
**NATIONAL CAPACITY ASSESSMENT REPORT:
Capacity Planning Pursuant to
CERCLA Section 104(c)(9)**

March 25, 2015

U.S. Environmental Protection Agency

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Table of Contents

Executive Summary	<i>i</i>
Introduction	1
Background	2
Data Development	3
Baseyear Data.....	4
Baseline Data	5
Projection Data	6
Methodology Issues	8
Compilation of Permitted Operating Capacity Data.....	8
Demand from Facilities Generating Small Amounts of Hazardous Wastes.....	8
Demand from Nonhazardous Wastes	9
Demand from Foreign Imports and Exports	10
Demand from Mixed RCRA Wastes	10
Demand from Hazardous Wastes Requiring Specialty Management.....	10
Discussion of National Aggregated Data by EPA	11
National Assessment of Future Capacity.....	11
Conclusions	12
References	19
Appendix A Commercial Capacity Data	22
Appendix B Commercial Hazardous Waste Management Facilities	130
Appendix C CAP Management Categories	1578
Appendix D Methodology for Estimating Hazardous Waste Demand	170
Appendix E Demand and Capacity at Commercial Hazardous Waste Specialty Operations Facilities	196
Appendix F 1993 Guidance	202
Appendix G States' Comments on 1989 Capacity Assurance Planning Process	206

(Note: The 1993 Guidance and the State's comments on the 1989 capacity assurance planning process are available in PDF format only. Appendices F and G include the cover pages of these documents as a reference.)

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Executive Summary

Section 104(c)(9) of the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA), or Superfund law, requires that prior to the U.S. Environmental Protection Agency (EPA) providing funding for any remedial actions, a state must assure the availability of hazardous waste treatment or disposal facilities that have adequate capacity to manage the hazardous waste expected to be generated within the state over 20 years. The Congressional intent of this requirement was to assure that hazardous waste management capacity would be available to avoid improper disposal and management issues.

To help states fulfill this statutory requirement, a national planning process was developed by a workgroup comprised of state, EPA, regulated industry, and environmental representatives. This planning approach is described in the *Guidance for Capacity Assurance Planning* document dated May 1993 (hereafter referred to as the 1993 Guidance; available at <http://infohouse.p2ric.org/ref/23/22567.pdf>), and involves EPA assessing capacity nationwide by aggregating state-specific data. Sources used to develop the data needed for the national assessment include the Hazardous Waste Report (also known as the Biennial Report or BR; available at <http://www.epa.gov/osw/inforesources/data/biennialreport/>), information from commercial management facilities, and results from Internet research. The Agency's national assessment of capacity for the treatment and disposal of hazardous waste in this Report indicates that there exists adequate national capacity through the year 2039.

The information presented in this Report shows adequate capacity through 2039 for 10 commercial management categories. EPA recommends that management of certain waste streams should be studied in more detail. Specifically, EPA is conducting analyses to examine the generation and management of wastes containing mercury and wastes containing dioxin. The results of these analyses will be made available to the public once they are ready for review.

The statutory planning horizon to assess the capacity for the treatment and disposal of hazardous waste for the next 20 years goes well beyond the normal permitting periods, which are typically 5 to 10 years. For this reason, the uncertainties of the permitting and permit renewal processes are inherent uncertainties in any long-term projections of capacity. Moreover, because states typically permit treatment and disposal facilities; and because states are required to provide the CERCLA assurance to EPA, it is critical that states be fully engaged in the ongoing analysis of national capacity. EPA also believes that public involvement by all stakeholders at the national and state level is important regarding issues related to hazardous waste management practices and the development of hazardous waste management programs. For this reason, EPA plans to take comments on this Report through EPA's Capacity Assurance Planning web page (<http://www.epa.gov/waste/hazard/tsd/capacity/index.htm>) for consideration in future capacity assessments.

Introduction

CERCLA Section 104(c)(9)

(9) Siting. Effective 3 years after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the President shall not provide any remedial actions pursuant to this section unless the State in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances deemed adequate by the President that the State will assure the availability of hazardous waste treatment or disposal facilities which –

(A) have adequate capacity for the destruction, treatment, or secure disposition of all hazardous wastes that are reasonably expected to be generated within the State during the 20-year period following the date of such contract or cooperative agreement and to be disposed of, treated, or destroyed,

(B) are within the State or outside the State in accordance with an interstate agreement or regional agreement or authority,

(C) are acceptable to the President, and

(D) are in compliance with the requirements of Subtitle C of the Solid Waste Disposal Act

Section 104(c)(9) of the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) requires that the U.S. Environmental Protection Agency (EPA) not provide any remedial action funding to a state unless the state first enters into a state Superfund Contract (SSC) or Cooperative Agreement (CA) that assures the availability of adequate capacity to manage hazardous wastes generated in the state for 20 years following the date of the response agreement. The statute specifies that adequate capacity must be within a State or outside a State in accordance with an interstate agreement or regional agreement or authority.

A national planning process was developed to help support states in fulfilling this statutory mandate. The first phase of the national planning approach is to assess the availability of capacity nationwide. In evaluating capacity nationwide, the Agency assumes private agreements for the interstate treatment or disposal of hazardous waste have been or will be executed if adequate capacity otherwise exists.

This Report describes the effort to assess the national capacity by following the analytical guidelines detailed in the *Guidance for Capacity Assurance Planning* document dated May 1993 (hereafter referred to as the 1993 Guidance; available at <http://infohouse.p2ric.org/ref/23/22567.pdf>; refer to Appendix F) and using 2011 Hazardous Waste Report data (also known as Biennial Report data or BR data; available at <http://www.epa.gov/osw/inforesources/data/biennialreport/>). The purposes of this Report are to provide: (1) the Agency's assessment that adequate national capacity exists, (2) the Agency's methodology used to conduct this assessment, (3) resolutions to a number of methodological issues raised in conducting this assessment, and (4) the data used to conduct this assessment.

Background

CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986. These amendments include the provisions under [Section 104\(c\)\(9\)](#) that require states to assure the availability of hazardous waste treatment or disposal facilities that have adequate capacity to manage the hazardous waste reasonably expected to be generated within the state over 20 years prior to the President providing funding for any remedial actions.

These assurances are required three years after the enactment of SARA and must be provided in any SSC or CA entered into between that state and the President. Therefore, after October 17, 1989, no new Superfund remedial actions may be funded using federal remedial action resources unless a state first enters into such an agreement providing assurances that the President deems adequate. The President has delegated the authority to determine adequacy to the EPA Administrator. (Refer to [CERCLA Section 104\(c\)\(9\)](#).)

Under the program that EPA implemented in 1989, states submitted Capacity Assurance Plans (CAPs) to the Agency as the basis of their assurance. Through these CAPs, each state had to demonstrate that it had sufficient in-state capacity or agreements with other states to share capacity for 20 years. Because of [concerns raised by the states over the 1989 capacity assurance planning process](#) (refer to Appendix G), the Agency worked closely with the states to develop a planning process that first focuses on an assessment of national capacity. The assessment of national capacity is intended to better reflect the reality of waste flows and needs for future management capacity.

In May 1993, EPA finalized the 1993 Guidance. The 1993 Guidance describes a phased approach for states to assure the future availability of hazardous waste treatment and disposal capacity. The initial phase involves developing data for demand and commercial capacity, and assessing capacity on a national level. If capacity is projected to exist after the assessment of the demand for future capacity, then all states have met the assurance requirement. If shortages are predicted nationwide, states that have a demand exceeding their supply of capacity in a shortfall management category are expected to address the shortages through waste minimization and capacity development efforts.

After the 1993 Guidance was issued, states had one year to prepare the CAP data submissions needed for the first phase of the national planning process. The data submissions demonstrated the state's knowledge of its existing hazardous waste management systems, provided the projections of the state's process or "recurrent" waste demand for commercial management, and provided the commercial management capacity available within the state. This data submission also included information about the state's waste minimization program so the state could justify a 10 percent reduction in projected demand. The data submission did not include projected demand from cleanup or one-time waste due to complexity and consistency issues. In January 1995, EPA published the *One-time Waste Estimates for Capacity Assurance Planning* document (available at <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=900V0T00.TXT>). This report provided estimates for Superfund remedial actions, Superfund removal actions, RCRA corrective actions, underground storage tank cleanups, along with state and private cleanups using a very complicated and resource intensive formula.

Once the EPA Regions reviewed the data submitted by the states for consistency and accuracy, EPA Headquarters then calculated the total national demand on commercial management by aggregating the states' projected demand and projected commercial capacity through the year

2013. The first national assessment was finalized in November 1996, which was over three and a half years after states initiated the planning process by developing their data. The results of this enormous undertaking are presented in a document titled *National Capacity Assessment Report: Capacity Planning Pursuant to CERCLA Section 104(c)(9)* dated November 1996 (available at <http://www.epa.gov/waste/hazard/tsd/capacity/index.htm>).

When the final assessment was published in the *Federal Register* (62 *FR* 2156, January 15, 1997; available at <http://www.gpo.gov/fdsys/pkg/FR-1997-01-15/pdf/97-976.pdf>), EPA stated that it would periodically evaluate hazardous waste generation and management information. The primary source of these evaluations has been the Hazardous Waste Report summaries developed with each BR data collection cycle. The BR is completed by hazardous waste generators and treatment, storage, and disposal facilities every two years. The types of information requested in the BR on hazardous waste include the quantity, nature, disposition, and the efforts taken to reduce the volume and toxicity of hazardous waste. In addition to reviewing the summary data, EPA has conducted a variety of analyses that have examined hazardous waste generation and management throughout the years to support rulemaking activities. The BR data and the rulemaking analyses have not indicated any drastic changes in management behavior that could affect the future availability of hazardous waste management capacity. To gather more information about current and projected management behavior, in 2014, EPA made the decision to reassess the national capacity situation using the 1993 Guidance. The next section discusses data development and modifications to the methodology.

Data Development

To develop the data to assess hazardous waste management demand and capacity at a national level, EPA referred to the 1993 Guidance. This document provides instructions for developing six data tables using BR as the primary source of data. The tables include demand for on-site management, demand for captive management (management of wastes from facilities under the same ownership) along with the demand and capacity for commercial management. The 1993 Guidance also outlines issues to consider and the methods to project the future availability of capacity for different waste management categories. The projections are focused entirely on future demand for commercial management capacity. Furthermore, detailed data gathering efforts were targeted on management methods such as commercial landfills and incinerators.

The 2014 assessment involved some slight modifications to the approach used in 1993 when states submitted the six data tables to EPA for aggregation and assessment of future capacity. It is important to mention that the 1993 Guidance was developed based on the criterion that states lacked access to a data system that included consistent information for all facilities in the nation and to software capable of handling complex data manipulations for large volumes of information. Twenty years ago, most states only had access to hazardous waste generation and management data for their individual state. Often both the hardware and software for the old data systems were unreliable, causing some states to use manual manipulation of their data to produce the six tables for their CAP data submission. Limited access to consistent national data caused the 1993 Guidance to rely heavily on the management codes designated by in-state generators and managers of hazardous wastes. The 1993 Guidance also focused on process or “recurrent” wastes, and EPA developed estimates for cleanup or “one-time” wastes due to the complicated methodology needed to project the future of cleanup wastes.

The 1991 BR data forms had 64 management methods codes that were consolidated into 10 commercial CAP management categories. When waste was sent to facilities for transfer to out-of-state management facilities, states had to make assumptions about the final destination of these wastes and select the most appropriate management code. States also needed to reassign wastes sent for management designated by “other recovery” and “other treatment” codes to an appropriate management code. The assumptions, using engineering judgment based on characteristics of the waste streams, could be inconsistent from state to state. The EPA Regions not only reviewed the data tables for accuracy but also checked the reassignment of wastes from transfer/storage facilities and the “other” management codes to help ensure national consistency.

For the assessment presented in this Report, all BR and permit data exist in EPA’s Oracle-based RCRAInfo data system.¹ Because EPA was able to use these national data in RCRAInfo in performing the 2014 assessment, EPA could reduce burden on the states by developing the national data tables. EPA also was able to use a consistent analytical method to reallocate wastes sent to management by transfer/storage facilities and wastes reported under “other” management method codes. In general, EPA incorporated adjustments to reflect: 20 years of changes to RCRA data collection and information systems along with advances in computing capabilities; policy considerations, such as burden reduction; and regulatory implications that affected the old methodology. In addition, due in part to increased knowledge of hazardous waste management, an ability to analyze trends (over 20 years of BR data collection), and improvements in data software and hardware capabilities, EPA was able to develop estimates for cleanup wastes based on BR data instead of the complex calculations used 20 years ago for the CAP program.

The following paragraphs provide an overview of the data development process for the 2014 assessment and Appendix D describes the technical computing aspects of the modified methodology used to develop the data tables necessary for conducting the national assessment. For more detailed information about the general CAP process, see the 1993 Guidance and the National Assessment Report finalized in November 1996.

Baseyear Data

The first step in developing data for the national assessment was to generate “baseyear” demand and capacity data for each of the CAP management categories. The year 2011 is the “baseyear” because, at the time the analysis was conducted, this was the most recent year for which BR data were available. EPA used the 2011 BR data to estimate the demand for hazardous waste management capacity available for onsite management, captive management, and commercial management. Onsite management demand includes demand from waste managed in noncommercial units located onsite at the facility generating the waste. Management demand is considered captive when waste is shipped offsite for management at facilities owned by the same company as the generator but located at a different site. Commercial management is available to all generators through private contracts or agreements.

EPA considered all demand for commercial management units, including demand defined as onsite and captive demand, as demand for commercial management. This assumption is reasonable because wastes managed onsite by commercial facilities reduce the capacity that is commercially available at the facilities. For example, if a commercial landfill facility disposes of its

¹ RCRAInfo is a national database used by EPA to track entities regulated under Subtitle C of RCRA (i.e., hazardous waste handlers). RCRAInfo includes data on general handler information, waste generation and management, permit or closure status, compliance with Federal and State regulations, and cleanup activities.

own wastes at the landfill, the landfill capacity used by the commercial facility will not be available for facilities that send their waste for disposal at the commercial landfill.

For information on available quantities of commercial hazardous waste management capacity, EPA used data in RCRAInfo's Permit Module; limited consultations with hazardous waste management facilities; and other data sources, such as the results of Internet research. Appendix A to this Report presents commercial capacity data used in the analysis. Appendix B presents a list of commercial hazardous waste management facilities and descriptions for the BR management codes captured by each CAP management category. See Appendix C for examples of the various types of management technologies for each category.

In the baseyear data, EPA also: (1) reassigned the "other" management codes to the appropriate CAP management category; (2) separated foreign imports and exports; (3) separated management operations permitted for specific waste types (e.g., mixed radioactive, explosive wastes, spent pot-liners); and (4) corrected obvious data errors (e.g., typos in RCRA identification numbers, unit conversion errors).

Baseline Data

After obtaining baseyear data, EPA adjusted demand represented by the 2011 BR data to the current year of 2014. This adjusted set of data is referred to as "baseline data," and was used as the starting point for projecting demand and capacity availability for commercial management.

For the 2014 baseline demand data, EPA separated process or "recurrent" waste demand from cleanup or "one-time" waste demand because they needed to be addressed differently for a couple of reasons. First, process wastes are typically generated on a continual, recurring basis while cleanup wastes can be a one-time event so generation can fluctuate over time. To address this issue, EPA averaged several cycles of BR data for cleanup wastes for the 2014 baseline demand.

In 1993, states were asked to incorporate the effect of regulations, such as the Boiler and Industrial Furnace (BIF) rulemaking, new Listings, expiration of treatment variances and Land Disposal Restrictions (LDR) rulemakings, on management behavior when going from baseyear to the baseline and also into the projection years. However, because the RCRA program is a more mature regulatory program than it was 20 years ago, no adjustments from the 2011 baseyear data were made to the 2014 baseline.

