IN RE TRI-STATE MINT, INC. AND VON HOFF INTERNATIONAL, INC., ET AL.

EPCRA Appeal No. 92-3

CERCLA Appeal No. 92-1

REMAND ORDER

Decided April 21, 1994

Syllabus

On two occasions in early 1989, a spill of sodium cyanide "in solution" occurred at a metal recovery facility in Sioux Falls, South Dakota, into a ditch near the facility. U.S. EPA Region VIII brought an action against the respondents Tri-State Mint, Inc., Von Hoff International, Inc., Tri-State Professional Recovery, Inc., Robert W. Hoff, and Connie K. Hoff for violating EPCRA § 304(a), EPCRA § 304(c), and CERCLA § 103(a) by failing to notify the proper authorities of the two releases. The CERCLA reporting requirements that respondents are charged with violating are triggered by the release of a "reportable quantity" of any "hazardous substance" listed on the CERCLA List of Hazardous Substances and Reportable Quantities at 40 CFR § 302.4. The EPCRA reporting requirements also are triggered by the release of a reportable quantity of a substance on this list of CERCLA hazardous substances. Respondents were originally charged with failing to report a release of sodium cyanide, one of the hazardous substances on the list. The Region later moved for leave to amend its complaint to charge in the alternative that respondents failed to report a release of "cyanides (soluble cyanide salts), not elsewhere specified," a catch-all category of substances also on the list. After a four-day evidentiary hearing conducted under the Consolidated Rules at 40 CFR Part 22, the Presiding Officer dismissed the original complaint and denied the motion to amend, holding that: (1) because sodium cyanide in solution dissociates into cyanide ions and sodium ions, the solution released in this case did not contain sodium cyanide; (2) the sodium cyanide listing at section 302.4 does not include manufacturing wastes like the solution released in this case; (3) a test showing the total amount of cyanide in the solution cannot be used to establish a reportable quantity of sodium cyanide, because at least some of the dissociated cyanide from the sodium cyanide would have formed complexes with metals present in the solution, which complexes are themselves hazardous substances with their own reportable quantities; and (4) even if the concentration of dissociated cyanide in the solution was unknown at the time of the spills, the Agency may not, under the rules in effect at the time of the releases, use the weight of the entire solution to establish a reportable quantity of sodium cyanide. The Region appealed these holdings, and oral argument was held on the Region's appeal.

Held: (1) The release of a solution of dissociated sodium cyanide constitutes the release of sodium cyanide for purposes of the CERCLA and EPCRA notification requirements; (2) The CERCLA listing at section 302.4 for sodium cyanide includes that substance even when it is contained in manufacturing process wastes; (3) If the percentage of cyanide in the solution attributable to sodium cyanide is known, a test for total cyanides may be used

to establish a reportable quantity of sodium cyanide; and (4) Even if the concentration of dissociated cyanide in the solution was unknown, the Agency may not, under the rules in effect at the time of the releases, use the weight of the entire solution to establish a reportable quantity of sodium cyanide. The case is remanded to allow the Presiding Officer to resolve certain factual issues, including the ultimate issues of liability and, if necessary, the appropriateness of the proposed penalty amount.

Before Environmental Appeals Judges Nancy B. Firestone, Ronald L. McCallum, and Edward E. Reich.

Opinion of the Board by Judge McCallum:

Before us is an appeal of the Initial Decision of Administrative Law Judge Spencer T. Nissen ("Presiding Officer") dismissing an action brought by U.S. EPA Region VIII under section 325 of the Emergency Planning and Community Right to Know Act of 1986 ("EPCRA"), 42 U.S.C. § 11045, and section 109 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9609. In the action, respondents Tri-State Mint, Inc., Von Hoff International, Inc., Tri-State Professional Recovery, Inc., Robert W. Hoff, and Connie K. Hoff were charged with failing to notify the proper authorities of two releases of a cyanide solution, in violation of EPCRA § 304(a), 42 U.S.C. § 11004(a), EPCRA § 304(c), 42 U.S.C. § 11004(c), and CERCLA § 103(a), 42 U.S.C. § 9603(a). The CERCLA reporting requirements that respondents are charged with violating are triggered by the release of a "reportable quantity" of any "hazardous substance" listed on the CERCLA List of Hazardous Substances and Reportable Quantities at 40 CFR § 302.4. The EPCRA reporting requirements also are triggered by the release of a reportable quantity of a substance on this list of CERCLA hazardous substances. Thus, the focus of the litigation, including this appeal, is on whether respondents released a reportable quantity of a CERCLA hazardous substance, but the resolution of that issue also bears directly on the EPCRA charges in the complaint. Respondents were originally charged with failing to report a release of sodium cyanide, one of the hazardous substances on the list. The Region later moved for leave to amend its complaint to charge in the alternative that respondents failed to report a release of "cyanides (soluble cyanide salts), not elsewhere specified," a catch-all category of substances also on the list.

