treatment works (POTW) or under a National Pollutant Discharge Elimination System (NPDES) permit, incinerated, or sent for fuel blending in industrial furnaces. Most of the nonwastewaters are disposed in municipal landfills and nonhazardous industrial waste landfills. Only a small portion of nonwastewaters are combusted.

The risk assessments modeled three waste management scenarios, which were selected based on current industry practices:

- Nonwastewaters disposed in nonhazardous municipal solid waste landfills under three different liner scenarios (unlined, clay-lined, and synthetic-lined),
- Wastewaters stored and treated in onsite tanks prior to discharge to a POTW or under a NPDES permit, and
- Wastewaters managed in onsite surface impoundments prior to discharge to a POTW or under a NPDES permit.

EPA did not model disposal inSubtitle C hazardous waste landfills because it was unnecessary, since a much less protective municipal waste landfill scenario was modeled.

**Exposure Concentrations**

A probabilistic analysis was used to calculate the exposure to nearby residents that could result from disposing the constituents of concern according to the waste disposal scenarios. Estimates of exposure were calculated in the upper end of the distribution (at or above the 90th percentile). EPA assumed that exposure from vapor emissions would be through inhalation of ambient air, while exposure to contaminants in groundwater would be through drinking and inhalation of released volatile contaminants when taking showers.

Contaminant fate and transport modeling was performed to determine the air and groundwater contaminant concentrations with which the receptor would come into contact (exposure point concentrations). Exposure factors were then used to estimate the amount of contaminant ingested or inhaled by human receptors.

To characterize the risks from human exposures to the constituents of concern, toxicity information on each constituent was integrated with the results of the exposure assessment. Reference doses (RIDs) and reference concentrations were used to evaluate noncancer impacts from oral and inhalation exposures, respectively. Oral cancer slope factors (CSFs), inhalation unit risk factors, and inhalation CSFs were used to evaluate carcinogenic risks.

**Waste Loadings**

The allowable loading levels were then set such that the exposure to each constituent would not exceed the target level of protection for 90% of the nearby residents (adults and children). For purposes of the listing determination, EPA defined the target level of protection for human health to be an incremental lifetime cancer risk of no greater than 1 in 100,000 (\( 10^{-5} \)) for carcinogenic chemicals, and a hazard quotient of 1.0 for noncarcinogenic chemicals. (The hazard quotient is the ratio of an individual’s chronic daily dose of a constituent to the RID for that constituent, where the RID is an estimate of the daily dose that is likely to be without appreciable risk of deleterious effects over a lifetime.)

For dye and pigment nonwastewaters, risk-based mass loading limits were calculated for the groundwater and air pathways. EPA eliminated con-
Toluene-2,4-Diamine

Modeling of the composite liner scenario indicated that only one constituent (toluene-2,4-diamine) poses risks that warrant further control due to possible infiltration through the liner system. Therefore, EPA proposed that wastes must have a mass loading of less than 140 kg/yr of toluene-2,4-diamine in order to qualify for the conditional exemption.

Lead Not Constituent of Concern

EPA decided not to list lead as a K181 contaminant, even though modeling results for the clay-lined landfill scenario (4,900 kg/yr) were below the 10,000-kg/yr screening threshold. Historically, lead has been used in dye and pigment production as an oxidizing agent. However, due to environmental regulations and increased concerns relating to lead use, EPA thinks it is unlikely that lead is currently used extensively in the industry. In addition, calculations show that it is unlikely that wastes contain lead at mass loading levels above the modeled threshold level. Finally, lead is regulated as D008, and that listing may catch any dye and pigment production wastes that contain high lead levels.

Screening Ecological Assessment

Finally, an ecological screening analysis was performed to determine whether the constituents of concern could significantly impact ecological receptors. The analysis focused on the impact of contaminated groundwater discharging into surface waters and potentially affecting aquatic life and consumers of aquatic life. For all constituents, the allowable loadings calculated using EPA’s ambient water quality criteria were above the loadings derived using human health toxicity benchmarks. This means that the loading limits calculated to protect human health are also protective for aquatic life.

Wastewaters Do Not Warrant Listing

As mentioned previously, EPA’s risk assessments for wastewaters focused on two scenarios: management in surface impoundments and tanks. For surface impoundments, EPA calculated risk-based mass loading rates for both the groundwater and air pathways. For tanks, only the air pathway was considered. Similar to its approach for nonwastewaters, EPA assumed that loadings greater than 100,000 kg/yr (corresponding to a concentration of 163 ppm) would be implausible.

Based on the risk assessment results, EPA proposed not to list wastewaters from dye and pigment production as hazardous wastes. This reasoning is explained as follows:

- For the air pathway, 10 of the 17 constituents were below the 100,000-kg/yr screening level for wastewater in surface impoundments and tanks. However, EPA’s data indicate that it is unlikely that any of these constituents (except aniline) would be present at levels above the calculated allowable mass loadings in any facility’s wastewater.

- Aniline is regulated as a hazardous air pollutant under the Clean Air Act (CAA). EPA believes that air releases of aniline at dye and pigment production facilities are adequately controlled under the CAA, and do not present significant risk.

- Results from the most plausible scenario (synthetic-lined impoundments) indicated that releases to groundwater are unlikely to pose risk because all of the calculated mass loadings exceeded 100,000 kg/yr.

