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Clean Harbors Kansas, LLC
RCRA Permit Application
Part B

Volume 1 of 3

512652
A024
RCRA

Submitted To:
State of Kansas Department of Health and Environment
And
United States Environmental Protection Agency – Region VII

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Revision No. 10
May 19, 2008

Clean Harbors Environmental Services, Inc.
2549 North New York Avenue
Wichita, KS 67219
(316) 269-7400

May 19, 2008

Mr. Akhter Hossain
Bureau of Waste management
Kansas Department of Health and Environment
Curtis State Office Building
1000 SW Jackson Street. Suite 320
Topeka, KS 66612-1366

RE: Clean Harbors Wichita, LLC Part B Application

Dear Mr. Hossain:

This is an updated Part B Application for the Clean Harbors Wichita, LLC Facility. Clean Harbors Environmental Services Incorporated anticipates formally filing for partial closure of all RCRA permitted areas, except for Building C and the liquid storage tanks and tanker unloading bay in the Process Building. We anticipate formally notifying KDHE of the exact areas to be partially closed within 60 days. At that time, updated Sections dealing with closure costs, procedures will be provided as amendments to this Part B Application.

Sections B, C, D, E, F, G and H have been updated to reflect the anticipated status of this facility. Because of the impact of eliminating several areas from the permitted facility, Sections J, K, L, M N, and Y have not been significantly revised at this time.

Clean harbors Environmental Services Inc., operations staff and environmental staff look forward to meeting with both KDHE and representatives of EPA Region VII at the earliest time convenient to all parties.

Thank you for your time and under standing, as Clean Harbors Kansas, LLC restructures it's operations to accurately reflect the current demand for environmental services.

If you have any questions, please contact me at (580) 697-3520, or grater.lee@cleanharbors.com.

Sincerely,

Lee R. Grater
Sr. Facility Compliance Manager
Clean Harbors Environmental Services

Response to

PRELIMINARY ADMINISTRATIVE COMMENTS

Part A and Part B Permit Renewal Application dated _____
Clean Harbors Kansas, LLC
EPA ID No. KSD007246846
January 19, 2006

The following is Clean Harbor's response to the Kansas Department of Health and Environment (KDHE) Preliminary Administrative Comments on the Clean Harbors Kansas, LLC "*RCRA Permit Application*", dated October 2004. KDHE comments on the application are shown in bold and Clean Harbor's response is shown in italics. Please note that there are formatting changes to the RCRA Permit Renewal Application as a result of KDHE's comments. Words or sentences that were added or deleted from the renewal application were underlined or removed, respectively. In addition, the revision number and date of the renewal application were changed to Revision 10, March 17, 2008.

RCRA Subtitle C Site Identification Form

1. As the site contact person's name is not current on page 1 of 3, please update this page.

Clean Harbors Response: The site contact page has been updated.

Hazardous Waste Permit Information Form

2. As the facility contact person's name is not current on page 1 of 6, please update this page.

Clean Harbors Response: Current contact person's name has bee provided.

3. On Page 6 of 6 drawings, diagrams, figures and maps contain the previous names of the facility, such as Hydrocarbon Recyclers, Inc., Laidlaw Environmental Inc. and

Safety-Kleen Inc. etc. Please remove the old names from all drawings, diagrams, figures and maps and update them with the current name of the facility.

Clean Harbors Response: The drawings have been revised.

4.It is difficult to read the information from Figure A.1; therefore, please provide a large-scale site map.

Clean Harbors Response: Map size has been increased.

5.Please remove the old names from Figures A.1 – A.8 drawings, diagrams, figures and maps and update them with the current name of the facility.

Clean Harbors Response: Facility drawings and maps have been updated to reflect current conditions.

6.A topographic map is required by 40 CFR 270.13(b),(1). As such a map is missing. Please submit a revised Part A Application with updated information (drawings, figures etc.), and original signature.

Clean Harbors Response: Topographic map has been provided.

Section B

7.In the 1st paragraph of page 3 the 1990 census was reported for the population of Sedgwick County and the 1984 census was used for the Wichita population. Therefore, please update these with recent census data.

Clean Harbors Response: The Part B application reflects current population data.

8.In the 2nd Paragraph of page 3, information about a 1992 topographic map was reported. Please update the map with recent information in order to fulfill the requirements of 40 CFR 270.14(b)(19).

Clean Harbors Response: Current topographic map has been provided.

9.On Page 4, please submit a full size figure for Hazardous Waste Management Areas

Clean Harbors Response: A 11X17" facility map has been provided.

10. Figure B.1 through B.4 are missing in page 5 through page 8. Please submit the figures.

Clean Harbors Response: New drawings/figures have been provided.

11. On page 10, 1985 rainfall data was furnished. Therefore, please update with current data.

Clean Harbors Response: Current data has been provided.

12. **On page 11, highest temperature of 1954 and lowest temperature of 1882 were furnished. Therefore, please update these with recent data (if any).**

Clean Harbors Response: Current weather records have been included in the Part B Application

13. **On page 11, wind speed and direction of 1951 to 1960 were furnished. Therefore, please update these with recent data**

Clean Harbors Response: Current weather records have been included in the Part B Application

14. **Drawing 50-00-01-001 mentioned on page 11 is missing. Please submit the full-scale drawing.**

Clean Harbors Response: A new drawing has been provided as required.

15. **Drawing 50-01-11-001 mentioned on page 12 is missing. Please submit the full-scale drawing.**

Clean Harbors Response: A new drawing has been provided.

16. Figure B.5 mentioned on page 13 on missing. Please submit a full-scale figure.

Clean Harbors Response: A new drawing has been provided.

17. On page 14, traffic data from 1950 were furnished. Therefore, please update with recent data.

Clean Harbors Response: Traffic data from 2006 and 2007 have been provided.

18. The original topographic Map is missing. Therefore, please submit a full-scale map.

Clean Harbors Response: A new topographic map has been provided.

19. The Scale and Date (270.14(b)(19)(i)) are missing. Therefore, please submit full-scale map with this information.

Clean Harbors Response: Map has been up dated.

20. The 100-Year Flood Plain Area (270.14(b)(19)(ii)) mentioned on page 12 is missing. Therefore, please submit the required documentation.

Clean Harbors Response: The 100 year floodplain map/data has been provided.

21. A Wind Rose per 270.14(b)(19)(v) mentioned on page 11 is missing. Therefore, please submit this figure.

Clean Harbors Response: A set of wind rose data has been provided.

22. Map Orientation per (270.14(b)(19)(vi)) is missing. Please submit complete map.

Clean Harbors Response: A map has been provided.

23. Injection and Withdrawal Wells (On Site and Off Site - 270.14(b)(19)(ix)) are missing. Therefore, please submit the required documentation. Please also send a copy to EPA.

Clean Harbors Response: A topographic map of all wells located in the vicinity of the facility was included in the Part A Application.

24. Locations of SWMA (if any) are missing. Please let EPA know the locations (if any).

Clean Harbors Response: Clean Harbors is currently assessing the locations of any historic SWMUs and will fully respond to this issue when complete closure notifications are filed in 60 days from may 19, 2008.

25. A Copy of A Federal Insurance Administration or other Flood Map (270.14(b)(11)(iii)) is missing. Therefore, please submit the required documentation

Clean Harbors Response: The facility is not in a 100 year flood plane, see Section B.

26. Traffic Patterns (270.14(b)(10)) mentioned on page 14 are very old. Please update with recent data.

Clean Harbors Response: Current traffic volumes have been provided.

27. An Estimate of the Number and Types of Vehicles around the Facility per (270.14(b)(10)) on page 14 are very old. Please update with recent data.

Clean Harbors Response: : The facility is not in a 100 year flood plane

28. Traffic Control Signs and Signals (270.14(b)(10)) are missing. Please submit the required information.

Clean Harbors Response: Information on traffic control has been provided.

29. Road Surface Composition and Load-Bearing Capacity per (270.14(b)(10)) mentioned on page 15 are very old. Please update with recent data.

Clean Harbors Response: Road surfaces and load bearing conditions have not changed since the last permit submittal.

SECTION C

30. WAP (Appendix C-A) mentioned on page 1 is missing. Therefore, please submit the Appendix C-A

Clean Harbors Response: The WAP has been updated

31. Attachment C-B mentioned on page 3 is missing. Therefore, please submit the WAP along with Attachment C-B.

Clean Harbors Response: The attachment has been provided.

SECTION D

32. Certification from a Kansas Professional Engineer is required regarding the structural stability of the buildings and the roofs holding the container storage areas.

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer.

33. Figures D-1 and D-2 on pages 3-4 are missing. Therefore, please submit the figures.

Clean Harbors Response: Up-dated figures have been provided as necessary.

34. Figure D.3, Figure D.4, Figure D.5, Figure D.6, Figure D.7, Figure D.8, and Figure D.9 are missing in Appendix D-A. Therefore, please submit the full-scale figures.

Clean Harbors Response: Up-dated figures have been provided as necessary.

35. Appendix D-B is missing. Therefore, please submit the Appendix.

Clean Harbors Response: Up-dated appendix has been provided as necessary.

36. **Requirement for the Base or Liner to Contain Liquids (270.15; 264.175(b)(1)) is missing. Therefore, please demonstrate that base is impervious to waste stored and precipitation.**

Clean Harbors Response: This issue will be fully addressed when partial closure notifications are filled in 60 days after May 19, 2008.

37. **Containment System Capacity (270.15(a)(3); 264.175(b)(3)) information is missing. Therefore, please submit the Attachment 1 of Appendix D-B.**

Clean Harbors Response: Containment capacities for those units expected to remain in RCRA service have been up-dated.

38. **Subsection for Test for Free Liquids (270.15(b)(1)) is missing. Therefore, please submit the documentation that waste does not** contain free liquids. Information must be provided by test results or other information.

Clean Harbors Response:

SECTION E

39. **Certification from a Kansas professional Engineer is required regarding the structural stability of the buildings and the roofs holding the Tanks.**

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer.

40. Figures on pages 5 and 6 are missing. Please submit full-scale figures.

Clean Harbors Response: Up-dated figures have been submitted as needed.

41. Attachment 1, Attachment 2, Attachment 3, Attachment 4, and Attachment 5 in Appendix E-A are missing. Therefore, please submit the updated Attachments.

Clean Harbors Response: Necessary figures and drawings have been provided to support the portions of the facility which are expected to remain in RCRA service.

42. Tanks V-9 through V-14, V-15A through D, and V-16 were installed in the year 1966 as mentioned in Appendix E-C. These tanks are very old. Therefore, the facility is required to replace these tanks or submit certification of integrity from a Kansas professional engineer.

Clean Harbors Response: It is Clean harbors Kansas, LLCs position that these tanks will be subjected to partial closure.

43. Diagrams of Piping, Instrumentation, and Process Flow (270.16(d)) are missing. Therefore, please submit the required diagram.

Clean Harbors Response: It is Clean harbors Kansas, LLCs position that these tanks will be subjected to partial closure.

44. Certification regarding 'Ignitable, Reactive, and Incompatible Wastes' (270.16(j); 264.17(b); 264.198,199) is missing. Therefore, please submit the certificate of compatibility documenting waste stored is compatible with tank material.

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer. Additional certification will be available when the evaluations are completed. These tanks are not in service at this time.

45. **The last paragraph of page 13 states, "When visual inspection of the tank shows no evidence of contamination, the tank system is considered to be available for non-hazardous waste or product service."**

Please understand that KDHE does not approve any visual inspection. The facility must perform laboratory analysis before using the tank for non-hazardous or product service.

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer. Additional certification will be available when the evaluations are completed. These tanks are not in service at this time.

46. **Assessment of Existing Tank System's Integrity (270.16(a); 264.191) Certification is missing. Therefore, please submit the certification and integrity analysis by a Kansas Professional Engineer.**

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer. Additional certification will be available when the evaluations are completed. These tanks are not in service at this time.

47. **Appendix E-B is missing. Therefore please submit the Appendix.**

Clean Harbors Response: Additional figures have been submitted to support the portions of the facility which Clean harbors Kansas anticipates have in continued RCRA service.

Important KDHE Comment regarding the Tanks

48. Tank systems are not in operations. KDHE needs to know what is the facility's plan regarding the tanks. Please let KDHE know the time frame that the facility will bring them back in operation.

Clean Harbors Response: Clean harbors Kansas is re assessing the utilization of this facility, and intends to effect partial closure on several former storage areas. Tanks and buildings that will be kept in RCRA service are currently scheduled for evaluation by a Kansas professional Engineer. Additional certification will be available when the evaluations are completed. These tanks are not in service at this time.

SECTION F

49. Appendix F-A and Appendix F-B are missing. Therefore, please submit the Appendices.

Clean Harbors Response: Additional figures have been submitted to support the portions of the facility which Clean harbors Kansas anticipates have in continued RCRA service.

SECTION G

50. The Figure on Page 4 is missing. Therefore, please submit the figure.

Clean Harbors Response: Additional figures have been submitted to support the portions of the facility which Clean harbors Kansas anticipates have in continued RCRA service.

51. Appendix G-A missing. Therefore, please submit Appendix G-A.

Clean Harbors Response: Additional figures have been submitted to support the portions of the facility which Clean harbors Kansas anticipates have in continued RCRA service.

52. Figure G.1 is missing. Therefore, please submit the figure.

Clean Harbors Response: Additional figures have been submitted to support the portions of the facility which Clean harbors Kansas anticipates have in continued RCRA service.

53. A Subsection for 'Waiver' (270.14(b)(4); 264.14) is missing. Therefore, please demonstrate that the facility can prevent unknowing entry, and minimize unauthorized entry of persons or livestock.

Clean Harbors Response: Adequate security is in place at the facility and the relevant Sections of the Permit have been updated to address these issues.

54. A Subsection for 'Injury to Intruder' (270.14(b)(4); 264.14) is missing. Therefore, please demonstrate that the physical contact with waste, structure, or equipment will not injure an unknowing intruder.

Clean Harbors Response: Adequate security is in place at the facility and the relevant Sections of the Permit have been updated to address these issues.

55. A Subsection for 'Violation Caused by Intruder' (270.14(b)(4); 264.14) is missing. Therefore, please demonstrate that the disturbance of waste or equipment by an unauthorized intruder will not cause a violation.

Clean Harbors Response: Adequate security is in place at the facility and the relevant Sections of the Permit have been updated to address these issues.

56. A Subsection for 'Types of Problems' (270.14(b)(5); 264.15(b)(3)) is missing. Therefore, please make sure that the Inspection checklist must identify types of problems.

Clean Harbors Response: Detailed copies and descriptions of current inspection procedures are included in the Part B Application to address this issue.

57. Sample checklists are missing. Therefore, please submit the sample checklists.

Clean Harbors Response: Detailed copies and descriptions of current inspection procedures are included in the Part B Application to address this issue.

58. **A Subsection for 'Schedule of Remedial Action' (270.14(b)(5); 264.15(c)) is missing. Therefore, please demonstrate that the facility will immediately remediate any deterioration or malfunction of equipment or structures to ensure the problem does not lead to an environmental or human health hazard.**

Clean Harbors Response: This section will be fully addressed when the schedules for partial closure are filed with KDHE.

59. **A Subsection for 'Inspection Log' (270.14(b)(5); 264.15(d)) is missing. Therefore, please submit sample Inspection log.**

Clean Harbors Response: Detailed copies and descriptions of current inspection procedures are included in the Part B Application to address this issue.

60. **A Subsection for 'Testing and Maintenance of Equipment' (270.14(b); 264.33) is missing. Therefore, please demonstrate that the communication, alarm, fire control equipment, spill control equipment, and decontamination equipment are tested and maintained.**

Clean Harbors Response: Detailed copies and descriptions of current inspection procedures are included in the Part B Application to address this issue.

61. **Documentation of arrangement with Police/Fire Department (270.14(b); 264.37(a)(1)) is missing. Therefore, please submit the documentation.**

Clean Harbors Response: The appropriate letters have been provided.

62. Documentation of arrangement with Local Hospital (270.14(b); 264.37(a)(4)) is missing. Therefore, please submit the documentation.

Clean Harbors Response: The appropriate letters have been provided.

63. Documentation of Adequacy of Procedures for handling ignitable or reactive waste and mixing of incompatible waste (270.14(b); 264.17(c)) is missing. Therefore, please document these from published literature, trial test, waste analyses etc.

Clean Harbors Response: Updated procedures are included in Section C.

64. Subsection for 'Management of incompatible waste placed in containment' is missing. Therefore, please submit the required documentation.

Clean Harbors Response: Updated procedures are included in Section D and Section E.

SECTION H

65. Figure H-1 on page 6 is missing. Therefore, please submit Figure H-1.

Clean Harbors Response: The appropriate figure has been included.

66. Appendix H-C, and Appendix H-D are missing. Therefore, please submit the appendices.

Clean Harbors Response: Appendix A has been removed from the Contingency Plan. As such, Appendix B, C and D have been changed to Appendix A, B, and C, respectively. The missing coordination letters have been incorporated into the contingency plan. These are from a submittal that was made in June 6, 2007. Please keep in mind that new coordination letters will have to be prepared after this contingency plan is approved in the renewed permit. It would be premature to submit this plan to emergency agencies when the plan has not been approved by

KDHE. The plan was also modified to reflect the current emergency coordinators in Section H-3.

67. A Subsection for 'Incompatible Waste' (270.14(b)(7); 264.56(h)(1)) is missing. Therefore, please submit the documentation that until cleanup is complete, the incompatible waste is not stored together.

Clean Harbors Response: A sentence was added to the sixth bullet in Section H-5f under Post-Emergency Activities stating if it is discover that incompatible waste are stored next to each other, the incompatible waste will be moved to a safe location away from the other incompatible waste.

68. A Subsection for 'Provisions of Secondary Containment, Repair, or Closure' (270.14(b)(7); 264.196(e)) is missing. Therefore, please submit the documentation regarding the provision of secondary containment repair. If secondary containment cannot be repaired, closure is required.

Clean Harbors Response: Another bullet was added to Section H-5f under Post-Emergency Activities reflecting the criteria of comment number 68.

SECTION J

69. Please rewrite the last paragraph of page 1 stating that the facility will submit a post-closure plan in the event the facility cannot achieve clean closure.

Clean Harbors Response: This item will be fully described in the finial closure Plan, which will be submitted with the notifications of intent to partially close severa areas of the current facility.

70. Figure at page34 is missing. Therefore, please submit the Figure.

Clean Harbors Response: The appropriate figure has been included.

71. Figure at page 42 is missing. Therefore, please submit the Figure.

Clean Harbors Response: The appropriate figure has been included.

72. Figure at page 43 is missing. Therefore, please submit the Figure.

Clean Harbors Response: The appropriate figure has been included.

73. Figure at page 50 is missing. Therefore, please submit the figure.

Clean Harbors Response: The appropriate figure has been included.

74. Appendix J-B is missing. Therefore, please submit the Appendix.

Clean Harbors Response: The appropriate figure has been included.

75. A Subsection for 'Inventory Removal' (270.14(b)(13); 264.112(b)(3)) is missing. Therefore, please add a subsection describing the methods for removing, transporting, treating, storing, or disposing of all hazardous wastes and identify the type(s) of off-site hazardous waste management units to be used.

Clean Harbors Response: The Section of Closure will be re-written to reflect the process areas that are going to under go partial closure. The Closure document will be rewritten and submitted when the partial closure notifications are filed with KDHE.

76. A Subsection for 'Certification of Closure' (270.14(b)(13); 264.115; 264.280) is missing. Therefore, please add a paragraph in the closure plan stating that a closure certification will be provided at the end of closure by the facility and by an independent Kansas professional engineer.

Clean Harbors Response: The Section of Closure will be re-written to reflect the process areas that are going to under go partial closure. The Closure document will be rewritten and submitted when the partial closure notifications are filed with KDHE.

77. **A Subsection for 'Survey Plat' (270.14(b)(13); 264.116) is missing. Therefore, please submit the survey plat.**

Clean Harbors Response: A Survey of the faculty boundaries is being scheduled in the near future to provide an up to date legal survey of the property. This document will be forwarded to KDHE as soon as it is available as an amendment to this Permit Application.

78. **A Subsection for 'Closure Cost Estimate' (270.14(b)(15); 264.142) is missing. Therefore, please submit a closure cost estimate. The closure cost estimate must equal the final cost estimate. Estimate must be based on a third party closing** the facility. The Estimate must be adjusted for annual inflation as stated in 264.142 (b).

Clean Harbors Response: The Section of Closure will be re-written to reflect the process areas that are going to under go partial closure. The Closure document will be rewritten and submitted when the partial closure notifications are filed with KDHE.

SECTION K

79. **Appendix K-A containing 'Financial Assurance for Closure' (270.14(b)(15); 264.143; 264.151) is very old. Please update this Appendix with recent data.**

Clean Harbors Response: The Section of Closure will be re-written to reflect the process areas that are going to under go partial closure. The Closure document will be rewritten and submitted when the partial closure notifications are filed with KDHE.

80. **Appendix K-B and Appendix K-C are missing. Therefore, please submit the updated Appendices.**

Clean Harbors Response: The appropriate figure has been included.

SECTION - M

81. Fig. M1 in page 1 is missing. Therefore, please submit the figure

Clean Harbors Response: The appropriate figure has been included.

82. On page 34, Appendix M-A refers to Figures M.2 through M.12. As such Figure M.2 through M.12 are missing. Therefore, please submit the figures.

Clean Harbors Response: The appropriate figure has been included.

83. Appendices M-B through M-E are missing. Therefore, please submit the Appendices.

Clean Harbors Response: The appropriate figure has been included.

Important KDHE Comment regarding the Miscellaneous Units

84. Miscellaneous Units are not in operation. KDHE needs to know what is the facility's plan regarding the miscellaneous units. Please let KDHE know the time frame that the facility will bring them back in operation.

Clean Harbors Response: Clean Harbors Kansas, LLC intends to remove and decommission, and effect partial closure on the areas and equipment described as "Miscellaneous Process Equipment".

SECTION N

85. The Description in page 1 considers the facility as an interim status facility. The facility is not an interim status facility. Therefore, please revise this page.

Clean Harbors Response: Corrected.

86. All the drawings mentioned in Appendix N-A are missing. Therefore, please submit the drawings.

Clean Harbors Response: The appropriate figure has been included.

87. Appendices N-B through N-F are missing. Therefore, please submit the Appendices.

Clean Harbors Response: The appropriate figure has been included.

88. A Subsection on 'Semiannual Report' (270.25(a); 264.1065) is missing. Therefore, please submit the subsection.

Clean Harbors Response: Semiannual reports are described,. And submitted as required.

89. A Subsection on 'Implementation Schedule' (270.25(b)) is missing. Therefore, please submit the subsection.

Clean Harbors Response: The appropriate figure has been included.

Subpart CC Air Emission Standards

90. The facility is required to meet the Subpart CC Air Emission Standards. Please contact Ms. Chris Jump of US EPA Region 7 regarding the requirements of this Subpart.

Clean Harbors Response: Clean harbors Kansas, LLC, and Operations and Environmental staff from Clean harbors Environmental Services Inc., would like to conduct a meeting in the near future to discuss this and any other issues relating to this facility.

Groundwater Requirements

91. Please contact Ms. Chris Jump of US EPA Region 7 regarding the groundwater requirements.

Clean Harbors Response: Clean harbors Kansas, LLC, and Operations and Environmental staff from Clean harbors Environmental Services Inc., would like to conduct a meeting in the near future to discuss this and any other issues relating to this facility.

Notice in Deed

92. **According to KAR 28-31-8 (c), the owner of the property on which a hazardous waste treatment, storage, or disposal facility is located shall record in accordance with Kansas law, a notice with the county register of deeds where the property is located that the land has been used to manage hazardous wastes and all the records regarding permits, closure, or both are available for review at the department. If you already have a 'Notice in Deed to property', please forward a copy.**

Clean Harbors Response: We are conducting a records search to locate this document. It will be provided to KDHE as an amendment to this Permit Application.

PART B CERTIFICATION

93. Part B Certification (270.11) is missing. Therefore, please submit the certification.

Clean Harbors Response: A new certification is being prepared and will be forwarded to KDHE as an amendment to this Permit Application.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Base on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

John Scott Kuhn
Vice President of Corporate Environmental Compliance
Clean Harbors Environmental Services, Inc.

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Part A Application

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B-1 Introduction:

The Clean Harbors Kansas, LLC facility is located in Wichita, Kansas. The facility stores, treats, and recovers for recycling hazardous and nonhazardous wastes. Clean Harbors Kansas, LLC blends materials containing heating value for beneficial use and energy recovery as hazardous waste fuel (e.g., cement kiln fuel) and recovers solvents for further management. Clean Harbors Kansas, LLC also stores, processes, and otherwise manages waste solvents, sludges, solids, and water for subsequent shipment to other United States Environmental Protection Agency (USEPA) permitted (or interim status) facilities for distillation, beneficial reuse, or disposal. Clean Harbors Kansas, LLC also stores waste solvent, hydrocarbons, paint-related waste streams, solids, corrosive waste streams, and water-based waste streams. Hazardous waste management at the facility includes, but is not limited to, fuel blending for energy recovery, accumulation of materials for reclamation, accumulation for hazardous waste landfill disposal, accumulation of low BTU liquids for deepwell injection, repackaging for incineration, processing for solvent and carbon recovery, and storage of industrial waste waters for subsequent discharge. Storage occurs in both containers and tanks.

The facility operates under the requirements of the Resource Conservation and Recovery Act (RCRA) and the Kansas Hazardous Waste Management Act as set forth in Kansas Administrative Regulations (KAR), Title 28, Article 31. The KAR incorporate, with few

additions, the RCRA regulations contained in 40 CFR 260 through 270. Therefore, this section will refer only to the federal regulations.

This section discusses facility location, location information, facility layout, traffic information, and general facility process unit description as required by the Code of Federal Regulations (CFR); i.e., 40 CFR 270.14(b)(1), (10), (11) and (19). A map showing topographic detail as required by 40 CFR 270.14(b)(19) is also presented in this section.

A topographic map showing well locations required under 40 CFR 270.14(c)(3) is included in Section A, Part A Permit Application and this section. More specific information on the facility design and operation is presented in subsequent application sections C through N.

B-2 Facility Location:

Figure B.1, Site Location Map (Figure B-1, Updated April 2008) shows the location of the facility; the facility is located at 2549 North New York Avenue in Wichita, Kansas. This address is in the Northeast quarter of the Southeast quarter of Section 4, Township 27 South, Range 1 East. The facility is located in Sedgwick County (Sedgwick County population 403,662, 1990 census). The facility is located in an industrial area of Wichita; the population of Wichita was approximately 360,410 (estimated) as of 2006 (Greater Wichita Economic Development Coalition[1]).

The facility and the surrounding area are shown on Figure B.2, Topographic Map (Figure B-2, Updated April 2008); facility information is superimposed on a topographic base map with contour intervals of two (2) feet as required by 40 CFR 270.14(b)(19). The map/drawing is based on a topographic map generated in April of 2008 and includes areas within 1,000 feet of the facility. The facility is located approximately at north latitude 37°43'49" and west longitude 97°19'11". The area that includes the process plant area and hazardous waste storage areas for tanks and containers make up the active portion of the facility. The facility boundary, a distance of 2,640 feet around the facility boundary and the active portion of the facility are shown on Figure B.2.

Privately owned land abuts the facility on three sides: Union Pacific Railroad and Overnite Transportation own property to the north; the remains of Derby Refinery are located south of the facility; and land owned by Derby refinery adjoins the site to the west. New York Avenue is located to the east of the facility.

The administration and hazardous waste management areas as well as general facility layout, access control, and sewer lines are shown on Figure B.3, Facility Layout (Figure B-3, Wichita Facility Site Plan, Updated April 2008). The hazardous waste storage buildings and associated loading areas are shown on Figure B.4, Hazardous Waste Management Areas (Figure B-4, Updated 2008 Hazardous Waste Management Areas). The drawings generally show access roads and internal roadways, administration and process plant buildings, and hazardous waste management locations. The storage of ignitable and reactive wastes on-site is in compliance with the equipment buffer zone requirements as set forth in 40 CFR 264.176, and 264.198(b). Specifics regarding container management and tank systems are presented in Sections D, E, and M (Use and Management of Containers, Tank Systems and Other Regulated Units).

Figure B.1. Site Location Map

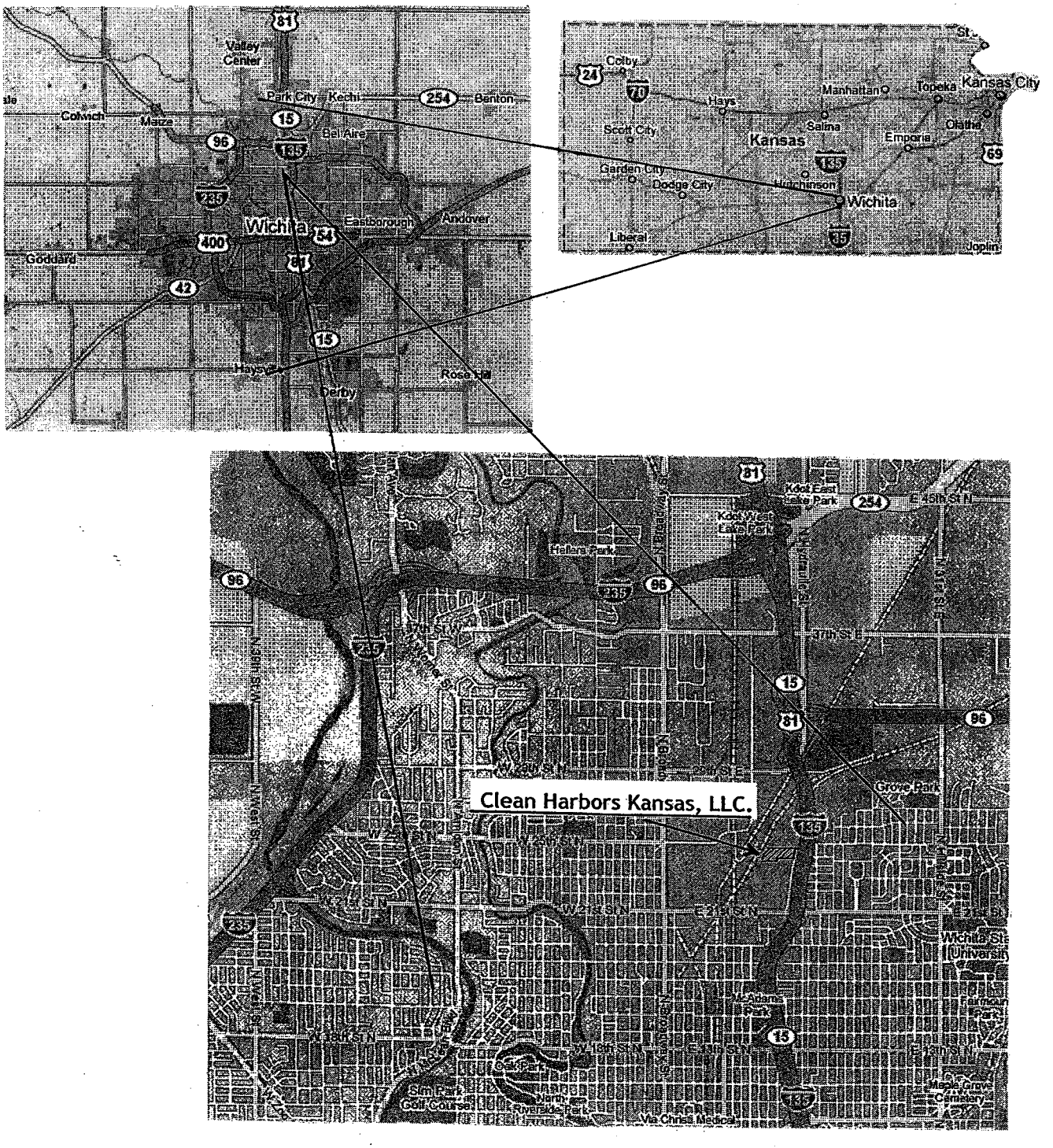
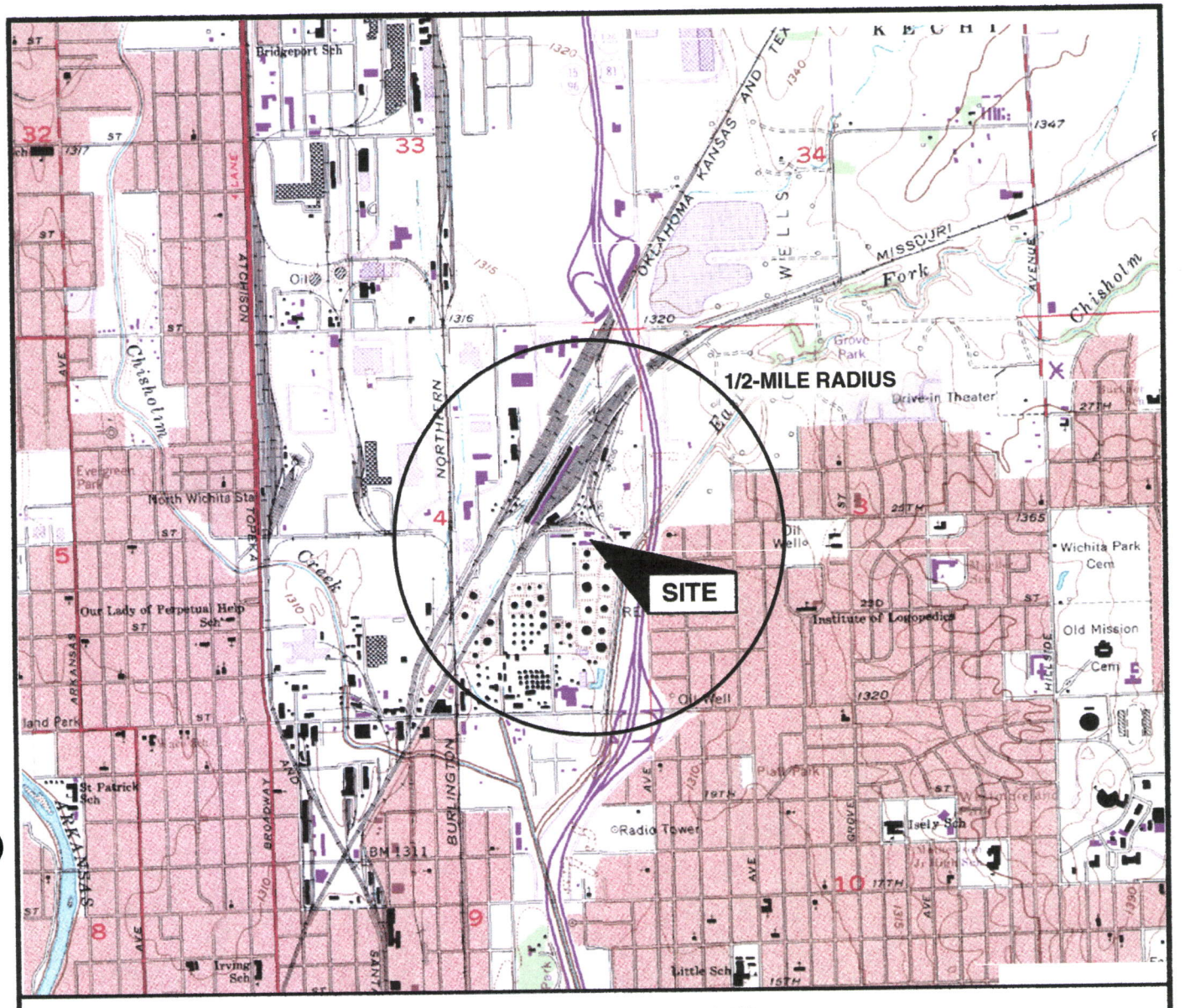
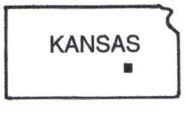


Figure B.2. Facility Map





SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

QUADRANGLE LOCATION

N

COORDINATES

LONGITUDE: W 97° 19' 11"
LATITUDE: N 37° 43' 49"

ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE
A	RCRA PART B PERMIT	CJM	CJM	CJM	5/08

BASE MAP: USGS TOPOGRAPHIC MAP PRINTED FROM TOPO! © 1998 WILDFLOWER PRODUCTIONS

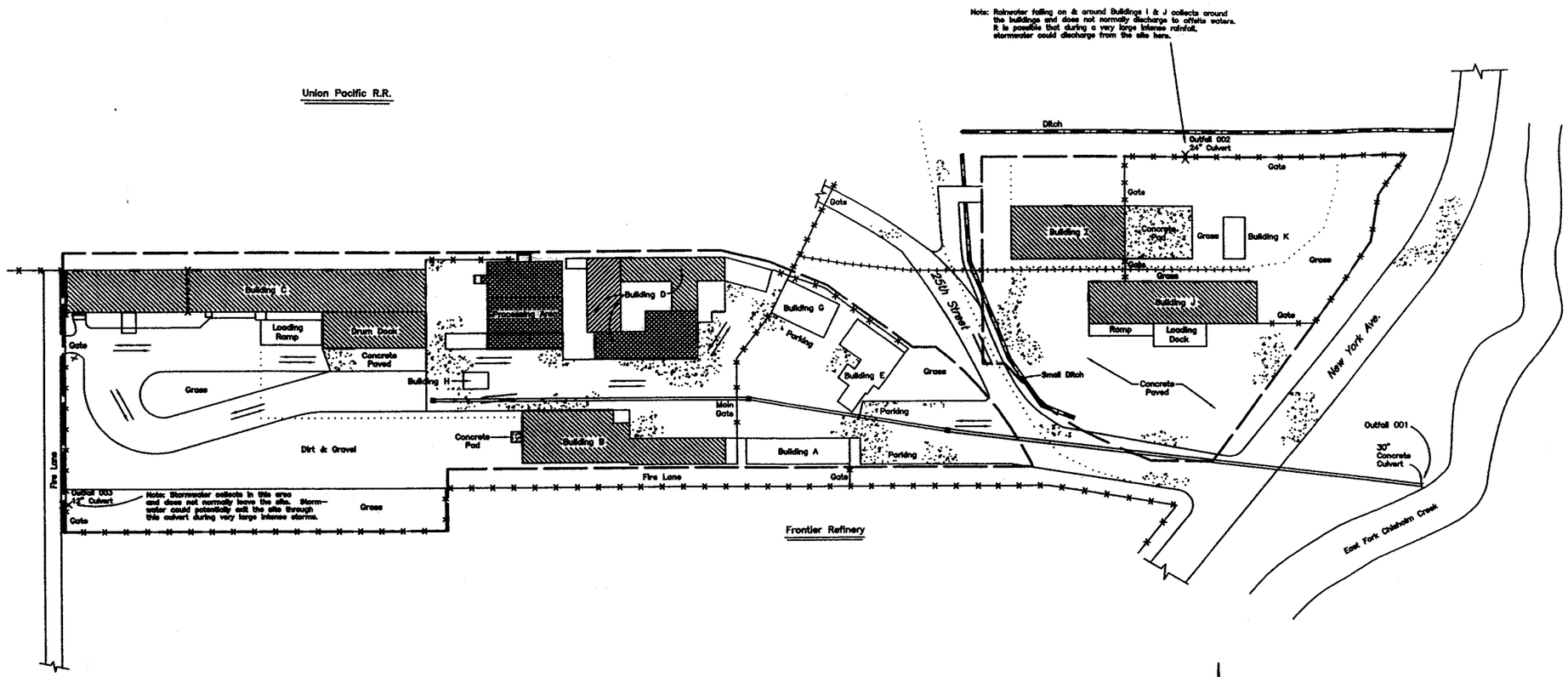
CleanHarbors
Environmental Services®
42 Longwater Drive
Norwell, Massachusetts 02061

CLEAN HARBORS KANSAS, LLC
2549 N. NEW YORK STREET
WICHITA, KS 67219

TOPOGRAPHIC MAP

JOB NO.: WHFACGEN08
SCALE: AS SHOWN
DWG. NO. FIGURE B-2

Figure B.3: Wichita Site Facility Plan



Building Legend

Building A	Laboratory/Administration
Building B	Hazardous Waste Management Building
Building C	Hazardous Waste Management Building
Building D	Hazardous Waste Management Building
Building E	Administration
Building G	Personnel Decon/Break Room
Building H	Operations Office
Building I	Hazardous Waste Management Building (Future Use)
Building J	Hazardous Waste Management Building (Future Use)
Processing Area	Hazardous Waste Management Area
Drum Dock	Hazardous Waste Management Area

Legend:

- : Railroad Tracks
- : Fence
- : Property Line
- : Container Storage Area
- : Tank Storage Area
- : Container and Tank Storage Area
- : Loading and Unloading Area
- : Secondary Containment Berm or Wall
- : Pavement
- : Drainage Boundary
- : Storm Drain Catch Basins
- : Underground Storm Sewer Line
- : Truck Routes

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
A	UPDATED APRIL 2008	K.M.C.		

REFERENCE DRAWINGS

CleanHarbors

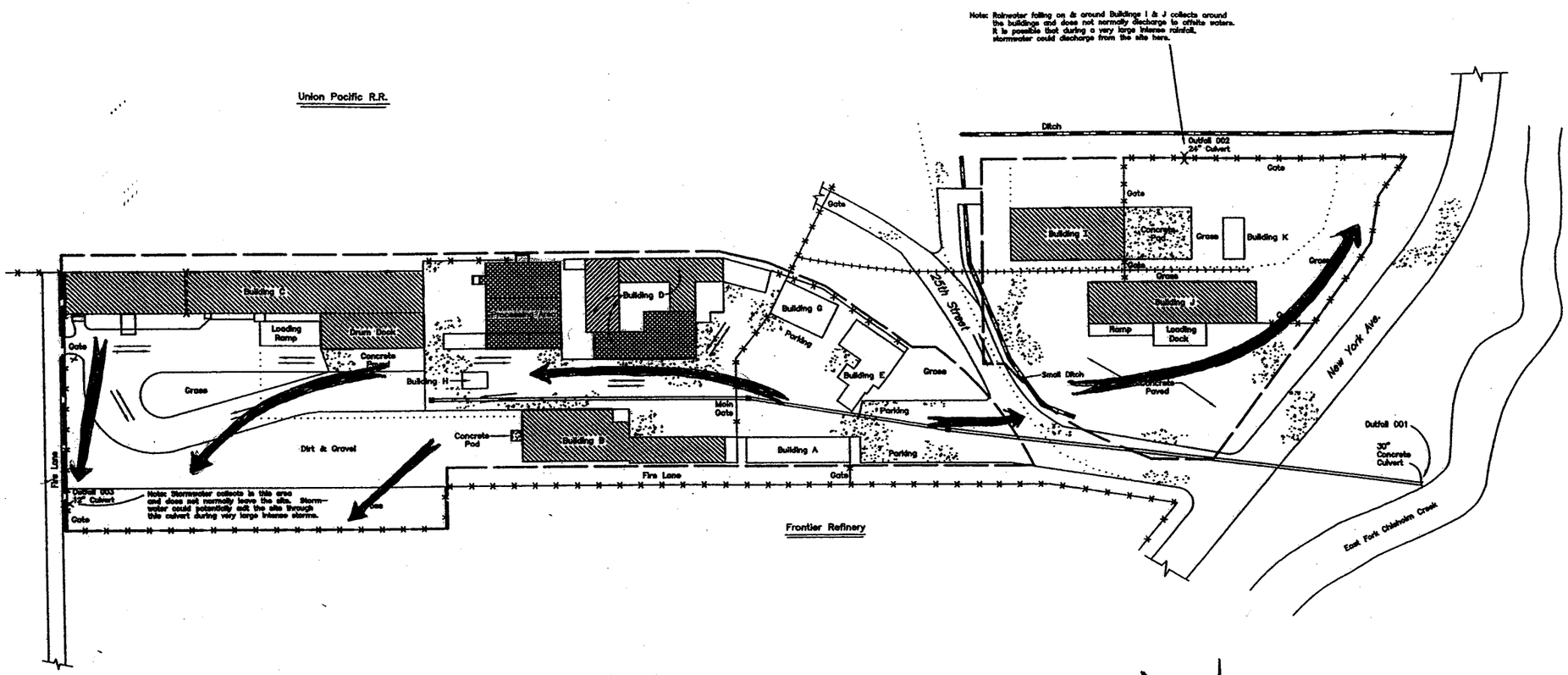
DRAWN	CHECKED	SCALE	DATE
K.M.C.		AS NOTED	04/01/08

TITLE: CLEAN HARBORS KANSAS, LLC
WICHITA FACILITY
SITE PLAN

DRAWING NO. Figure B-3

REV. A

Figure B.3A: Wichita Site Facility Plan – Stormwater Flow Directions



Building Legend

Building A	Laboratory/Administration
Building B	Hazardous Waste Management Building
Building C	Hazardous Waste Management Building
Building D	Hazardous Waste Management Building
Building E	Administration
Building G	Personnel Decon/Break Room
Building H	Operations Office
Building I	Hazardous Waste Management Building (Future Use)
Building J	Hazardous Waste Management Building (Future Use)
Processing Area	Hazardous Waste Management Area
Drum Dock	Hazardous Waste Management Area

Legend:

- : Railroad Tracks
- : Fence
- : Property Line
- : Container Storage Area
- : Tank Storage Area
- : Container and Tank Storage Area
- : Loading and Unloading Area
- : Secondary Containment Berm or Wall
- : Pavement
- : Drainage Boundary
- : Storm Drain Catch Basins
- : Underground Storm Sewer Line
- : Truck Routes

Stormwater Flow Directions:

N

REFERENCE DRAWINGS	REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
	A	UPDATED APRIL 2008	K.M.C.		

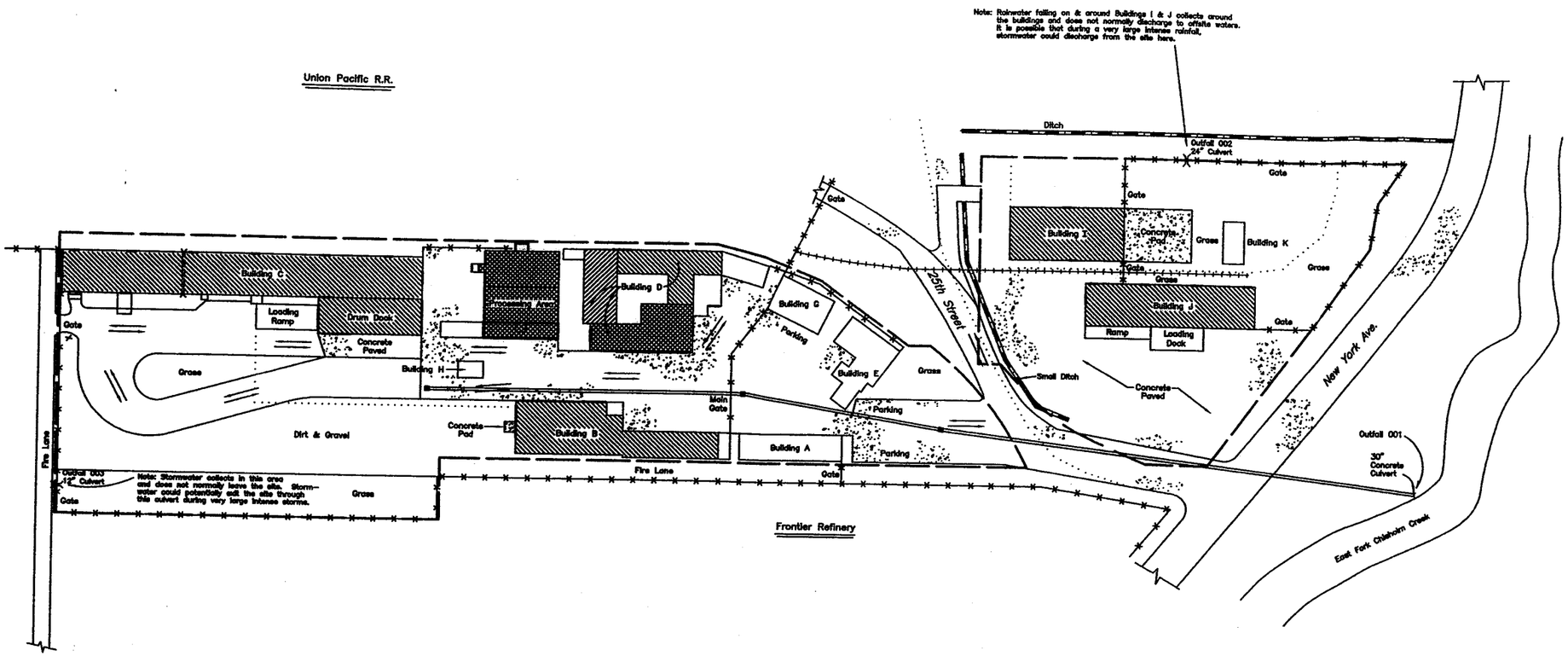
CleanHarbors

TITLE: CLEAN HARBORS KANSAS, LLC
WICHITA FACILITY
SITE PLAN
Stormwater Flow Directions

DRAWN	CHECKED	SCALE	DATE	DRAWING NO.	REV.
K.M.C.		AS NOTED	04/01/08		A

Figure B-3A

Figure B.4: Hazardous Waste Management Areas



Building Legend

Building A	Laboratory/Administration
Building B	Hazardous Waste Management Building
Building C	Hazardous Waste Management Building
Building D	Hazardous Waste Management Building
Building E	Administration
Building G	Personnel Decon/Break Room
Building H	Operations Office
Building I	Hazardous Waste Management Building (Future Use)
Building J	Hazardous Waste Management Building (Future Use)
Processing Area	Hazardous Waste Management Area
Drum Dock	Hazardous Waste Management Area

Legend:

- : Railroad Tracks
- : Fence
- : Property Line
- : Container Storage Area
- : Tank Storage Area
- : Container and Tank Storage Area
- : Loading and Unloading Area
- : Secondary Containment Berm or Wall
- : Pavement
- : Drainage Boundary
- : Storm Drain Catch Basins
- : Underground Storm Sewer Line
- : Truck Routes

N

50 0 50 100

SCALE OF FEET

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
A	UPDATED APRIL 2008	K.M.C.		

REFERENCE DRAWINGS

CleanHarbors

DRAWN	CHECKED	SCALE	DATE
K.M.C.		AS NOTED	04/01/08

TITLE: CLEAN HARBORS KANSAS, LLC
Hazardous Waste Management Areas

DRAWING NO. Figure B-4

REV. A

B-3 Location Information:

B-3a Physiography, Geology and Land Use:

Sedgwick County is situated in the Arkansas River Lowlands section of the Central Lowlands physiographic province[2]. The facility is located in an area of very low topographic relief; elevation on site is about 1315 feet above MSL. The extreme flatness of the broad Arkansas River valley and gently rolling slopes provide the low relief of the vicinity.

In summary, the soil is developed on recent and old alluvial sediments of the Elandco and Tabler formations[3]. These sandy and clayey alluvial deposits are underlain by Wellington shale. Approximately 10 feet of alluvial clay with fine sand overlies approximately 30 feet of alluvial sand. Ground water source in the area is from permeable sands in the alluvial deposits; this ground water aquifer has transmissivities up to 250,000 gallons per day per foot. The water table in the vicinity, as reported in the RCRA Facility Investigation (RFI) Report, Clean Harbors Kansas, LLC (January 20, 2003), is approximately 1300 feet above Mean Sea Level MSL)[4].

The surrounding land is generally used for industrial purposes: land use to the south and west is by Derby Refinery, to the north by Union Pacific Railroad and Overnite Transportation, with

highway I-135 to the east.

Past land use of the facility property has included light to medium industrial activities since approximately 1940. The majority of precipitation occurs during the period between April and September. The average precipitation is thirty (30.38) inches per year; the average seasonal snowfall is fifteen (16.5) inches. The heaviest one day rainfall recorded for Wichita was 7.99 inches on September 6-7, 1911 (National Weather Service, Weather forecast Office, Wichita, KS: www.crh.noaa.gov)[6]. The 25-year, 24-hour precipitation event is 6.2 inches as determined from "Technical Paper No. 40, Rainfall Frequency Atlas of the United States" (US Dept. of Commerce)[5].

B-3b **Climate:**

Wichita, Kansas is located in the Central Great Plains where a wide variety of weather conditions may occur year round. Mixing of warm, moist, Gulf coast air masses with cold, dry Arctic air masses can result in severe storms and rapid changes in weather conditions. Climatological information is based on National Oceanic and Atmospheric Administration (NOAA) data. Temperature extremes from minus 22 degrees to 114 degrees Fahrenheit have been recorded in Wichita; however, temperatures below zero occur much less frequently than temperatures above

90 degrees Fahrenheit. The average relative humidity ranges from 55 percent in the afternoon to 80 percent at dawn. The average daily maximum temperature in summer is ninety-one degrees (91°F). The highest recorded temperature was 114°F (July 1954). The average daily minimum temperature in winter is twenty-three degrees (23°F). The lowest temperature on record was minus twenty-one degrees (-21°F) in February of 1982[6].

Prevailing winds are from the south; the most severe thunderstorms occur mainly during the spring and early summer. The highest, one-minute observed wind speed recorded was forty-eight (48) mph[5]. Figure B.5 consists of twelve (120 monthly wind roses for the Wichita area (Monthly Surface Wind Rose, Wichita Mid-Continent Airport) shows the prevailing wind direction and speed measured in Wichita, Kansas.

B-3c **Surface Water Drainage:**

Surface water drainage is in two directions; most surface water on the site drains to the east branch of Chisholm Creek located east of the facility, although some surface water drains to the southwest into Chisholm Creek. The east branch of Chisholm Creek is the closest surface water body to the site and is located about 150 feet east of the property. The west fork of Chisholm Creek is located about 2000 feet west of the site. These streams discharge into the Arkansas River about three miles south of the site. Surface water flow is shown on Figure B.3A, (Figure-3A, Facility Site Plan, Stormwater Flow Directions).

B-3d **Floodplain: 40 CFR 270.14(b)(11)(iii)**

A Flood Hazard Boundary Map prepared by the US Department of Housing and Urban Development, Federal Insurance Administration, for Sedgwick County, Kansas was reviewed pursuant to 40 CFR 270.14(b)(11)(iii). The facility boundary is not within the 100 year floodplain. Therefore, the requirements of 40 CFR 264.18(b) are not applicable.

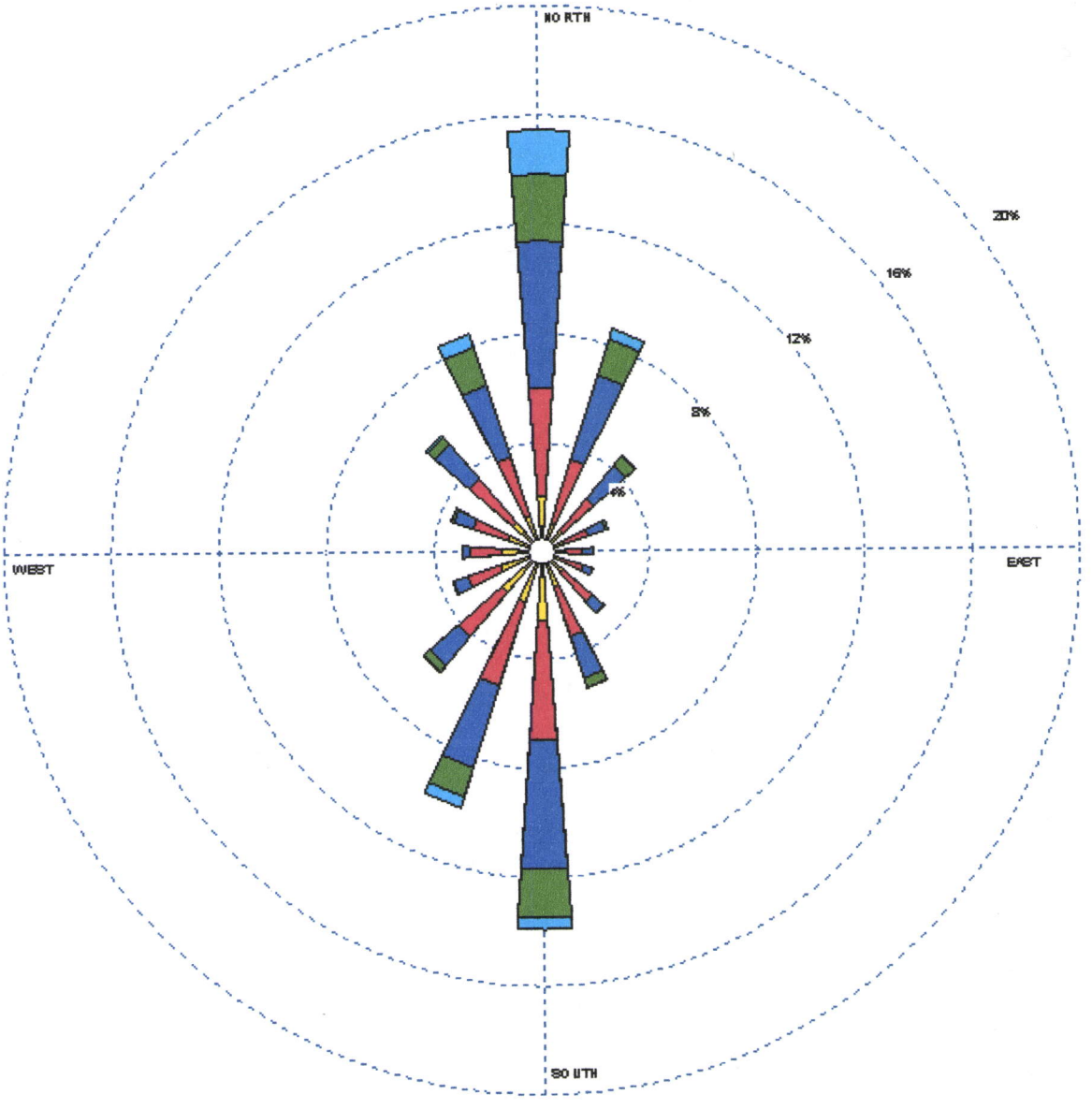
B-3e **Seismicity: 40 CFR 270.14(b)(11)(i)and(ii)**

The CHK facility is located in Sedgwick County, Kansas. No areas in Kansas are listed in Appendix VI of 40 CFR, Part 264, as needing seismic consideration. The facility is not located in a seismic hazard zone, therefore, the requirements of 40 CFR 264.18(a) are not applicable.