After a four-day evidentiary hearing conducted under the Consolidated Rules at 40 CFR Part 22, the Presiding Officer dismissed the original complaint and denied the motion to amend, holding that: (1) because sodium cyanide in solution dissociates into cyanide ions and sodium ions, the solution released in this case did not contain sodium cyanide; (2) the sodium cyanide listing at section 302.4 does not in-

clude manufacturing wastes like the solution released in this case; (3) a test showing the total amount of cyanide in the solution cannot be used to establish a reportable quantity of sodium cyanide, because at least some of the dissociated cyanide from the sodium cyanide would have formed complexes with metals present in the solution, which complexes are themselves hazardous substances with their own reportable quantities; and (4) even if the concentration of dissociated cyanide in the solution was unknown, the Agency may not, under the rules in effect at the time of the releases, use the weight of the entire solution to establish a reportable quantity of sodium cyanide.[1] The Region appealed these holdings, and oral argument was held on the Region's appeal.

For the reasons set forth below, we reverse the first three holdings described above and uphold the fourth. We hold that the release of a solution containing the dissociated ions of sodium cyanide is the release of sodium cyanide for purposes of the CERCLA and EPCRA notification requirements; that the CERCLA listing for sodium cyanide includes sodium cyanide contained in manufacturing process wastes like the solution at issue here; and that a test for total cyanides may be used to establish a reportable quantity of sodium cyanide, provided the percentage of cyanide in the solution attributable to the sodium cyanide is known. It remains to be determined whether a reportable quantity of sodium cyanide was released in either of the two releases at issue here and whether the respondents *knew* of such releases for purposes of the reporting requirements. Because the Presiding Officer dismissed this action on the grounds listed above, he did not finally resolve many factual issues that must be resolved before an ultimate determination on liability can be made. Therefore, as more fully discussed in the conclusion of this opinion, we are remanding this case to the Presiding Officer for a final determination on these unresolved factual issues, including the ultimate issues of liability and, if necessary, the appropriateness of the proposed penalty.

I. *BACKGROUND*

On two occasions in early 1989, a cyanide solution was released from a metal recovery facility in Sioux Falls, South Dakota, into a ditch near the facility. The cyanide solution was created by placing sodium cyanide into water and was used to leach silver out of other materials.

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[1] As noted in footnote 23, since the spills at issue here, the CERCLA notification regulations have been amended to allow the Agency to use the weight of the entire solution or mixture to establish the reportable quantity of a hazardous substance contained in that solution or mixture, in those cases where the person responsible for the release did not know how much of the hazardous substance was within the solution or mixture.

The respondents did not notify any federal, state, or local authorities of the releases.[2] The releases were discovered by an employee of the city sewer department. Roughly 800 gallons of solution were released in the two spills. The pool of liquid created by the spills then mixed with snow melt, swelling greatly in size. The liquid from this pool was pumped into two tanks, one with a 4,000 gallon capacity and another with a 2,000 gallon capacity. The Presiding Officer made a finding that the tanks together contained approximately 5,000 gallons of liquid. Initial Decision at 13. Before samples of the liquid in the tanks were taken, the weather turned very cold, and the liquid in the larger tank froze, bursting a seam of the tank. A sample (sample SDT1) was taken from this larger tank by chipping ice at the exposed seam. Despite the freezing weather, a sample from the smaller tank was taken simply by opening a spigot at the base of the tank (sample SDT2). The samples were analyzed at a laboratory for total cyanide and free cyanide. The analysis showed that sample SDT1 contained total cyanide of 526 ppm and free cyanide of 226 ppm and that sample SDT2 contained total cyanide of 1810 ppm and free cyanide of 1011 ppm. The laboratory later corrected the figure for the total cyanide of SDT2 to 4810 ppm.

In December of 1989, U.S. EPA Region VIII filed a First Amended Complaint[3] against respondents, charging that by failing to report the spills immediately to appropriate authorities and by failing to submit follow-up reports to those authorities, respondents violated CERCLA § 103(a) and EPCRA §§ 304(a) & 304(c). CERCLA § 103(a) requires that:

> Any person in charge of * * * an onshore facility shall, as soon as he has knowledge of any release (other than a federally permitted release) of a hazardous substance from such * * * facility in quantities equal to or greater than those determined pursuant to section 9602 of this title, immediately notify the National Response Center established under the Clean Water Act of such release.

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[2] At the time of the spills, the respondents in this case were all associated in one way or another with the facility. Tri-State Mint, Inc., a precious metal manufacturer, operated the facility. Professional Recovery, Inc. leased the property to Tri-State and also purchased x-ray films and similar materials from hospitals and sold them to Tri-State for refining and recovery of precious metals. Von Hoff International, Inc. owned the cyanide process tank and other equipment used at the facility. Robert W. Hoff and Connie Hoff are sole stockholders of the various corporate respondents.

[3] The original complaint, which was filed June 30, 1989, alleged only EPCRA violations and did not include Tri-State Professional Recovery as a respondent.

42 U.S.C. § 9603. EPCRA §§ 304(a) & 304(c) contain similar requirements.[4]

These statutory reporting obligations are triggered by the release of a "reportable quantity" of any "hazardous substance" listed on the List of Hazardous Substances and Reportable Quantities at 40 CFR § 302.4. As noted above, the First Amended Complaint filed by the Region alleges that the solution released at respondents' facility contained a reportable quantity of "sodium cyanide" which is one of the hazardous substances on that list. Ms. Way, an Environmental Protection Specialist from EPA, developed the complaint and calculated the proposed penalties at issue here. She used the laboratory test results for total cyanide of 526 mg/l for SDT1, and total cyanide of 1810 mg/l for SDT2. Reasoning that all of the cyanide in the tanks was attributable to the sodium cyanide that had been placed in the solution, she used the molecular weight of sodium cyanide to calculate the pounds of sodium cyanide in the two tanks. She determined that there were 33.09 pounds of sodium cyanide in the larger tank and 56.93 pounds in the smaller tank for a total of 90.02 pounds of sodium cyanide. Under section 302.4, the reportable quantity for sodium cyanide is 10 pounds.