2004 Corrections

On January 8, 2004 (69 FR 1319), EPA issued minor corrections to the November 25, 2003 proposal. Revisions were made to the proposed K181 listing to correct typographical errors. In addition, the agency corrected the proposed regulatory text in Appendix VIII to Part 261 and the formatting of the proposed K181 LDR standards in the §268.40 table of treatment standards.
K181 Listing Finalized

EPA issued its final listing determination for dye and/or pigment production wastes on February 24, 2005 (70 FR 9138). The agency added nonwastewaters from the production of dyes and/or pigments to the list of hazardous wastes from specific sources (i.e., K-wastes) in §261.32, with waste code number K181. The hazardous waste description and the hazardous constituents for K181 are presented in Table 1.

Mass Loading Levels

Nonwastewaters from dye and/or pigment production fall within the scope of the K181 listing only if their annual mass loading levels meet or exceed the new regulatory limits for any of the seven constituents of concern listed in Table 2 (page 2.6). These levels are promulgated in the new §261.32(c), which the K181 listing description refers to as “paragraph (c) of this section.”

EPA traditionally promulgates hazardous waste listings that subject entire waste streams to RCRA regulation, regardless of the amount of hazardous constituents in a waste. However, the K181 listing, which is based on mass loading, differs from this approach. Under the K181 listing, dye and pigment production nonwastewaters are only considered to be hazardous waste if they 1) contain any of the identified constituents at levels equal to, or above, the listing levels during any calendar year; and 2) do not qualify for another exemption in the K181 listing.

Even if a generator’s mass loadings meet or exceed the limits on an annual basis, the generator may still manage as nonhazardous all wastes generated up to the limit during a calendar year. In other words, the K181 listing applies only to the portion of wastes that meet or exceed the mass loadings.

EPA believes the mass loadings-based approach is appropriate because the dye and pigment production industries generate highly variable wastes. The approach introduces flexibility into the waste listing process by clarifying the levels at which the wastes of concern begin to pose risks that warrant hazardous waste controls. EPA hopes that this will motivate facilities to reengineer their processes to reduce constituent levels to avoid regulation and, thereby, minimize risks.

### Table 1

<table>
<thead>
<tr>
<th>EPA hazardous waste number</th>
<th>Hazardous waste description</th>
<th>Hazardous constituents</th>
</tr>
</thead>
</table>
| K181                      | Nonwastewaters from the production of dyes and/or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in paragraph (c) of this section that are equal to or greater than the corresponding paragraph (c) levels, as determined on a calendar year basis. These wastes will not be hazardous if the nonwastewaters are: (i) disposed in a Subtitle D landfill unit subject to the design criteria in §258.40, (ii) disposed in a Subtitle C landfill unit subject to either §264.301 or §265.301, (iii) disposed in other Subtitle D landfill units that meet the design criteria in §258.40, §264.301, or §265.301, or (iv) treated in a combustion unit that is permitted under Subtitle C, or an onsite combustion unit that is permitted under the Clean Air Act. For the purposes of this listing, dyes and/or pigments production is defined in paragraph (b)(1) of this section. Paragraph (d) of this section describes the process for demonstrating that a facility’s nonwastewaters are not K181. This listing does not apply to wastes that are otherwise identified as hazardous under §§261.21–261.24 and 261.31–261.33 at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met. | • Aniline  
• o-Anisidine  
• 4-Chloroaniline  
• p-Cresidine  
• 2,4-Dimethylaniline  
• 1,2-Phenylenediamine  
• 1,3-Phenylenediamine |

Source: §261.32(a).
TABLE 2
Listing Levels for the Constituents of Concern in K181 Wastes

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Mass level (kg/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aniline</td>
<td>9,300</td>
</tr>
<tr>
<td>o-Anisidine</td>
<td>110</td>
</tr>
<tr>
<td>4-Chloroaniline</td>
<td>4,800</td>
</tr>
<tr>
<td>p-Cresidine</td>
<td>660</td>
</tr>
<tr>
<td>2,4-Dimethylaniline</td>
<td>100</td>
</tr>
<tr>
<td>1,2-Phenylenediamine</td>
<td>710</td>
</tr>
<tr>
<td>1,3-Phenylenediamine</td>
<td>1,200</td>
</tr>
</tbody>
</table>

Source: §261.32(c).

Disposal Exemption

The K181 listing provides a conditional exemption for dye and pigment production nonwastewaters that are disposed in industrial landfills. Based on these comments, EPA revised the proposed exemption to also include wastes that are disposed in other non-municipal landfills (i.e., industrial landfills) that meet the design requirements in §§258.40, 264.301, or 265.301.

Therefore, the final K181 listing exempts dye and pigment production nonwastewaters if they are 1) disposed in a Subtitle D landfill subject to the design criteria in §§258.40; 2) disposed in a Subtitle C landfill subject to either §§264.301 or 265.301; 3) disposed in other Subtitle D landfill units that meet the design criteria in §§258.40, 264.301, or 265.301; or 4) treated in a combustion unit that is permitted under Subtitle C, or an onsite combustion unit that is permitted under the CAA.

Wastes Covered by K181 Listing

The new §261.32(b) defines dye and pigment production for the purposes of the K181 listing. According to §261.32(b), the listing includes nonwastewaters that are generated during the manufacture of dyes, pigments, or FDA-certified colors that are classified as azo, triarylmethane, perylene, or anthraquinone classes. Covered products in the azo class include azo, monoazo, diazo, triazo, polyazo, azoic, benzidine, and pyrazoline. Both triarylmethane and triphenylmethane products are included in the triarylmethane class.