Figure B.5: Monthly Surface Wind Rose – Mid-Continent Airport

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS

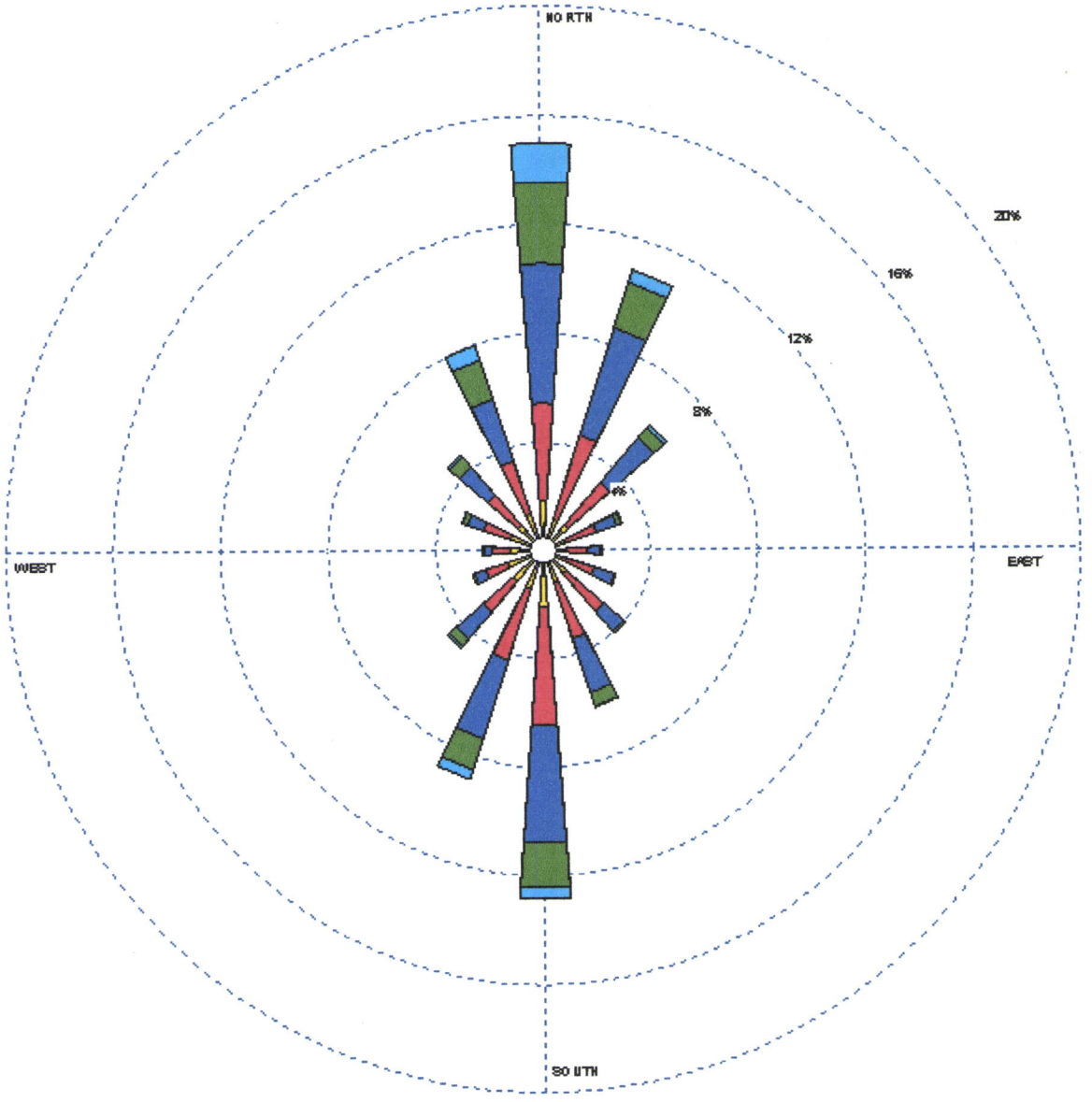


Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	MODELER Sara West	DATE 8/28/2002	COMPANY NAME USDA-ARS
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 5.51 m/s	CALM WINDS 2.66%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Jan 1 - Jan 31 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS

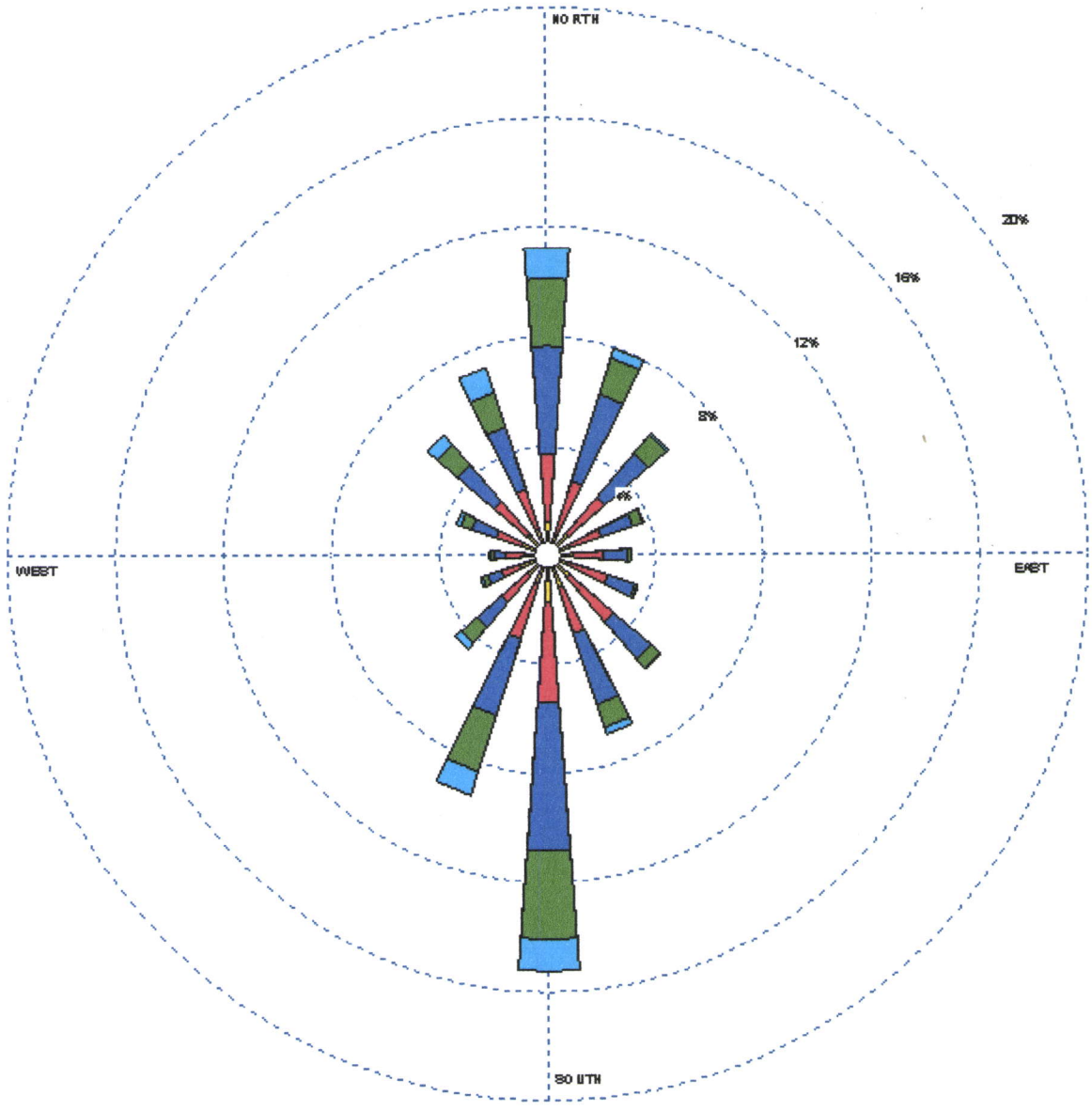


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	Sara West	8/28/2002	USDA-ARS
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 5.69 m/s	CALM WINDS 2.42%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Feb 1 - Feb 29 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS



Wind Speed (m/s)

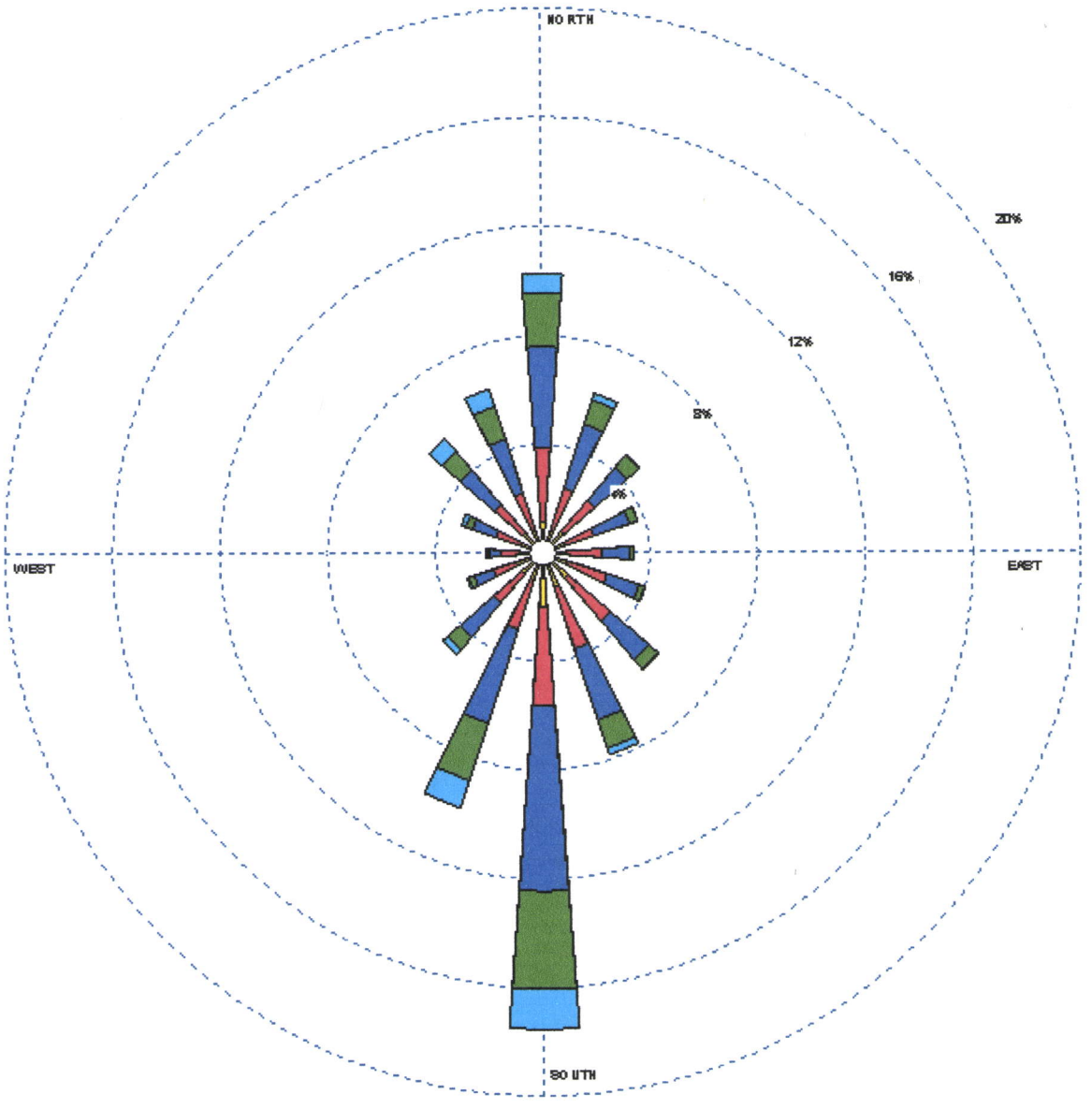
- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER	DATE	COMPANY NAME
Sara West	8/28/2002	USDA-ARS
DISPLAY	**UNIT**	**COMMENTS**
Wind Speed	m/s	
AVG. WIND SPEED	**CALM WINDS**	
6.27 m/s	1.59%	
ORIENTATION	**PLOT YEAR-DATE-TIME**	
Direction (blowing from)	1961 Mar 1 - Mar 31 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS



Wind Speed (m/s)

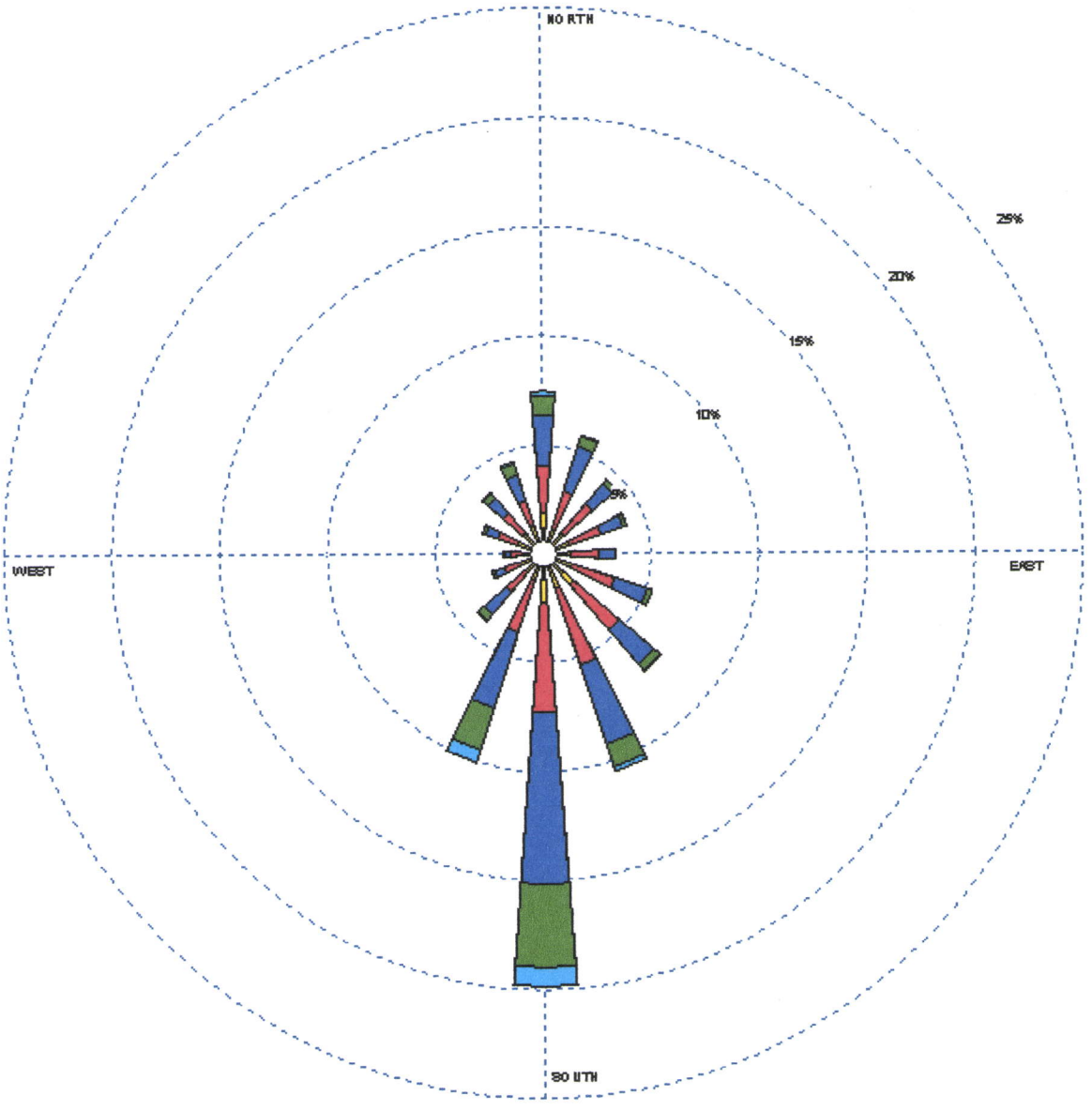
- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER	DATE	COMPANY NAME
Sara West	8/28/2002	USDA-ARS
DISPLAY	**UNIT**	**COMMENTS**
Wind Speed	m/s	
AVG. WIND SPEED	**CALM WINDS**	
6.23 m/s	1.55%	
ORIENTATION	**PLOT YEAR-DATE-TIME**	
Direction (blowing from)	1961 Apr 1 - Apr 30 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS

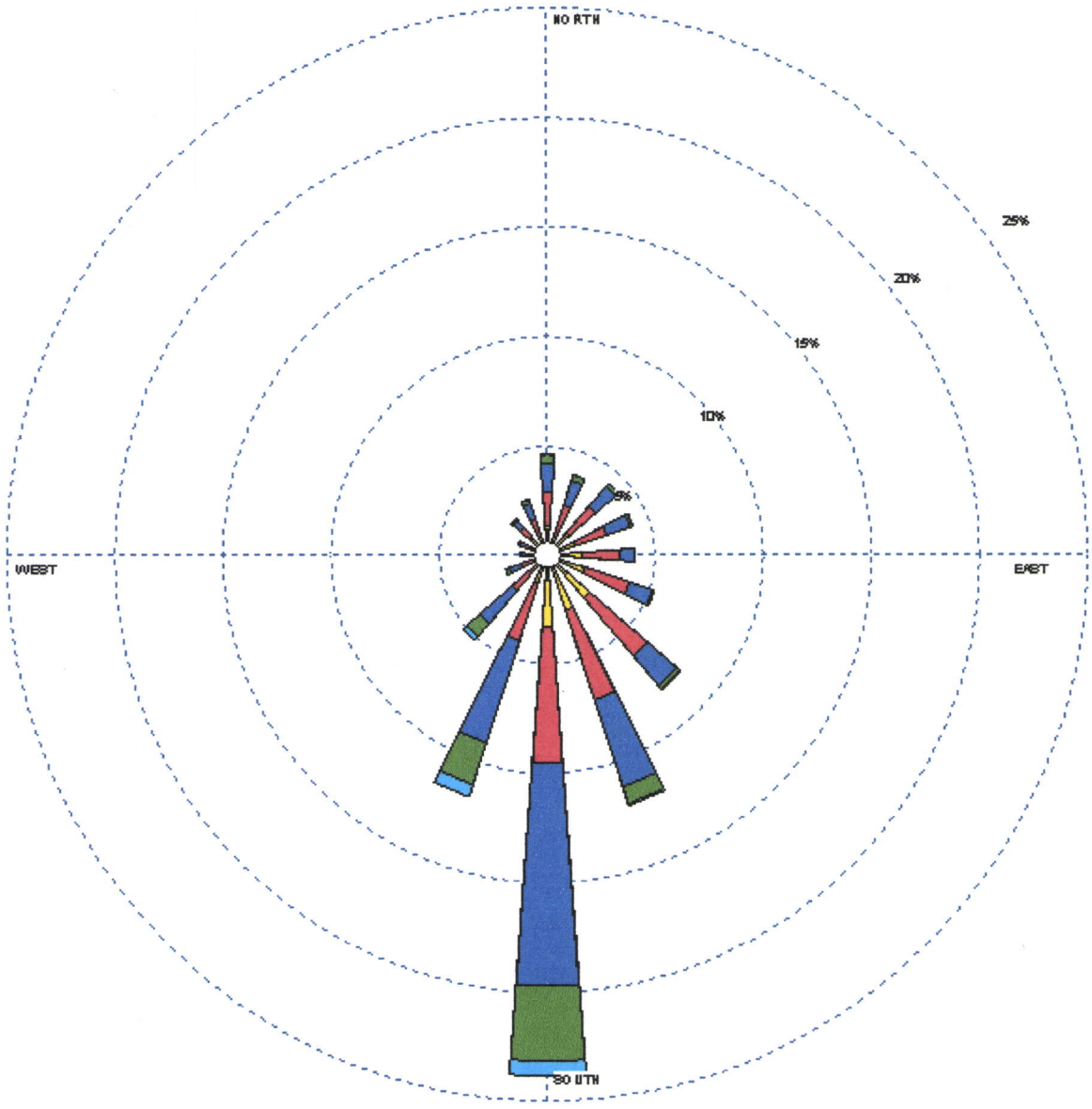


Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	Sara West	8/28/2002	USDA-ARS
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 5.53 m/s	CALM WINDS 2.21%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 May 1 - May 31 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #03928 - WICHITA/MID-CONTINENT ARPT, KS



Wind Speed (m/s)	MODELER	DATE	COMPANY NAME
> 11.06	Sara West	8/28/2002	USDA-ARS
8.49 - 11.06	DISPLAY	UNIT	COMMENTS
5.40 - 8.49	Wind Speed	m/s	
3.34 - 5.40	AVG. WIND SPEED	CALM WINDS	
1.80 - 3.34	5.37 m/s	3.10%	
0.51 - 1.80	ORIENTATION	PLOT YEAR-DATE-TIME	
	Direction (blowing from)	1961 Jun 1 - Jun 30 Midnight - 11 PM	

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

B-4 Traffic Information: 40 CFR 270.14(b)(10)

B-4a Off-site Traffic:

Shipments of materials will be by truck or rail. It is expected that most truck shipments will access the facility from interstate highway I-135 using 21st Street North and New York Avenue. To handle rail shipments, a Union Pacific railroad siding is located along the north side of the facility. Figure B.1, Site Location Map (Figure B-1, Updated April 2008), shows these access routes. Local intersections are controlled by stop signs, and a traffic signal at I-135 and 21st Street.

Highway I-135 is a divided, six-lane, two-way, concrete interstate highway. The Average Daily Traffic (ADT) recorded by the Transportation Planning Division of the Kansas State Highway Department (KSHD) for this stretch of I-135 in 2007 was 86,200 vehicles south of the 21st Street interchange. Twenty-first (21st) Street is generally a four-lane, two-way thoroughfare; however, the roadway is split into a two-lane, one-way pair at the intersection with New York Avenue. The City of Wichita Traffic Engineers Office recorded in 2006, an ADT of 22,247 vehicles on 21st Street to the east of the I-135 interchange. New York Avenue is a low volume, industrial roadway consisting of two-lane, two-way traffic; no ADT is recorded.

Truck traffic into the facility may average up to approximately twenty (20) shipments of

hazardous waste per week. Typical trucks accessing the facility will be tractor trailer rigs and straight trucks. The overall level of service on local streets and highways is not anticipated to be affected by facility traffic. Railcar traffic into the facility is expected to average up to two railcars per week.

The facility is located in an industrial area of Wichita. The existing local streets and highways currently accommodate heavy vehicles carrying the maximum legal load.

B-4b **On-site Traffic and Load-Bearing Capacity:**

Enclosed tractor trailers, tanker trucks, dump trucks, dump trailers, or intermodal transport container trailers, etc., may be used to transport materials to, from, and within the facility. The roadway foundation is adequate to accommodate traffic consisting of truck and trailer combination vehicles. No bridges exist on-site.

The most active areas on-site are surfaced to minimize the generation of dust and reduce maintenance requirements. Where surfaced, roadways are composed of six inch, reinforced concrete construction with stabilized sub-soil. All other traffic areas are provided with surface gravel and are maintained as needed.

Vehicular traffic into the plant is controlled through gate entrances. The active portion of the facility is divided by a public right-of-way. On-site traffic, between the main portion of the facility and Buildings I and J, includes crossing the public right-of-way at a ninety degree angle. On-site traffic routing, alignment of facility roadways, and internal traffic patterns are shown on (Figure B-3, Wichita Facility Site Plan, Updated April 2008). Loading and unloading areas are shown on Figure B.4, Hazardous Waste Management Areas (Figure B-4, Hazardous Waste Management Areas).

B-5 **Facility Security: 264.14 and 122.25(a)(4)**

The facility security system is discussed in detail in Section G, Procedures to Prevent Hazards. Where required for security, the CHK facility is surrounded by a six foot chain link fence with gates (Figure B-3, Wichita Facility Site Plan, Updated April 2008). Personnel and vehicle access is controlled by an electronic system which is designed to prevent the unknowing entry, and minimize the unauthorized entry, of persons or livestock onto active portions of the facility. This system may be shut down for maintenance operations at which time security will be provided by facility personnel or locked gates. Note that fencing is not provided where buildings and building entrances provide a barrier to unauthorized entry. To meet the security requirements of 40 CFR 264.14 in areas without fencing or building walls/doors, 24 hour surveillance will be provided when required. In addition, employees are instructed to question and direct unauthorized visitors to the office should they try to enter the active portion of the facility.

Warning signs as required by 40 CFR 264.14 have been placed at each entrance and along the barrier to unauthorized entry surrounding the facility.

Inspection of the fence line and signs are included in the facility inspection plan (See Section F, Inspection Plan for additional details).

B-6 **Facility Process Unit Description:**

As required in 40 CFR 270.14(b)(1), the following is a general overview of the facility; additional details are provided in Section D (Use and Management of Containers), Section E (Tank Systems), and Section L (Solid Waste Management Units and Corrective Action). The hazardous waste management units at the facility include storage and treatment tanks, container management units, waste loading and unloading facilities and waste processing facilities. Typical sources of waste include automotive manufacturers, tire manufacturers, plating facilities, aircraft manufacturers, as well as the food processing, pharmaceutical, oil industries automotive repair shops, industrial maintenance operations, and other industrial sources

Prior to acceptance of a waste stream, the facility requires the generator to supply specific information about the waste. After a review of information supplied by the generator has been deemed completed and prior to waste receipt at the facility, CHK personnel determine the proposed management practices for the waste at the facility. Generators are then advised that their waste stream may be accepted or that management of the waste stream at CHK has been denied. The properties of incoming waste streams (i.e., shipments) from the generator are compared against the information supplied prior to shipment. For further details regarding waste receipt and analysis, refer to Section C (Waste Characterization).

Final and partial closure plans for the CHK facility are provided in Section J (Closure Plan).

CHK maintains financial assurance for facility closure and insurance; details are described in Section K (Financial Requirements). Equipment (in hazardous waste service) removed for replacement during maintenance operations will be decontaminated and managed according to procedures similar to closure procedures as delineated in Section J.

B-6a **Process Area Description:**

A variety of hazardous waste management units are utilized for storage, treatment or to otherwise manage wastes at the CHK facility; e.g., container management units and tank systems. Section A (Part A Permit Application) lists storage buildings, and tanks utilized by Clean Harbors Kansas, LLC. Additional buildings, such as an administration building, personnel change rooms, laboratory, and etc., are also provided to support the various unit operations. Refer to Figure B.3, Facility Site Plan (Figure B-3, Wichita Facility Site Plan, Updated April 2008) for the general locations of these buildings.

The general locations of waste management areas are depicted on Figure B.4, Hazardous Waste Management Areas (Figure B-4, Hazardous Waste management Areas); flow of wastes between units is addressed in Section N (Air Emissions). A general description of tank, and container processing systems follows. Detailed discussions of these systems are provided in Sections D (Use and Management of Containers), and E (Tank Systems).

Hazardous waste storage, treatment, and processing occur in three storage areas at the CHK facility. Hazardous waste is managed in tanks, and containers in the Processing Area, the Drum Dock and Building C. An overview regarding these activities is presented in the following paragraphs.

B-6b **Container Management Systems:**

Two (2) buildings at the facility are designated primarily for container management. Permitted storage capacities for each building are designated in Addendum B to the Part A Permit Application (Section A). Container management areas will be operated such that the stored volume will not exceed the permitted capacity. The volume of waste stored in any of the container storage buildings is dictated by containment volumes and operational requirements. Specifics regarding container management at the facility are discussed in Section D, Container Management.

B-6c **Tank Systems:**

A variety of tank systems are used at the CHK facility. Tanks are used to store and/or treat liquids, solids, and sludge. The tank systems presently in use or planned are located in the Process Building, and are identified and discussed in detail in Section E, Tank Systems.

B-6d **Other Regulated Units:**

It is Clean Harbors Kansas, LLC's intention to remove the miscellaneous process units formerly described in this section from the RCRA Permit.

B-6e **Non-regulated Units and Activities:**

In addition to hazardous wastes regulated under 40 CFR 264, other industrial wastes as well as selected household wastes are managed at the CHK facility. These wastes include, but are not limited to, used oil destined for burning for energy recovery (regulated under 40 CFR 266 Subpart E), synthetic oil reprocessing, industrial coolants and waste waters.

Processing equipment on-site as described in the Part A application may be utilized for management of non-hazardous waste. The procedures used for decontaminating equipment between hazardous waste service and subsequent non-hazardous waste service are provided in Attachment C-A to Section C (Waste Characterization) and Section E (Tank Systems).

B-7 Anticipated Change of Operations/Units:

Additional waste management and operations planned for the CHK facility after permit issuance are of two types: 1) changes as a result of new regulations and permitting requirements, and 2) reduction of operations to meet the challenges of future local and regional waste management requirements. Anticipated waste management needs include:

- The addition of newly identified wastes (as they become regulated) to the Part A permit;
- Modification of the facility and permit application to accommodate evolving local, state, and federal regulations.

Endnote References

1. Greater Wichita Economic Development Coalition (2008): www.gwedc.org/living_working-climate.php

2. Lane, Charles W. and Don E. Miller, December, 1965. Geohydrology of Sedgwick County, Kansas. State Geological Survey of Kansas, Bulletin 176, 100 pp.

3. United States Department of Agriculture, Soil Conservation Service, April, 1979. Soil Survey of Sedgwick County, Kansas. 126 p.

4. Groundwater Technology, Inc., August 1991. Draft Remedial Investigation Report of the 29th and Mead RI/FS. Volume 1, prepared for Wichita North Industrial District, 60 pp.

5. Hershfield, David M., US Dept. of Commerce, Soil Conservation Service, Rainfall Frequency Atlas of the United States - Weather Bureau Technical Paper No. 40, 115 pp.

6. National Weather Service, Weather Forecast Office, Wichita, KS (2008): www.crh.noaa.gov

Clean Harbors Kansas, LLC
RCRA Permit Application
Section D
Use and Management of Containers

Figure B.1: Site Location Map

May 20, 2003

To: Scott Kuhn

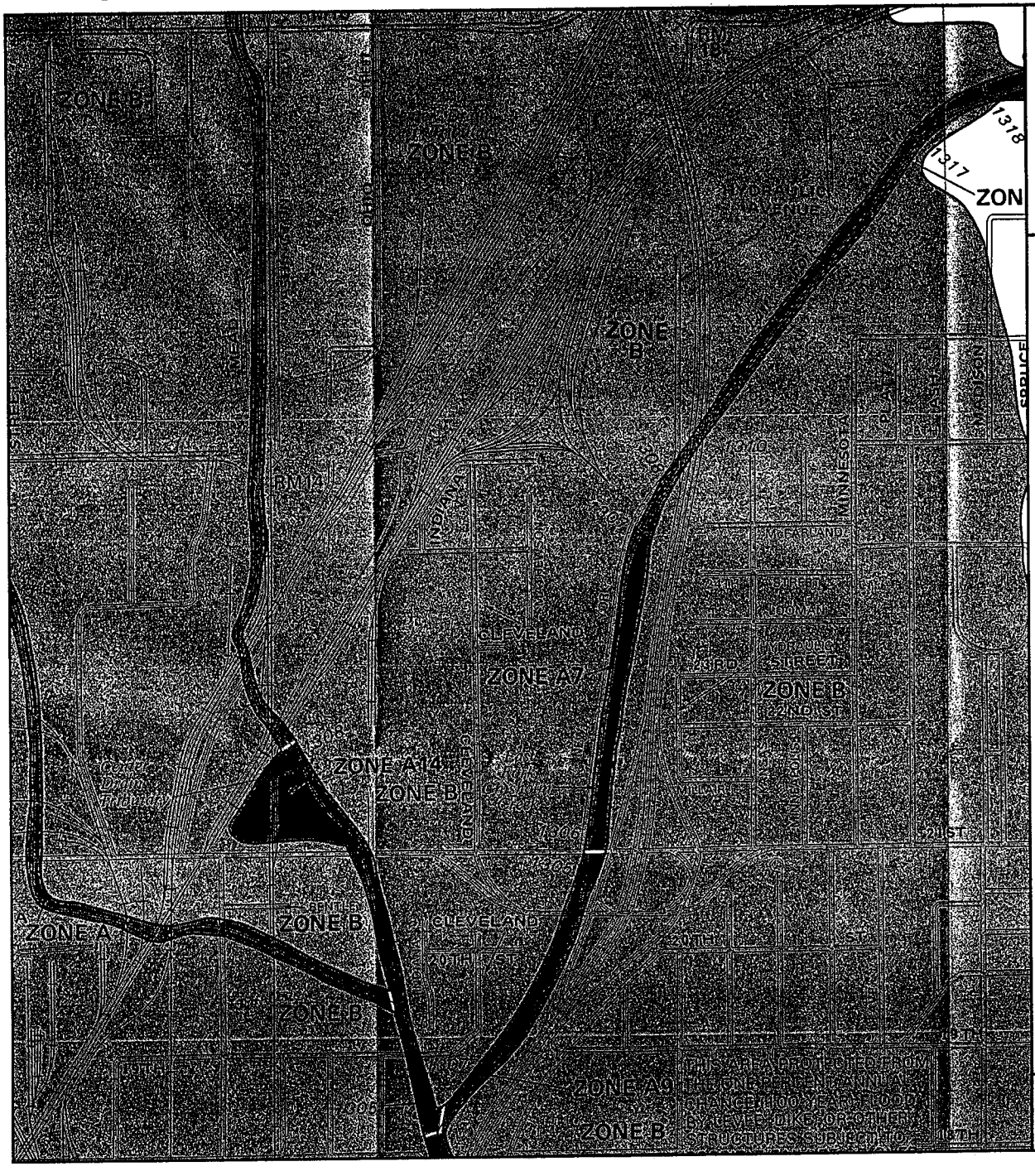
From: Tom Emond

Re: Request for Information
100 Year Floodplain Delineation
Clean Harbors Kansas, LLC
2549 New York Avenue
Wichita, Kansas 67219

Scott,

The Clean Harbors facility referenced above does not lie within the 100 year floodplain. Attached is the portion of FEMA Flood Insurance Rate Map (FIRM) 2003280010B for the central Wichita area where the facility is located. The shaded area of the FIRM identifies the floodplain with the darkest portion being the 100 year event. The relative location of the facility is identified by the blue box. I have also included a copy of drawing 50-01-11-011 which shows area topography, the facility location, and 100 year floodplain limits. The 100 year flood elevation is 1310 feet.

Tom Emond



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

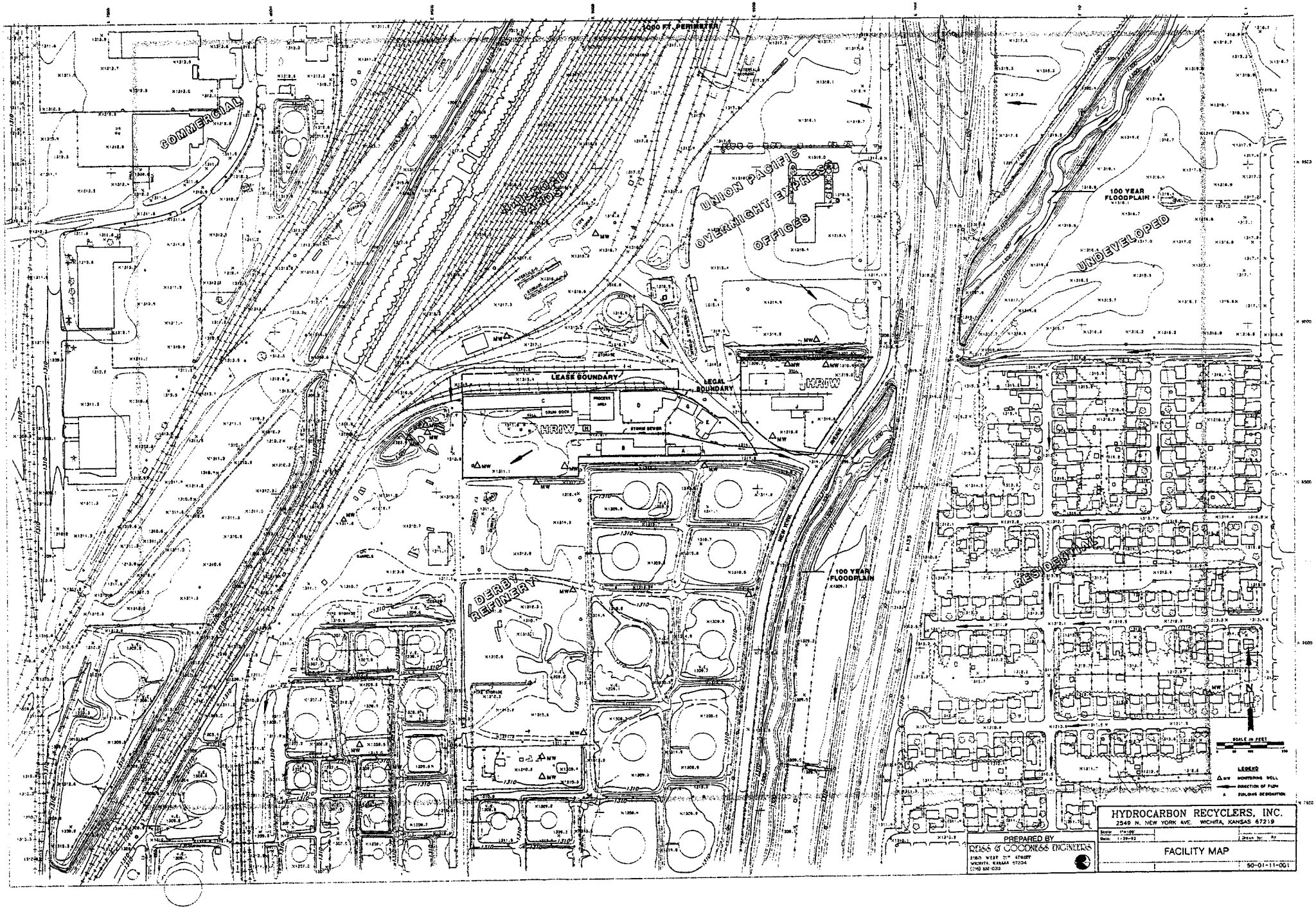
PANEL 10 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0010 B

EFFECTIVE DATE:
MAY 15, 1986

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


COMMERCIAL
RAILROAD
UNION PACIFIC
OVERNIGHT EXPRESS
OFFICES
100 YEAR FLOODPLAIN
UNDEVELOPED
LEASE BOUNDARY
LEGAL BOUNDARY
HRIW
DRUM DOCK
STORM SEWER
DERBY REFINERY
100 YEAR FLOODPLAIN
RESIDENTIAL
NEW YORK
SCALE IN FEET
LEGEND
MONITORING WELL
DIRECTION OF FLOW
PURGING DESIGNATION
HYDROCARBON RECYCLERS, INC.
2549 N. NEW YORK AVE. WICHITA, KANSAS 67219
PREPARED BY
REISS & GOODNESS ENGINEERS
FACILITY MAP
50-01-11-001

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Appendix C-A Waste Analysis Plan

Acronym Table

Clean Harbors Kansas, LLC (CHK)
Kansas Administrative Regulations (KAR)
Resource Conservation and Recovery Act (RCRA)
Title 40 of the Code of Federal Regulations (40 CFR)
Waste Analysis Plan (WAP)
Environmental Protection Agency (EPA)
Toxic Substances Control Act (TSCA)
Polychlorinated Biphenyl (PCB)

C. Waste Characterization: 40 CFR Parts 261, 262, 264, 268 and 270

The purpose of this section, Waste Characterization, is to provide a general description of the waste types anticipated for management, and the sampling and analytical procedures to be implemented, at Clean Harbors Kansas, LLC. This section is provided to fulfill the requirements of the Kansas Administrative Regulations (KAR), and 40 CFR Parts 261, 262, 264, 268, and 270. The KAR incorporate, with few additions, the RCRA regulations contained in 40 CFR Parts 260 through 270. Therefore, this section will refer only to the federal regulations.

This section contains a description of the provisions for waste sampling and analysis related to the management of wastes at CHK. These provisions have also been incorporated into a document referred to as the Waste Analysis Plan (WAP), which has been provided as Appendix C-A. The terms used in Section C will have the same meaning as those defined in the WAP.

C-1 Chemical and Physical Analysis: 40 CFR 264.13(a) and 270.14(b)(2)

CHK has identified wastes which are acceptable for management at CHK, and wastes which will not be accepted for management at CHK. Wastes in these categories are identified below.

- Wastes Acceptable for Management: Materials acceptable for management at CHK will include solid wastes and hazardous wastes. There are two (2) general categories of hazardous wastes according to 40 CFR 261.3. These categories are:

  - Characteristic Wastes: Characteristic wastes exhibit any hazardous characteristic identified in 40 CFR Part 261, Supbart C. The characteristics are ignitability, corrosivity, reactivity, or toxicity.

  - Listed Wastes: Listed wastes include those wastes listed in 40 CFR Part 261, Subpart D.

These two (2) categories include "mixture rule" and "derived from rule" wastes which are described below.

- Mixture Rule Wastes: Mixture rule wastes are:
  - a mixture of a solid waste and a characteristic waste unless the mixture no longer exhibits any hazardous characteristic, or
  - a mixture of a solid waste and one or more listed hazardous wastes.

- Derived From Rule Wastes: Wastes subject to the derived from rule include any waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, or leachate.

Attachment C-B to the WAP contains a list of hazardous wastes which may be received at CHK. The wastes listed in Attachment C-B are referred to by EPA Hazardous Waste Number and by Hazard Code. The Hazard Code is used by EPA to indicate if the waste is

reactive (R), toxic (T), corrosive (C), ignitable (I), an acute hazardous waste (H), or whether the waste exhibits the Toxicity Characteristic (E). The basis for designating these wastes as hazardous is provided in 40 CFR Part 261, Appendix VII.

The Hazardous Waste Numbers further classify the wastes. Hazardous Waste Numbers D001 through D043 refer to the "characteristic wastes." D001 represents wastes that are ignitable in character; D002, those that are corrosive; and D003, those that are reactive. Wastes whose extracts contain concentrations is specific inorganic or organic constituents above a specified level are assigned one of the numbers D004 through D043.

"Listed wastes" include four (4) groups of hazardous waste numbers. Hazardous wastes generated from non-specific industry sources such as degreasing and electroplating operations are listed with numbers beginning with the letter "F" (e.g., F001). Hazardous wastes from specific generating sources such as

petroleum refining are assigned numbers beginning with the letter "K" (e.g., K048). Hazardous waste numbers beginning with "P" or "U" represent waste commercial chemical products and manufacturing chemical intermediates (whether on- or off-specification).

The wastes accepted at CHK will vary considerably in both composition and form. Various organic and inorganic constituents may be present in the wastes. Wastes will be liquid, solid, or multi-phasic. General waste descriptions include hazardous wastes of the following types: contaminated wastewaters, spent catalysts, electroplating wastes, metal-contaminated sludges, spent-solvent residuals, off-specification chemicals, and a variety of other waste types.

Each waste stream will be characterized prior to acceptance for management at the facility following the procedures described in Section 5.0 of the WAP. This pre-acceptance characterization will be used to determine the acceptability of waste streams for management at CHK. Profiles and other analytical data (as required) are maintained in the operating record for three years or longer.

Waste Prohibited from Management: Materials which will not be accepted for management at CHK include, but are not limited to, the following.

- Dioxin containing hazardous wastes identified by EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, F027 and F028.
- Regulated radioactive wastes and materials.
- Infectious medical wastes.
- TSCA regulated PCBs.

C-1a Receiving and Acceptance Criteria: 40 CFR 264.13(a), 264.172, 264.177, 264.191(a), 270.15(b)(1) and (d)

Prior to accepting a waste stream for management at CHK, the waste will be subject to the pre-acceptance procedures. The pre-acceptance procedures are described in Section 5.0 of the WAP. As part of these procedures, each waste stream will be evaluated for acceptability for management at CHK. The evaluation will be based on the characterization provided by a review of information

about the waste as provided by the generator, or the value of, or a range of values for, a set of material parameters. A rationale for the selection of these parameters is provided in Section 2.0 of the WAP.

Waste shipments arriving at the facility for management will be subject to the incoming load procedures. The incoming load procedures are described in Section 6.0 of the WAP. As part of these procedures, each waste stream will be evaluated for conformity with the description of the waste determined during the pre-acceptance procedures.

There are several sampling and analysis considerations with respect to the management of wastes at CHK. These are described in Sections 6.0 and 7.0 in the WAP. These considerations include identification of waste wit the characteristics of ignitability, corrosivity, or reactivity; waste which may be incompatible with other wastes; and waste which may be incompatible with the container or tank in which it is stored.

C-2 Waste Analysis Plan: 40 CFR 264.13(b) and (c), 268.7, and 270.14(b)(3)

A copy of the WAP is provided as Appendix C-A. The WAP describes the procedures used to obtain chemical and physical information and data on the wastes to insure proper management and conformance with applicable land disposal restrictions. These procedures include:

- pre-acceptance procedures (Section 5.0 of the WAP);
- incoming load procedures (Section 6.0 of the WAP); and
- treatment, storage, and other management considerations (Section 7.0 of the WAP).

C-2a Parameters and Rationale: 40 CFR 264.13(b)(1)

General waste characterizations or profiles will first be developed by determining the value of, or the range of values for, a given set of parameters. These parameters are referred to as "mandatory' parameters. The list of mandatory parameters for the pre-acceptance and incoming load procedures is provided in Section 2.0 of the WAP.

In addition to performing analysis for the mandatory parameters, the values of other parameters may be determined at any time prior to, or during, management of the waste at CHK to more fully define waste characteristics. Since these parameters are discretionary, they are referred to as "supplemental" parameters. Examples of supplemental parameters are provided in Section 2.0 of the WAP.

The rationale for selecting waste characterization parameters used during pre-acceptance and incoming load procedures is also provided in Section 2.0 of the WAP.

C-2b <u>Test Methods:</u> 40 CFR 264.13(b)(2)

The typical analytical methods used to obtain the values of the mandatory parameters are described in Section 3.0 of the WAP. As new analytical procedures are developed, these procedures may be adopted and the WAP updated accordingly, as provided in 40 CFR 270.42.

C-2c Sampling Methods: 40 CFR Part 261, Appendix I, and 264.13(b)(3)

Section 4.0 of the WAP presents methods to be utilized by CHK to obtain a representative sample of wastes. These methods will apply to waste generated off-site (when sampled by LES) as well as facility generated waste. Discussions of the circumstances under which the sampling will be performed are presented in Sections 5.0 through 7.0 of the WAP. The specific sampling methods selected are dependent on both the nature of the waste and the type of container or tank that the waste is in.

Other considerations with respect to sampling are also described in Section 4.0 of the WAP. These other considerations include:

- Sampling Safety Precautions;
- Sampling Method References;
- Sampling Locations;
- Sampling Equipment;
- Frozen Shipments or Samples;
- Cleaning of Sampling Apparatus;
- Management of Samples After Analysis;
- Remote Project Sampling and/or Analysis;

- Lab Packs;
- Nonhazardous Wastes; and
- Vitrified, Cemented, and Other Materials Exhibiting High Structural Integrity.

C-2d <u>Frequency of Analysis:</u> 40 CFR 264.13(b)(4)

An analysis of the wastes may be conducted at selected management stages including the following.

- Before a waste stream is accepted (pre-acceptance);
- When a waste arrives (incoming load);
- At selected management stages (in-process); and
- A minimum of every two years (recharacterization).

The decision to accept a waste for management at CHK will be in part based on a characterization or profile of the waste. At a minimum, this characterization is accomplished through knowledge of the waste or laboratory analysis of the waste during the pre-acceptance procedure. CHK will recharacterize incoming waste streams at least every two years to verify that the original

characterization of the waste is still accurate. Any incoming load accepted at CHK must have been characterized (or recharacterized) within the

last twenty-four (24) months. A sample of an incoming load may be used for the recharacterization. CHK may also repeat the pre-acceptance characterization if:

- a generator notifies that the process generating the waste has changed;
- the incoming load is outside of the acceptance tolerance ranges provided in the WAP, or
- it is suspected that a particular waste shipment differs from the pre-acceptance characterization.

Any waste characterization or recharacterization that assigns or removes a hazardous waste characteristic code for a Kansas generated waste shall be performed by a Kansas certified laboratory in accordance with KAR 28-31-4(b)(3).

C-2e Additional Requirements for Wastes Generated Off-site: 40 CFR 264.13(b)(5), 264.13(c), and 264.73(a) and (b)

Using the information available from the generator, CHK will develop a characterization or profile of the waste stream during

the pre-acceptance procedures. The activities involved with characterizing a waste for pre-acceptance purposes are provided below; additional description is provided in the WAP.

- Requirements of the Generator: The generator of a waste stream is required to provide information on the

properties of the waste or the process generating the waste as described in Section 5.0 of the WAP.

Analysis for Parameters (Mandatory and Supplemental): CHK may confirm certain waste characterization data supplied by the generator by analyzing the representative sample(s) of the waste for one or more of the mandatory or supplemental pre-acceptance parameters.

Evaluation: After completing the pre-acceptance waste characterization, the acceptability of the waste for management at CHK will be determined. This determination will be based on permit conditions, availability of proper treatment techniques, and storage and off-site disposal capacities.

C-2f Additional Requirements for Handling Ignitable, Reactive, or Incompatible Wastes: 40 CFR 264.13(b)(6), and 264.17

Ignitable, reactive, and incompatible wastes will be received at CHK. Provisions for the identification of wastes with these

characteristics have been included in the WAP. These provisions are described in Sections 5.0, 6.0, and 7.0 of the WAP.

C-3 Additional Waste Characterization Requirements Pertaining to the Land Disposal Restrictions: 40 CFR 264.13 (a)(1), 264.13(b)(6), 268.7, 270.14(b)(3)

Information submitted by the generator (or a representative of the generator) for the waste streams managed at CHK may include notifications required by 40 CFR 268.7, laboratory analytical data, or information based on knowledge of the waste or of the process generating the waste. This information will be used to determine if the waste is subject to the restrictions on the placement of hazardous waste in a land-based disposal unit (i.e., restricted under 40 CFR Part 268). Provisions for the identification and analysis of wastes which are subject to these restrictions are described in Sections 5.0, 6.0, and 7.0 of the WAP.

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Acronym Table

Waste Analysis Plan (WAP)
Clean Harbors Kansas, LLC (CHK)
Kansas Administrative Regulations (KAR)
Resource Conservation and Recovery Act (RCRA)
Title 40 of the Code of Federal Regulations (40 CFR)
Polychlorinated Biphenyl (PCB)
Toxic Substances Control Act (TSCA)
American Society for Testing and Materials (ASTM)
Personal Protective Equipment (PPE)
American Public Health Association (APHA)
Environmental Protection Agency (EPA)
Waste Profile Sheet (WPS)
Quality Assurance/Quality Control (QA/QC)
National Institute of Standards and Technology (NIST)
Relative Percent Difference (RPD)

WASTE ANALYSIS PLAN

1.0 Introduction: 40 CFR 270.14(b)(3), 40 CFR 264.13(b) and (c)

1.1 Purpose:

The purpose of this Waste Analysis Plan (WAP) is to establish sampling and analytical requirements for waste characterization, acceptance, storage, treatment or other management at Clean Harbors Kansas, LLC(CHK). This WAP fulfills the requirements of the Kansas Administrative Regulations (KAR), and 40 CFR Parts 261, 262, 264, 268, and 270. The KAR incorporate, with few additions, the RCRA regulations contained in 40 CFR Parts 260 through 270. Therefore, this section will refer only to the federal regulations.

The WAP is intended to be the primary reference document for waste analysis performed in conjunction with operation (and closure) of Clean Harbors Kansas, LLC. The WAP addresses the following topics.

- Analytical parameters and rationale (Section 2.0).
- Analytical methods (Section 3.0).

- Sampling methods (Section 4.0).
- Pre-acceptance procedures (Section 5.0).
- Incoming load procedures (Section 6.0).
- Storage, treatment or other waste management activities (Section 7.0).
- Quality assurance and quality control (Section 8.0).

Any modifications to this Waste Analysis Plan will be made in accordance with 40 CFR 270.42.

1.2 Definitions:

The terms provided below, applied within the WAP, will have the following meanings.

- Analysis: The term "analysis" means any method by which the value of, or a range of values for, a particular parameter is determined. These methods may include laboratory procedures specified in Attachment C-C. If these procedures cannot be performed, the circumstances will be documented in the operating record and the value of, or range of values for, a

particular parameter will be determined based on knowledge of the waste or of the process generating the waste.

Batch: The term "batch" will refer to some quantity of waste consisting of an individual waste stream or a

mixture of waste streams which have been combined for the purpose of management at Clean Harbors Kansas, LLC.

Bulk Container: The term "bulk container" will mean any container as defined in 40 CFR 260.10 which has a capacity of greater than 450 gallons (e.g., an intermodal container, end-dump truck, gondola, tanker truck, etc.).

Container: The term "container," without the qualifier "bulk," will have the same meaning as defined in 40 CFR 260.10.

Hazardous waste: The definition of "hazardous waste" shall be as defined in 40 CFR 261.3.

Incoming Load: The term "incoming load" refers to a waste shipment manifested to CHK Upon arrival, the shipment will be staged or placed in a CMU and will remain an incoming load until it is either rejected, trans-shipped to another location, or finally accepted for management at CHK

Nonhazardous waste: "Nonhazardous waste" refers to "solid waste" as defined in 40 CFR 261.2 which is not "hazardous waste" as defined in 40 CFR 261.3. This may include solid waste such as "empty containers" as defined by 40 CFR 261.7, exempt solid and/or hazardous waste as defined by 40 CFR 261.4, sludge from Publicly Owned Treatment Works, household hazardous waste, garbage, refuse, etc.

Parameter: The term "parameter" is a specific material property, such as pH, specific gravity, viscosity, etc., or a concentration of a particular constituent of the waste or material.

PCB(s): The term "PCB(s)" refers to PCB(s) or PCB Item(s) as defined in 40 CFR Part 761.

Pre-acceptance: The period in which a waste stream's acceptability for management at CHK is evaluated is referred to as "pre-acceptance".

Radioactive: A "radioactive" material, or "regulated radioactive material," will mean any material as defined by 10 CFR 20.3 or by KAR 28-35-135.

Solid Waste: The definition of "solid waste" shall be as provided in 40 CFR 261.2.

Staging: The term "staging" refers to the temporary placement of containers during movement into or out of storage or processing areas. Staging generally occurs for a few hours, and will not exceed 72 hours (three days). Typical staging areas are loading and receiving areas and areas situated adjacent to processing units.

Suitable Laboratory: A "suitable laboratory" is an analytical laboratory which meets the minimum quality assurance requirements as specified in this WAP, operates under a Quality Assurance/Quality Control

Plan, and uses appropriate SW-846 methods or methods listed in Attachment C-C. Analytical results submitted from off-site laboratories must certify what standard analytical methods were used to obtain the data. If non-standard methods (e.g., methods modified and approved for use at that laboratory) were used,

documentation must be provided to support the validity of the data.

- Technical Manager: The "Technical Manager" refers to the individual, or a designee, responsible for implementation of the WAP.

- Transfer Facility: A transfer facility means any transfer related facility including loading docks, parking areas, storage areas and other similar areas where shipments of hazardous waste are held during the normal course of transportation for a period not to exceed 10 days, between the point of generation and the shipment destination. The transfer facility does not serve as the treatment, storage, or disposal location for that manifest, and is not identified on the manifest. A 10-day transfer facility has the same meaning in this document.

- Trans-Shipment: Trans-shipment is the temporary storage of wastes at the facility for the purpose of shipping the wastes to another facility without on-site processing. Trans-shipped wastes will be subject to

the minimum incoming load procedures, and will be managed on-site in the same manner as all other wastes in storage.

Typical Form: The "typical forms" provided in Attachment C-A are examples of forms currently in use at CHK. These forms may be revised as needed to respond to changes in regulations and recordkeeping procedures at CHK.

Value of a Parameter: The "value of a parameter" will refer to the value or a range of values of a parameter as determined by analysis.

Waste Stream: A "waste stream" will refer to wastes from a single generator with similar characteristics or originating from similar processes. Each waste stream will typically be identified for recordkeeping purposes by a unique number.

1.3 Identification of Wastes: 40 CFR 270.14(b)(2), 40 CFR 264.13(a)

1.3.1 Wastes Acceptable for Management:

Materials acceptable for management at CHK will include solid wastes and hazardous wastes. Attachment C-B contains a list of hazardous wastes which may be received at CHK. The hazardous wastes listed in Attachment C-B are referred to by EPA Hazardous Waste Number and by Hazard Code. The Hazard Code is used by EPA to indicate if the waste is reactive (R), toxic (T), corrosive (C), ignitable (I), an acute hazardous waste (H), or whether the waste exhibits the Toxicity Characteristic (E). The basis for designating these wastes as hazardous is provided in 40 CFR Part 261, Appendix VII.

The wastes accepted at CHK will vary considerably in both composition and form. Various organic and inorganic constituents may be present in the wastes. Wastes will be liquid, solid or multiphasic. General waste descriptions include hazardous wastes of the following types: contaminated wastewaters, spent catalysts, electroplating wastes, metal-contaminated sludges,

spent-solvent residuals, off-specification chemicals, and a variety of other waste types.

Each waste stream will be characterized prior to acceptance for management at the facility following the procedures described in Section 5.0. This pre-acceptance characterization will be used to determine the acceptability of waste streams for management at CHK. Profiles and other analytical data (as required) are maintained in the operating record for three years or longer.

1.3.2 Waste Prohibited from Management:

Materials which will not be accepted for management at CHK include, but are not limited to, the following.

- Dioxin-containing hazardous wastes identified by EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, F027 and F028.
- Regulated radioactive wastes and materials.
- Infectious medical wastes.
- TSCA regulated PCBs.

2.0 Analytical Parameters and Rationale: 40 CFR 264.13(b)(1) and (2)

2.1 Introduction:

A list of parameters has been developed for which each batch of waste will be analyzed. These parameters are referred to as "mandatory" parameters. Mandatory analyses will be performed on each incoming load of waste, except as discussed in Section 6.0. In addition to performing analysis for the mandatory parameters, the values or a range of values of other parameters may be determined at any time prior to, or during, management of the waste at CHK to more fully define the waste characteristics. These additional parameters will be determined at the discretion of the Technical Manager. Since these parameters are discretionary, they are referred to as "supplemental" parameters.

2.2 Mandatory Parameters:

2.2.1 Mandatory Pre-acceptance Parameters:

Prior to acceptance at Clean Harbors Kansas, LLC, a hazardous waste must first be screened to determine if it is acceptable for management at the

facility. This screening, described in Section 5.0, is performed during the pre-acceptance procedures. The pre-acceptance procedures are intended to provide information to allow CHK to decide whether or not to accept a waste stream at the facility. The pre-acceptance phase generally occurs prior to wastes being shipped to the CHK facility.

The pre-acceptance procedures require the collection of information about a waste stream; the information is used to determine if a waste stream is acceptable for management at CHK. The information collected for this purpose includes the values or a range of values of a set of material parameters. Table C.1 contains a list of the mandatory pre-acceptance parameters.

Table C.1
Mandatory Parameters for Waste Analysis

Mandatory Parameter	Pre-Acceptance	Incoming Load
Physical Appearance	%	%
Water Reactivity Screen	%	%
Oxidizer Screen	%	%
pH Screen	%	%
Radioactivity Screen	%	%
Ignitability Screen	%	%
Specific Gravity[1]	%	%
HOC Screen	%	%
Compatibility Evaluation		%

Note: A check (%) indicates that the parameter is mandatory.

[1]Specific gravity will be done on the liquid portion only of otherwise solid waste streams, where liquids are >20%.

2.2.2 Mandatory Incoming Load Parameters:

Upon the arrival of a waste shipment at the facility, procedures will be implemented to confirm that the incoming waste exhibits the same properties as the waste characterized during the pre-acceptance procedures. This confirmation is obtained by analyzing a sample of the incoming load for the same set of mandatory parameters as analyzed during the pre-acceptance procedures. If the results of these analyses are within the allowable tolerance range for each parameter, then the Technical Manager may conclude that the waste shipment essentially has the same properties as the waste characterized during the pre-acceptance procedures. The waste shipment is, therefore, considered to be suitable for management at CHK.

In addition to the mandatory parameters confirming the pre-acceptance evaluation, a compatibility evaluation will be performed on the waste before it is transferred to another tank or container or mixed with other wastes.

The incoming load procedures and the acceptable tolerance ranges for the incoming load parameters are provided in Section 6.0.

Table C.1 provides a list of the incoming load parameters for which the values or a range of values will be determined during the incoming load procedures.

2.3 Supplemental Parameters:

Analyses for supplemental parameters may be performed at any step of the waste management process if the Technical Manager decides that further information on the waste is necessary. Some supplemental parameters are always required for wastes going to specific waste processing units, as defined in Section 2.4.2.

Some examples of supplemental parameters include:

- reactive cyanides screen,
- reactive sulfides screen,
- flash point,
- bulk density,
- total organic halogens,
- heating value,
- chlorides,
- percent ash,
- solvent screen,

- PCB screen,
- normality,
- toxicity characteristic leaching procedure,
- metals analysis, and
- presence of free liquids.

It may be necessary to use additional analyses performed by a suitable outside laboratory to further characterize a waste stream on a case-by-case basis, at the discretion of the Technical Manager.

A summary of some of the supplemental parameters and the rationales for determining their values or range of values are provided in Section 2.4. Parameters previously listed as mandatory (e.g., for pre-acceptance and incoming loads) may also function as supplemental parameters during various stages of waste management.

2.4 Rationale for Parameter Selection:

2.4.1 Rationale for Mandatory Parameters:

The rationale for selecting each mandatory parameter for waste characterization during pre-acceptance and incoming load procedures is provided below.

- Physical Appearance is used to determine the characteristics of a waste which are apparent by visual inspection. This facilitates comparison of the waste with prior waste descriptions. It is also used to detect multiple phases (e.g., liquids and solids or "multiphasic"). A change in physical appearance might be indicative of a change in waste character.

- Water Reactivity Screen is used to determine whether the waste has a potential to react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment when mixed with water. Knowledge of

whether a waste is water reactive is necessary for safe management of the waste.

- Oxidizer Screen is used to identify the potential of the waste to react adversely with organic materials. Identification of a waste as an oxidizer allows for informed decisions regarding safe management of the waste.

- pH Screen is used to indicate potential corrosivity and compatibility with other wastes. pH may not apply to certain wastes (e.g., non-aqueous wastes). A knowledge of pH is necessary in order to arrive at informed decisions regarding waste management.