The Region later filed a motion to amend the First Amended Complaint to allege in the alternative that the released solution contained a reportable quantity of "cyanides (soluble cyanide salts), not elsewhere specified."[5] The Presiding Officer determined that the proposed amendment did not fundamentally alter the nature of the charges in the First Amended Complaint, but deferred ruling on the motion until evidence was heard. The Presiding Officer also specified that respondents would be given a continuance if they considered it necessary to meet new evidence introduced in support of the proposed amendment. When the Presiding Officer dismissed the First Amended Complaint, he also denied the Region's motion to amend it.

Statutory and Regulatory Background: The term "hazardous substance" is defined under CERCLA § 101(14) to include any substance designated as hazardous under any of the following statutory sections:

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[4] EPCRA § 304(a) requires owners and operators of certain facilities to report immediately the release of a CERCLA hazardous substance to the community emergency coordinator for the Local Emergency Planning Committee and the State Emergency Response Commission. EPCRA § 304(c) requires that as soon as practicable after a release which requires notice under Subsection 304(a) the owner or operator of the facility shall provide "a written followup emergency notice" setting forth specified information concerning the release.

[5] After the releases in question had occurred, the Agency changed the listing for "Cyanides (soluble cyanide salts), not elsewhere specified" to read "Cyanides (soluble salts and complexes), not otherwise specified."

section 3001 of the Resource Conservation and Recovery Act; sections 307(a) and 311(b)(2)(A) of the Clean Water Act; section 112 of the Clean Air Act; or section 7 of the Toxic Substances Control Act.[6] The term also includes "any element, compound, mixture, solution, or substance designated pursuant to section [102] of this title." CERCLA § 102 authorizes the Agency to designate as hazardous substances, in addition to those referred to in CERCLA § 101(14), "such elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment * * *." Section 102 also directs the Administrator to "promulgate regulations establishing that quantity of any hazardous substance the release of which shall be reported pursuant to section [103] of this title."

Pursuant to section 102, the Administrator promulgated the List of Hazardous Substances and Reportable Quantities at 40 CFR § 302.4. Each listing at section 302.4 gives the name of the hazardous substance, a Chemical Abstract Service Registry Number identifying the substance, and the reportable quantity that triggers the notification requirement at CERCLA § 103. The hazardous substances on the list are drawn from lists of substances promulgated under other environmental statutes, as specified in the definition of "hazardous substance" at CERCLA § 101(14). For each hazardous substance on the List of Hazardous Substances and Reportable Quantities at section 302.4, the list specifies the "statutory source" from which the CERCLA listing was drawn. The CERCLA list, however, does not merely incorporate substances from other statutes; it also formally designates such substances as "hazardous substances" pursuant to the Agency's authority under CERCLA § 102. Section 302.4(a) provides that: "The elements and compounds and hazardous wastes appearing in Table 302.4 are designated as hazardous substances under section 102(a) of the Act." Thus, each substance on the list derives its status as a CERCLA "hazardous sub-

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[6] CERCLA § 101(14), 42 U.S.C. § 9601(14) provides as follows:

> The term "hazardous substance" means (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act, and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 2606 of Title 15.

stance" in two ways: (1) it appears on a list under another environmental statute, and (2) it has been designated a "hazardous substance" pursuant to the Administrator's authority under CERCLA § 102.[7]

The formal designation of substances under CERCLA § 102 means that the CERCLA listing for certain substances will be broader in scope than the statutory listings from which they were drawn. This is because the CERCLA listing incorporates only the hazardous substance itself, not regulatory restrictions unrelated to the essential chemical nature of the substance. For example, a hazardous substance is only listed under RCRA § 3001 if it also constitutes a hazardous *waste.* The CERCLA listings derived from RCRA § 3001 lists, on the other hand, only incorporate the hazardous substances themselves, not the regulatory requirement that the substance be in the form of a solid waste. This conclusion is confirmed by the preamble to the Federal Register notice in which the CERCLA hazardous substance listings were promulgated:

> This final rule formally designates those substances which are listed under the statutes referred to in section 101(14). Substances listed under the Solid Waste Disposal Act, commonly known as the Resource Conservation and Recovery Act ("RCRA"), will now be "hazardous substances" under CERCLA, regardless of whether they are hazardous wastes under RCRA.

50 Fed. Reg. 13,456, 13,457 (April 4, 1985). Thus, while a CERCLA listing for a substance will always be at least as broad as the statutory listing from which it is drawn, it will in some instances be broader because the Agency has also formally designated the substance as hazardous pursuant to its authority under CERCLA § 102.