Perylenes Included in K181 Listing

In response to the proposed rule, EPA received a comment from a trade association that asserted that perylene should not be included in the K181 listing. The association argued that 1) the Environmental Defense consent decree, as amended December 2002, states that “EPA shall promulgate final listing determinations for azo/benzidine, anthraquinone, and triarylmethane dye and pigment production wastes;” 2) perylenes are not a subclass of the anthraquinone category; and 3) none of the eight constituents of concern are used as raw materials in the manufacture of perylene color pigments.

EPA disagreed, noting that the consent decree further specifies that “The anthraquinone listing determination shall include the following anthraquinone dye and pigment classes: anthraquinone and perylene [68 FR 66173].” According to EPA, the agency “must make listing determinations that cover any corresponding wastes, regardless of whether or not perylenes are properly classified as anthraquinones [70 FR 9147].” The agency also stated that 1) the final rule does not differentiate between dye manufacture and pigment manufacture, and K181 constituents of concern may be used by the dye industry for perylene dyes; 2) a waste will not be considered to be K181 if there are no constituents of concern in the waste; and 3) some of the K181 constituents of concern may be present in dye and/or pigment production nonwastewaters as a result of reaction by-products.
impurities in raw materials, or degradation of raw materials or products. Therefore, the agency concluded that “it is appropriate to retain both perylene and anthraquinone production within the scope of this final K181 listing [70 FR 9147].”

**Wastes Not Included**

The final K181 listing does not include wastes that are not generated at a dye and/or pigment manufacturing site. Therefore, wastes generated from the offsite use, formulation, and/or packaging of dyes or pigments are not included in the K181 listing.

In addition, wastes that are already subject to another hazardous waste listing are not subject to the K181 listing. As a result, generators do not need to count the mass of any constituent of concern in already listed wastes toward the loading limits in K181.

**Toluene-2,4-Diamine Not a Constituent of Concern**

EPA had proposed to identify tolune-2,4-diamine as a constituent of concern in K181 wastes. However, the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers asserted that it is inappropriate to include the chemical because it is “not typically or frequently used in dyes production.” Further, the Color Pigments Manufacturing Association commented that the chemical is “not used in any color pigment facility for the production of color pigments.” EPA believes that “the commenters have successfully demonstrated that tolune-2,4-diamine is rarely used. Only one dye manufacturer reported using this constituent, and this use does not generate any waste containing [toluene-2,4-diamine]. As a result, the agency does not believe it is appropriate to include tolune-2,4-diamine as a basis for listing K181 [70 FR 9145].”

**Waste Determination Process and Recordkeeping Requirements**

In the new §261.32(d), EPA has promulgated a procedure for determining if dye and pigment production nonwastewaters are K181 wastes. The procedure, which is presented in Figure 1 (page 2.8), consists of the following steps:

1. Nonwastewaters that are disposed in a specified landfill, or treated in a specified combustion unit, are not hazardous under the K181 listing. Generators of these wastes must document that each shipment is received at a conforming facility, and maintain the document onsite for three years.

2. All generators may use knowledge of the waste to determine if the waste contains any of the K181 constituents of concern. Knowledge of the waste includes knowledge of the constituents in the nonwastewaters based on prior sampling and analysis data, and/or information on the raw materials or production processes used, and the reaction and degradation products formed. If the generator determines that there are no constituents of concern in the waste, the nonwastewater is not K181. The generator must document the basis for this determination annually, and maintain the documentation for three years.

3. The generator must take the steps specified in §261.32(d)(2) to make and document a determination that the waste is not K181 because the total annual quantity of dye and/or pigment nonwastewaters generated is ≤1,000 MTs. If the actual quantity of waste is >1,000 MTs at any time during the year, the generator must comply with the requirements of §261.32(d)(3) to make a determination, based on constituent-specific mass loadings, that the waste is not K181.

4. If the annual total quantity of dye and/or pigment nonwastewaters is >1,000 MTs, the generator must calculate the constituent-specific mass loadings to determine if the waste is K181. If any loading level is exceeded, the waste must be managed as hazardous. If the waste is determined to be nonhazardous, the generator must comply with the retesting and recordkeeping requirements of §261.32(d)(3).

**Treatment Residuals**

Under RCRA, solid waste that is “derived from” a hazardous waste is also considered hazardous. The derived-from rule in §261.3(c)(2) states that “... any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust or leachate (but not including precipitation run-off) is a hazardous waste.” Due to the derived-from rule, once a waste meets the classification for K181, any treatment residuals remain hazardous wastes, unless they are delisted in accordance with §260.22.

**Commingled Wastes**

Many U.S dye and pigment producers manufacture products in addition to the dye and pigment classes covered under the K181 hazardous waste listing. These facilities may commingle the wastewaters from most or all of their processes for treatment before discharge. The resulting sludge would contain constituents from all of the wastewaters.

In the preamble to the February 24, 2005 final rule, EPA explains that “the K181 listing covers mass contributions from other processes when in-scope and out-of-scope waste sources are commingled, and the entire commingled volume is included in the waste quantity and mass loading calculations. On the other hand, if the in-scope waste sources contain none of the K181 listing constituents, the commingled volume is not subject to the K181 listing even though its mass loadings may exceed the K181 listing levels [70 FR 9148].”