- Radioactivity Screen is used to identify regulated radioactive waste streams and to prevent their acceptance at CHK.

- Ignitability Screen is used to identify potentially ignitable wastes as a safety precaution and to determine the appropriate management method. During

the pre-acceptance procedures, the screen will be supplemented with a flash point test (e.g., ASTM methods D92 or D93) for those liquid materials where the ignitability screen results in a reading exceeding 500 ppm. During the incoming load procedures, the results of the Ignitability Screen will be used to indicate if the process generating the waste has changed and if the incoming load matches the description on the waste profile sheet.

- Specific Gravity (for liquids) can be used as an aid to determine if the process generating the waste has changed or to prevent the possibility of overloading a tank.

- HOC Screen (Bielstein Test) is used to indicate the presence of halogens and can be used as an aid to determine if the process generating the waste has changed.

Compatibility Evaluation is performed to determine whether a waste may be safely stored or processed in a tank or container or mixed with other wastes.

2.4.2 Rationale for Supplemental Parameters:

A partial listing of supplemental parameters, and the rationale which the Technical Manager may consider in their selection, is shown below.

Reactive Cyanides Screen is used to determine whether gaseous cyanides may be produced from the waste. Since the mixing of acids with cyanides must only occur under controlled conditions, a determination of the presence or absence of reactive cyanides will be made to allow the appropriate waste management decisions to be implemented.

Reactive Sulfides Screen is used to determine whether gaseous sulfides may be produced from the waste. Since the mixing of acids with sulfides must only occur under controlled conditions, a determination of the presence

or absence of reactive sulfides will be made to allow the appropriate waste management decisions to be implemented.

- Flash point is a measure of flammability and may be used to determine proper waste management with regard to safe handling methods or land disposal restrictions. A change in flash point may be indicative of a change in waste character.

- Bulk Density (for solids) can be used as an aid to determine if the process generating the waste has changed or to prevent the possibility of overloading a tank.

- Total Organic Halogens (TOX) determines the concentration of halogenated organic constituents in a material and may be useful as an aid in waste characterization or as an indicator of a change in waste character.

Heating Value is measured as an aid in waste characterization or to determine if a waste is eligible for fuels blending. The parameter "heating value" is typically measured in units of Btu/lb. Heating value must be performed during pre-acceptance procedures on all hazardous wastes intended for processing through kiln fuel blending.

Chloride concentration may be indicative of compounds subject to land disposal restrictions. Chloride concentration may also be determined as a final product requirement for fuels blending.

Percent Ash is used to assist in formulating waste blends.

Solvent Screen is used to screen for the presence of and, when possible, the concentration of solvents in a waste stream. This information is necessary to make waste management decisions such as whether a waste stream qualifies for solvent recovery or whether land disposal restrictions are applicable. Solvent screen

must be performed during pre-acceptance procedures for all hazardous wastes intended for solvent reclamation.

PCB Screen is used to screen for TSCA regulated PCB material which is not acceptable for management at

CHK. PCB concentration will be determined at any time that the Technical Manager suspects, or the generator notifies CHK, that PCBs may be present in concentrations greater than or equal to 50 ppm. Once PCBs have been identified in a given waste stream, the PCB screen may become a mandatory parameter for that waste stream.

Normality is used to determine the neutralization requirements for a strongly acidic or basic material. This test is normally performed on aqueous wastes with a pH of less than two (2) or greater than 12.5.

Toxicity Characteristic Leaching Procedure (TCLP) enables determination of the concentration of certain constituents in waste extracts and may be used to identify materials which are subject to land disposal restrictions.

Metals analysis may be performed to determine whether land disposal restrictions are applicable and whether

the waste meets the requirements of the facility which will receive the waste from CHK.

Presence of Free Liquids is used to determine if a waste contains free liquids. The absence of free liquids would indicate that a container may be stored in an area without secondary containment; or that the waste, if otherwise meeting all treatment requirements under the land disposal restrictions, may be placed in a landfill for disposal without further treatment.

3.0 Analytical Procedures: 40 CFR 264.13(b)(1) and (2)

The typical analytical methods used to obtain the values of the parameters of concern are described in this section. As new analytical procedures are developed, these procedures may be adopted and the WAP updated accordingly, as provided in 40 CFR 270.42.

In some situations, analyses by the CHK laboratory may not be necessary or appropriate. Such situations would include:

- when the laboratory analyses are performed by another suitable laboratory,
- when the analyses and/or information are provided by the generator and provide an understanding of the waste to allow proper storage and handling,
- when a representative sample cannot be obtained (e.g., contaminated debris and equipment, personal protective equipment (PPE), etc.),
- when sampling may not be appropriate (e.g., nonhazardous waste, lab packs, 10-day transfer loads), or

when a representative sample cannot be prepared as specified in the analytical procedure.

In these situations, alternative methods of characterizing the waste will be used. Alternative methods may include information sources such as the Technical Manager's or the generator's knowledge of the waste or of the process(es) generating the waste.

When the generator provides the results of analytical testing performed by an off-site laboratory, the report must include certification of what standard analytical method was used to obtain the results. If a non-standard method was used, documentation must be provided to support the validity of the results. All methods of record will follow approved procedures specified in this Waste Analysis Plan.

3.1 Analytical Methods for Mandatory Parameters:

Analytical methods for the mandatory parameters are listed in Table C.2. The methods include standard test methods from EPA and ASTM. In addition to the standard methods, unique procedures and protocols formulated for the management of hazardous waste by Clean Harbors Kansas, LLC may be utilized. These unique methods, provided in Attachment C-C, have proven to be useful for waste characterization.

Under circumstances where the defined methods may not yield valid data, the Technical Manager may elect to substitute an alternate method for one of those listed in Table C.2 or to modify a method for a particular waste stream. A decision of this sort by the Technical Manager will be documented in the operating record.

Table C.2
Analytical Methods for the Mandatory Parameters

Mandatory Parameter	Methods	Reference/Comments[1]
Physical Appearance	(Refer to Reference/ Comments)	The waste or representative sample is inspected and the physical appearance of the waste is recorded, including: color, physical state (solid, semi-solid, liquids, or multiphasic), and layering (single phased, bi-layered, multi-layered).
Water Reactivity Screen	USPCI-2	CHK Analytical Procedure 2; Screen for Water Reactivity
Oxidizer Screen	USPCI-6	CHK Analytical Procedure 6; Screen for Oxidizers
PH Screen	9040	SW-846 Method; pH of aqueous liquids using a probe where the aqueous phase constitutes at least twenty (20) percent of the total volume
	9041	SW-846 Method; pH of materials using pH indicator paper when method 9040 is not appropriate
Radioactivity Screen	USPCI-7	CHK Analytical Procedure 7; Screen for Radioactivity
Ignitability Screen	HRIW-1	CHK Analytical Procedure 1; Explosivity Screen
	USPCI-5	CHK Analytical Procedure 5; Explosivity Meter Vapor Test
Specific Gravity	D1298	ASTM Method; Specific Gravity of Liquids
HOC Screen	HRIW-2	CHK Analytical Procedure 2; HOC Screen
Compatibility Evaluation	USPCI-25	CHK Analytical Procedure 25; Evaluation of compatibility

Notes:
1. Clean Harbors and CHK Analytical Procedures and a list of the reference documents are provided in Attachment C-C.

3.2 Analytical Methods for Supplemental Parameters:

Supplemental analyses will be conducted using recognized protocols where available, such as those contained in "Test Methods for Evaluating Solid Waste" (SW-846, in effect as of January 31, 1992), or "Standard Methods for the Examination of Water and Wastewater" (APHA), or 40 CFR Part 136 (1991 edition). Attachment C-C contains a list of the most likely of these various standard analytical methods for some of the supplemental parameters.

CHK may also utilize unique procedures and protocols formulated for the management of hazardous waste, which have proven to be useful for waste characterization. Some of the unique Clean Harbors and CHK procedures are presented in Attachment C-C.

If the CHK laboratory is asked to perform other tests by either generators sending wastes to CHK, or waste management facilities receiving wastes from CHK, these tests may follow a protocol established by the EPA or another standards-setting body, or may be custom-designed specifically for that particular client. In such cases, any supplemental tests which directly impact

decisions regarding waste management will be documented in the operating records.

When the Technical Manager decides that supplemental testing is required, the selection of an analytical method will be based upon the property or parameter to be determined and the matrix of the material to be tested. In the selection of an analytical method, it should be noted that the actual analytical procedure used is identical in many cases, regardless of the matrix of the material, only the extraction and preparation steps are different. Consequently, although there are different method numbers for the analysis of water and solid waste or soils, the analytical procedures are the same. Before the Technical Manager relies on the results of an analytical method for waste management decisions, the proper quality control and quality assurance provisions must be in place for the analytical method.

4.0 Sampling Methods: 40 CFR 264.13(b)(3), 40 CFR Part 261, Appendix I

This section presents methods to be utilized by CHK to obtain a representative sample of wastes. These methods will apply to waste generated off-site (when sampled by CHK) as well as facility-generated waste. Samples received for pre-acceptance analysis are typically sampled by the generator or his agent at the point of origin of the manifest, although CHK or Clean Harbors may, on occasion, serve as the generator's agent to perform the sampling. Incoming load samples are typically taken by CHK personnel at the CHK facility, except when a shipment from Clean Harbors or CHK is sampled at the point of origin (see Section 4.5.4). Discussions of the circumstances under which the sampling will be performed are presented in Sections 5.0 through 7.0. The specific sampling methods selected are dependent on both the nature of the waste and the type of container or tank that the waste is in, and will be decided upon prior to sampling.

4.1 Sampling Safety Precautions:

Because of the potential for exposure to hazards, personnel will wear, at a minimum, safety glasses, gloves, hard hat, and protective clothing while sampling. Personnel may check the waste profile sheet and other pre-acceptance characterization data, manifest, or other documents to be familiar with the wastes and ensure that necessary precautions are taken prior to

beginning sampling. Additional protective equipment such as faceshields, respirators, etc., will be used as needed.

4.2 Sampling Method References:

Generally, sampling will be performed using methods described in: "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846, in effect as of January 31, 1992); "Handbook for Sampling and Sample Preservation of Water and Wastewater" (EPA-600/4-82-029); "Samplers and Sampling Procedures for Hazardous Waste Streams" (EPA-600/2-80-018); or 40 CFR Part 261, Appendix I (1991 edition). Excerpts from "Samplers and Sampling Procedures for Hazardous Waste Streams" are included for reference in Attachment C-D. Due to the variability of waste, personnel performing the sampling may be required to alter a particular method for some situations. In all cases, the goal of the sampling effort will be to obtain a sample that is representative of the whole.

4.3 Sampling Locations:

Samples will be taken from a variety of locations and therefore will require a variety of sampling techniques and devices. Waste may be sampled from storage vessels, such as a tank, drum, roll-off box, lugger box, tanker or dump-type truck. Waste may also be sampled from other locations, such as a sump.

Accessibility to the waste will influence the number of and the location from which samples can be taken. Where practical, samples will be taken from locations displaced both vertically and horizontally. The number of samples required depends on the distribution of the waste components in the storage vessel. A number of samples may be taken to address variations in the waste. If examination indicates stratification in the waste, then each layer may be composited in proportion to its estimated volume.

4.4 Sampling Equipment:

Sampling equipment will be used to obtain a representative sample. This equipment may include a Coliwasa, glass rods, Bacon

bomb, etc. Because each sampling situation is unique, the equipment and applications may have to be modified to ensure that a representative sample is collected and its physical and chemical integrity are maintained. The personnel performing the sampling will be responsible for determining the appropriate sampling apparatus.

4.5 Other Sampling Considerations:

4.5.1 Frozen Shipments or Samples:

Loads may arrive at CHK at temperatures which prevent a representative sample from being obtained. Under such circumstances, the wastes will be allowed to warm until such time as sampling can be performed. Sampling can occur at any temperature provided a representative sample can be obtained.

4.5.2 Cleaning of Sampling Apparatus:

Sampling tools are visually checked to make sure that they are clean before the sample is taken. When necessary, cleaning of sampling equipment is performed as follows.

- Solids are removed to the maximum extent possible with a brush, cloth, or other means;
- the sampling tool is washed with clean water or appropriate cleaning solution; and
- solids and rinsate are collected and managed as facility generated waste.

4.5.3 Management of Samples after Analysis:

Samples from waste streams will be either returned to the generator or managed appropriately. For example, the sample from a waste stream approved for a given treatment may be similarly treated. Wastes and/or samples from the CHK laboratory may be consolidated either in a container or a lab pack as appropriate. CHK laboratory wastes will be managed on site or shipped off-site for alternate treatment as appropriate. For accepted waste streams the representative sample, if one was obtained,

will normally be retained by CHK for at least 30 days. Generator supplied samples of waste streams which are unacceptable for management at CHK are returned to the generator (or a representative of the generator), managed on site, or shipped to an alternate waste management facility.

To facilitate this process of accumulating samples and laboratory waste, samples which are approved for the same management process may be consolidated, if compatible, and managed under the provisions of 40 CFR 262.34.

4.5.4 Remote Project Sampling and/or Analysis:

In cases where off-site sampling or analysis is used for the purpose of satisfying the incoming load procedures, a SK representative will be at the site to ensure that the provisions of this WAP are observed. For example, this may occur at remediation projects managed by Clean Harbors.

4.5.5 Lab Packs:

Since lab packs contain small quantities of multiple wastes, they are not sampled. Instead, the generator or a representative of the generator will provide an inventory of the contents of the lab pack. The inventory will be reviewed for incompatibility of contained wastes and land disposal restrictions. CHK may sample bulked-up lab pack wastes according to container sampling procedures.

4.5.6 Nonhazardous Wastes:

Nonhazardous wastes will be accepted at CHK. In order for a load of nonhazardous waste to be accepted, a nonhazardous waste form or a hazardous waste manifest must be completed by the generator. Typical examples of these forms are provided in Attachment C-A. The nonhazardous form utilized has the generator or treatment facility attest that the material is nonhazardous. These wastes will be inspected for physical appearance, at a minimum. Other information, including analytical data, will be obtained as necessary to ensure proper waste management.

4.5.7 Vitrified, Cemented, and Other Materials Exhibiting High Structural Integrity:

There are several wastes which do not allow representative sampling. For example, structural steel, tanks, pipe, cement, glass, filter cartridges, and several other materials will be managed which do not allow the implementation of normal sampling protocols. Of necessity, these materials must be managed on a case-by-case basis.

4.5.8 Regulatory Cleanups

When a regulatory agency, or their contractor, undertaking a clean-up of a site (e.g., EPA or Kansas Department of Health and Environment) has established the waste characterization information, CHK may utilize this characterization in lieu of pre-acceptance analytical and incoming load analytical information.

5.0 Pre-Acceptance Procedures: 40 CFR 270.14(b)(2), 40 CFR 264.13(a), and 40 CFR 264.12(a)

The purpose of the pre-acceptance procedures is to determine if a waste is acceptable for management at CHK. If it is determined that the waste can be managed at CHK, the generator is notified and may schedule shipment of the waste.

All hazardous wastes generated off-site and proposed for management at CHK will be subject to these procedures. For situations where sampling and analysis cannot be performed due to the nature of the waste or container (e.g., PPE, debris, lab packs, etc.), the circumstances will be documented in the operating record and proper management of the waste will be determined by knowledge of the waste or of the process generating the waste.

5.1 Typical Pre-Acceptance Procedures:

5.1.1 Waste Characterization:

The decision to accept a waste for management at CHK will be in part based on a characterization or profile of the waste. At a minimum, this characterization is accomplished through knowledge of the waste or laboratory analysis of the waste for the mandatory pre-acceptance parameters. The Technical Manager may rely on a characterization performed at another facility owned or operated by SK in lieu of duplicating the characterization at CHK.

The activities involved with characterizing a waste at CHK for pre-acceptance purposes are provided below.

- Requirements of the Generator: The generator of a waste stream will be required to provide some information on the properties of the waste. The information may include:
    - the chemical and physical data requested on the Waste Profile Sheet (WPS) (A typical WPS

is shown in Attachment C-A. An equivalent form approved by CHK may be used in lieu of a WPS.),

results from the analysis of a representative sample by a laboratory with an appropriate QA/QC plan. If the generator supplies the results of analysis for the mandatory parameters, a representative sample from the generator may not be required, and/or

any other supporting documentation as appropriate (e.g., Material Safety Data Sheets, notification and/or certification as required by 40 CFR Part 268).

CHK will review the information provided by the generator for acceptability. If necessary or appropriate, CHK will request additional information from the generator including process information, a representative sample, or the results from other analyses. When the information is considered acceptable, the waste will be evaluated for management

at the facility (Refer to Section 5.1.2). The information will be considered acceptable when a reasoned evaluation of the waste can be performed in accordance with Section 5.1.2.

Analysis for Parameters (Mandatory and Supplemental): CHK may confirm certain waste characterization data supplied by the generator by analyzing the representative sample(s) of the waste for one or more of the mandatory pre-acceptance parameters.

The Technical Manager may also require that analyses be performed for certain supplemental parameters. Analyses for these supplemental parameters may be performed at CHK or a suitable off-site laboratory.

The need for analyses for the supplemental parameters will be based on:

- the completeness of the chemical and physical characterization of the waste,
- the completeness of the description of the process generating the waste,
- the results of pre-acceptance analyses performed at CHK or by another suitable laboratory, and
- the Technical Manager's experience and

judgement.

Pre-acceptance analyses will not be required for lab packs. An inventory of the contents of each lab pack will be provided by the generator or his representative. The inventories will be reviewed for compatibility of contained materials and land disposal restrictions.

5.1.2 Evaluation:

After completing the pre-acceptance waste characterization, the Technical Manager will determine the acceptability of the waste for management at CHK. This determination will be based on permit conditions, availability of proper treatment techniques, and storage and off-site disposal capacities.

The Technical Manager is responsible for making the decision to accept or reject a waste based on an evaluation of the information and data gathered during pre-acceptance procedures. After this decision is made, the generator will be notified of

the decision to approve the waste for management, to approve the waste under certain conditions (e.g., packaging, etc.), or to reject the waste for management.

If the waste is to be received from a foreign source, the Kansas Department of Health and Environment will be notified in writing at least four weeks in advance of the first scheduled shipment, in accordance with 40 CFR 264.12(a). This notification will include the generator's name, address, quantity of hazardous waste, and EPA hazardous waste code(s).

5.2 Recharacterization Frequency:

CHK will recharacterize incoming waste streams at least every two (2) years. Any incoming load accepted at CHK must have been characterized (or recharacterized) within the last twenty-four (24) months. A sample of an incoming load may be used for the recharacterization. CHK will also repeat the pre-acceptance characterization if:

- a generator notifies CHK that the process generating the waste has changed,

- the incoming load is outside of the acceptable tolerance range provided in Table C.3 (unless the discrepancy can be resolved as described in Section 6.1.5, Incoming Load Evaluation), or
- the Technical Manager suspects that a waste shipment differs from the pre-acceptance characterization (the generator may be contacted prior to recharacterizing the waste).

In the event that a Kansas-generated waste changes such that the recharacterization involves assigning or removing a waste code, the related analyses will be performed at a Kansas certified laboratory.

6.0 Incoming Load Procedures: 40 CFR 270.14(b)(2), 40 CFR 264.13(a), (b)(4), and (c)

The purpose of these incoming load procedures is to determine if a waste shipment (incoming load) arriving at CHK matches the characterization of waste on which the pre-acceptance evaluation was based. Wastes which correspond to the waste characterization documented during the pre-acceptance procedures may be accepted for management at CHK. This section provides the procedures for determining if a significant difference exists between the pre-acceptance characterization and the waste shipment.

On occasion, a generator will ship a load before pre-acceptance procedures are completed. Incoming loads that have not been qualified through pre-acceptance procedures prior to arrival at CHK will not be accepted until the pre-acceptance procedures described in Section 5.0 have been performed. In the case of loads of containers, the containers may, before or after they are unloaded from the transport vehicle, be sampled for analysis of the mandatory pre-acceptance parameters. The containers will remain staged in one or more container management unit(s) until

the pre-acceptance procedures are completed. Under these circumstances, the same analytical results may be considered both as pre-acceptance and incoming load analyses.

The procedures described in this section apply to hazardous waste generated off-site which will ultimately be managed at CHK. Facility generated wastes are not subject to the incoming load procedures described in this Section. Wastes received at CHK only for the purpose of transfer to another facility in accordance with 40 CFR 263.12 and 264.1(g)(9) are also not subject to the incoming load procedures. These 10-day transfer wastes may remain at the site for a period not to exceed ten (10) days prior to continuing the journey to the designated treatment, storage, or disposal site. 10-day transfer loads remain "in transit" during the entire stay at the site. These wastes may be off-loaded and transferred to another vehicle. Because these 10-day transfer loads are never accepted into the CHK waste management system, no analyses are performed on the loads. However, 10-day transfer wastes are tracked using the Waste Tracking System. 10-day transfer loads generally remain on the truck or in the loading dock areas, although the wastes may occasionally be placed in a CMU temporarily prior to reshipment off-site. At no time will the total waste volume in any CMU exceed the permitted storage capacity.

For situations where sampling and analysis of an incoming load cannot be performed due to the nature of the waste or the containment vessel (e.g., debris, PPE, lab packs, etc.), the circumstances will be documented in the operating record and proper management will be determined by knowledge of the waste or of the process generating the waste.

6.1 Typical Incoming Load Procedures:

The events which typically occur during the incoming load procedures are described below. The events discussed are not necessarily performed in the sequence presented.

6.1.1 Incoming Load Arrival:

Incoming load evaluation will be performed after arrival of the waste shipment at CHK. An incoming load will remain in the receiving area, except for containers to be managed in the container management units, until any significant discrepancies have been resolved. Shipments of containers may be sampled before they are unloaded, or they may be unloaded at the container management units for staging and sampling.

Wastes may remain on the transport vehicle or in a staging area for up to 72 hours while awaiting completion of acceptance procedures. If incoming load procedures are not completed within that time, the containers will be placed in a container management unit, segregated according to the

information available from the manifest, Waste Profile Sheet, and other documentation. In the event that subsequent information (e.g., analytical results) indicates that the material is incompatible with the other wastes stored in that CMU, the container will be moved to an appropriate CMU. The Waste Tracking System will record the location and date of acceptance for each container received at the site.

6.1.2 Manifest Review:

Incoming waste shipment manifests are subjected to a review for completeness. A typical manifest is shown in Attachment C-A. Information about the generator, the waste, and the piece count, volume, or weight will be checked. A significant discrepancy between the manifest and the actual shipment is defined as:

- for bulk waste, variation greater than ten (10) percent weight or volume,
- for batch wastes, any variation in piece count, such as a discrepancy of one drum in a truckload, or
- any significant variation in waste type.

Discrepancies may be resolved by a review of records maintained at CHK or through discussion with the generator, transporter, or sales representative. Corrections of significant discrepancies in the manifest are made with the concurrence of the generator and are initialed and dated by the individual making the corrections.

If a significant discrepancy in waste type cannot be resolved, the affected wastes will be rejected. Causes for rejection can include, but are not limited to, variance from expected constituents and constituent concentrations and variance from expected physical characteristics. If a significant discrepancy in piece count or volume cannot be resolved, the load may be accepted or rejected. If the load is accepted, CHK will notify the Kansas Department of Health and Environment in accordance with 40 CFR 264.72(b), and will submit an exception report. The decision to reject a waste load is made by the Facility Manager or his designee. If a waste is rejected, it will be returned to the generator or sent to an alternative facility agreed to by CHK and the generator.

6.1.3 Inspection, Sampling and Analysis:

Analysis will be performed as outlined in this WAP on the incoming load for the parameters listed on Table C.1. The methods of sampling and sample preparation will vary depending on the physical state of the waste and the type of container in which the waste shipment arrives. Samples for incoming load

analysis, when sampling is appropriate, will normally be retained at the CHK laboratory for at least seven (7) days after analysis.

- Bulk Loads of Liquid, Solid, or Multiphasic Wastes: Bulk liquid, solid, or multiphasic wastes shipped to CHK will be inspected and, where appropriate, sampled for laboratory analysis. The values of the incoming

load parameters will be determined by analysis of a sample of the shipment.

An exception to this will be where multiple bulk loads of a single waste stream are received from a single source (e.g., a major site clean-up of contaminated material or a large volume generator). These shipments may arrive by rail in rail cars, or by road in bulk containers (e.g., end-dump trucks or intermodal containers). In either case, samples from twenty (20) percent of the bulk containers will be analyzed for the incoming load parameters. These samples may be obtained either when the wastes are transferred into the bulk containers or at the CHK facility prior to unloading. The contents of bulk containers will, at a minimum, be inspected for physical appearance.

Containers: Each shipment of containers is checked against the manifest to confirm piece count and type of container. Containers will be checked for proper labelings and markings and to see that they are in acceptable condition (i.e., not deteriorated, damaged,

corroded, leaking or bulging). Containers may be sampled before or after off-loading.

During the incoming load procedures, the contents of a minimum of ten (10) percent of the containers from a waste stream will be sampled. The samples may be composited and the values of the incoming load parameters will be determined by analysis of the composite.

One exception to this will be where multiple waste streams from one generator have been pre-accepted into the same management category. A composite of a minimum of ten percent of all such drums or other containers on the same incoming load may be made for the incoming load analysis.

Another exception will be multiple generators who produce similar waste streams by a similar process. When such waste streams are received on the same incoming load, the contents of a minimum of ten percent of all containers from such waste streams will be

sampled and composited. The values of the incoming load parameters will be determined by analysis of the composite as if the composite were from a single generator's waste stream.

In order to achieve more representative sampling, waste streams accepted for particle size reduction (e.g., shredding or granulating) may be sampled for incoming load analysis after such reduction has been accomplished. These waste streams will be evaluated for ignitability and reactivity considerations, including analytical screens for these parameters when possible, prior to particle sizing.

Containers will remain closed except during sampling procedures and when adding or removing wastes. Additional container storage and treatment considerations, including provisions for visual inspection, are provided in Section 7.1.1.

6.1.4 Customer File Review:

The hazardous waste manifest or nonhazardous waste form will be compared to information contained in the customer file for items such as:

- approved management method(s),
- required analyses,
- recommended supplemental analyses (if any),
- pre-acceptance analysis data,
- available test results from previous incoming loads, and
- any other pertinent information.

6.1.5 Incoming Load Evaluation:

Analytical results for the incoming load parameters are recorded on the CHK Material Receipt Record (typical form shown in Attachment C-A) and compared to the corresponding pre-acceptance analysis. Table C.3 lists the parameters whose values are determined during incoming load procedures, and the acceptable range of variation, between the value of a parameter determined

at pre-acceptance and at incoming load, within which a waste may be accepted. For each parameter, if the difference between the values of a parameter determined during pre-acceptance and incoming load procedures is within the acceptable range, the waste shipment will be deemed the same (conformance) as the waste accepted for management at CHK during the pre-acceptance procedures. If the difference between the values of a parameter determined during the pre-acceptance and incoming load procedures is outside of the acceptable range, the waste shipment will not be deemed the same (nonconformance).

Table C.3
Acceptable Tolerance Ranges
for Incoming Load Analyses

Parameter	Tolerance Range
Physical Appearance	Similar waste character[1]
pH Screen[2]	+/- 1.5 pH units
Specific Gravity	+/- 15% (liquids and sludges)
Water Reactivity Screen	positive to negative, only[3]
Ignitability Screen	positive to negative, only[3]
Radioactivity Screen	negative is the only acceptable result
Oxidizer Screen	positive to negative, only[3]
HOC Screen	positive to negative, only[3]

Notes:

1. The inherent variability of the physical appearance of wastes does not allow quantification of the tolerance range. The inspection for physical appearance is performed during the incoming load procedures to indicate a significant change in the nature of the waste (e.g., a liquid rather than a solid) which may indicate a change in the composition or the process generating the waste.
2. The pH is determined for aqueous liquids or free liquids associated with solids or multiphasics.
3. If the results of the screen are positive during the pre-acceptance procedures, the results during the incoming load procedures can be either positive or negative. If the results of the screen are negative during the pre-acceptance procedures, the results during the incoming load procedures can only be negative (i.e., a positive result is outside of the acceptable tolerance range).

An apparent nonconformance may be resolved before the waste is rejected or recharacterized. One or more of the following sources of information may be used to resolve an apparent nonconformance:

- the generator's knowledge of the waste or of the process generating the waste,
- the Technical Manager's knowledge of the waste or of the process generating the waste in light of the pre-acceptance characterization and any additional information in the customer file or accompanying the waste shipment (e.g., manifest, Material Safety Data Sheet, etc.), or
- additional laboratory analysis.

Resolution of any nonconformance will be documented in the operating record. Nonconformance of waste shipments which cannot be resolved will be documented in the operating record. Wastes found to be nonconforming will be rejected or reevaluated prior to acceptance. If the generator concurs with the reevaluation, the waste can be approved for acceptance. If the generator rejects the evaluation, the waste will be returned to the generator or sent to an alternate facility of the generator's

choosing.

Incoming load evaluation is aided by the use of Figure C.1. This figure is intended to serve only as a guide in the decision-making process.

For lab packs, the Incoming Load procedures including a piece count, inspection of drum numbers and identification, and a review of the inventory list provided in the accompanying paperwork to verify that the manifest and pre-acceptance information match.

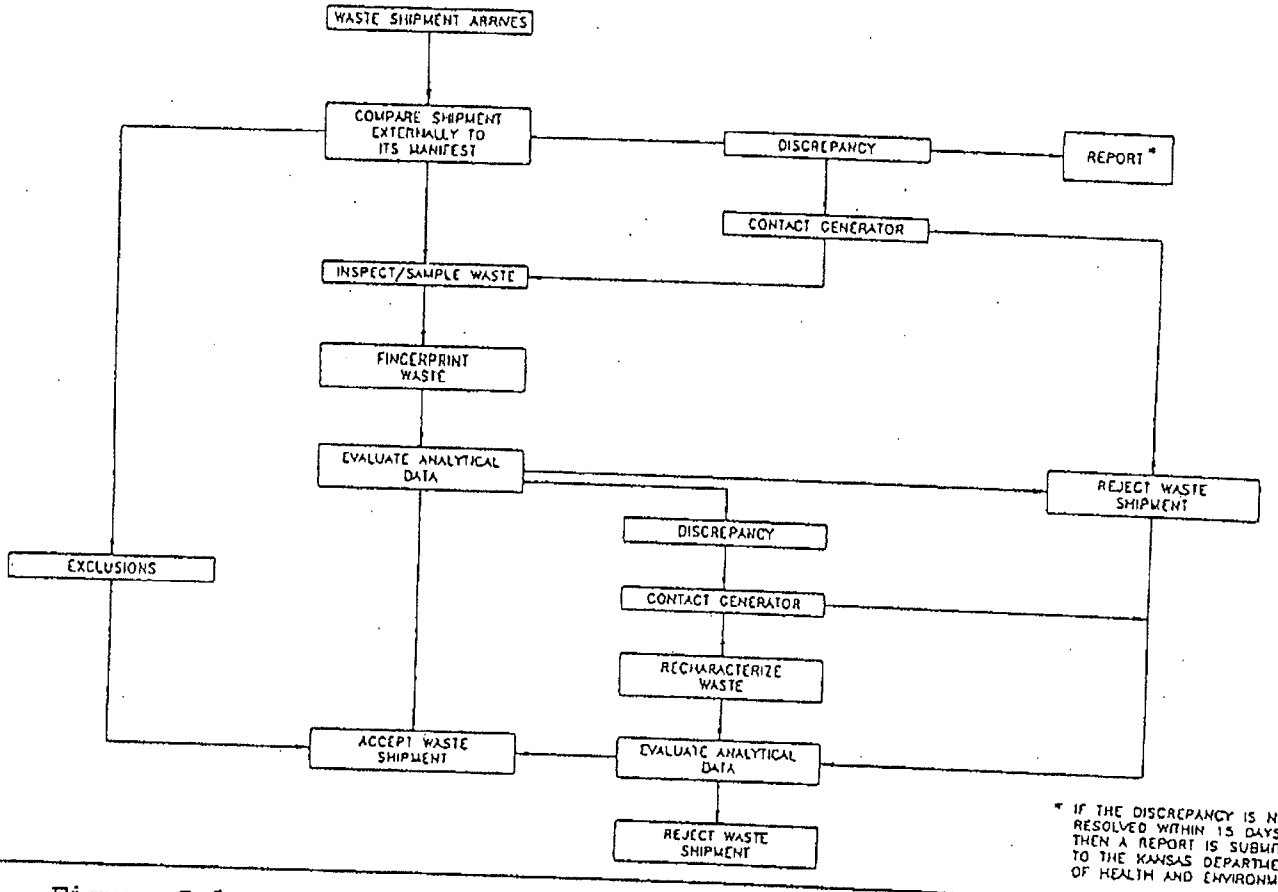

Figure C.1. Typical Incoming Load Evaluation

6.2 Waste Material Transfer and Tracking:

Waste will be assigned and tracked by a unique Identification Number assigned by CHK upon arrival at CHK. Waste tracking information is maintained as part of the operating record. Internal tracking and recording of waste movement includes:

- waste identification,
- arrival date,
- weight and/or quantity of wastes received,
- current and previous storage locations on-site; and
- recording of waste management after receipt.

The Waste Tracking System will also provide a record of manifest information, analytical data, and other relevant information.

A waste tracking report will be generated for each day that waste is moved, and as necessary will be printed and made available to site personnel and inspectors. Historical waste tracking information will be maintained on-site as part of the operating record.

7.0 Storage, Treatment or Other Waste Management Activities:

Management of a given waste within the facility which results in a change of its character may make the waste subject to additional inspection, sampling, and analysis. Many of the analyses needed for storage, treatment or off-site disposal are performed during either the pre-acceptance or incoming load procedures specified in Sections 5.0 and 6.0 of the WAP. Additional analyses may be conducted, before off-site management of the waste, if there is reason to document that the waste may have significantly changed during storage or treatment or to confirm compliance with the restrictions on land disposal contained in 40 CFR Part 268.

The waste management processes for which periodic sampling and analysis may be applicable include:

- Storage, consisting of containers and tanks;
- Treatment, including blending, particle sizing, drying, drum scraping and washing, and treatment in containers and container management activities; and

- Off-site disposal, consisting of shipment of wastes to a landfill, injection well, etc.

The analytical procedures for each of these waste management processes is described separately below. For situations where sampling and analysis cannot be performed due to the nature of the waste or container (e.g., PPE, debris, lab packs, etc.), the circumstances will be documented in the operating record. In this case, the Technical Manager will determine proper waste management based on knowledge of the waste (e.g., an inventory of the contents of a lab pack) or of the process generating the waste.

7.1 Storage:

7.1.1 Storage in Containers:

In addition to the incoming load procedures for containers, the following considerations for storage in containers will be observed.

- Visual Inspection: For containers placed in the container management units for storage or treatment at CHK, ten (10) percent of the shipping containers from a waste stream are sampled during the incoming load procedures (this does not apply to wastes which cannot be sampled such as lab packs, debris, etc., or trans-shipped wastes destined to another waste management facility). The exterior of all containers is visually inspected during unloading, and subsequently will be inspected in accordance with the Inspection Plan (Section F). The contents of all containers that are emptied, mixed, or otherwise processed are subject to visual inspection at least once prior to processing.

- Storage Areas: Following unloading, hazardous wastes in containers are stored in areas equipped with secondary containment.

- Compatibility: Once they have been unloaded, analyzed, and accepted, wastes are segregated to ensure that incompatible wastes are not stored together. Even if

Incoming Load procedures are not completed within 72 hours, containers will be placed into CMUs, segregated according to information from the manifest, Waste Profile Sheet, and other documentation. If subsequent analytical results or other information indicate that the waste may be incompatible with other wastes in that CMU, the waste will be moved into an appropriate CMU.

Waste with Ignitable and Reactive Characteristics: Ignitable and reactive wastes are identified through the pre-acceptance and incoming load procedures described in the WAP and by information submitted by the generator. Wastes identified as reactive will be

managed so as to ensure that these wastes do not contact potentially incompatible wastes. Even if Incoming Load procedures are not completed within 72 hours, containers will be placed into CMUs, segregated according to information from the manifest, Waste Profile Sheet, and other documentation. If subsequent analytical results or other information indicate that the waste may be incompatible with other wastes in that CMU, the waste will be moved into an appropriate CMU.

7.1.2 Storage in Tanks:

In addition to the incoming load procedures for waste in storage tanks, the following considerations will be observed.

- Compatibility: Wastes added to the tanks must be compatible with the contents of the tank and the material of construction of the tank. A compatibility evaluation as detailed in Attachment C-C (USPCI-25) will be performed prior to transferring a waste into a tank.

- Waste with Ignitable, Corrosive and Reactive Characteristics: Bulk ignitable, corrosive and reactive wastes are identified through the pre-acceptance and incoming load procedures and by information submitted by the generator (e.g., manifest, notification, etc.). Liquid wastes which exhibit the characteristic of ignitability will be placed in

appropriate tanks for storage and/or treatment at the facility. Reactive wastes will not be placed in the tanks or tank systems for treatment, but may be stored in the tanks if the waste is protected from any material or conditions that may cause the waste to react, or if such storage in the tanks is used solely for emergency purposes.

7.2 Treatment:

Analyses which support the treatment processes available at CHK may be divided into three categories, each with a specific purpose:

- Pre-treatment analyses confirm that the waste falls within the selected process design parameters and may allow improvement of the process conditions;
- In-process analyses are performed as needed to control the process and to monitor progress; and
- Post-treatment analyses may be performed as needed to confirm that treatment is successful and that the characteristics of the process effluent are such that

it can be sent to the next step (e.g., disposal, further treatment, discharge, reuse, etc.).

7.2.1 Blending:

The process of blending waste is performed to produce a mixture which can be used as a supplemental fuel for boilers, industrial furnaces, lime and cement kilns, or similar operations. The blended wastes may also be incinerated. In this process, wastes containing sufficient heating values will be blended with other suitable wastes. Pre-acceptance analyses are used to determine the acceptability of each waste stream for the blending process. Additional analysis for heating value will be performed during pre-acceptance procedures for all hazardous wastes destined for supplemental fuels. The heating value of supplemental fuels sent to BIFs that have not received a RCRA permit for the BIF unit and have not obtained certification of compliance with the BIF requirements will comply with the requirements of 40 CFR 266 or applicable state law, whichever is more stringent.

In-process analyses may be performed to monitor and characterize the intermediate mixture. Post-treatment analyses may consist of those tests necessary to ensure that the blended waste mixture is within the final product parameters. The final product parameters are based on the permits and needs of the facility which will receive the product from CHK. For example, if the facility which will receive the product has specifications for a

minimum heating value and a maximum chlorine content, then the blend requirements will be a function of these specifications.

7.2.4 Drum Scraping and Washing:

The drum scraper enhances removal of viscous liquids and solids from containers during waste processing. The drum washer removes waste residues from emptied drums. Due to the nature of these treatments, supporting analyses are not typically required.

7.2.5 Treatment in Containers and Tanks, and Container Management Activities:

Treatment in containers and container management activities will include the following. Due to the nature of these treatments, supporting analyses are not typically required except as discussed below.

- Lab Pack Container Repackaging: Lab packed wastes may be combined for treatment, recycling, incineration, kiln fuel use, or other off-site management.
- Filtration: Portable filtration units are used to remove particulates from liquid streams.
- Absorption or Solidification: CHK may use non-reactive absorbent material to absorb or solidify small quantities of incidental liquid or sludge in containers of solids. This activity is intended to make the material more amenable to proper transportation or to satisfy the requirements of the disposal facility for a uniform material, not to change the pre-acceptance

management category of the waste. Due to land disposal restrictions, fly ash, cement, or other material will be used to solidify liquids if the material is destined for disposal at a landfill. If absorbents are used, the receiving landfill facility will be notified.

Physical/chemical treatment: CHK may treat wastes in containers or tanks using neutralization, phase separation, blending, stabilization, phase changes, polymerization, or other treatment methods that change the physical or chemical characteristics of the waste. Pre-treatment analyses are used to determine whether a waste is amenable to treatment and, as necessary, to determine the appropriate reagents and mix ratios to ensure safe and complete treatment.

In-process analyses may be performed to monitor and characterize the intermediate mixture. Post-treatment analyses may be used to determine that treatment is complete or to determine that treatment product requirements have been met.

7.3 Off-site Management:

Many of the analyses needed for off-site management are performed during either the pre-acceptance or incoming load procedures. Additional analyses may be conducted if there is reason to document that the waste may have significantly changed during storage or treatment or to confirm compliance with the land disposal restrictions when applicable.

7.4 Other Considerations:

7.4.1 Lab Packs:

Lab Pack inventories will be reviewed during the incoming load procedures for consistency with shipping papers and the manifest, incompatibility of contained materials, and land disposal restrictions. Since lab packs contain many small

quantities of individual materials, they will not be sampled. All lab packs will be visually inspected, and at least ten (10) percent of the lab packs received will be opened and visually inspected. The contents of lab packs that are decanted and bulked into larger containers will then be subject to container sampling procedures as facility generated wastes. A record of all on-site movement of lab pack wastes will be part of the waste tracking system.

7.4.2 Management of Facility Generated Wastes:

Examples of facility generated wastes include:

- sump residues;
- clean-up from spills and decontamination of waste management units;
- floor sweepings from hazardous waste management units;
- wash water;
- residue from in-line basket strainers or other process related ancillary equipment;
- personal protective equipment;

- laboratory wastes;
- tank bottoms;
- used oil;
- other solid waste generated from the management of a hazardous waste; and

- other miscellaneous materials originating from a waste generating process (e.g., solvents or degreasers from the maintenance area, etc.).

Any hazardous wastes generated at the facility will be managed in accordance with the provisions of the WAP (with the exception of the incoming load procedures) and with CHK acting as the generator. Any hazardous wastes generated at the facility that are stored on-site in containers for less than ninety (90) days will be managed in accordance with 40 CFR 262.34.

Where the facility generated waste is traceable to a known waste generating process or segregated storage area (such as a container management unit or an individual tank), traceable codes are carried on CHK wastes. Where the facility generated waste is not traceable, a sample of the waste will be characterized through the pre-acceptance procedures, provided in Section 5.0 of this WAP, to determine proper management. When laboratory analyses are necessary to assign or remove a waste code to site-generated wastes, those analyses will be performed at a Kansas certified laboratory.

Facility generated wastes will be collected and placed in tanks or containers. A compatibility evaluation will be performed if

the facility generated waste is added to a tank or container already containing waste.

7.4.3 Change of Tank or Container Service:

A change in service of a container, tank system, or other equipment (i.e., placing a waste which is incompatible with the previous contents) will only occur if the cleaning procedures described below are followed. The container or tank will be rinsed with a neutral or mutually compatible material. This material can be other wastes. The rinse can also be accomplished by filling the container or tank with other wastes. Upon removal of the "rinse", the container or tank will be considered ready for the change in service. Tank entry and inspection will be performed as necessary. Material in the tank will maintain all listed codes between tank cleanings.

A change in service from hazardous waste to non-hazardous waste treatment or storage will involve slightly different cleaning procedures. The unit will be emptied of waste and cleaned using whatever means necessary (e.g., brush, sweep, scrape, wash,

rinse, etc.) to remove residuals. When the unit shows no visible evidence of contamination, the unit will be determined to be cleaned sufficiently to enable non-hazardous waste use. As an extra precaution, the first three volumes of non-hazardous waste run through the unit following cleaning will be managed as hazardous waste carrying the codes that had been contained in the tank previously. Subsequent batches of non-hazardous waste will be managed as non-hazardous.

For units that are not amenable to the cleaning described above, the facility will run three volumes of waste or a cleaning agent through the unit prior to managing subsequent wastes as non-hazardous. For equipment, the facility will either triple rinse the equipment with a cleaning agent or non-hazardous waste, or will run three volumes of waste or cleaning agent through the equipment prior to managing the subsequent wastes as non-hazardous.

The facility may, on occasion, opt to manage non-hazardous wastes through a hazardous waste unit that has not been cleaned. Under these circumstances, CHK will manage those non-hazardous wastes as hazardous, in accordance with 40 CFR 261.3.

7.4.4 Other Management Activities:

Other waste management activities which will take place at CHK will include:

- kiln fuel solids repackaging, in which solids are transferred into smaller containers that can be used as kiln fuel charges;
- transferring drummed solids into gondolas for safer and more economical transport to landfill facilities where this material will be disposed;
- transferring drummed liquid into tanker trucks for off-site shipment and disposal;
- transferring material from drums that show signs of deterioration to new drums, or transferring incinerables from steel drums to approved poly drums to allow easier incineration; and
- when shipping requirements allow, repackaging friable solids to be disposed in bulk processes into fiber boxes or bags that better accomodate the disposal handling technology.

8.0 Quality Assurance Plan: 40 CFR 264.13

8.1 Introduction:

The QA/QC measures described herein will help to ensure that the data provided by the laboratory analysis performed at or for CHK are technically sound and statistically valid.

The data generated by the laboratory in conjunction with the waste analyses will be used to determine certain parameters of the wastes to be managed at CHK. The handling and treatment procedures and determination of treatment efficacy will be based on these data.

The processing of waste and corresponding analytical requirements during the management of wastes at the facility (i.e., from pre-acceptance characterization through shipment off-site) are described elsewhere in this WAP (refer to Sections 5.0 through 7.0). The terms used in this section will have the same meaning as provided in SW-846 ("Test Methods for Evaluating Solid Waste," EPA, in effect as of Jan. 31, 1992).

8.2 Laboratory Organization:

The lab will generally be organized as illustrated in Figure C.2. This organization may be altered as workloads, equipment, and methodologies change.

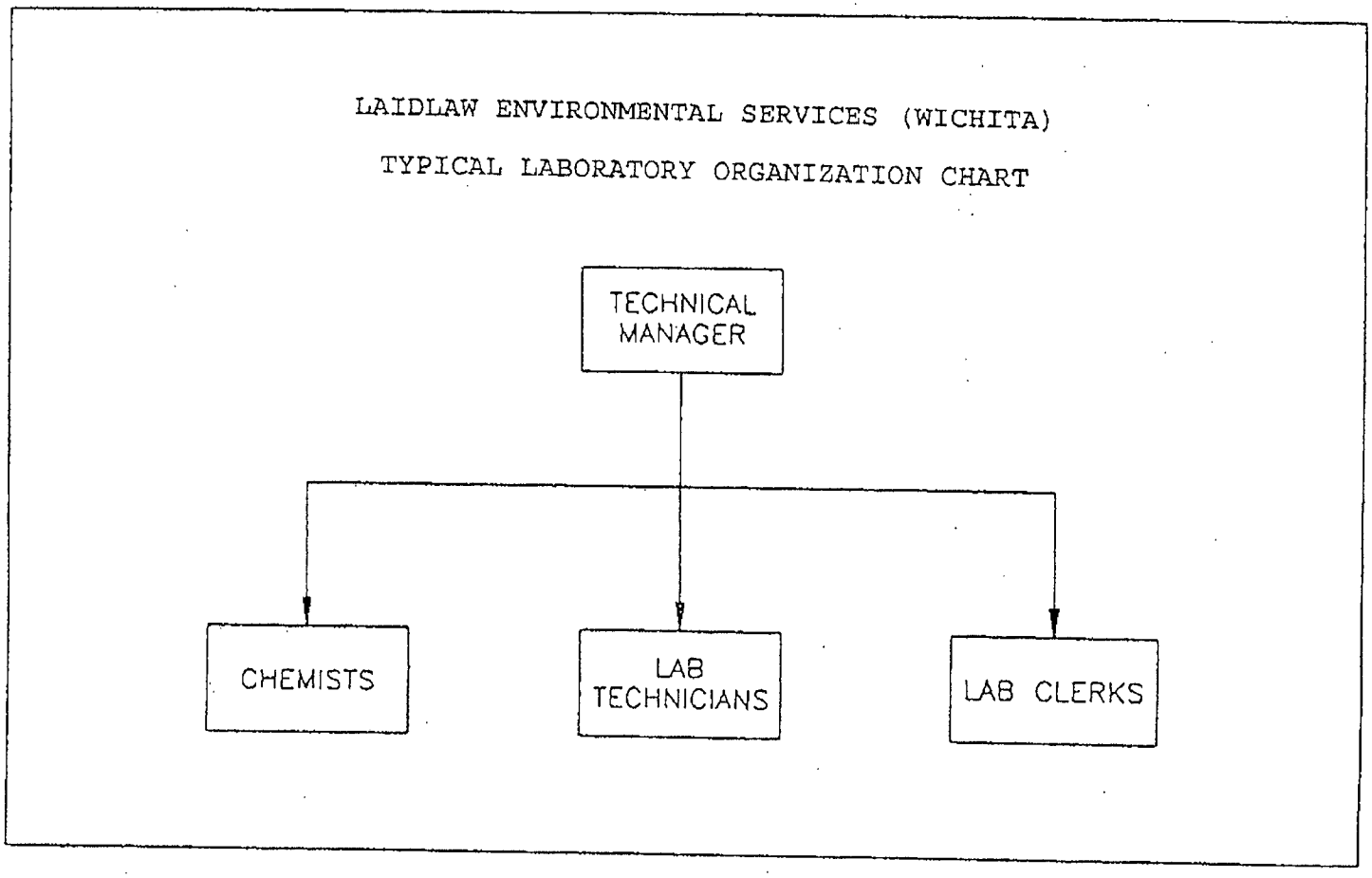

Figure C.2. Typical Laboratory Organization Chart

8.3 Quality Assurance Objectives:

The quality assurance objectives of the WAP are to provide data that are of known and documented quality. The mandatory parameters for which analyses will be performed during the pre-acceptance and incoming load procedures are listed in Table C.1. Table C.4 lists the precision and accuracy goals for the mandatory parameters.

Other supplemental analyses may be performed, as dictated by operational requirements. If supplemental analyses are performed, the quality assurance objectives will be as defined in the analytical method used or as developed by CHK/Clean Harbors Kansas LLC.

Table C.4
Precision and Accuracy Objectives
for the Mandatory Pre-Acceptance and
Incoming Load Parameters[1]
(for Waste Samples)

Measurement Parameter	Precision	Accuracy
Water Reactivity Screen	pos./neg.	N/A
Oxidizer Screen	pos./neg.	N/A
pH Screen	+/-2 pH units	+/- .5 pH units
Radioactivity Screen	pos./neg.	N/A[2]
Ignitability Screen	pos./neg.	N/A
Specific Gravity	+/- 20%	100 +/- 20%
HOC Screen	pos./neg.	N/A

Note:

1. If supplemental analyses are performed the QA/QC defined in the method will be used.
2. CHK cannot evaluate the accuracy data on this test due to lack of calibration materials. The meter will be calibrated at least annually.

8.4 Sampling and Analytical Procedures:

8.4.1 Pre-Acceptance:

Information about a pre-acceptance sample will be entered into a sample record. The sample will be tracked by EPA Identification Number or such other numbers as may be deemed appropriate. This number will be used to track the sample information through the record keeping system. The sample container and any analytical results are to have this number to help track the information about the sample. The parameters for which the values will be determined during the pre-acceptance procedures are provided in Section 2.0. The analytical methods used to determine the values of these parameters are provided in Section 3.0.

8.4.2 Incoming Load:

The procedures for obtaining a representative sample of a waste during the incoming load period is provided in Section 4.0 of the WAP. Section 4.0 includes descriptions of the types of sampling equipment and other considerations regarding sampling.

When a suitable off-site laboratory performs the incoming load analysis, CHK will review the report for certification of what standard analytical method was used to obtain the results. If a non-standard method was used, documentation must be provided to support the validity of the data.

8.5 Calibration Procedures and Frequencies:

Any analytical instrument used to generate data must be calibrated to ensure that accuracy is within acceptable limits. The laboratory analyst is responsible for ensuring that the proper standard is used in performing the calibration.

The frequency of calibration is determined by several factors (e.g., instrument stability, accuracy of data required, methodology employed). Calibration schedules are determined around a nominal period and increased/decreased to fit the requirements of a given test. The calibration schedule is always biased toward an increased frequency.

Unless otherwise stated in this QA/QC Plan, the method and frequency of calibration will be performed as defined in the analytical methods used.

8.5.1 pH/Selective Ion Meters:

The pH meter will be standardized at two points with reference buffer solutions (generally pH 4, pH 7 or pH 10). The calibration will be checked with another buffer from a source different from the calibration buffers; this buffer will be called the Continuing Calibration Verification (CCV) buffer. The CCV buffer will be read after initial or any subsequent calibration reading with an acceptable tolerance of +/- 0.5 pH units from the true value. If the CCV reading is not within the tolerance limit the instrument will be recalibrated. The CCV will be reanalyzed after each sample analysis and recalibration will be required if the reading falls outside of the +/- 0.5 pH units tolerance limit. The pH meter will be calibrated daily prior to the start of any pH measurements.

8.5.2 Balances:

Balances will be of a type appropriate for the accuracy of the weighing to be performed. Balances available may include single pan analytical and single pan top-loading. The analytical balances will be placed on a stable surface and the level checked and adjusted as necessary.

Balance calibrations will be checked with standard weights as appropriate for the routine use of that balance. The results of these checks will be recorded. Performance of any service will be recorded in the instrument log book.

8.5.3 Other Instrumentation:

CHK will include a laboratory equipped to perform, at a minimum, the standard test methods and unique test methods listed in Table C.2. Calibration procedures and frequencies for instrumentation not listed in the WAP will be performed according to the manufacturer's instructions or the applicable reference methodology.

8.6 Analytical Procedures:

Standard analytical methods or methods developed by CHK and Clean Harbors will be used for determining the value of selected parameters. The Technical Manager may make minor modifications to the method, as necessary, while keeping within the intent of the method. The Clean Harbors and CHK analytical methods are provided in Attachment C-C. The standard methods will be obtained from such sources as the following.

- "Test Methods for Evaluating Solid Waste", SW-846, in effect as of Jan. 31, 1992, EPA, Office of Water and Waste Management, Washington, D.C. 20406.
- "Annual Book of ASTM Standards", American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.
- Standard Methods for the Examination of Water and Waste Water", American Public Health Association.
- "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, EPA, Environmental Monitoring and Support Lab, Cincinnati, Ohio 45268.

- Title 40 of the Code of Federal Regulations, Parts 260-268 (1991 edition).

8.7 Data Reduction, Validation, and Reporting:

In the process of relating a measurement to the concentration of an analyte in the sample, certain guidelines must be followed to avoid distortion of the analytical value through the calculation process. Calculations will follow generally accepted rounding and significant figure rules.

Raw data and calculations are recorded by the analyst on a data sheet. The data sheet will include:

- the test performed;
- sample information such as volumes, weight, and dilutions;
- the analyst's identity;
- the date samples were prepared and/or analyzed; and
- sample results.

8.8 Internal Quality Control Checks:

8.8.1 Methods:

The laboratory uses only quality control methods which are based on those recognized by sources such as National Institute of Standards and Technology (NIST) or American Society for Testing and Materials (ASTM).

8.8.2 Spike Samples:

The sample resulting from the addition of a known amount of analyte into a portion of a previously analyzed sample is called a spike sample. The data resulting from the analysis of the spike sample can be evaluated to determine the accuracy of the analytical method as well as the impact of interferences in the sample. Accuracy is determined by percent recovery comparing the result of the analysis of the spike sample with the results of the original sample. Poor recoveries may indicate interferences in the sample or an inappropriate application of a test for that sample type.

When appropriate, a method should be evaluated using a spike control (method spike). A spike control is a blank matrix (deionized water or similar analyte-free matrix) spiked with a known amount of the analyte(s) of interest. The recovery of the analyte will be maximized under these conditions and will indicate the performance of the method based upon recovery under ideal conditions.

After a method has been proven effective using a spike control, the ongoing process is monitored with spike samples. Spike samples should be analyzed at a minimum frequency of five (5) percent (e.g., one (1) of every twenty (20) samples). For tests that are run infrequently, spikes should be analyzed with every batch. To eliminate systematic errors, the source of the spiking material should be independent of the analytical method's routine calibration material.

After a sufficient number of recoveries for a given parameter have been accumulated, control limits will be established. The precision and accuracy objectives provided in Table C.4 will be updated periodically to reflect the new control limits. Recoveries which exceed the control limits indicate the need to

reanalyze the associated sample batch. Exceptions may be documented by respiking/reanalysis and written comment.

8.8.3 Replicate Samples:

Replicate samples help evaluate the precision of a method and quantify the uncertainty of an analytical value. Replicates can exist in two forms, replicate sample analysis or replicate spiked sample analysis. If no analytes are expected to be found in an analysis it is better to choose to do replicate spiked samples.

Replicate samples, usually a duplicate, are to be analyzed at a minimum frequency of 5% (1 of every 20 samples). For tests which are run infrequently (e.g., once a month), duplicates will be analyzed with each batch.

After a sufficient number of replicates for a given parameter have been accumulated, control limits will be established. The precision and accuracy objectives provided in Table C.4 will be updated periodically to reflect the new control limits. Replicates which exceed the control limits indicate the need to reanalyze the associated sample batch. Exceptions may be

documented by respiking/reanalysis and written comment on the laboratory bench sheet.

8.8.4 Blanks:

Blanks demonstrate that the method is free from interferences or allow the analyst to monitor the background and keep it from reaching levels which would interfere with the detection and quantification of the target analytes. However, not all methods are amenable to blanks (e.g., specific gravity).

Blanks also serve to evaluate the reagents used for contamination. If a reagent is found to be contributing unacceptable quantities of analyte or interference into the measurement system, it needs to be replaced with a higher grade and interferent-free material.

Blanks are to be run once in every twenty (20) samples or with each sample batch, whichever is more frequent. Analyte concentration in the blank should not exceed five (5) times the method detection limit.

If the level of blank contamination is constant and can be controlled, appropriate control limits can be established. Blank values must be recorded on an ongoing basis in this case.

8.8.5 Calibration Materials:

Quantifying the amount of an analyte in a sample is dependent on the reference used. A value can only be as good as the standard to which it is compared. Calibration materials must be of known purity and composition.

When a laboratory standard is created, it must be compared to an existing standard to insure it is within acceptable tolerances. This may involve the use of a Standard Reference Material (SRM) from the National Institute of Standards and Technology (NIST), EPA, or another source which can be traced back to NIST or EPA.

Quality control samples from the EPA or similar agency/organization (e.g., NIST) can be used to evaluate the accuracy of a standard and/or instrument calibration.

8.9 Performance and System Audits:

8.9.1 Performance Audits:

These audits involve the use of blind samples given to an analyst to evaluate the accuracy and precision of an analysis. The term blind (sometimes called single blind) means the analyst is aware that these samples are spikes, but is not aware of the concentration. These audits will be coordinated by the Technical Manager on an annual basis.

Major defects (e.g., a finding of a chemist not analyzing quality control samples, improper calibration procedures being used) which are discovered by these studies are investigated and appropriate corrective action applied.

8.9.2 System Audits:

System audits evaluate the laboratory staff's capability to produce good data. These audits allow the Technical Manager to judge whether or not the quality control practices are being followed and are effective. The system audits are conducted by

the Technical Manager at least annually. The results of these audits require a response from the laboratory staff listing any corrective actions taken to remove defects.

8.10 Preventive Maintenance:

The manufacturer's manual for a particular instrument will be consulted for operating instructions. Maintenance schedules as recommended by the manufacturer will be followed as applicable. Maintenance will be properly recorded in the instrument maintenance record.

8.11 Procedures Used to Assess Data Precision, Accuracy, and Completeness:

8.11.1 Method Spike Recoveries:

Method spike recoveries will be used when testing new procedures and training new analysts. The spikes will usually be made at levels appropriate for the analysis (approximately ten (10) times the estimated detection limit).

Matrix spike samples will be analyzed along with sample batches to estimate the accuracy of the analysis. The recovery will be within the 95% confidence interval (i.e., plus or minus two (2) standard deviations) for historical data.

8.11.2 Replicates (Includes Matrix Spike Duplicates):

Replicates will be analyzed along with sample batches to estimate the precision of the analysis. In lieu of historical data, the Relative Percent Difference (RPD) shall be less than or equal to twenty (20) percent (providing the results are at least ten (10) times greater than analytical detection limit) unless the QA/QC is dictated in the method.

8.11.3 Instrument Calibration:

Instruments will be calibrated with at least three (3) standards (where applicable). Linear regression is the preferred technique to analyze calibration data. In this case the correlation coefficient must meet or exceed the critical value for a 95% confidence interval.

In cases where it might be deemed more suitable to use another method for determining calibration precision (such as computing %RSD of Relative Response Factor values), appropriate confidence limits will be set per method specifications.