II. *DISCUSSION*

A. *The Scope of the Sodium Cyanide Listing*

The parties agree that when sodium cyanide is placed into an aqueous solution, it dissociates into sodium ions and cyanide ions. Once this dissociation takes place, sodium cyanide as a molecular compound no longer exists. The sodium cyanide that respondents are charged with releasing in this case was placed into an aqueous solution *before* it was released into the environment. Chemically speaking, therefore, the re-

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[7] *See* 40 CFR § 302.1 ("This regulation designates under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("the Act") those substances in the statutes referred to in section 101(14) of the Act, identifies reportable quantities for these substances, and sets forth the notification requirements for releases of these substances.").

lease was of a solution that contained dissociated sodium ions and cyanide ions, not the compound sodium cyanide. The issue before us is whether, as a regulatory matter, that release nevertheless constituted a release of sodium cyanide for purposes of the CERCLA notification requirements. Stated differently, does the listing for sodium cyanide at section 302.4 encompass sodium cyanide that has dissociated in solution?

The Presiding Officer held that it does not. The Presiding Officer looked upon the CERCLA listing as being drawn from two sources: a list of hazardous substances at 40 CFR § 116.4 promulgated under Clean Water Act § 311(b)(2)(A) and a list of hazardous wastes at 40 CFR § 261.33 promulgated under RCRA § 3001. In determining the scope of the CERCLA listing, he declined to consider the scope of the Clean Water Act listing because the Clean Water Act only covers discharges into the "waters of the United States" and the spills at issue here did not take place in such waters. He concluded, therefore, that for purposes of determining the scope of the CERCLA listing, only the scope of the RCRA listing need be considered. Noting that the RCRA list does not include substances contained in manufacturing process wastes, like the solution at issue here, the Presiding Officer concluded that the CERCLA listing for sodium cyanide also does not include manufacturing process wastes like the solution at issue here. The Presiding Officer also noted that the CAS Registry Number that accompanies the CERCLA Sodium Cyanide listing only refers to sodium cyanide in its solid form, not sodium cyanide in solution.

On appeal, the Region argues that the Clean Water Act listing for sodium cyanide, which is one of the sources of the CERCLA sodium cyanide listing, should have been considered in determining the scope of the CERCLA listing. The Region contends that the Clean Water Act listing expressly includes solutions containing dissociated sodium cyanide. It argues, therefore, that the CERCLA listing also includes such solutions. The Region contends that given the scope of the Clean Water Act listing, any restrictions on the scope of the RCRA sodium cyanide listing (the other statutory source from which the CERCLA sodium cyanide listing was drawn) are irrelevant. Finally, the Region argues that any restrictions in the RCRA listing do not carry over to the CERCLA listing because the Agency has independently designated sodium cyanide as a hazardous substance pursuant to its authority under CERCLA § 102.

For the following reasons, we agree with the Region and hold that the release of a solution containing dissociated sodium cyanide constitutes a release of sodium cyanide for purposes of the CERCLA notification requirements.

The Clean Water Act Sodium Cyanide Listing: In determining the scope of the CERCLA sodium cyanide listing, the Presiding Officer should

have considered the Clean Water Act sodium cyanide listing at 40 CFR § 116.4.[8] It is irrelevant that discharges of hazardous substances listed at section 116.4 are only regulated under the Clean Water Act if they occur in "waters of the United States." Section 302.4 incorporates the hazardous substance listings of Section 116.4, not the jurisdictional limits that the Clean Water Act places on the discharges of those substances.[9]

Section 116.4 provides that the listing for a given hazardous substance includes "any isomers and hydrates, as well as any *solutions* and mixtures containing these substances." (Emphasis added.) We read the phrase, "solutions * * * containing these substances" as applying to all of the substances on the list at section 116.4, regardless of whether the particular substance, like sodium cyanide, dissociates in an aqueous solution.[10] Such a reading is not only suggested by the plain language of the provision but also by the statutory and regulatory context of the phrase. Because the list is promulgated under the Clean Water Act, a substance that is known to dissociate in aqueous solutions would only be included on the list if an aqueous solution containing the dissociated form of the substance is deemed hazardous. Accordingly, a solution containing the dissociated form of the substance is for purposes of the list as much a

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[8] Section 116.4 is promulgated pursuant to Clean Water Act § 311(b)(2)(A), which is one of the statutory sections referred to in the definition of "hazardous substance" at CERCLA § 101(14). As a "statutory source" of the CERCLA sodium cyanide listing, however, the "List of Hazardous Substances and Reportable Quantities" cites Clean Water Act § 311(b)(4), not Clean Water Act § 311(b)(2)(A). 40 CFR § 302.4 (Table 302.4). This superficial discrepancy is of no significance. Pursuant to Clean Water Act § 311(b)(4), the Agency promulgated "Table 117.3- Reportable Quantities of Hazardous Substances" at 40 CFR § 117.3. That table "sets forth a determination of the reportable quantity for each substance designated as hazardous at 40 CFR Part 116." 40 CFR § 117.11. Substances designated as hazardous under 40 CFR Part 116 are listed at section 116.4.

[9] *Cf.* 54 Fed. Reg. 22,526 (May 24, 1989)("Radionuclides * * * are considered a hazardous substance under CERCLA because EPA designated them generically as a hazardous air pollutant pursuant to section 112 of the Clean Air Act (CAA). Even though the source of their listing is the CAA, releases of radionuclides to all media are covered under section 103 of CERCLA and the provisions of this rule.").