EPA provides the following examples that address the regulatory status of commingled waste:

- **Example 1—Wastes subject to the K181 listing (i.e., “in-scope wastes”) that do not contain any K181 constituents of concern, and**
FIGURE 1
Procedures for Demonstrating That Dye and/or Pigment Nonwastewaters Are Not K181 Wastes

Start

Based on knowledge\(^1\), does the generator determine that the waste does not contain any of the K181 CoCs?

Yes

The nonwastewater is not K181. The generator must annually document the basis for the determination and maintain the documentation for three years.

\(\S 261.32(d)(1)\)

No

Are nonwastewaters from dye and/or pigment manufacturing 1) disposed in a Subtitle D landfill unit subject to §258.40, a Subtitle C landfill unit subject to §264.301 or §265.301, or a landfill unit that meets the design criteria in §258.40, §264.301, or §265.301; or 2) treated in a Subtitle C combustion unit, or a CAA-permitted onsite combustion unit?

Yes

The nonwastewaters are not hazardous. The generator must document that each shipment of waste is received at a conforming facility, and maintain the documentation onsite for three years.

\(\S\S 261.32(d)\) introductory text, and 261.32(d)(4)

No

The waste must be managed in accordance with RCRA Subtitle C requirements until a determination is made. The generator may be subject to an enforcement action if a waste that is found to be hazardous has been improperly managed.

\(\S 261.32(d)(5)\)

Is the total annual quantity of dye and/or pigment nonwastewaters generated \(\leq 1,000\) metric tons?

Yes

The total annual quantity of dye and/or pigment nonwastewaters generated is \(>1,000\) metric tons.

No

Does the actual quantity of waste exceed 1,000 metric tons at any time during the year?

Yes

The total annual quantity of dye and/or pigment nonwastewaters generated is \(>1,000\) metric tons.

No

To make a determination that the waste is not K181, the generator must:

- Determine which K181 CoCs are reasonably expected to be present in the waste based on knowledge of the waste\(^1\).
- Determine the level of 1,2-phenylenediamine, if present, using either 1) knowledge\(^1\), and comply with §261.32(d)(2); or 2) sampling and analysis, and comply with the sampling/analysis and recordkeeping requirements of §261.32(d)(3).
- Develop a waste sampling and analysis plan for the K181 CoCs reasonably expected to be present in the waste.
- Record the analytical results and the waste quantity represented by the results.
- Calculate constituent-specific mass loadings (i.e., the product of the concentrations and waste quantity).
- Keep a running total of the K181 CoC mass loadings during the calendar year.
- Determine if the mass of any of the K181 CoCs is below the K181 listing level.
- Keep records onsite for three years of 1) the sampling and analysis plan and results, 2) the quantity of dye and/or pigment nonwastewaters generated, and 3) the calculations performed to determine mass loadings.
- Conduct annual waste determinations to verify that the wastes remain nonhazardous. After three successful consecutive annual tests, knowledge\(^1\) may be used for subsequent determinations. Annual testing requirements must be reinstated if significant changes to manufacturing or waste treatment processes may cause the waste to exceed the listing levels. The process knowledge used to support annual waste determinations and significant process changes must be documented.

\(\S 261.32(d)(3)\)

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CAA = Clean Air Act; CoC = constituent of concern.

\(^1\)Knowledge of the waste includes knowledge of constituents in the nonwastewaters based on prior sampling and analysis data and/or information on the raw materials used, production processes used, and reaction and degradation products formed.

Source: Aspen Publishers, Inc.; adapted from §261.32(d).
are commingled with out-of-scope wastes. A facility produces numerous chemical products, including a small amount of azo dyes. None of the K181 constituents of concern are used in the manufacture of azo dyes, and recent analysis finds no constituents of concern in the wastewaters from the azo dye manufacturing process. Therefore, according to the procedure in §261.32(d)(1), which is discussed below, the facility determines that any resulting treatment sludge is not K181.

The wastewaters from the azo dye process are commingled and co-treated with a larger volume of nonhazardous wastewaters generated from the production of various out-of-scope chemicals in a centralized wastewater treatment plant (CWTP) prior to discharge to a POTW. Aniline is used in some of the out-of-scope chemical production processes. The resultant wastewater treatment sludges contain aniline above the listing level, but are not subject to the K181 listing because the azo dye process wastewaters treated in the plant do not contain any of the constituents of concern. Based on knowledge of the feed raw materials and the manufacturing processes, the facility determines that other nonwastewaters (e.g., filtration sludges, spent filter aids, other process solids) generated from dye manufacturing do not contain any constituents of concern. The facility documents its findings, and appropriately manages all of the CWTP sludges and dye process wastewaters as nonhazardous.

Example 2—In-scope wastes with traces of constituents of concern, co-managed with out-of-scope wastes. An organic pigment manufacturer operates several in-scope and out-of-scope production processes. The facility annually generates 450 MTs of nonwastewaters, which consist of 350 MTs of sludge from the facility’s onsite wastewater treatment system and up to 100 MT of production waste solids generated from all onsite processes combined. Historically, the nonwastewaters were stored in dumpsters and periodically shipped offsite for disposal in aSubtitle D landfill.