For the 2014 baseline capacity data, states were asked to review a list of facilities with commercial management operations developed using the 2011 BR data. Most states provided several changes and EPA updated the list to reflect available capacity based on operating status in 2014. Significant changes in commercial management as reported 2011 to 2014 include removing a large commercial wastewater treatment facility, DuPont Chambers Works, from the capacity information. This facility was once the largest commercial manager of wastewaters in the U.S. but stopped accepting wastewaters from outside companies in 2012. The company reported that this decision was based on market trends demonstrating that waste minimization and enhanced on-site treatment capabilities have resulted in decreased wastewater volumes needing commercial management (South Jersey Times, June 17, 2011).² In addition, capacity for three commercial landfills included in the 2011 BR data was not included with the 2014 capacity baseline

² Available at http://www.nj.com/salem/index.ssf/2011/06/dupont_chambers_works_to_phase.html; last accessed on December 30, 2014.

information. Two commercial landfills presented in the 2011 BR data, Peoria Disposal and CID Recycling and Disposal, ceased landfilling of hazardous wastes and a third landfill, EnviroSAFE, was not included because the facility did not provide any data to update the permit capacity data from 2005. Finally, EPA took into account state-imposed caps on annual receipts at landfills in Alabama (600,000 tons) and New York (425,000 tons).

The baseline capacity data include data obtained from communications with all the commercial landfills and incinerators operating nationwide in 2014. EPA verified information about the RCRA permits for these facilities and also asked about demand from Small Quantity Generators (SQGs) and management of nonhazardous wastes. Information received from the facilities is included in Appendix A.

Projection Data

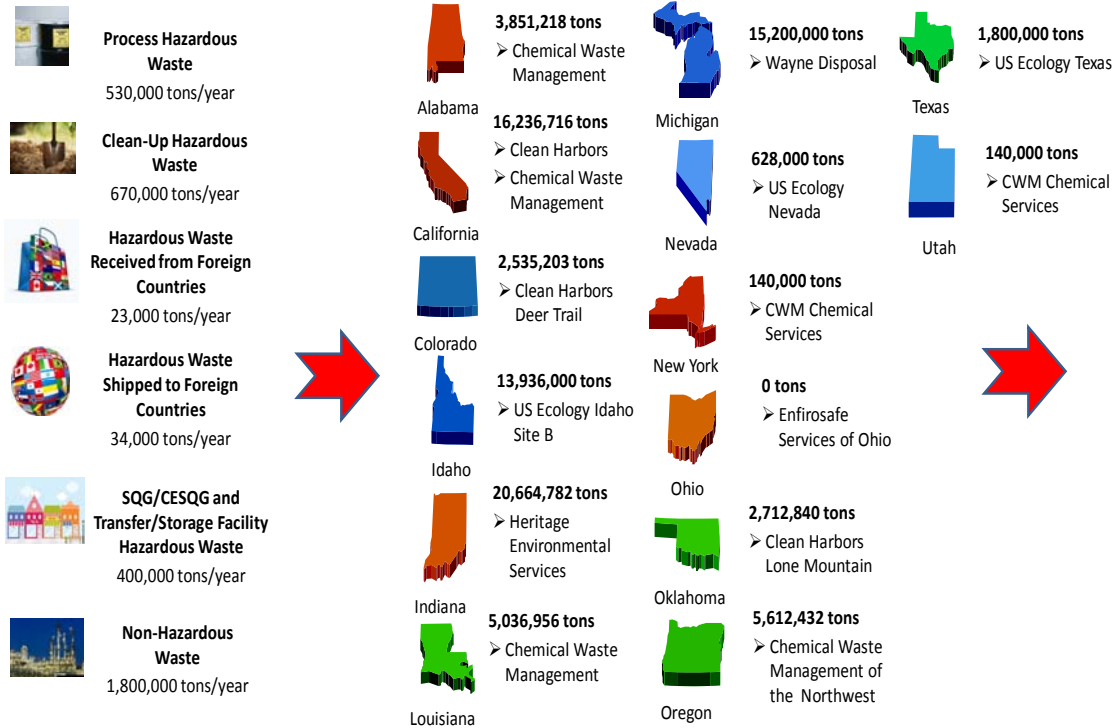
Capacity planning estimates for future capacity needs and waste generation are based on historical data and current knowledge. After developing the 2014 baseline data, EPA developed data for the projection years 2019, 2034 and 2039 pursuant to the 1993 Guidance. The projection years are intended to account for shifts in the management of wastes, and incorporate changes in the operating status of hazardous waste facilities. EPA does not believe that any current hazardous waste regulatory activities will substantially alter management behaviors within the next five years. In addition, projected changes in demand can be due to plant closures and the opening of new facilities. EPA knows of no facilities closing or opening that would substantially affect the future demand for hazardous waste capacity.

Waste minimization efforts also can affect future demand. Most of the 1993 CAP data submissions included information about a State's Waste Minimization Programs. Based on these efforts, the 1993 Guidance allowed for a 10 percent waste reduction credit for future years. Because EPA does not have current information about all the states' Waste Minimization Programs, no waste reduction credit was incorporated into the projection year demand estimates.

EPA knows of no commercial management facilities closing or opening that would affect the future availability of national capacity, so capacity was held constant except for landfills. Since landfill capacity is consumed over time, EPA depleted the amount of available commercial landfill capacity over the projection period. Because landfill capacity also is depleted by the wastes from Small Quantity Generators/Conditional Exempt Small Quantity Generators (SQGs/CESQGs), foreign imports, and nonhazardous wastes, EPA developed estimates for these wastes and incorporated the demand into the availability of future capacity.

Exhibit 1 illustrates the data assessment process for the landfill CAP management category.

Exhibit 1 Data Development Process for the Landfill CAP Management Category ^a



**Projected Remaining Commercial Subtitle C
Hazardous Waste Landfill Capacity at 20 and 25 years:**

2034: 89,000,000 tons - (20 years x 3,455,000 tons/yr) = 19,900,000 tons

2039: 89,000,000 tons - (25 years x 3,455,000 tons/yr) = 2,625,000 tons

Demand on Commercial Hazardous Waste Landfills
3,455,000 tons

Total Maximum Operational Commercial Hazardous Waste Landfill Capacity
Year 2014: 89,000,000 tons



^a Graphics in the exhibit were obtained from the following web sites: (1) <http://www.clemson.edu/research/safety/hazardouswaste/>; (2) <http://mymontys.com/wordpress/?tag=soil-test>; (3) <http://www.hubspot.com/small-business-marketing-hub>; (4) <http://www.darkecounty.com/news/image-grants-for-export-assistance.aspx>; (5) http://www.123rf.com/photo_11840279_world-trade-and-global-commerce-as-an-international-symbol-of-business-trading-in-exports-and-import.html; (6) <https://www.egonline.com/Industries-We-Serve/Refining-Petrochemical-Chemical.aspx>; and (7) http://www.golder.com/in/modules.php%3Fname%3DProjects%26sp_id%3D80%26sector_id%3D44. All web sites last accessed on December 15, 2014.

Methodology Issues

Upon reviewing the demand and capacity data, the Agency identified some issues it needed to address before it could complete the assessment of national capacity. Many of the demand issues arise because the BR data represents only hazardous waste generation and management reported by Large Quantity Generators (LQGs) and Treatment Storage and Disposal Facilities (TSDFs). Consequently, the Agency has limited data collected on demand from either SQG/CESQG wastes or nonhazardous wastes. In most instances, EPA used available data to estimate current demand rather than use the demand estimates developed for the 1993 national assessment of capacity.

The following discussion describes the issues and their resolution. Most of the resolutions err on the side of overestimating demand and underestimating capacity.

Compilation of Permitted Operating Capacity Data

The Agency found that some capacity information in RCRAInfo concerning permits issued under RCRA Subtitle C authority is of limited use for capacity planning purposes. In most cases, the reported capacity for the permit was actually the ideal, maximum design or theoretical capacity of the unit not the practical, real-time operating capacity. Using the theoretical capacity and not the practical capacity can overestimate the amount of readily available capacity. To evaluate available operating capacity for the facilities, the Agency calculated a practical operating capacity reflecting real-time operational limitations, which include such considerations as down-time, permit restrictions, and the optimization of operation for profit.

A confounding variable to the problem of excessive capacity reported in the permit data is the conversion of capacity into consistent units of measurement. Theoretical design capacity estimates are often used for purposes of permit approvals and expansions of hazardous waste management units. These theoretical amounts are measured in units such as British Thermal Units (BTU) per hour for incinerators and total cubic yards or acres for landfills. Because “tons of waste per year” was the common measurement unit selected for aggregating all CAP information, many facility capacities had to be converted to tons of waste per year. This was done by making assumptions about operating conditions and average waste characteristics. For example, when an incinerator designed on a BTU per hour basis is converted to tons per year, assumptions about average waste heating value and density need to be made.

To resolve the issue of theoretical versus practical capacity, EPA conducted limited consultations with hazardous waste management facilities. Through these consultations, the Agency was able to obtain remaining permitted capacity at commercial hazardous waste landfills, as well as information that was used to develop assumptions for real-time operation (e.g., waste heating value, hours or days of operation in a year). Appendix A to this document presents information obtained through consultations with commercial hazardous waste management facilities.

Demand from Facilities Generating Small Amounts of Hazardous Wastes

LQGs generate 1,000 kilograms per month or more of hazardous waste, or more than 1 kilogram per month of acutely hazardous waste. SQGs generate more than 100 kilograms, but less than 1,000 kilograms of hazardous waste per month. Conditionally Exempt Small Quantity Generators (CESQGs) may not accumulate more than 1,000 kilograms of hazardous waste at any time. Hazardous waste demand on commercial capacity from (SQGs/CESQGs) is difficult to estimate for several reasons, including:

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- **Data Reporting.** All LQGs are required to submit BR data but SQGs/CESQGs are not required by federal law to complete a BR so information on their demand is not readily available.
 - **Transfer/storage facilities.** Because SQGs/CESQGs generate small volumes of wastes, they often send their wastes to transfer/storage facilities. These management facilities primarily bulk wastes for shipment to off-site treatment, disposal, or recycling facilities. Sometimes waste can be shipped to several other transfer/storage facilities so tracking a waste from a particular generator may not be possible due to data limitations. Another issue that complicates this analysis is that 10-day transfer/storage facilities may not be required to have RCRA identification numbers.
 - **State Hazardous Waste Programs.** Because state hazardous waste programs can be broader in scope and more stringent than the federal regulations, some states regulate nonhazardous wastes as hazardous, such as used oil and polychlorinated biphenyl (PCB) cleanup wastes. The facilities that often manage these wastes are the transfer/storage facilities. Many of the transfer/storage facilities may not be required to report BR data.

The instructions in the 1993 Guidance describe how to organize the generation data so that wastes reported by transfer/storage facilities are separated from the 10 commercial management categories. This portion of the methodology helps avoid double counting of wastes and provides data needed to estimate SQG/CESQG demand for commercial management capacity. When using BR data, double counting of waste demand can happen when waste is shipped off site for management. Generally, this can be an issue when the generator sending waste to a transfer/storage facility reports the ultimate disposition of the waste instead of using the transfer/storage facility management code, and then the transfer/storage facility also reports the ultimate disposition of the same waste. The CAP methodology uses the BR data submitted by the generator to estimate demand and examines the transfer/storage data separately thereby avoiding the double counting of waste quantities reported by transfer/storage facilities.

EPA was able to estimate the demand on commercial capacity from SQGs/CESQGs waste by referring to information submitted by commercial hazardous waste management facilities. In particular, the Agency identified the generators of waste that was received by commercial hazardous waste management facilities in 2011 by examining information in the commercial facilities' BR form referred to as Waste Received from Off-Site (WR) Form. EPA first developed a list of all facilities shipping wastes to commercial hazardous waste management facilities (e.g., landfill facilities, incinerator facilities). The Agency deleted from this list the generators who submitted a Generation and Management (GM) Form indicating that they shipped waste off site for management. The Agency then used information from commercial facilities who reported receiving waste from the remaining list of generators (i.e., the potential SQGs/CESQGs and transfer/storage facilities) to determine how SQG/CESQG and transfer/storage facility wastes were managed. The Agency's analysis of this demand appears in Table VI under the column "SQG/CESQG and Transfer/Storage Facilities" and Appendix D describes the methodology used in estimating the demand.

Demand from Nonhazardous Wastes

Nonhazardous wastes are wastes that are not federally defined as RCRA hazardous wastes. Hazardous wastes are wastes with properties that make them dangerous or potentially harmful to human health or the environment, and are defined at 40 CFR 261.3.

The overall management trend for all nonhazardous wastes (that is, wastes not otherwise regulated as RCRA hazardous wastes) is disposal in landfills meeting RCRA Subtitle D requirements; however, many RCRA permitted TSDFs reported receiving substantial amounts of wastes not otherwise regulated as RCRA hazardous for management. This may be due to state hazardous waste regulations, which can be broader in scope and more stringent than the federal regulations. While the demand for capacity from nonhazardous waste varies considerably by CAP management category, the demand from nonhazardous wastes as it relates to the assessment of future capacity does affect the landfill CAP management category because landfill capacity depletes over time. EPA was able to broadly estimate demand from nonhazardous waste through limited consultations with commercial hazardous waste management facilities (refer to Appendix A) and other data sources. Much of the demand is from PCB cleanup wastes according to information obtained from the commercial hazardous waste landfills. The Agency's analysis of this demand appears in Table VI under the column "Non-RCRA Industrial Wastes."

Demand from Foreign Imports and Exports

EPA analyzed the data from foreign imports and exports separately from the process and cleanup waste. Pursuant to the 1993 Guidance, EPA assumed these wastes place a demand on commercial capacity within the U.S., and are incorporated into the assessment of future capacity available at commercial facilities. The Agency's analysis of demand from wastes exported to foreign countries appears in Table VI under the column "Wastes Shipped to Foreign Countries." Foreign imports also place a demand on capacity similar to waste demand from SQG/CESQG and nonhazardous wastes. Although there is no federal requirement that these wastes be managed by commercial hazardous waste facilities in the U.S., they consume available capacity and need to be accounted for in the National Assessment of Capacity. The Agency's analysis of this demand appears in Table VI under the column "Wastes Received from Foreign Countries."

Demand from Mixed RCRA Wastes

As part of the Low-Level Radioactive Waste Policy Act (LLRWPA) of 1980 and its 1985 amendments, individual states or groups of states that form compacts are responsible for disposing of all the low-level radioactive mixed waste generated within their borders, except for waste produced by federal facilities (which the federal government has taken responsibility for). This Act establishes a waste management planning, treatment, and disposal framework independent of the CAP process that specifically deals with the disposal of non-federal radioactive mixed waste. For federal radioactive waste, the Federal Facilities Compliance Act establishes a planning process to ensure that these wastes are properly managed. In the Agency's judgment, treatment capacity for radioactive mixed wastes will be met through these planning mechanisms. There are two landfills designed and operating primarily for the management of mixed wastes (refer to Appendix A for additional information on these two landfills). Demand from mixed RCRA wastes and the two landfills were separated from the general CAP analyses. An analysis of low-level radioactive RCRA waste demand for landfill capacity shows that there is capacity through 2039 for these wastes (refer to Appendix E).

Demand from Hazardous Wastes Requiring Specialty Management

Some wastes, such as explosive wastes, require management in units specifically designed for the unique management required by these wastes. These units typically are permitted to meet the exact specifications of the unique waste stream and not available for management of all waste types. In particular, one commercial incinerator currently operating has been designed exclusively for treatment of explosive wastes. In addition, one permitted incinerator has capacity in the permit

designated for the management of spent potliners from primary aluminum reduction (i.e., EPA listed K088 waste). These wastes and the dedicated capacity to manage these wastes were evaluated separately from the incinerators permitted to accept a variety of different hazardous wastes (refer to Appendix A for additional information on these commercial management facilities). The analysis shows that there is capacity through 2039 for all these wastes (refer to Appendix E).