[10] Our research has revealed no cases construing the phrase "solutions * * * containing these substances" in section 116.4, nor is the regulatory history of section 116.4 particularly helpful in determining the meaning of the phrase. The regulatory history of the NPDES regulations, however, sheds at least some light on this issue. Applicants for NPDES permits are required to indicate in their applications whether they expect to discharge any of a list of hazardous substances at Table V in Appendix D to Part 122. 40 CFR § 122.21(g)(7)(iv). The preamble accompanying the Federal Register notice in which the Table V list of hazardous substances was first promulgated makes clear that the Table V list is meant to incorporate hazardous substance listings from section 116.4. 44 Fed. Reg. 50,780, 50,781 (August 29, 1979). In discussing these substances, the preamble repeatedly refers to "hazardous substances and dissociated ions." *Id.* The context of these references makes clear that the Agency considers each hazardous substance listing in Table V to include the dissociated ions of that substance. This suggests that the Agency also considered each hazardous substance listed at section 116.4 to include dissociated ions of that substance.

hazardous substance as the solid form of the substance. We conclude, therefore, that the Clean Water Act listing of sodium cyanide includes aqueous solutions in which sodium cyanide has dissociated. Because the CERCLA listing for sodium cyanide in Section 302.4 is at least as broad in scope as the listing for sodium cyanide at Section 116.4, we conclude that the CERCLA listing for sodium cyanide includes solutions containing dissociated sodium cyanide.[11]

The RCRA Sodium Cyanide Listing: The other source for the CERCLA sodium cyanide listing is the list of hazardous wastes at 40 CFR § 261.33 promulgated under RCRA § 3001. The RCRA list at section 261.33 only includes a substance if it:

> [I]s manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains [the substance].

40 CFR § 261.33(d) (1988) (comment). The Presiding Officer determined that the solution at issue here is a manufacturing process waste, within the meaning of the quoted comment. He concluded, therefore, that neither the RCRA listing for sodium cyanide nor the CERCLA listing derived from it encompasses the solution that was released in this

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[11] Relying on expert testimony at the hearing, the Presiding Officer concluded that the CAS Registry Number for the CERCLA sodium cyanide listing only refers to the solid form of sodium cyanide and not the dissociated form of that substance. Initial Decision at 35. The preamble accompanying the promulgation of the CERCLA hazardous substance listings states that the CAS Registry Number for a substance "when available, uniquely identifies the designated hazardous substance." 50 Fed. Reg. 13,456, 13,461 (April 4, 1985). The CAS Registry Number for a CERCLA hazardous substance listing, therefore, deserves much weight when determining the scope of the listing. Nevertheless, even assuming that the CAS Registry Number for the sodium cyanide listing refers only to the solid form of that substance, we conclude that the CERCLA listing for sodium cyanide includes solutions containing dissociated sodium cyanide. The CAS Registry Number, while "uniquely" reflecting the chemical nature of sodium cyanide, is not meant to and cannot reflect the regulatory reality that the Clean Water Act listing for sodium cyanide at section 116.4 includes solutions containing dissociated sodium cyanide. Because the CERCLA listing is intended to be at least as broad as the statutory source from which it is drawn, we conclude that in determining the scope of the CERCLA listing, the scope of the Clean Water Act listing deserves more weight than the CAS Registry Number. In this regard, we note that the Clean Water Act listing for sodium cyanide at section 116.4 is accompanied by the same CAS Registry Number as the CERCLA listing at 302.4. In the context of section 116.4, however, the CAS Registry Number is not deemed to "uniquely" identify the listed substance. Section 116.4 provides that: "Synonyms and Chemical Abstract System (CAS) numbers have been added for the convenience of the user only. In case of any disparity the common names shall be considered the designated substance." 40 CFR § 116.4 (1988).

case. We conclude, however, that the restriction in section 261.33 does not carry over to the CERCLA listing for two reasons. First, as previously discussed, the Clean Water Act sodium cyanide listing does not contain such a restriction, and the CERCLA listing is at least as broad in scope as the Clean Water Act listing. Second, as explained in the statutory and regulatory background section of this opinion, the Agency has formally designated the substances listed at section 302.4 as hazardous substances pursuant to its authority under CERCLA § 102. In designating hazardous substances under this authority, the Agency did not impose any restrictions in scope based on the sources of the substances listed. Accordingly, we conclude that the CERCLA listing for sodium cyanide includes sodium cyanide contained in a manufacturing process waste like the solution at issue here and is not limited to manufactured, commercially pure forms of the substance.

For all the foregoing reasons, we conclude that the release of sodium cyanide in solution constitutes the release of sodium cyanide for purposes of the CERCLA notification requirements.