According to the material safety data sheets, some of the raw materials used by the facility contain p-cresidine. In accordance with §261.32(d)(2), the facility uses its knowledge and material purity information to determine, based on mass balance, that a maximum of 30 kg/yr of p-cresidine could be present in the combined volume of nonwastewaters generated for the year. Since the annual mass loading of p-cresidine is less than the K181 listing level of 660 kg/yr, the facility concludes that its in-scope nonwastewaters are not a K181 waste. The facility thus documents its findings, and appropriately continues to ship the commingled wastes to aSubtitle D landfill.

Example 3—Segregation of wastes destined for disposal in a municipal landfill, with total in-scope waste quantities >1,000 MT per year. A facility uses some of the K181 constituents of concern in the production of various organic dyes and pigments covered by the K181 listing. The manufacturing process wastewaters are commingled and co-treated onsite, which annually generates 1,200 MTs of wastewater treatment sludge. In addition, the facility generates 50 MTs of process wastes with high organic content (still bottoms). Therefore, this facility’s manufacturing and treatment processes yield a total of 1,250 MTs of in-scope nonwastewaters.

The K181 listing allows nonwastewaters to be disposed in a municipal landfill subject to the §258.40 design criteria, regardless of constituent levels in the wastes. Therefore, the facility decides to send all of the wastewater treatment sludge to a municipal landfill subject to §258.40.

However, due to their high liquid content, the still bottoms could not be landfilled. The still bottoms neither exhibit any hazardous waste characteristic, nor meet any other listing descriptions. Since the total annual waste quantity of dyes/pigments nonwastewaters generated by all the processes exceed 1,000 MT/yr, the facility considers the following options: 1) comply with the annual testing requirements of §261.32(d)(3) and, if the constituents of concern are below the mass-loading levels, send the still bottom waste offsite for combustion in a nonhazardous combustion unit; or 2) send the waste offsite to aSubtitle C combustion unit. The facility believes that the still bottom waste will exceed the mass loading limits for several constituents. Rather than going to the expense of confirming this through testing representative samples of the waste, the facility decides to send the waste offsite for treatment at aSubtitle C combustion facility. Thus, this waste is also exempt from the K181 listing because it is treated in a combustion unit permitted underSubtitle C.

Constituents Added to Appendices VII and VIII

Appendix VII to Part 261 lists the constituents that are the basis for listing each hazardous waste from non-specific sources (i.e., F-wastes) and specific sources (i.e., K-wastes). EPA has identified the chemicals listed in Tables 1 and 2 as the constituents of concern for K181 wastes. Accordingly, the agency has added the seven constituents to Appendix VII.

Appendix VIII to Part 261 contains a list of hazardous constituents found in listed wastes. Two of the seven chemicals identified by EPA as the basis for listing K181 wastes (i.e., aniline and 4-chloroaniline) are already listed in Appendix VIII. EPA has added the remaining five K181 constituents of concern to Appendix VIII (i.e., o-anisidine; p-cresidine; 2,4-dimethylaniline; 1,2-phenylenediamine; and 1,3-phenylenediamine). The
agency believes that these chemicals warrant listing as hazardous constituents “because scientific studies show the chemicals have toxic, carcinogenic, mutagenic, or teratogenic effects on humans or other life forms [70 FR 9142].”

Exclusion for Landfill Leachate

Due to the derived-from rule, leachate generated at landfills where newly listed hazardous wastes were disposed prior to the effective date of a hazardous waste listing would be considered hazardous waste, and subject to regulation under Subtitle C, if it is actively managed. However, EPA believes that such an application of the derived-from rule may lead to disruptions of current leachate management practices and redundant regulation.

Therefore, as proposed, the agency has provided a temporary, conditional exemption from the definition of hazardous waste for leachate and gas condensate generated at landfills used for the disposal of K181 waste prior to the effective date of the listing (i.e., August 23, 2005). The deferral applies if the leachate or gas condensate 1) is not derived from another listed hazardous waste, 2) does not exhibit any hazardous waste characteristic, and 3) is discharged subject to Clean Water Act (CWA) regulations. However, after February 26, 2007, leachate or gas condensate derived from K181 will no longer be exempt if it is stored or managed in a surface impoundment prior to discharge, except in emergency situations.

Wastewaters Not Listed

EPA had proposed not to list wastewaters from the production of dyes and/or pigments as hazardous wastes. The proposal was based on the agency’s determination that, except for aniline, the constituents of concern would likely not be present in air emissions from tanks and surface impoundments at levels above the calculated allowable mass loadings in any facility’s wastewaters. For aniline, the agency determined that air releases of aniline at dyes and/or pigments facilities are adequately controlled, and such releases do not present significant risks. EPA also determined that groundwater releases from surface impoundments were unlikely to pose risks.

EPA received numerous supporting comments, and no adverse comments, on its proposal not to list dye and pigment production wastewaters. Therefore, the agency has made a final decision not to list wastewaters from the production of dyes and/or pigments as a hazardous waste.

LDR Treatment Standards

HSWA requires that EPA promulgate LDR treatment standards for newly listed wastes within six months of the hazardous waste listing. Accordingly, the February 24, 2005 rule finalizes LDR standards for K181. Therefore, as of the effective date of the final rule (i.e., August 23, 2005), K181 wastes are restricted from land disposal, including underground injection. The land disposal prohibition also applies to soil and debris contaminated with K181 waste, radioactive wastes mixed with K181 waste, and soil and debris contaminated with radioactive wastes that are mixed with K181 waste.