8.11.4 General Laboratory Parameters:

Within the laboratory there are numerous other parameters to be evaluated. The objective for any control limits based on historical data will be the 95% confidence interval (mean plus or minus two (2) standard deviations). Other values may have set limits based on method specifications as applicable.

8.12 Corrective Action:

When a control limit is exceeded, the analyst will stop the analysis and investigate the problem. When appropriate, the analyst must demonstrate by analysis that the problem has been corrected. When the cause for the exceedance has been identified and corrected, all data generated by that analysis since the last "in-control" analysis is suspect; all samples analyzed for the failing method should be reanalyzed. If the error can be

attributed to a specific event, all data generated since the last "in-control" event must be reevaluated. If the QA failure can be attributed to sample rather than method failure (e.g., matrix effects), the data from that sample, and like samples are suspect and the data from those samples should be flagged or an alternate method used. In this case, other sample data generated concurrently can be reported. All QA failures and the resulting corrective action must be documented in the operating record.

8.12.1 Instrument Calibration Checks:

An instrument calibration check is the repetitive analysis of a given standard to ensure consistent instrument operation from day to day. Some methods utilize specific procedures to evaluate this check. If the value exceeds control limits, the analysis must be stopped and corrective action implemented.

8.12.2 Spike Recoveries:

Percent recoveries for matrix spikes and/or surrogate spikes are monitored by the analysts and must be within the control limits established by multiple analyses under similar conditions.

Outlier values must be documented with an explanation. Some problems may be deemed an unavoidable part of normal operation. Other problems are indicative of the need for reextraction or reanalysis. Corrective actions will be documented. In lieu of historical data, when sufficient data have been collected, CHK may utilize new control limit criteria.

If matrix effects are suspected as the cause of low spike recovery, the same sample is to be re-spiked once. If the recovery is still low, matrix interference can be assumed. Matrix effects can be overcome by changing the point of spike addition in the case of metals (spiking at the instrument rather than at the processing step), by diluting the sample to overcome the interference, or by the use of an alternate analytical method or technique. If the interference can not be overcome, the data must be flagged and the low recovery must be taken into account in any decision regarding that sample.

8.12.3 Duplicate:

Relative Percent Difference (RPD) criteria are used to evaluate duplicate analyses. The analyst must monitor this value and

document the cause of an outlier. The spiking levels for Matrix Spike/Matrix Spike Duplicate should be at least two (2) times the native levels and at least ten (10) times the Method Detection Limit. Poor precision at low concentrations can contribute significantly to the inaccurate determination of RPD.

8.12.4 Performance Audits:

Performance audits involve the use of blind samples given to an analyst to evaluate the accuracy of an analysis. Major defects which are brought to light by these studies are investigated and appropriate corrective action is taken (e.g., retraining analysts or reanalysis of spike samples). Corrective actions are reported to the Technical Manager.

8.12.5 Method Blanks:

Reagents, process chemicals and laboratory glassware must be monitored for each sample batch to determine their contribution or impact on the analyte concentration. If the Method Blank exceeds the control limit, the analysis must be stopped and the source of the blank contribution identified and corrected. If

the blank problem is identified to be universal, once the problem has been rectified, all samples using those chemicals or glassware must be reanalyzed.

8.13 Quality Assurance Reports to Management:

Oral and/or written reports of the results of inspection and other major problems will be provided to the Technical Manager. Other reports will be provided at his/her request.

Attachment C-A

Typical Forms

Attachment C-A

Table of Contents:

1. Waste Profile Sheet Instructions (1 page)
2. Waste Profile Sheet (1 page)
3. Uniform Manifest (2 pages)
4. CHK Material Receipt Record (1 page)
5. Notification of Waste Subject to Land Disposal Restrictions (2 pages)
6. Certification by Generator or Treatment Facility of Restricted Waste Meeting Treatment Standards (1 page)
7. Table CCWE (4 pages)
8. Table CCW (13 pages)
9. List of Halogenated Organic Compounds Regulated Under Section 268.32 (1 page)
10. Non-Hazardous Waste Form (1 page)

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insert pages of

Waste Profile Sheet (1 page)

Uniform Manifest (1 page)

Uniform Manifest Instructions (1 page)

Notification of Waste Subject to Land disposal Restrictions (2 pages)

Certification by Generator or Treatment Facility of Restricted Waste Meeting Treatment Standards (1 page)

Table CCWE (1 page)

Table CCW (5 pages)

List of Halogenated Organic Compounds Regulated Under Section 268.32 (1 page)

Non-Hazardous Waste Form (1 page)

Waste Acceptance Sheet (1 page)

INSTRUCTIONS

The following information is required for all waste to be considered for transportation, storage, treatment or disposal. Answers must not be abbreviated, must be printed in ink, and will be maintained in confidence. Responses of "none" or "not applicable" should be made when appropriate. Material Safety Data Sheets for all components of the waste should accompany this form, if available. A copy of this form should be retained by the customer.

ALL QUESTIONS MUST BE ANSWERED

Part A GENERAL INFORMATION

Part B DOT — Choose the most appropriate DOT shipping information by referring to 49 CFR 172.101.

Part C RCRA — Select applicable EPA waste codes by referencing 40 CFR 261.

Part D ANNUAL REPORT CODES — Obtain these codes from the EPA Hazardous Waste Report Booklet.

Part E OTHER COMPONENTS — Check the appropriate boxes and list the total parts per million. If data was obtained from laboratory analysis, attach a copy of the analysis.

Part F PHYSICAL CHARACTERISTICS AT 70 DEGREES F — Complete all sections. The flash point is a value attained using the appropriate test method referenced in 40 CFR 261.21. Dermal and oral toxicity can be found in chemical dictionaries or by referring to the Material Safety Data Sheet.

Part G METALS — Indicate if the metal concentrations are represented as total or leachable metals, and whether they are above or below the regulatory limit as defined by the Extraction Procedure contained in 40 CFR, Appendix II.

Part H PHYSICAL/CHEMICAL CONSTITUENTS — List all components of the waste using specific chemical names, including water, earth, or forms of debris. For each component, indicate the expected percent or other unit of measure in which the component is present. The constituents must total 100%.

Part I ANTICIPATED VOLUME — Enter the total volume to be treated, stored, or disposed.

Generator Certification: Must be signed by an authorized management representative of the company generating the waste stream described on this form.

FOR LAIDLAW ENVIRONMENTAL SERVICES USE ONLY

Sample Submitted ☐ Yes ☐ No No. of Samples _____ Chain of Custody ☐ Yes ☐ No Sample No. _____

Laidlaw Approval

☐ Approved ☐ Disapproved Approval # _____ Annual Analysis Date _____

Operations _____ Date _____

Comments _____

Phy. St. _____ Loc. Code _____ Non Reg (Y/N) _____ Haz. Label (Y/N) _____ Prim. Label _____ Sub. Label _____

Land Disposal Restrictions

☐ Unrestricted ☐ Restricted Category _____ Sub Category _____

Variance Date _____ Treatability Group: ☐ WW ☐ NWW Treatment Technology _____

Legend No. _____ 40 CFR Ref.: ☐ 268.41 CCWE ☐ 268.42 Table 2 ☐ 268.43 CCW

Routing

TSD #1 _____ TSD #2 _____

Outgoing Approval # _____ Outgoing Approval # _____

Handling Codes _____ Handling Codes _____

Cost Codes _____ Cost Codes _____

Health and Safety

Special Handling Instructions _____

Sales

Customer No. _____ Billing Codes _____ Comments: _____

CLEAN ENVIRONMENTAL SERVICES

NAME OF WASTE STREAM

MATERIAL PROFILE NO.

☐ New ☐ Amendment

GENERATOR INFORMATION

Generator Name

Facility Address

City/County

State Zip Code

USEPA ID#

State ID#

Technical Contact

Telephone ( ) EXT.

Fax ( )

Billing Name

Billing Address

City State Zip Code

Attention

Telephone ( ) EXT.

B. DOT

Shipping Name

Hazard Class

UN/NA No. Packing Group RQ

C. RCRA

RCRA Non Hazardous/Exempt? ☐ Yes ☐ No Process Generating:

State Waste Codes: EPA Waste Codes:

D. ANNUAL REPORT CODES

SIC Code:

Source Code: A

Form Code: B

Origin Code:

System Type: M

E. OTHER COMPONENTS

	No	Yes	Total ppm
PCB's	☐	☐	
Cyanides	☐	☐	
Sulfides	☐	☐	
Pesticides	☐	☐	
Phenolics	☐	☐	
Dioxins	☐	☐	
Halogens	☐	☐	%

F. PHYSICAL CHARACTERISTICS AT 70° F

1. Infectious or Biological Waste? ☐ Yes ☐ No
2. NRC Regulated Radioactive? ☐ Yes ☐ No
3. Reactivity ☐ None ☐ Water Reactive ☐ Pyrophoric ☐ Shock Sensitive ☐ Cyanides ☐ DOT Explosive ☐ Sulfides ☐ Other

☐ Gas (Cylinder) ☐ Solid %
☐ Aerosol ☐ Sludges %
☐ Lab-Pack ☐ Free Liquids %
100%

Layers
☐ Single Layered ☐ Bi-layered ☐ Multi-layered

Viscosity
☐ Low ☐ Medium ☐ High

Odor
☐ None ☐ Mild ☐ Strong Describe:

Color/Appearance:

Weight
Density lbs./gal. (US. liq) lbs./cu. foot
Dry Weight ☐ <1.0% ☐ 5-20% ☐ 1-5% ☐ 20-100%

pH ☐ N/A ☐ 0-2 ☐ 4.1-10 ☐ ≥ 12.5 ☐ 2.1-4 ☐ 10.1-12.4 Exact

Flash Point (liquid only)
☐ <73°F (23°C)
☐ 73-140°F (23-60°C)
☐ 142-200°F (61-93°C)
☐ >200°F (93°C)
☐ N/A

Boiling Point
☐ <95°F (35°C)
☐ >95°F (35°C)
☐ N/A

BTU/Lb.

Dermal Toxicity LD_{50} (Mg/Kg)
☐ ≤40 ☐ >200, ≤1000
☐ >40, ≤200 ☐ >1000

4. Material poisonous by inhalation? ☐ Yes ☐ No

Oral Toxicity LD_{50} (Mg/Kg)
☐ ≤5 ☐ >5, ≤50
Solids: ☐ >50, ≤200 ☐ >200
Liquids: ☐ >50, ≤500 ☐ >500

5. Is this waste stored in vented drums? ☐ Yes ☐ No
6. Is this waste pumpable? ☐ Yes ☐ No
7. Is this waste polymerizable? ☐ Yes ☐ No
8. Is waste stream subject to the National Emission Standards for Benzene Waste Operations (40 CFR 61 Subpart FF)? ☐ Yes ☐ No
9. Is this waste regulated as an ozone depleting substance (40 CFR part 82)? ☐ Yes ☐ No
10. Does this waste contain scrap metal pieces greater than 2 inches in size? ☐ Yes ☐ No

G. METALS

☐ NONE ☐ TCLP (MG/L) ☐ TOTAL (PPM)

	Reg. Limit	Below	Above	Range
Arsenic	5 mg/L	☐	☐	
Barium	100 mg/L	☐	☐	
Cadmium	1 mg/L	☐	☐	
Chromium	5 mg/L	☐	☐	
Copper		☐	☐	
Lead	5 mg/L	☐	☐	
Mercury	0.2 mg/L	☐	☐	
Nickel	134 mg/L	☐	☐	
Selenium	1 mg/L	☐	☐	
Silver	5 mg/L	☐	☐	
Zinc		☐	☐	
Others:				

H. PHYSICAL/CHEMICAL CONSTITUENTS

%
%
%
%
%
%
%
%
%
%
100 %

(Attach All MSDS, Sample Analysis and Additional Info.)

I. ANTICIPATED VOLUME

Qty.	Container	Qty.	Container
☐ ____	5 gl. pail	☐ ____	Cubic Yard Box*
☐ ____	15 gl. carboy	☐ ____	Super Sack*
☐ ____	30 gl. drum	☐ ____	Rolloff/Dump Trailer*
☐ ____	55 gl. drum	☐ ____	Tanker*
☐ ____	85 gl. drum	☐ ____	Other

Per ☐ 1 Time ☐ Week ☐ Month ☐ Year ☐ Other

(*) Is this waste regulated as a Marine Pollutant (49 CFR 171.8)? ☐ Yes ☐ No

Generator's Certification:
I certify that the above and attached description is complete and accurate to the best of my knowledge and ability to determine that no deliberate or willful omissions of composition properties exist and that all known or suspected hazards have been disclosed. I certify that the materials tested are representative of all material described by this profile.

Generator's Authorized Signature: Date

Form Approved. OMB No. 2050-0039. Expires 9-30-99

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.						
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

FACILITY

20. Facility Owner or Operator: Certification of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

ORIGINAL - RETURN TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No 2050-0039 Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator's US EPA ID No.

Manifest Document No.

22. Page

Information in the shaded areas is not required by Federal law.

7. Generator's Name

L. State Manifest Document Number

M. State Generator's ID

24. Transporter ___ Company Name

25. US EPA ID Number

N. State Transporter's ID

O. Transporter's Phone

26. Transporter ___ Company Name

27. US EPA ID Number

P. State Transporter's ID

Q. Transporter's Phone

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
g.							
h.							
i.							

GENERATOR

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSP

33. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

34. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

35. Discrepancy Indication Space

LDR NOTIFICATION*

(EPA Hazardous Wastes Only)

ENVIRONMENTAL SERVICES

1. Generator Name _____ 2. Manifest No. _____ Page ____ of ____

3. Pursuant to 40 CFR 268.7, this shipment contains waste restricted under PART 268 or RCRA Section 3004(d):

A. *Manifest Line Item No.* _____ & RES/Aptus Waste Stream No. _____

i. EPA Waste Code(s) & Subcategories (if any): _____

☐ *Check if ATTACHMENT I: EPA Waste Code Listing is being submitted with this notification instead of listing codes above.*

ii. Treatability Group: ☐ NWW (including debris) ☐ WW ☐ Lab Pack (Appendix IV) ☐ Lab Pack (268.42[c])**

iii. Waste Constituent Notification(s) (if any): _____

☐ *Check if ATTACHMENT II: Waste Constituent Notification is being submitted with this notification instead of listing constituents above.*

B. *Manifest Line Item No.* _____ & RES/Aptus Waste Stream No. _____

i. EPA Waste Code(s) & Subcategories (if any): _____

☐ *Check if ATTACHMENT I: EPA Waste Code Listing is being submitted with this notification instead of listing codes above.*

ii. Treatability Group: ☐ NWW (including debris) ☐ WW ☐ Lab Pack (Appendix IV) ☐ Lab Pack (268.42[c])**

iii. Waste Constituent Notification(s) (if any): _____

☐ *Check if ATTACHMENT II: Waste Constituent Notification is being submitted with this notification instead of listing constituents above.*

C. *Manifest Line Item No.* _____ & RES/Aptus Waste Stream No. _____

i. EPA Waste Code(s) & Subcategories (if any): _____

☐ *Check if ATTACHMENT I: EPA Waste Code Listing is being submitted with this notification instead of listing codes above.*

ii. Treatability Group: ☐ NWW (including debris) ☐ WW ☐ Lab Pack (Appendix IV) ☐ Lab Pack (268.42[c])**

iii. Waste Constituent Notification(s) (if any): _____

☐ *Check if ATTACHMENT II: Waste Constituent Notification is being submitted with this notification instead of listing constituents above.*

D. *Manifest Line Item No.* _____ & RES/Aptus Waste Stream No. _____

i. EPA Waste Code(s) & Subcategories (if any): _____

☐ *Check if ATTACHMENT I: EPA Waste Code Listing is being submitted with this notification instead of listing codes above.*

ii. Treatability Group: ☐ NWW (including debris) ☐ WW ☐ Lab Pack (Appendix IV) ☐ Lab Pack (268.42[c])**

iii. Waste Constituent Notification(s) (if any): _____

☐ *Check if ATTACHMENT II: Waste Constituent Notification is being submitted with this notification instead of listing constituents above.*

NOTE: Waste Constituent Notification Guidelines: 1) Identify specific F001-F005 & F039 constituents present in waste for these codes; 2) Identify all Underlying Hazardous Constituents present in waste for the following codes: D001 (other than liquid >10% TOC, if not combusted), D002, D003OR, D003WR, D012-D043.

4. ** ☐ Lab Pack (268.42[c]) Certification: I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack does not contain any wastes identified in Appendix IV to Part 268. I am aware that there are significant penalties for submitting a false certification including possibility of fine or imprisonment.

Generator Signature _____ Date ____ / ____ / ____

(Required for 268.42(c) Certification)

WASTE CODE SUBCATEGORY LEGEND

AN	= Anhydrous	LM	= Low Mercury (< 260 mg/kg)	RS	= Reactive Sulfide
CB	= Cadmium Battery	LQ	= Liquid	TOC	= Total Organic Carbon
CS	= Calcium Sulfate	NCS	= Non-Calcium Sulfate	WR	= Water Reactive
HM	= High Mercury (≥260 mg/kg)	NIRR	= Non-Incineration or RMERC Residues	WW	= Wastewater (< 1% TOC and < 1% Total Suspended Solids)
HY	= Hydrated	NWW	= Non-Wastewater		
IRR	= Incineration or RMERC Residues	OR	= Other Reactives [Based on 40 CFR 261.23(a)(1)]		
LB	= Lead Acid Battery	RC	= Reactive Cyanide		

REI 50-017 3/97 * *For wastes not meeting treatment standards or exceeding prohibition levels of 268.32 or RCRA section 3004(d).*

HYDROCARBON RECYCLERS, INC. - WICHITA

MATERIAL RECEIPT RECORD

'rator: ABZ INDUSTRIES
'dress: 12345 STATE STREET

Customer Code: A999
ANYWHERE KS 12345-1234

Receipt Date: 02/18/92
Manifest/Order#: 00001

Line: 11A Labcode: 990001 Quantity: 2 DM 100 G Acceptance: WI98-1234
Product:WASTE FLAMMABLE LIQ.,NOS Waste Codes: D001 D006 Drum #:
Solids(in.)_____ spg._______________ pH_______________ Normality _____
Sniffer _______________ Flashpt.(F)_____ Ignitability(+ \ -)
Bielstein_______________ % Cl (wt.)_____ Btu/lb._____
Compatibility_____ PCB (ppm.)_____ % Yield_____
Disposal Codes: Wasteform _____ TSDR(ON_____ OFF_____ RS_____)
Misc. _____

RECOMMENDATION

Tank# _____

Line: 11B Labcode: 990002 Quantity: 5 DM 2500 P Acceptance: WI98-5678
Product:HAZ. WASTE SOLID, NOS Waste Codes: D006 D007 D008 Drum #:
Solids(in.)_____ spg._______________ pH_______________ Normality _____
Sniffer _______________ Flashpt.(F)_____ Ignitability(+ \ -)
Bielstein_______________ % Cl (wt.)_____ Btu/lb._____
Compatibility_____ PCB (ppm.)_____ % Yield_____
Disposal Codes: Wasteform _____ TSDR(ON_____ OFF_____ RS_____)
Misc. _____

RECOMMENDATION

Tank# _____

Line: 11C Labcode: 990003 Quantity: 1 DM 50 G Acceptance: WI98-9123
Product:WPRM Waste Codes: D001 Drum #:
Solids(in.)_____ spg._______________ pH_______________ Normality _____
Sniffer _______________ Flashpt.(F)_____ Ignitability(+ \ -)
Bielstein_______________ % Cl (wt.)_____ Btu/lb._____
Compatibility_____ PCB (ppm.)_____ % Yield_____
Disposal Codes: Wasteform _____ TSDR(ON_____ OFF_____ RS_____)
Misc. _____

RECOMMENDATION

Tank# _____

Line: 11D Labcode: 990004 Quantity: 1 DM 50 G Acceptance: WI89-4567
Product:W. CORROSIVE LIQ., NOS Waste Codes: D002 Drum #:
Solids(in.)_____ spg._______________ pH_______________ Normality _____
Sniffer _______________ Flashpt.(F)_____ Ignitability(+ \ -)
Bielstein_______________ % Cl (wt.)_____ Btu/lb._____
Compatibility_____ PCB (ppm.)_____ % Yield_____
Disposal Codes: Wasteform _____ TSDR(ON_____ OFF_____ RS_____)
Misc. _____

RECOMMENDATION

Tank# _____

LAIDLAW ENVIRONMENTAL SERVICES

Customer Notification And Certification

FORM A

Page ___ of ___

Generator Name/Location: _____

EPA I.D. Number: _____

Waste Profile or ARF Designation: _____

Manifest Number: _____

EPA Waste Number(s): _____

Waste Analysis Available? Yes (attached) _____ No _____ On file at receiving facility _____

Unrestricted Waste Notification (*Category 1*)

Mark the statement below if you generate a waste that is not a land disposal restricted waste (the waste has no applicable treatment standards).

☐ *I notify that I am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that the waste is not restricted as specified in 40 CFR §268, Subpart D or any applicable prohibitions set forth in 40 CFR §268.32 or RCRA Section 3004(d).*

Restricted Waste/Debris Notification (*Category 2*)

Mark statement (2a) below if you generate a waste that is restricted from land disposal (the waste has applicable treatment standards). NOTE-1: A waste may pass one or more standards and require treatment or be varianced for others. In this case, all applicable categories must be checked. NOTE-2: D001, D002 and D012 - D043 wastes must be evaluated for underlying constituents found in 40 CFR §268. 48 (Table UTS), that are reasonably expected to be present. A list of these constituents must be included on FORM B, or attached to and accompany this notification with each waste shipment. Mark statement (2b) if you generate a debris waste that will be treated to the alternate debris standards located in 40 CFR §268.45.

☐ **(2a) Restricted Waste Notification**

I notify that I am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that the waste is subject to the treatment standards specified in 40 CFR §268 Subpart D. The waste: (a) must be treated to the appropriate regulatory treatment standard, by the appropriate regulatory treatment method; (b) qualifies for a variance as described in category 3 below; or (c) meets some or all of the standards as described in Category 4 below.

☐ **(2b) Alternate Debris Treatment Notification: This hazardous debris is subject to the alternate treatment standards of 40 CFR §268.45.**

The waste contains the following contaminants subject to treatment [check all that apply]:

_____§268.45(b)(1)- Toxicity characteristic debris;

_____§268.45(b)(2)- Debris contaminated with listed waste:

_____§268.45(b)(3)- Cyanide reactive debris.

Restricted Waste Variance Notification (*Category 3*)

Mark the statement below and list the applicable variance date on Form B, if you generate a waste which does not require treatment prior to land disposal because of a variance (including a case-by-case extension under 40 CFR §268.5, a nationwide variance under 40 CFR §268 Subpart C, a no migration petition under 40 CFR §268.6, or other applicable variance).

☐ *I notify pursuant to 40 CFR §268.7(a)(3) that I am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that this waste is subject to a national capacity variance under 40 CFR §268 Subpart C, or a case-by-case extension under 40 CFR §268.5, or an exemption under 40 CFR §268.6.*

Restricted Waste Certification (Treatment Standards Met) (*Category 4*)

Mark the certification statement below if you generate a waste that is restricted from land disposal (the waste has applicable treatment standards), and the waste meets the standards as generated. Note: All applicable constituent standards must be accounted for. A waste may pass one or more standards and require treatment or be variance for other constituents. In this case, all applicable categories must be checked.

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA § 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

SIGNATURE: _____ DATE: _____

PRINT NAME: _____ TITLE: _____

LDR ATTACHMENT II:

Waste Constituent Notification

ENVIRONMENTAL SERVICES

1. Generator Name _____ 2. Manifest No. _____ Page 1 of _____

3. Manifest Line Item No. *(One Only)* _____ & RES/Aptus Waste Stream No. *(One Only)* _____

NOTE: Waste Constituent Notification Guidelines: 1) Identify specific F001-F005 & F039 constituents present in waste for these codes; 2) Identify all Underlying Hazardous Constituents present in waste for the following codes: D001 (other than liquid >10% TOC, if not combusted), D002, D003OR, D003WR, D012-D043.

Inorganic Constituents

- ☐ Antimony
- ☐ Arsenic
- ☐ Barium
- ☐ Beryllium
- ☐ Cadmium
- ☐ Chromium (Total)
- ☐ Cyanides (Total)
- ☐ Cyanides (Amenable)
- ☐ Fluoride (F039 only)*
- ☐ Lead
- ☐ Mercury
- ☐ Nickel
- ☐ Selenium
- ☐ Silver
- ☐ Sulfide
- ☐ Thallium
- ☐ Vanadium (F039 only)*

* Constituent only regulated under F039 wastewaters

Organic Constituents

- ☐ A2213
- ☐ Acenaphthene
- ☐ Acenaphthylene
- ☐ Acetone
- ☐ Acetonitrile
- ☐ Acetophenone
- ☐ 2-Acetylaminofluorene
- ☐ Acrolein
- ☐ Acrylamide
- ☐ Acrylonitrile
- ☐ Aldicarb sulfone
- ☐ Aldrin
- ☐ 4-Aminobiphenyl
- ☐ Aniline
- ☐ Anthracene
- ☐ Aramite
- ☐ Barban
- ☐ Bendiocarb
- ☐ Bendiocarb phenol
- ☐ Benomyl
- ☐ Benz(a)anthracene
- ☐ Benzal chloride
- ☐ Benzene
- ☐ Benzo(b)fluoranthene
- ☐ Benzo(k) fluoranthene
- ☐ Benzo(g,h i),perylene
- ☐ Benzo(a)pyrene
- ☐ alpha-BHC
- ☐ beta-BHC
- ☐ delta-BHC
- ☐ gamma-BHC
- ☐ Bromodichloromethane
- ☐ Bromomethane (Methyl bromide)
- ☐ 4-Bromophenyl phenyl ether
- ☐ n-Butyl alcohol
- ☐ Butyl benzyl phthalate
- ☐ Butylate
- ☐ 2-sec-Butyl-4,6-dinitrophenol (Dinoseb)
- ☐ Carbaryl
- ☐ Carbenzadim
- ☐ Carbofuran
- ☐ Carbofuran phenol
- ☐ Carbon disulfide
- ☐ Carbon tetrachloride
- ☐ Carbosulfan
- ☐ Chlordane (alpha & gamma isomers)
- ☐ p-Chloroaniline
- ☐ Chlorobenzene
- ☐ Chlorobenzilate
- ☐ 2-Chloro-1,3-butadiene
- ☐ Chlorodibromomethane
- ☐ Chloroethane
- ☐ bis(2-Chloroethoxy)methane
- ☐ bis(2-Chloroethyl)ether
- ☐ 2-Chloroethyl vinyl ether
- ☐ Chloroform
- ☐ bis(2-Chloroisopropyl)ether
- ☐ p-Chloro-m-cresol
- ☐ Chloromethane (Methyl chloride)
- ☐ 2-Chloronaphthalene
- ☐ 2-Chlorophenol
- ☐ 3-Chloropropylene
- ☐ Chrysene
- ☐ o-Cresol
- ☐ m-Cresol
- ☐ p-Cresol
- ☐ m-Cumenyl methylcarbamate
- ☐ Cyclohexanone
- ☐ o,p'-DDD
- ☐ p,p'-DDD
- ☐ o,p'-DDE
- ☐ p,p'-DDE
- ☐ o,p'-DDT
- ☐ p,p'-DDT
- ☐ Dibenz(a,h)anthracene
- ☐ Dibenz(a,e)pyrene
- ☐ 1,2-Dibromo-3-chloropropane
- ☐ 1,2-Dibromoethane (Ethylene dibromide)
- ☐ Dibromomethane
- ☐ m-Dichlorobenzene
- ☐ o-Dichlorobenzene
- ☐ p-Dichlorobenzene
- ☐ Dichlorodifluoromethane
- ☐ 1,1-Dichloroethane
- ☐ 1,2-Dichloroethane
- ☐ 1,1-Dichloroethylene
- ☐ trans-1,2-Dichloroethylene
- ☐ 2,4-Dichlorophenol
- ☐ 2,6-Dichlorophenol
- ☐ 2,4-D (2,4-Dichlorophenoxyacetic acid)
- ☐ 1,2-Dichloropropane
- ☐ trans-1,3-Dichloropropylene
- ☐ Dieldrin
- ☐ Diethyl phthalate
- ☐ Diethylene glycol, dicarbamate
- ☐ p-Dimethylaminoazobenzene
- ☐ 2-4-Dimethyl phenol
- ☐ Dimethyl phthalate
- ☐ Dimetilan
- ☐ Di-n-butyl phthalate
- ☐ 1,4-Dinitrobenzene
- ☐ 4,6-Dinitro-o-cresol
- ☐ 2,4-Dinitrophenol
- ☐ 2,4-Dinitrotoluene
- ☐ 2,6-Dinitrotoluene
- ☐ Di-n-octyl phthalate
- ☐ Di-n-propylnitrosamine
- ☐ 1,4-Dioxane
- ☐ Diphenylamine
- ☐ Diphenylnitrosamine
- ☐ 1,2-Diphenylhydrazine
- ☐ Disulfoton
- ☐ Dithiocarbamates (total)
- ☐ Endosulfan I
- ☐ Endosulfan II
- ☐ Endosulfan sulfate
- ☐ Endrin
- ☐ Endrin aldehyde
- ☐ EPTC
- ☐ Ethyl acetate
- ☐ Ethyl benzene
- ☐ Ethyl cyanide (Propanenitrile)
- ☐ Ethyl ether
- ☐ Ethyl methacrylate
- ☐ Ethylene oxide
- ☐ bis(2-Ethylhexyl) phthalate
- ☐ Famphur
- ☐ Fluoranthene
- ☐ Fluorene
- ☐ Formetanate hydrochloride
- ☐ Formparanate
- ☐ Heptachlor
- ☐ Heptachlor epoxide
- ☐ Hexachlorobenzene
- ☐ Hexachlorobutadiene

Manifest No. _____ Manifest Line Item No. _____ Stream No. _____

Continuation of Waste Constituent Notification

- ☐ Hexachlorocyclopentadiene
- ☐ Hexachloroethane
- ☐ Hexachloropropylene
- ☐ HxCDDs (All Hexachlorodibenzo-p-dioxins)
- ☐ HxCDFs (All Hexachloro-dibenzofurans)
- ☐ Indeno (1,2,3-c,d) pyrene
- ☐ Iodomethane
- ☐ Isobutyl alcohol
- ☐ Isodrin
- ☐ Isolan
- ☐ Isosafrole
- ☐ Kepone
- ☐ Methacrylonitrile
- ☐ Methanol
- ☐ Methapyrilene
- ☐ Methiocarb
- ☐ Methomyl
- ☐ Methoxychlor
- ☐ Methyl ethyl ketone
- ☐ Methyl isobutyl ketone
- ☐ Methyl methacrylate
- ☐ Methyl methan-sulfonate
- ☐ Methyl parathion
- ☐ 3-Methylcholanthrene
- ☐ 4,4-Methylene bis(2-chloro-aniline)
- ☐ Methylene chloride
- ☐ Metolcarb
- ☐ Mexacarbate
- ☐ Molinate
- ☐ Naphthalene
- ☐ 2-Naphthylamine
- ☐ o-Nitroaniline
- ☐ p-Nitroaniline
- ☐ Nitrobenzene
- ☐ 5-Nitro-o-toluidine
- ☐ o-Nitrophenol
- ☐ p-Nitrophenol
- ☐ N-Nitrosodiethylamine
- ☐ N-Nitrosodimethylamine
- ☐ N-Nitroso-di-n-butylamine
- ☐ N-Nitrosomethylethylamine
- ☐ N-Nitrosomorpholine
- ☐ N-Nitrosopiperidine
- ☐ N-Nitrosopyrrolidine
- ☐ Oxamyl
- ☐ Parathion
- ☐ Total PCBs
- ☐ Pebulate
- ☐ Pentachlorobenzene
- ☐ PeCDDs (All Pentachloro-dibenzo-p-dioxins)
- ☐ PeCDFs (All Pentachloro-dibenzofurans)
- ☐ Pentachloroethane
- ☐ Pentachloronitro-benzene
- ☐ Pentachlorophenol
- ☐ Phenacetin
- ☐ Phenanthrene
- ☐ Phenol
- ☐ o-Phenylenediamine
- ☐ Phorate
- ☐ Phthalic acid
- ☐ Phthalic anhydride
- ☐ Physostigmine
- ☐ Physostigmine salicylate
- ☐ Promecarb
- ☐ Pronamide
- ☐ Propham
- ☐ Propoxur
- ☐ Prosulfocarb
- ☐ Pyrene
- ☐ Pyridine
- ☐ Safrole
- ☐ Silvex (2,4,5-TP)
- ☐ 1,2,4,5-Tetrachloro-benzene
- ☐ TCDDs (All Tetrachloro-dibenzo-p-dioxins)
- ☐ TCDFs (All Tetrachloro-dibenzofurans)
- ☐ 1,1,1,2-Tetrachloroethane
- ☐ 1,1,2,2,-Tetrachloroethane
- ☐ Tetrachloroethylene
- ☐ 2,3,4,6-Tetrachlorophenol
- ☐ Thiodicarb
- ☐ Thiophanate-methyl
- ☐ Tirpate
- ☐ Toluene
- ☐ Toxaphene
- ☐ Triallate
- ☐ Tribromomethane (Bromoform)
- ☐ 1,2,4-Trichlorobenzene
- ☐ 1,1,1-Trichloroethane
- ☐ 1,1,2-Trichloroethane
- ☐ Trichloroethylene
- ☐ Trichloromonofluoromethane
- ☐ 2,4,5-Trichlorophenol
- ☐ 2,4,6-Trichlorophenol
- ☐ 2,4,5-T (2,4,5-Trichloro phenoxyacetic acid)
- ☐ 1,2,3-Trichloropropane
- ☐ 1,1,2-Trichloro-1,2,2,-trifluoroethane
- ☐ Triethylamine
- ☐ tris-(2,3-Dibromopropyl) phosphate
- ☐ Vernolate
- ☐ Vinyl chloride
- ☐ Xylenes- mixed isomers

TABLE CCWE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT

RCRA 98, 99

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewater Concentration (mg/L)	Wastewater Notes	Nonwastewaters Concentration (mg/L)	Nonwastewaters Notes
D004	NA	Table CCW in 268.43	Arsenic	7440-38-2	NA		5.0	(1)
D005	NA	Table CCW in 268.43	Barium	7440-39-3	NA		100	
D006	NA	Table CCW in 268.43	Cadmium	7440-43-9	NA		1.0	
D007	NA	Table CCW in 268.43	Chromium (Total)	7440-47-32	NA		5.0	
D008	NA	Table CCW in 268.43	Lead	7439-92-1	NA		5.0	(1)
D009 (Low Mercury Subcategory—less than 260 mg/kg Mercury)	NA	Table 2 in 268.42 and Table CCW in 268.43	Mercury	7439-97-6	NA		0.20	
D010	NA	Table CCW in 268.43	Selenium	7782-49-2	NA		5.7	
D011	NA	Table CCW in 268.43	Silver	7440-22-4	NA		5.0	
F001-F005 spent solvents	NA	Table 2 in 268.42 and Table CCW in 268.43	Acetone	67-64-1	0.05		0.59	
			n-Butyl alcohol	71-36-3	5.0		5.0	
			Carbon disulfide	75-15-0	1.05		4.81	
			Carbon tetrachloride	56-23-5	0.05		0.96	
			Chlorobenzene	108-90-7	0.15		0.05	
			Cresols (and cresylic acid)		2.82		0.75	
			Cyclohexanone	108-94-1	0.125		0.75	
			1,2-Dichlorobenzene	95-50-1	0.65		0.125	
			Ethyl acetate	141-78-6	0.05		0.75	
			Ethylbenzene	100-41-4	0.05		0.053	
			Ethyl ether	60-29-7	0.05		0.75	
			Isobutanol	78-83-1	5.0		5.0	
			Methanol	67-56-1	0.25		0.75	
			Methylene chloride	75-9-2	0.20		0.96	
			Methyl ethyl ketone	78-93-3	0.05		0.75	
			Methyl isobutyl ketone	108-10-1	0.05		0.33	
			Nitrobenzene	98-95-3	0.66		0.125	
			Pyridine	110-86-1	1.12		0.33	
			Tetrachloroethylene	127-18-4	0.079		0.05	
			Toluene	108-88-3	1.12		0.33	
			1,1,1-Trichloroethane	71-55-6	1.05		0.41	
			1,1,2-Trichloro-1,2,2-Trifluorethane	76-13-1	1.05		0.96	
			Trichloroethylene	79-01-6	0.062		0.091	
			Trichlorofluoro-methane	75-69-4	0.05		0.96	
			Xylene		0.05		0.15	
F006	NA	Table CCW in 268.43	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F007	NA	Table CCW in 268.43	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F008	NA	Table CCW in 268.43	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	

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268.41 Table CCWE–Constituent Concentrations In Waste Extract

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F001-F005 spent solvents	Concentration (in mg/l)	
	Wastewaters containing spent solvents	All other spent solvent wastes
☐ Acetone	0.05	0.59
☐ n-Butyl alcohol	5.0	5.0
☐ Carbon disulfide	1.05	4.81
☐ Carbon tetrachloride	0.05	0.96
☐ Chlorobenzene	0.15	0.05
☐ Cresols (& Cresylic acid)	2.82	0.75
☐ Cyclohexanone	0.125	0.75
☐ 1,2-Dichlorobenzene	0.65	0.125
☐ Ethyl acetate	0.05	0.75
☐ Ethylbenzene	0.05	0.053
☐ Ethyl ether	0.05	0.75
☐ Isobutanol	5.0	5.0
☐ Methanol	0.25	0.75
☐ Methylene chloride	0.20	0.96
☐ Methyl ethyl ketone	0.05	0.75
☐ Methyl isobutyl ketone	0.05	0.33
☐ Nitrobenzene	0.66	0.125
☐ Pyridine	1.12	0.33
☐ Tetrachloroethylene	0.079	0.05
☐ Toluene	1.12	0.33
☐ 1,1,1-Trichloroethane	1.05	0.41
☐ 1,1,2-Trichloro-1,2,2-Trifluoroethane	1.05	0.96
☐ Trichloroethylene	0.062	0.091
☐ Trichlorofluoromethane	0.05	0.96
☐ Xylene	0.05	0.15

268.43 Table CCW–Constituent Concentrations In Wastes

F001, F002, F003, F004 and F005 wastewaters (Pharmaceutical Industry)	Concentration (in mg/l)
☐ Methylene chloride	0.44

F002 and F005	Concentration in mg/l(ww)	mg/kg(nww)
☐ 1,1,2–Trichloroethane (F002)	0.030	7.6
☐ Benzene (F005)	0.070	3.7
☐ 2-Nitropropane (F005)	Required Method(s)	
☐ 2-Ethoxyethanol (F005)	Required Method(s)	

California List Waste (applies to all states)

Liquid hazardous waste including free liquids associated with any solid or sludge containing the following constituents or characteristic:

	Concentration	Treatment Standard
pH ≤ 2.0		Neutralize/Stabilize
Cyanides	≥ 1,000	Cyanides Destruction/Stabilize
Arsenic	≥ 500	Metals Recovery/Solidification
Cadmium	≥ 100	Metals Recovery/Solidification
Chromium (VI)	≥ 500	Metals Recovery/Solidification
Lead	≥ 500	Metals Recovery/Solidification
Mercury	≥ 20	Metals Recovery/Solidification
Nickel	≥ 134	Metals Recovery/Solidification
Selenuim	≥ 100	Metals Recovery/Solidification
Thallium	≥ 130	Metals Recovery/Solidification
[illegible]	≥ 50	Incineration/High Efficiency Boiler
[illegible], sludge, or liquid Halogenated Organic Compounds (HOCs) listed in 40 CFR 268 Appendix II	≥ 1,000	Incineration/Carbon Adsorption/Solvent Extraction

F001–F005 spent solvents.	NA	Table 2 in 268.42 and Table CCW in 268.43.	Acetone	67-64-1	0.05	0.59
			n-Butyl alcohol	71-36-3	5.0	5.0
			Carbon disulfide	75-15-0	1.05	4.81
			Carbon tetrachloride	56-23-5	0.06	0.96
			Chlorobenzene	108-90-7	0.15	0.05
			Cresols (and cresylic acid)		2.82	0.75
			Cyclohexanone	108-94-1	0.125	0.75
			1,2-Dichlorobenzene	95-50-1	0.65	0.125
			Ethyl acetate	141-78-6	0.05	0.75
			Ethylbenzene	100-41-4	0.05	0.053
			Ethyl ether	60-29-7	0.05	0.75
			Isobutanol	78-83-1	5.0	5.0
			Methanol	67-56-1	0.25	0.75
			Methylene chloride	75-9-2	0.20	0.96
			Methyl ethyl ketone	78-93-3	0.05	0.75
			Methyl isobutyl ketone	108-10-1	0.05	0.33
			Nitrobenzene	98-95-3	0.66	0.125
			Pyridine	110-86-1	1.12	0.33
			Tetrachloroethylene	127-18-4	0.079	0.05
			Toluene	108-88-3	1.12	0.33
			1,1,1-Trichloroethane	71-55-6	1.05	0.41
			1,1,2-Trichloro- 1,2,2-Trifluoroethane	76-13-1	1.05	0.96
			Trichloroethylene	79-01-6	0.062	0.091
			Trichlorofluoromethane	75-69-4	0.05	0.96
			Xylene		0.05	0.15
F006	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA	0.066
			Chromium (Total)	7440-47-32	NA	5.2
			Lead	7439-92-1	NA	0.51
			Nickel	7440-02-0	NA	0.32
			Silver	7440-22-4	NA	0.072
F007	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA	0.066
			Chromium (Total)	7440-47-32	NA	5.2
			Lead	7439-92-1	NA	0.51
			Nickel	7440-02-0	NA	0.32
			Silver	7440-22-4	NA	0.072
F008	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA	0.066
			Chromium (Total)	7440-47-32	NA	5.2
			Lead	7439-92-1	NA	0.51
			Nickel	7440-02-0	NA	0.32
			Silver	7440-22-4	NA	0.072
F009	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA	0.066
			Chromium (Total)	7440-47-32	NA	5.2
			Lead	7439-92-1	NA	0.51
			Nickel	7440-02-0	NA	0.32
			Silver	7440-22-4	NA	0.072

268.41 TABLE CCWE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
F011	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F012	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F019	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		5.2	
F020–F023 and F026–F028 dioxin containing wastes [1].	NA	NA	HxCDD-All Hexachloro-dibenzo-p-dioxins		<1 ppb		<1 ppb	
			HxCDF-All Hexachloro-dibenzofurans		<1 ppb		<1 ppb	
			PeCDD-All Pentachloro-dibenzo-p-dioxins		<1 ppb		<1 ppb	
			PeCDF-All Pentachloro-dibenzofurans		<1 ppb		<1 ppb	
			TCDD-All Tetrachloro-dibenzo-p-dioxins		<1 ppb		<1 ppb	
			TCDF-All Tetrachloro-dibenzofurans		<1 ppb		<1 ppb	
			2,4,6-Trichlorophenol	95-95-4	<1 ppb		<1 ppb	
			2,4,6-Trichlorophenol	88-06-2	<0.05 ppm		<0.05 ppm	
			2,3,4,6-Tetrachlorophenol	58-90-2	<0.05 ppm		<0.05 ppm	
			Pentachlorophenol	87-86-5	<0.01 ppm		<0.01 ppm	
F024	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.073	
			Lead	7439-92-1	NA		[Reserved]	
			Nickel	7440-02-0	NA		0.066	
F039	NA	Table CCW in 268.43.	Antimony	7440-36-0	NA		0.23	
			Arsenic	7440-38-2	NA		5.0	
			Barium	7440-39-3	NA		52	
			Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Mercury	7439-97-6	NA		0.025	
			Nickel	7440-02-0	NA		0.32	
			Selenium	7782-49-2	NA		5.7	
			Silver	7440-22-4	NA		0.072	
K001	NA	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	

K002	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K003	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K004	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K005	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K006 (anhydrous)	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K006 (hydrated)	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		5.2	
K007	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K008	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K015	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.2	
K021	NA	Table CCW in 268.43.	Antimony	7440-36-0	NA		0.23	
K022	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		5.2	
			Nickel	7440-02-0	NA		0.32	
K026	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.073	
			Lead	7439-92-1	NA		0.021	
			Nickel	7440-02-0	NA		0.068	
K031	NA	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
K048	NA	Table CCW in 268.43.	Lead	7439-92-1	NA		0.18	
K048	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K049	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K050	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K051	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K052	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K061 (Low Zinc Subcategory—less than 15% Total Zinc).	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.14	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.24	
			Nickel	7440-02-0	NA		0.32	
K061 (High Zinc Subcategory—greater than 15% Total Zinc)—Effective until August 7th 1991).	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.14	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.24	
			Nickel	7440-02-0	NA		0.32	

Waste code	Chemical name	See also	Regulated hazardous constituent	Hazardous constituent	Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
K062	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K069 (Calcium Sulfate Subcategory).	NA	Table 2 in 268.42 and Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.14	
			Lead	7439-92-1	NA		0.24	
K071	NA	Table CCW in 268.43.	Mercury	7439-97-6	NA		0.025	
K083	NA	Table CCW in 268.43.	Nickel	7440-02-2	NA		0.088	
K084	NA	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
K086	NA	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		037	
K087	NA	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
K100	NA	Table CCW in 268.43.	Cadmium	7440-43-9	NA		0.086	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
K101	NA	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
K102	NA	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
K106 (Low Mercury Subcategory—less than 260 mg/kg Mercury—residues from RMERC).	NA	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.020	
K106 (Low Mercury Subcategory—less than 260 mg/kg Mercury—that are not residues from RMERC).	NA	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.025	
K115	NA	Table CCW in 268.43.	Nickel	7440-02-0	NA		0.32	
P010	Arsenic acid	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
P011	Arsenic pentoxide	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)

P012	Arsenic trioxide	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
P013	Barium cyanide	Table CCW in 268.43.	Barium	7440-39-3	NA		52	
P036	Dichlorophenylarsine.	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
P038	Diethylarsine	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
P065 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—residues from RMERC).	Mercury fulminate	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.20	
P065 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—incinerator residues (and are not residues from RMERC)).	Mercury fulminate	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.025	
P073	Nickel carbonyl	Table CCW in 268.43.	Nickel	7440-02-0	NA		0.32	
P074	Nickel cyanide	Table CCW in 268.43.	Nickel	7440-02-0	NA		0.32	
P092 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—residues from RMERC).	Phenyl mercury acetate.	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.20	
P092 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—incinerator residues (and are not residues from RMERC)).	Phenyl mercury acetate.	Table 2 in 268.42 and Table CCW in 268.43.	Mercury	7439-97-6	NA		0.025	
P099	Potassium silver cyanide.	Table CCW in 268.43.	Silver	7440-22-4	NA		0.072	
P103	Selenourea	Table CCW in 268.43.	Selenium	7782-49-2	NA		5.7	
P104	Silver cyanide	Table CCW in 268.43.	Silver	7440-22-4	NA		0.072	
P110	Tetraethyl lead	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
P114	Thallium selenite	Table CCW in 268.43.	Selenium	7782-49-2	NA		5.7	

268.41 TABLE CCWE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
U032	Calcium chromate	Table CCW in 268.43.	Chromium (Total)	7440-47-32	NA		0.094	
U051	Creosote	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
U136	Cacodylic acid	Table CCW in 268.43.	Arsenic	7440-38-2	NA		5.6	(1)
U144	Lead acetate	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
U145	Lead phosphate	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
U146	Lead subacetate	Table CCW in 268.43.	Lead	7439-92-1	NA		0.51	
U151 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—residues from RMERC).	Mercury	Table CCW in 268.43 and Table 2 in 268.42.	Mercury	7439-97-6	NA		0.20	
U151 (Low Mercury Subcategory—Less than 260 mg/kg Mercury—that are not residues from RMERC.	Mercury	Table CCW in 268.43 and Table 2 in 268.42.	Mercury	7439-97-6	NA		0.025	
U204	Selenium dioxide	Table CCW in 268.43.	Selenium	7782-49-2	NA		5.7	
U205	Selenium sulfide	Table CCW in 268.43.	Selenium	7782-49-2	NA		5.7	

[1] These treatment standards have been based on EP Leachate analysis but this does not preclude the use of TCLP analysis.
[2] These waste codes are not subcategorized into wastewaters and nonwastewaters.
Note: NA means Not Applicable.

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
03 (Reactive Cyanides Sub-category based on 261.23(a)(5)).	NA	NA	Cyanides (Total)	57-12-5	(4)		590	(4)
			Cyanides (Amenable)	57-12-5	0.86		30	
04	NA	Table CCWE in 268.41	Arsenic	7440-38-2	5.0		NA	
05	NA	Table CCWE in 268.41	Barium	7440-39-3	100		NA	
06	NA	Table CCWE in 268.41	Cadmium	7440-43-9	1.0		NA	
07	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	5.0		NA	
08	NA	Table CCWE in 268.41	Lead	7439-92-1	5.0		NA	
09	NA	Table CCWE in 268.41	Mercury	7439-97-6	0.20		NA	
10	NA	Table CCWE in 268.41	Selenium	7782-49-2	1.0		NA	
11	NA	Table CCWE in 268.41	Silver	7440-22-4	5.0		NA	
12	NA	Table 2 in 268.42	Endrin	720-20-8	NA		0.13	(1)
13	NA	Table 2 in 268.42	Lindane	58-89-9	NA		0.066	(1)
14	NA	Table 2 in 268.42	Methoxychlor	72-43-5	NA		0.18	(1)
15	NA	Table 2 in 268.42	Toxaphene	8001-35-1	NA		1.3	(1)
16	NA	Table 2 in 268.42	2,4-D	94-75-7	NA		10.0	(1)
17	NA	Table 2 in 268.42	2,4,5-TP (Silvex)	93-78-5	NA		7.9	(1)
11-F005 spent olvents.	NA	Table CCWE in 268.41 and Table 2 in 268.42.	1,1,2-Trichloroethane	71-55-6	0.030		7.6	(1)
			Benzene	71-43-2	0.070		3.7	(1)
1-F005 spent olvents harmaceutical dustry-Wastewater ubcategory).	NA	NA	Methylene chloride	75-09-2	0.44		NA	
8	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.2		590	
			Cyanides (Amenable)	57-12-5	0.86		30	
			Cadmium					
			Chromium	7440-43-9	1.6		NA	
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.040		NA	
				7440-02-0	0.44		NA	
	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		590	
			Cyanides (Amenable)	57-12-5	0.1		30	
			Chromium (Total)					
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.04		NA	
				7440-02-0	0.44		NA	