B. *Establishing a Reportable Quantity of Sodium Cyanide in Solution*

To establish the release of a reportable quantity of sodium cyanide in this case, the Agency must show that the solution released contained a quantity of dissociated cyanide ions and sodium ions equal to a reportable quantity of undissociated sodium cyanide. The easiest way to do this would be to show that a reportable quantity of sodium cyanide was put into solution and remained in solution at the time of discharge. The Region presumably did not choose to use this method, however, because before the spills occurred an employee of the respondents attempted to neutralize the cyanide by placing calcium hypochlorite into the solution. Initial Decision at 8-11. To the extent this employee's efforts were successful, therefore, proving the amount of sodium cyanide that was placed into the solution would not establish the amount of dissociated sodium cyanide in solution at the time of the spill. Instead, to establish a reportable quantity of dissociated sodium cyanide at the hearing, the Region was forced to rely on the two samples taken after the spill and to calculate backwards to determine the amount of sodium cyanide in the solution at the time of the spill. The Region relied on a laboratory report showing the concentration of total cyanides in the samples. The test for total cyanides reflects all forms of cyanides in the samples, including free cyanide ions as well as cyanide ions that have formed ion

complexes with other substances in the solution.[12] The Region multiplied the concentration of cyanides in each sample by the total gallons of solution in the tank from which the sample was taken. Complainant's Exhibit F. This calculation yielded the weight of the total cyanides in each tank. In the larger tank, from which the sample SDT1 was taken, the Region determined that there was 17.556 pounds of cyanides, and in the smaller tank, from which the sample SDT2 was taken, the Region determined that there was 30.206 pounds of cyanides. The Region apparently did not attempt to determine the actual weight of the sodium in each tank, but instead derived the amount of sodium cyanide in each tank by multiplying the weight of cyanides in each tank by a fraction whose numerator is the molecular weight of sodium cyanide and whose denominator is the weight of the cyanide component of molecular sodium cyanide. *Id.* Through this method, the Region determined that the larger tank, from which SDT1 was taken, contained 33.09 pounds of dissociated sodium cyanide and the smaller tank, from which SDT2 was taken, contained 56.93 pounds of dissociated sodium cyanide.[13] The Region then added these two figures for a combined total of 90.02 pounds. *Id.* The reportable quantity for sodium cyanide is 10 pounds. 40 CFR § 302.4 (1987).

As noted in the background section, the solution at issue here was released in two different spills. The figure calculated by the Region—90.02 pounds of cyanides—represents the total amount of the sodium cyanide that was released in both spills. The Region's calculations do not allocate the 90.02 pounds of cyanides between the two spills. Presumably, the Region deemed such allocation unnecessary because, if the Region's calculations are correct, at least one release of more than 10 pounds of sodium cyanide has been established regardless of the relative sizes of the spills. If equal amounts of solution were released in the two spills, then each spill contained 45.01 pounds of dissociated sodium cyanide. If the amounts were not equal, then one of the spills must have contained more than 45.01 pounds.

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[12] *See* Transcript, Vol. II, at 26-28 (August 9, 1990)(Testimony of Dr. Smith); Transcript, Vol. I, at 69 (August 10, 1990) (Testimony of Dr. Mudder).

[13] The laboratory that analyzed the samples originally reported that the concentration of total cyanides in sample SDT2 was 1810 ppm, and this is the figure used in the Region's calculations. Complainant's Exhibit F. The laboratory later corrected this figure to 4810 ppm. Moreover, the Region's calculations for SDT2 assumed that the small tank contained 2000 gallons of liquid. *Id.* In his Initial Decision, however, the Presiding Officer notes that some of the evidence supports the conclusion that the smaller tank contained only 1000 gallons of solution. Initial Decision at 13, 19.

Assuming the accuracy of the numbers used by the Region, we are of the view that the Region's general approach to establishing a reportable quantity of sodium cyanide in this case is sound. In so concluding, however, there are two aspects of that method that merit additional discussion: (1) the fact that the Region did not determine the actual amount of sodium in the two tanks, and (2) the Region's use of the laboratory report for total cyanides.

First, the fact that the Region did not determine the actual weight of the sodium ions in each tank does not discredit the Region's calculations. The Region's calculations are based on the undisputed assumption that the constituents of sodium cyanide are in a known and fixed proportion to one another. Accordingly, measuring just one of the constituents is sufficient, provided the proportion between the two has not been disturbed by the removal of one of the constituents from solution. Respondents have not argued, and there is nothing in the record to suggest, that any such removal has occurred. Thus, it was acceptable for the Region to derive the weight of sodium cyanide in each tank by multiplying the weight of total cyanides in each tank by a fraction whose numerator is the molecular weight of sodium cyanide and whose denominator is the weight of the cyanide component of molecular sodium cyanide.

We also believe that it was entirely appropriate for the Region to base its calculations on the laboratory report for total cyanides. At the hearing, Dr. Ketterer, a chemist who was qualified as an expert in inorganic, analytical, and electro-chemistry, testified that using a test for total cyanides in this case was appropriate, because all of the cyanide in the solution had come from sodium cyanide. Transcript, Vol I, at 22 (August 10, 1990). Dr. Ketterer's assertion that any cyanides in the solution came from sodium cyanide is supported by the overwhelming weight of the evidence. *See* Transcript, Vol. II, at 103 (August 10, 1990) (testimony of Dr. Mudder).