The land disposal prohibition does not apply if 1) the waste meets the LDR treatment standards, 2) the disposal unit has been granted a non-migration variance pursuant to §268.6, 3) the waste meets the standards specified in a treatment variance granted in accordance with §268.44, 4) K181-contaminated debris meets the alternative treatment standards of §268.45, or 5) a case-by-case effective date extension has been granted pursuant to §268.5.

Regulated Constituents

EPA has identified the following regulated hazardous constituents in K181 wastes: 1) aniline; 2) o-anisidine (2-methoxyaniline); 3) 4-chloroaniline; 4) p-cresidine; 5) 2,4-dimethylaniline (2,4-xylene); 6) 1,2-phenylenediamine; and 7) 1,3-phenylenediamine.

Final LDR Standards

The LDR treatment standards for K181 wastes are given in Table 3. EPA has established concentration-based standards for all of the constituents except for 1,2-phenylenediamine. During past method performance evaluations, EPA found that it is difficult to achieve reliable recovery from aqueous matrices and precise measurements for 1,2-phenylenediamine. Therefore, for 1,2-phenylenediamine, the agency proposed to require that K181 wastes be treated using specified treatment technologies.

EPA proposed a treatment standard of combustion for 1,2-phenylenediamine in K181 nonwastewaters. However, a commenter noted that, if K181 nonwastewaters containing 1,2-phenylenediamine were placed into a wastewater treatment facility, the resulting biosolids would have to be combusted due to the derived-from rule.

The agency agrees with the commenter, and does not believe that the wastewater treatment biosolids should have to be combusted. Therefore, in addition to combustion, the final LDR treatment standards allow the chemical to be treated using 1) chemical oxidation, followed by either biodegradation or carbon adsorption; or 2) biodegradation followed by carbon adsorption. The treatment standard for K181 wastes containing 1,2-phenylenediamine now is identical for wastewaters and nonwastewaters.

No LDR Standard for Toluene-2,4-Diamine

EPA had proposed to include toluene-2,4-diamine as a constituent of concern in K181 wastes. Accordingly, the agency proposed LDR treatment standards for the chemical of 0.020 mg/L in wastewaters and 1.30 mg/kg in nonwastewaters. However, the agency has determined that toluene-2,4-diamine is rarely used by the dye and pigment manufacturing industry. Therefore, it is not a K181 constituent of concern, and LDR standards for the chemical were not finalized.
### TABLE 3

**Final LDR Treatment Standards for Identified Constituents of Concern in K181 Wastes**

<table>
<thead>
<tr>
<th>Regulated hazardous constituent</th>
<th>Wastewater (mg/L&lt;sup&gt;1&lt;/sup&gt; or technology code)</th>
<th>Nonwastewater (mg/kg&lt;sup&gt;2&lt;/sup&gt; or technology code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aniline</td>
<td>0.81</td>
<td>14</td>
</tr>
<tr>
<td>o-Anisidine (2-methoxyaniline)</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>4-Chloroaniline</td>
<td>0.46</td>
<td>16</td>
</tr>
<tr>
<td>p-Cresidine</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>2,4-Dimethylaniline (2,4-xylidine)</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>1,2-Phenylenediamine</td>
<td>CMBST; or CHOXD fb (BIODG or CARBN)</td>
<td>CMBST; or CHOXD fb (BIODG or CARBN)</td>
</tr>
<tr>
<td>1,3-Phenylenediamine</td>
<td>0.010</td>
<td>0.66</td>
</tr>
</tbody>
</table>

BIODG = biodegradation of organics or non-metallic organics; CARBN = carbon adsorption; CHOXD = chemical oxidation; CMBST = combustion; fb = followed by; LDR = land disposal restrictions.

<sup>1</sup>Concentration standards for wastewaters are based on analysis of composite samples.

<sup>2</sup>Concentration standards for nonwastewaters were established based on incineration or combustion in certain units, and are based on analysis of grab samples.

Source: §268.40 table of treatment standards.

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**Hazardous Constituents Added to Universal Treatment Standards**

The LDR treatment standards for two of the K181 constituents, aniline and 4-chloroaniline, have been set at existing universal treatment standards (UTS) levels, as given in §268.48. The other constituents do not currently have UTS levels. Therefore, the agency has established UTS levels for 1) o-anisidine (2-methoxyaniline); 2) p-cresidine; 3) 2,4-dimethylaniline (2,4-xylidine); and 4) 1,3-phenylenediamine. The new UTS levels are given in Table 4. As a result, characteristic hazardous wastes that contain any of these constituents as underlying hazardous constituents above their respective UTS levels must be treated for these constituents prior to land disposal. UTS levels were not set for the remaining K181 constituent of concern, 1,2-phenylenediamine, since it does not have numerical treatment standards.

### TABLE 4

**Universal Treatment Standards for K181 Constituents**

<table>
<thead>
<tr>
<th>Regulated hazardous constituent</th>
<th>Wastewater (mg/L)&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Nonwastewater (mg/kg)&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Anisidine (2-methoxyaniline)</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>p-Cresidine</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>2,4-Dimethylaniline (2,4-xylidine)</td>
<td>0.010</td>
<td>0.66</td>
</tr>
<tr>
<td>1,3-Phenylenediamine</td>
<td>0.010</td>
<td>0.66</td>
</tr>
</tbody>
</table>

<sup>1</sup>Concentration standards for wastewaters are based on analysis of composite samples.