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

ste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
J08	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		590	
			Cyanides (Amenable)	57-12-5	0.1		30	
			Chromium				NA	
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.04		NA	
				7440-02-0	0.44		NA	
F009	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		590	
			Cyanides (Amenable)	57-12-5	0.1		30	
			Chromium				NA	
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.04		NA	
				7440-02-0	0.44		NA	
F010	NA	NA	Cyanides (Total)	57-12-5	1.9		1.5	
			Cyanides (Amenable)	57-12-5	0.1		NA	
F011	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
			Chromium (Total)				NA	
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.04		NA	
				7440-02-0	0.44		NA	
F012	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
			Chromium (Total)				NA	
			Lead	7440-47-32	0.32		NA	
			Nickel	7439-92-1	0.04		NA	
				7440-02-0	0.44		NA	
F019	NA	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.2		590	(3)
			Cyanides (Amenable)	57-12-5	0.86		30	(3)
			Chromium (Total)	7440-47-32	0.32		NA	
F024	NA	Table CCWE in 268.41 and Table 2 in 268.42 (Note: F024 organic standards must be treated via incineration (INCIN)).	2-Chloro-1,3-butadiene	126-99-8	0.28	(1)	0.28	(1)
			3-Chloropropene	107-05-1	0.28	(1)	0.28	(1)
			1,1-Dichloroethane	75-34-3	0.014	(1)	0.014	(1)
			1,2-Dichloroethane	107-06-2	0.014	(1)	0.014	(1)
			1,2-Dichloropropane	78-87-5	0.014	(1)	0.014	(1)
			cis-1,3-Dichloropropene.					
			trans-1,3-Dichloropropene.					
			Bis(2-ethylhexyl)-phthalate.	10061-01-5	0.014	(1)	0.014	(1)
			Hexachloroethane					
			Chromium (Total)					
			Nickel	10061-02-6	0.014	(1)	0.014	(1)
				117-81-7	0.036	(1)	1.8	(1)
				67-72-1	0.036	(1)	1.8	(1)
				7440-47-32	0.36		NA	
				7440-02-0	0.47		NA	
F025 (Light Ends Subcategory).	NA	NA	Chloroform	67-66-3	0.046	(3)	6.2	(1)
			1,2-Dichloroethane	107-06-2	0.21	(3)	6.2	(1)
			1,1-Dichloroethylene					
			Methylene chloride	75-35-4	0.025	(3)	6.2	(1)
			Carbon tetrachloride					
			1,1,2-Trichloroethane	75-9-2	0.089	(3)	31	(1)
			Trichloroethylene					
			Vinyl chloride	56-23-5	0.057	(3)	6.2	(1)
				79-00-5	0.054	(3)	6.2	(1)
				79-01-6	0.054	(3)	5.6	(1)
				75-01-4	0.27	(3)	33	(1)
F025 (Spent Filters or Aids and Desiccants bcategory).	NA	NA	Chloroform	67-66-3	0.046	(3)	6.2	(1)
			Methylene chloride	75-9-2	0.089	(3)	31	(1)
			Carbon tetrachloride					
			1,1,2-Trichloroethane	56-23-5	0.057	(3)	6.2	(1)
			Trichloroethylene					
			Vinyl chloride	79-00-5	0.054	(3)	6.2	(1)
			Hexachlorobenzene					
			Hexachlorobutadiene	79-01-6	0.054	(3)	5.6	(1)
			Hexachloroethane	75-01-4	0.27	(3)	33	(1)
				118-74-1	0.055	(3)	37	(1)
				67-66-3	0.055	(3)	28	(1)
				67-72-1	0.055	(3)	30	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
F039	NA	Table CCWE in 268.41	Acetone	67-64-1	0.28	(3)	160	(3)
			Acenaphthalene	208-96-8	0.059	(3)	3.4	(3)
			Acenaphthene	83-32-9	0.059	(3)	4.0	(3)
			Acetonitrile	75-05-8	0.17	(3)	NA	
			Acetophenone	96-86-2	0.010	(3)	9.7	(3)
			2-Acetylaminofluorene	53-96-3	0.059	(3)	140	(3)
			Acrolein				NA	
			Acrylonitrile	107-02-8	0.29	(3)	84	(3)
			Aldrin	107-13-1	0.24	(3)	0.066	(3)
			4-Aminobiphenyl	309-00-2	0.021	(3)	NA	
			Aniline	92-67-1	0.13	(3)	14	(3)
			Anthracene	62-53-3	0.81	(3)	4.0	(3)
			Aramite	120-12-7	0.059	(3)	NA	
			Aroclor 1016	140-57-8	0.36	(3)	0.92	(3)
			Aroclor 1221	12674-11-2	0.013	(3)	0.92	(3)
			Aroclor 1232	11104-28-2	0.014	(3)	0.92	(3)
			Aroclor 1242	11141-16-5	0.013	(3)	0.92	(3)
			Aroclor 1248	53469-21-9	0.017	(3)	0.92	(3)
			Aroclor 1254	12672-29-6	0.013	(3)	1.8	(3)
			Aroclor 1260	11097-69-1	0.014	(3)	1.8	(3)
			alpha-BHC	11096-82-5	0.014	(3)	0.066	(3)
			beta-BHC	319-84-6	0.00014	(3)	0.066	(3)
			delta-BHC	319-85-7	0.00014	(3)	0.066	(3)
			gamma-BHC	319-86-8	0.023	(3)	0.066	(3)
			Benzene	58-89-9	0.0017	(3)	0.066	(3)
			Benz(a)anthracene	71-43-2	0.14	(3)	36	(3)
			Benzo(b)- fluoranthene	56-55-3	0.059	(3)	8.2	(3)
			Benzo(k)- fluoranthene	205-99-2	0.055	(3)	3.4	(3)
			Benzo(g,h,i)- perylene	207-08-9	0.059	(3)	3.4	(3)
			Benzo(a)pyrene	191-24-2	0.0055	(3)	1.5	(3)
			Bromodichloromethane	50-32-8	0.061	(3)	8.2	(3)
			Bromoform (Tribromomethane).	75-27-4	0.35	(3)	15	(3)
			Bromomethane (methyl bromide).	75-25-2	0.63	(3)	15	(3)
			4-Bromophenyl phenyl ether.	74-83-9	0.11	(3)	15	(3)
			n-Butyl alcohol	101-55-3	0.055	(3)	15	(3)
			Butyl benzyl phthalate	71-36-3	5.6	(3)	2.6	(3)
			2-sec-Butyl-4,6-dinitrophenol.	85-68-7	0.017	(3)	7.9	(3)
				88-85-7	0.066	(3)	2.5	(3)
			Carbon tetrachloride	56-23-5	0.057	(3)	5.6	(3)
			Carbon disulfide	75-15-0	0.014	(3)	NA	
			Chlordane	57-74-9	0.0033	(3)	0.13	(3)
			p-Chloroaniline	106-47-8	0.46	(3)	16	(3)
			Chlorobenzene	108-90-7	0.057	(3)	5.7	(3)
			Chlorobenzilate	510-15-6	0.10	(3)	NA	
			2-Chloro-1,3-butadiene	126-99-8	0.057	(3)	NA	
			Chlorodibromomethane	124-48-1	0.057	(3)	15	(3)
			Chloroethane	75-00-3	0.27	(3)	6.0	(3)
			bis(2-Chloroethoxy) methane.	111-91-1	0.036	(3)	7.2	(3)
			bis(2-Chloroethyl) ether	111-44-4	0.033	(3)	7.2	(3)
			Chloroform	67-66-3	0.046	(3)	5.6	(3)
			bis(2-Chloroisopropyl) ether.	39638-32-9	0.055	(3)	7.2	(3)
			p-Chloro-m-cresol	59-50-7	0.018	(3)	14	(3)
			Chloromethane (Methyl chloride).	74-87-3	0.19	(3)	33	(3)
			2-Chloronaphthalene	91-5-7	0.055	(3)	5.6	(3)
			2-Chlorophenol	95-57-8	0.044	(3)	5.7	(3)
			3-Chloropropylene	107-05-1	0.036	(3)	28	(3)
			Chrysene	218-01-9	0.059	(3)	8.2	(3)
			o-Cresol	95-48-7	0.11	(3)	5.6	(3)
			Cresol (m- and p- isomers).		0.77	(3)	3.2	(3)
			Cyclohexanone	108-94-1	0.36	(3)	NA	
			1,2-Dibromo-3-chloropropane.	96-12-8	0.11	(3)	15	(3)
			1,2-Dibromoethane (Ethylene dibromide).	106-93-4	0.028	(3)	15	(3)
			Dibromomethane	74-95-3	0.11	(3)	15	(3)
			2,4-Dichlorophenoxy-acetic acid (2, 4-D).	94-75-7	0.72	(3)	10	(3)
			o,p'-DDD	53-19-0	0.023	(3)	0.087	(3)
			p,p'-DDD	72-54-8	0.023	(3)	0.087	(3)
			o,p'-DDE	3424-82-6	0.031	(3)	0.087	(3)
			p,p'-DDE	72-55-9	0.031	(3)	0.087	(3)
			o,p'-DDT	789-02-6	0.0039	(3)	0.087	(3)
			p,p'-DDT	50-29-3	0.0039	(3)	0.087	(3)
			Dibenz(a,h) anthracene	53-70-3	0.055	(3)	8.2	(3)
			Dibenzo(a,e) pyrene	192-65-4	0.061	(3)	NA	
			m-Dichlorobenzene	541-73-1	0.036	(3)	6.2	(3)
			o-Dichlorobenzene	95-50-1	0.088	(3)	6.2	(3)
			p-Dichlorobenzene	106-46-7	0.090	(3)	6.2	(3)
			Dichlorodifluoromethane.	75-71-8	0.23	(3)	7.2	(3)
			1,1-Dichloroethane	75-34-3	0.059	(3)	7.2	(3)
			1,2-Dichloroethane	107-06-2	0.21	(3)	7.2	(3)
			1,1-Dichloroethylene	75-35-4	0.025	(3)	33	(3)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			trans-1,2-Dichloroethylene.		0.054	(3)	33	(3)
			2,4-Dichlorophenol	120-83-2	0.044	(3)	14	(3)
			2,6-Dichlorophenol	87-65-0	0.044	(3)	14	(3)
			1,2-Dichloropropane	78-87-5	0.85	(3)	18	(3)
			cis-1,3-Dichloropropene.	10061-01-5	0.036	(3)	18	(3)
			trans-1,3-Dichloropropene.	10061-02-6	0.036	(3)	18	(3)
			Dieldrin	60-57-1	0.017	(3)	0.13	(3)
			Diethyl phthalate	84-66-2	0.20	(3)	28	(3)
			2,4-Dimethyl phenol	105-67-9	0.036	(3)	14	(3)
			Dimethyl phthalate	131-11-3	0.047	(3)	28	(3)
			Di-n-butyl phthalate	84-74-2	0.057	(3)	28	(3)
			1,4-Dinitrobenzene	100-25-4	0.32	(3)	2.3	(3)
			4,6-Dinitro-o-cresol	534-52-1	0.28	(3)	160	(3)
			2,4-Dinitrophenol	51-28-5	0.12	(3)	160	(3)
			2,4-Dinitrotoluene	121-14-2	0.32	(3)	140	(3)
			2,6-Dinitrotoluene	606-20-2	0.55	(3)	28	(3)
			Di-n-octyl phthalate	117-84-0	0.017	(3)	28	(3)
			Di-n-propylnitrosoamine	621-64-7	0.40	(3)	14	(3)
			Diphenylamine	122-39-4	0.52	(3)	NA	
			1,2-Diphenyl hydrazine	122-66-7	0.087	(3)	NA	
			Diphenyl nitrosamine	621-64-7	0.40	(3)	NA	
			1, 4-Dioxane	123-91-1	0.12	(3)	170	(3)
			Disulfoton	298-04-4	0.017	(3)	6.2	(3)
			Endosulfan I	959-98-8	0.023	(3)	0.066	(3)
			Endosulfan II	33213-6-5	0.029	(3)	0.13	(3)
			Endosulfan sulfate	1031-07-8	0.029	(3)	0.13	(3)
			Endrin	72-20-8	0.0028	(3)	0.13	(3)
			Endrin aldehyde	7421-93-4	0.025	(3)	0.13	(3)
			Ethyl acetate	141-78-6	0.34	(3)	33	(3)
			Ethyl cyanide	107-12-0	0.24	(3)	360	(3)
			Ethyl benzene	100-41-4	0.057	(3)	6.0	(3)
			Ethyl ether	60-29-7	0.12	(3)	160	(3)
			bis(2-Ethylhexyl) phthalate.	117-81-7	0.28	(3)	28	(3)
			Ethyl methacrylate	97-63-2	0.14	(3)	160	(3)
			Ethylene oxide	75-21-8	0.12	(3)	NA	
			Famphur	52-85-7	0.017	(3)	15	(3)
			Fluoranthene	206-44-0	0.068	(3)	8.2	(3)
			Fluorene	86-73-7	0.059	(3)	4.6	(3)
			Fluorotrichloromethane	75-69-4	0.020	(3)	33	(3)
			Heptachlor	76-44-8	0.0012	(3)	0.066	(3)
			Heptachlor epoxide	1024-57-3	0.016	(3)	0.066	(3)
			Hexachlorobenzene	118-74-1	0.055	(3)	37	(3)
			Hexachlorobutadiene	87-68-3	0.055	(3)	28	(3)
			Hexachlorocyclopentadiene.	77-47-4	0.057	(3)	3.6	(3)
			Hexachlorodibenzo-furans.		0.000063	(3)	0.001	(3)
			Hexachlorodibenzo-p-dioxins.		0.000063	(3)	0.001	(3)
			Hexachloroethane	67-72-1	0.055	(3)	28	(3)
			Hexachloropropene	1888-71-7	0.035	(3)	28	(3)
			Indeno(1,2,3-c,d)pyrene.	193-39-5	0.0055	(3)	8.2	(3)
			Iodomethane	74-88-4	0.19	(3)	65	(3)
			Isobutanol	78-83-1	5.6	(3)	170	(3)
			Isodrin	465-73-6	0.021	(3)	0.066	(3)
			Isosafrole	120-58-1	0.081	(3)	2.6	(3)
			Kepone	143-50-8	0.0011	(3)	0.13	(3)
			Methacrylonitrile	126-98-7	0.24	(3)	84	(3)
			Methanol	67-56-1	5.6	(3)	NA	
			Methapyrilene	91-80-5	0.081	(3)	1.5	(3)
			Methoxychlor	72-43-5	0.25	(3)	0.18	(3)
			3-Methylcholanthrene	56-49-5	0.0055	(3)	15	(3)
			4,4-Methylene-bis-(2-chloroaniline).	101-14-4	0.50	(3)	35	(3)
			Methylene chloride	75-09-2	0.089	(3)	33	(3)
			Methyl ethyl ketone	78-93-3	0.28	(3)	36	(3)
			Methyl isobutyl ketone	108-10-1	0.14	(3)	33	(3)
			Methyl methacrylate	80-62-6	0.14	(3)	160	(3)
			Methyl methanesulfonate.	66-27-3	0.018	(3)	NA	
			Methyl parathion	298-00-0	0.014	(3)	4.6	(3)
			Naphthalene	91-20-3	0.059	(3)	3.1	(3)
			2-Naphthylamine	91-59-8	0.52	(3)	NA	
			p-Nitroaniline	100-01-6	0.028	(3)	28	(3)
			Nitrobenzene	98-95-3	0.068	(3)	14	(3)
			5-Nitro-o-toluidine	99-55-8	0.32	(3)	28	(3)
			4-Nitrophenol	100-02-7	0.12	(3)	29	(3)
			N-Nitrosodiethylamine	55-18-5	0.40	(3)	28	(3)
			N-Nitrosodimethylamine.	62-75-9	0.40	(3)	NA	
			N-Nitroso-di-n-butylamine.	924-16-3	0.40	(3)	17	(3)
			N-Nitrosomethylethylamine.	10595-95-6	0.40	(3)	2.3	(3)
			N-Nitrosomorpholine	59-89-2	0.40	(3)	2.3	(3)
			N-Nitrosopiperidine	100-75-4	0.013	(3)	35	(3)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			N-Nitrosopyrrolidine	930-55-2	0.013	(1)	35	(1)
			Parathion	56-38-2	0.014	(1)	4.6	(1)
			Pentachlorobenzene	608-93-5	0.055	(1)	37	(1)
			Pentachlorodibenzo-furans.		0.000063	(1)	0.001	(1)
			Pentachlorodibenzo-p-dioxins.		0.000063	(1)	0.001	(1)
			Pentachloronitrobenzene.	82-68-8	0.055	(1)	4.8	(1)
			Pentachlorophenol	87-86-5	0.089	(1)	7.4	(1)
			Phenacetin	62-44-2	0.081	(1)	16	(1)
			Phenanthrene	85-01-8	0.059	(1)	3.1	(1)
			Phenol	108-95-2	0.039	(1)	6.2	(1)
			Phorate	298-02-2	0.021	(1)	4.6	(1)
			Phthalic anhydride	85-44-9	0.089	(1)	NA	
			Pronamide	23950-58-5	0.093	(1)	1.5	(1)
			Pyrene	129-00-0	0.067	(1)	8.2	(1)
			Pyridine	110-86-1	0.014	(1)	16	(1)
			Safrole	94-59-7	0.081	(1)	22	(1)
			Silvex (2,4,5-TP)	93-72-1	0.72	(1)	7.9	(1)
			2,4,5-T	93-76-5	0.72	(1)	7.9	(1)
			1,2,4,5,-Tetrachlorobenzene.	95-94-3	0.055	(1)	19	(1)
			Tetrachlorodibenzo-furans.		0.000063	(1)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins.		0.000063	(1)	0.001	(1)
			1,1,1,2-Tetrachloroethane.	630-20-6	0.057	(1)	42	(1)
			1,1,2,2-Tetrachloroethane.	79-34-6	0.057	(1)	42	(1)
			Tetrachloroethylene	127-18-4	0.056	(1)	5.6	(1)
			2,3,4,6-Tetrachlorophenol.	58-90-2	0.030	(1)	37	(1)
			Toluene	108-88-3	0.080	(1)	29	(1)
			Toxaphene	8001-35-1	0.0095	(1)	1.3	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(1)	19	(1)
			1,1,1-Trichloroethane	71-55-6	0.054	(1)	5.6	(1)
			1,1,2-Trichloroethane	79-00-5	0.054	(1)	5.6	(1)
			Trichloroethylene	79-01-6	0.054	(1)	5.6	(1)
			2,4,5-Trichlorophenol	95-95-4	0.18	(1)	37	(1)
			2,4,6-Trichlorophenol	88-06-2	0.035	(1)	37	(1)
			1,2,3-Trichloropropane	96-18-4	0.85	(1)	28	(1)
			1,1,2-Trichloro-1,2,2-trifluoro-ethane.	76-13-1	0.057	(1)	28	(1)
			Tris(2,3-dibromopropyl) phosphate.	126-72-7	0.11	(1)	NA	
			Vinyl chloride	75-01-4	0.27	(1)	33	(1)
			Xylene(s)		0.32	(1)	28	(1)
			Cyanides (Total)	57-12-5	1.2	(1)	1.8	(1)
			Fluoride	16984-48-8	35	(1)	NA	
			Sulfide	8495-25-8	14	(1)	NA	
			Antimony	7440-36-0	1.9	(1)	NA	
			Arsenic	7440-38-2	1.4	(1)	NA	
			Barium	7440-39-3	1.2	(1)	NA	
			Beryllium	7440-41-7	0.82	(1)	NA	
			Cadmium	7440-43-9	0.20	(1)	NA	
			Chromium (Total)	7440-47-32	0.37	(1)	NA	
			Copper	7440-50-8	1.3	(1)	NA	
			Lead	7439-92-1	0.28	(1)	NA	
			Mercury	7439-97-6	0.15	(1)	NA	
			Nickel	7440-02-0	0.55	(1)	NA	
			Selenium	7782-49-2	0.82	(1)	NA	
			Silver	7440-22-4	0.29	(1)	NA	
			Thallium	7440-28-0	1.4	(1)	NA	
			Vanadium	7440-62-2	0.042	(1)	NA	
			Zinc	7440-66-6	1.0	(1)	NA	
K001	NA	Table CCWE in 268.41	Naphthalene	91-20-3	0.031	(1)	1.5	(1)
			Pentachlorophenol	87-86-5	0.16	(1)	7.4	(1)
			Phenanthrene					
			Pyrene	85-01-8	0.031	(1)	1.5	(1)
			Toluene	129-00-0	0.026	(1)	1.5	(1)
			Xylenes (Total)	108-88-3	0.026	(1)	28	(1)
			Lead		0.032	(1)	33	(1)
				7439-92-1	0.037		NA	
K002	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
K003	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
K004	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
K005	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
			Cyanides (Total)	57-12-5	0.74	(1)	(1)	
K006	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	3.4	(1)	NA
			Lead	7439-92-1			(1)	NA
K007	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
			Cyanides (Total)	57-12-5	0.74	(1)	(1)	
K008	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.9	(1)	NA	
			Lead	7439-92-1	3.4	(1)	NA	
K009	NA	NA	Chloroform	67-66-3	0.1		6.0	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K010	NA	NA	Chloroform	67-66-3	0.1		6.0	(1)
K011	NA	NA	Acetonitrile	75-05-8	38		1.8	(1)
			Acrylonitrile	107-13-1	0.06		1.4	(1)
			Acrylamide	79-06-1	19		23	(1)
			Benzene	71-43-2	0.02		0.03	(1)
			Cyanide (Total)	57-12-5	21		57	
K013	NA	NA	Acetonitrile	75-05-8	38		1.8	(1)
			Acrylonitrile	107-13-1	0.06		1.4	(1)
			Acrylamide	79-06-1	19		23	(1)
			Benzene	71-43-2	0.02		0.03	(1)
			Cyanide (Total)	57-12-5	21		57	
K014	NA	NA	Acetonitrile	75-05-8	38		1.8	(1)
			Acrylonitrile	107-13-1	0.06		1.4	(1)
			Acrylamide	79-06-1	19		23	(1)
			Benzene	71-43-2	0.02		0.03	(1)
			Cyanide (Total)	57-12-5	21		57	
K015	NA	Table CCWE in 268.41	Anthracene	120-12-7	1.0		3.4	(1)
			Benzal Chloride	98-87-3	0.28		6.2	(1)
			Sum of Benzo(b) fluoranthene and Benzo(k) fluoranthene.	205-99-2 207-08-9	0.29		3.4	(1)
			Phenanthrene	85-01-8	0.27		3.4	(1)
			Toluene	108-88-3	0.15		6.0	(1)
			Chromium (Total)	7440-47-32	0.32		NA	
			Nickel	7440-02-0	0.44		NA	
K016	NA	NA	Hexachlorobenzene	118-74-1	0.033	(1)	28	(1)
			Hexachlorobutadiene	87-68-3	0.007	(1)	5.6	(1)
			Hexachlorocyclopentadiene.	77-47-4	0.007	(1)	5.6	(1)
			Hexachloroethane	67-72-1	0.033	(1)	28	(1)
			Tetrachloroethene	127-18-4	0.007	(1)	6.0	(1)
K017	NA	NA	1,2-Dichloropropane	78-87-5	0.85	(1,3)	18	(1)
			1,2,3-Trichloropropane	96-18-4	0.85	(1,3)	28	(1)
			Bis(2-chloroethyl)ether	111-44-4	0.033	(1,3)	7.2	(1)
K018	NA	NA	Chloroethane	75-00-3	0.007	(1)	6.0	(1)
			Chloromethane	74-87-3	0.007	(1)	NA	
			1,1-Dichloroethane	75-34-3	0.007	(1)	6.0	(1)
			1,2-Dichloroethane	107-06-2	0.007	(1)	6.0	(1)
			Hexachlorobenzene	118-74-1	0.033	(1)	28	(1)
			Hexachlorobutadiene	87-68-3	0.007	(1)	5.6	(1)
			Hexachloroethane	67-72-1	NA		28	(1)
K019	NA	NA	Pentachloroethane	76-01-7	0.007	(1)	5.6	(1)
			1,1,1-Trichloroethane	71-55-6	0.007	(1)	6.0	(1)
			Bis(2-chloroethyl)ether	111-44-4	0.007	(1)	5.6	(1)
			Chlorobenzene	108-90-7	0.006	(1)	6.0	(1)
			Chloroform	67-66-3	0.007	(1)	6.0	(1)
			p-Dichlorobenzene	106-46-7	0.006	(1)	NA	
			1,2-Dichloroethane	107-06-2	0.007	(1)	6.0	(1)
			Fluorene	86-73-7	0.007	(1)	NA	
			Hexachloroethane	67-72-1	0.033	(1)	28	(1)
			Naphthalene	91-20-3	0.007	(1)	5.6	(1)
			Phenanthrene	85-01-8	0.007	(1)	5.6	(1)
			1,2,4,5-Tetrachlorobenzene.	95-94-3	0.017	(1)	NA	
			Tetrachloroethene	127-18-4	0.007	(1)	6.0	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.023	(1)	19	(1)
			1,1,1-Trichloroethane	71-55-6	0.007	(1)	6.0	(1)
			1,2-Dichloroethane	107-06-2	0.007	(1)	6.0	(1)
K020	NA	NA	1,1,2,2-Tetrachloroethane.	79-34-6	0.007	(1)	5.6	(1)
			Tetrachloroethene	127-18-4	0.007	(1)	6.0	(1)
K021	NA	Table CCWE in 268.41	Chloroform	67-66-3	0.046	(1)	6.2	(1)
			Carbon tetrachloride	56-23-5	0.057	(1)	6.2	(1)
			Antimony	7440-36-0	0.60	(1)	NA	(1)
K022	NA	Table CCWE in 268.41	Toluene	108-88-3	0.080	(1)	0.034	(1)
			Acetophenone	98-86-2	0.010		19	(1)
			Diphenylamine	22-39-4	0.52	(1)	NA	
			Diphenylnitrosamine	86-30-6	0.40	(1)	NA	
			Sum of Diphenylamine and Diphenylnitrosamine.		NA		13	(1)
			Phenol	108-95-2	0.039		12	(1)
			Chromium (Total)	7440-47-32	0.35		NA	
			Nickel	7440-02-0	0.47		NA	
K023	NA	NA	Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.54	(1)	28	(1)
K024	NA	NA	Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.54	(1)	28	(1)
K026	NA	Table CCWE in 268.41	1,1-Dichloroethane	75-34-3	0.007	(1)	6.0	(1)
			trans-1,2-Dichloroethene.		0.033	(1)	6.0	(1)
			Hexachlorobutadiene	87-68-3	0.007	(1)	5.6	(1)
			Hexachloroethane	67-72-1	0.033	(1)	28	(1)
			Pentachloroethane	76-01-7	0.033	(1)	5.6	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			1,1,1,2-Tetrachloroethane	630-20-6	0.007	(1)	5.6	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.007	(1)	5.6	(1)
			1,1,1-Trichloroethane	71-55-6	0.007	(1)	6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.007	(1)	6.0	(1)
			Tetrachloroethylene	127-18-4	0.007	(1)	6.0	(1)
			Cadmium	7440-43-9	6.4		NA	
			Chromium (Total)	7440-47-32	0.35		NA	
			Lead	7439-92-1	0.037		NA	
			Nickel	7440-02-0	0.47		NA	
			Chloroform	67-66-3	0.046		6.0	(1)
K029	NA	NA	1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			1,1-Dichloroethylene	75-35-4	0.025		6.0	(1)
			1,1,1-Trichloroethane	71-55-6	0.054		6.0	(1)
			Vinyl chloride	75-01-4	0.27		6.0	(1)
			o-Dichlorobenzene	95-50-1	0.008	(1)	NA	
K030	NA	NA	p-Dichlorobenzene	106-46-7	0.006	(1)	NA	
			Hexachlorobutadiene	87-68-3	0.007	(1)	5.6	(1)
			Hexachloroethane	67-72-1	0.033	(1)	28	(1)
			Hexachloropropene	1888-71-7	NA		19	(1)
			Pentachlorobenzene	608-93-5	NA		28	(1)
			Pentachloroethane	76-01-7	0.007	(1)	5.6	(1)
			1,2,4,5-Tetrachlorobenzene	95-94-3	0.017	(1)	14	(1)
			Tetrachloroethene	127-18-4	0.007	(1)	6.0	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.023	(1)	19	(1)
K031	NA	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	(1)
K032	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(1)	2.4	(1)
			Chlordane	57-74-9	0.0033	(1)	0.26	(1)
			Heptachlor	76-44-8	0.0012	(1)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(1)	0.066	(1)
K033	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(1)	2.4	(1)
K034	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(1)	2.4	(1)
K035	NA	NA	Acenaphthene	83-32-9	NA		3.4	(1)
			Anthracene	120-12-7	NA		3.4	(1)
			Benz(a)anthracene	56-55-3	0.059	(1)	3.4	(1)
			Benzo(a)pyrene	50-32-8	NA		3.4	(1)
			Chrysene	218-01-9	0.059	(1)	3.4	(1)
			Dibenz(a,h)anthrac-ene	53-70-3	NA		3.4	(1)
			Fluoranthene	206-44-0	0.068	(1)	3.4	(1)
			Fluorene	86-73-7	NA		3.4	(1)
			Indeno(1,2,3-cd)pyrene	193-39-5	NA		3.4	(1)
			Cresols (m- and p-isomers)		0.77	(1)	NA	
			Naphthalene	91-20-3	0.059	(1)	3.4	(1)
			o-cresol	95-48-7	0.11	(1)	NA	
			Phenanthrene	85-01-8	0.059	(1)	3.4	(1)
			Phenol	108-95-2	0.039		NA	
			Pyrene	129-00-0	0.067	(1)	8.2	(1)
			Disulfoton	298-04-4	0.025	(1)	0.1	(1)
K036	NA	NA	Disulfoton	298-04-4	0.025	(1)	0.1	(1)
K037	NA	NA	Toluene	108-88-3	0.080	(1)	28	(1)
			Phorate	298-02-2	0.025	(1)	0.1	(1)
			Phorate	298-02-2	0.025	(1)	0.1	(1)
K038	NA	NA	Toxaphene	8001-35-1	0.0095	(1)	2.6	(1)
K040	NA	NA	1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	(1)	4.4	(1)
K041	NA	NA	o-Dichlorobenzene	95-50-1	0.088	(1)	4.4	(1)
K042	NA	NA	p-Dichlorobenzene	106-46-7	0.090	(1)	4.4	(1)
			Pentachlorobenzene	608-93-5	0.055	(1)	4.4	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(1)	4.4	(1)
			2,4-Dichlorophenol	120-83-2	0.049	(1)	0.38	(1)
K043	NA	NA	2,6-Dichlorophenol	87-65-0	0.013	(1)	0.34	(1)
			2,4,5-Trichlorophenol	95-95-4	0.016	(1)	8.2	(1)
			2,4,6-Trichlorophenol	88-06-2	0.039	(1)	7.6	(1)
			Tetrachlorophenols (Total)		0.018	(1)	0.68	(1)
			Pentachlorophenol	87-86-5	0.022	(1)	1.9	(1)
			Tetrachloroethene	79-01-6	0.006	(1)	1.7	(1)
			Hexachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Hexachlorodibenzo-furans		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-furans		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-furans		0.001	(1)	0.001	(1)
K046	NA	Table CCWE in 268.41	Lead	7439-92-1	0.037		NA	

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K046	NA	Table CCWE in 268.41	Benzene	71-43-2	0.011	(1)	14	(1)
			Benzo(a)pyrene	50-32-8	0.047	(1)	12	(1)
			Bis(2-ethylhexyl) phthalate.	117-81-7	0.043	(1)	7.3	(1)
			Chrysene	218-01-9	0.043	(1)	15	(1)
			Di-n-butyl phthalate	84-74-2	0.05	(1)	3.6	(1)
			Ethylbenzene					
			Fluorene	100-41-4	0.011	(1)	14	(1)
			Naphthalene	86-73-7	0.005	(1)	NA	
			Phenanthrene	91-20-3	0.033	(1)	42	(1)
			Phenol	85-01-8	0.039	(1)	34	(1)
			Pyrene	108-95-2	0.047	(1)	3.6	(1)
			Toluene	129-00-0	0.045	(1)	36	(1)
			Xylene(s)	108-88-3	0.011	(1)	14	(1)
			Cyanides (Total)		0.011	(1)	22	(1)
			Chromium (Total)	57-12-5	0.028	(1)	1.8	(1)
			Lead	7440-47-32	0.2		NA	
				7439-92-1	0.037		NA	
K049	NA	Table CCWE in 268.41	Anthracene	120-12-7	0.039	(1)	28	(1)
			Benzene	71-43-2	0.011	(1)	14	(1)
			Benzo(a)pyrene	50-32-8	0.047	(1)	12	(1)
			Bis(2-ethylhexyl) phthalate.	117-81-7	0.043	(1)	7.3	(1)
			Carbon disulfide	75-15-0	0.011	(1)	NA	
			Chrysene	2218-01-9	0.043	(1)	15	(1)
			2,4-Dimethylphenol	105-67-9	0.033	(1)	NA	
			Ethylbenzene					
			Naphthalene	100-41-4	0.011	(1)	14	(1)
			Phenanthrene	91-20-3	0.033	(1)	42	(1)
			Phenol	85-01-8	0.039	(1)	34	(1)
			Pyrene	108-95-2	0.047	(1)	3.6	(1)
			Toluene	129-00-0	0.045	(1)	36	(1)
			Xylene(s)	108-88-3	0.011	(1)	14	(1)
			Cyanides (Total)		0.011	(1)	22	(1)
			Chromium (Total)	57-12-5	0.028	(1)	1.8	(1)
			Lead	7440-47-32	0.2		NA	
				7439-92-1	0.037	(1)	NA	
K050	NA	Table CCWE in 268.41	Benzo(a)pyrene	50-32-8	0.047	(1)	12	(1)
			Phenol	108-95-2	0.047	(1)	3.6	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K051	NA	Table CCWE in 268.41	Acenaphthene	208-96-8	0.05	(1)	NA	
			Anthracene	120-12-7	0.039	(1)	28	(1)
			Benzene	71-43-2	0.011	(1)	14	(1)
			Benzo(a)- anthracene	50-32-8	0.043	(1)	20	(1)
			Benzo(a)pyrene	117-81-7	0.047	(1)	12	(1)
			Bis(2-ethylhexyl) phthalate.	75-15-0	0.043	(1)	7.3	(1)
			Chrysene	2218-01-09				
			Di-n-butyl phthalate	105-67-9	0.043	(1)	15	(1)
			Ethylbenzene		0.05	(1)	3.6	(1)
			Fluorence	100-41-4				
			Naphthalene	86-73-7	0.011	(1)	14	(1)
			Phenanthrene	91-20-3	0.05	(1)	NA	
			Phenol	85-01-8	0.033	(1)	42	(1)
			Pyrene	108-95-2	0.039	(1)	34	(1)
			Toluene	129-00-0	0.047	(1)	3.6	(1)
			Xylene(s)	108-88-3	0.045	(1)	36	(1)
			Cyanides (Total)		0.011	(1)	14	(1)
			Chromium (Total)	57-12-5	0.011	(1)	22	(1)
			Lead	7440-47-32	0.028	(1)	1.8	(1)
				7439-92-1	0.2		NA	
					0.037		NA	
K052	NA	Table CCWE in 268.41	Benzene	71-43-2	0.011	(1)	14	(1)
			Benzo(a)pyrene	50-32-8	0.047	(1)	12	(1)
			o-Cresol	95-48-7	0.011	(1)	6.2	(1)
			p-Cresol	106-44-5	0.011	(1)	6.2	(1)
			2,4-Dimethylphenol	105-67-9	0.033	(1)	NA	
			Ethylbenzene					
			Naphthalene	100-41-4	0.011	(1)	14	(1)
			Phenanthrene	91-20-3	0.033	(1)	42	(1)
			Phenol	85-01-8	0.039	(1)	34	(1)
			Toluene	108-95-2	0.047	(1)	3.6	(1)
			Xylenes	108-88-3	0.011	(1)	14	(1)
			Cyanides (Total)		0.011	(1)	22	(1)
			Chromium (Total)	57-12-5	0.028	(1)	1.8	(1)
			Lead	7440-47-32	0.2		NA	
				7439-92-1	0.037		NA	
K060	NA	NA	Benzene	71-43-2	0.17	(1,3)	0.071	(1)
			Benzo(a)pyrene	50-32-8	0.035	(1,3)	3.6	(1)
			Naphthalene	91-20-3	0.028	(1,3)	3.4	(1)
			Phenol	108-95-2	0.042	(1,3)	3.4	(1)
			Cyanides (Total)	57-12-5	1.9		1.2	
K061	NA	Table CCWE in 268.41	Cadmium	7440-43-9	1.61		NA	
			Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.51		NA	
			Nickel	7440-02-0	0.44		NA	

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K062	NA	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.04		NA	
			Nickel	7440-02-0	0.44		NA	
K069	NA	Table CCWE in 268.41 and Table 2 in 268.42.	Cadmium	7440-43-9	1.8		NA	
			Lead	7439-92-1	0.51		NA	
K071	NA	Table CCWE in 268.41	Mercury	7439-97-6	0.030		NA	
K073	NA	NA	Carbon tetrachloride	56-23-5	0.057	(1)	6.2	(1)
			Chloroform	67-66-3	0.046	(1)	6.2	(1)
			Hexachloroethane	67-72-1	0.055	(1)	30	(1)
			Tetrachloroethane	127-18-4	0.056	(1)	6.2	(1)
			1,1,1-Trichloroethane	71-55-6	0.054	(1)	6.2	(1)
K083	NA	Table CCWE in 268.41	Benzene	71-43-2	0.14	(1)	6.6	(1)
			Aniline	62-53-3	0.81		14	(1)
			Diphenylamine	22-39-4	0.52	(1)	NA	
			Diphenylnitrosamine	86-30-6	0.40	(1)	NA	
			Sum of Diphenylamine and Diphenylnitrosamine.		NA		14	(1)
			Nitrobenzene					
			Phenol					
			Cyclohexanone					
			Nickel	98-95-3	0.068	(1)	14	(1)
				108-95-2	0.039		5.6	(1)
				108-94-1	0.36		NA	
				7440-02-0	0.47		NA	
K084	NA	NA	Arsenic	7440-38-2	0.79		NA	
K085	NA	NA	Benzene	71-43-2	0.14	(1)	4.4	(1)
			Chlorobenzene	108-90-7	0.057	(1)	4.4	(1)
			o-Dichlorobenzene	95-50-1	0.088	(1)	4.4	(1)
			m-Dichlorobenzene	541-73-1	0.036	(1)	4.4	(1)
			p-Dichlorobenzene	106-46-7	0.090	(1)	4.4	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(1)	4.4	(1)
			1,2,4,5-Tetrachlorobenzene.	95-94-3	0.055	(1)	4.4	(1)
			Pentachlorobenzene	608-93-5	0.055	(1)	4.4	(1)
			Hexachlorobenzene	118-74-1	0.055	(1)	4.4	(1)
			Aroclor 1016	12674-11-2	0.013	(1)	0.92	(1)
			Aroclor 1221	11104-28-2	0.014	(1)	0.92	(1)
			Aroclor 1232	11141-16-5	0.013	(1)	0.92	(1)
			Aroclor 1242	53469-21-9	0.017	(1)	0.92	(1)
			Aroclor 1248	12672-29-6	0.013	(1)	0.92	(1)
			Aroclor 1254	11097-69-1	0.014	(1)	1.8	(1)
			Aroclor 1260	11096-82-5	0.014	(1)	1.8	(1)
K086	NA	Table CCWE in 268.41	Acetone	67-64-1	0.28		160	(1)
			Acetophenone	96-86-2	0.010		9.7	(1)
			117-81-7	0.28	(1)	28	(1)	
	Bis(2-ethylhexyl) phthalate		71-36-3	5.6		2.6	(1)	
	n-Butyl alcohol		85-68-7	0.017	(1)	7.9		
	Butylbenzylphthalate		108-94-1	0.36		NA	(1)	
	Cyclohexanone		95-50-1	0.088		6.2	(1)	
	1,2-Dichlorobenzene		84-66-2	0.20	(1)	28	(1)	
	Diethyl phthalate		131-11-3	0.047	(1)	28	(1)	
	Dimethyl phthalate		84-74-2	0.057	(1)	28	(1)	
	Di-n-butyl phthalate		117-84-0	0.017	(1)	28	(1)	
	Di-n-octyl phthalate		141-78-6	0.34	(1)	33	(1)	
	Ethyl acetate		100-41-4	0.057	(1)	6.0		
	Ethylbenzene		67-56-1	5.6	(1)	NA	(1)	
	Methanol		108-10-1	0.14		33	(1)	
	Methyl isobutyl ketone		78-93-3	0.28		36	(1)	
	Methyl ethyl ketone		75-09-2	0.089	(1)	33	(1)	
	Methylene chloride		91-20-3	0.059	(1)	3.1	(1)	
	Naphthalene		98-95-3	0.068	(1)	14	(1)	
	Nitrobenzene		108-88-3	0.080	(1)	28	(1)	
	Toluene		71-55-6	0.054	(1)	5.6	(1)	
	1,1,1-Trichloroethane		79-01-6	0.054	(1)	5.6	(1)	
	Trichloroethylene			0.32	(1)	28	(1)	
	Xylenes (Total)		57-12-5	1.8		1.5		
	Cyanides (Total)		7440-47-32	0.32		NA		
	Chromium (Total)		7439-92-1	0.037		NA		
	Lead							
K087	NA	Table CCWE in 268.41	Acenaphthalene	208-96-8	0.028	(1)	3.4	(1)
			Benzene	71-43-2	0.014	(1)	0.071	(1)
			Chrysene	218-01-9	0.028	(1)	3.4	(1)
			Fluoranthene	206-44-0	0.028	(1)	3.4	(1)
			Indeno(1,2,3-cd)pyrene	193-39-5	0.028	(1)	3.4	(1)
			Naphthalene	91-20-3	0.028	(1)	3.4	(1)
			Phenanthrene	85-01-8	0.028	(1)	3.4	(1)
			Toluene	108-88-3	0.008	(1)	0.65	(1)
			Xylenes		0.014	(1)	0.07	(1)
			Lead	7439-92-1	0.037		NA	
K093	NA	NA	Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.54	(1)	28	(1)
K094	NA	NA	Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.54	(1)	28	(1)
K095	NA	NA	1,1,1,2-Tetrachloroethane.	630-20-6	0.057		5.6	(1)
			1,1,2,2-Tetrachloroethane.	79-34-5	0.057		5.6	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.054		6.0	(1)
			Trichloroethylene	79-01-6	0.054		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Pentachloroethane	76-01-7	0.055		5.6	(1)
K096	NA	NA	1,1,1,2-Tetrachloroethane.	630-20-6	0.057		5.6	(1)
			1,1,2,2-Tetrachloroethane.	79-34-6	0.057		5.6	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.054		6.0	(1)
			Trichloroethene	79-01-6	0.054		5.6	(1)
			Trichloroethylene	79-01-6	0.054		5.6	(1)
			1,3-Dichlorobenzene	541-73-1	0.036		5.6	(1)
			Pentachloroethane	76-01-7	0.055		5.6	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055		19	(1)
K097	NA	NA	Hexachlorocyclopentadiene.	77-47-4	0.057	(1)	2.4	(1)
			Chlordane	57-74-9	0.0033	(1)	0.26	(1)
			Heptachlor	76-44-8	0.0012	(1)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(1)	0.066	(1)
K098	NA	NA	Toxaphene	8001-35-1	0.0095	(1)	2.6	(1)
K099	NA	NA	2,4-Dichlorophenoxyacetic acid.	94-75-7	1.0	(1)	1.0	(1)
			Hexachlorodibenzo-p-dioxins.		0.001	(1)	0.001	(1)
			Hexachlorodibenzofurans.		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-p-dioxins.		0.001	(1)	0.001	(1)
			Pentachlorodibenzofurans.		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins.		0.001	(1)	0.001	(1)
			Tetrachlorodibenzofurans.		0.001	(1)	0.001	(1)
K100	NA	Table CCWE in 268.41	Cadmium	7440-43-9	1.6		NA	
			Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.51		NA	
K101	NA	NA	o-Nitroaniline		0.27	(1)	14	(1)
			Arsenic	7440-38-2	0.79		NA	
			Cadmium	7440-43-9	0.24		NA	
			Lead	7439-92-1	0.17		NA	
			Mercury	7439-97-6	0.062		NA	
K102	NA	Table CCWE in 268.41	o-Nitrophenol		0.028	(1)	13	(1)
			Arsenic	7440-38-2	0.79		NA	
			Cadmium	7440-43-9	0.24		NA	
			Lead	7439-92-1	0.17		NA	
			Mercury	7439-97-6	0.062		NA	
			Aniline	62-53-3	4.5		5.6	(1)
			Benzene	71-43-2	0.15		6.0	(1)
K103	NA	NA	2,4-Dinitrophenol	51-28-5	0.61		5.6	(1)
			Nitrobenzene	98-95-3	0.073		5.6	(1)
			Phenol	108-95-2	1.4		5.6	(1)
			Aniline	62-53-3	4.5		5.6	(1)
			Benzene	71-43-2	0.15		6.0	(1)
K104	NA	NA	2,4-Dinitrophenol	51-28-5	0.61		5.6	(1)
			Nitrobenzene	98-95-3	0.073		5.6	(1)
			Phenol	108-95-2	1.4		5.6	(1)
			Cyanides (Total)	57-12-5	2.7		1.8	(1)
			Benzene	71-43-2	0.14		4.4	(1)
			Chlorobenzene	108-90-7	0.057		4.4	(1)
			o-Dichlorobenzene	95-50-1	0.088		4.4	(1)
			p-Dichlorobenzene	106-46-7	0.090		4.4	(1)
			2,4,5-Trichlorophenol	95-95-4	0.18		4.4	(1)
			2,4,6-Trichlorophenol	88-06-2	0.035		4.4	(1)
			2-Chlorophenol	95-57-8	0.044		4.4	(1)
			Phenol	108-95-2	0.039		4.4	(1)
K105	NA	NA	Mercury	7439-97-6	0.030		NA	
K106	NA	Table CCWE in 268.41 and Table 2 in 268.42.	Nickel	7440-02-0	0.47		NA	
K115	NA	Table CCWE in 268.41	Aldrin	309-00-2	0.021	(1)	0.066	(1)
P004	Aldrin	NA	Arsenic	7440-38-2	0.79		NA	
P010	Arsenic acid	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	
P011	Arsenic pentoxide	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	
P012	Arsenic trioxide	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
P013	Barium cyanide	Table CCWE in 268.41	Cyanides (Amenable)	57-12-5	0.1		9.1	
P020	2-sec-Butyl-4,6-dinitrophenol (Dinoseb).	NA	2-sec-Butyl-4,6-dinitrophenol (Dinoseb).	88-85-7	0.066		2.5	(1)
P021	Calcium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P022	Carbon disulfide	Table 2 in 268.42	Carbon disulfide	75-15-0	0.014		NA	
P024	p-Chloroaniline	NA	p-Chloroaniline	106-47-8	0.46		16	(1)
P029	Copper cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P030	Cyanides (soluble salts and complexes.	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P036	Dichlorophenylarsine	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	
P037	Dieldrin	NA	Dieldrin	60-57-1	0.017	(1)	0.13	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
P036	Dichlorophenylarsine	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	
P039	Disulfoton	NA	Disulfoton	298-04-4	0.017		0.1	(1)
P047	4,6-Dinitro-o-cresol	NA	4,6-Dinitro-o-cresol	534-52-1	0.28	(2)	160	(1)
P048	2,4-Dinitrophenol	NA	2,4-Dinitrophenol	51-28-5	0.12	(2)	160	(1)
P050	Endosulfan	NA	Endosulfan I	959-98-8	0.023	(2)	0.066	(1)
			Endosulfan II	33213-6-5	0.029	(2)	0.13	(1)
			Endosulfan sulfate	1031-07-8	0.029	(2)	0.13	(1)
P051	Endrin	NA	Endrin	72-20-8	0.0028	(2)	0.13	(1)
			Endrin aldehyde	7421-93-4	0.025	(2)	0.13	(1)
P055	Fluoride	Table 2 in 268.42	Fluoride	16984-48-8	35		NA	
P059	Heptachlor	NA	Heptachlor	76-44-8	0.0012	(2)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(2)	0.066	(1)
P060	Isodrin	NA	Isodrin	465-73-6	0.021	(2)	0.066	(1)
P063	Hydrogen cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P065	Mercury fulminate	Table CCWE in 268.41 and Table 2 in 268.42.	Mercury	7439-97-6	0.030		NA	
P071	Methyl parathion	NA	Methyl parathion	298-00-0	0.025		0.1	(1)
P073	Nickel carbonyl	Table CCWE in 268.41	Nickel	7440-02-0	0.32		NA	
P074	Nickel cyanide	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
			Nickel	7440-02-0	0.44		NA	
P077	p-Nitroaniline	NA	p-Nitroaniline	100-01-6	0.028	(2)	28	(1)
P082	N-Nitrosodimethylamine.	Table 2 in 268.42	N-Nitrosodimethylamine.	62-75-9	0.40	(2)	NA	
P089	Parathion	NA	Parathion	56-38-2	0.025		0.1	(1)
P092	Phenylmercury acetate	Table CCWE in 268.41 and Table 2 in 268.42.	Mercury	7439-97-6	0.030		NA	
P094	Phorate	NA	Phorate	298-02-2	0.025		0.1	(1)
P097	Famphur	NA	Famphur	52-85-7	0.025		0.1	(1)
P098	Potassium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P099	Potassium silver cyanide.	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
			Silver	7440-22-4	0.29		NA	
P101	Ethyl cyanide (Propanenitrile).	NA	Ethyl cyanide (Propanenitrile).	107-12-0	0.24	(2)	360	(1)
P103	Selenourea	Table CCWE in 268.41	Selenium	7782-49-2	1.0	(2)	NA	
P104	Silver cyanide	Table CCWE in 268.41	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
			Silver	7440-22-4	0.29		NA	
P106	Sodium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P110	Tetraethyl lead	Table CCWE in 268.41 and Table 2 in 268.42.	Lead	7439-92-1	0.040		NA	
P113	Thallic oxide	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
P114	Thallium selenite	Table CCWE in 268.41	Selenium	7782-49-2	1.0		NA	
P115	Thallium(I)sulfate	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
P119	Ammonia vanadate	Table 2 in 268.42	Vanadium	7440-62-2	28	(2)	NA	
P120	Vanadium pentoxide	Table 2 in 268.42	Vanadium	7440-62-2	28	(2)	NA	
P121	Zinc cyanide	NA	Cyanides Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P123	Toxaphene	NA	Toxaphene	8001-35-1	0.0095	(2)	1.3	(1)
U002	Acetone	NA	Acetone	67-64-1	0.28		160	(1)
U003	Acetonitrile	Table 2 in 268.42	Acetonitrile	75-05-8	0.17		0.17	
U004	Acetophenone	NA	Acetophenone	98-86-2	0.010	(1)	9.7	(1)
U005	2-Acetylaminofluorene	NA	2-Acetylaminofluorene	53-96-3	0.059	(2)	140	(1)
U009	Acrylonitrile	NA	Acrylonitrile	107-13-1	0.24	(2)	84	(1)
U012	Aniline	NA	Aniline	62-53-3	0.81		14	(1)
U018	Benz(a)anthracene	NA	Benz(a)anthracene	56-55-3	0.059	(2)	8.2	(1)
U019	Benzene	NA	Benzene	71-43-2	0.14	(2)	36	(1)
U022	Benzo(a)pyrene	NA	Benzo(a)pyrene	50-32-8	0.061	(2)	8.2	(1)
U024	Bis(2-chloroethoxy) methane.	NA	Bis(2-chloroethoxy) methane.	111-91-1	0.036		7.2	(1)
U025	Bis(2-chloroethyl) ether	NA	Bis(2-chloroethyl) ether	111-44-4	0.033		7.2	(1)
U027	Bis(2-chloroisopropyl) ether.	NA	Bis(2-chloroisopropyl) ether.	39638-32-9	0.055	(2)	7.2	(1)
U028	Bis(2-ethylhexyl) phthalate.	NA	Bis(2-ethylhexyl) phthalate.	117-81-7	0.54	(1)	28	(1)
U029	Bromomethane (Methyl bromide).	NA	Bromomethane (Methyl bromide).	74-83-9	0.11	(1)	15	(1)
U030	4-Bromophenyl phenyl ether.	NA	4-Bromophenyl phenyl ether.	101-55-3	0.055	(1)	15	(1)
U031	n-Butyl alcohol	NA	n-Butyl alcohol	71-36-3	5.6		2.6	(1)
U032	Calcium chromate	Table CCWE in 268.41	Chromium (Total)	7440-47-32	0.32		NA	
U036	Chlordane (alpha and gamma).	NA	Chlordane (alpha and gamma).	57-74-9	0.0033	(2)	0.13	(1)
U037	Chlorobenzene	NA	Chlorobenzene	108-90-7	0.057	(2)	5.7	(1)
U038	Chlorobenzilate	Table 2 in 268.42	Chlorobenzilate	510-15-6	0.10	(2)	NA	
U039	p-Chloro-m-cresol	NA	p-Chloro-m-cresol	59-50-7	0.018	(2)	14	(1)
U042	2-Chloroethyl vinyl	Table 2 in 268.42	2-Chloroethyl vinyl	110-75-8	0.057		NA	
U043	Vinyl chloride	NA	Vinyl chloride	75-01-4	0.27	(2)	33	(1)
U044	Chloroform	NA	Chloroform	67-66-3	0.046	(2)	5.6	(1)
U045	Chloromethane (Methyl chloride).	NA	Chloromethane (Methyl chloride).	74-87-3	0.19	(2)	33	(1)
U047	2-Chloro- naphthalene	NA	2-Chloro- naphthalene	91-58-7	0.055	(2)	5.6	(1)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U048	2-Chlorophenol	NA	2-Chlorophenol	95-57-8	0.044	(3)	5.7	(3)
U050	Chrysene	NA	Chrysene	218-01-9	0.059	(3)	8.2	(3)
U051	Creosote	Table CCWE in 268.41	Naphthalene	91-20-3	0.031		1.5	(3)
			Pentachlorophenol	87-86-5	0.18		7.4	(3)
			Phenanthrene					
			Pyrene	85-01-8	0.031		1.5	(3)
			Toluene	129-00-0	0.028		1.5	(3)
			Xylenes (Total)	108-88-3	0.028		28	(3)
			Lead		0.032		33	(3)
				7439-92-1	0.037		NA	
U052	Cresols (Cresylic acid)	NA	o-Cresol	95-48-7	0.11	(3)	5.6	(3)
			Cresols (m- and p-isomers).		0.77	(3)	3.2	(3)
U057	Cyclohexanone	Table 2 in 268.42	Cyclohexanone	108-94-1	0.36		NA	
U060	DDD	NA	o,p'-DDD	53-19-0	0.023		0.087	(3)
			p,p'-DDD	72-54-8	0.023		0.087	(3)
U061	DDT	NA	o,p'-DDT	789-02-6	0.0039	(3)	0.087	(3)
			p,p'-DDT	50-29-3	0.0039	(3)	0.087	(3)
			o,p'-DDD	53-19-0	0.023	(3)	0.087	(3)
			p,p'-DDD	72-54-8	0.023	(3)	0.087	(3)
			o,p'-DDE	3424-82-6	0.031	(3)	0.087	(3)
			p,p'-DDE	72-55-9	0.031	(3)	0.087	(3)
U063	Dibenzo(a,h) anthracene.	NA	Dibenzo(a,h) anthracene.	53-70-3	0.055	(3)	8.2	(3)
U066	1,2-Dibromo-3-chloropropane.	NA	1,2-Dibromo-3-chloropropane.	96-12-8	0.11	(3)	15	(3)
U067	1,2-Dibromo ethane (Ethylene dibromide).	NA	1,2-Dibromo-ethane (Ethylene dibromide).	106-93-4	0.028	(3)	15	(3)
U068	Dibromomethane	NA	Dibromomethane	74-95-3	0.11	(3)	15	(3)
U069	Di-n-butyl phthalate	NA	Di-n-butyl phthalate	84-74-2	0.54	(3)	28	(3)
U070	o-Dichlorobenzene	NA	o-Dichlorobenzene	95-50-1	0.088	(3)	6.2	(3)
U071	m-Dichlorobenzene	NA	m-Dichlorobenzene	541-73-1	0.036		6.2	(3)
U072	p-Dichlorobenzene	NA	p-Dichlorobenzene	104-46-7	0.090	(3)	6.2	(3)
U075	Dichlorodifluoromethane.	NA	Dichlorodifluoromethane.	75-71-8	0.23	(3)	7.2	(3)
U076	1,1-Dichloroethane	NA	1,1-Dichloroethane	75-34-3	0.059	(3)	7.2	(3)
U077	1,2-Dichloroethane	NA	1,2-Dichloroethane	107-06-2	0.21	(3)	7.2	(3)
U078	1,1-Dichloroethylene	NA	1,1-Dichloroethylene	75-35-4	0.025	(3)	33	(3)
U079	1,2-Dichloroethylene	NA	trans-1,2-Dichloroethylene.	156-60-5	0.054	(3)	33	(3)
U080	Methylene chloride	NA	Methylene chloride	75-09-2	0.089	(3)	33	(3)
U081	2,4-Dichlorophenol	NA	2,4-Dichlorophenol	120-83-2	0.044	(3)	14	(3)
U082	2,6-Dichlorophenol	NA	2,6-Dichlorophenol	87-65-0	0.044	(3)	14	(3)
U083	1,2-Dichloropropane	NA	1,2-Dichloropropane	78-87-5	0.85	(3)	18	(3)
U084	1,3-Dichloropropene	NA	cis-1,3-Dichloropropylene.	10061-01-5	0.036	(3)	18	(3)
			trans-1,3-Dichloropropylene.	10061-02-6	0.036	(3)	18	(3)
U088	Diethyl phthalate	NA	Diethyl phthalate	84-66-2	0.54	(3)	28	(3)
U093	p-Dimethylaminoazobenzene.	Table 2 in 268.42	p-Dimethylaminoazobenzene.	60-11-7	0.13	(3)	NA	
U101	2,4-Dimethylphenol	NA	2,4-Dimethylphenol	105-67-9	0.036	(3)	14	(3)
U102	Dimethyl phthalate	NA	Dimethyl phthalate	131-11-3	0.54	(3)	28	(3)
U105	2,4-Dinitrotoluene	NA	2,4-Dinitrotoluene	121-14-2	0.32	(3)	140	(3)
U106	2,6-Dinitrotoluene	NA	2,6-Dinitrotoluene	606-20-2	0.55	(3)	28	(3)
U107	Di-n-octyl phthalate	NA	Di-n-octyl phthalate	117-84-0	0.54	(3)	28	(3)
U108	1,4-Dioxane	NA	1,4-Dioxane	123-91-1	0.12	(3)	170	(3)
U111	Di-n-propylnitrosoamine	NA	Di-n-propylnitrosoamine	621-64-7	0.40	(3)	14	(3)
U112	Ethyl acetate	NA	Ethyl acetate	141-78-6	0.34	(3)	33	(3)
U117	Ethyl ether	NA	Ethyl ether	60-29-7	0.12	(3)	160	(3)
U118	Ethyl methacrylate	NA	Ethyl methacrylate	97-63-2	0.14	(3)	160	(3)
U120	Fluoranthene	NA	Fluoranthene	206-44-0	0.068	(3)	8.2	(3)
U121	Trichloromonofluoromethane.	NA	Trichloromonofluoromethane.	75-69-4	0.020	(3)	33	(3)
U127	Hexachlorobenzene	NA	Hexachlorobenzene	118-74-1	0.055	(3)	37	(3)
U128	Hexachlorobutadiene	NA	Hexachlorobutadiene	87-68-3	0.055	(3)	28	(3)
U129	Lindane	NA	alpha-BHC	319-84-6	0.00014	(3)	0.66	(3)
			beta-BHC	319-85-7	0.00014	(3)	0.66	(3)
			Delta-BHC	319-86-8	0.023	(3)	0.66	(3)
			gamma-BHC (Lindane)	58-89-9	0.0017	(3)	0.66	(3)
U130	Hexachlorocyclopentadiene.	NA	Hexachlorocyclopentadiene.	77-47-7	0.057	(3)	3.6	(3)
U131	Hexachloroethane	NA	Hexachloroethane	67-72-1	0.055	(3)	28	(3)
U134	Hydrogen fluoride	Table 2 in 268.42	Fluoride	16964-48-8	35		NA	
U136	Cacodylic acid	Table CCWE in 268.41	Arsenic	7440-38-2	0.79		NA	
U137	Indeno(1,2,3-c,d)pyrene.	NA	Indeno(1,2,3-c,d)pyrene.	193-39-5	0.0055	(3)	8.2	(3)
U138	Iodomethane	NA	Iodomethane	74-88-4	0.19	(3)	65	(3)
U140	Isobutyl alcohol	NA	Isobutyl alcohol	78-83-1	5.6		170	(3)
U141	Isosafrole	NA	Isosafrole	120-58-1	0.081		2.6	(3)
U142	Kepone	NA	Kepone	143-50-8	0.0011		0.13	(3)
U144	Lead acetate	Table CCWE in 268.41	Lead	7439-92-1	0.040		NA	
U145	Lead phosphate	Table CCWE in 268.41	Lead	7439-92-1	0.040		NA	
U146	Lead subacetate	Table CCWE in 268.41	Lead	7439-92-1	0.040		NA	
U151	Mercury	Table CCWE in 268.41 and Table 2 in 268.42.	Mercury	7439-97-6	0.030		NA	
U152	Methacrylonitrile	NA	Methacrylonitrile	126-98-7	0.24	(3)	84	(3)
U154	Methanol	NA	Methanol	67-56-1	5.6		NA	
U155	Methapyrilene	NA	Methapyrilene	91-80-5	0.081		1.5	(3)
U157	3-Methylcholanthrene	NA	3-Methylcholanthrene	56-49-5	0.0055	(3)	15	(3)

268.43 TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS number for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U158	4,4'-Methylenebis(2-chloroaniline).	NA	4,4'-Methylenebis(2-chloroaniline).	101-14-4	0.50	(2)	35	(1)
U159	Methyl ethyl ketone	NA	Methyl ethyl ketone	78-93-3	0.28		36	(1)
U161	Methyl isobutyl ketone	NA	Methyl isobutyl ketone	108-10-1	0.14		33	(1)
U162	Methyl methacrylate	NA	Methyl methacrylate	80-62-6	0.14		160	(1)
U165	Naphthalene	NA	Naphthalene	91-20-3	0.059	(2)	3.1	(1)
U168	2-Naphthylamine	Table 2 in 268.42	2-Naphthylamine	91-59-8	0.52	(2)	NA	
U169	Nitrobenzene	NA	Nitrobenzene	98-95-3	0.068	(2)	14	(1)
U170	4-Nitrophenol	NA	4-Nitrophenol	100-02-7	0.12	(2)	29	(1)
U172	n-Nitrosodi-n-butylamine.	NA	n-Nitrosodi-n-butylamine.	924-16-3	0.40	(2)	17	(1)
U174	N-Nitrosodiethylamine	NA	n-Nitrosodiethylamine	55-18-5	0.40	(2)	28	(1)
U179	N-Nitrosopiperidine	NA	n-Nitrosopiperidine	100-75-4	0.013	(2)	35	(1)
U180	N-Nitrosopyrrolidine	NA	n-Nitrosopyrrolidine	930-55-2	0.013	(2)	35	(1)
U181	5-Nitro-o-toluidine	NA	5-Nitro-o-toluidine	99-55-8	0.32	(2)	28	(1)
U183	Pentachlorobenzene	NA	Pentachlorobenzene	608-93-5	0.055	(2)	37	(1)
U185	Pentachloronitrobenzene.	NA	Pentachloronitrobenzene.	82-68-8	0.055	(2)	4.8	(1)
U187	Phenacetin	NA	Phenacetin	62-44-2	0.081		16	(1)
U188	Phenol	NA	Phenol	108-95-2	0.039		6.2	(1)
U190	Phthalic anhydride (measured as Phthalic acid).	NA	Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.54	(1)	28	(1)
U192	Pronamide	NA	Pronamide	23950-58-5	0.093		1.5	(1)
U196	Pyridine	NA	Pyridine	110-86-1	0.014	(2)	16	(1)
U203	Safrole	NA	Safrole	94-59-7	0.081		22	(1)
U204	Selenium dioxide	Table CCWE in 268.41	Selenium	7782-49-2	1.0		NA	
U205	Selenium sulfide	Table CCWE in 268.41	Selenium	7782-49-2	1.0		NA	
U207	1,2,4,5-Tetrachlorobenzene.	NA	1,2,4,5-Tetrachlorobenzene.	95-94-3	0.055	(2)	19	(1)
U208	1,1,1,2-Tetrachloroethane.	NA	1,1,1,2-Tetrachloroethane.	630-20-6	0.057		42	(1)
U209	1,1,2,2-Tetrachloroethane.	NA	1,1,2,2-Tetrachloroethane.	79-34-5	0.057	(2)	42	(1)
U210	Tetrachloroeth-ylene	NA	Tetrachloroethylene	127-18-4	0.056	(2)	5.6	(1)
U211	Carbon tetrachloride	NA	Carbon tetrachloride	56-23-5	0.057	(2)	5.6	(1)
U214	Thallium(I)acetate	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
U215	Thallium(I) carbonate	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
U216	Thallium(I)chloride	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
U217	Thallium(I)nitrate	Table 2 in 268.42	Thallium	7440-28-0	0.14	(2)	NA	
U220	Toluene	NA	Toluene	108-88-3	0.080	(2)	28	(1)
U225	Tribromomethane (Bromoform).	NA	Tribromomethane (Bromoform).	75-25-2	0.63	(2)	15	(1)
U226	1,1,1-Trichloroethane	NA	1,1,1-Trichloroethane	71-55-6	0.054	(2)	5.6	(1)
U227	1,1,2-Trichloroethane	NA	1,1,2-Trichloroethane	79-00-5	0.054	(2)	5.6	(1)
U228	Trichloroethylene	NA	Trichloroethylene	79-01-6	0.054	(2)	5.6	(1)
U235	tris-(2,3-Dibromopropyl) phosphate.	NA	tris-(2,3-Dibromopropyl)-phosphate.	126-72-7	0.025		0.10	(1)
U239	Xylenes	NA	Xylenes		0.32	(2)	28	(1)
U240	2,4,-Dichlorophenoxyacetic acid.	NA	2,4-Dichlorophenoxyacetic acid.	94-75-7	0.72		10	(2)
U243	Hexachloropropene	NA	Hexachloropropene	1888-71-7	0.035	(2)	28	
U247	Methoxychlor	NA	Methoxychlor	72-43-5	0.25	(2)	0.18	(1)

[1] Treatment standards for this organic constituent were established based upon incineration in units operated in accordance with the technical requirements of 40 CFR Part 264 Subpart O or Part 265 Subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may certify compliance with these treatment standards according to provisions in 40 CFR Section 268.7.

[2] Based on analysis of composite samples.

[3] As analyzed using SW-846 Method 9010 or 9012; sample size 10 gram; distillation time: one hour and fifteen minutes.

[4] Reserved.

Note: NA means Not Applicable.

ENVIRONMENTAL SERVICES

CERTIFICATE OF NON-HAZARDOUS WASTE
AND
AFFIDAVIT REQUIREMENT OF RULE 310:270-9-7 (B) (2)
CERTIFYING NON-HAZARDOUS WASTE

I certify that the waste described in this and attached documents is not a listed hazardous waste as described by 40 CFR Subpart D and that the waste described is not contaminated with a listed hazardous waste. I further certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____, here called "Generator" and contracted with United State Pollution Control, Inc., here called "Contractor" for transportation, storage, treatment, and disposal of the solid waste described below and Generator hereby certifies and warrants to Contractor that the solid waste to be so disposed of is not "hazardous waste" as the term is defined in title 42 United States Code 6903, because said waste meets the following conditions:

a) Said waste is exempt from regulation because it meets the provisions of 40 Code of Federal Regulations 261.4 and/or

b) Said waste is not listed as a hazardous waste in Subpart D of Title 40 Code of Federal Regulations Part 261 and said waste is not classified as a hazardous waste in Subpart C Title 40 Code of Federal Regulations part 261 as a result of actual testing or knowledge of the hazard characteristics of the waste in the light of the materials or process used.