Discussion of National Aggregated Data by EPA

Tables I through V of this Report show EPA's aggregation of hazardous waste demand and capacity data:

- Table I, titled "2011 National Baseyear Data Representing Hazardous Waste Generated and Managed Onsite," shows a national aggregation of 2011 baseyear demand data for waste managed on site.
- Table II, titled "2011 National Baseyear Data Representing Management of Hazardous Waste at Captive Facilities," presents wastes generated and managed in-state at captive facilities. Captive facilities are facilities owned by the same company as the generator but are at a different physical location. Their capacity can only be used by generators under the same ownership or by generators with whom the facility has an agreement to manage their waste.
- Table III, titled "2011 National Baseyear Data Representing Management of Hazardous Waste at Commercial Facilities," shows wastes managed at commercial facilities. National demand estimates for the baseyear include hazardous wastes shipped to other states and wastes generated and managed in-state. The table also includes maximum operational commercial hazardous waste management capacity.
- Table IV, titled "National Baseline and Projected Demand for Commercial Hazardous Waste Management Capacity," reports projected demand of hazardous wastes generated by LQGs and TSDFs for commercial capacity. Demand is projected for both process or "recurrent" wastes and cleanup or "one-time" wastes.
- Table V, titled "National Baseline and Projected Maximum Commercial Hazardous Waste Management Capacity," shows capacity data for the baseline and projection years.

National Assessment of Future Capacity

The national assessment of hazardous waste capacity for 20 years is presented in Table VI, titled "National Capacity Assessment of Projected Remaining Commercial Hazardous Waste Management Capacity." Specifically, the information in Table VI shows:

- Projected remaining commercial hazardous waste capacity not utilized by hazardous waste. This is the maximum commercial hazardous waste management capacity for year 2039 from Table V minus the demand for year 2039 from Table IV.
- Estimated additional demand for commercial capacity. In assessing future capacity, the Agency considered the impact that additional demand may have on commercial hazardous waste management capacity. In particular, the Agency considered demand from SQGs/CESQGs and transfer/storage facilities, exports and imports of hazardous wastes, and nonhazardous wastes managed at hazardous waste management facilities.

-
- Agency's assessment of future capacity.

As shown in Table VI, there is adequate capacity through the year 2039 for all 10 CAP management categories. For landfills, the projected remaining management capacity calculation takes into account the depletion of available landfill capacity over time.

Conclusions

EPA has updated the national assessment of capacity for the treatment and disposal of hazardous wastes for the next 20 years. Based on its analyses of the data presented in this Report, the Agency has determined that adequate national capacity for the treatment and disposal of hazardous waste exists for 20 years (i.e., year 2034) and through the year 2039. Although EPA believes there is national capacity, states and regional groupings of states should continue hazardous waste management planning activities to ensure that adequate capacity exists in the future.

While currently there is adequate hazardous waste treatment and disposal capacity, there is the potential for unforeseen circumstances (e.g., new federal regulations, permit denials, taxes on management, statutory limitations on landfills, and changing market conditions) that could affect the future availability of management capacity. Nationally, the industry is consolidating and restructuring as indicated by the existence of fewer landfills, incinerators, and energy recovery facilities permitted under RCRA Subtitle C requirements than reported in the 1993 CAP data submissions. The dynamic hazardous waste market and the uncertainty of the permitting process make it difficult to guarantee that the current surpluses of hazardous waste management capacity will continue to exist. Although the Agency believes the information presented in this Report demonstrates the future availability of treatment and disposal capacity, the Agency will continue to periodically collect and evaluate data to ensure that the requirements of CERCLA 104(c)(9) are satisfied.

While implementation of the methodology presented in the 1993 Guidance predicts the future availability of capacity through 2039 for all 10 CAP management categories, EPA believes that management of certain waste streams should be studied in more detail. Specifically, EPA plans to conduct analyses to examine the generation and management of wastes containing mercury and wastes containing dioxin. The results of these studies will be made available to the public once they are ready for review.

Furthermore, assuring adequate capacity requires active planning on the part of all parties, including states, tribal governments, industry, and commercial management facilities. This necessitates that all states periodically examine their capacity situations, identify areas of concern, and develop plans that consider future needs. These planning exercises will add to states' knowledge of their hazardous waste management systems, help them implement waste minimization programs, and encourage companies to replace inefficient treatment technologies with safer and more innovative technologies. This can be especially important if studies of hazardous waste management data show capacity issues for specific waste streams anticipated to be generated within a state's borders.

Table I
2011 National Baseyear Data Representing Hazardous Waste Generated and Managed On Site

CAP Management Category	Hazardous Waste Managed On Site (Tons)
RECOVERY	
Metals Recovery	29,000
Solvents Recovery	54,000
Inorganics Recovery	47,000
Energy Recovery	660,000
TREATMENT	
Fuel Blending	3,600
Incineration	530,000
Wastewater Treatment	35,000,000
Sludge Treatment/Stabilization/Encapsulation	54,000
DISPOSAL	
Land Treatment or Application	17,000
Landfill	2,300,000
Deepwell or Underground Injection	21,000,000
TRANSFER/STORAGE	
Transfer/Storage	370,000

Table II
2011 National Baseyear Data Representing Management of Hazardous Waste at Captive Facilities

CAP Management Category	Hazardous Waste Managed at Captive Facilities (Tons)
RECOVERY	
Metals Recovery	50
Solvents Recovery	2,300
Inorganics Recovery	0
Energy Recovery	26,000
TREATMENT	
Fuel Blending	0
Incineration	84,000
Wastewater Treatment	310
Sludge Treatment/Stabilization/Encapsulation	0
DISPOSAL	
Land Treatment or Application	0
Landfill	200
Deepwell or Underground Injection	57,000
TRANSFER/STORAGE	
Transfer/Storage	0

Table III
2011 National Baseyear Data Representing Management of Hazardous Waste at Commercial Facilities

CAP Management Category	Demand for Commercial Hazardous Waste Management Capacity		Maximum Operational Commercial Hazardous Waste Management Capacity (Tons/Year)
	Process Waste (Tons)	Cleanup Waste (Tons)	
RECOVERY			
Metals Recovery	930,000	700	1,800,000
Solvents Recovery	150,000	100	2,500,000
Inorganics Recovery	430,000	3,800	526,000
Energy Recovery	590,000	80	1,900,000
TREATMENT			
Fuel Blending	390,000	1,100	4,300,000
Incineration	280,000	90,000	1,100,000
Wastewater Treatment	570,000	41,000	12,000,000
Sludge Treatment/Stabilization/Encapsulation	480,000	140,000	8,100,000
DISPOSAL			
Landfill	530,000	670,000	89,000,000 (Total permitted tons)
Deepwell or Underground Injection	2,300,000	3,700	3,300,000
TRANSFER/STORAGE			
Transfer/Storage	170,000	4,500	

Table IV
National Baseline and Projected Demand for Commercial Hazardous Waste Management Capacity
Data represents demand from only Large Quantity Generators (LOGs)
and Treatment Storage and Disposal Facilities (TSDFs)

CAP Management Category	Demand for Commercial Hazardous Waste Management Capacity							
	2014 Baseline		2019		2034		2039	
	Process Waste (Tons)	Cleanup Waste (Tons)	Process Waste (Tons)	Cleanup Waste (Tons)	Process Waste (Tons)	Cleanup Waste (Tons)	Process Waste (Tons)	Cleanup Waste (Tons)
RECOVERY								
Metals Recovery	930,000	700	930,000	700	930,000	700	930,000	700
Solvents Recovery	150,000	100	150,000	100	150,000	100	150,000	100
Inorganics Recovery	430,000	3,800	430,000	3,800	430,000	3,800	430,000	3,800
Energy Recovery	590,000	80	590,000	80	590,000	80	590,000	80
TREATMENT								
Fuel Blending	390,000	1,100	390,000	1,100	390,000	1,100	390,000	1,100
Incineration	280,000	90,000	280,000	90,000	280,000	90,000	280,000	90,000
Wastewater Treatment	570,000	41,000	570,000	41,000	570,000	41,000	570,000	41,000
Sludge Treatment/ Stabilization/ Encapsulation	480,000	140,000	480,000	140,000	480,000	140,000	480,000	140,000
DISPOSAL								
Landfill	530,000	670,000	530,000	670,000	530,000	670,000	530,000	670,000
Deepwell or Underground Injection	2,300,000	3,700	2,300,000	3,700	2,300,000	3,700	2,300,000	3,700

Table V
National Baseline and Projected Maximum Commercial Hazardous Waste Management Capacity

CAP Management Category	Baseline, 2014 (Tons/Year)	Maximum Commercial Hazardous Waste Management Capacity ^a		
		2019 (Tons/Year)	2034 (Tons/Year)	2039 (Tons/Year)
RECOVERY				
Metals Recovery	1,800,000	1,800,000	1,800,000	1,800,000
Solvents Recovery	2,500,000	2,500,000	2,500,000	2,500,000
Inorganics Recovery	526,000	526,000	526,000	526,000
Energy Recovery	1,900,000	1,900,000	1,900,000	1,900,000
TREATMENT				
Fuel Blending	4,300,000	4,300,000	4,300,000	4,300,000
Incineration	1,100,000	1,100,000	1,100,000	1,100,000
Wastewater Treatment	12,000,000	12,000,000	12,000,000	12,000,000
Sludge Treatment/ Stabilization/Encapsulation	8,100,000	8,100,000	8,100,000	8,100,000
DISPOSAL				
Landfill	89,000,000 (Total permitted tons)	83,000,000 (Total permitted tons)	65,000,000 (Total permitted tons)	59,000,000 (Total permitted tons)
Deepwell or Underground Injection	3,300,000	3,300,000	3,300,000	3,300,000

^a Estimates do not take into account capacity not currently permitted but potentially available for operation.

Table VI
National Capacity Assessment of Projected Remaining
Commercial Hazardous Waste Management Capacity through 2039

CAP Management Category	<i>Data from Table V: Projected Remaining Commercial Hazardous Waste Capacity Not Utilized by LQGs and TSDFs (Tons/Year)</i>	Estimated Additional Demand for Commercial Capacity				Assessment of the Continued Availability of Commercial Capacity through the year 2039
		SQG/CESQG and Transfer/Storage Facilities (Tons)	Wastes Shipped to Foreign Countries (Tons) ^a	Wastes Received from Foreign Countries (Tons)	Non-RCRA Industrial Wastes (Tons)	
RECOVERY						
Metals Recovery	869,000	170,000	109,000	35,000	63,000	Sufficient Capacity
Solvents Recovery	2,300,000	19,000	30,000	1,900	71,000	Sufficient Capacity
Inorganics Recovery	92,000	47,000	40,000	4,300	No Estimate	Sufficient Capacity
Energy Recovery	1,200,000	160,000	22,000	1,200	39,000	Sufficient Capacity
TREATMENT						
Fuel Blending	3,900,000	79,000	0	1,500	No Estimate	Sufficient Capacity
Incineration	720,000	140,000	14,000	7,100	140,000	Sufficient Capacity
Wastewater Treatment	11,000,000	55,000	41,000	70	280,000	Sufficient Capacity
Sludge Treatment/ Stabilization/Encapsulation	7,400,000	130,000	0	1,100	23,000	Sufficient Capacity
DISPOSAL						
Landfill	59,000,000 <i>(Total permitted tons remaining after depleting demand from LQGs and TSDFs)</i>	<i>Annual</i> 400,000 <i>25-Year Total</i> 10,000,000	<i>Annual</i> 34,000 <i>25-Year Total</i> 850,000	<i>Annual</i> 21,000 <i>25-Year Total</i> 525,000	<i>Annual</i> 1,800,000 <i>25-Year Total</i> 45,000,000	Sufficient Capacity
Deepwell or Underground Injection	990,000	120,000	0	4,400	33,000	Sufficient Capacity

^a U.S. Environmental Protection Agency, ORCR's Export-Import Database, 2010 Annual Export Report data. Data current as of October 18, 2011.

References

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- ICF; Personal Communication with D. Lyn Shepherd, Environmental Manager, Alcoa Gum Springs Plant; November-December 2014.
- ICF; Personal Communication with Susan K. Kaiser, Corporate EHS Manager, Ross Incineration Services, Inc.; November-December 2014.
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- U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response (OSWER); *Guidance for Capacity Assurance Planning*, OSWER Directive 9010.02; May 1993. Available online at <http://infohouse.p2ric.org/ref/23/22567.pdf>; last accessed on December 30, 2014.

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Appendix A
Commercial Capacity Data

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Commercial Capacity Data

This appendix provides commercial capacity data used in conducting the national capacity assessment. In particular, this appendix provides the following information:

- Summary of commercial capacity data
 - [Landfills](#)
 - [Incineration](#)
 - [Energy recovery](#)
 - [All other CAP management categories](#)
- Information verified/obtained through consultations with commercial hazardous waste management facilities
 - [List of commercial hazardous waste management facilities contacted](#)
 - Feedback provided by commercial hazardous waste management facilities
 - [Landfills](#)
 - [Incineration](#)
 - [Specialty operations](#)

Click on any of the above [links](#) for quick access to specific sections of the appendix.

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**Summary of Information on
Commercial Capacity Data**

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Summary of Capacity Data for Commercial Hazardous Waste Landfill Facilities ^a

EPA ID	Site Name	Total Annual Landfilled Quantity of Hazardous Waste and Other Wastes				Total Currently Permitted and Available Landfill Capacity ^b (Tons)	Anticipated Expansion under Permit Modification/ Renewal (Tons)	Year of Permit Modification/ Renewal
		Subtitle C (Tons)	Non-Subtitle C (Tons)	Mixed Waste (Tons)	Total (Tons)			
ALD000622464	CHEMICAL WASTE MANAGEMENT	52,630 (60%) ^c	35,086 (40%) ^c	0	87,716 ^d	3,851,218	21,000,000	2015
CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC	260,950	89,050	0	350,000	9,362,500	875,000	In progress
CAT000646117	CHEMICAL WASTE MANAGEMENT, INC.	4,031 (60%) ^c	2,687 (40%) ^c	0	6,718	6,874,216	Not available	2014
COD991300484	CLEAN HARBORS DEER TRAIL LLC	29,700	14,680	0	44,380	2,535,203	0	2018
IDD073114654	US ECOLOGY IDAHO INC SITE B	113,647 (16%) ^e	596,647 (84%) ^e	0	710,295	13,936,000	0	2014
IND980503890	HERITAGE ENVIRONMENTAL SERVICES, LLC	77,142 (26%) ^f	219,558 (74%) ^f	0	296,700	20,664,782	0	2019
LAD000777201	CHEMICAL WASTE MANAGEMENT	120,060 (60%) ^c	80,040 (40%) ^c	0	200,100	5,036,956	0	2020 ^g
MID048090633	WAYNE DISPOSAL INC	61,401 (39%) ^e	96,038 (61%) ^e	0	157,439	15,200,000	0	2022
NVT330010000	US ECOLOGY NEVADA	60,877 (83%) ^e	12,469 (17%) ^e	0	73,346	628,000	5,000,000	2016
NYD049836679	CWM CHEMICAL SERVICES LLC	56,363 (60%) ^c	37,575 (40%) ^c	0	93,938 ^h	140,000	6,000,000	In progress
OHD045243706	ENVIROSAFE SERVICES OF OHIO INC	48,830 ⁱ	52,899 ^j	0	101,729 ^j	0 ^k	Not Available	2015 ^g
OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC	88,472	82,861	0	171,333	2,712,840	3,361,800	In progress
ORD089452353	CHEMICAL WASTE MANAGEMENT OF THE NW	103,304 (60%) ^c	68,869 (40%) ^c	0	172,173	5,612,432	Not Available	2016 ^g

Summary of Capacity Data for Commercial Hazardous Waste Landfill Facilities ^a

EPA ID	Site Name	Total Annual Landfilled Quantity of Hazardous Waste and Other Wastes				Total Currently Permitted and Available Landfill Capacity ^b (Tons)	Anticipated Expansion under Permit Modification/Renewal (Tons)	Year of Permit Modification/Renewal
		Subtitle C (Tons)	Non-Subtitle C (Tons)	Mixed Waste (Tons)	Total (Tons)			
TXD069452340	US ECOLOGY TEXAS	87,815 (18%) ^e	400,045 (82%) ^e	0	487,859	1,800,000	10,400,000 (modification)	2023
UTD991301748	CLEAN HARBORS GRASSY MOUNTAIN, LLC.	82,311	34,827	0	117,138	717,151	None anticipated in next renewal	2022
Total		1,247,533	1,823,331	0	3,070,864	89,071,298	46,636,800	

^a Unless otherwise noted, information was obtained through consultations conducted in October-December 2014. Table contains rounding error.