<sup>2</sup>Concentration standards for nonwastewaters were established based on incineration or combustion in certain units, and are based on analysis of grab samples.

Source: §268.48.
National Capacity Variance

Under RCRA, EPA is allowed to grant a national capacity variance for a waste for up to two years, if the agency has determined that there is insufficient treatment capacity for that waste. Wastes eligible for a national capacity variance may be land disposed without meeting LDR treatment standards during the time period the variance is in effect.

EPA determined that sufficient capacity exists for the treatment and disposal of K181 wastes and, therefore, proposed not to grant any national capacity variances for land disposal of any K181-related wastes. The agency did not receive any adverse comments on this proposal. Therefore, EPA has finalized its decision not to grant national capacity variances for K181 wastes, hazardous soil and debris contaminated with K181, radioactive wastes mixed with K181, radioactive wastes mixed with K181-contaminated soil or debris, and K181 wastes being injected underground.

F039 Listing Revised

The hazardous waste code F039 applies to landfill leachate generated from multiple listed wastes in lieu of the original waste codes. F039 wastes are subject to numerical treatment standards equivalent to the UTS levels listed at §268.48.

EPA has revised the listing for F039 in the §268.40 table of LDR treatment standards to include those K181 constituents that are not already identified as regulated constituents on F039. According to the agency, “Making this change ensures F039 landfill leachates receive proper treatment for the [constituents of concern] in K181 [70 FR 9164].”

Impact on Facilities

The February 24, 2005 final rule will affect generators and facilities that manage K181 wastes. Some entities will become subject to RCRA regulation for the first time, and will need to take specific steps to ensure that they are in compliance with all applicable regulatory requirements. Others will have to modify their existing interim status agreement or operating permit to be allowed to continue managing the wastes.

Notification and EPA Identification Numbers

Under RCRA Section 3010, owners/operators of facilities that generate, transport, treat, store, and/or dispose a hazardous waste must notify EPA or an authorized state agency of their hazardous waste management activities within 90 days after a waste is identified or listed as hazardous. EPA has decided to waive this notification requirement for entities that have already notified EPA that they manage other hazardous wastes, and have received an EPA identification number. Generators, transporters, and managers of K181 wastes who do not have an EPA identification number must notify EPA or the appropriate state agency and obtain an EPA identification number by May 25, 2005.

Entities who generate, transport, or manage dye and/or pigment production nonwastewaters that do not meet the K181 listing description (i.e., the mass loading levels are not exceeded, or the wastes are managed in a specified landfill unit or treated in a specified combustion unit) do not need to notify EPA or obtain an identification number.

Generators and Transporters

Persons who generate wastes that meet the listing description for K181 wastes after the effective date of the listing (i.e., August 23, 2005) will be subject to the generator requirements in 40 CFR Part 262. Generator requirements include standards for hazardous waste determination (§262.11), and procedures for complying with the applicable manifest (§§262.20–262.23), pretransport (§§262.30–262.34), generator accumulation (§262.34), recordkeeping and reporting (§§262.40–262.44), and import/export (§§262.50–262.60) requirements.

The §262.34 generator accumulation provisions allow generators to accumulate hazardous wastes without obtaining interim status or a permit for a limited time only in certain specified units (i.e., container storage units, tank systems, drip pads, or containment buildings). The accumulation of K181 in other units is subject to the Parts 264 and 265 requirements for treatment, storage, and disposal (TSD) facilities, and the generator must obtain interim status and seek a permit, or modify interim status or a permit, as appropriate.

Similarly, persons who transport K181 wastes after August 23, 2005 will be subject to the transporter requirements in Part 263. These requirements include obtaining an EPA identification number (§263.11), transfer facility requirements (§263.12), manifest and recordkeeping requirements (§§263.20–263.22), and hazardous waste discharge response requirements (§§263.30–263.31).

TSD Facilities

TSD facilities that manage K181 wastes will be subject to the Parts 264 or 265 requirements. These requirements include: general facility standards (Subpart B); preparedness and prevention (Subpart C); contingency planning and emergency procedures (Subpart D); manifest system, recordkeeping, and reporting (Subpart E); releases from solid waste management units (Part 264, Subpart F); groundwater monitoring (Part 265, Subpart F); closure and post-closure (Subpart G); financial requirements (Subpart H); unit- or facility-specific requirements (Subparts I–O; Part 265, Subparts P–R; Subpart W; Part 264, Subpart X; and Subparts DD–EE); cleanup provisions (Part 264, Subpart S); and air emission standards (Subparts AA–CC).

Promulgation of the K181 hazardous waste listing results in the following permitting issues for TSD facilities:

- Newly regulated facilities—TSD facilities that will become subject to
RCRA for the first time may be able to obtain interim status to continue managing K181 wastes. In accordance with §§270.10(e) and 270.70(a), the facility must provide notice under RCRA Section 3010 and submit a Part A permit application by August 23, 2005. Facilities that are granted interim status will be subject to regulation under Part 265 until a permit is issued. In addition, in accordance with RCRA Section 3005(e)(3) and §270.73(d), land disposal facilities that are newly qualified for interim status must submit a Part B permit application and compliance certification by August 24, 2006, or interim status will terminate on that date.