ACCEPTANCE #:

DESCRIPTION OF NON-HAZARDOUS WASTE:

ORIGIN OF WASTE:

TYPICAL ANALYSIS OF WASTE:

Compound	Concentration of Volume

DATED THIS_____, 19_____, GENERATOR_____

BY_____, TITLE_____

USPCI
Hydrocarbon Recyclers, Inc. of Wichita 2549 North New York
Wichita, Kansas 67219
Wats 800.316.0037 Phone 316.268.7500 Fax 316.268.7555

Attachment C-B

Waste List

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:

Hazardous Waste by Characteristic:

D001 (I)	Ignitability
D002 (C)	Corrosivity
D003 (R)	Reactivity
D004 (E)	Arsenic
D005 (E)	Barium
D006 (E)	Cadmium
D007 (E)	Chromium
D008 (E)	Lead
D009 (E)	Mercury
D010 (E)	Selenium
D011 (E)	Silver
D012 (E)	Endrin (1,2,3,4,10,10-hexachloro-1,7 epoxy-1,4,4a,5,6,;7,8,8a-octahydro-1,4 endo,endo-5,8-dimeth-ano-naphthalene)
DO13 (E)	Lindane (1,2,3,4,5,6, hexa-chloro-cyclohexane, gamma isomer
D014 (E)	Methoxychlor (1,1,1-Trichloro- 2,2-bis [p-methoxyphenyl]ethane
D015 (E)	Toxaphene ($C_{10}H_{10}Cl_8$, technical chlorinated camphene, 67-69 percent chlorine)
D016 (E)	2,4-D (2,4 dichlorophenoxyacetic acid)
D017 (E)	2,4,5-TP Silvex (2,4,5-trichloro-phenoxypropionic acid)
D018 (E)	Benzene
D019 (E)	Carbon tetrachloride
D020 (E)	Chlordane
D021 (E)	Chlorobenzene
D022 (E)	Choroform
D023 (E)	o-Cresol
D024 (E)	m-Cresol
D025 (E)	p-Cresol
D026 (E)	Cresol
D027 (E)	1,4-Dichlorobenzene
D028 (E)	1,2-Dichloroethane
D029 (E)	1,1-Dichloroethylene

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
D030 (E)	2,4-Dinitrotoluene
D031 (E)	Heptachlor (and its hydroxide)
D032 (E)	Hexachlorobenzene
D033 (E)	Hexachloro-1,3-butadiene
D034 (E)	Hexachloroethane
D035 (E)	Methyl ethyl ketone
D036 (E)	Nitrobenzene
D037 (E)	Pentachlorophenol
D038 (E)	Pyridine
D039 (E)	Tetrachloroethylene
D040 (E)	Trichloroethylene
D041 (E)	2,4,5-Trichlorophenol
D042 (E)	2,4,6-Trichlorophenol
D043 (E)	Vinyl Chloride

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:

Hazardous Wastes from Non-specific Sources:

F001 (T)	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F002 (T)	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-triflouroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001,F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003 (I)	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004 (T)	The following spent non-halogenated solvents: Cresols and cresylic acid, nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005 (I,T)	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, and pyridine; benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F006 (T)	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
F007 (R,T)	Spent cyanide plating bath solutions from electroplating operations
F008 (R,T)	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
F009 (R,T)	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.
F010 (R,T)	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.
F011 (R,T)	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations
F012 (T)	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.
F019 (T)	Wastewater treatment sludges from the chemical conversion coating of aluminum.
F024 (T)	Process wastes, including but not limited to distillation residues, heavy ends, tars, and reactor clean-out wastes from the production of chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	(This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in 261.31 or 261.32).
F025 (T)	Condensed light ends, spent filters and filter aids and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five with varying amounts and positions of chlorine substitution.
F032 (T)	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with ' 261.35 of this chapter and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediments sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.
F034 (T)	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	pentachlorophenol.
F035 (T)	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.
F037 (T)	Petroleum refinery primary oil/water/solids separation sludge--Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in ' 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.
F038 (T)	Petroleum refinery secondary (emulsified)

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	oil/water/solids separation sludge--Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in ' 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.
F039 [1]	Leachate resulting from the treatment, storage, or disposal of wastes classified by more than one waste code under Subpart D, or from a mixture of wastes classified under Subparts C and D of this part. (Leachate resulting from the management of one or more of the following EPA Hazardous Wastes and no other hazardous wastes retains its hazardous waste code(s): F020, F021, F022, F023, F026, F027, and/or F028).

[1]All constituents for which treatment standards are specified for multi-source leachate (wastewaters and non-wastewaters) under 40 CFR 268.43(a), Table CCW.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:

Hazardous Wastes from Specific Sources:

K001 (T)	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.
K002 (T)	Wastewater treatment sludge from the production of chrome yellow and orange pigments.
K003 (T)	Wastewater treatment sludge from the production of molybdate orange pigments.
K004 (T)	Wastewater treatment sludge from the production of zinc yellow pigments.
K005 (T)	Wastewater treatment sludge from the production of chrome green pigments.
K006 (T)	Wastewater treatment sludge from the production of chrome oxide green pigments.
K007 (T)	Wastewater treatment sludge from the production of iron blue pigments.
K008 (T)	Oven residue from the production of chrome oxide green pigments.
K009 (T)	Distillation bottoms from the production of acetaldehyde from ethylene.
K010 (T)	Distillation side cuts from the production of acetaldehyde from ethylene.
K011 (R,T)	Bottom stream from the wastewater stripper in the production of acrylonitrile.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K013 (R,T)	Bottom stream from the acetonitrile column in the production of acrylonitrile.
K014 (T)	Bottoms from the acetonitrile purification column in the production of acrylonitrile.
K015 (T)	Still bottoms from the distillation of benzyl chloride.
K016 (T)	Heavy ends or distillation residues from the production of carbon tetrachloride.
K017 (T)	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.
K018 (T)	Heavy ends from the fractionation column in ethyl chloride production.
K019 (T)	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.
K020 (T)	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.
K021 (T)	Aqueous spent antimony catalyst waste from fluoromethanes production.
K022 (T)	Distillation bottom tars from the production of phenol/acetone from cumene.
K023 (T)	Distillation light ends from the production of phthalic anhydride from naphthalene.
K024 (T)	Distillation bottoms from the production of phthalic anhydride from naphthalene.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K025 (T)	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K026 (T)	Stripping still tails from the production of methy ethyl pyridines.
K027 (R,T)	Centrifuge and distillation residues from toluene diisocyanate production.
K028 (T)	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.
K029 (T)	Waste from the product steam stripper in the production of 1,1,1-trichloroethane.
K030 (T)	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.
K031 (T)	By-product salts generated in the production of MSMA and cacodylic acid.
K032 (T)	Wastewater treatment sludge from the production of chlordane.
K033 (T)	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.
K034 (T)	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.
K035 (T)	Wastewater treatment sludges generated in the production of creosote.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K036 (T)	Still bottoms from toluene reclamation distillation in the production of disulfoton.
K037 (T)	Wastewater treatment sludges from the production of disulfoton.
K038 (T)	Wastewater from the washing and stripping of phorate production.
K039 (T)	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.
K040 (T)	Wastewater treatment sludge from the production of phorate.
K041 (T)	Wastewater treatment sludge from the production of toxaphene.
K042 (T)	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.
K043 (T)	2,6-Dichlorophenol waste from the production of 2,4-D.
K044 (R)	Wastewater treatment sludges from the manufacturing and processing of explosives.
K045 (R)	Spent carbon from the treatment of wastewater containing explosives.
K046 (T)	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K047 (R)	Pink/red water from TNT operations.
K048 (T)	Dissolved air flotation (DAF) float from the petroleum refining industry.
K049 (T)	Slop oil emulsion solids from the petroleum refining industry.
K050 (T)	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051 (T)	API separator sludge from the petroleum refining industry.
K052 (T)	Tank bottoms (leaded) from the petroleum refining industry.
K060 (T)	Ammonia still lime sludge from coking operations.
K061 (T)	Emission control dust/sludge from the primary production of steel in electric furnaces.
K062 (C,T)	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).
K064 (T)	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.
K065 (T)	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities
K066 (T)	Sludge from treatment of process wastewater

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	and/or acid plant blowdown from primary zinc production.
K069 (T)	Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting this stay, EPA will publish a notice of the action in the Federal Register.)
K071 (T)	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.
K073 (T)	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.
K083 (T)	Distillation bottoms from aniline production.
K084 (T)	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K085 (T)	Distillation or fractionation column bottoms from the production of chlorobenzenes.
K086 (T)	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K087 (T)	Decanter tank tar sludge from coking operations.
K088 (T)	Spent potliners from primary aluminum reduction.
K090 (T)	Emission control dust or sludge from ferrochromiumsilicon production.
K091 (T)	Emission control dust or sludge from ferrochromium production.
K093 (T)	Distillation light ends from the production of phthalic anhydride from ortho-xylene.
K094 (T)	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.
K095 (T)	Distillation bottoms from the production of 1,1,1-trichloroethane.
K096 (T)	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.
K097 (T)	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.
K098 (T)	Untreated process wastewater from the production of toxaphene.
K099 (T)	Untreated wastewater from the production of 2,4-D.
K100 (T)	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.

Basis for listing or class of hazardous waste:

(I) Ignitable
(C) Corrosive
(R) Reactive
Toxicity Characteristic Waste (E)
Acute Hazardous Waste (H)
Toxic Waste (T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K101 (T)	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K102 (T)	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K103 (T)	Process residues from aniline extraction from the production of aniline.
K104 (T)	Combined wastewater streams generated from nitrobenzene/aniline production.
K105 (T)	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.
K106 (T)	Wastewater treatment sludge from the mercury cell process in chlorine production.
K107 (C,T)	Column bottoms from product seperation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.
K108 (I,T)	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazides.
K109 (T)	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic

Basis for listing or class of hazardous waste:

(I) Ignitable
(C) Corrosive
(R) Reactive
Toxicity Characteristic Waste (E)
Acute Hazardous Waste (H)
Toxic Waste (T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
acid	hydrazides.
K110 (T)	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.
K111(C,T)	Product washwaters from the production of dinitrotoluene via nitration of toluene.
K112 (T)	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.
K113 (T)	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation dinitrotoluene.
K114 (T)	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.
K115 (T)	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.
K116 (T)	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.
K117 (T)	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	bromination of ethene.
K118 (T)	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.
K123 (T)	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt.
K124 (T,C)	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.
K125 (T,C)	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.
K126 (T)	Baghouse dust and floor sweepings in milling and packaging operations from production or formulation of ethylenebisdithiocarbamic acid and its salts.
K131 (C,T)	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.
K132 (T)	Spent absorbent and wastewater separator solids from the production of methyl bromide.
K136 (T)	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.
K141 (T)	Process residues from the recovery of coal

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).
K142 (T)	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.
K143 (T)	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.
K144 (T)	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.
K145 (T)	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal.
K147 (T)	Tar storage tank residues from coal tar refining.
K148 (T)	Residues from coal tar distillation, including, but not limited to, still bottoms.
K149 (T)	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	functional groups. (This waste does not include still bottoms from the distillation of benzyl chloride).
K150 (T)	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
K151 (T)	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.
K156 (T)	Organic Waste (including heavy ends, still bottoms, light ends, spent solvents, filters, and decantates) from the production of carbamates and carbamoyl oximes.
K157 (T)	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes.
K158 (T)	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes.
K159 (T)	Organics from the treatment of thiocarbamate wastes.
K160 (T)	Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes.
K161 (T)	Purification solids (including filtration,

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts. (This listing does not include K125 or K126.)
K169 (T)	Crude oil tank sediment from petroleum refining operations.
K170 (T)	Clarified slurry oil sediment from petroleum refining operations.
K171 (R,T)	Spent hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurizefeeds to other catlaytic reactors (this listing does not include inert support media).
K172 (R,T)	Spent hydrorefining catalyst from petroleum refining operations.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:

Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residues Thereof:

P001	(H)	Warfarin, & salts, when present at concentrations greater than 0.3%.
P002	(H)	1-Acetyl-2-thiourea
P003	(H)	Acrolein
P004	(H)	Aldrin
P005	(H)	Allyl alcohol
P006	(R,T)	Aluminum phosphide
P007	(H)	5-(Aminomethyl)-3-isoxazolol
P008	(H)	4-Aminopyridine
P009	(R)	Ammonium picrate
P010	(T)	Arsenic acid H_3AsO_4
P011	(T)	Arsenic pentoxide
P012	(T)	Arsenic trioxide
P013	(H)	Barium cyanide
P014	(T)	Benzenethiol
P015	(H)	Beryllium
P016	(H)	Methane, oxybis[chloro-
P017	(T)	Bromoacetone
P018	(H)	Brucine
P020	(H)	Dinoseb
P021	(H)	Calcium cyanide
P022	(T)	Carbon disulfide
P023	(H)	Chloroacetaldehyde
P024	(H)	p-Chloroaniline
P026	(H)	1-(o-Chlorophenyl)thiourea
P027	(H)	3-Chloropropionitrile
P028	(H)	Benzyl chloride
P029	(H)	Copper cyanide
P030	(T)	Cyanides (soluble cyanide salts) not otherwise specified.
P031	(H)	Cyanogen
P033	(H)	Cyanaogen chloride
P034	(T)	2-Cyclohexyl-4,6-dinitrophenol

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
P036 (H)	Dichlorophenylarsine
P037 (H)	Dieldrin
P038 (T)	Diethylarsine
P039 (T)	Disulfoton
P040 (H)	O,O-Diethyl O-pyrazinyl phosphorothioate.
P041 (H)	Diethyl-p-nitrophenyl phosphate
P042 (H)	Epinephrine
P043 (H)	Diisopropylfluorophosphate (DFP)
P044 (T)	Dimethoate
P045 (H)	Thiofanox
P046 (T)	Benzeneethanamine, alpha,alpha-dimethyl-
P047 (H)	4,6-Dinitro-o-cresol, and salts
P048 (H)	2,4-Dinitrophenol
P049 (H)	Dithiobiuret
P050 (H)	Endosulfan
P051 (H)	Endrin
P054 (H)	Aziridine
P056 (H)	Fluorine
P057 (H)	Fluoroacetamide
P058 (H)	Fluoroacetic acid, sodium salt
P059 (H)	Heptachlor
P060 (H)	Isodrin
P062 (H)	Hexaethyl tetraphosphate
P063 (H)	Hydrogen cyanide
P064 (H)	Methyl isocyanate
P065 (R,T)	Mercury fulminate
P066 (H)	Methomyl
P067 (H)	1,2-Propylenimine
P068 (H)	Methyl hydrazine
P069 (H)	2-Methyllactonitrile
P070 (H)	Aldicarb
P071 (H)	Methyl parathion
P072 (H)	alpha-Naphthylthiourea
P073 (H)	Nickel carbonyl
P074 (H)	Nickel cyanide
P075 (T)	Nicotine, and salts
P076 (T)	Nitric oxide

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
P077	(T)	p-Nitroaniline
P078	(H)	Nitrogen dioxide
P081	(R,T)	Nitroglycerine (R)
P082	(H)	N-Nitrosodimethylamine
P084	(H)	N-Nitrosomethylvinylamine
P085	(H)	Octamethylpyrophosphoramide
P087	(H)	Osmium tetroxide
P088	(H)	Endothall
P089	(T)	Parathion
P092	(H)	Phenylmercury acetate
P093	(H)	Phenylthiourea
P094	(T)	Phorate
P095	(T)	Phosgene
P096	(H)	Phosphine
P097	(H)	Famphur
P098	(H)	Potassium cyanide
P099	(H)	Potassium silver cyanide
P101	(H)	Propanenitrile
P102	(H)	Propargyl alcohol
P103	(H)	Selenourea
P104	(H)	Silver cyanide
P105	(H)	Sodium azide
P106	(H)	Sodium cyanide
P108	(T)	Strychnine and salts
P109	(H)	Tetraethyldithiopyrophosphate
P110	(H)	Tetraethyl lead
P111	(H)	Tetraethyl pyrophosphate
P112	(R)	Tetranitromethane
P113	(H)	Thallic oxide
P114	(H)	Thallium(I) selenite
P115	(H)	Thallium(I) sulfate
P116	(H)	Thiosemicarbazide
P118	(H)	Trichloromethanethiol
P119	(H)	Vanadic acid, ammonium salt
P120	(H)	Vanadium pentoxide
P121	(H)	Zinc cyanide
P122	(R,T)	Zinc phosphide Zn_3P_2 when present at

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	concentrations greater than 10%
P123 (H)	Toxaphene
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl,methylcarbamate (Carbofuran)
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester) (Mexacarbate)
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl, O-[(methylamino)carbonyl]oxime (Tirpate)
P188	Benzoic acid, 2-hydroxy, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro- 1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate)
P189	Carbamic acid,[(dibutylamino)thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan)
P190	Carbamic acid, methyl-, 3-methylphenyl ester (Metolcarb)
P191	Carbamic acid, dimethyl-, 1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester (Dimetilan)
P192	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan)
P194	Ethanimidothioc acid, 2-(dimethylamino)-N-{[(methylamino)carbonyl]oxy}-2-oxo, methyl ester (Oxamyl)
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-(Manganese dimethyldithiocarbamate)
P197	Methanimidamide, N,N-dimethyl-N'-[2- methyl-4-{[(methylamino)carbonyl]oxy}phenyl]-(Formparanate)
P198	Methanimidamide, N,N-dimethyl-N'-[3-{[(methylamino)carbonyl]oxy}phenyl]-, monohydrochloride (Formetanate hydrochloride)
P199	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate (Methiocarb)
P201	Phenol, 3-methyl-5-(1-methylethyl)-,

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	methylcarbamate (Promecarb)
P202	Phenol, 3-(1-methylethyl), methylcarbamate (Hercules AC-5727)
P203	Propanal, 2-methy-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone)
P204	Pyrrolo(2,3-b)indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl, methylcarbamate (ester), (3aS-cis)- (Physostigmine)
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-, (Ziram)

Basis for listing or class of hazardous waste:

(I) Ignitable
(C) Corrosive
(R) Reactive
Toxicity Characteristic Waste (E)
Acute Hazardous Waste (H)
Toxic Waste (T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:

Commercial Chemical Products, Manufacturing Chemical Intermediates, or Off-Specification Commercial Chemical Products:

U001	(I)	Ethanal
U002	(I)	Acetone
U003	(I,T)	Acetonitrile
U004	(T)	Acetophenone
U005	(T)	2-Acetylaminofluorene
U006	(C,R,T)	Acetyl chloride
U007	(T)	Acrylamide
U008	(I)	Acrylic acid
U009	(T)	Acrylonitrile
U010	(T)	Mitomycin C
U011	(T)	Amitrole
U012	(I,T)	Aniline
U014	(T)	Auramine
U015	(T)	Azaserine
U016	(T)	Benz[c]acridine
U017	(T)	Benzal chloride
U018	(T)	Benz[a]anthracene
U019	(I,T)	Benzene
U020	(C,R)	Benzenesulfonyl chloride
U021	(T)	Benzidine
U022	(T)	Benzo[a]pyrene
U023	(C,R,T)	Benzotrichloride
U024	(T)	Dichloromethoxy ethane
U025	(T)	Dichloroethyl ether
U026	(T)	Chlornaphazin
U027	(T)	Dichloroisopropyl ether
U028	(T)	Diethylhexyl phthalate
U029	(T)	Methyl bromide
U030	(T)	Benzene, 1-bromo-4-phenoxy-
U031	(I)	n-Butyl alcohol
U032	(T)	Calcium chromate
U033	(R,T)	Carbon oxyfluoride
U034	(T)	Chloral

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U035	(T)	Chlorambucil
U036	(T)	Chlordane, alpha & gamma isomers
U037	(T)	Chlorobenzene
U038	(T)	Chlorobenzilate
U039	(T)	p-Chloro-m-cresol
U041	(T)	Epichlorohydrin
U042	(T)	2-Chloroethyl vinyl ether
U043	(T)	Vinyl chloride
U044	(T)	Chloroform
U045	(I,T)	Methyl chloride
U046	(T)	Chloromethyl methyl ether
U047	(T)	beta-Chloronaphthalene
U048	(T)	o-Chlorophenol
U049	(T)	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U050	(T)	Chrysene
U051	(T)	Creosote
U052	(T)	Cresol (Cresylic Acid)
U053	(T)	Crotonaldehyde
U055	(I)	Cumene
U056	(I)	Cyclohexane
U057	(I)	Cyclohexanone
U058	(T)	Chclophosphamide
U059	(T)	Daunomycin
U060	(T)	DDD
U061	(T)	DDT
U062	(T)	Diallate
U063	(T)	Dibenz[a,h]anthracene
U064	(T)	Dibenzo[a,i]pyrene
U066	(T)	1,2-Dibromo-3-chloropropane
U067	(T)	Ethylene dibromide
U068	(T)	Methylene bromide
U069	(T)	Dibutyl phthalate
U070	(T)	o-Dichlorobenzene
U071	(T)	m-Dichlorobenzene
U072	(T)	p-Dichlorobenzene
U073	(T)	3,3'Dichlorobenzidine
U074	(I,T)	1,4-Dichloro-2-butene

Basis for listing or class of hazardous waste:

(I) Ignitable
(C) Corrosive
(R) Reactive
Toxicity Characteristic Waste (E)
Acute Hazardous Waste (H)
Toxic Waste (T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U075	(T)	Dichlorodifluoromethane
U076	(T)	Ethylidene dichloride
U077	(T)	Ethylene dichloride
U078	(T)	1,1-Dichloroethylene
U079	(T)	1,2-Dichloroethylene
U080	(T)	Methylene chloride
U081	(T)	2,4-Dichlorophenol
U082	(T)	2,6-Dichlorophenol
U083	(T)	Propylene dichloride
U084	(T)	1,3-Dichloropropene
U085	(I,T)	1,2:3,4-Diepoxybutane
U086	(T)	N,N-Diethylhydrazine
U087	(T)	O,O-Diethyl S-methyl dithiophosphate
U088	(T)	Diethyl phthalate
U089	(T)	Diethylstilbesterol
U090	(T)	Dihydrosafrole
U091	(T)	3,3'-Dimethoxybenzidine
U092	(I)	Dimethylamine
U093	(T)	p-Dimethylaminoazobenzene
U094	(T)	7,12-Dimethylbenz[a]anthracene
U095	(T)	3,3'-Dimethylbenzidine
U096	(R)	alpha,alpha-Dimethylbenzylhydroperoxide
U097	(T)	Dimethylcarbamoyl chloride
U098	(T)	1,1-Dimethylhydrazine
U099	(T)	1,2-Dimethylhydrazine
U101	(T)	2,4-Dimethylphenol
U102	(T)	Dimethyl phthalate
U103	(T)	Dimethyl sulfate
U105	(T)	2,4-Dinitrotoluene
U106	(T)	2,6-Dinitrotoluene
U107	(T)	Di-n-octyl phthalate
U108	(T)	1,4-Dioxane
U109	(T)	1,2-Diphenylhydrazine
U110	(I)	Dipropylamine
U111	(T)	Di-n-propylnitrosamine
U112	(I)	Ethyl acetate
U113	(I)	Ethyl acrylate

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U114	(T)	Ethylenebisdithiocarbamic acid, salts & esters
U115	(I,T)	Ethylene oxide
U116	(T)	Ethylenethiourea
U117	(I)	Ethyl ether
U118	(T)	Ethyl methacrylate
U119	(T)	Ethyl methanseulfonate
U120	(T)	Fluoranthene
U121	(T)	Methane, trichlorofluoro-
U122	(T)	Formaldehyde
U123	(C,T)	Formic acid
U124	(I)	Furan
U125	(I)	Furfural
U126	(T)	Glycidylaldehyde
U127	(T)	Hexachlorobenzene
U128	(T)	Hexachlorobutadiene
U129	(T)	Lindane
U130	(T)	Hexachlorocyclopentadiene
U131	(T)	Hexachloroethane
U132	(T)	Hexachlorophene
U133	(R,T)	Hydrazine
U134	(C,T)	Hydrogen fluoride
U135	(T)	Hydrogen sulfide
U136	(T)	Cacodylic acid
U137	(T)	Indeno{1,2,3-cd}pyrene
U138	(T)	Methyl iodide
U140	(I,T)	Isobutyl alcohol
U141	(T)	Isosafrole
U142	(T)	Kepone
U143	(T)	Lasiocarpine
U144	(T)	Lead acetate
U145	(T)	Lead phosphate
U146	(T)	Lead subacetate
U147	(T)	Maleic anhydride
U148	(T)	Maleic hydrazide
U149	(T)	Malononitrile
U150	(T)	Melphalan
U151	(T)	Mercury

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U152	(I,T)	Methacrylonitrile
U153	(I,T)	Methanethiol
U154	(I)	Methanol
U155	(T)	Methapyrilene
U156	(I,T)	Methyl chlorocarbonate
U157	(T)	3-Methylcholanthrene
U158	(T)	4,4'-Methylenebis(2-chloroaniline)
U159	(I,T)	Methyl ethyl ketone (MEK)
U160	(R,T)	Methyl ethyl ketone peroxide
U161	(I)	Methyl isobutyl ketone
U162	(I,T)	Methyl methacrylate
U163	(T)	MNNG
U164	(T)	Methylthiouracil
U165	(T)	Naphthalene
U166	(T)	1,4-Naphthoquinone
U167	(T)	1-Naphthalenamine
U168	(T)	2-Naphthalenamine
U169	(I,T)	Nitrobenzene
U170	(T)	p-Nitrophenol
U171	(I,T)	2-Nitropropane
U172	(T)	N-Nitrosodi-n-butylamine
U173	(T)	N-Nitrosodiethanolamine
U174	(T)	N-Nitrosodiethylamine
U176	(T)	N-Nitroso-N-ethylurea
U177	(T)	N-Nitroso-N-methylurea
U178	(T)	N-Nitroso-N-methylurethane
U179	(T)	N-Nitrosopiperidine
U180	(T)	N-Nitrosopyrrolidine
U181	(T)	5-Nitro-o-toluidine
U182	(T)	Paraldehyde
U183	(T)	Pentachlorobenzene
U184	(T)	Pentachloroethane
U185	(T)	Pentachloronitrobenzene (PCNB)
U186	(I)	1,3-Pentadiene
U187	(T)	Phenacetin
U188	(T)	Phenol
U189	(R)	Phosphorous sulfide

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U190	(T)	Phthalic anhydride
U191	(T)	Pyridine, 2-methyl-
U192	(T)	Pronamide
U193	(T)	1,3-Propane sultone
U194	(I,T)	1-Propanamine
U196	(T)	Pyridine
U197	(T)	p-Benzoquinone
U200	(T)	Reserpine
U201	(T)	Resorcinol
U202	(T)	Saccharin, and salts
U203	(T)	Safrole
U204	(T)	Selenium dioxide
U205	(R,T)	Selenium sulfide
U206	(T)	Streptozotocin
U207	(T)	1,2,4,5-Tetrachlorobenzene
U208	(T)	1,1,1,2-Tetrachloroethane
U209	(T)	1,1,2,2-Tetrachloroethane
U210	(T)	Tetrachloroethylene
U211	(T)	Carbon tetrachloride
U213	(I)	Tetrahydrofuran
U214	(T)	Thallium(I) acetate
U215	(T)	Thallium(I) carbonate
U216	(T)	Thallium(I) chloride
U217	(T)	Thallium(I) nitrate
U218	(T)	Thioacetamide
U219	(T)	Thiourea
U220	(T)	Toluene
U221	(T)	Toluenediamine
U222	(T)	o-Toluidine hydrochloride
U223	(R,T)	Toluene diisocyanate
U225	(T)	Bromoform
U226	(T)	Methyl chloroform
U227	(T)	1,1,2-Trichloroethane
U228	(T)	Trichloroethylene
U234	(R,T)	1,3,5-Trinitrobenzene
U235	(T)	Tris(2,3-dibromopropyl) phosphate
U236	(T)	Trypan blue

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:		Hazardous Waste/Constituent:
U237	(T)	Uracil mustard
U238	(T)	Ethyl carbamate (urethane)
U239	(I)	Xylene
U240	(T)	2,4-D, salts and esters
U243	(T)	Hexachloropropene
U244	(T)	Thiram
U246	(T)	Cyanogen bromide (CN)Br
U247	(T)	Methoxychlor
U248	(T)	Warfarin, and salts, when present at concentrations of 0.3% or less.
U249	(T)	Zinc phosphide, Zn_3P_2 when present at concentrations of 10% or less.
U271		Carbamic acid, {1-[(butylamino)carbonyl]-1H-benzamidazol-2-yl}-, methyl ester (Benomyl)
U277		Carbamodithioic acid, diethyl-,2-chloro-2-propenyl esters (Sulfallate)
U278		1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb)
U279		1-Naphthalenol, methylcarbamate (Carbaryl)
U280		Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester (Barban)
U328	(T)	o-Toluidine
U353	(T)	p-Toluidine
U359	(T)	Ethanol, 2-ethoxy-
U364		1,3-benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)
U365		1H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ether (Molinate)
U366		2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl- (Dazomet)
U367		7-Benzofuranol, 2,3-dihydro-2,2-dimethyl- (Carbofuran phenol)
U372		Carbamic acid, 1H-benzomidazol-2-yl, methyl ester (Carbendazim)
U373		Carbamic acid, phenyl-, 1-methylethyl ether (Propham)
U375		Carbamic acid, butyl-, 3-idio-2-propynyl ester

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	(Troysan Plyphase)
U376	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid (Seleneum dimethyldithiocarbamate)
U377	Carbamodithioic acid, methyl, -monopotassium salt (Potassium n-methyldithiocarbamate)
U378	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt (Busan 40)
U379	Carbamodithioic acid, dibutyl, sodium salt (Sodium dibutyldithiocarbamate)
U381	Carbamodithioic acid, diethyl-, sodium salt (Sodium diethyldithiocarbamate)
U382	Carbamodithioic acid, dimethyl-, sidium salt (Dibam)
U383	Carbamodithioic acid, dimethyl, porassium salt (Potassium dimethyl dithiocarbamate) (Busan 85)
U384	Carbamodithioic acid, methyl-, monosodium salt (Metam Sodium)
U385	Carbamodithioic acid, dipropyl-, S-propyl ester (Vemolate)
U386	Carbamodithioic acid, cyclohexylethyl, S-ethyl ester (Cycloate)
U387	Carbamodithioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb)
U389	Carbamodithioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester (Triallate)
U390	Carbamodithioic acid, dipropyl-, S-ethyl ester (EPTC)
U391	Carbamodithioic acid, butylethyl-, E-propyl ester (Pebulate)
U392	Carbamodithioic acid, bis(2-methylpropyl)-, S-ethyl ester (Butylate)
U393	Copper, tris(dimethylcarbamodithioato- S,S')-, (Copper dimethyldithiocarbamate)
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ether (A2213)
U395	Ethanol, 2,2'-oxybis-, dicarbamate (Reactacrease

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

EPA Hazardous Waste Number:	Hazardous Waste/Constituent:
	4-DEG)
U396	Iron, tris(dimethyl carbamodithioato-S,S')-(Ferbam)
U400	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-(Sulfads)
U401	Bis(dimethyl thiocarbamoyl) sulfide (Tetramethylthiuram monosulfide)
U402	Thioperoxydicarbonic diamide, tetrabutyl (Butyl Tuads)
U403	Thioperoxydicarbonic diamide, tetraethyl (Disulfram)
U404	Ethanamine, N,N-diethyl- (Triethylamine)
U407	Zinc, bis(diethylcarbamodithioato-S,S') (Ethyl Ziram)
U409	Carbamic acid, [1,2-phenylenebis(iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl)
U410	Ethanomidothoic acid, N,N'-{thiobis[(methylimino)carbonyloxy]}bis-, dimethyl ester (Thiodicarb)
U411	Phenol, 2-(1-methylethoxy)-, methylcarbamate (Propoxur)

Basis for listing or class of hazardous waste:

(I) Ignitable
(C) Corrosive
(R) Reactive
Toxicity Characteristic Waste (E)
Acute Hazardous Waste (H)
Toxic Waste (T)

Other Wastes

- Solid wastes as defined by 40 CFR 261.2
- Waste from a Hazardous Waste Facility or Site, or waste resulting from activities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) including but not limited to personnel protective equipment, discarded containers of laboratory chemicals (lab packs), lab equipment, clothing, debris from spills or cleanup and floor sweepings.

Basis for listing or class of hazardous waste:

(I)	Ignitable	Toxicity Characteristic Waste	(E)
(C)	Corrosive	Acute Hazardous Waste	(H)
(R)	Reactive	Toxic Waste	(T)

Attachment C-C

Analytical Methods

Revision No. 10
May 19, 2008

Attachment C-C

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1. Clean Harbors Kansas, LLC Methods

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Standard Method References

The standard methods referenced on the following pages are detailed in the publications provided below.

SW-846	"Test Methods for Evaluating Solid Waste"; SW-846; U.S. Environmental Protection Agency, Office of Water and Waste Management, Washington, D.C. 20406; in effect as of January 31, 1992.
APHA	"Standard Methods for the Examination of Water and Waste Water", 16th edition, American Public Health Association, 1985.
ASTM	"Annual Book of ASTM Standards", American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.
EPA-600/4-79-020	"Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020; U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268, March 1979.
40 CFR	40 Code of Federal Regulations, Parts 260-268 (1991 edition).

Examples of Standard Test Methods and Procedures
and LES Analytical Procedures [6 pages]

Parameter	Method	Reference
Sample Work Up Techniques		
Inorganic Techniques		
Acid digestion procedure for flame atomic absorption spectroscopy or inductively coupled plasma spectroscopy	3005	SW-846
Acid digestion procedure for flame atomic absorption spectroscopy or inductively coupled plasma spectroscopy	3010	SW-846
Acid digestion procedure for furnace atomic absorption spectroscopy	3020	SW-846
Acid digestion of oils, greases, or waxes	3030	SW-846
Dissolution procedure for oils, greases, wax	3040	SW-846
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Microwave assisted acid digestions from USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis		EPA-CLP
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Alkalinity	403	APHA
Percent Ash	D482	ASTM
Bulk Density	D1429	ASTM
Chlorine	D808	ASTM
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Normality	USPCI-1	CHK WAP
Water Reactivity Screen	USPCI-2	CHK WAP
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Reactive Cyanides Screen	USPCI-4	CHK WAP
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Radiant Heat Ignition Test	USPCI-21	CHK WAP
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Clean Harbors Kansas, LLC

Analytical Procedures

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 1

(USPCI - 1)

NORMALITY

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC **ANALYTICAL PROCEDURE 1**

(USPCI - 1)

NORMALITY

(Acidity or Alkalinity)

1.0 SCOPE AND APPLICATION

1.1 This method is for determining normality (acidity or alkalinity) of hazardous waste samples that are acidic or caustic liquids.

1.2 It should be noted that the data generated from normality measurements are used for two purposes. One is as a part of the incoming load (fingerprint) procedure to ensure that pre-shipment samples of waste streams are representative of the loads actually sent. A difference of +/-1.25 normality units is considered a discrepancy. The other purpose is to give an indication of the volumes of acidic and caustic waste streams that must be mixed together for neutralization before disposal. Neither of these purposes require accurate values for low normality samples. Therefore, the procedure which is used and given here is one that gives sufficient accuracy for high normality samples.

2.0 SUMMARY OF METHOD

2.1 The liquid waste is titrated with a titrant that is the opposite pH (e.g. titrate an acidic waste with a caustic titrant). Solids are added to a nominal volume of deionized water (DIW) for titration, if desired. The normality is calculated by using the amounts of the sample and titrant and the known normality of the titrant. The end point of the titration is determined by a calibrated pH meter.

3.0 INTERFERENCES

3.1 Response times for glass pH electrodes may be slowed by oil films on the electrode.

4.0 SAFETY

4.1 Wear appropriate gloves and safety glasses when handling acids and caustics.

4.2 Prevent spills and splashes. Wash areas (if spill occurs) thoroughly with water.

4.3 If sample has extremely high normality, splattering may occur when titrating. Therefore, analysis should be performed in the hood.

4.4 Do not breath vapors; keep samples in the hood.

5.0 APPARATUS AND EQUIPMENT

5.1 Buret - Pyrex or Kimax, 25 ml, with divisions of 0.1 ml. or equivalent. One each for acid and base titrants.

5.2 10 ml and 50 ml disposable polystyrene beakers.

5.3 pH meter

6.0 REAGENTS

6.1 pH buffers: Baker Analyzed 5657-1 (pH 4), 5655-1 (pH 10), 5656-1 (pH 7), or equivalents.

6.2 Concentrated hydrochloric acid, 12 N: Baker Analyzed Reagent 9535-3, or equivalent.

6.3 Hydrochloric acid, 3 N: Add slowly, while stirring, 258 ml of HCL acid (6.2) and dilute to 1 liter.

6.4 Sodium Hydroxide, 3 N: Dissolve 120 g of NaOH (6.5) in 800 ml of Type I water while stirring. Dilute to 1 liter.

6.5 Sodium Hydroxide: Mallinckrodt AR# 7708-5, or equivalent.

7.0 SAMPLE HANDLING AND PRESERVATION

7.1 Handle sample with extreme caution; wearing gloves and glasses.

7.2 No preservation required.

7.3 If sample fumes, store in refrigerator at 4°C.

8.0 pH - METER CALIBRATION AND STANDARDIZATION

8.1 Make up pH 4 and pH 7 buffer solutions by emptying the complete sachet contents into beakers and dissolving in the stated volume of distilled water. Pre-mixed and certified buffers may also be used.

8.2 Calibrate pH meter according to manufacturer's instructions. Record calibration settings in instrument log.

9.0 QUALITY CONTROL

9.1 Duplicates. For preacceptance samples, at least one duplicate must be analyzed per sample set or 10% of total samples. For incoming load samples, at least one duplicate analysis set must be analyzed per shift.

9.2 The normality of the titrants are checked against a primary standard on a regular basis.

9.3 Control Charts

9.3.1 Precision control charts for monitoring of relative percent difference of duplicate analysis are maintained.

9.3.2 Accuracy control charts for the normality checks are maintained.

10.0 PROCEDURE

10.1 Use a 10 ml disposable beaker to measure 10 ml of a liquid sample into a 50 ml disposable beaker. If the sample is solid, add 1.0 gm to 10 ml of DIW.

10.2 Stir gently with the calibrated and rinsed pH probe. Record the initial pH.

10.3 For samples with pH greater than 10.5 or less than 4.5 a titration with 3 N acid or base titrant, respectively, is performed. Titrate slowly with continuous stirring until the pH reaches 7.0.

10.4 Read and record the volume of titrant used.

10.5 Samples of high normality can use a smaller sample aliquot as required.

11.0 CALCULATIONS

11.1 Normality of sample =

$$\frac{\text{Normality of Titrant x Volume of Titrant (mL)}}{\text{Volume of Sample (mL or gm)}}$$

11.2 Duplicate calculation:

$$\% \text{ Difference} = \frac{(D_1 - D_2) \times 200}{D_1 + D_2}$$

where: D_1 = first sample value
D_2 = second sample value

12.0 DATA FLAGGING AND REMEDIAL ACTION

12.1 Data will be flagged by the analyst if data generated creates an "out-of-control" situation on the Precision or Accuracy Control Chart.

12.2 Remedial action

12.2.1 When data is flagged, the following areas are reviewed by the analyst and/or supervisor:

12.2.1.1 Calibration and standardization.

12.2.1.2 Analysis trends as indicated by control charts.

12.3 When a problem is located, sample analysis is repeated.

13.0 REFERENCES

Chemistry, 2nd Edition, Yoder, Claude H., Snydam, Fred H., Snavely, Harcourt Brace Jovanovich, Inc., 1980, 1975.

Standard Methods for the Examination of Water & Wastewater, 16th Edition, American Public Health Association, American Water Works Association, Water Polution Control Federation, 1985.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 2

(USPCI - 2)

WATER REACTIVITY SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 2

(USPCI - 2)

WATER REACTIVITY SCREEN

1.0 SCOPE AND APPLICATION

1.1 This method is used to screen materials for violent reactions with water.

2.0 SUMMARY OF METHOD

2.1 Sample is slowly added to water until a 50/50 volume/volume mixture is obtained. The mixture is observed to detect heating (more than a 15°C temperature rise) or turbulent gas evolution (more than 10% of the mixture volume).

3.0 SAFETY

3.1 Always add sample slowly to water, not water to sample.

3.2 Wear appropriate gloves and safety glasses.

3.3 Perform the mixing in a hood to prevent gases evolved from entering the laboratory.

4.0 PROCEDURE

4.1 Pour 25 ml of water into a disposable 50 ml beaker. Measure the initial water temperature. Slowly add sample until the beaker reaches the 50 ml level.

4.2 If the mixture warms significantly, use a thermometer to check temperature. If it is more than 15°C above the initial water sample temperature the sample is considered to be water reactive.

4.3 If bubbles or gas is formed causing turbulence, the sample is also considered to be water reactive due to gas evolution.

4.4 If sample is water reactive due to temperature rise and the sample has a large enough acid or base normality to account for temperature rise due to acid or base dilution, the sample is noted to be water reactive due to acid or base

dilution.

4.5 If the reaction is questionable, the amount of sample is scaled up with 10 times the amount of water and re-tested.

5.0 QUALITY CONTROL

5.1 Duplicates. For preacceptance samples, at least one duplicate must be analyzed per sample set or 10% of total samples. For incoming load samples, at least one duplicate analysis set must be analyzed per shift.

5.2 Because this test yields a "yes" or "no" answer, regular quality control charts will not be kept. All discrepancies between duplicate samples must be explained and noted.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 3

(USPCI - 3)

SOLIDS SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 3

(USPCI - 3)

SOLIDS SCREEN

1.0 SCOPE AND APPLICATION

This is a rapid and accurate method for determining the total solids content of liquids, sludges and solid samples by drying to maximum weight loss at approximately 105°C.

2.0 SUMMARY OF METHOD

An approximate 10 grams of sample are accurately weighed and dried on a moisture balance. Weights before and after drying are compared to calculate % solids.

3.0 INTERFERENCES

Underheating and/or inadequate drying time will not remove all components normally volatilized at 105°C. Adequate heater and timer settings are developed for each type of sample to prevent these interferences.

4.0 SAFETY

4.1 This method should not be used with explosives or ignition could result.

4.2 Appropriate gloves and safety glasses should be worn while handling samples.

4.3 This method should be performed in the hood to prevent volatile compounds from entering the laboratory atmosphere.

5.0 APPARATUS AND EQUIPMENT

Ohaus Moisture Determination Balance Model 6010 with aluminum sample pans.

6.0 QUALITY CONTROL

6.1 Duplicates. For preacceptance samples, at least one duplicate must be analyzed per sample set or 10% of total samples. For

incoming load samples, at least one duplicate

analysis set must be analyzed per shift.

6.2 Control Samples are run on a regular basis.

6.3 Quality Control Charts are kept for monitoring precision (duplicates), and accuracy (control samples).

7.0 PROCEDURE

7.1 Approximately 10 grams of well mixed sample are accurately weighed onto a tared aluminum sample pan on the moisture balance. This weight is the initial weight.

7.2 The temperature setting is checked weekly when the control sample is run. The setting will be recorded on the control chart log. This will be the setting used each week. Set the timer setting at 10 minutes. Check sample at end of time, if free liquids are still present heat an additional 5 minutes.

7.3 % total solids is calculated using the formula:

$$\% \text{ total solids} = \frac{\text{Final Weight} \times 100}{\text{Initial Weight}}$$

8.0 REFERENCES

Instructions for Ohaus Moisture Determination Balance Model 6010, 1982.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 4

(USPCI - 4)

REACTIVE CYANIDES AND REACTIVE SULFIDES SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 4

(USPCI - 4)

REACTIVE CYANIDES AND REACTIVE SULFIDES SCREEN

1.0 SCOPE AND APPLICATION

This method provides a rapid qualitative test to determine the potential for samples to generate HCN or H_2S upon acidification.

2.0 SUMMARY OF METHOD

A small amount of sample is acidified to pH $\leq$ 2 using nitric acid and the atmosphere above the sample is tested using Drager detector tubes for hydrogen cyanide and hydrogen sulfide.

3.0 SAFETY

3.1 Wear appropriate gloves and safety glasses.

3.2 This test must be performed in a hood to prevent poisonous HCN and/or H_2S from escaping into the lab atmosphere.

4.0 INTERFERENCES

According to the Drager tube handbook there are no interferences that prevent sensing of HCN, however it has been documented from time to time that unknown substances will cause the tube to turn an orange rather than the tell-tale blood red. Also, the white from part of the tube will turn black in the presence of H_2S. Sulphur dioxide may increase the measured concentration value of H_2S, but will not prevent H_2S from being detected.

5.0 PROCEDURE

5.1 Approximately 25 ml of sample is placed in a disposable 50 ml beaker and acidified with 3 normal nitric acid until the pH is 2.0. Samples with initial pH values at or below 2.0 need not be acidified further.

5.2 While the sample is being acidified, the atmosphere directly

above the sample is tested using a Drager gas detector.

Sample tube Hydrogen Cyanide 2/a is used for HCN detection and sample tube Hydrogen Sulfide 100/a is used for H_2S detection. The HCN tube needs five pumps; the Sulfide tube one.

5.3 If appropriate, additional analysis will be performed using either EPA Method SW-846-9010 for cyanide or EPA Method SW-846-9030 for sulfides.

6.0 QUALITY CONTROL

6.1 Duplicate samples are run at least once every set of 10 pre-acceptance samples.

6.2 Discrepancies (positive vs. negative results) between duplicate samples must be explained.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 5

(USPCI - 5)

EXPLOSIVITY METER VAPOR TEST (TLV SNIFF)

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 5

(USPCI - 5)

EXPLOSIVITY METER VAPOR TEST (TLV SNIFF)

1.0 SCOPE AND APPLICATION

The TLV Sniffer is an extremely sensitive combustible gas and vapor sensing instrument; equipped with an audible alarm that can be set to sound at any desired level of gas concentration. The TLV is also useful for locating gas leaks. Another function is continuous self monitoring.

2.0 SUMMARY OF METHOD

To detect and measure concentrations of combustible gas in the air, the TLV Sniffer catalytically oxidizes gas in a pumped in sample of air by means of a catalyst-coated resistance element. The resistance of this element changes with changes in temperature that are proportional to the amount of oxidized gas, thereby altering the electrical balance of the catalytic element as compared to the resistance of a reference element. Both the catalyst-coated ("active") element and the reference element are incorporated in a Wheatstone Bridge circuit in such a way as to produce an electrical output proportional to their differences in resistance. Since any changes in air sample temperature and humidity affect both active and reference elements equally the electrical signal output is proportional to the concentrations of combustible gas or vapor in the sample of air (expressed in volumetric terms as ppm). However, sudden changes in humidity may affect the zero reading on the X 1 range. The instrument, therefore, should be zeroed at the sam R.H. prevailing during use.

3.0 INTERFERENCES

3.1 Improper calibration of instrument or setting meter zero in the presence of impure air will cause inaccurate readings.

3.2 Wisps of cigarette smoke, fumes from autos, and subtle air contaminants from other sources may affect zero setting.

4.0 SAFETY

If high volumes of gas are detected or suspected, a respirator should be worn. No flames or sparks should ever be present.

5.0 APPARATUS AND EQUIPMENT

5.1 TLV Sniffer - Bacharach by United Technologies, or equivalent.

5.2 Gas Calibration Kit - Bacharach, Code 51-7199, or equivalent.

6.0 REAGENTS

None

7.0 SAMPLE HANDLING AND PRESERVATION

Keep sample container tightly sealed. **DO NOT** open until starting analysis. If highly volatile, refrigerate sample at 4 degrees Celsius.

8.0 CALIBRATION AND STANDARDIZATION

8.1 Battery test:

Turn MODE SELECTOR knob from OFF position to BATT TEST position. Meter pointer should come to rest in BATTERY GOOD range of meter scale. (Both a meter reading below BATTERY GOOD range and an audible signal warn of batteries too weak to sustain normal operation).

8.2 Setting meter pointer to zero:

8.2.1 Attach air sampling probe connector to instrument intake on left side of case by pulling back spring collar of connector, pressing connector over intake, and releasing spring collar.

8.2.2 Place TLV Sniffer in position in which meter indications will be read (usually in meter up position).

NOTE: Heat distribution from active and reference filaments of the detector sensor changes from vertical

to horizontal position. The resulting change in electrical balance between elements causes a shift in pointer zero from one position to the other.

8.2.3 Set MODE SELECTOR switch to ppm x 100 and operate instrument for 10 minutes to allow circuits to stabilize.

8.2.4 In fresh air, set ZERO ADJUST knob at midpoint (five full turns from either extreme position). If fresh air is not available, use Bacharach Kit 51-7199 to apply known pure air to the Sniffer intake (instructions in kit).

8.2.5 Turn coarse adjustment screw, located under ZERO ADJUST knob, to move meter pointer to zero on the meter scale.

8.2.6 Turn MODE SELECTOR to ppm x 10 position and turn AERO ADJUST knob to set pointer to meter zero.

8.2.7 Turn MODE SELECTOR to ppm x 1 position and turn ZERO ADJUST knob to set pointer to zero.

NOTE: The TLV Sniffer is extremely sensitive in the ppm x 1 range. CO_2 from breath too close to the intake, cigarette smoke, auto fumes, etc., can interfere with accurate setting of the pointer to meter zero.

8.3 Setting meter pointer deflection (gain calibration).

To insure proper operation and to check calibration, it is necessary to periodically check the instrument against a known standard blend of calibration gas.

The Bacharach Code 51-7199 gas calibration kit and optionally available Code 51-1120 rectified gas cylinder containing 500 ppm hexane in air are readily available to meet this requirement.

Connect the gas transfer assembly, making certain all connections are air tight. Use the retaining clips (2 each) to mount Flowmeter (06-6163) to its mounting bracket (51-1201). Make certain to connect rubber tubing at the base inlet connection on the flowmeter, then to the barbed fitting on the regulator and to the quick connect fitting previously installed on the TLV sample inlet (inlet

fitting). Turn regulator valve (03-4318) fully counterclockwise (close position) before attempting to screw regulator into calibration gas tank. This test is to be performed in a clean, fresh air (combustible free) environment. If this is not possible, substitute Code 51-7131 zero calibration gas for the Code 51-1120 cylinder of hexane-air mixture.

Connect the gas transfer assembly at the TLV sample in (inlet) fitting.

Open the regulator valve (clockwise) and adjust for flowmeter indication of (1) cfh to ensure adequate pump flow.

Remove Code 51-7131 zero calibration gas and substitute the Code 51-1120 cylinder of hexane-air mixture before proceeding with Step 6.

To calibrate the instrument in fresh air (combustible free) environment, proceed as follows:

8.3.1 Remove case cover for access to internal adjustments and temporarily break gas transfer assembly connection at the TLV Sample-In (inlet) fitting.

8.3.2 Turn FINE ZERO ADJUST (pot) full clockwise and then five turns counterclockwise to mid-range. Then turn COARSE ADJUST (pot) full clockwise and ten turns counterclockwise to mid-range.

8.3.3 Turn MODE SELECTOR to BATT TEST position. The meter pointer must indicate within BATTERY GOOD range, if not recharge.

Connect a Voltmeter between TP-3 (+) and ground (-), check for 6 VDC. If not, adjust for 6 VDC +/- 0.01 VDC.

8.3.4 After allowing for five minute warm up, turn MODE SELECTOR switch to ppm x 100 position and adjust R-13 for meter pointer indication of scale zero.

8.3.5 Turn MODE SELECTOR switch to ppm x 10 position and adjust COARSE ADJUST or meter pointer indication of scale zero. Readjust per steps 4 and 5 until meter pointer indicates a relatively constant scale zero when

MODE SELECTOR is switched between ppm x 100 range.

8.3.6 Turn MODE SELECTOR switch to ppm x 10 position. Reconnect gas transfer assembly to TLV sample inlet fitting. Open regulator valve (clockwise) and adjust for flowmeter indications of (1) cfh to ensure adequate pump flow. Allow one minute for meter pointer to achieve maximum indication, adjust R-3 the x10 span adjuster until meter pointer indicates mid-scale (50) or 500 ppm. Remove gas, close regulator valve (fully CCW) and allow about two minutes for meter pointer to return to zero.

8.3.7 Turn MODE SELECT switch to ppm x 10 position. Then turn the FINE ZERO ADJUST until meter pointer indicates full scale 1000 ppm. Turn MODE SELECT switch to ppm x 100 position and adjust R-4 the x 100 span adjuster until meter pointer indicates scale zero.

8.3.8 Turn MODE SELECT switch to ppm x 10 position, then turn FINE ZERO ADJUST until meter pointer indicates 10 in the scale or 100 ppm.

8.3.9 Turn MODE SELECT switch to ppm x 1 position and adjust the x 1 span adjuster until meter pointer indicates 100 (full scale) or 100 ppm.

8.3.10 Turn FINE ZERO ADJUST until meter pointer indicates scale zero, the TLV is now calibrated and ready for use on the low range 0-100 ppm as a gas leak detector.

8.4 Resetting alarm response. If factory set alarm response at midpoint of the meter scale is not suitable, reset alarm response level as follows:

8.4.1 Turn meter zero coarse adjustment screw (located under ZERO ADJUST control knob at lower left on instrument panel) to set meter pointer to desired alarm point on meter scale.

8.4.2 Turn ALARM potentiometer adjustment screw until audible alarm sounds.

8.4.3 Turn meter zero coarse adjustment screw to return pointer to zero on meter scale.

8.5 Setting recording level. If recorder (range: 0-100 mv; impedance: 10,000 lhms or greater) is to be used, attach accessory recorder jack to RECORDER plug in right side of instrument case and set recording level as follows:

8.5.1 Set MODE SELECTOR knob to ppm x 100 or ppm x 10 as desired and apply combustible gas to instrument intake.

8.5.2 Turn RECORDER potentiometer adjustment screw until accessory recorder response corresponds with meter readings as desired.

9.0 QUALITY CONTROL

9.1 Calibration of the unit should be verified each day.

9.2 Duplicate samples are tested in each pre-acceptance sample batch or every 10 samples, whichever is more frequent. A quality control chart is kept on the duplicate sample values.

10.0 MONITORING TOXICITY

10.1 Monitor combustible gas and vapor to determine concentrations with respect to Threshold Limit Values as follows:

10.1.1 Turn MODE SELECTOR control knob to BATT TEST position and read condition of battery on meter dial. Install new recharged batteries, if necessary.

10.1.2 Turn MODE SELECTOR control to desired operating range, selected in accordance with the Threshold Limit Value for the toxic gas to be monitored (ppm x 1 for TLV from 0 to 100 ppm; ppm x 10 for TLV from 0 to 1,000 ppm; ppm x 100 TLV from 0 to 10,000 ppm).

10.1.3 Allow ten minute warm-up period with instrument in same position as it is to be used in service (meter facing up or meter facing to the side).

10.1.4 In fresh air before entering monitoring area, turn ZERO ADJUST control knob until meter pointer resets on zero.

10.1.5 For monitoring in noisy areas, insert jack of accessory earphone in plug on right side of instrument case.

10.1.6 Enter monitoring area and read ppm gas concentrations on meter. Audible warning sounds if gas concentration causes readings at midpoint of scale or above, or if toxic Threshold Limit Value has been exceeded, provided the alarm has been set for this response.

10.1.7 For readings above 10,000 ppm: Replace probe assembly 0023-7243 with dilution probe 0023-7355 and slide dilution probe 0-ring to expose dilution holes of probe (extends range 10 x to read up to 100,000 ppm). Add in line filter and trap assembly, if sampling in dust or moisture laden areas.

10.2 Converting Hexane-calibrated meter ppm readings to ppm readings for other gases. Hexan gas is commonly used for factory calibration and subsequent in service recalibrations of the TLV Sniffer. To determine ppm concentrations of gases other than hexane with instruments calibrated for hexane, multiply the ppm meter reading by the factor for the gas detected.

10.3 Converting ppm readings to percent level of lower explosive limit (% L.E.L.). To determine gas concentration levels in terms of percent of lower explosive limit from direct ppm readings for hexane or from calculated ppm concentration levels for other gasses:

10.3.1 Read ppm on TLV Sniffer indicating meter.

10.3.2 On 0-to-10,000 "ppm concentration in sample" horizontal scale at bottom of % L.E.L. Conversion chart (attached), locate position left to right representing ppm reading.

10.3.3 On slanted chart line representing kind of gas detected, find the point in vertical alignment over ppm reading point on horizontal scale.

10.3.4 Locating gas leak sources. To utilize the TLV Sniffer in searching for gas leaks in tanks, pipes, hoses, containers, etc.:

10.4.1 Set MODE SELECTOR control knob to ppm x 1 position.

10.4.2 Search for exact location of leak with probe. Meter

reading will increase as leak is approached and

decrease as probe moves away from leak.

10.5 TLV sniff test procedure for sample fingerprint analysis.

10.5.1 The TLV sniffer probe is held over the surface (within 0.5 cm) of the sample. A positive reading indicates the possibility of volatile organics in the sample.

10.5.2 A reading over 200 ppm indicates the possibility of flammability and a flash point analysis is performed to test for flammability.

11.0 CALCULATIONS

TLV = ppm reading x scale

12.0 DATA FLAGGING AND REMEDIAL ACTION

12.1 Data will be flagged if:

12.1.1 Data generated creates an "out of control" situation on the precision control chart.

12.2 Remedial Action

12.2.1 When the data is flagged, the following areas are reviewed by the analyst and supervisor:

12.2.1.1 Analysis trends as indicated by control charts.

12.3 When a problem is located sample analysis is repeated.

13.0 REFERENCES

Instruction Manual TLV Sniffer, United Technologies Bacharach, Instruction 23-9613, Rev. No. 1, September, 1982.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 6

(USPCI - 6)

OXIDIZER SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 6

(USPCI - 6)

OXIDIZER SCREEN

1.0 SCOPE AND APPLICATION

This method is a rapid qualitative method for determining the presence of oxidizing materials in liquids and sludge samples.

2.0 SAFETY

2.1 Wear appropriate gloves and safety glasses when handling hazardous samples.

2.2 Perform analysis in the hood to prevent contact with sample vapors.

3.0 PROCEDURE

Wet a strip of KI - starch paper in HCl. Dip the wetted strip into the sample. Note the color that develops. Anywhere from light brown to dark purple or black indicated that oxidizing material is likely present. Light brown is generated on contact with nitric acid and deep purple forms on contact with hydrogen peroxide.

4.0 QUALITY CONTROL

At least one duplicate must be analyzed per sample set or for every 10 samples, which ever gives the greater frequency.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 7

(USPCI - 7)

RADIOACTIVITY SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 8

(USPCI - 8)

FIXATION REQUIREMENTS (RECIPE)

1.0 SCOPE AND APPLICATION

This test is for determining the amount of reagents (fly ash, cement kiln dust, lime, cement, silicate based reagents, activated carbon, water, etc...) that must be added to waste streams containing free liquids to stabilize the waste stream or to pass treatment standards.

2.0 SUMMARY OF METHOD:

A weighed amount of sample is mixed while slowly adding reagent(s) until no free liquids can be seen. The mixture is then weighed and the ratio of sample to reagent(s) is recorded. The mixture is then subjected to the Paint Filter Liquids Test (Methods 9095), more reagent(s) is (are) added until the Paint Filter Liquid Test indicates no free liquids. The final ratio of reagent to sample is the one used for waste stream stabilization prior to disposal. To determine if the mixture meets the treatment standard, the mixture must be subjected to the appropriate test procedure.

3.0 SAFETY

Wear appropriate gloves and safety glasses when handling samples.

4.0 PROCEDURE:

4.1 Weigh approximately 25 grams of sample into a 50 ml disposable beaker.

4.2 Gradually add reagent(s) and mix until no free liquids are observed. Weigh mixture.

4.3 Subject mixture to Paint Filter Liquids Test (Method 9095) or to TCLP if the mixture is to meet CCWE treatment standards.

4.4 Add more reagent(s) if free liquids are found with method 9095.

4.5 Determine final ratio of reagents(s) to sample for adequate fixation of free liquids or to meet treatment standards.

5.0 QUALITY CONTROL

5.1 Duplicate samples are run for 1 sample in 10.

5.2 Quality control charts are kept to indicate the method precision on duplicate samples.

6.0 REFERENCES

SW-846 Method 9095 40 CFR Part 268

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 10

(USPCI - 10)

REDUCER SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 10

(USPCI - 10)

REDUCER SCREEN

1.0 SCOPE AND APPLICATION

This method provides a spot test for the presence of reducing agents in a sample. This is a screening method value rather than a quantified result using a colorimetric method. It provides a POS/NEG result.

2.0 SUMMARY OF METHOD

A small amount of sample (with the pH adjusted to < 8) is placed in a test tube containing I_2 starch solution. If a reducer is present, the blue color of the indicator will fade.

3.0 SAFETY

3.1 Wear gloves/safety-glasses.

3.2 Perform test in a hood to vent any possible fumes from sample and/or acetic acid.

3.3 Use caution handling glacial acetic acid.

4.0 INTERFERENCES

No interferences are anticipated. However, strong bases will cause a false positive result. It is very important to adjust pH.

5.0 REAGENTS

5.1 Glacial acetic acid - ACS Grade, for adjusting pH.

5.2 Reducing agent indicator.

5.2.1 Place 500 ml deionized water in a 1000 ml beaker and heat just short of boiling. Remove from heat.

5.2.2 Add 5 gm soluble starch and stir until all of the starch is dissolved.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 7

(USPCI - 7)

RADIOACTIVITY SCREEN

1.0 SCOPE AND APPLICATION

This method is to detect the presence of any radioactive material in a representative sample of waste.

2.0 SUMMARY OF METHOD

To detect and measure the presence of radioactivity in a sample it will be placed within six inches of a scintillation detector. A scintillation detector is capable of measuring low-level gamma radiation in micro R/hr.

3.0 INTERFERENCE

No known interferences.

4.0 SAFETY

Treat all samples as if hazardous. Wear appropriate gloves, safety glasses, and lab coat. The sample container does not have to be opened to perform the test.

5.0 APPARATUS AND EQUIPMENT

Ludlum Model 19 Micro Rad Meter, or equivalent.

6.0 REAGENTS

None required.

7.0 SAMPLE HANDLING AND PRESERVATION

No preservation is needed. Keep sample tightly sealed. Place entire sample within six inches of the detector.

8.0 CALIBRATION AND STANDARDIZATION

The meter is to be recalibrated annually by the manufacturer.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURES 8

(USPCI – 8)

FIXATION REQUIREMENT
(RECIPE)

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC
Analytical Procedures

Measurement Inc., Sweetwater, Texas.