^b This column reflects all remaining permitted capacity in landfills currently in operation, under construction, and not yet built.

^c Chemical Waste Management estimated the total tonnage of wastes received at each of its facilities and stated that the quantity of non-Subtitle C waste is on average 40% of the total waste received at the facilities. This table reflects a 60%/40% split between Subtitle C and non-Subtitle C waste for each facility.

^d This facility, in Emelle, Alabama, has a state-imposed cap on annual receipts of 600,000 tons.

^e US Ecology provided a percentage breakdown in wastes and materials that it landfilled in 2014 (% hazardous waste, % non-hazardous waste, etc.). This was used in conjunction with its total quantity of hazardous waste landfilled (as reported in the 2011 Hazardous Waste Report) to approximate the total annual quantity of Subtitle C and non-Subtitle C waste, as presented in this table. Note that the Wayne facility in Michigan is owned by US Ecology.

^f Heritage provided a total annual tonnage of all wastes and materials landfilled and estimated that Subtitle C wastes comprise 26% and non-Subtitle C wastes comprise 74%.

^g Data from "Maximum Operational Commercial Subtitle C Landfill Capacity" document

^h This facility, in Model City, New York, has a state-imposed cap on annual receipts of 425,000 tons. Certain remediation and de-characterized wastes are exempted from the state cap.

ⁱ Based on GM Onsite and WR Form data from the 2011 Hazardous Waste Report. Data current as of September 20, 2014.

^j Estimated quantity. Based on average of the percentages provided by all facilities consulted for Subtitle C and Non-Subtitle C wastes landfilled (i.e., 48% Subtitle C wastes and 52% Non-Subtitle C wastes).

^k Assumed to be zero. Available data in RCRAInfo's Permit Module is 10 years old. Facility did not provide current capacity data, and their permit gets renewed in 2015.

Summary of Capacity Data for Commercial Hazardous Waste Incineration Facilities ^a

EPA ID	Site Name	Total Annual Incinerated Quantity of Hazardous Waste and Other Wastes			Total Currently Permitted and Available Capacity ^b (Tons/Year)	Anticipated Expansion under Permit Modification/ Renewal (Tons/Year)	Year of Permit Modification/ Renewal
		Subtitle C (Tons)	Non Subtitle C (Tons)	Total (Tons)			
ARD069748192	CLEAN HARBORS EL DORADO, LLC	74,368	23,798	98,166	245,325 ^c	75,000 (recent)/ No expansion anticipated in 2018 ^d	2018
ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS LLC	15,625 (62.5%) ^e	9,375 (37.5%) ^e	25,000	30,000	0	In progress
NED981723513	CLEAN HARBORS ENV SERVICES	34,823 ^f	Not Available	34,823	72,000 ^g	Not Available	Not Available
OHD048415665	ROSS INCINERATION SERVICES INC	76,406	4,844	81,250	84,112	0	2024
OHD980613541	HERITAGE - WTI, INC	61,425 (97.5%) ^h	1,575 (2.5%) ^h	63,000	70,000 ⁱ	0	In progress
TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS LLC	56,950 (85%) ^j	10,050 (15%) ^j	67,000	87,500 ^k	0	2014
TXD055141378	CLEAN HARBORS DEER PARK LP	88,972	85,482	174,454	293,138 ^l	0	2014
UTD981552177	CLEAN HARBORS ARAGONITE LLC	60,459 ^f	Not Available	60,459	120,000 ^g	Not Available	Not Available
Total		589,028	135,124	724,152	1,123,575	75,000	

^a Unless otherwise noted, information was obtained through consultations conducted in October-December 2014. Table contains rounding error.

^b This column reflects practical operating capacity (i.e., capacity at operational units accounting for planned outages, maintenance, etc.) unless otherwise indicated.

^c This capacity is based on 8,040 operating hours/unit/year. Clean Harbors indicated this reflects actual experience with all of its incinerators.

^d The Arkansas DEQ recently issued RCRA Part B and CAA Title V permits to construct and operate a new rotary kiln incinerator with a permitted capacity of approximately 75,000 tons per year. This 75,000-ton increase is not reflected in its total currently permitted and available capacity because it is not yet built. No change in capacity is anticipated in its 2018 renewal.

^e Veolia indicated that non-Subtitle C receipts vary but could represent 25% - 50% of the total waste incinerated. A mid-point of 37.5% is reflected in the table for non-Subtitle C waste and 62.5% for Subtitle C waste.

^f Based on GM Onsite and WR Form data from the 2011 Hazardous Waste Report. Data current as of September 20, 2014.

^g Based on permitted capacity information in RCRAInfo, which is expressed in tons or pounds per hour. Multiplied this by 8,040 hours/year as recommended by Clean Harbors.

^h Heritage indicated that non-Subtitle C waste represents less than five percent of its annual incineration volume. A mid-point between 0% and 5% is reflected in the table for non-Subtitle C waste (2.5%) and 97.5% for Subtitle C waste.

ⁱ Heritage is permitted for 2 incinerators and its RCRA permitted capacity is greater than 88,000 tons/year per incinerator (176,000 tons per year). One incinerator is built and operating, with a practical capacity of 70,000 tons/year. The other is not built and hence not reflected in the table.

^j Veolia indicated that non-Subtitle C receipts vary but could represent 10% - 20% of the total waste incinerated. A mid-point of 15% is reflected in the table for non-Subtitle C waste and 85% for Subtitle C waste.

^k Veolia indicated that its practical capacity is approximately 75,000 - 100,000 tons/year. A midpoint of 87,500 tons/year is reflected in the table.

^l Clean Harbors estimated a total incineration capacity of 36.46 tons/hour and 8,040 hours/year of operation. This equates to 293,138 tons/year of capacity.

Summary of Capacity Data for Commercial Hazardous Waste Energy Recovery Facilities ^a

EPA ID	Site Name	Process Type	Total Currently Permitted and Available Capacity (Tons/Year)	Anticipated Expansion under Permit Modification/ Renewal (Tons/Year)	Year of Permit Modification/ Renewal
ARD981512270	ASH GROVE CEMENT COMPANY	Cement Kiln	211,291 ^b	Not Available	Not Available
IND005081542	ESSROC CEMENT CORPORATION	Cement Kiln	318,384 ^b	Not Available	Not Available
IND006419212	LONE STAR GREENCASTLE WDF	Cement Kiln	100,500 ^b	Not Available	Not Available
KSD031203318	ASH GROVE CEMENT COMPANY	Cement Kiln	162,569	Not Available	Not Available
LAD008161234	ECO SERVICES OPERATIONS LLC	Combustion Device in Recovery of Sulfur from Acid	24 ^{b, c}	Not Available	Not Available
MOD054018288	GREEN AMERICA RECYCLING, LLC	Cement Kiln	98,168 ^b	Not Available	Not Available
MOD981127319	LONE STAR INDUSTRIES	Cement Kiln	86,941 ^b	Not Available	Not Available
MSD077655876	HOLCIM (US) INC/GEOCYCLE LLC	Cement Kiln	131,454 ^b	Not Available	Not Available
NYD080469935	NORLITE LLC	Aggregate Kiln	20,732 ^b	Not Available	Not Available
OKD064558703	TULSA CEMENT LLC D/B/A CENTRAL PLAINS COM	Cement Kiln	103,153 ^b	Not Available	Not Available
PAD002389559	KEYSTONE CEMENT CO	Cement Kiln	80,513 ^d	Not Available	Not Available
SCD003351699	GIANT CEMENT COMPANY	Cement Kiln	233,160 ^b	Not Available	Not Available
SCD003368891	HOLCIM US INC GEOCYCLE LLC	Cement Kiln	293,125 ^d	Not Available	Not Available
TND982109142	DIVERSIFIED SCIENTIFIC SERVICES INC. (DSSI)	Boiler	5,133 ^b	Not Available	Not Available
TXD001700806	ASCEND CHOCOLATE BAYOU PLANT	Boiler	6 ^{b, c}	Not Available	Not Available
TXD008099079	RHODIA	Halogen Acid Furnace	95,848 ^{b, c}	Not Available	Not Available
Total			1,941,001	Not Available	

^a Unless otherwise noted, information was obtained from RCRAInfo's Permit Module in December 2014.

^b This capacity is based on 8,040 operating hours/unit/year.

^c This capacity is based on a heat content of hazardous waste of 8,598 BTU/pound.

^d This capacity is based on 335 operating days/unit/year.

Summary of Commercial Capacity Data for All Other CAP Management Categories

CAP Management Category	Maximum Operational Commercial Hazardous Waste Management Capacity (Tons/Year) ^a	Estimated Additional Demand for Commercial Capacity from Non-RCRA Industrial Wastes (Tons) ^d
RECOVERY		
Metals Recovery	1,800,000	5%
Solvents Recovery	2,500,000	35%
Inorganic Recovery	526,000 ^b	No Estimate
TREATMENT		
Fuel Blending	4,300,000	No Estimate
Wastewater Treatment	12,000,000 ^c	39%
Sludge Treatment/ Stabilization/Encapsulation	8,100,000	3%
DISPOSAL		
Deepwell or Underground Injection	3,300,000	26%

^a Unless otherwise noted, capacity estimate obtained from EPA's *National Capacity Assessment Report: Capacity Planning Pursuant to CERCLA Section 104(c)(9)* (i.e., the 1996 capacity assessment report), EPA530-R-95-016, p. 21, November 1996. This is the most recent estimate of national capacity for this CAP management category.

^b Capacity estimate based on demand in 2011 for management of wastes using inorganics recovery technologies.

^c Capacity estimate obtained from the 1996 capacity assessment report was decreased by 28,000,000 tons to account for the reduction in wastewater treatment capacity associated with the decision of DuPont Chamber Works to stop accepting wastewaters from outside companies.

^d Percent of total demand (i.e., [process waste] + [cleanup waste] + [SQG/CESQ and transfer/storage facilities]+ [wastes shipped to foreign countries] + [wastes received from foreign countries]). These assumptions were obtained from the 1996 capacity assessment report (p. 22).

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**Information Verified/Obtained through Consultations
with Commercial Hazardous Waste Management Facilities**

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EPA ID	Facility Name	Date Facility Was First Contacted	Date of Latest Response from Facility
ALD000622464	CHEMICAL WASTE MANAGEMENT	October 9, 2014	December 4, 2014
CAT000646117	CHEMICAL WASTE MANAGEMENT, INC.		
LAD000777201	CHEMICAL WASTE MANAGEMENT		
NYD049836679	CWM CHEMICAL SERVICES LLC		
ORD089452353	CHEMICAL WASTE MANAGEMENT OF THE NW		
CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC	November 4, 2014	December 4, 2014
COD991300484	CLEAN HARBORS DEER TRAIL LLC		
OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC		
UTD991301748	CLEAN HARBORS GRASSY MOUNTAIN, LLC.		
IDD073114654	US ECOLOGY IDAHO INC SITE B		
MID048090633	WAYNE DISPOSAL INC	October 29, 2014	November 5, 2014
NVT330010000	US ECOLOGY NEVADA		
TXD069452340	US ECOLOGY TEXAS		
IND980503890	HERITAGE ENVIRONMENTAL SERVICES, LLC		
OHD045243706	ENVIROSAFE SERVICES OF OHIO INC	October 24, 2014	November 17,2014
ARD069748192	CLEAN HARBORS EL DORADO, LLC	November 4, 2014	No Response
NED981723513	CLEAN HARBORS ENV SERVICES	November 13, 2014	December 4, 2014
TXD055141378	CLEAN HARBORS DEER PARK LP	November 13, 2014	No Response
UTD981552177	CLEAN HARBORS ARAGONITE LLC	November 13, 2014	December 4, 2014
ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS LLC	November 13, 2014	No Response
TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS LLC		
OHD048415665	ROSS INCINERATION SERVICES INC	November 11, 2014	December 3, 2014
OHD980613541	HERITAGE - WTI, INC	November 14, 2014	December 2, 2014
TXD988088464	WASTE CONTROL SPECIALISTS	November 13, 2014	November 18, 2014
UTD982598898	ENERGYSOLUTIONS	October 24, 2014	December 5, 2014
ARD006354161	REYNOLDS METALS COMPANY	October 24, 2014	October 28,2014
.MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL CO	November 25, 2014	December 3, 2014
		November 18, 2014	December 2, 2014

Commercial Hazardous Waste Landfill Facilities

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Chemical Waste Management Information on WM Subtitle C Facility Capacity

Public Submission

Information requested by EPA in 2014 for 2013-2014

WM SUBTITLE C CAPACITY 2013-2014

LANDFILL	Annual Receipts 2013 (tons)	Annual Receipts 2014 (projected tons)	State Cap on Annual Receipts (tons)	Remaining Permitted Capacity (Site Life as of Dec. 2013)(tons)
Arlington	172,173	110,000	No Cap	5,612,432
Emelle	87,716	112,550	600,000	2,750,870**
Lake Charles	200,100	203,800	No Cap	5,036,956
Model City	93,938	80,000	425,000*	140,000
Kettleman	6,718	13,761	No Cap	14,216
Total	560,645	520,111	1,025,000	13,554,474

**Certain remediation & decharacterized wastes are exempted from the state regulatory Cap for Model City*

***Working to permit Trench 23 in 2015 for 15MM Cu Yds.*

Note that this is total tonnage through the gate. Those who report differently (for example, for soil, they adjust the tonnage reported to the state by a fraction that represents only on hazardous waste and not the dirt included in a shipment), the number has converted to simple tons of material received.

Additional information

- Please give a generic description of the kinds of customers using the facilities – manufacturers, federal government (Superfund or use by federal agencies), academic institutions, etc.

Manufacturers, state DECs, EPA, academic institutions, developers, brokers, manufacturers throughout the region, some County and City residential (household and SQG), various government entities, and voluntary cleanup efforts, CERCLA cleanups, Petroleum and Chemical companies, Infrastructure Developments including Caltrans (roads), brownfield developments (public and private)

- Please identify generally the kinds of non-Subtitle C special or event waste received (e.g., brownfields cleanup, Superfund waste not specifically RCRA Subtitle C, tank cleanup, industrial non-hazardous waste, pharmaceutical waste – anything, not just RCRA listed or characteristic haz waste).

Answers vary by facility but include: Brownfield cleanups, tank clean up, some manufacturing industrial waste, minute amounts of pharmaceutical waste, friable asbestos, PCB (TSCA) waste, California-only hazardous waste.

-
- **How much of total tonnage received is special/event waste (as opposed to on-going contracts for newly generated waste) – an approximate % is fine.**

Ranges from 20% to 80%

- **If the facility can track receipt of hazardous waste from small quantity generators or conditionally exempt waste, please identify the percentage of wastes this constitutes (an approximation is OK).**

Between 1% and 5%

- **How is daily cover handled in your “remaining capacity” number? Would EPA have to subtract a percent from this estimate to account for daily cover when evaluating the remaining life estimate?**

No, EPA does not have to subtract anything to account for daily cover.