- **Interim status facilities**—Facilities that currently operate under interim status must file an amended Part A permit application by the effective date of the K181 listing (i.e., August 23, 2005). This will allow the facility to continue managing K181 wastes. In accordance with §270.10(g), facilities that fail to file an amended Part A application by that date will not receive interim status for management of K181 wastes, and may not manage those wastes until the facility receives either a permit or a change in interim status allowing such activity.

- **Permitted facilities**—In accordance with §270.42(g), facilities that already have RCRA permits must request a permit modification by August 23, 2005 to continue managing the newly listed waste. Under, §270.72(g)(1)(v), permitted land disposal facilities must certify that they are in compliance with all applicable Part 265 groundwater monitoring and financial responsibility requirements for newly regulated land disposal units by August 24, 2006.

### Generation/Management Units

Units in which K181 wastes are generated or managed will be subject to all applicable requirements of Part 264 for permitted facilities, or Part 265 for interim status facilities. However, such units may be excluded from regulation by other provisions, including the wastewater treatment tank exclusion [§§264.1(g)(6) and 265.1(c)(10)] and the product storage tank exclusion [§261.4(c)]. These exclusions never apply to certain management units (i.e., landfills, land treatment units, waste piles, incinerators, and miscellaneous units) in which K181 wastes may be generated or managed.

### Closure

All non-excluded units in which K181 wastes are treated, stored, or disposed after the effective date of the final rule (i.e., August 23, 2005) are subject to the general closure and post-closure requirements of Part 264, Subpart G, and the applicable unit-specific closure requirements in Part 264 or 265. Closure may be delayed for landfills, surface impoundments, or land treatment units that have ceased managing hazardous waste, but the units remain subject to all applicable Subtitle C requirements.

### State Authorization

The February 24, 2005 final rule is promulgated pursuant to HSWA. Therefore, the K181 hazardous waste listing will take effect in all states on August 23, 2005. EPA will implement the requirements in authorized states until those states modify their hazardous waste programs to incorporate the changes. Since the provisions are more stringent than current RCRA Subtitle C requirements, authorized states are required to modify their programs to incorporate the changes.

### CERCLA Hazardous Substance Listings

Whenever a waste is designated as hazardous under RCRA, it automatically becomes a “hazardous substance” pursuant to CERCLA Section 101(14)(C). Therefore, EPA has added K181 to the CERCLA list of hazardous substances in §302.4.

CERCLA requires that owners/operators immediately notify the National Response Center [(800) 424-8802] if a CERCLA hazardous substance is released to the environment in an amount equal to or greater than its reportable quantity (RQ) within a 24-hour period. EPCRA Section 304 also requires that designated state and local authorities (i.e., local emergency planning committee and state emergency response commission) be notified of reportable releases of CERCLA hazardous substances.

### Statutory RQ of 1 lb Applies to K181

When a substance is first listed as a CERCLA hazardous substance, it is assigned a statutory RQ of 1 lb. Following evaluation of a chemical, EPA may increase its RQ to 1) relieve the regulated community of the burden of reporting releases that are unlikely to threaten the public or the environment; and 2) allow federal, state, and local response agencies to focus their efforts on releases that might cause such threats.

RQs for hazardous wastes that contain several hazardous constituents are typically assigned the value of the lowest RQ of its constituents. However, RQs have not yet been developed for the following constituents in K181 wastes: p-cresidine; 2,4-dimethylaniline; 1,2-phenylenediamine; and 1,3-phenylenediamine. Therefore, EPA has assigned a statutory RQ of 1 lb. As a result, the statutory RQ of 1 lb applies to K181 wastes. The agency may adjust the RQ for K181 after the constituent RQs are developed, but the statutory RQ will remain in effect until further rulemaking action is taken.

EPA notes that nonwastewaters from dye and pigment production that are below the mass loading limits are not subject to the K181 listing from their point of generation. Therefore, only waste that meets the K181 listing description (i.e., any of the K181 mass loading levels are met or exceeded) are subject to the CERCLA reporting requirements.
CERCLA Reporting for Mixtures

For CERCLA reporting purposes, the CWA mixture rule (§302.6) may be applied to releases of K181 waste when the quantity (or mass limit) of all of the hazardous constituents in the waste are known. In such a case, notification is required when a quantity of waste is released that contains an RQ or more of any hazardous constituent. The RQs for the constituents of concern in K181 waste are provided in Table 5. When the quantity (or mass limit) of one or more of the K181 hazardous constituents is not known, notification is required when the quantity of K181 waste released equals or exceeds the RQ for the waste stream (i.e., 1 lb).

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Reportable quantity (lbs)</th>
<th>Reportable quantity (kgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aniline</td>
<td>5,000</td>
<td>2,270</td>
</tr>
<tr>
<td>o-Anisidine</td>
<td>100</td>
<td>45.4</td>
</tr>
<tr>
<td>4-Chloroaniline</td>
<td>1,000</td>
<td>454</td>
</tr>
<tr>
<td>2,4-Dimethylaniline(^1)</td>
<td>1</td>
<td>0.454</td>
</tr>
<tr>
<td>1,2-Phenylenediamine(^1)</td>
<td>1</td>
<td>0.454</td>
</tr>
<tr>
<td>1,3-Phenylenediamine(^1)</td>
<td>1</td>
<td>0.454</td>
</tr>
</tbody>
</table>

RQ = reportable quantity.

\(^1\)This constituent has been assigned an RQ of 1 lb (0.454 kgs) because EPA has not yet developed a “waste constituent RQ” for the constituent.

Source: 70 FR 9168.