USPCI-7.3

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURES 8

(USPCI - 8)

FIXATION REQUIREMENT
(RECIPE)

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 8

(USPCI - 8)

FIXATION REQUIREMENTS (RECIPE)

1.0 SCOPE AND APPLICATION

This test is for determining the amount of reagents (fly ash, cement kiln dust, lime, cement, silicate based reagents, activated carbon, water, etc...) that must be added to waste streams containing free liquids to stabilize the waste stream or to pass treatment standards.

2.0 SUMMARY OF METHOD:

A weighed amount of sample is mixed while slowly adding reagent(s) until no free liquids can be seen. The mixture is then weighed and the ratio of sample to reagent(s) is recorded. The mixture is then subjected to the Paint Filter Liquids Test (Methods 9095), more reagent(s) is (are) added until the Paint Filter Liquid Test indicates no free liquids. The final ratio of reagent to sample is the one used for waste stream stabilization prior to disposal. To determine if the mixture meets the treatment standard, the mixture must be subjected to the appropriate test procedure.

3.0 SAFETY

Wear appropriate gloves and safety glasses when handling samples.

4.0 PROCEDURE:

4.1 Weigh approximately 25 grams of sample into a 50 ml disposable beaker.

4.2 Gradually add reagent(s) and mix until no free liquids are observed. Weigh mixture.

4.3 Subject mixture to Paint Filter Liquids Test (Method 9095) or to TCLP if the mixture is to meet CCWE treatment standards.

4.4 Add more reagent(s) if free liquids are found with method 9095.

4.5 Determine final ratio of reagents(s) to sample for adequate fixation of free liquids or to meet treatment standards.

5.0 QUALITY CONTROL

5.1 Duplicate samples are run for 1 sample in 10.

5.2 Quality control charts are kept to indicate the method precision on duplicate samples.

6.0 REFERENCES

SW-846 Method 9095 40 CFR Part 268

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 10

(USPCI - 10)

REDUCER SCREEN

Revision No. 10
May 19, 2008

batteries.

10.4 Depress the R (reset) Button. Check to see if meter pointer returns to Zero.

10.5 The meter is ready for use. Allow the meter to return to background activity approximately 10 to 20 micro R/hr Response time should be 10 to 15 seconds.

10.6 Place sample within six inches of the detector located in the front of the meter. Allow 10 to 15 seconds for meter response. If reading is less than 40 micro R/hr above background the test is negative. Any readings which are greater, the General Manager or Lab Manager will be notified.

11.0 CALCULATIONS

The meter is a direct readout. Ensure meter is set on the proper scale.

12.0 PRECISION AND ACCURACY

No historical data is available at this time.

13.0 DATA FLAGGING AND REMEDIAL ACTION

13.1 Data will be flagged by the analyst if readings exceed 40 micro R/hr above background.

14.0 REFERENCES

Instruction Manual for Ludlum Model 19 MICRO R Meter, Ludlum Measurement Inc., Sweetwater, Texas.

ck line replace the met

9.0 QUALITY CONTROL

None.

10.0 PROCEDURE

10.1 Prior to turn-on, place the response switch in the S (slow) position and place audio switch in the off position.

10.2 Turn-on the meter by placing meter on the 0 to 50 micro R/hr scale.

10.3 Depress the BATT Test Button. If the meter pointer is below the check line replace the meter's batteries.

10.4 Depress the R (reset) Button. Check to see if meter pointer returns to Zero.

10.5 The meter is ready for use. Allow the meter to return to background activity approximately 10 to 20 micro R/hr Response time should be 10 to 15 seconds.

10.6 Place sample within six inches of the detector located in the front of the meter. Allow 10 to 15 seconds for meter response. If reading is less than 40 micro R/hr above background the test is negative. Any readings which are greater, the General Manager or Lab Manager will be notified.

11.0 CALCULATIONS

The meter is a direct readout. Ensure meter is set on the proper scale.

12.0 PRECISION AND ACCURACY

No historical data is available at this time.

13.0 DATA FLAGGING AND REMEDIAL ACTION

13.1 Data will be flagged by the analyst if readings exceed 40 micro R/hr above background.

14.0 REFERENCES

Instruction Manual for Ludlum Model 19 MICRO R Meter, Ludlum

5.2.3 Dilute starch solution 1:1 with deionized water. Allow to cool to room temperature.

5.2.4 Add 1 gm of elemental iodine to 50 ml of ethyl alcohol. Stir until all the iodine is dissolved.

5.2.5 After starch is cool, add 10 ml of iodine solution to starch. Place this mixture in a dark bottle and store in a dark place.

6.0 PROCEDURE

6.1 A starch solution produces a deep blue color in the presence of elemental iodine. A reducing agent present in a sample will donate an electron to the iodine and clear the solution.

6.1.1 Transfer 1 gm of sample to a 55 ml disposal beaker.

6.1.2 Add 10 ml deionized water.

6.1.3 Adjust the pH to < 8 with 1:1 acetic acid.

6.1.4 Add 20 ml indicator to another 55 ml beaker.

6.1.5 Add 10 drops of the pH adjusted sample solution to the beaker of indicator.

6.1.6 The blue color will fade if a reducing agent is present.

7.0 QUALITY CONTROL

7.1 Samples should be tested in duplicate at a frequency of not less than 10%.

7.2 A positive can be found using a solution of sodium thiosulfate.

8.0 REFERENCES

Standard Methods for Examination of Water and Wastewater, 16th Ed.

Analytical Chemistry, 4th Ed,. Gary Christian.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 11

(USPCI - 11)

EXTRACTION FOR SOLIDS

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC
Analytical Procedures

USPCI-11.1

August 14, 1998

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 11

USPCI - 11

EXTRACTION FOR SOLIDS

1.0 SCOPE AND APPLICATION

1.1 This method is used in the screening of waste samples for high levels of organic halides. This method is primarily used to screen solvents, although some semi-volatiles (bp> 200° C) will be detected. Heavier PCBs do not extract well with polar solvents.

1.2 Methanol is the current solvent and yields good (>90%) matrix spike recoveries. Other solvents can be used provided they yield adequate spike recoveries.

2.0 METHOD SUMMARY

A nominal 1 gram sample of waste is extracted with methanol using physical agitation.

3.0 INTERFERENCES

The TOX analyzer is relatively interference free.

4.0 SAFETY PRECAUTIONS

Waste samples can contain extreme levels of hazardous compounds. The analyst should be acquainted with the waste stream and take precautions consummate with the potential risk.

5.0 APPARATUS AND EQUIPMENT

5.1 25 ml Septum capped vial, or equivalent.

5.2 Sample Agitator (optional).

6.0 REAGENTS

Methanol, interference free, or equivalent.

7.0 SAMPLE HANDLING AND PRESERVATION

7.1 Samples should be extracted in a timely manner. No holding time exists for samples of this type. No preservative is required.

7.2 It is recommended that extracts not to be analyzed within 7 days be stored at 4°C±2°C. Extracts should not be stored more than 30 days.

8.0 CALIBRATION AND STANDARDIZATION

For details of instrument calibration, see the applicable parts of the QA Plan (Instrument Calibration).

9.0 PROCEDURE

9.1 Obtain the tare weight of a 25 ml vial.

NOTE: All weights in this method are to be recorded to the nearest 0.01 grams, unless otherwise noted.

9.2 Add a nominal 1 gram of sample and record the gross weight.

9.3 Add 10 ml of methanol to the sample and agitate for 1 minute.

10.0 SAMPLE CALCULATIONS

Quantity of TOX is expressed as mg/kg TOX (as chloride).

Sample concentration is:

$$\text{mg/kg TOX} = \frac{(\text{ug TOX}) \times (\text{ml Extract}) \times 1000}{(\text{ul injected}) \times (\text{gm sample})}$$

11.0 QUALITY CONTROL

11.1 Method Blank - A method blank should be analyzed at a minimum frequency of 10% or 1 per extraction batch.

11.2 Matrix Spike/Matrix Spike Duplicate (MS/MSD) - an MS/MSD will be run at a minimum frequency of 10%.

11.2 2,4,6-Trichlorophenol will be used as the spiking compound. A solution independent of the calibration standard will be used.

12.0 METHOD PERFORMANCE

12.1 Method spike recoveries should be between 75% - 125%.

12.2 Method duplicate precision should be <30% RPD.

13.0 REFERENCES

Waste dilution, Method 3580, SW-846

Sonification extraction, Method 3550, SW-846

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 21

(USPCI - 21)

RADIANT HEAT IGNITION TEST PROCEDURE

(IGNITABLE SOLIDS SCREEN)

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 21

(USPCI - 21)

RADIANT HEAT IGNITION TEST PROCEDURE

(IGNITABLE SOLIDS SCREEN)

1.0 SUMMARY OF METHOD

A sample is placed 6 cm beneath a preheated radiant heat source and the time to ignition is detected by a thermocouple sensor and recorded on a strip chart recorder.

2.0 APPARATUS AND REAGENTS

2.1 Test chamber - as shown in Figure 1.

2.2 Sample container - aluminum weighing pan, 6 cm diameter x 1.7 cm deep.

2.3 Controller/sensor - as shown in figure 1.

2.4 Recorder - strip chart, variable speed and input impedance.

2.5 Safety Equipment

2.5.1 Flameproof gloves (Lab Safety Supply 1915M or equivalent)

2.5.2 Tongs - 53 cm (Fisher, 15-207 or equivalent)

2.5.3 Respirator (Fisher, 13-995-11 or equivalent)

2.6 Balance (minimum accuracy to nearest 100 mg)

3.0 TEST PROCEDURE

3.1 Locate the test chamber in a fireproof fume hood with the exhaust fan turned on.

3.2 If the hood is large enough, locate the controller/sensor and the recorder outside the hood but in proximity to the test chamber.

3.3 With an empty sample container on the sample platform to

provide a heating element (Figure 1: part no. 1) to sample container (top rim) distance of 6 cm.

3.4 Position the thermocouple (Figure 1; part no 7) 1 cm above the top rim and centered over the sample container.

3.5 Connect the thermocouple to position 33 (Figure 1) on the controller/sensor using the cable supplied.

3.6 Connect the heater/solenoid cable (Figure 1: part no. 16, 17) to position 34 (Figure 1) on the controller/sensor.

3.7 Connect the power cord on the controller/sensor to a 110 VAC power source.

3.8 Set the variable transformer to 0.

3.9 Position a dummy sample container (blackened with carbon soot) directly under heat source. Close the chamber door.

3.10 Turn on the controller/sensor.

3.11 Turn on the heater. Set the variable transformer to the setting determined during the temperature adjustment procedure.

3.12 Preheat the radiant heat source for 30 minutes.

3.13 Transfer sample to the sample container to a depth of approximately 1 cm, making sure that the sample surface is level and smoothed.

WARNING!!

Extreme care must be exercised in testing materials known or suspected of being highly flammable. Preliminary test using greatly diminished sample sizes should be conducted prior to performing the actual test to insure the safety of the analyst. A reduced test sample depth should be used in cases where sample ignition is extremely rapid and/or violent.

3.14 Place the filled sample container outside, but in proximity to, the test chamber.

3.15 Start the recorder at a chart speed of 0.5 in/min and a full-

scale sensitivity of 1 volt.

3.16 Open the side door and remove the dummy sample container.

3.17 Using tongs and flameproof gloves, pick up the filled sample container and place it onto the metal trough. With the tongs, slide the sample container under the radiant heat source. Immediately, close the side door and activate the recorder zero knob to mark the chart.

CAUTION!!

The placement of the sample beneath the radiant heat source, the marking of the recorder chart and the closing of the chamber door must be executed as quickly as possible to optimize the precision of the test results.

3.18 Raise the chamber door and remove the ignited sample from beneath the radiant heat source and carefully place it in the bottom of the chamber.

WARNING!!

Raise the fume hood and test chamber doors just to a level that facilitates removal of the sample form beneath the radiant heat source. Flameproof gloves should be used in combination with tongs to protect the analyst from the burning sample.

3.19 Extinguish the fire by smothering.

3.20 Prepare the chamber for the next sample by positioning the dummy sample container beneath the radiant heat source.

3.21 Lower the fume hood door to one-half the height of the chamber.

3.22 Measure the distance (cm) from the initial mark to ignition on the recorder. Calculate the time to ignition from the calibrated recorder speed.

3.23 Proceed with the analysis of subsequent samples by repeating steps 3.13 through 3.22

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 25

(USPCI-25)

COMPATIBILITY EVALUATIONS

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 25

(USPCI-25)

COMPATIBILITY EVALUATIONS

Compatibility Evaluations:

Two evaluation procedures are discussed below, the first dealing with determination of waste to waste compatibility, and the second with waste to container or tank materials of construction compatibility.

Waste to Waste Compatibility Evaluation:

The determination of whether, or not, two wastes are compatible may involve up to three levels of evaluation. The first level will rely on a review of the results of previous compatibility determinations for the wastes under evaluation. If a compatibility determination cannot be made from a review of previous evaluations, a second level of evaluation will be employed.

This second level will involve a review of analytical data on file for the wastes under evaluation and a search of appropriate literature and/or the use of "Compatibility Charts" to assess the potential for the waste streams to be compatible. Sources of information would include 40 CFR 264, Appendix V, Example of Potentially Incompatible Wastes; or "A Method For Determining The Compatibility of Hazardous Wastes", EPA- 600/2-80-076, April 1980. If a determination about compatibility cannot be made after reviewing the procedures above, a third level of evaluation will be employed.

The third level of evaluation will require that a laboratory test procedure be performed, in which samples of the wastes are mixed and observed for signs of adverse reaction. The Technical Manager will not be required to perform all three levels of evaluation, but may opt to begin the evaluation at level two or at level three. If a determination is made that wastes are incompatible, the wastes will be segregated during storage at Clean Harbors Kansas, LLC If the laboratory test procedure indicates that the waste streams are compatible, then these waste streams may be mixed during storage regardless of the results of the determinations made at level one or level two.

Waste to Waste Compatibility Testing Procedure

General Safety Precautions:
At a minimum, laboratory personnel will wear safety glasses, gloves, protective clothing, and protective footwear while performing the tests for waste compatibility. The tests will be perfomed under a lab fume hood. Laboratory personnel will check the manifest and other shipping documents to be familiar with the wastes and ensure that all necessary precautions are taken.

Detailed Procedure:

- Place a clean beaker in a fume hood.
- Add 100 - 150 ml of a representative sample of waste stream "A" (one of the wastes to be mixed or which may come into contact during storage).
- Add 100 - 150 ml of a representative sample of waste stream "B" (the other wastes to be mixed or which may come into contact during storage) to the same beaker.
- Check for these typical signs of reactivity:
  - gas generation (method: visual inspection)
  - temperature change (method: thermometer)
  - violent reactions (method: visual or audible inspection)
  - fire/explosion (method: visual or audible inspection)
- If a reaction exhibiting one or more of the above characteristics occurs, the waste streams will be deemed incompatible and will not be stored together or mixed together in a tank or container.

Waste to Tank or Container Compatibility Evaluation:

The evaluation of whether, or not, a waste is compatible with the tank or container into which it is desired to place the waste is based on determining the potential of the waste to corrode the materials of construction of the tank or container. As many of the tanks at Clean Harbors Kansas, LLC are of carbon steel construction, the evaluation focuses on the potential of wastes to corrode carbon steel.

Prior to storing a waste in a tank or in a container fabricated of carbon steel, the waste will be checked for compatibility with carbon steel. A pH analysis and Table WC.1 will be used to determine the compatibility of the waste sample.

If the pH is determined to be less than or equal to 2.0 or equal to or greater than 12.5, (<=2.0, pH, =>12.5) and thus exhibits the regulatory characteristic of corrosivity, then the waste will not be stored in direct contact with carbon steel.

If the pH of the waste is determined to be greater than 2.0 and less than 12.5 (2.0 < pH < 12.5), then a review of the Waste Profile Sheet for the presence of any compounds listed in Table WC.1 will be performed. Table WC.1 was developed by LES after reviewing published sources and compiling a list of compounds (with corresponding concentrations) that corrode carbon steel at a rate greater than 0.05 inches per year at temperatures from 0° to 130° F. It should be noted that this rate of corrosion is only 20% of the rate at which a waste would meet the characteristic of corrosivity.

If the Waste Profile Sheet indicates that the concentration of a compound exceeds the level indicated in Table WC.1, the waste will not be treated or stored in carbon steel tanks (uncoated) or stored in a container made of carbon steel (unlined). Such a waste may be placed in a fiberglass reinforced plastic tank or a container furnished with a corrosion resistant lining.

Compatibility sources utilized include The Chemical Engineer's Handbook, Perry and Chilton, 5th ed., pg. 23-16 to 23-34, 1973; Engineering Materials Handbook, Mantell, 38-1 to 38-19, 1958.

Table WC.1
Compatibility of Waste with Carbon Steel[1]

Compound	Concentration (volume %) - (C)	Temperature Range (deg F) - T
acetic acid	5 < C < 100	T > 60
chromic acid	5 < C < 20	T > 60
citric acid	10 < C < 40	T > 60
formic acid	C > 25	T > 60
hydrochloric acid	C > 5	T > 60
hydrofluoric acid	10 < C < 60	T > 60
nitric acid	C > 5	T > 60
oxalic acid	7 < C < 13	T > 60
phosphoric acid	C > 5	T > 60
sulfuric acid	10 < C < 90	T > 60
aluminum chloride	10 < C < 90	T > 60
aluminum potassium sulfate	7 < C < 13	T > 60
ammonium chloride	20 < C < 30	T > 60
aniline	100	T > 60
calcium hypochlorite	100	T > 60
copper sulfate	5 < C < 100	T > 60
fatty acids	100	T > 60
ferric chloride	10 < C < 45	T > 60
ferrous chloride	10 < C < 25	T > 60
ferrous sulfate	7 < C < 13	T > 60
hydrogen peroxide	15 < C < 50	T > 60
nickel sulfate	10 < C < 100	T > 60
potassium hydroxide	35 < C < 50	T > 100
sodium chloride	100	T > 100
soduim hydroxide	45 < C < 75	T > 100
zinc chloride	10 < C < 65	T > 50
zinc sulfate	10 < C < 35	T > 50

NOTE: Compounds listed above are corrosive to carbon steel at a rate greater than 0.05 inches per year at the given concentrations and temperatures. Many of the concentrations given do not fall within the pH constraints set for the compatibility of the waste with the carbon steel tanks. Therefore, consideration for compliance with the above table for waste streams that do not fall within the pH requirements set will not be required.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 1

(HRIW - 1)

EXPLOSIVITY SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC **ANALYTICAL PROCEDURE 1**

(HRIW - 1)

EXPLOSIVITY SCREEN

1.0 SCOPE AND APPLICATION

An organic vapor analyzer is used to determine the concentration of organic vapors in air. For the purpose of this method, the air in question will be the headspace above liquid or solid waste samples.

2.0 SUMMARY OF METHOD

2.1 A portable gas detection unit is used to determine concentrations of oxygen (as % O_2) or combustible gases (as ppm or % LEL) in the atmosphere. Sample vapors are drawn across a combustible gas detector (Wheatstone bridge), through the pump, to flow across an oxygen detector and vent to the outside. Readings obtained are displayed on either an analog meter dial or a digital display.

3.0 INTERFERENCES

3.1 Humidity can effect the reading obtained in the low ppm range.

3.2 Certain substances, particularly silicone vapors, act as "catalyst poisons" and can result in decreased sensitivity.

3.3 Chlorinated vapors will give a catalytic response although they are not truly flammable.

3.4 Since acetylene is very active catalytically it may tend to give a reaction at the reference element, thereby nullifying the signal from the active element.

3.5 When sampling spaces which are warmer than the instrument, water vapor can condense in the sample line, blocking the flame arrestor and interfering with pump operation.

4.0 SAFETY

4.1 The electric circuitry of the unit is certified to be intrinsically safe and can be safely used in testing any mixture of combustible gas in air.

4.2 Safety glasses, lab coat, and chemically resistant gloves should be worn while handling laboratory samples.

5.0 APPARATUS AND EQUIPMENT

5.1 GasTechtor model #1314 Hydrocarbon Super Surveyor equipped with a 10 inch probe and hose sample inlet system, or equivalent.

5.2 Calibration gas with known ppm levels of a hydrocarbon.

6.0 SAMPLE HANDLING AND PRESERVATION

Keep samples tightly capped and analyze as soon as possible to prevent the escape of vapors.

7.0 CALIBRATION AND STANDARDIZATION

7.1 Press the power switch to turn the instrument on. Press the battery check button and note the meter reading. The reading must be above the BATT CK mark on the meter for use. If not, the meter must be recharged.

7.2 Setting the LEL span.

7.2.1 Expose the sample probe tip to a known calibration gas.

7.2.2 Locate the LEL SPAN potentiometer on the underside of the circuit board inside the unit, along one edge, near the front.

7.2.3 Watch the combustibles display carefully, and adjust the reading to the desired value by turning the potentiometer. Turn the potentiometer clockwise to increase the reading.

7.2.4 Remove the calibration gas and allow the reading to return to zero. If the reading does not return to zero repeat the above steps until the correct reading is obtained.

7.2.5If reading cannot be set high enough, replace the detector.

7.3 Setting the Oxygen zero.

7.3.1 Expose the sample probe tip to a known oxygen-free sample, such as nitrogen, argon, or helium.

7.3.2 Locate the ZERO potentiometer, along the front edge of the circuit board.

7.3.3 Watch the display carefully, and, if necessary, adjust the reading to zero by turning the ZERO potentiometer.

7.3.4 If zero adjustment cannot be made, have the oxygen cell reactivated.

7.4 There is no separate field adjustment needed for the PPM span. The relationship between LEL and PPM sensitivity is precalculated and set at the factory.

8.0 PROCEDURE

8.1 Turn the instrument on and allow to warm up in ambient air. The unit may be used when warm up is complete (usually about 2 minutes), but full stabilization of the readings may take up to 20 minutes.

8.2 Laboratory readings are reported in ppm, therefore make sure that the LEL/PPM button is in the PPM position.

8.3 Unscrew the lid of the sample jar and tilt it only enough to allow the probe to enter the headspace over the sample. Read and record the highest reading shown on the meter.

9.0 QUALITY CONTROL

9.1 Calibration should be verified daily using a gas with known ppm levels of a hydrocarbon to ensure accuracy of results.

9.2 Replicate readings should be taken on samples at a frequency of at least 20% to ensure precision of results.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 2

(HRIW - 2)

HOC SCREEN

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 2

(HRIW - 2)

HOC SCREEN

1.0 SCOPE AND APPLICATION

The Bielstein test provides an easy and reliable screen for detecting the presence of organic halogens in a sample. The test does not differentiate between chlorine, bromine, and iodine. Fluorine does not produce a positive result.

2.0 SUMMARY OF METHOD

When an organic halogen is heated with copper oxide the result is the production of a volatile copper halide which imparts a blue-green color to the flame. Two methods are given here, one for volatile compounds and one for non-volatile compounds, differing only in the way that the sample is introduced into the flame.

3.0 INTERFERENCES

3.1 Very volatile liquids may evaporate before the test is complete.

3.2 Several non-halogenated compounds have been stated to also cause a green flame, such as organic acids, copper cyanide, urea, quinoline, and pyridine derivatives.

4.0 SAFETY

4.1 Since this method utilizes an open flame, caution must be used around flammable solvents and materials.

4.2 Safety glasses, lab coat, and chemically resistant gloves should be worn while handling laboratory samples.

5.0 APPARATUS AND EQUIPMENT

5.1 Propane refrigerant sniffer (Freon leak detector).

5.2 For non-volatile compounds, a 20 gauge wire with a small loop in the end.

6.0 SAMPLE HANDLING AND PRESERVATION

All samples should be kept in containers with a tight, leakproof cap.

7.0 PROCEDURE

7.1 Volatile compounds.

7.1.1 Ignite the leak detector and allow the copper disk inside the burner to become red hot.

7.1.2 Unscrew the lid of the sample jar and place the aspirator tube into the headspace above the sample. If halogen is present, the flame will burn green to blue-green.

7.1.3 Highly volatile hydrocarbons which are not halogenated may cause the flame to burn more vigorously and bright yellow in color. This should not be confused with a positive result.

7.2 Non-volatile compounds.

7.2.1 Ignite the leak detector. Hold the looped end of the copper in the flame and burn off any residue. Cool the wire.

7.2.2 Unscrew the lid of the sample jar and dip the wire into the sample. Immediately plunge the wire into the flame. After the sample burns, note the color change in the flame. If halogen is present, the flame will have a green color.

8.0 QUALITY CONTROL

Test daily with a one percent solution of trichloroethylene in methanol. A positive test should be seen for either method.

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 3

(HRIW - 3)

IGNITABILITY OF SOLIDS

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC ANALYTICAL PROCEDURE 3

(HRIW - 3)

IGNITABILITY OF SOLIDS

1.0 SCOPE AND APPLICATION

This method is used to determine the susceptibility of a solid or semi-solid waste to ignition by a spark source or open flame.

2.0 SUMMARY OF METHOD

Sparks from a flint lighter or an open flame are introduced to the headspace above a sample of solid waste, and observation is made for either a flash in the vapor space or ignition of the sample.

3.0 SAFETY

3.1 Since this method utilizes an open flame, caution must be used around flammable solvents and materials.

3.2 Safety glasses, lab coat, and chemically resistant gloves should be worn while handling laboratory samples.

4.0 APPARATUS AND EQUIPMENT

4.1 Flint lighter, wooden or paper matches, or other source for sparks or flame.

4.2 A 300 mL beaker, or a similar container of adequate size to accomodate the sample with vapor space.

4.3 A watch glass of adequate size to cover the mouth of the beaker.

4.4 A timer or stop watch.

5.0 SAMPLE HANDLING AND PRESERVATION

All samples should be kept in containers with a tight,

leakproof cap.

6.0 PROCEDURE

6.1 Place approximately 100 mL of well-mixed sample into the beaker and cover with the watch glass.

6.2 Allow to stand closed for about five minutes.

6.3 Tilt the watch glass and carefully place the ignition source directly in the vapor space above the sample in the beaker. A flash in the vapor space or ignition of the sample itself indicates a positive test.

7.0 QUALITY CONTROL

The simple positive/negative nature of this screen does not lend itself to typical QA/QC measures. Suspect results should be repeated or verified by other methods.

Attachment C-D

Excerpts from "Samplers and Sampling Procedures for Hazardous Waste Streams"

Revision No. 10
May 19, 2008

Clean Harbors Kansas, LLC
RCRA Permit Application
Section C - Waste Characterization
Appendix C-A - Waste Analysis Plan
Attachment C-D - Sampling

INSERT 20 PAGES OF EXCERPTS FROM "SAMPLERS AND SAMPLING PROCEDURES FOR HAZARDOUS WASTE STREAMS.

SECTION 4

SAMPLERS

Sampling of hazardous wastes requires different types of samplers. Some of these samplers are commercially available, but the others have to be fabricated. This section lists and describes suitable samplers. Their uses and commercial availability as well as directions for their use are reported. Directions for fabricating the commercially unavailable samplers are also outlined.

COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

The Coliwasa is the single most important hazardous waste sampler discussed in this report. It was chosen from a number of other liquid samplers, based on laboratory and field tests, as the most practical. It permits the representative sampling of multiphase wastes of a wide range of viscosity, corrosivity, volatility, and solids content. Its simple design makes it easy to use and allow the rapid collection of samples, thus minimizing the exposure of the sample collector to potential hazards from the wastes. The sampler is not commercially available, but it is relatively easy and inexpensive to fabricate. The cost of fabrication is low enough that the contaminated parts may be discarded after a single use when they cannot be easily cleaned.

The recommended model of the Coliwasa is shown in Figure 1. The history and development of this sampler is discussed in detail in Appendix A. The main parts of the Coliwasa consist of the sampling tube, the closure-locking mechanism, and the closure system.

The sampling tube consists of a 1.52-m(5-ft.) by 4.13-cm(1 5/8-in.) I.D. translucent plastic pipe, usually polyvinyl chloride (PVC) or borosilicate glass plumbing tube. The closure-locking mechanism consists of a short-length, channeled aluminum bar attached to the sampler's stopper rod by an adjustable swivel. The aluminum bar serves both as a T-handle and lock for the sampler's closure system. When the sampler is in the open position, the handle is place in the T-position and pushed down against the locking block. This manipulation pushes out the neoprene stopper and opens the sampling tube. In the close position, the handle is rotated until one leg of the T is squarely perpendicular against the locking block. This tightly seats the neoprene stopper against the bottom opening of the sampling tube and positively locks the sampler in the close position. The closure tension can be adjusted by shortening or lengthening the stopper rod by screwing it in or out

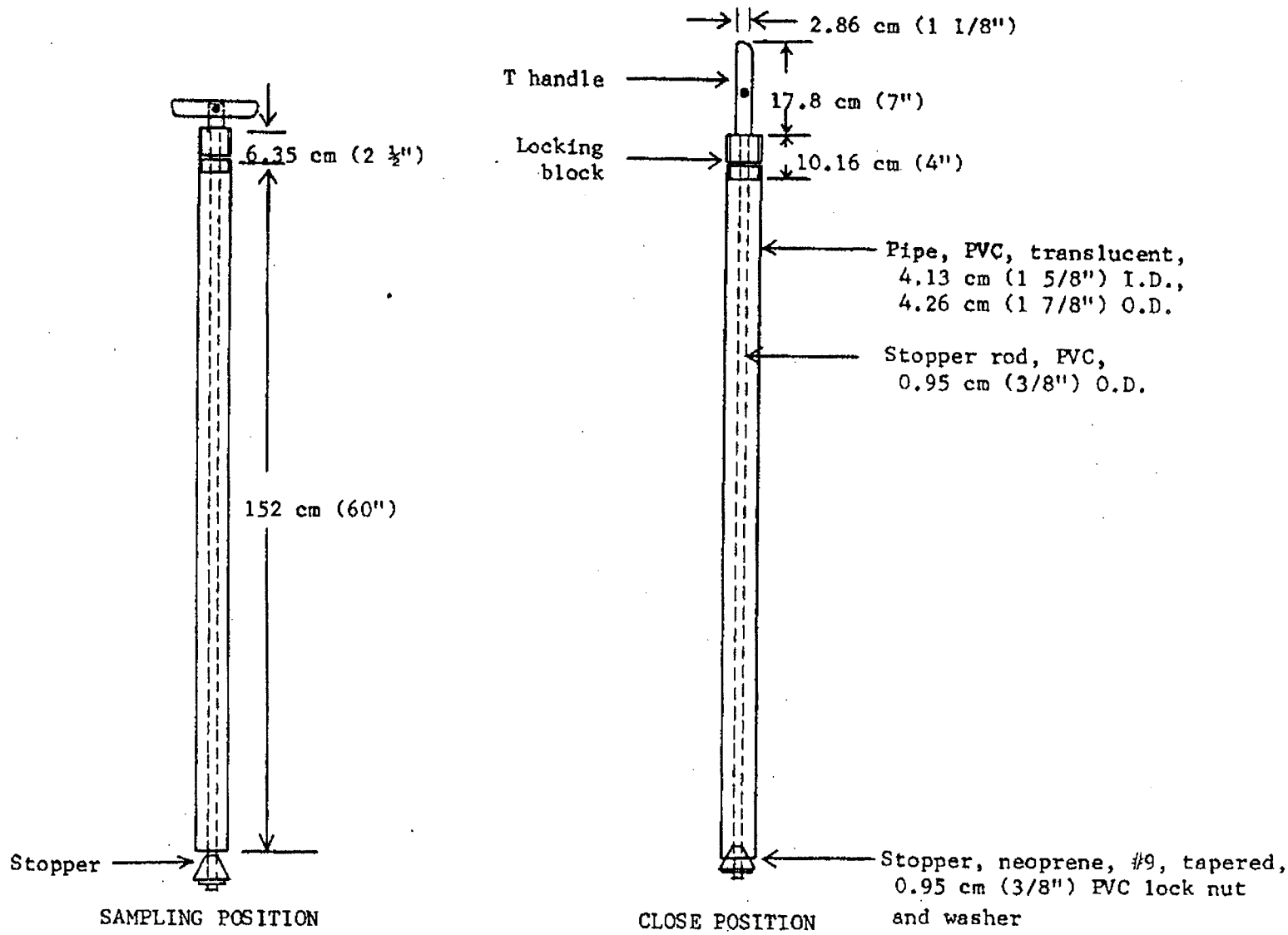


Figure 1. Composite liquid waste sampler (Coliwasa)

of the T-handle swivel. The closure system of the sampler consists of a sharply taped neoprene stopper attached to a 0.95-cm (3/8-in.) O.D. rod, usually PVC. The upper end of the stopper rod is connected to the swivel of the aluminum T-handle. The sharply tapered neoprene stopper can be fabricated according to specifications by plastic products manufacturers at an extremely high price, or it can be made in-house by grinding down the inexpensive stopper with a shop grinder as described in Note 1 of Appendix B.

Two types of Coliwasa samplers are made, namely plastic or glass. The plastic type consists of translucent plastic (usually PVC) sampling tube. The glass Coliwasa uses borosilicate glass plumbing pipe as the sampling tube and Teflon plastic stopper rod.

The complete list of parts for constructing the two types of Coliwasa samplers is given in Appendix B. The suppliers and approximate costs of the parts as well as the directions for fabricating the commercially unavailable parts are also given.

The sampler is assembled as shown in Figure 1 and as follows:

1. Attach the swivel to the T-handle with the 3.18 cm(1¼ in.) long bolt and secure with the 0.48 cm(3/16 in.) National Coarse(NC) washer and lock nut.

2. Attach the neoprene stopper to one end of the stopper rod and secure with the 0.95 cm(3/8 in.) washer and lock nut.

3. Install the stopper and stopper rod assembly in the sampling tube.

4. Secure the locking block sleeve on the block with glue or screws. This block can also be fashioned by shaping a solid plastic rod on a lathe to the required dimensions.

5. Position the locking block on top of the sampling tube such that the sleeveless portion of the block fits inside the tube, the sleeve sits against the top end of the tube, and the upper end of the stopper rod slips through the center hole of the block.

6. Attach the upper end of the stopper rod to the swivel of the T-handle.

7. Place the sampler in the close position and adjust the tension on the stopper by screwing the T-handle in or out.

Uses

The plastic Coliwasa is used to sample most containerized liquid wastes except wastes that contain ketones, nitrobenzene, dimethylforamide, mesityl oxide, and tetrahydrofuran.[3,4]

The glass Coliwasa is used to sample all other containerized liquid wastes that cannot be sampled with the plastic Coliwasa except strong alkali and hydrofluoric acid solutions.

Procedure for Use

1. Choose the plastic or glass Coliwasa for the liquid waste to be sampled and assemble the sampler as shown in Figure 1.

2. Make sure that the sampler is clean (see Section 5).

3. Check to make sure the sampler is functioning properly. Adjust the locking mechanism if necessary to make sure the neoprene rubber stopper provides a tight closure.

4. Wear necessary protective clothing and gear and observe required sampling precautions (see Section 6).

5. Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

6. Slowly lower the sampler into the liquid waste. (Lower the sampler at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample).

7. When the sampler stopper hits the bottom of the waste container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the close position by turning the T handle until it is upright and one end rests tightly on the locking block.

8. Slowly withdraw the sampler from the waste container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.

9. Carefully discharge the sample into a suitable sample container (see Section 6) by slowly opening the sampler. This is done by slowly pulling the lower end of the T handle away from the locking block while the lower end of the sampler is positioned in a sample container.

10. Cap the sample container; attach label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

11. Unscrew the T handle of the sampler and disengage the locking block. Clean sampler on site (see Section 5) or store the contaminated parts of the sampler in a plastic storage tube for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

12. Deliver the sample to the laboratory for analysis (see Section 6).

SOLID WASTE SAMPLERS

A number of tools are available for sampling solid substances. The most suitable of these for sampling hazardous solid wastes are the grain sampler, sampling trier, and the trowel or scoop.

Grain Sampler

The grain sampler (Figure 2) consists of two slotted telescoping tubes, usually made of brass or stainless steel. The outer tube has a conical, pointed tip on one end that permits the sampler to penetrate the material being sampled. The sampler is opened and closed by rotating the inner tube. Grain samplers are generally 61 to 100 cm (24 to 40 in.) long by 1.27 to 2.54 cm (½ to 1 in.) in diameter, and they are commercially available at laboratory supply houses.

Uses--

The grain sampler is used for sampling powdered or granular wastes or materials in bags, fiberdrums, sacks or similar containers. This sampler is most useful when the solids are no greater than 0.6 cm (¼ in.) in diameter.

Procedure for Use--

1. While the sampler is in the close position, insert it into the granular or powdered material or waste being sampled from a point near a top edge or corner, through the center, and to a point diagonally opposite the point of entry.[5]

2. Rotate the inner tube of the sampler into the open position.

3. Wiggle the sampler a few times to allow materials to enter the open slots.

4. Place the sampler in the close position and withdraw from the material being sampled.

5. Place the sampler in a horizontal position with the slots facing upward.

6. Rotate and slide out the outer tube from the inner tube.

7. Transfer the collected sample in the inner tube into a suitable sample container (see Section 6).

8. Collect two or more core samples at different points (see Section 6), and combine the samples in the same container.

9. Cap the sample container; attach label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

10. Clean (see Section 5) or store the sampler in plastic bag for subsequent cleaning.

11. Deliver the sample to the laboratory for analysis (see Section 6).

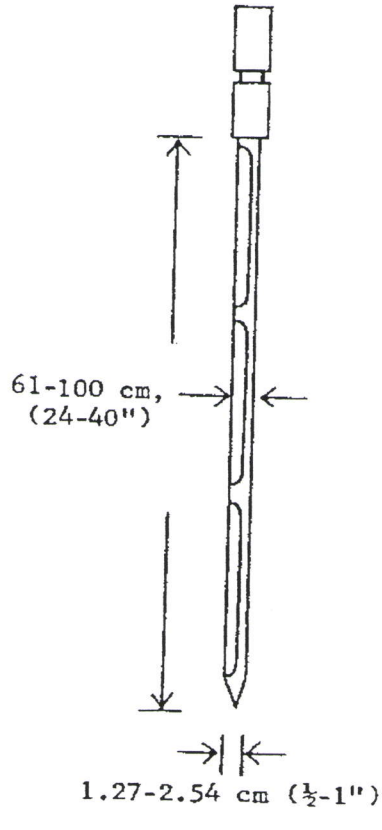


Figure 2. Grain sampler.

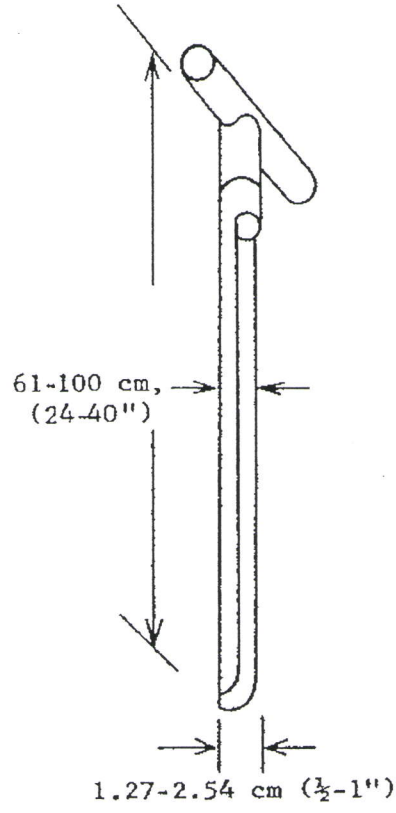


Figure 3. Sampling trier.

Sampling trier

A typical sampling trier (Figure 3) is a long tube with a slot that extends almost its entire length. The tip and edges of the tube slot are sharpened to allow the trier to cut a core of the material to be sampled when rotated after insertion into the material. Sampling triers are usually made of stainless steel with wooden handles. They are about 61 to 100 cm (24 to 40 in.) long and 1.27 to 2.54 cm (½ to 1 in.) in diameter. They can be purchased readily from laboratory supply houses.

Uses--

The use of the trier is similar to that of the grain sampler discussed above. It is preferred over the grain sampler when the powdered or

granular material to be sampled is moist or sticky.

In addition, the sampling trier can be used to obtain soft or loosened soil samples up to a depth of 61 cm(24 in.) as outlined below.

Procedure for Use--

1. Insert the trier into the waste material at a 0 to 45° angle from horizontal. This orientation minimizes the spillage of sample from the sampler. Extraction of samples might require tilting of the containers.

2. Rotate the trier once or twice to cut a core of material.

3. Slowly withdraw the trier, making sure that the slot is facing upward.

4. Transfer the sample into a suitable container (see Section 6) with the aid of a spatula and/or brush.

5. Repeat the sampling at different points (see Section 6). Two or more times and combine the samples in the same sample container.

6. Cap the sample container; attach the label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

7. Wipe the sampler clean, or store it in a plastic bag for subsequent cleaning.

8. Deliver the sample to the laboratory for analysis (see Section 6).

Trowel or Scoop

A garden-variety trowel looks like a small shovel (Figure 4). The blade is usually about 7 by 13 cm(3 by 5 in.) with a sharp tip. A laboratory scoop is similar to the trowel, but the blade is usually more curved and has a closed upper end to permit the containment of material. Scoops come in different sizes and makes. Stainless steel or polypropylene scoops with 7 by 15-cm(2 3/4 by 6-in.) blades are preferred. A trowel can be bought from hardware stores; the scoop can be bought from laboratory supply houses.

Uses--

An ordinary zinc-plated garden trowel can be used in some cases for sampling dry granular or powdered materials in bins or other shallow containers. The laboratory scoop, however, is a superior choice. It is usually made of materials less subject to corrosion or chemical reactions, thus lessening the probability of sample contamination.

The trowel or scoop can also be used in collecting top surface soil samples.

Procedure for Use--

1. At regular intervals (see Section 6), take small, equal portions of sample from the surface or near the surface of the material to be sampled.

2. Combine the samples in a suitable container (see Section 6).

3. Cap the container; attach the label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

4. Deliver the sample to the laboratory for analysis (see Section 6).

SOIL SAMPLERS

There is a variety of soil samplers used. For taking soil core samples, the scoop, sample trier, soil auger, and Veihmeyer sampler can be used. These samplers are commercially available and relatively inexpensive.

Scoop or Trowel

See the preceding section on solid waste samplers for the description of a scoop or trowel (Figure 4).

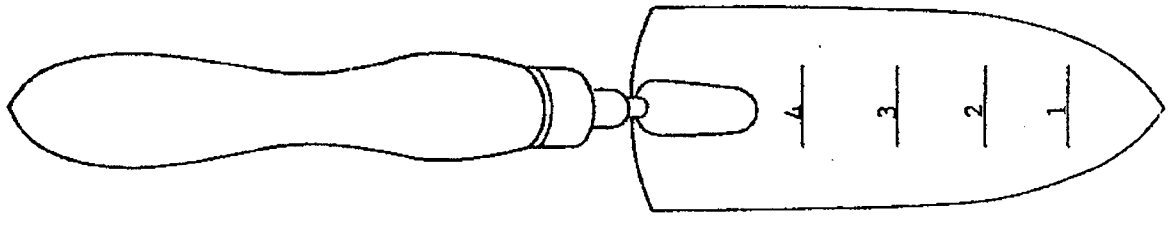


Figure 4. Trowel or scoop with calibrations.

Uses--

The scoop is used to collect soil samples up to 8 cm(3 in.) deep. It is simple to use, but identical mass sample units for a composite sample are difficult to collect with this sampler. The procedure for use of the scoop is outlined in the preceding section on solid waste samplers.

Sampling Trier

See the preceding section on solid waste samplers for the description of a sampling trier (Figure 3).

Uses--

This sampler can be used to collect soil samples at a depth greater than 8 cm(3 in.). The sampling depth is determined by the hardness and types of soil being sampled. This sampler can be difficult to use in stony, dry, very heavy, or sandy soil. The collected sample tends to be slightly compacted, but this method permits observation of the core sample before removal.[6]

Procedure for Use--

Procedure for use of the sampling trier can be found in the section on solid waste samplers.

Soil Auger

This tool consists of a hard metal central shaft and sharpened spiral blades (Figure 5). When the tool is rotated clockwise by its wooden T handle, it cuts the soil as it moves forward and discharges most of the loose soil upward. The cutting diameter is about 5 cm(2 in.). The length is about 1 m(40 in.), with graduations every 15.2 cm(6 in.). The length can be increased up to 2 m(80 in.). This tool can be bought from stores and, in some cases, from laboratory supply houses.

Uses--

The auger is particularly useful in collecting soil samples at depths greater than 8 cm(3 in.). This sampler destroys the structure of cohesive soil and does not distinguish between samples collected near the surface or toward the bottom. It is not recommended, therefore, when an undisturbed soil sample is desired.

Procedure for Use--

1. Select the sampling point (see Section 6) and remove unnecessary rocks, twigs, and other non-soil materials.

2. Install the sampler's wooden T handle in its socket.

3. Bore a hole through the middle of an aluminum pie pan large enough to allow the blades of the auger to pass through. The pan will be used to catch the sample brought to the surface by the auger.

4. Spot the pan against the selected sampling point.

5. Start augering through the hole in the pan until the desired sampling depth is reached.

6. Back off the auger and transfer the sample collected in the catch pan and the sample adhering to the auger to a suitable container (see Section 6). Spoon out the rest of the loosened sample with a sampling trier.

7. Repeat the sampling at different sampling points (see Section 6), and combine the samples in the same container as in step 6.

8. Cap the sample container; attach label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

9. Brush off and wipe the sampler clean, or store it in a plastic bag for subsequent cleaning.

10. Deliver the sample to the laboratory for analysis (see Section 6).

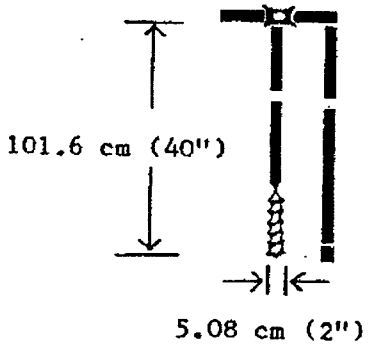


Figure 5. Soil auger.

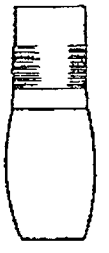
A. Drive hammer

B. Head

C. Tube

D. Point

Standard point

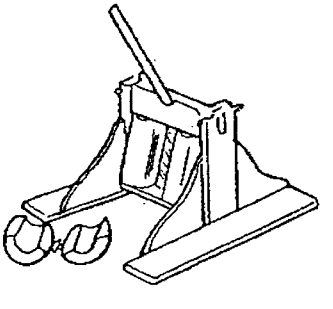


Constricted point

Bulge point

Special point

Point types



Puller jack and grip

Figure 6. Veihmeyer sampler

Veihmeyer Soil Sampler

This sampler was developed by Professor F.J. Veihmeyer of the University of California in Davis.[7] The parts of a basic sampler and the corresponding costs are given in Table 1, and the basic sampler is shown in Figure 6.

TABLE 1. BASIC PARTS AND COSTS OF A VEIHMEYER SOIL SAMPLER

Part[a]	Cost[b]
Tube, 1.5 m (5 ft.)	$ 50.40
Tube, 3 m (10 ft.)	84.75
Tip, type A, general use	25.80
Drive head	29.05
Drop hammer, 6.8 kg (15 lb.)	71.85
Puller jack and grip[c]	161.90
Total	$ 433.75

[a] Only one of each part is needed. They are manufactured by Hansen Machine Works, 334 N. 12th Street, Sacramento, CA 95815.

[b] Based on August 1, 1977, price list.

[c] Recommended for deep soil sampling.

The tube is chromium-molybdenum steel and comes in various standard lengths from 0.91 to 4.9 m(3 to 16 ft.) and calibrated every 30.48 cm(12 in.). Longer tubes can be obtained on special order. Different points (Figure 6) are also available for different types of soil and sampling. Each point is shaped to penetrate specific types of soil without pushing the soil ahead of it, thus preventing the core from compacting in the tube. The standard point is adequate for most general sampling purposes. The inside taper of each point is designed to keep the sample from being sucked out of the tube as it is pulled from the ground. The drive head protects the top of the tube from deforming when the tube is driven into the ground with the drive hammer. The hammer doubles as a drive weight and handle when pulling the sampler from the ground. When the sampler tube cannot be pulled easily from the ground, a special puller jack and grip

are also available. Specifications for the various parts of the Veihmeyer sampler are given as follows:

Points	Chrome-molly steel, heat-treated. Includes a standard point for general use, a constricted point for deep sampling in heavy clay (keeps core from being sucked out of the tube), a bulge point for shallow sampling in heavy clay, and a special point for dry sand. (See Figure 6D).
Drive hammer . .	Standard weight is 6.8 kg (15 lb.). (See Figure 6A)
Tubes . .	Chrome-molly steel. Maximum length is 4.9 m (16 ft.). (See Figure 6C).
Head . .	Chrome-molly steel, heat-treated. (See Figure 6B).
Puller jack . .	Cast aluminum frame with steel roller assembly and handle.
Grip . .	Chrome-molly steel, heat-treated.

Uses--

The Veihmeyer sampler is recommended for core sampling of most types of soil. It may not be applicable to sampling stony, rocky, or very wet soil.

Procedure for Use--

1. Assemble the sampler by screwing in the tip and the drive head on the sampling tube.

2. Insert the tapered handle (drive guide) of the drive hammer through the drive head.

3. Place the sampler in a perpendicular position on the soil to be sampled.

4. With the left hand holding the tube, drive the sampler into the ground to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.

5. Record the length of the tube that penetrated the ground.

6. Remove the drive hammer and fit the keyhole-like opening on the flat side of the hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.

7. Rotate the sampler at least two revolutions to shear off the sample at the bottom.

8. Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90°.

9. Withdraw the sampler from the ground by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use the puller jack and grip.

10. Dislodge the hammer from the sampler; turn the sampler tube upside down; tap the head gently against the hammer; and carefully recover the sample from the tube. The sample should slip out easily.

11. Store the core sample, preferably, in a rigid, transparent, or translucent plastic tube when observation of soil layers is to be made. The use of the tube will keep the sample relatively undisturbed. In other cases, use a 1000-or 2000-ml (1-qt. or ½-gal) sample container (see Section 6) to store the sample.

12. Collect additional core samples at different points (see Section 6).

13. Label the samples; affix the seals; record in the field log book; complete analysis request sheet and chain of custody record; and deliver the samples to the laboratory for analysis (see Section 6).

Waste Pile Sampler

A waste pile sampler (Figure 7) is essentially a large sampling trier. It is commercially available, but it can be easily fabricated from sheet metal plastic pipe. A polyvinyl chloride plumbing pipe 1.52 m(5 ft) long by 3.2 cm(1¼ in.) I.D. by 0.32 cm(1/8 in.) wall thickness is adequate. The pipe is sawed lengthwise (about 60/40 split) until the last 10 cm(4 in.) The narrower piece is sawn off and hence forms a slot in the pipe. The edges of the slot and the tip of the pipe are sharpened to permit the sampler to cut into the waste material being sampled. The unsplit length of the pipe serves as the handle. The plastic pipe can be purchased from hardware stores.

Uses--

The waste pile sampler is used for sampling wastes in large heaps with cross-sectional diameters greater than 1 m(39.4 in.). It can also be used for sampling granular or powdered wastes or materials in large bins, barges, or silos where the grain sampler or sampling trier is not long enough. This sampler does not collect representative samples when the diameters of the solid particles are greater than half the diameter of the tube.

Procedure for Use--

1. Insert the sampler into the waste material being sampled at 0 to 45° from horizontal.

2. Rotate the sampler two or three times in order to cut a core of the material.

3. Slowly withdraw the sampler, making sure that the slot is facing upward.

4. Transfer the sample into a suitable container (see Section 6) with the aid of a spatula and/or brush.

5. Repeat the sampling at different sampling points (see Section 6) two or more times and combine the samples in the same sample container in step 4.

6. Cap the container; attach label and seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

7. Wipe the sampler clean or store it in a plastic bag for subsequent cleaning.

8. Deliver the sample to the laboratory for analysis (see Section 6).

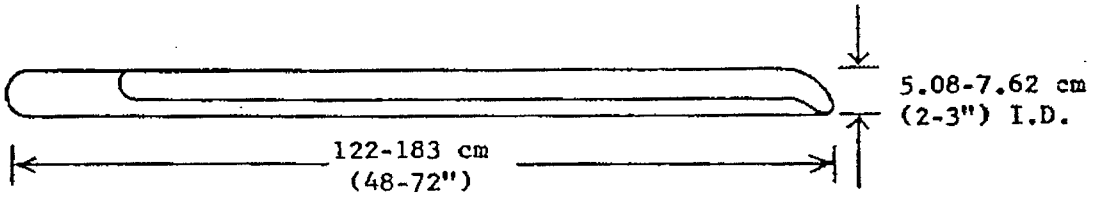


Figure 7. Waste pile sampler.

Pond Sampler

The pond sampler (Figure 8) consists of an adjustable clamp attached to the end of a two or three piece telescoping aluminum tube that serves as the handle. The clamp is used to secure a sampling beaker. The sampler is not commercially available, but it is easily and inexpensively fabri-

cated. The tubes can be readily purchased from most hardware or swimming pool supply stores. The adjustable clamp and sampling beaker can be obtained from most laboratory supply houses. The materials required to fabricate the sampler are given in Table 2.

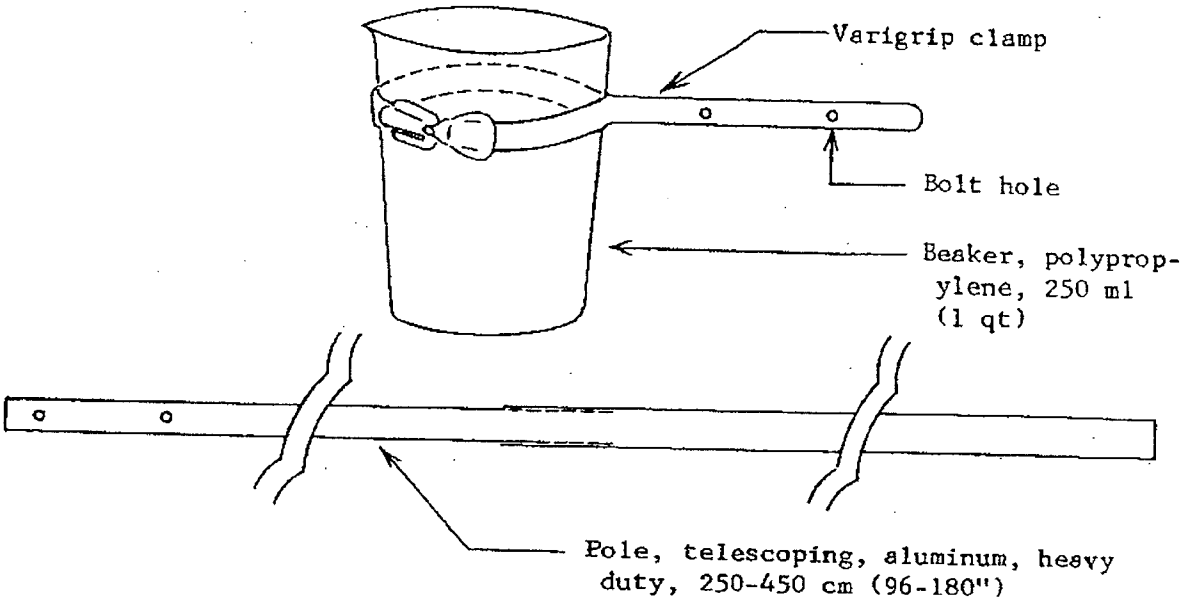


Figure 8. Pond sampler.

TABLE 2. BASIC PARTS AND APPROXIMATE COSTS OF A POND SAMPLER

Quantity	Item	Supplier	Approximate Cost
1	Clamp, adjustable, 6.4 to 8.9 cm(2½ to 3½ in.) for 250-to 600-ml(½ to 1½-pt.) beakers	Laboratory supply houses	$ 7.00
1	Tube, aluminum, heavy duty, telescoping extends 2.5 to 4.5 m(8 to 15 ft.) with joint cam locking mechanism. Pole diameters 2.54 cm(1 in.) I.D. and 3.18 cm(1¼ in.) I.D.	Olympic Swimming Pool Co. 807 Buena Vista Street, Alameda, Calif. 94501 or other general swimming pool supply houses.	16.24
1	Beaker, polypropylene, 250-ml(½ pt.)	Laboratory supply houses.	1.00
4	Bolts, 6.35 by 0.64 cm(2¼ by ¼ in.) NC	Hardware stores	.20
4	Nuts, 0.64 cm(¼ in.) NC	Hardware stores	.20
	Total		$24.64

Uses--

The pond sampler is used to collect liquid waste samples from disposal ponds, pits, lagoons, and similar reservoirs. Grab samples can be obtained at distances as far as 3.5 m(11½ ft) from the edge of the ponds. The tubular aluminum handle may bow when sampling very viscous liquids if sampling is not done slowly.

Procedure for Use--

1. Assemble the pond sampler. Make sure that the sampling beaker and the bolts and nuts that secure the clamp to the pole are tightened properly.

2. With proper protective garment and gear (see Section 6), take grab samples from the pond at different distances and depths (see Section 6).

3. Combine the samples in one suitable container (see Section 6).

4. Cap the container; label and affix the seal; record in field log book; and complete sample analysis request sheet and chain of custody record.

5. Dismantle the sampler; wipe the parts with terry towels or rags and store them in plastic bags for subsequent cleaning. Store used towels or rags in garbage bags for subsequent disposal.

6. Deliver the sample to the laboratory for analysis (see Section 6).

Weighted Bottle Sampler

This sampler (Figure 9) consists of a bottle, usually glass, a weight sinker, a bottle stopper, and a line that is used to open the bottle and to lower and raise the sampler during sampling. There are a few variations of this sampler, as illustrated in the ASTM Methods D 270[8] and E 300[9]. The ASTM sampler, which uses a metallic bottle basket that also serves as weight sinker, is preferred. The weighted bottle sampler can either be fabricated or purchased.

Uses--

The weighted bottle sampler can be used to sample liquids in storage tanks, wells, sumps, or other containers that cannot be adequately sampled with a Coliwasa. The sampler cannot be used to collect liquids that are incompatible or that react chemically with the weight sinker and line.

Procedure for use--

1. Assemble the weighted bottle sampler as shown in Figure 9.

2. Using protective sampling equipment, in turn, lower the sampler to proper depths to collect the following samples:

   a) upper sample - middle of upper third of tank contents.
   b) middle sample - middle of tank contents.
   c) lower sample - near bottom of tank contents.

3. Pull out the bottle stopper with a sharp jerk of the sampler line.

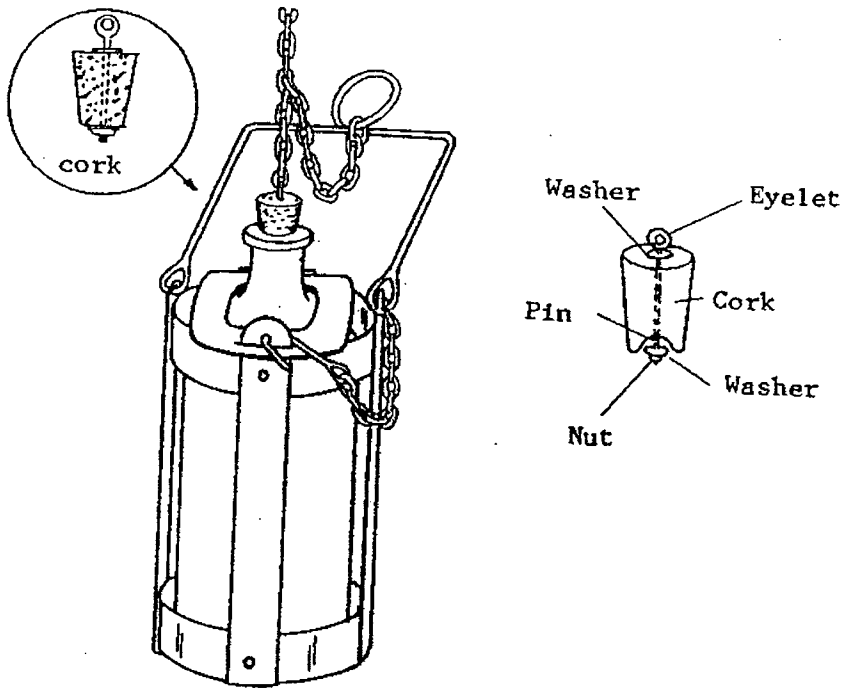
4. Allow the bottle to fill completely, as evidence by the cessation of air bubbles.