- **Please indicate the duration of your permit (renewal every 5 or 10 years?).**

Split between 5 and 10 year permit duration.

- **Are you permitted to accept dioxin or mercury wastes? If so, does it require a special permit? Are there any other RCRA haz wastes your facility isn't able to accept under your permit?**

Dioxin waste must have been treated to LDF. Facilities cannot accept Radioactive Wastes, Compressed Gases, Forbidden Explosives, or Biological/Infectious Wastes.

- **Has your facility attempted to delist a customer's waste stream in the past 5 years? Do not include any delistings filed by a customer attempting to avoid having to send waste to us by petitioning for delisting.**

No facility has attempted to delist a waste. One facility has a variance for one waste stream.

- **Does your state have any legislation/regulation that allows potential customers to avoid using our facility and instead diverts waste to less regulated units like recycling facilities or quarry fill?**

The State of California has allowed Cal Trans to use California-hazardous waste (areal lead-impacted soil) to be used as backfill under roads.

Additional questions for some sites:

- **For Kettleman and Model City, please identify the annual and total capacity you could handle if your pending expansion permits are granted, but don't assume you will get your expansion permit in filling out the chart.**

Model City:

Annual capacity with expansion will be 500,000 tons with no exemptions. The expansion provides for 4,000,000 cy of airspace (6,000,000 tons).

KHF:

Capacity -- B18 Phases I/II

- Remaining capacity as of 12/31/14 is 17,770 cubic yards (AUF 0.80) or 14,216 tons
- Permitted for RCRA, TSCA, Non-RCRA (Cal Haz), and CERCLA

Capacity -- B18 Phase III

- Capacity is 4,900,000 cubic yards (AUF 1.4) or 6,860,000 tons
 - Permitted for RCRA, Non-RCRA (Cal Haz), and CERCLA
 - We have applied for TSCA and should receive approval after the Part B Permit renewal, most likely in 2016
- **Please explain the status of WM Mercury Wastes Solution – what we do, how much product we can sell, where the unsold product is stored.**

WM Mercury Waste Solutions (WMMWS), located in Union Grove, WI, recovers mercury from various hazardous and non-hazardous waste streams using two types of retort operations – 1) stationary retort batch process, which has 1100 55-gallon drum/month capacity; and 2) continuous flow retort, designed for flowable materials with a 1300 55-gallon drum per month capacity.

The RCRA landfill disposal restrictions (LDR) require retort of mercury-contaminated wastes with TCLP > 0.2 ppm and total mercury > 260 ppm prior to disposal. WMMWS recovers mercury, purifies it to at least 99.5% and sells the elemental mercury (~ 4-10 metric tons/year) to domestic users. WMMWS places mercury that cannot be sold domestically in long-term storage.

WMMWS also receives mercury and mercury wastes from third parties for purification and long-term storage. Most of the storage capacity is located at WM Emelle and housed in a RCRA Part B storage facility. WMMWS is offering this service because mercury can no longer be exported, but must be stored indefinitely until DOE builds a national mercury storage facility. Development of the national facility has been delayed indefinitely due to lack of Congressional funding.

Based upon volume projections we have received from our third party customers, between our Emelle and WMMWS facilities, we have the capacity to store mercury until October of 2020. Currently we have 122 tons of third party mercury and 16 tons of WM produced mercury stored at our Emelle and WMMWS facilities.

WMMWS operates under the Boiler Industrial Furnace Exemption for Mercury Recovery Furnaces 40 CFR Part 266(d)(1). The facility has a RCRA Part B permit, but can only accept hazardous waste with recoverable levels of mercury, total organics of < 500 ppm and a BTU value < 5,000 per pound.

Supplemental Questions to WM

- 1) Does “site life” mean operating capacity remaining in the current permits (which can be a timeframe of 5 years or 10 years)? If so could you also provide estimates for the amount of total capacity (undeveloped land/not constructed with liners and leachate collection) available if all future cells would receive approval for permit renewals/expansions from the states (i.e., capacity available until landfill closes and ceases further operations).

Lake Charles’ capacity is for the total remaining permitted tons.

Model City had 140,000 tons of capacity in RMU-1 as of 1/1/14. RMU-2 would add an additional 6 million tons of capacity.

Arlington: “Site Life” is the capacity of the landfills currently listed in the permit today at today’s waste acceptance rates. The permit is renewed every 10 years.

Emelle: Site life for Emelle is viewed as how much available air space is remaining for landfill development. The answer is 2,050 acres or at current landfill disposal volumes 100 years plus of landfill operating life. We currently have 2,750,870 CY of airspace permitted under a 5-year permit expiring in 2015. We will renew our permit in 2015 for this remaining airspace in trench 22 and add additional airspace for trench 23, adding 15 million CY’s of airspace with the 2015 Part B permit renewal.

Kettleman Hills:

Landfill B18 Phase III (8 years of capacity per the SEIR)

- Provides 4.9 million cubic yards of capacity
- Presently permitted for RCRA and Non-RCRA Hazardous Waste
- KHF has applied for TSCA authorization (US EPA-IX to process permit request after DTSC Part B Renewal is processed)

Landfill B20 (24 years of capacity per the SEIR)

- Provides 14.2 million cubic yards of capacity
- Local CUP and CEQA process is complete
- Permitting process has not been started

KHF has a total of 1,600 acres

- The current CUP (including B18 III and B20) make up 729 acres

-
- 2) Why do the densities vary from 0.8 to 1.4 at the Kettleman facility. We are still trying to determine an “average” density to convert cubic yards to tons of waste and I was wondering if we should take an average or is one more common for production wastes and another for cleanup wastes?
- Waste types disposed in the landfill can vary greatly, thus varying the AUF (density).
 - Historically, KHF volumes were made up of 70% event waste, which were predominantly contaminated soils and 30% base business waste, which were a variety of waste types including very light debris waste to very heavy stabilized waste.
 - Based on annual flyover data, KHF’s AUF is calculated to be approximately 1.4
- 3) Which Agency is working on the mercury storage and disposal issue with your company? I think you mentioned DOE is responsible for helping to secure a permanent “storage” facility. Is this because they generate most of the waste or most comes from light bulbs? Has EPA granted a LDR treatment variance? How much waste or elemental mercury do you currently have onsite in storage at the Wisconsin facility?
- We currently have 20 Metric Ton containers and 70 flasks for MEBA storage. The mercury will be cleaned and repackaged and eventually shipped to Emelle
 - We have approximately 8 tons of mercury for sale on site. That mercury is cleaned and resold domestically as a product.
 - We are working with the DOE for long-term storage from a federal prospective. In addition, both WM Mercury Waste and Emelle are working directly with prospective state agencies.
 - By law the DOE is required to construct the “permanent storage facility.” This is addressed in the 2013 Mercury Export Ban Act. In the law, there is a provision that a private RCRA facility can store mercury long-term until the DOE facility is constructed as long as they notify the DOE. Both WM Mercury Waste and Emelle have received permission from the state agencies to store mercury long term.
- 4) Do you ever receive infectious waste medical for disposal?
- No. No site is permitted to receive waste that is infectious.
- 5) Finally, Larry Zaragoza has some questions about Dioxin wastes that can be accepted by your facilities. Can you accept all dioxin wastes or have there been issues with incinerating them to meet the LDR levels before disposal? (I have CC Larry on this email so he can ask more specifics about this category of wastes).

There is only one facility in North American that can accept dioxin waste that needs treatment (F020-F028) – the Swan Hills facility in Alberta, Canada (not ours). If the dioxin waste is hazardous, it must meet LDRs before receipt at a WM facility. Our facilities generally receive little post-treatment dioxin waste; the most common is non-hazardous soil with no free liquid but with dioxins and furans and WWT sludge with low-level dioxins – all meeting LDR standards.

Questions on Landfill Capacity for Clean Harbors Buttonwillow, LLC (EPA ID CAD980675276)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you landfill. The second set asks about your current and future landfill capacity. Provide responses in the blank space below each question or on a separate sheet of paper. For your assistance, attached is some RCRAInfo permit module data on your landfills.

Annual Quantity of Landfilled Wastes and Materials

- Total Annual Landfilled Quantity:** What is the total quantity of **all wastes and materials disposed** of in your facility's landfill(s) in a typical calendar year? This should include everything placed in the landfills, i.e., federal and state-only hazardous waste, non-hazardous waste, and miscellaneous materials (e.g., stabilization materials, dirt, etc.). These wastes and materials are further addressed in Questions 2 through 4.
~300,000 ton/year.
- Based on the 2011 Hazardous Waste Report, your facility landfilled 348,971 tons of hazardous waste (i.e., 348,949 tons reported on Form WR and 22 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes landfilled. If you also landfilled state-only hazardous wastes, what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?
~60%
- Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility dispose of in your landfill and **2)** what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, and other non-hazardous waste.
All types of nonhazardous industrial waste. ~25%
No TSCA or municipal waste
- Besides the wastes described above, **1)** what **materials** do you place in the landfill that use up capacity (e.g., stabilization materials, dirt, etc.) and **2)** what percentage of total annual landfilled quantity (as provided in Question 1) do they represent approximately?
- For purposes of analysis, we assume that your total annual landfilled quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual landfilled quantity in Question 1. If they do not, please clarify why not.**

6. Do you expect your total annual landfilled quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Remain the same.

7. Is the facility permitted to accept dioxin and elemental mercury wastes?

Dioxin no, mercury yes.

8. Are there any wastes that the facility cannot accept? If so, please describe.

Permit prohibit the following:

1. Radioactive materials greater than 1800 pCi/gram;
2. Infectious or bio-hazardous materials
3. DOT Class 1 explosives;
4. Municipal garbage or refuse;
5. PCBs greater than 50 ppm;
6. Dioxin waste codes F020, F021, F022, F023, F026, and F027.
7. Bulk or containerized hydrazine (U133);
8. Compressed gas cylinders greater than 1 liter.

Landfill Capacity

9. What is the currently permitted and available landfill capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

Permitted capacity is 13,325,000 cubic yards. Volume consumed = ~5,835,000 cubic yards. Volume remaining = ~7,490,000 cubic yards.

Conversion rate is ~1.25 tons/cubic yard.

10. Do you plan on using all of this capacity in the future?

Yes

11. What conversion factor do you use to convert waste volume (e.g., acre-foot) to tons, e.g., for purposes of estimating landfill capacity?

2017 tons/acre.

-
12. What is the available capacity in the currently lined and operating cells that have a permit in tons?
Permit is in yards and it has ~700,000 cubic yards remaining.
 13. What is the remaining life of the currently lined and operating cells that have a permit?
1.5 years
 14. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?
Permit renewal application was submitted in 2005. DTSC is working on renewing it. No estimated time for completion. Yes
 15. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 9.]
Assuming the permit was renewed in 2014, it would be ~700,000 cubic yards. However, it is estimated that it will take DTSC 4 addition years before a renewed permit is issued.
 16. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permit and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 and 15.]
Not yet.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS BUTTONWILLOW, LLC LANDFILLS**

RCRAInfo Permit Module on Landfill Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM*	Capacity Type
WMU28	210.7	Ac-F	Design
WMU33	1,147	Ac-F	Design
WMU34	213.8	Ac-F	Design
WMU35	6,632	Ac-F	Permitted
TOTAL	8,203.5	Ac-F	

*Ac-F = acre-foot.

WMU 28, 33 and WMU 35, Cells and 2 have been closed. WMU 34 is almost full. WMU 35, Cells 3 and 4 are operational. WMU 35, Cells 5 through 9 are constructed but have not been constructed.

FOLLOW UP QUESTIONS ON YOUR SUBMISSION ON LANDFILL CAPACITY

Buttonwillow (EPA ID CAD980675276)

Landfilled Quantity

The table below summarizes the data received from the facility in response to Questions 1 through 4 of the questionnaire (see Row 1). Column A presents your response to Question 1, Columns B and C to Question 2, Column D to Question 3, and Column E to Question 4. **As requested in the questionnaire, the sum of Columns B, C, D and E should equal Column A.** However, this is not the case for your responses, as shown in the table. If Columns B through E are added up, we get 603,971 tons as the total quantity of landfilled waste and materials, not 300,000 tons. **Please reconcile your estimates in Columns A through E so that the sum of Columns B through E equals A. (We assume you need not revise Column B because it is based on the 2011 Biennial Report; however, if it is not representative of your average annual quantity of federally regulated waste landfilled, please modify).** Present your revised estimates in Row 2.

	A	B	C	D	E
	Total Quantity of Landfilled Waste and Materials (Question 1)	Federally Regulated Hazardous Waste (Question 2)	State-Only Hazardous Waste (Question 2)	All Non-Hazardous Waste (Question 3)	All Materials (e.g., stabilization materials) (Question 4)
1. Your original responses	Approx 300,000 tons	348,971 tons (based on 2011 Biennial Report)	60% of Column A: 180,000 tons	25% of Column A: 75,000 tons	0 tons
2. Your revised responses	350,000 tons	35,500 tons	225,450	80,500	8,550 tons

Note that the DTSC Biennial Report requires that the landfill facility combine Federal RCRA and Cal State Hazardous Waste into one reporting number. I have separated out the Federal Hazardous Waste from the total number reported to the DTSC for the 2011 reporting year. PGR 11/25/2014

Remaining Permitted Landfill Capacity

We also would like to confirm your remaining permitted landfill capacity:

- Your response to Question 9 indicates that your landfills have a permitted remaining capacity of ~7,490,000 cubic yards, or 9,362,500 tons. Your response to Question 15 indicates that, if granted a permit renewal, you expect an additional 700,000 cubic yards, or 875,000 tons, of capacity. In total, this reflects 10,237,500 tons of total capacity (i.e., the 875K tons under the renewal is additive to the 9.6M tons currently under the permit). Is this correct? **Yes, that is correct. PGR 11/25/2014**

Questions on Landfill Capacity for Clean Harbors Deer Trail, LLC (EPA ID COD991300484)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you landfill. The second set asks about your current and future landfill capacity. Provide responses in the blank space below each question or on a separate sheet of paper. For your assistance, attached is some RCRAInfo permit module data on your landfills.

Annual Quantity of Landfilled Wastes and Materials

1. **Total Annual Landfilled Quantity:** What is the total quantity of **all wastes and materials disposed** of in your facility's landfill(s) in a typical calendar year? This should include everything placed in the landfills, i.e., federal and state-only hazardous waste, non-hazardous waste, and miscellaneous materials (e.g., stabilization materials, dirt, etc.). These wastes and materials are further addressed in Questions 2 through 4.

44,380 tons

2. Based on the 2011 Hazardous Waste Report, your facility landfilled 29,700 tons of hazardous waste. This is our best estimate of the total quantity of **federally regulated** hazardous wastes landfilled. If you also landfilled state-only hazardous wastes, what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

negligible

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility dispose of in your landfill and **2)** what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, and other non-hazardous waste.

All types of nonhazardous industrial waste. 27%

4. Besides the wastes described above, **1)** what **materials** do you place in the landfill that use up capacity (e.g., stabilization materials, dirt, etc.) and **2)** what percentage of total annual landfilled quantity (as provided in Question 1) do they represent approximately?

Stabilization reagents. 20%

-
5. For purposes of analysis, we assume that your total annual landfilled quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual landfilled quantity in Question 1. If they do not, please clarify why not.**
6. Do you expect your total annual landfilled quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Remain the same.

7. Is the facility permitted to accept dioxin and elemental mercury wastes?

Only Dioxins that meet the LDR treatment standards.
No to elemental mercury.