At the hearing, expert testimony was given to the effect that the solution at issue here contained certain metals such as silver, copper and nickel, and that cyanide ions from the sodium cyanide would combine with these metals to form complexes of metal cyanide ions.[14] The laboratory report for total cyanides relied on by the Region would reflect the cyanide components of any such com-

[14] *See* Transcript, Vol. II, at 26-28 (August 9, 1990)(Testimony of Dr. Smith); Transcript, Vol. I, at 69 (August 10, 1990)(Testimony of Dr. Mudder).

[15] *Id.*

plexes.[15] Despite the formation of these metal cyanide complexes, however, the use of the report for total cyanides was appropriate because the cyanide ions that form these complexes should still be counted for purposes of establishing a reportable quantity of dissociated sodium cyanide ions. As Dr. Ketterer testified at the hearing, as long as the cyanide in the solution was attributable to sodium cyanide, it did not matter that the cyanide "may have converted to all kinds of different forms of cyanides." Transcript, Vol I, at 22 (August 10, 1990).[16] The CERCLA listing for sodium cyanide covers solutions containing sodium ions and cyanide ions that are attributable to dissociated sodium cyanide, and the formation of cyanide metal complexes does not change the fact that cyanide ions attributable to sodium cyanide are still in solution. Thus, the fact that the solution may contain other substances that have an effect on or form complexes with the cyanide ions is of no consequence.[17]

This conclusion is consistent with the Agency's general approach toward solutions and mixtures under the CERCLA reporting requirements. When the Agency was considering how to deal with mixtures and solutions, it recognized that "the toxic effects of chemical mixtures may in some instances be additive, synergistic, or even antagonistic." 50 Fed. Reg. 13,456, 13,463 (April 4, 1985) (Final rule promulgating CERCLA hazardous substance listings and regulations). The Agency realized, however, that it would be unworkable to take such information into account when setting an RQ for a substance:

> The RQ would vary with each mixture, depending on whether the components of the mixture had additive, synergistic, or antagonistic effects. Thus a different RQ would have to be determined for each potential release situation, a highly complex approach that EPA has consistently tried to avoid * * *.

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[16] Respondent's experts, Dr. Mudder and Dr. Smith, testified that the Region could not use the total cyanides analysis to establish a reportable quantity of sodium cyanide in solution. Their testimony on this issue, however, is not entitled to much weight, because it is clear that it was presented in support of Respondent's erroneous contention that the CERCLA listing for sodium cyanide does *not* cover sodium cyanide in solution. Transcript, Vol. II, at 26 (August 9, 1990)(Testimony of Dr. Smith); Transcript, Vol. I, at 69-70, 162 (August 10, 1990)(Testimony of Dr. Mudder). It is not clear from their testimony how they would have viewed the Region's calculations had they known that the CERCLA listing for sodium cyanide does cover the dissociated ions of sodium cyanide in solution.

[17] Naturally, if the effect of the other substances on the cyanide is to remove it from solution, for example, by forming a new chemical compound or precipitate, the result would be different.

Id. The Agency rejected such an approach as too "complex and confusing," concluding that "[t]o be effective, the CERCLA notification system must be simple to administer and apply." *Id.* The same considerations apply in this case. When someone releases a solution containing dissociated sodium cyanide, the calculation of the reportable quantity, and thus the person's obligation to report the release, should not depend on whether complexes of dissociated cyanide ions are more or less toxic than free cyanide ions. In either case, the ions are still attributable to sodium cyanide and they are still in solution.[18] To make a releaser's obligation to report hinge on whether the cyanide ions have formed complexes or not would make the notification scheme difficult for the Agency to administer and confusing for the regulated community to apply. A more sensible interpretation, therefore, is this: As long as the cyanide and sodium attributable to the sodium cyanide are still in solution when the solution is released, they should be counted toward the reportable quantity of sodium cyanide.

In sum, we approve the Region's method of calculating the reportable quantity of sodium cyanide in the solution at issue here, particularly its reliance on the laboratory report for total cyanides.[19] Accordingly, if the samples relied on by the Region are representative of the contents of the two tanks and if the numbers used by the Region are accurate[20] (issues we do not decide), the Region's calculations establish the release of a reportable quantity of dissociated sodium cyanide in solution.

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[18] *Id.* When the drafters of the Clean Water Act list of hazardous substances at section 116.4 (from which the CERCLA sodium cyanide listing was drawn) included solutions containing the dissociated ions of listed hazardous substances, they must have contemplated that most of the solutions containing such dissociated ions would contain other substances, with which the dissociated ions of hazardous substances would react. It is hardly conceivable that the drafters only meant to include solutions in which a single hazardous substance is contained in otherwise perfectly pure water, since that would exclude the great majority of solutions likely to contain hazardous substances. There is nothing in the language of section 116.4 to suggest that the class of covered solutions is so limited.

[19] As noted in the text, the weight of the evidence at the hearing supports the conclusion that any cyanides in the solution at issue here are attributable to dissociated sodium cyanide. Transcript, Vol. II, at 103 (August 10, 1990) (testimony of Dr. Mudder). For the reasons discussed in the text, all of the cyanide in the solution, therefore, falls within the listing for sodium cyanide. It follows that the solution could not contain "cyanides (soluble cyanide salts), not elsewhere specified," since sodium cyanide is "elsewhere specified" on the list at section 302.4. Accordingly, we need not address any of the issues raised by the Region's alternative allegation of a release of "cyanides (soluble cyanide salts), not elsewhere specified." Nevertheless, we note that our reasons for holding that the sodium cyanide listing includes manufacturing wastes would appear to apply with equal force to the listing for "cyanides (soluble cyanide salts), not elsewhere specified."