5. Raise the sampler and retrieve and cap the bottle. Wipe off the outside of the bottle with a terry towel or rag. The bottle can serve as the sample container.

6. Label each of the three samples collected; affix seal; fill out sample analysis request sheet and chain of custody record; record in the field log book.

7. Clean onsite or store contaminated sampler in a plastic bag for subsequent cleaning.

8. Deliver the sample to the laboratory for analysis (see Section 6). Instruct the laboratory to perform analysis on each sample or a composite of the samples.



1000-ml (1-quart) weighted bottle catcher

Figure 9. Weighted bottle sampler.

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D Introduction:

It is Clean Harbors Kansas, LLC's intention to remove Buildings B, D, I, and J from the RCRA Permit, and to effect partial closure of these areas. Additionally, the miscellaneous drum processing equipment located in the Process Building will also be closed.

The purpose of this section is to provide information regarding the design and operation of the various container management units at the Clean Harbors Kansas, LLC (CHK). This information is provided to fulfill the requirements of Kansas Administrative Regulations (KAR), Title 28, Article 31 as well as federal regulations as set forth in 40 CFR Part 264 Subpart I, and 40 CFR 270.15. The KAR incorporate, with few additions, the RCRA regulations contained in 40 CFR Parts 260 through 270. Therefore, this section will refer only to the federal regulations.

As used in this permit application, the term "drum" is intended to describe a specific type of container, namely a fifty-five (55) gallon drum, approximately twenty-three (23) inches in diameter and thirty-four (34) inches high. The term "bulk container" is used to describe any container with a capacity greater than 450 gallons. Roll-on/roll-off boxes, gondolas, sludge boxes and Intermodal Container (IMC)s are examples of types of bulk containers that may be managed at Clean Harbors Kansas, LLC. Otherwise, the term container, as used in this application, shall have the same meaning as that listed in 40 CFR 260.10.

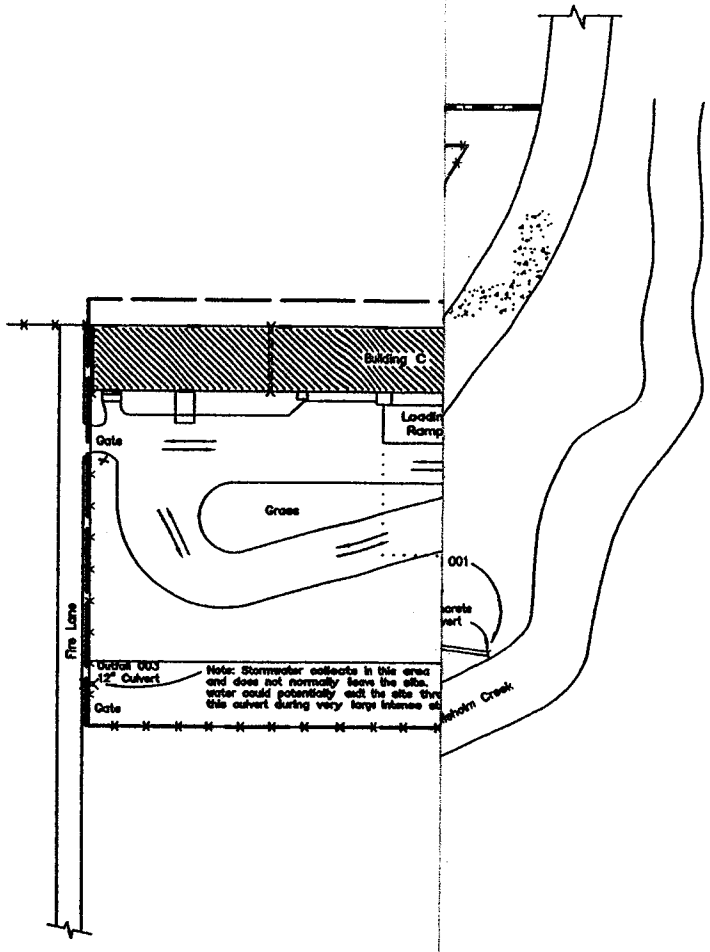
D-1 Summary Description:

Referenced Drawings

Figure D.1, Hazardous Waste Management Areas
Figure D.2, Wichita Facility Site Plan – Material Containment Areas

Under the last RCRA Permit there were seven (7) storage buildings subdivided into individual Container Management Unit (CMU)s at the CHK facility utilized for container storage and processing of hazardous waste. Location of these storage buildings is shown on Figure D.1, Hazardous Waste Management Areas. Clean Harbors Kansas intends to effect partial closure of five of these areas. The three individual CMUs CHK indents to keep in RCRA service are shown on Figure D.2, Wichita Facility Site Plan - Material Containment Areas. Building C, the Drum Dock associated with Building C, and the Process Building are intended to remain in RCRA service. Figures showing individual storage buildings are presented in Appendix D-A, Referenced Drawings. Specific information regarding areal extent, capacity and drum equivalents is discussed in Section A (Part A Permit Application; Addendum B). Capacities of container storage buildings are summarized in Table D.1, Container Storage Building Capacities. Table D.2, CMU Containment Summary, presents containment capacities for each CMU. Building C, the Drum Dock associated with Building C, and the Process building will have a combined storage capacity of 123,970 gallons. Formerly, the total permitted capacity for storage of containers at the CHK facility was 325,490 gallons.

Figure D.1: Hazardous Waste Management Area



Building Legend

Building A	Labora
Building B	Hazar
Building C	Hazar
Building D	Hazar
Building E	Admin
Building G	Perso
Building H	Opera
Building I	Hazar
Building J	Hazar
Processing Area	Hazar
Drum Dock	Hazar

Harbors

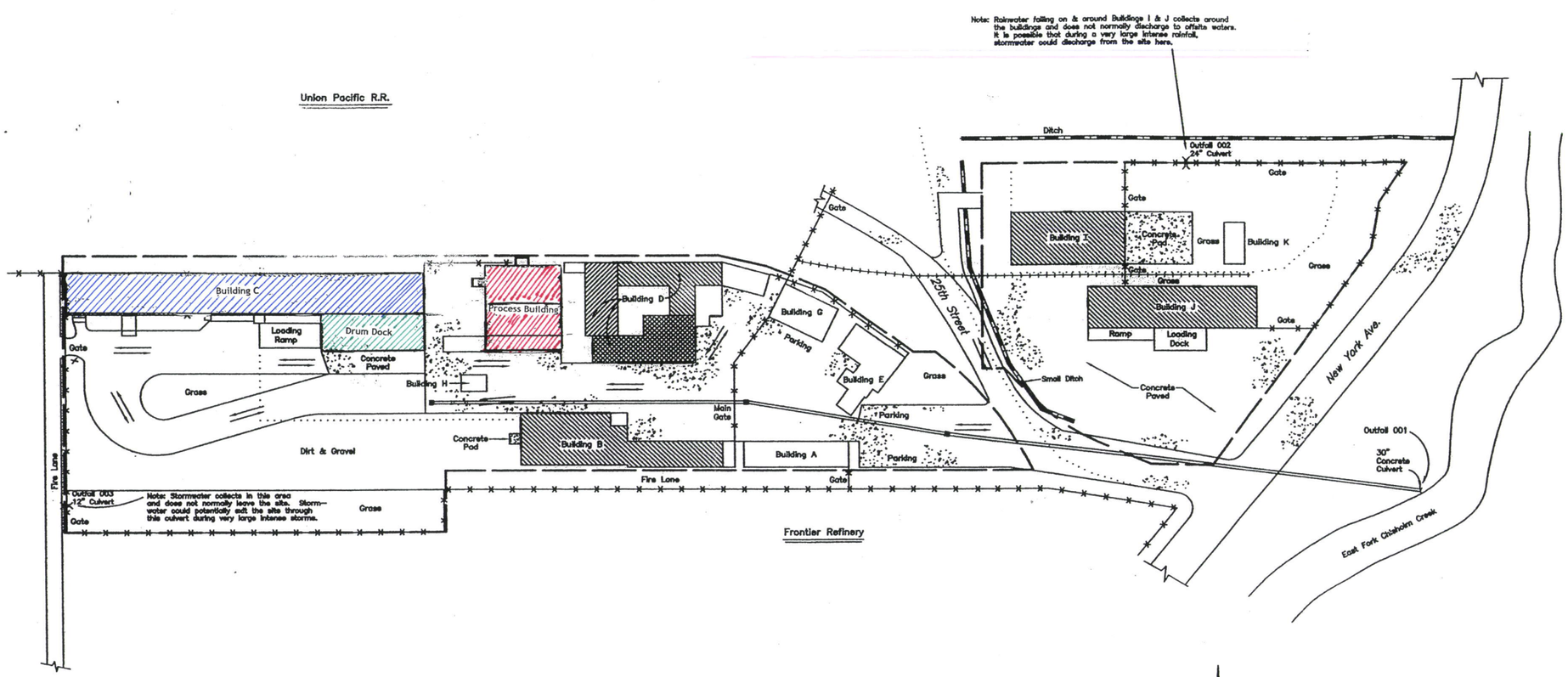
TITLE

CLEAN HARBORS KANSAS, LLC

Hazardous Waste Management Areas

SCALE	DATE	DRAWING NO.	REV.
AS NOTED	04/01/08	Figure D-1	A

Figure D.2: Wichita Facility Site Plan – Material Containment Areas



Building Legend

Building A	Laboratory/Administration
Building B	Hazardous Waste Management Building
Building C	Hazardous Waste Management Building
Building D	Hazardous Waste Management Building
Building E	Administration
Building G	Personnel Decon/Break Room
Building H	Operations Office
Building I	Hazardous Waste Management Building (Future Use)
Building J	Hazardous Waste Management Building (Future Use)
Processing Area	Hazardous Waste Management Area
Drum Dock	Hazardous Waste Management Area

Legend:

- : Railroad Tracks
- : Fence
- : Property Line
- : Container Storage Area
- : Tank Storage Area
- : Container and Tank Storage Area
- : Loading and Unloading Area
- : Secondary Containment Berm or Wall
- : Pavement
- : Drainage Boundary
- : Storm Drain Catch Basins
- : Underground Storm Sewer Line
- : Truck Routes

Material Containment Areas

Process Building -

Building C -

Drum Dock -

N

50 0 50 100

SCALE OF FEET

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
A	UPDATED APRIL 2008	K.M.C.		

REFERENCE DRAWINGS

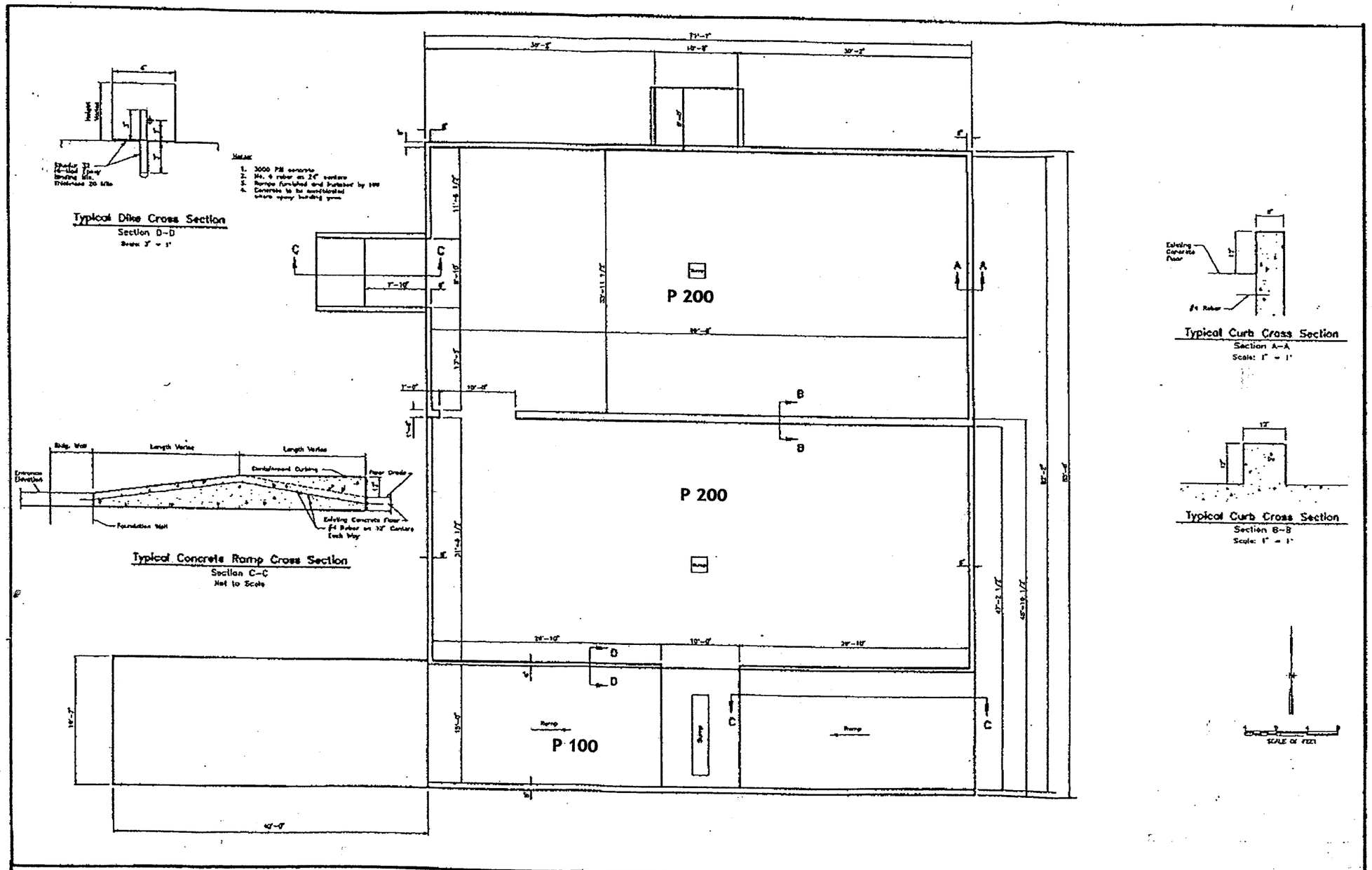
CleanHarbors

TITLE

CLEAN HARBORS KANSAS, LLC
WICHITA FACILITY
SITE PLAN
Material Containment Areas

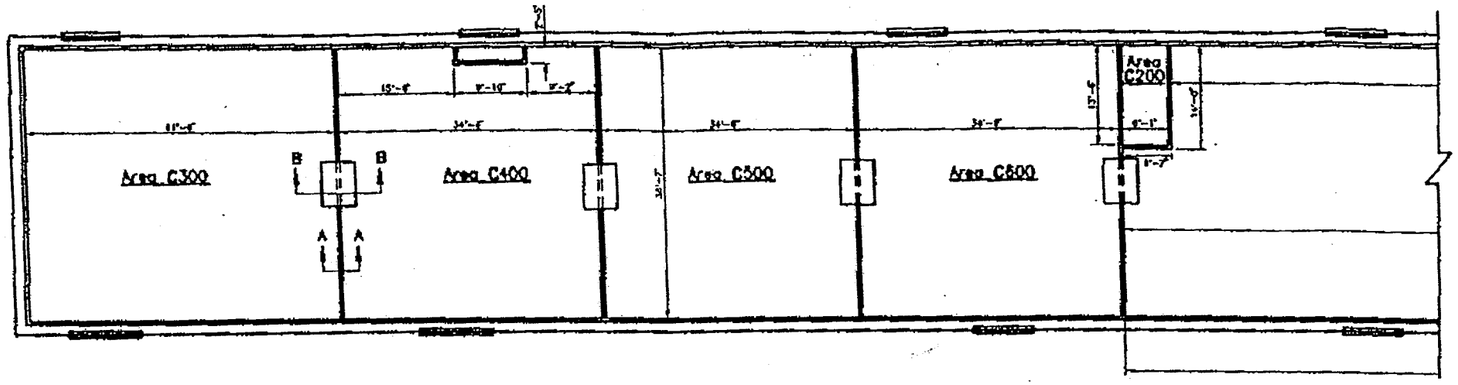
DRAWN	CHECKED	SCALE	DATE	DRAWING NO.	REV.
K.M.C.		AS NOTED	04/01/08	Figure D-2	A

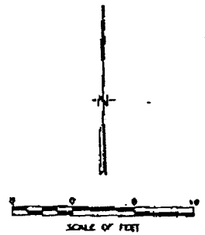
Figure D.3: Process Building

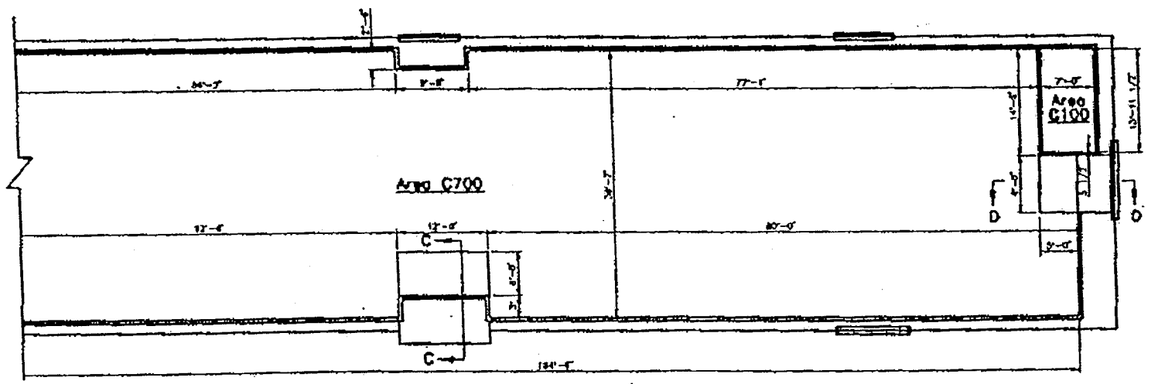


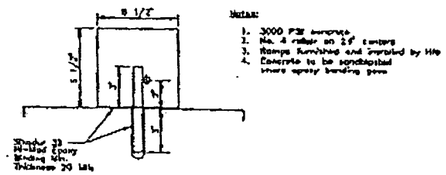
Clean Harbors Kansas, LLC. Figure D.3, Process Building Date: May, 2008

Figure D.4: Building C

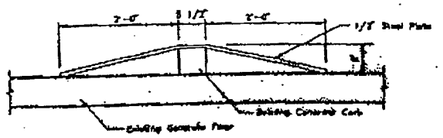




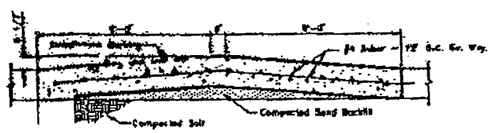




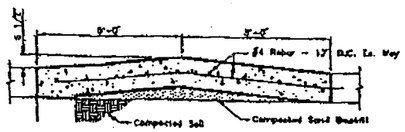
Typical Dike Cross Section
Section A–A
Scale 3" = 1'



Typical Steel Ramp Cross Section
Section B–B
Scale: 1" = 1'



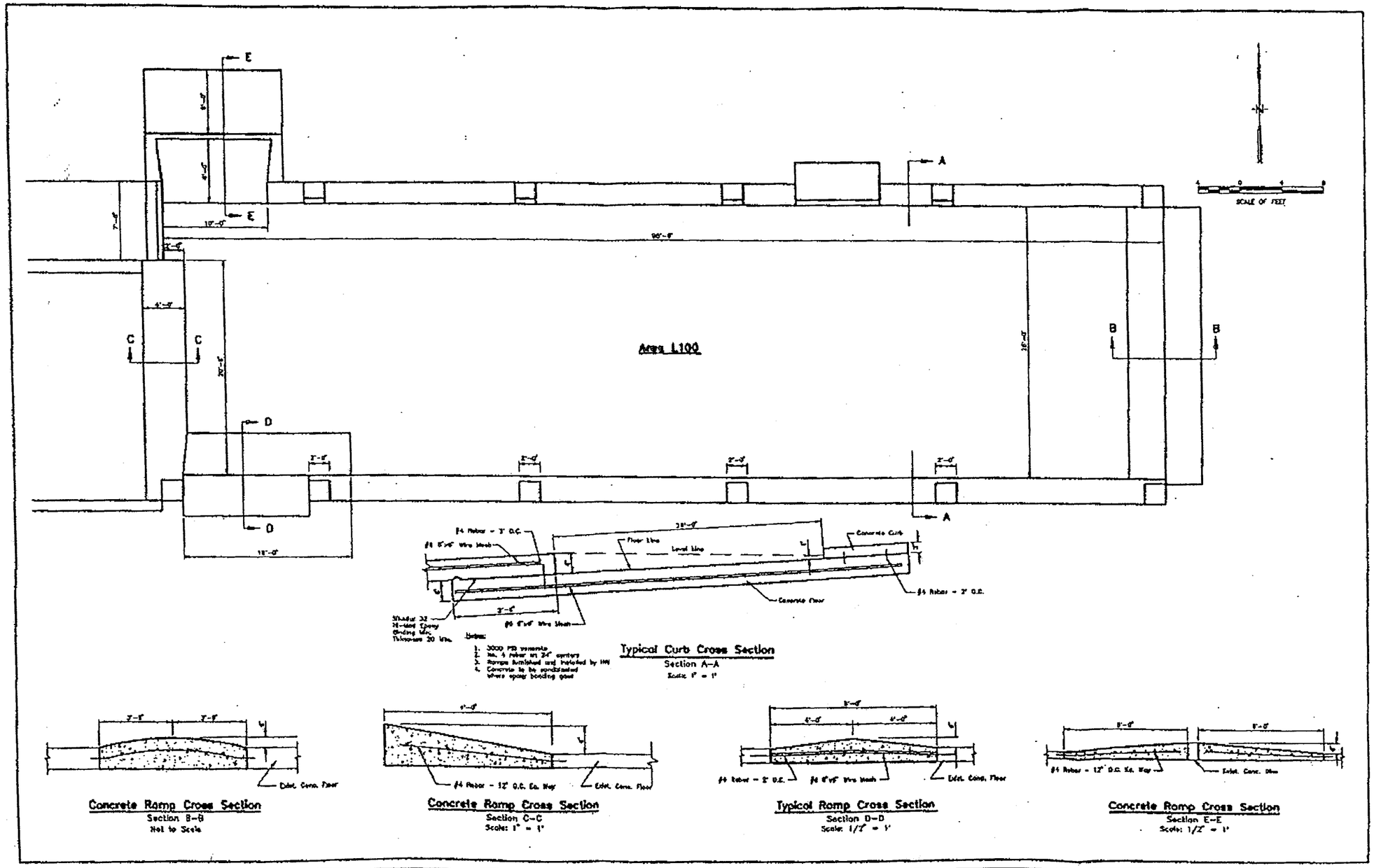
Concrete Ramp Cross Section
Section C–C
Scale: 1/2" = 1'



Concrete Ramp Cross Section
Section D–D
Scale: 1/2" = 1'

Clean Harbors Kansas, LLC. Figure D.4, Building C Date: May, 2008

Figure D.5: Drum Dock



Clean Harbors Kansas, LLC. Figure D.5, Drum Dock Date: May, 2008

CHK has made the assumption, for design purposes, that all containers of hazardous wastes managed at CHK contain free liquid; thus, containment as prescribed in 40 CFR 264.175 is provided for all CMUs. The design does not preclude storage of wastes that do not contain free liquids.

40 CFR 264.175(b)(3) requires that the secondary containment system contain the volume of the largest container, or ten (10) percent of the volume of the containers in the unit, whichever is greater. Containment areas have been designed to meet this requirement. Secondary containment calculations are shown in Appendix D-B, Secondary Containment Calculations.

A wide variety of containers other than drums may be stored within the waste storage buildings. Wastes with free liquids may be stored in containers such as tote boxes, overpack containers, etc. The total volume of waste in containers is limited by the secondary containment volumes provided for each CMU and by the capacity of each storage building. The total volume of waste stored at the facility will not exceed the permitted amount (i.e., 123,970 gallons).

Containerized hazardous wastes are delivered to the facility by truck. These containers may be managed in unloading areas prior to waste storage.

Containers may be located within other waste management units and are used to accumulate and store site generated residues such as, incidental spills, discarded Personal Protective Equipment

(PPE), etc. CHK will manage these wastes according to the standards set forth in 40 CFR Part 262. Containers of on-site generated wastes will not be accumulated for more than ninety (90) days within these areas, and will be accumulated in containers complying with 40 CFR 264 Subpart I.

Storage building CMUs have been designed to receive many categories of waste streams in drums, overpacks, gondolas, tote boxes, etc. The number of segregated containment units provides the capability to store various waste types within certain units, and meet the requirements for managing reactive, ignitable and incompatible wastes. Any of the CMUs may be used to store any container type and volume as dictated by operational needs and compatibility requirements. Specifications regarding layout of these buildings are presented later in this section; brief descriptions of each storage building are provided below.

D-1a The Process Area:

The Process Area is designed to accommodate storage of wastes in containers and tanks (tank management is addressed in Section E, Tank Systems). This building is managed as two operational areas; the tanker unloading bay, and the bulk tank farm which share common secondary containment.

D-1b Building C:

Building C is utilized for container storage, treatment, and management. Waste managed in this area may be processed or treated in containers. Diking divides this building into seven (7) contained areas.

D-1c Drum Dock:

The Drum Dock is utilized for container storage, treatment, and management. Waste managed in this area may be processed or treated in containers. Diking provides one (1) contained area in this building.

Table D.1

Container Storage Building Capacities

Container Storage Building	Materials Managed	Permitted Storage Capacity (Gallons)	Storage Capacity (55 Gallon Drum Equivalents)
Processing Area	Liquid and solid hazardous and/or non-hazardous materials	9,900	180
Building C	Ignitable and non-ignitable hazardous and non-hazardous materials	99,110	1,802
Drum Dock	Containerized materials	14,960	272
Total Capacity		123,970	2,254

Note: Total capacity (gallons) is the additive container storage capacity for all storage buildings. Note that additional storage of waste in tanks occurs in some of these areas; permitted waste tank storage capacity is not reflected in this summary.

Table D.2

CMU Containment Summary

Container Management Unit (CMU)	Maximum Number of Drums Stored (55 gallon drum equivalents)		Gallons - Containment Capacity Required for Containers (10 % Container Capacity)	Gallons - Containment Provided
	Drums	Gallons		
P100/P200	180	9,900	990	32,583
C100	16	880	88	244
C200	16	880	88	192
C300	240	13,200	1,320	3,842
C400	184	10,120	1,012	3,195
C500	192	10,560	1,056	3,233
C600	192	10,560	1,056	3,233
C700	962	52,910	5,291	16,690
L100	272	14,960	1,496	1,835

Note 1: These containment volume requirements do not include requirements for tank systems. The letter shown in the CMU identification number indicates the location by building (P - Processing Area, C - Building C, and L - Drum Dock).

Note 2: The largest container in Area P100 would be a 5,000 gallon tanker. The containment provided (9,900 gallons) is sufficient to hold the volume of this container.

D-2 Storage in Containers with Free Liquids:

D-2a General Area Design Features:

Waste storage buildings were constructed for industrial use and are generally of metal or cinder block fabrication. Buildings perform a variety of functions including control of access, ambient temperature, precipitation ingress, and wind effects such as dust generation.

The storage buildings are covered to minimize ingress of precipitation. The individual CMUs are constructed on concrete pads with perimeter curbs (diking) to contain potential spills, to prevent run-off, and to prevent run-on. Containment capacity is adequate to contain incidental precipitation (i.e., precipitation blown in).

Secondary containment consists of concrete diking/walls or block construction on concrete pads. Concrete pads and diking/walls that make up the secondary containment are maintained to prevent or repair cracks and gaps. All joints contain a continuous water stop or are otherwise sealed to prevent migration of liquids.

Diking separates containment areas of individual CMUs. Waste containers are palletized or equipped with skids during storage, or are otherwise managed to protect the outside walls of the containers from contact with accumulated liquids. Concrete surfaces of the secondary containment systems are sufficiently impervious to contain leaks, spills, and accumulated

precipitation until the collected material is detected and removed.

Rooms have open areas which provide maneuvering room for mobile equipment such as forklifts, and, if needed, for staging and/or stacking of drums during pre-acceptance and processing.

D-2b Unloading Areas:

Containerized hazardous wastes are unloaded onto the Drum Dock, or the Tanker Unloading Bay, which are provided with secondary containment. Containers are placed into CMUs upon completion of unloading procedures or within 72 hours, whichever comes first. Appendix C-A provides a more detailed discussion of these procedures.

Prior to placement in permitted storage, waste in containers will be managed in unloading areas and/or staged in an appropriate CMU. Containers arriving on-site by truck may be unloaded at any of the three (3) storage areas as need. See Figure D.1, Hazardous Waste Management Areas, for location of unloading areas.

D-2c Processing Area:

Referenced Drawings

Figure D.3, Process Building

The Processing Area is designed to manage hazardous wastes in tanks and containers in two operational areas with shared secondary containment (storage in tanks is addressed in Section E, Tank Systems). Containerized wastes managed in this area include liquids that will be pumped to bulk storage, and individual waste containers that will be stored inside of the containment area. These materials are destined for, recycling as waste fuel, waste water management, solvent recovery, or transport off-site for additional management. The operation of the tank systems are described in detail in Section E, Tank Systems.

D-2c(1) **Secondary Containment:**

The Processing Area is divided into two (2) operational areas, P100 and P200. These two areas are managed as a shared secondary containment system. These areas are shown on Figure D.3, Process Building. The CMUs are designed to meet the storage requirements for RCRA regulated wastes, to promote sound container management practices, and to minimize the potential for a release of hazardous waste into the environment. The CMUs are constructed of concrete floors and diking which are free of cracks and gaps. Additionally, the entire area has been lined with a chemically resistant coating to comply with the requirements of 40 CFR 264.193.

40 CFR 264.175(b)(3) requires that the secondary containment system contain the volume of the

largest container, or ten (10) percent of the volume of the containers in the unit, whichever is greater. Any size container may be managed in a CMU provided that the maximum sized container does not exceed the CMU's containment volume. Detailed calculations supporting the secondary containment and storage volumes in the Processing Area may be found Tables D.1 and D.2.

D-2c(2) **Building Design:**

The Processing Area consists of one CMU shared by two operational areas, and its overall size is approximately eight-three (83) feet long by seventy-one (71) feet wide. Some management of containers may occur directly on the concrete floor (e.g., during sampling). Concrete curbs or walls around the unit or portable containment units provide secondary containment. Adequate secondary containment volume is provided for this building, as described in D-2d(1).

D-2d Building C:

Referenced Drawings

Figure D.4, Building C

Building C is designed to manage containerized wastes in seven (7) CMUs. Containerized wastes managed in Building C include ignitable and non-ignitable hazardous and non-hazardous wastes. These materials are destined for on-site management, recycling as waste fuel, waste water management, solvent recovery, or transport off-site for additional management. Processing of containerized wastes in Building C may involve treatment in containers or management in any of the several on-site processing units.

The principal processes which occur in Building C are storage, treatment in containers, repackaging, bulking, consolidation of solid residues, and loading and unloading of hazardous waste in containers.

D-2d(1) Secondary Containment:

Building C is divided into seven (7) areas (CMUs) of secondary containment by diking. These areas are shown on Figure D.4, Building C, (Figure D.4, Building C). The CMUs are designed to meet the storage requirements for RCRA regulated wastes, to promote sound container

management practices, and to minimize the potential for a release of hazardous waste into the environment. The CMUs are constructed of concrete floors and diking which are free of cracks and gaps.

40 CFR 264.175(b)(3) requires that the secondary containment system contain the volume of the largest container, or ten (10) percent of the volume of the containers in the unit, whichever is greater. Any size container may be managed in a CMU provided that the maximum sized container does not exceed the CMU's containment volume. Detailed calculations supporting the secondary containment and storage volumes in Building C may be found in Tables D.1, and D.2.

D-2d(2) **Building Design:**

Building C consists of seven (7) CMUs, and its overall size is approximately three-hundred-thirty-eight (338) feet long by forty (40) feet wide. Waste containers managed in Building C are palletized or equipped with skids during storage, or are otherwise managed to protect the outside walls of the containers from contact with accumulated liquids. Some management of containers may occur directly on the concrete floor (e.g., during processing). Concrete curbs or walls around the unit or portable containment units provide secondary containment. Adequate secondary containment volume is provided for this building, as described in Tables D.1, and D.2.

D-2e **Drum Dock:**

Referenced Drawings

Figure D.5, Drum Dock

The Drum Dock is designed to manage containerized wastes in one (1) contained area (CMU). Containerized wastes managed in this area include hazardous and non-hazardous materials. These materials are destined for recycling as waste fuel, waste water management, solvent recovery, or transport off-site for additional management.

The principal processes that occur in the Drum Dock are storage, sampling, and loading and unloading of hazardous waste in containers.

D-2e(1) **Secondary Containment:**

The Drum Dock is made up of one area (CMU); this area is diked to provide secondary containment. The area is shown on Figure D.5, Drum Dock, (see Figure D.5, Drum Dock). This CMU is designed to meet the storage requirements for RCRA regulated wastes, to promote sound container management practices, and to minimize the potential for a release of hazardous waste into the environment. The CMU is constructed of a concrete floor and diking which are free of cracks and gaps. Additionally, the CMU has been lined with a chemically resistant coating for added protection.

40 CFR 264.175(b)(3) requires that the secondary containment system contain the volume of the largest container, or ten (10) percent of the volume of the containers in the unit, whichever is greater. Any size container may be managed in a CMU provided that the maximum sized container does not exceed the CMU's containment volume. Secondary containment calculations for the Drum Dock are presented in Tables D.1, and D.2.

D-2e(2) **Building Design:**

The Drum Dock consists of one (1) area (CMU), and its overall size is approximately ninety-four (94) feet long by twenty-seven (27) feet wide. Waste containers managed in the Drum Dock are palletized or equipped with skids during storage, or are otherwise managed to protect the outside walls of the containers from contact with accumulated liquids. Some management of containers may occur directly on the concrete floor (e.g., during sampling or loading/un-loading). Concrete curbs or walls around the unit or portable containment units provide secondary containment. Adequate secondary containment volume is provided for this building, as described Tables D.1, and D.2.

D-3 General Container Management Practices:

D-3a Description of Containers:

The CMUs are capable of receiving and processing containers, both new and used, of various materials of construction, sizes, and capacities. The volume of individual containers managed in the CMUs is typically 450 gallons or less, except in the truck bay area, in the Process Building where bulk liquid tankers and roll-off boxes containing solids may be stored. A wide variety of other containers, such as paint cans, Marino bags, wooden cases, plastic tote tanks, and glass bottles may also be received.

Bulk containers managed on-site include, but are not limited to, IMCs, sludge boxes, gondolas, tankers, and end dumps. The tanker unloading bay in the Process Building has secondary containment and design capabilities for bulk containers. Bulk containers may be used for virtually any of the waste types handled at the facility. CHL will not place wastes into an unwashed container that has previously held incompatible wastes.

D-3b Handling of Containers: 40 CFR 264.173.

The majority of containers managed at the CHK facility are expected to be drums or similar containers delivered in van trailers. An industrial truck equipped with drum handling forks or a single container hand trolley will generally be employed to unload non-palletized shipments.

Palletized containers will generally be unloaded with an industrial truck equipped with forks. Other container movement equipment may be used as available and appropriate. Ramps will be used as necessary during transfer operations to facilitate movement of materials in and out of CMUs.

Containers may be moved within the facility by hand, by industrial truck, truck, or by other safe and appropriate means. The specific method employed will be dependent on the distance, and the quantities and sizes of containers to be moved.

When moving containers between storage areas, loading areas, and/or process areas, the facility may need to temporarily stage containers prior to transfer to the next unit. This staging will generally occur in the unloading areas or in the area between Building C and the Processing Area. All staging will occur in paved areas. This staging of containers will not exceed one shift or eight hours.

Equipment is available to facilitate such operations as the transfer of wastes from a damaged container to a container in good condition, the manual repackaging of containers, the transfer of leaking containers into overpacks, and the removal of individual containers from CMUs.

During the unloading procedure, the containers will be visually checked. Those containers selected for sampling and analysis will be opened and sampled as described in Section C, Waste Characterization, Appendix C-A, Waste Analysis Plan (WAP). Sampling may occur on the unloading platform, in the working area, in a CMU or, prior to unloading, on the transport vehicle. Once samples have been obtained, the containers will be re-closed and will remain staged or be placed in a CMU until incoming load procedures are completed in accordance with the WAP. Containers that are not already in a containment unit will be moved into a CMU after the incoming load procedures are completed and the waste stream is accepted. If incoming load procedures cannot be completed in 72 hours, containers will be placed in an appropriate CMU, based on manifest, pre-acceptance, and other information available about the waste. If subsequent analytical or other information identifies a compatibility problem, the container will be moved to an appropriate CMU, rejected and returned to the generator, or transferred to another facility capable of handling the material.

Containers will be opened by one of a variety of methods. Liquid storage containers equipped with screw-in bungs in the lids will generally be sampled by removing the bung, withdrawing a sample and replacing the bung. Containers with fully removable tops (i.e., with retaining rings) will generally be opened by removing the lid and ring, sampling and replacing the lid and ring.

Containers are normally kept closed during storage. However, they may be opened for:

- inspection,
- sampling,
- removal/addition of material.

Regularly scheduled inspections of the CMUs, loading/unloading areas, and processing areas are conducted to facilitate detection of open or deteriorating containers, improper storage in the CMUs, liquids on the floors or in sumps, or other improper conditions as outlined in Section F, Inspection Plan. The frequencies of these inspections are defined in the Inspection Plan.

Hazardous and non-hazardous wastes may be stored within the same CMU, but they will not be stored on the same pallet, except insofar as they have been received on the same pallet (e.g., lab packs, wrapped pallets, etc.). The Waste Tracking System will provide a record of the location of all wastes at the facility. This report will be available for facility personnel and inspectors to identify the location of both hazardous and non-hazardous wastes at the facility.

For purposes of meeting the requirements of 40 CFR 268.50, containers are dated during the incoming load or off-loading procedures.

As the newly proposed second phase of the air emission standards for hazardous waste facilities becomes final, CHK will address and implement air emission control devices for the affected container management activities as applicable.

D-3b(1) **Containers - 55 Gallon or Larger:**

At times, 55 gallon or larger containers may be stacked two (2) high (double-stacked), providing that the wastes are compatible and that such stacking is consistent with the National Fire Protection Association (NFPA) code for flammable storage.

Inspection aisles of two (2) feet or more in width will be maintained between adjacent double rows of 55-gallon or larger containers in CMUs.

The bottom layer of containers in storage are placed on pallets or skids, or are otherwise managed to prevent contact of containers with any accumulated liquids. Rows will be no more than two (2) 55-gallon or larger containers wide. Dividers such as wooden pallets or plywood sheeting may be placed on top of the bottom row(s) of drums. A second layer of containers may be placed on top of the bottom row.

D-3b(2) **Containers - Smaller Than 55 Gallon:**

Smaller containers, particularly those small volume containers such as pint, quart, gallon, and five (5) gallon sizes, may be stored in stacks more than two (2) high, and will frequently be received that way. Any stacking of containers not specifically regulated by the NFPA code will

be performed with safety of personnel uppermost in mind. Stacking of containers of less than fifty-five (55) gallon capacity will be restricted to a height not to exceed six (6) feet to facilitate inspection. This does not preclude, as an accepted management practice, the placing of large numbers of small containers within drums or larger overpack containers, and the double stacking of these larger containers, nor the storage of individual containers which may exceed a height of six (6) feet, nor the stacking of palletized small containers. The total volume of containers of wastes with free liquids will not be allowed to exceed that allowed by the secondary containment capacity.

Where applicable, inspection aisles of two (2) feet or more in width will be maintained in CMUs between adjacent rows of pallets of containers that hold less than 55 gallons.

The Waste Tracking System will provide a record of the location of each container of waste received at the facility, including those containers that are arranged or stacked in such a way that not all labels may be visible from the aisle. The Waste Tracking System will be updated at least once each day that containers of waste are moved.

D-3c **Waste and Container Compatibility:** **40 CFR 264.172**

Wastes accepted for storage, treatment, or other management are required to be compatible with the containers used to store them. Acceptable containers for acidic wastes may include those made of plastic, steel lined with plastic, or fiberglass. Acceptable containers for other wastes include, but are not limited to, steel, fiberglass, plastic, steel lined with plastic, and fiber drums and boxes, wooden cases, and fiber sacks. Solvent wastes are frequently stored in steel drums bearing DOT identification of 17 E or H, or equivalent. Alkaline wastes may be stored in plastic containers or containers manufactured from carbon steel. Fiber sacks may be used to store, among other materials, contaminated debris or soils. New types of containers are routinely being developed and approved by the United States Department of Transportation (USDOT); USDOT and Performance Oriented Packaging Standards will dictate the shipment in, and use of, alternate containers meeting regulated performance requirements. CHK may receive waste in any appropriate USDOT approved or performance specified container for management at the facility. Site-generated waste may be accumulated in specially designed containers specific to the plant process equipment.

D-3d **Condition of Containers:** **40 CFR 264.171**

Facility personnel will inspect all containers for evidence of leakage, deterioration, or severe corrosion as part of the incoming load and unloading procedures at Clean Harbors Kansas, LLC.

Containers are also routinely inspected while in storage. Inspection schedules are discussed in Section F, Inspection Plan. Containers exhibiting evidence of leakage, deterioration which would affect the structural integrity of the container, or severe corrosion will be transferred into overpacks, or containers in good condition, or the wastes may be transferred directly into tanks or treatment units. Open containers, improper storage in CMUs, and evidence of spills and leaks are among the focal points of inspections. Transporters of Hazardous Waste are required to meet the specifications in the USDOT regulations in 49 CFR Part 178 Subparts A through J, 49 CFR 173 Subparts J through O, and the requirements of 49 CFR 172.101 with respect to design and use of containers. Changes in these and other regulations brought about by USDOT's Performance Oriented Packaging Standards will be observed, by CHK or generators sending shipments of waste to CHK, as they are made effective.

Any containers found to be inadequately or improperly identified or deficient in the required information may be staged in a holding area until the deficiency can be resolved.

D-3e <u>Response to Leaks:</u> 40 CFR 264.171

Because the secondary containment system is designed to prevent storm water run-on, liquids found on the floor of a CMU will be either blown precipitation or leaks of stored materials. When an inspection reveals liquid within a contained area, the source will be identified if possible. If liquids are discovered, they will be removed within twenty-four (24) hours of

detection, or as soon as practical. The identification of the origin of the liquid may be accomplished in a number of ways, using a variety of inspection techniques. Visual inspection of the condition of containers for localized staining or leakage adjacent to a particular container is the technique most likely to be employed to trace the source of a leak. If this measure fails, a sample of the liquid in the containment area will be analyzed for a range of parameters based upon the possible contents of the containers in the affected CMU. This process should indicate the waste stream type from which the leaking waste may have originated. All containers holding that waste stream type within the CMU will then be checked for leaks until the leak is found.

Wastes from the leaking container will be managed as described in D-3d. Liquid in the containment area may be transferred to an appropriate container, or to one or more storage tank(s), using a portable pump. Other suitable methods using absorbents, vacuum systems, etc., may also be used to manage spills. Any container into which wastes are transferred will be appropriately identified as to the type of waste stored in it. Minor quantities of liquids may be absorbed, collected, and placed in an appropriately identified container.

D-3f <u>Special Requirements for Ignitable and Reactive Wastes:</u> 40 CFR 264.176.

Ignitable and reactive wastes will be segregated from incompatible materials within CMUs. Segregation may involve placement in separate CMUs, or use of portable secondary containment units. Containers of ignitable or reactive wastes are stored at least fifty (50) feet from the facility

property boundary. CMUs that may contain ignitable or reactive wastes include C100, C200, C400, C500, C600, C700, L100, P100, and P200, Because of the requirements of 40 CFR 264.176, ignitable or reactive wastes will not be stored in CMU C300. Measures to prevent accidental ignition of ignitable wastes include the prohibition of smoking, use of non-sparking tools, and enforcement of procedures to control burning and welding in areas where these wastes are stored. Section F, Inspection Plan, addresses these procedures in detail.

D-3g Special Requirements for Incompatible Wastes: 40 CFR 264.177.

During unloading procedures, the containers will be visually checked. Those containers selected for sampling and analysis will be opened and sampled as described in the WAP (see Section C, Waste Characterization). Sampling may occur on the unloading platform, in the working area, in a CMU, or prior to unloading, on the transport vehicle. Once samples have been obtained, the containers will be re-closed and will remain staged in accordance with the WAP until the incoming load procedures are completed. If incoming load procedures are not completed within 72 hours, the containers will be transferred into an appropriate CMU, as determined using available information (e.g., manifest, Waste Profile Sheet, etc.).

Containers that are not already in a CMU will be moved into a CMU after the incoming load procedures are completed or within 72 hours. Should a container of waste be determined to be incompatible with the other wastes stored in a CMU as a result of analysis, it will be segregated

from incompatible wastes. Portable containment units may be used to facilitate segregation.

Each RCRA CMU is equipped with secondary containment. These containment systems have sufficient capacity to contain a minimum of ten (10) percent of the volume of the maximum container capacity of wastes with free liquids permitted for storage in that unit. Wastes that are incompatible may be stored in adjacent CMUs separated by either diking, building walls, or other device.

The three (3) container storage buildings are subdivided into individually contained CMUs. Adjacent CMUs may be used to manage incompatible wastes. The CMUs are used interchangeably. The criteria for CMU selection for storage of a specific waste type is based upon considerations of chemical compatibility, storage unit capacity, and operational demands.

To ensure that residues from wastes previously stored in a CMU do not contact potentially incompatible wastes about to be placed in the CMU, the following procedure will be observed. The CMU will be visually inspected when containers are removed for compatibility service change, and will be cleaned if evidence of a spill is found prior to placement of the next waste into the CMU for storage.

CHK may transfer wastes from one container to another. In accordance with 40 CFR 264.177(b), hazardous waste will not be placed in an unwashed container that previously held an

incompatible waste or material, except when that placement constitutes known and planned treatment as discussed in Section D-5, Treatment in Containers.

D-3h <u>Transshipment of Containers of Waste:</u>

The majority of wastes received at the CHK facility will be stored, and shipped off-site. However, some wastes, which are intended for treatment or direct disposal at off-site facilities, may be temporarily stored at CHK.

The facility may occasionally serve as a 10-day transfer station for wastes destined for incineration, disposal, or other management at another facility. This 10-day transfer will comply with the requirements of 40 CFR 263.12 and 264.1(g)(9). 10-day transfer stations are not subject to the permit requirements of 40 CFR 270 (see 40 CFR 270.1(c)(2)(vi)).

10-day transfer wastes may remain at the site for a period not to exceed ten (10) days prior to continuing the journey to the designated treatment, storage, or disposal site. 10-day transfer loads remain "in transit" during the entire stay at the site. These wastes may be off-loaded and transferred to another vehicle or to a railcar. Because these 10-day transfer loads are never accepted into the CHK waste management system, no analyses are performed on the loads. They will, however, be identified in the Waste Tracking System.

D-4 **Storage in Containers without Free Liquid:** 40 CFR 264.175(c), 270.15(b).

CHK has made the assumption, for design purposes, that all containers of wastes managed at the CHK facility contain free liquid. Waste without free liquid is managed as appropriate for the waste code(s) carried. Management of containerized wastes without free liquids does not require containment (40 CFR 264.175(b)(3); however, containers containing no free liquids may be managed in any container storage area on-site. Future operations may include storage areas without containment for exclusive storage of containers (including bulk containers) without free liquids.

Appendix D-A

Container Storage Buildings

Appendix D-A

Container Storage Buildings

List of Figures

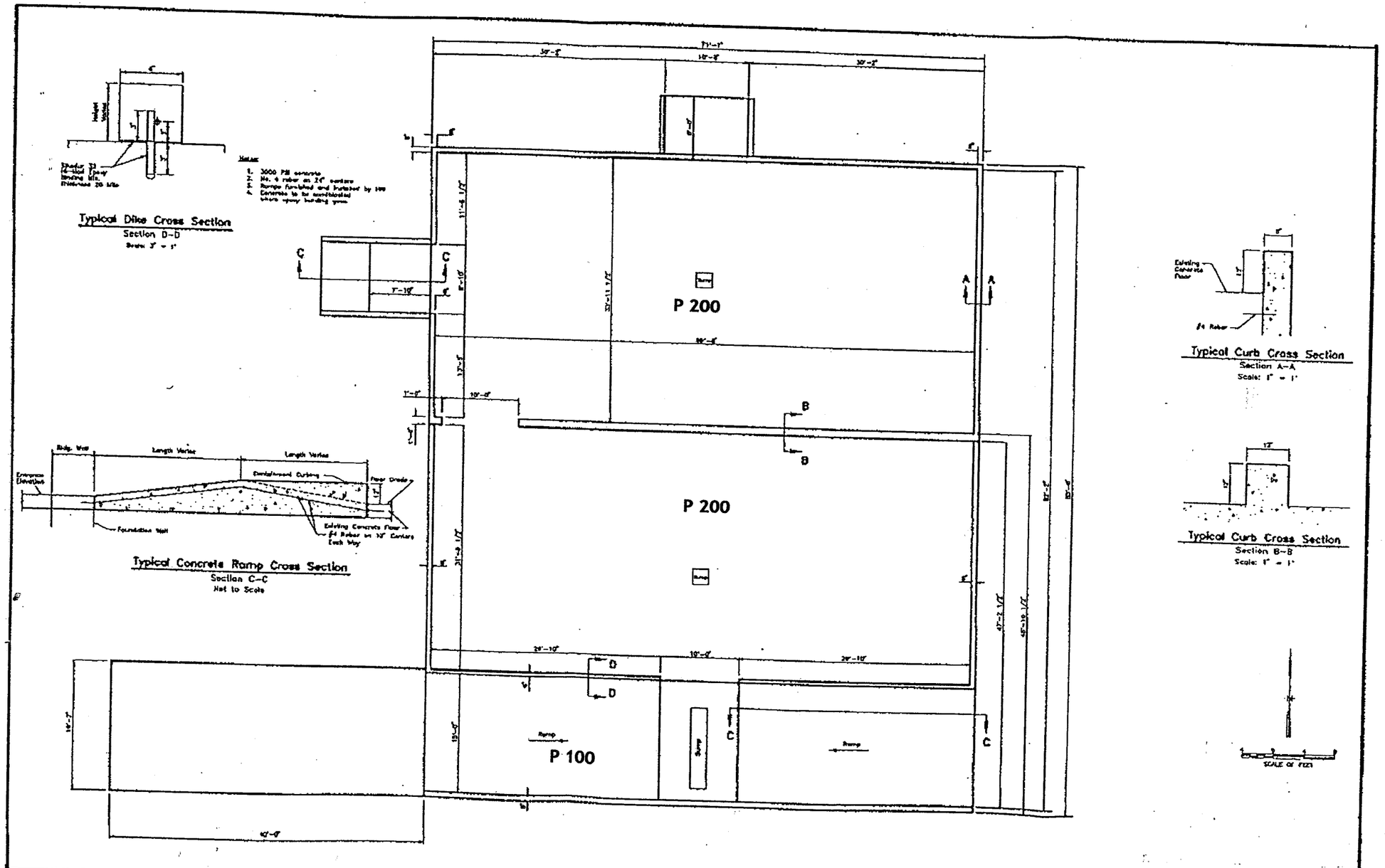
Figure D.3, Process Building

Figure D.4, Building C

Figure D.5, Drum Dock

Figure D.3

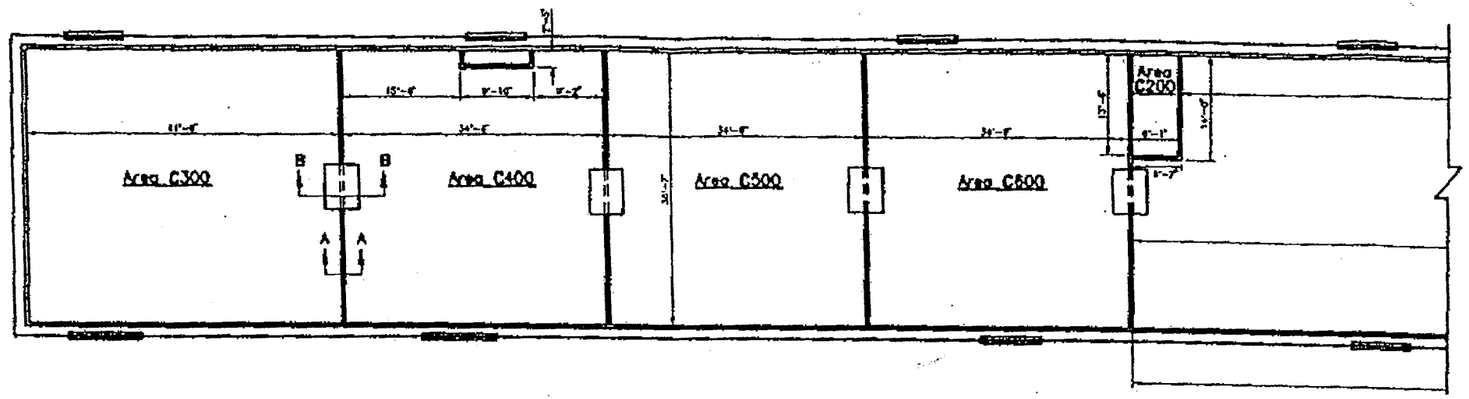
Process Building

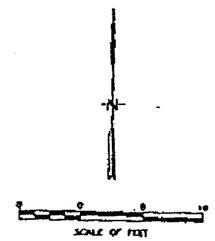


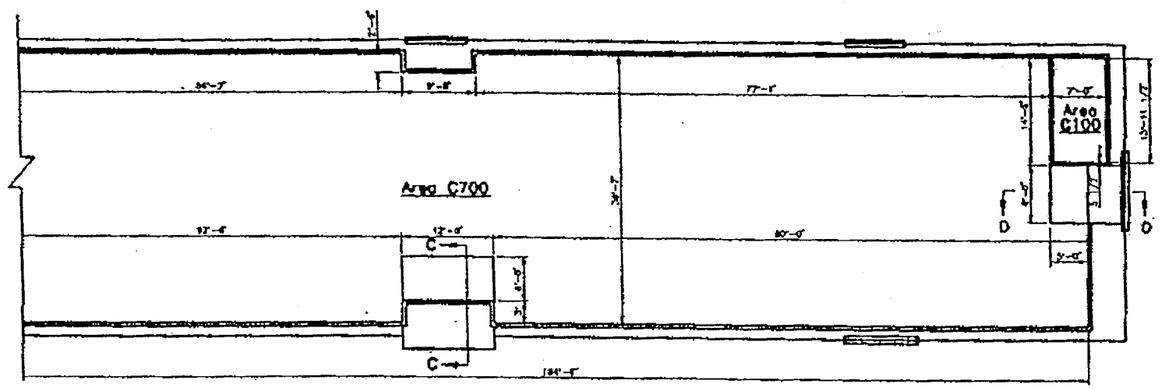
Clean Harbors Kansas, LLC. Figure D.3, Process Building Date: May, 2008

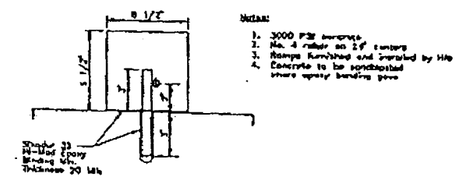
Figure D.4

Building C

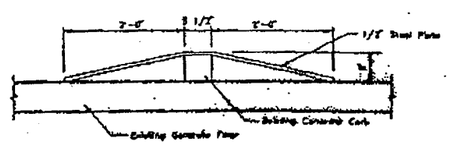




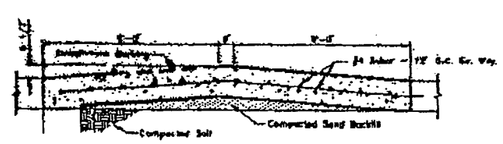




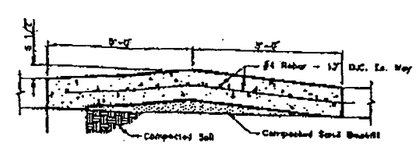
Typical Dike Cross Section
Section A–A
Scale: 3" = 1'



Typical Steel Ramp Cross Section
Section B–B
Scale: 1" = 1'



Concrete Ramp Cross Section
Section C–C
Scale: 1/2" = 1'

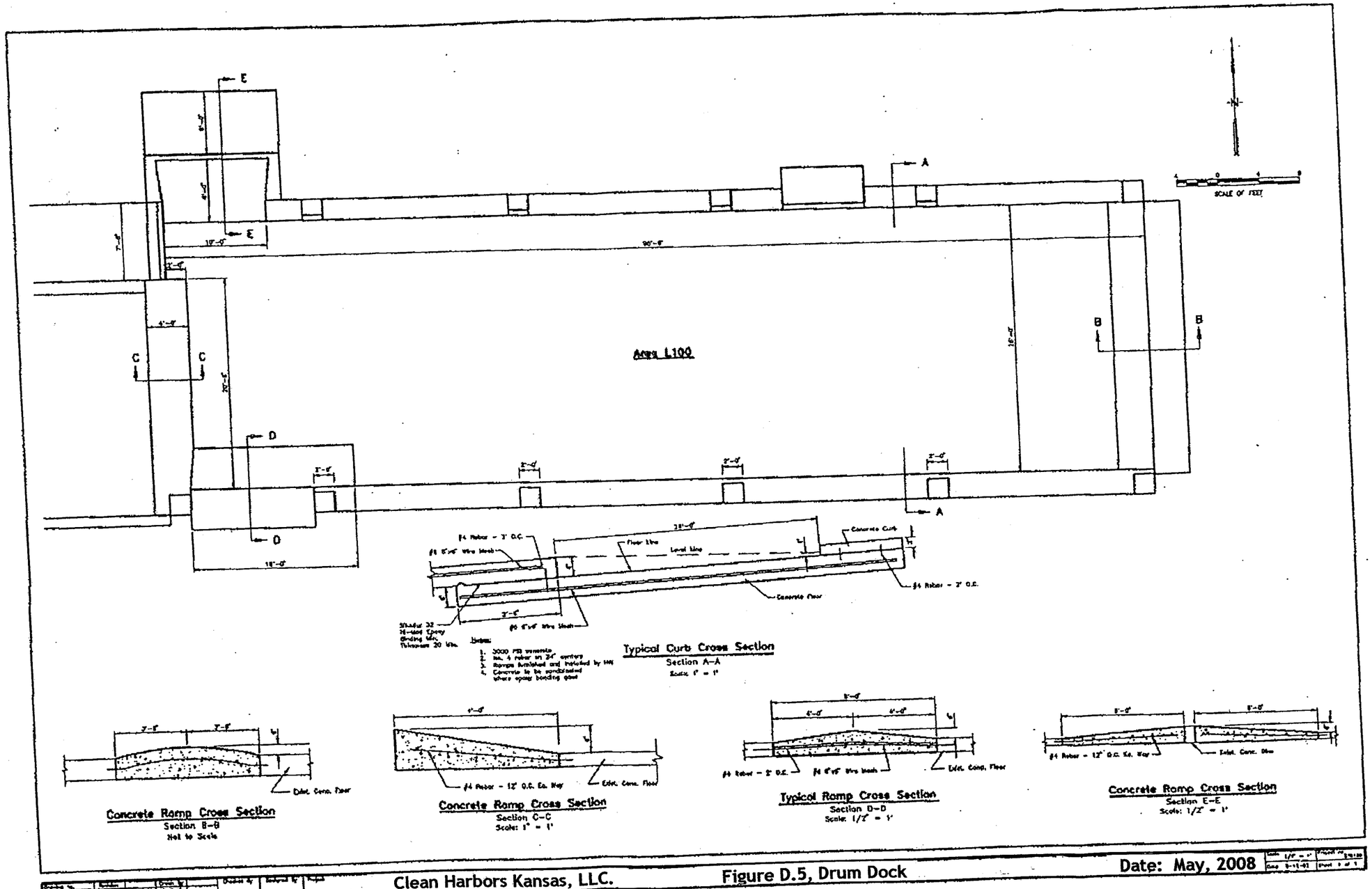


Concrete Ramp Cross Section
Section D–D
Scale: 1/2" = 1'

Clean Harbors Kansas, LLC. Figure D.4, Building C Date: May, 2008

Figure D.5

Drum Dock



Clean Harbors Kansas, LLC.

Figure D.5, Drum Dock

Date: May, 2008