8. Are there any wastes that the facility cannot accept? If so, please describe.

Compressed gases
Air reactive Materials
Shock Sensitive Materials
Infectious Wastes
DOT Forbidden Explosives

Landfill Capacity

9. What is the currently permitted and available landfill capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

1,864,120 cu yds (conv factor = 1.36 cy/ton)

10. Do you plan on using all of this capacity in the future?

Yes.

11. What conversion factor do you use to convert waste volume (e.g., cubic yards) to tons, e.g., for purposes of estimating landfill capacity?

1.36 cy/ton

-
12. What is the available capacity in the currently lined and operating cells that have a permit in tons?
- 45,000 cy yd (61,200 tons)
13. What is the remaining life of the currently lined and operating cells that have a permit?
- 1+ years for the current operating cell. 5-6 years for the cell that is currently under construction.
14. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?
- April 15, 2018
Yes.
15. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 9.]
- The facility will not need to add additional capacity with the next permit renewal.
16. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permit and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 and 15.]
- Not at this time.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS DEER TRAIL, LLC LANDFILLS**

RCRAInfo Permit Module on Landfill Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
SECURE LANDFILL	2,530,000	Cu-Yd	Undefined
SECURE LF - CELL 3	414,000	Cu-Yd	Undefined
TOTAL	2,944,000	Cu-Yd	

Questions on Landfill Capacity for Clean Harbors Lone Mountain, LLC (EPA ID OKD065438376)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you landfill. The second set asks about your current and future landfill capacity. Provide responses in the blank space below each question or on a separate sheet of paper. For your assistance, Attachment 1 provides some RCRAInfo permit module data on your landfills and Attachment 2 provides some data provided by the Lone Mountain facility on October 29, 2014. We have attempted to map some of the data from Attachment 2 to our questions, below; they are indicated with an “*”. Please revise as appropriate.

Annual Quantity of Landfilled Wastes and Materials

1. **Total Annual Landfilled Quantity:** What is the total quantity of **all wastes and materials disposed** of in your facility’s landfill(s) in a typical calendar year? This should include everything placed in the landfills, i.e., federal and state-only hazardous waste, non-hazardous waste, and miscellaneous materials (e.g., stabilization materials, dirt, etc.). These wastes and materials are further addressed in Questions 2 through 4.

135,837 tons

2. Based on the 2011 Hazardous Waste Report, your facility landfilled 88,472 tons of hazardous waste (i.e., 84,468 tons reported on Form WR and 4,004 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes landfilled. If you also landfilled state-only hazardous wastes, what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

Oklahoma does not have a state hazardous waste.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility dispose of in your landfill and **2)** what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, and other non-hazardous waste.

- 1) TSCA Mega rule and nondescript nonhazardous waste.
- 2) Approximately 35%

4. Besides the wastes described above, **1)** what **materials** do you place in the landfill that use up capacity (e.g., stabilization materials, dirt, etc.) and **2)** what percentage of total annual landfilled quantity (as provided in Question 1) do they represent approximately?

- 1) Cement Kiln Dust (CKD), Portland Cement, and Fly Ash
- 2) Approximately 26%

5. For purposes of analysis, we assume that your total annual landfilled quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual landfilled quantity in Question 1. If they do not, please clarify why not.**

Waste to landfill tonnage (questions 1,2, and 3) is based on waste received and does not use stabilization materials from question 4.

6. Do you expect your total annual landfilled quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Remain steady but business depends on market conditions.

7. Is the facility permitted to accept dioxin and elemental mercury wastes?

The facility can take dioxins that meet LDR standards or is incorporated into non-hazardous waste.

The facility cannot accept elemental mercury.

8. Are there any wastes that the facility cannot accept? If so, please describe.

- Bulk fuel (tankers) without special arrangements
- Bulk stabilization of waste with a flash point <120°F - 130°F without special limitations
- Biohazard and infectious wastes
- TSCA PCB wastes subject to full regulation. Only “exempt” PCB waste and non-liquid Mega-Rule PCB waste (Remediation, Bulk Product, etc.) are accepted, on a case-by-case.
- Explosives
- Compressed gases
- NRC-regulated radioactive and nuclear wastes
- Municipal trash
- Unknown waste

Landfill Capacity

9. What is the currently permitted and available landfill capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

*Clean Harbors has indicated that the “current permitted capacity of Cell 15 is 5,078,500 CY” and the “current consumed capacity of Cell 15 is 2,817,800 CY.” This indicates that the currently permitted and available landfill capacity at the facility is 2,260,700 CY. For conversion factor use 1 ton = 1 cu yd.

10. Do you plan on using all of this capacity in the future?

Yes.

11. What conversion factor do you use to convert waste volume (e.g., cubic yards) to tons, e.g., for purposes of estimating landfill capacity?

To account for reagents and compaction use 1.2 cu yd/ton.

12. What is the available capacity in the currently lined and operating cells that have a permit in tons?

*Clean Harbors has indicated that the “current constructed capacity of Cell 15 is 3,231,010 CY” and the “current consumed capacity of Cell 15 is 2,817,800 CY.” This indicates that the available capacity in the currently lined and operating cells that have a permit is 413,210 CY.

In addition, Clean Harbors indicated that it is “currently in the construction process of adding 2 more subcells (subcell 12 and 13) of Cell 15 which will add roughly 910,211 CY of constructed capacity hopefully by the end of the year.”

13. What is the remaining life of the currently lined and operating cells that have a permit?

Approximately 3 years. Current construction of subcells 12 and 13 will be completed in approximately 8 weeks will add an additional 6 ½ years of life.

-
14. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?

The next renewal is due October 1, 1020, the permit expires April 1, 2021. The facility does plan to continue landfill operations over the next 20 years.

15. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 9.]

*Clean Harbors indicated that it is "currently in the permitting process to increase the capacity of cell 15 by approximately 2,801,500 CY. We hope this is complete by early next year."

16. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permit and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 and 15.]

Unknown at this time.

**ATTACHMENT 1: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS LONE MOUNTAIN, LLC LANDFILLS**

RCRAInfo Permit Module on Landfill Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM*	Capacity Type
01	215	Ac-F	Permitted
CELL 15	42	Ac-F	Permitted
TOTAL	257	Ac-F	

*Ac-F = acre-foot.

ATTACHMENT 2: PREVIOUS EMAIL FROM CLEAN HARBORS

From: ADAIR, ALAN JAY [<mailto:adair.alan@cleanharbors.com>]

Sent: Wednesday, October 29, 2014 1:51 PM

To: Chen, Lixia (Alicia)

Cc: STEWART, LON R

Subject: RE: Lone Mountain HW landfill capacity in OK

Here are the numbers that I have not including any of the capacity of the closed landfills which include the drum cell and cells 1 through 8.

The current permitted capacity of Cell 15 is 5,078,500 CY.

The current constructed capacity of Cell 15 is 3,231,010 CY.

The current consumed capacity of Cell 15 is 2,817,800 CY.

We are currently in the construction process of adding 2 more subcells (subcell 12 and 13) of Cell 15 which will add roughly 500,000 CY of constructed capacity hopefully by the end of the year.

Also, we are currently in the permitting process to increase the capacity of cell 15 by approximately 2,801,500 CY. We hope this is complete by early next year.

Lon, feel free to add anything that I may have left out.

Hope this information is what your were looking for.

FOLLOW UP QUESTIONS ON YOUR SUBMISSION ON LANDFILL CAPACITY

Lone Mountain, LLC (EPA ID OKD065438376)

Landfilled Quantity

The table below summarizes the data received from the facility in response to Questions 1 through 4 of the questionnaire (see Row 1). Column A presents your response to Question 1, Columns B and C to Question 2, Column D to Question 3, and Column E to Question 4. **As requested in the questionnaire, the sum of Columns B, C, D and E should equal Column A, unless specified otherwise.** In your responses, you estimate 88,472 tons of federally regulated hazardous waste and no state-only hazardous waste. You also indicate that non-hazardous waste are 35% of total landfilled waste and materials, and finally, materials such as ash and cement are 26% of all landfilled waste but are not included in the total quantity of landfilled waste and materials provided in Question 1. If Columns B through E are added up, we get 171,333 tons as the total quantity of landfilled waste and materials. **If the numbers in the table are correct, please so state. If they are not correct, please reconcile your estimates in Columns A through E so that the sum of Columns B through E equals A. (We assume you need not revise Column B because it is based on the 2011 Biennial Report; however, if it is not representative of your average annual quantity of federally regulated waste landfilled, please modify). Present your revised estimates in Row 2.**

	A	B	C	D	E
	Total Quantity of Landfilled Waste and Materials (Question 1)	Federally Regulated Hazardous Waste (Question 2)	State-Only Hazardous Waste (Question 2)	All Non-Hazardous Waste (Question 3)	All Materials (e.g., stabilization materials) (Question 4)
1. Your original responses	Approx 135,837 tons (excluding Col E) and 171,333 tons (including Col E)	88,472 tons (based on 2011 Biennial Report)	0 tons	35% of Column A: 47,543 tons	26% of Column A: 35,318 tons
2. Your revised responses	171,333 tons	88,472 tons	0 tons	47,543 tons	35,318 tons

Remaining Permitted Landfill Capacity

We also would like to confirm your remaining permitted landfill capacity:

- Your response to Question 9 indicates that your landfills have a remaining permitted capacity of 2,260,700 cubic yards, or 2,712,840 tons. Your response to Question 15 indicates that, if granted a permit renewal currently in the permitting process, you expect an additional 2,801,500 cubic yards, or 3,361,800 tons, of capacity. In total, this reflects 6,074,640 tons of

total capacity (i.e., the 3.36M tons under the renewal is additive to the 2.7M tons currently under the permit). Is this correct? **Yes, that is the correct number PGR 11/254/2014**

Questions on Landfill Capacity for Clean Harbors Grassy Mountain, LLC (EPA ID UTD991301748)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you landfill. The second set asks about your current and future landfill capacity. Provide responses in the blank space below each question or on a separate sheet of paper. For your assistance, attached is some RCRAInfo permit module data on your landfills.

Annual Quantity of Landfilled Wastes and Materials

1. **Total Annual Landfilled Quantity:** What is the total quantity of **all wastes and materials disposed** of in your facility's landfill(s) in a typical calendar year? This should include everything placed in the landfills, i.e., federal and state-only hazardous waste, non-hazardous waste, and miscellaneous materials (e.g., stabilization materials, dirt, etc.). These wastes and materials are further addressed in Questions 2 through 4.

89,300 tons

2. Based on the 2011 Hazardous Waste Report, your facility landfilled 73,381 tons of hazardous waste (i.e., 73,113 tons reported on Form WR and 268 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes landfilled. If you also landfilled state-only hazardous wastes, what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

10%

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility dispose of in your landfill and **2)** what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, and other non-hazardous waste.

All types of nonhazardous industrial waste. 2%

TSCA PCB waste (soils, debris, electrical components). 24%

4. Besides the wastes described above, **1)** what **materials** do you place in the landfill that use up capacity (e.g., stabilization materials, dirt, etc.) and **2)** what percentage of total annual landfilled quantity (as provided in Question 1) do they represent approximately?

Stabilization reagents

13%

-
5. For purposes of analysis, we assume that your total annual landfilled quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual landfilled quantity in Question 1. If they do not, please clarify why not.**
6. Do you expect your total annual landfilled quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Remain the same.

7. Is the facility permitted to accept dioxin and elemental mercury wastes?

Only Dioxins that meet the LDR treatment standards.
No to elemental mercury.

8. Are there any wastes that the facility cannot accept? If so, please describe.
- a. Explosive wastes or materials (defined as DOT Forbidden, DOT Division 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6 explosives).
 - b. DOT Division 4.1(2) Type A and Type B materials, and in Utah Admin. Code R315-2-9(f)(1)(vi)-(viii), except for wastes that do not meet the RCRA definition of ignitability (D001) and/or reactivity (D003).
 - c. Spontaneously combustible (pyrophoric and self-heating) wastes and materials, DOT Division 4.2 (Except in Lab Pack Quantities for storage only).
 - d. Water reactive materials, DOT Division 4.3, (Except in Lab Pack Quantities for storage only or for treatment with prior approval of the Director).
 - e. Shock sensitive materials.
 - f. Radioactive waste, unless authorized for acceptance by the NRC or Utah Division of Radiation Control, whichever has jurisdiction over the waste.
 - g. Infectious waste, as defined in the Utah Code Annotated, Title 19, Section 6, Subsection 102 and Condition I.F.F (Definitions).
-

Landfill Capacity

9. What is the currently permitted and available landfill capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

Cell	Permitted Capacity	Remaining Capacity
B/6	1,125,000	306,100 cy
7	1,106,000	267621 cy

Conversion factor 1.25 tons/cubic yard

10. Do you plan on using all of this capacity in the future?

Yes

11. What conversion factor do you use to convert waste volume (e.g., acre-foot) to tons, e.g., for purposes of estimating landfill capacity?

2017 tons/acre

12. What is the available capacity in the currently lined and operating cells that have a permit in tons?

717,151 tons

13. What is the remaining life of the currently lined and operating cells that have a permit?

Approximately 8 years

14. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?

September 28, 2022.

Yes.

15. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 9.]

The cells are permitted on an as needed basis and not specifically listed in the permit. Approximately 70% of the 640 acres of permitted part of the facility is available for future landfill construction.

-
16. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permit and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 and 15.]

Not at this time.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS GRASSY MOUNTAIN, LLC LANDFILLS**

RCRAInfo Permit Module on Landfill Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM*	Capacity Type
CELL 7	275	Ac-F	Permitted
CELL B/6	306	Ac-F	Permitted
TOTAL	581	Ac-F	

*Ac-F = acre-foot.

FOLLOW UP QUESTIONS ON YOUR SUBMISSION ON LANDFILL CAPACITY

Grassy Mountain, LLC (EPA ID UTD991301748)

Landfilled Quantity

The table below summarizes the data received from the facility in response to Questions 1 through 4 of the questionnaire (see Row 1). Column A presents your response to Question 1, Columns B and C to Question 2, Column D to Question 3, and Column E to Question 4. **As requested in the questionnaire, the sum of Columns B, C, D and E should equal Column A.** However, this is not the case for your responses, as shown in the table. If Columns B through E are added up, we get 117,138 tons as the total quantity of landfilled waste and materials, not 89,300 tons. **Please reconcile your estimates in Columns A through E so that the sum of Columns B through E equals A. (We assume you need not revise Column B because it is based on the 2011 Biennial Report; however, if it is not representative of your average annual quantity of federally regulated waste landfilled, please modify).** Present your revised estimates in Row 2.

	A	B	C	D	E
	Total Quantity of Landfilled Waste and Materials (Question 1)	Federally Regulated Hazardous Waste (Question 2)	State-Only Hazardous Waste (Question 2)	All Non-Hazardous Waste (Question 3)	All Materials (e.g., stabilization materials) (Question 4)
1. Your original responses		73,381 tons (based on 2011 Biennial Report)	10% of Column A: 8,930 tons	26% of Column A: 23,218 tons	13% of Column A: 11,609 tons
2. Your revised responses	117,138 tons	73,381 tons	8,930 tons	23,218 tons	11, 609 tons

Remaining Permitted Landfill Capacity

We also would like to confirm your remaining permitted landfill capacity:

- Your response to Question 9 indicates that your landfills have a remaining capacity of 573,721 cubic yards, or 717,151 tons. You do not provide an estimate of additional capacity under your next permit renewal under Question 15. We want to confirm that you cannot provide a conservative estimate of additional capacity under a future permit modification or renewal (i.e., an amount that would be in addition to the 717K).