[20] *See supra* n.13.

The So-Called "Exception" to the Mixture Rule: As an alternative to calculating how much sodium cyanide in solution was actually released, the Region contends that a release of a reportable quantity of sodium cyanide may be established merely by showing that the weight of the entire solution exceeded the reportable quantity for sodium cyanide. The Region argues that such a method may be used where a hazardous substance is released as part of a mixture or solution and where the releaser knew the mixture or solution contained the hazardous substance, but did not know whether there was a reportable quantity of the hazardous substance. For the reasons set forth below, we disagree. At the time of the spills at issue here, the obligation to report a release was only triggered, and hence the Agency could only establish a violation, if the actual amount of the hazardous substance itself exceeded the reportable quantity for that substance. 40 CFR § 302.6(a) (obligation to report triggered by release of "a hazardous substance * * * in a quantity exceeding the reportable quantity"). The regulations specifically provided that this general principle held true even when the hazardous substance was released as part of a mixture or solution (the "mixture rule"). 40 CFR § 302.6(b) (1988).[21] As authority for deviating from this general principle, the Region cites the preamble to the Federal Register notice in which this "mixture rule" was promulgated. *See* 50 Fed. Reg. 13,456, 13,463 (April 4, 1985).[22] That preamble, however, merely addresses how the mixture rule applies to a special class of mixtures (specifically RCRA F and K waste streams and RCRA characteristic wastes) for which section 302.4 assigns reportable quantities both to the mixture itself and to the hazardous constituents of the mixture. The mixture at issue here neither falls into that special class

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[21] At the time of the spills, section 302.6(b) provided as follows:

> Releases of mixtures and solutions are subject to these notification requirements only where a component hazardous substance of the mixture or solution is released in a quantity equal to or greater than its reportable quantity.

40 CFR §302.6(b) (1988).

[22] The Preamble passage relied on by the Region provides as follows:

> Several commenters were uncertain when to apply the mixture rule to the various RCRA regulated wastes (F and K lists) and to the unlisted ICRE wastes. The Agency emphasizes that, for CERCLA purposes, the CWA mixture rule applies to ICRE wastes and to the RCRA F and K waste streams (all of which tend to be mixtures), if the concentrations of all the hazardous substances in the waste are known. If the concentrations of the substances are unknown, the RQ of the waste stream or unlisted waste applies.

50 Fed. Reg. 13,456, 13,463 (April 4, 1985).

of mixtures nor has an assigned reportable quantity of its own, so the preamble discussion relied on by the Region does not apply. We conclude, therefore, that there is simply no authority for the Region's alternative method of establishing a violation.[23]

III. *CONCLUSION*

For all the foregoing reasons, we come to the following conclusions: (1) The release of a solution of dissociated sodium cyanide constitutes the release of sodium cyanide for purposes of the CERCLA and EPCRA notification requirements; (2) The CERCLA listing at section 302.4 for sodium cyanide includes that substance even when it is contained in manufacturing process wastes; (3) If the percentage of cyanide in the solution attributable to sodium cyanide is known, a test for total cyanides may be used to establish a reportable quantity of sodium cyanide; and (4) Even if the concentration of dissociated cyanide in the solution was unknown, the Agency may not, under the rules in effect at the time of the releases, use the weight of the entire solution to establish a reportable quantity of sodium cyanide.

Although the Presiding Officer made findings of fact, he did not finally resolve all of the factual issues that must be resolved before an ultimate determination on liability can be made. We note, for example, that there appear to be several significant unresolved factual issues

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[23] We note, however, that the Region's position does reflect the current state of the law. After the releases at issue here, the mixture rule at section 302.6(b) was amended. As amended, it allows the Agency to use the weight of the entire solution or mixture to establish the reportable quantity of a hazardous substance contained in that solution or mixture, if the releaser did not know how much of the hazardous substance was within the solution or mixture:

> (b) Releases of mixtures or solutions (including hazardous waste streams) of
>
> (1) Hazardous substances, except for radionuclides, are subject to the following notification requirements:
>
> (i) if the quantity of all of the hazardous constituent(s) of the mixture or solution is known, notification is required where an RQ of more of any hazardous constituent is released; or
>
> (ii) if the quantity of one or more of the hazardous constituent(s) of the mixture or solution is unknown, notification is required where the total amount of the mixture or solution released equals or exceeds the RQ for the hazardous constituent with the lowest RQ.

40 CFR § 302.6(b)(1992). Under the amended mixture rule quoted above, if respondents had known that there was sodium cyanide in the solution but not how much, they would have been required to report the releases if the total amount of solution in each release equaled or exceeded the RQ for sodium cyanide.

relating to the representativeness of the samples relied upon by the Region and the procedures used to test the samples as well as the knowledge of the respondents for purposes of the CERCLA and EPCRA notification requirements. We are therefore remanding this case so that the Presiding Officer can make findings as to these and any other material, unresolved factual issues, including the ultimate issues of liability and, if necessary, the appropriateness of the proposed penalty amount.

So ordered.