We do not anticipate requesting additional cell capacity in the upcoming facility permit renewal as we have sufficient disposal capacity for the next five years. PGR 11/25/2014

US Ecology

Questions on Landfill Capacity at each Facility

1. Besides Subtitle C hazardous waste, what types of wastes does the facility accept for landfill disposal and in general what percent of its annual landfilled quantity do they represent (e.g., negligible, 20%, 50%)? This could include, for example, TSCA/PCB waste, non-hazardous waste, etc.]

Based on 2014 volumes the % breakdown is presented below. These percentages may change over time.

Facility	RCRA and State Haz Waste	TSCA (PCB)	Non Haz
Beatty	83	3	14
Grand View	16	5	79
Robstown	18	0	82
Wayne	39	54	7

2. Do you receive any state-only hazardous wastes and what percent of your annual landfilled quantity do they represent?

Yes, all of our facilities receive state only hazardous waste, however we do not track independently the volumes received by each facility separately from RCRA hazardous waste.

3. Is the facility permitted to accept dioxin and elemental mercury wastes?

All of the US Ecology Landfills can accept elemental Mercury, provided the total concentration is < 260 mg/l and the waste meets LDRs. Robstown is the only facility expressly prohibited from taking dioxin waste.

4. Are there any wastes that the facility cannot accept? Examples include explosives, mixed radioactive waste, dioxins.

Facility	Prohibited waste
Beatty	Non-exempt radioactive material, compressed or pressurized gases, explosives, biological/etiological/infectious, Liquid organic peroxides >5%, containerized liquids (tappacks) with biodegradable adsorbents.
Grand View	Explosives, pyrophoric, shock sensitive, Highly reactive, etiological, compressed gasses
Robstown	D003, flammable liquids, PCB's, explosives, Dioxins, compressed gases, etiological waste, municipal waste, medical waste, putrescible waste, septage.
Wayne	D003, explosives, flammables, low level radioactive waste and anything not compatible with the liner.

5. What is the currently permitted and available landfill capacity at the facility, in tons if possible? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

Facility	Remaining Permitted Capacity (tons)
Beatty	628,000
Grand View	13,936,000
Robstown	1,800,000
Wayne	15,200,000

6. Do you plan on using all of this capacity in the future?

Yes

7. What conversion factor do you typically use to convert waste volume (e.g., cubic yards) to mass (tons) for purposes of estimating landfill capacity?

We make adjustments to the conversion factor based on surveyed volumes and waste receipt data. Generally that conversion is 1.2 – 1.3 tons/cy.

8. Besides the waste itself, what other materials are placed into the landfill that will use up capacity (e.g., stabilization materials, etc.) and what percentage of total landfilled quantity do they represent (e.g., negligible, 10%, etc.)?

Facility	% of Regents
Beatty	20%
Grand View	16%
Robstown	9%
Wayne	unknown

9. Are these materials taken into account in the available landfill capacity estimates provided in Question 5?

Yes

10. What is the available capacity in the currently lined and operating cells that have a permit in tons?

Facility	Remaining constructed Capacity (tons)
Beatty	628,000
Grand View	1,651,000
Robstown	1,800,000
Wayne	3,177,710

11. What is the remaining life of the currently lined and operating cells that have a permit?

Facility	Remaining life (years)
Beatty	3
Grand View	4
Robstown	3
Wayne	9

12. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?

Facility	Permit expiration
Beatty	December 2016
Grand View	November 2014
Robstown	March 2023
Wayne	May 4, 2022

-
13. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 5.]

Facility	Capacity at Renewal date (tons)
Beatty	5,000,000
Grand View	0
Robstown	10,400,000
Wayne	0

14. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permitted and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 5 and 13.]

The capacity expansion at Robstown presented in Question 13 will occur prior to the permit renewal time. Generally our capacity expansions are requested through permit modifications that do not coincide with permit renewal timelines.

15. Do you expect the quantity of wastes you landfill over the next 20 years to remain steady, grow or decline, in comparison with the 2011 quantity? If it will grow or decline, at what annual rate?

Assuming no significant regulatory changes that impact hazardous waste disposal, we anticipate volumes to be flat. However the type of wastes generated may change over time.

Heritage Environmental Services



7901 West Morris Street
Indianapolis, IN 46231
877.436.8778

Via Email

November 17, 2014

Mr. J. Earl Harris
ICF International
9300 Lee Highway
Fairfax, VA 22031

Re: RFI - Heritage Environmental Services, LLC
EPA ID IND980503890

Dear Mr. Harris:

Please find enclosed the response to your request for information related to capacity of the Heritage Environmental Services, LLC landfill operated in Roachdale, Indiana. Please contact me with any questions at steve.danenman@heritage-enviro.com or (317)486-2722.

Sincerely,

Heritage Environmental Services, LLC

Steven
Danenman

Steven Danenman

Program Manager, Corporate Compliance

Digitally signed by Steven Danenman
DN: cn=Steven Danenman, ou=Heritage
Environmental Services, LLC, ou=
Heritage Environmental Services, LLC, ou=ES
Date: 2014.11.17 11:48:17 -0500

www.heritage-enviro.com

14SD4034

PEOPLE PROVIDING SOLUTIONS

**Questions on Landfill Capacity for
Heritage Environmental Services LLC (Indiana)
(EPA ID IND980503890)**

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you landfill. The second set asks about your current and future landfill capacity. Provide responses in the blank space below each question or on a separate sheet of paper. For your assistance, attached is some RCRAInfo permit module data on your landfills.

Annual Quantity of Landfilled Wastes and Materials

1. **Total Annual Landfilled Quantity:** What is the total quantity of all wastes and materials disposed of in your facility's landfill(s) in a typical calendar year? This should include everything placed in the landfills, i.e., federal and state-only hazardous waste, non-hazardous waste, and miscellaneous materials (e.g., stabilization materials, dirt, etc.). These wastes and materials are further addressed in Questions 2 through 4.

The average annual receipts of all wastes the past three (3) years is 296,700 tons.

2. Based on the 2011 Hazardous Waste Report, your facility landfilled 100,115 tons of hazardous waste. This is our best estimate of the total quantity of **federally regulated** hazardous wastes landfilled. If you also landfilled state-only hazardous wastes, what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

The facility does not have any active waste profiles for state-only hazardous wastes.

3. Besides hazardous waste, 1) what types of non-hazardous wastes does your facility dispose of in your landfill and 2) what percent of your total annual landfilled quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, and other non-hazardous waste.

15% Non-RCRA regulated industrial wastes

55% PCB wastes – PCB Remediation wastes only; meeting requirements of 40 CFR 761.61 (a)(3) and 761.61 (c).

2% CAMU eligible wastes

-
4. Besides the wastes described above, 1) what materials do you place in the landfill that use up capacity (e.g., stabilization materials, dirt, etc.) and 2) what percentage of total annual landfilled quantity (as provided in Question 1) do they represent approximately?

Daily Cover – It is estimated to be 2% annually.

5. For purposes of analysis, we assume that your total annual landfilled quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual landfilled quantity in Question 1. If they do not, please clarify why not.

The hazardous tons provided by USEPA in question 2 are for calendar year 2011. Our estimates are based on averages over multiple calendar years. The average percent of receipts being RCRA hazardous waste over a longer period is 26%.

6. Do you expect your total annual landfilled quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

We expect the quantity to remain steady the next three (3) years. We have not projected the next 20 years.

7. Is the facility permitted to accept dioxin and elemental mercury wastes?

No

8. Are there any wastes that the facility cannot accept? If so, please describe.

Municipal waste
Radioactive Waste
NORM
Drummed or similarly containerized waste
Medical or infectious waste
Sewage or biological sludge

Landfill Capacity

9. What is the currently permitted and available landfill capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all remaining permitted capacity in landfills currently in operation, under construction, not yet built, etc.

16,531,826 cubic yards Conversion Factor = 0.8 cubic yards/ton

10. Do you plan on using all of this capacity in the future?

Yes.

11. What conversion factor do you use to convert waste volume (e.g., acre-foot) to tons, e.g., for purposes of estimating landfill capacity?

0.8 cubic yard/ton

12. What is the available capacity in the currently lined and operating cells that have a permit in tons?

880,000 tons

13. What is the remaining life of the currently lined and operating cells that have a permit?

2.8 years

14. When does the facility's RCRA permit need to be renewed? Does the facility plan to continue landfill operations over the next 20 years?

The permit expires October 15, 2019. Renewal application must be submitted by April 25, 2019. The facility does plan to continue operations over the next 20 years.

15. How much additional capacity would be available under the next permit renewal? [This should be additive to the amount in Question 9.]

The current facility permit is for all available capacity, including capacity yet to be built. There will unlikely be an increase of capacity with the next renewal.

16. Are there any plans to expand the landfill capacity at the facility beyond the amounts in the current permit and next renewal? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 and 15.]

No

ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
HERITAGE LLC (INDIANA) LANDFILLS

RCRAInfo Permit Module on Landfill Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
#315 LFUNIT2	120	Acres	Undefined

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Commercial Hazardous Waste Incineration Facilities

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Questions on Incineration Capacity for Clean Harbors Facility (Arkansas) (EPA ID ARD069748192)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

- Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.

2011- 88,923 tons of customer waste incinerated
2011 – 9268 tons of on-site generated waste incinerated
2011- 98,191 tons total incinerated on-site
- Based on the 2011 Hazardous Waste Report, your facility incinerated 65,100 tons of hazardous waste (i.e., 64,025 tons reported on Form WR and 1,075 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

Arkansas does not have state-only regulated waste
- Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.

2011 Customer Hazardous waste	65,100 tons	67%
2011 Customer Non-hazardous waste	23,798 tons	24%
2011 On-site generated waste	9268 tons	9 %
2011 Customer Total waste incinerated	98,191 tons	100%

Examples of customer non-hazardous waste include: universal waste, consumer commodities, soils, manufacturing debris, freons, lean waters, witness burn DEA Schedule 4 drugs and other drug paraphernalia. The El Dorado Facility does not possess a TSCA License to incinerate PCBs,

-
4. Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?

On site generated waste (ppe, lab trash, lab samples, reburn ash, tank sludge, sump pump outs, equipment decon)

2011 In house waste incinerated on-site 9,268 tons

5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

Okay- balanced

6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

The annual rate of incineration should remain steady until the new incinerator construction is complete which is due approximately in the beginning of 2017.

The new incinerator will increase the sites incineration capacity by 100% from 61,025/lb hr to 122,050/lbs hr.

7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

The US Court of Appeals Decision will have negligible impact on the El Dorado Incineration Facility. We are prepared to manage formally classified Comparable Fuels as a RCRA Liquid Hazardous Waste if our customer requires us to do so.

8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

Yes - the facility cannot accept for storage nor incinerate the following waste codes in liquid or solid form: D003 for explosive; F020, F021, F022, F023, F026, F027, F028, P009, P065, P081.

The facility can accept and incinerate the following waste codes but cannot store them in their storage tanks: K043, K090, K091, K099, P087, P113, P115, P119, P120, U151, U214, U215, U216, and U217

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc. per our CPT test results.

10.

Unit	Pump Liquids lbs/hr	Solids lbs/hr	total mass feed (lbs/hr)
Kiln #1	5,005	8,378	13,383
Kiln #2	9,527	20,641	30,168
SCC	13,601	-	13,601
WFB	3,873	-	3,873
Newly permitted Rotary Kiln 44 & SCC (permitted but not yet constructed)			45,000

Note: the conversion factor is: lbs per hour X 8040 hours per year / 2000 tons = tons/year

10. What is the maximum operating capacity of the facility's incinerators (if different from the amount in Question 9)?
11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?
[The Arkansas DEQ recently issued RCRA Part B and CAA Title V permits to construct and operate a new rotary kiln incinerator with a permitted capacity of approximately 75,000 tons per year](#)
12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]
[March 2018](#)
13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]
[No](#)
14. Does the facility plan to continue incineration operations over the next 20 years?
[Yes](#)

15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?

Yes, based on EEE standards and CPT results.

Emission Standards per unit

Incineration Units:

40 CFR § 63.1219(a)(1)(ii)	Dioxins/furans (D/F)	ng TEQ/dscm	0.40
40 CFR § 63.1219(a)(2)	Mercury	µg/dscm	130
40 CFR § 63.1219(a)(3)	Semi volatile metals (SVM)	µg/dscm	230
40 CFR § 63.1219(a)(4)	Low volatility metals (LVM)	µg/dscm	92
40 CFR § 63.1219(a)(6)	Total chlorine (HCl/Cl ₂)	ppmv (dry)	32
40 CFR § 63.1219(a)(7)	Particulate matter (PM)	gr/dscf	0.013
40 CFR § 63.1219(a)(5)(ii)	Carbon monoxide (CO)	ppmv (dry)	100
40 CFR § 63.1219(c)(1)	Destruction and removal efficiency (DRE) of 99.99 percent for each designated Principal Organic Hazardous Constituent (POHC)		

Waste Fired Boiler:

40 CFR § 63.1217(a)(5)	Dioxins/furans (D/F)	na	Compliance with the CO emission standards
40 CFR § 63.1217(a)(2)(ii)	Mercury	lb/MMBtu	4.2E-05
40 CFR § 63.1217(a)(3)(ii)	Semi volatile metals (SVM)	lb/MMBtu	8.2E-05
40 CFR § 63.1217(a)(4)(ii)	Chromium	lb/MMBtu	1.3E-04
40 CFR § 63.1217(a)(6)(ii)	Total chlorine (HCl/Cl ₂)	lb/MMBtu	5.1E-02
40 CFR § 63.1217(a)(7)	Particulate matter (PM)	mg/dscm	80 ¹
40 CFR § 63.1217(a)(5)(i)	Carbon monoxide (CO) ²	ppmv(dry)	100
40 CFR § 63.1217 (c)(1)	Destruction and removal efficiency (DRE) of 99.99 percent for each designated Principal Organic Hazardous Constituent (POHC)		

OPL's for the Current Incinerator Unit and WFB

Parameter	OPL	Emission Standard
Kiln No. 1 combustion chamber temperature	861° F	HC and DRE
Kiln No. 2 combustion chamber temperature	875° F	HC and DRE
Secondary Combustion Chamber temperature	1851° F	HC and DRE
Waste Fired Boiler combustion chamber temperature	1856 ° F	HC and DRE
Maximum mass waste feed rate Kiln No 1	13,383 lbs/hr	HC, DRE, and D/F
Maximum pumpable waste feed rate Kiln No 1	5,005 lbs/hr	HC, DRE, and D/F

Maximum mass waste feed rate Kiln No 2	30,168 lbs/hr	HC, DRE, and D/F
Maximum pumpable waste feed rate Kiln No 2	9,527 lbs/hr	HC, DRE, and D/F
Maximum mass feed rate to SCC	13,601 lbs/hr	HC, DRE, and D/F
Maximum mass feed rate to the entire incineration system	50,505 lbs/hr	HC, DRE, and D/F
Maximum liquid feed rate to WFB	3,873 lbs/hr	HC, DRE, and D/F
Maximum combustion gas flow rate (measured at stack)	100,568 acfm	HC, DRE, D/F, PM, SVM, LVM, and HCl/Cl ₂
Waste Fired Boiler combustion gas flow rate	8,630 scfm	HC, DRE, D/F, PM, SVM, LVM, and HCl/Cl ₂
Maximum total ash feed rate total system	12,642 lbs/hr	PM
Maximum total ash feed rate to WFB	164.2 lbs/hr	PM
Maximum feed rate of mercury total system	0.46 ⁽³⁾ lbs/hr	Mercury
Maximum thermal input of mercury waste fired boilers	0.187 ⁽³⁾ lbs/MMBtu	Mercury
Maximum feed rate of SVM total system	116 ⁽³⁾	SVM
Maximum thermal input of SVM waste fired boiler	3.12 ⁽³⁾ lbs/MMBtu	SVM
Maximum feed rate of LVM total system	114 ⁽³⁾ lb/hr	LVM
Maximum feed rate of chromium waste fired boiler	30 ⁽⁴⁾ lbs/hr	LVM
Maximum thermal input of chromium waste fired boiler	2.87 ⁽³⁾ lbs/MMBtu	LVM
Maximum feed rate of total chlorine/chloride total system	3,117 lb/hr	SVM, LVM, and HCl/Cl ₂
Maximum thermal input of chlorine/chloride waste fired boiler	1020 ⁽³⁾ lbs/MMBtu	SVM, LVM, and HCl/Cl ₂
Maximum stack gas carbon monoxide ⁽¹⁾	100 ppmv CO	HC and DRE
Maximum WFB exit duct carbon monoxide ⁽¹⁾	100 ppmv CO	HC and DRE
Minimum Kiln #1 draft ⁽²⁾	0.0 in. w.c.	Fugitive emissions
Parameter	OPL	Emission Standard
Minimum Kiln #2 draft ⁽²⁾	0.0 in. w.c.	Fugitive emissions
Minimum SCC draft ⁽²⁾	0.0 in. w.c.	Fugitive emissions
Minimum WFB draft ⁽²⁾	0.0 in. w.c.	Fugitive emissions
Minimum HES pH	3.0	HCl/Cl ₂
Minimum HES liquid flow rate	696 gpm	HCl/Cl ₂
Minimum HES pressure drop	34 in. w.c.	HCl/Cl ₂

Minimum HES blowdown rate	19 pgm	HCl/Cl ₂
Minimum HES tank liquid level	3.0 ft	HCl/Cl ₂
Minimum carbon injection rate	22.7 lb/hr	D/F and mercury
Minimum carbon carrier fluid flow rate	32 scfm	D/F and mercury
Maximum Baghouse inlet temperature	214 °F	D/F and mercury
¹ Corrected to seven percent oxygen. ² This parameter is instituted with a one second delay. ³ Metals feed rate total and thermal, and chlorine thermal feed rate based on calculations from the 2011 test results. ⁴ USEPA requested a WFB chromium feed rate limit (lbs/hr) be calculated under the Phase I emission limit of 92μ/dscm in addition to the thermal waste feed limit for liquid fired boilers.		

Since the new incinerator is not built and no CPT has occurred no OPL's have been set yet.

16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?

No

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS INCINERATOR FACILITY (ARKANSAS)**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INCIN	30.51	T/Hr	Operating

Questions on Incineration Capacity for Clean Harbors Facility (Texas) (EPA ID TXD055141378)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.

174454 tons/year.

2. Based on the 2011 Hazardous Waste Report, your facility incinerated 157,971 tons of hazardous waste (i.e., reported on Form WR). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

Negligible as the facility does not typically receive any CERCLA waste.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.

PCB, used oil, alternative fuels, non-hazardous commercial products, confiscated street drugs and household pharmaceuticals.

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4. Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?

The 49% of non-hazardous wastes comes from TSCA regulated PCB, along with alternative fuels, and used oil.

It is approximately 51% hazardous (88,971.54 tons) and 49% non-hazardous (85,482.46 tons).

5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

It is mass-balanced as noted in question Number 4's response. A majority of CERCLA Remediation Waste is landfilled.

6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

We expect current incineration capacity to remain steady with no infrastructure modifications to significantly increase capacity.

7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the "comparable fuels rule," which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

This Federal Appeals Court decision and subsequent rulemaking has a negligible impact on plant operations as we can manage a wide range of comparable fuels and this market place has been made aware of our ability to manage comparable fuels.

8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

Per our RCRA permit we cannot accept Radioactive wastes, Explosive material, as defined by the Department of Transportation under 49 CFR Part 173; Dioxin-containing wastes, identified by EPA as F020, F021, F022, F023, F026, and F027 wastes in 40 CFR 261.31, except for storage only in authorized units; Municipal garbage, Cyanide or sulfide compounds with ten (10) percent or greater concentrations of CN⁻ or S⁻ (except in lab packs, compressed cylinders, and liquid storage containers).

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.

Train I capacity of 13.98 tons/hr, Train II capacity of 22.49 tons/hr

10. What is the maximum operating capacity of the facility's incinerators (if different from the amount in Question 9)

It is not different then the data presented above and in the answer to question #1

11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?

There are no plans to increase or decrease the current permitted capacity.

12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]

RCRA permit was renewed in 2014, with no request for an increase in incineration capacity.

13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]

There are no plans to increase the permitted capacity.

14. Does the facility plan to continue incineration operations over the next 20 years?

Yes

15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?

Yes, all of the above plus particulate, dioxin and HCl.

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16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?

No. Waiting on the draft Title V permit but expect no major issues.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
CLEAN HARBORS INCINERATOR FACILITY (TEXAS)**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INC TRAINS I&II	200,000,000	BTU/Hr	Permitted

Questions on Incineration Capacity for Veolia Technical Solutions Facility (Illinois) (EPA ID ILD098642424)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.
Veolia Response: Approximately 50,000,000 lbs. of all waste types are incinerated per year.

2. Based on the 2011 Hazardous Waste Report, your facility incinerated 11,212 tons of hazardous waste (i.e., based on tons reported on Form WR). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?
Veolia Response: Illinois does not have a defined state-only hazardous waste. As a result 100% of the hazardous waste is also state hazardous waste.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.
Veolia Response: The facility accepts and incinerates all types of non-hazardous including off-specification products, industrial waste, controlled substances and other consumer products. The facility does not accept TSCA waste, municipal waste or medical waste. Non-hazardous waste receipts vary but could represent 25% - 50 % of the total waste incinerated.

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4. Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?
Veolia Response: There are no other waste that we incinerate that uses existing capacity. No products are added to the combustion process. The answer is 0%.
 5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**
Veolia Response: The figures approximately add up but variations in hazardous and non-hazardous waste designations can affect these figures
 6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what average annual rate?
Veolia Response: Remain Steady. We are at functional capacity.
 7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?
Veolia Response: Should have little to no effect. These type of fuels will probably go to cement kilns who use these as fuel sources.
 8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.
Veolia Response: No, the facility can accept drum and bulk liquids, solids and sludges, along with compressed gases.

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.
Veolia Response: The total permitted capacity is 69, 432 tons per year, however that number reflects 24 hours of operation per day, 365 days a year.
 10. What is the maximum operating capacity of the facility’s incinerators (if different from the amount in Question 9)?
Veolia Response: The practical capacity is approximately 30,000 tons. This is based on on-stream time, planned shutdowns and waste type availability.
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11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?
Veolia Response: No, the permitted capacity will stay the same.
12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]
Veolia Response: Permit in renewal process currently. No, the permitted capacity will stay the same.
13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]
Veolia Response: No, the permitted capacity will stay the same.
14. Does the facility plan to continue incineration operations over the next 20 years?
Veolia Response: Yes, the facility plans on operating over the next 20 years.
15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?
Veolia Response: Yes, Btu, chlorine and metal concentration limits.
16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?
Veolia Response: No

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
VEOLIA INCINERATOR FACILITY (ILLINOIS)**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
FIXED HEARTH #2	16	MBTU/Hr	Permitted
FIXED HEARTH #3	16	MBTU/Hr	Permitted
TRANSPORTABLE #4	50	MBTU/Hr	Permitted
TOTAL	82	MBTU/Hr	

Questions on Incineration Capacity for Veolia Technical Solutions Facility (Texas) (EPA ID TXD000838896)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.
Veolia Response: Approximately 134,000,000 lbs. (67,000 tons) of wastes and materials were incinerated in 2013, which approximates a typical year.

2. Based on the 2011 Hazardous Waste Report, your facility incinerated 41,829 tons of hazardous waste (i.e., 38,862 tons reported on Form WR and 2,967 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?
Veolia Response: Texas does not have a defined state-only hazardous waste. As a result 100% of the hazardous waste is also state hazardous waste.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.
Veolia Response: The facility accepts and incinerates all types of non-hazardous wastes including off-specification products, Texas Class 1 - 3 industrial wastes, medical waste, DEA controlled substances, PCB wastes, and other consumer products. The facility does not accept municipal garbage. Non-hazardous waste receipts vary but could represent 10 % - 20 % of the total waste incinerated.

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4. Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?

Veolia Response: The facility incinerates various absorbent materials and carriers added to bulk solid waste mixtures, which primarily consist of rice hulls and 60/40 clay sand mixture. Also, the facility utilizes an additive to control slag accumulation, and occasionally neutralization products are added to certain wastes. The combined annual total for these additives range from 2,000 - 5,000 tons and comprises approximately 5% of total annual incinerated quantity. Furthermore, the facility annually incinerates approximately 150 tons of fuel oil and toluene from line flushing and 500 tons of fuel as an auxiliary fuel. In addition to all types of materials already discussed, the incinerator annually uses approximately 250,000 – 300,000 MMBTUs of natural gas as an auxiliary fuel.

5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

Veolia Response: The total in Question 1 does not include the amount of natural gas used as an auxiliary fuel. Otherwise, the figures approximately add up but variations in hazardous and non-hazardous waste designations can affect these figures.

6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Veolia Response: Slight increase. We are near functional capacity.

7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

Veolia Response: The facility maintains adequate capacity in order to accommodate an increase of waste fuels when or if a demand arises. To date, we have been contacted by a few companies exploring alternate disposal options for their comparable fuels; however, these wastes will probably be shipped to cement kilns at lesser costs due to their high fuel content.

8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

Veolia Response: No, the facility can accept pumpable liquids, solids, containers, gases, and sludges.

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.
Veolia Response: According to NSR Permit 42450, the total permitted capacity of waste feed and auxiliary fuel is 150,000 tons per year.
10. What is the maximum operating capacity of the facility's incinerators (if different from the amount in Question 9)?
Veolia Response: The practical capacity is approximately 75,000 - 100,000 tons/year. This is based on on-stream time, planned shutdowns and waste type availability.
11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?
Veolia Response: No, the permitted capacity will stay the same.
12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]
Veolia Response: The application to renew the facility's RCRA Permit (Hazardous Waste Permit No. 50212) was submitted to TCEQ on August 15, 2014 and did not include a capacity increase.
13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]
Veolia Response: No, the permitted capacity will stay the same.
14. Does the facility plan to continue incineration operations over the next 20 years?
Veolia Response: Yes, the facility plans on operating over the next 20 years.
15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?
Veolia Response: The facility's permits establish emission limits for several air contaminants including but not limited to CO, NOx, and VOCs. The facility's permits also establish feed rate limits for organic content, organic halogen, metals, total chlorine, ash, and total mass along with operating parameters for combustion chamber conditions. The incinerator is also subject to feed rate and emission limitations established during each Combustor NESHAP Comprehensive Performance Test (CPT).

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16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?
Veolia Response: No

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
VEOLIA INCINERATOR FACILITY (TEXAS)**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INCINERATOR TRAIN	175,000,000	BTU/Hr	Permitted

**Questions on Incineration Capacity for
Ross Environmental Services Inc. Facility (Ohio)
(EPA ID OHD048415665)**

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of all wastes and materials incinerated by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.

For the calendar year 2013 – Ross Incineration Services, Inc. (RIS) incinerated 76,405.86 tons hazardous waste and 4,844.32 tons non-hazardous waste.

2. Based on the 2011 Hazardous Waste Report, your facility incinerated 65,355 tons of hazardous waste (i.e., 65,208 tons reported on Form WR and 147 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

The state-only hazardous waste incinerated at RIS represents approximately 2.5% of the total annual waste incinerated at RIS.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.

(1) The non-hazardous waste incinerated at RIS consists of waste from chemical manufacturers, automobile manufacturers and intermediary waste managers. Typical hazardous and non-hazardous waste types received the RIS are: halogenated and non-halogenated spent solvents, paint and adhesive-related wastes, contaminated soil, debris,

aerosols, aqueous coolant solutions, acidic/caustic solutions, off-specification commercial chemical products, consumer products, spill residues, and wastes generated by the following industries: paint and coatings, organic and inorganic chemical adhesive, pesticide, petroleum refining, and the ink formulation industries. This list is not all-inclusive, but represents most categories of waste handled at the RIS facility. RIS does not accept dioxin containing waste or explosives. Additionally, RIS is not permitted to receive TSCA regulated PCBs, radioactive waste and/or infectious wastes.

(2) The non-hazardous waste incinerated at RIS represents approximately 6% of the total annual waste incinerated at RIS.

4. Besides the wastes described above, **1)** what materials do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?
None.

5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**
The estimates in Questions 2 thru 4 do not mathematically approximate the total annual incinerated quantity in Question 1 because Question #1 is based on 2013 total annual incinerated quantity and Question #2 is based on 2011 total annual incinerated quantity.

6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?
At this time, RIS expects its total annual incinerated quantity to grow slightly over the next 20 years.

7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the "comparable fuels rule," which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?
At this time, RIS believes it has sufficient incineration capacity to accept an increase in demand caused by the former 'comparable fuels' coming into the marketplace.

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8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.
RIS accepts liquids, solids and aerosol wastes. RIS does not accept cylinders of compressed gases, dioxin containing waste or explosives. Additionally, RIS is not permitted to receive TSCA regulated PCBs, radioactive waste and/or infectious wastes.

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.
The maximum feed rate to RIS' incineration system is 26,057 pounds per hour and 105,140 tons per year, including the weight of the containers.
10. What is the maximum operating capacity of the facility's incinerators (if different from the amount in Question 9)?
No different than Question #9.
11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?
At this time, there are no plans to modify the currently permitted and available incineration capacity at RIS.
12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]
RIS' Ohio Hazardous Waste Facility RCRA Part B permit was issued on January 29, 2014 and expires on January 29, 2024. RIS' Federal RCRA Part B permit was issued on May 23, 2014 and expires on January 29, 2024.
13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]
At this time, there are no plans to modify the currently permitted and available incineration capacity at RIS.

-
14. Does the facility plan to continue incineration operations over the next 20 years?
At this time, RIS plans to continue operation for at least 20 years.

 15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?
Yes, there are limitations on RIS' operation due to permit requirements (e.g., metals).

 16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?
At this time, RIS does not see any problem or delay in renewing its RCRA Part B Permit nor its Title V Air Permit.

ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
ROSS ENVIRONMENTAL SERVICES INC. FACILITY (OHIO)

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INCINERATOR	3,300	Gal/Hr	Undefined

Questions on Incineration Capacity for Heritage Thermal Services (Ohio) (EPA ID OHD980613541)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.

The total quantity of material incinerated over the past year was approximately 63,000 tons.

2. Based on the 2011 Hazardous Waste Report, your facility incinerated 42,737 tons of hazardous waste (i.e., 42,239 tons reported on Form WR and 498 tons on Form GM). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?

The percentage of "state-only hazardous waste" would be negligible.

3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.

Some examples of non-hazardous waste incinerated would include off-spec consumer commodities, non-regulated pharmaceuticals, non-regulated DEA material, non-TSCA <49 ppm PCB waste, etc. These represent less than five percent of our annual incineration volume.

-
- Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?

To date, no other materials have taken any additional capacity from our operation, so this percentage would be zero.

- For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

Correct

- Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

We anticipate a growth rate of 5-10% per year over the next 5 years. This will be accomplished through permit modifications, asset investments and process improvements.

- How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

We have the capacity to process a considerable amount of liquids and fuels in bulk and drum quantities resulting from this ruling.

- Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

Please see attached list

Incinerator Capacity

- What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for

tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.

Our RCRA permitted capacity is greater than 88,000 tons/year per incinerator. Facility is actually permitted for two (2) incinerators – total permitted incineration capacity is 176,000 tons per year.

Our MACT permitted capacity is greater than 35,069 lbs. total waste per hour. For our second incinerator to be constructed and permitted, HTS would be required to complete CPT to identify feed rate limits per MACT.

10. What is the maximum operating capacity of the facility's incinerators (if different from the amount in Question 9)?

98 Million BTUs per hour.

11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?

There are no current plans to increase our capacity at this time.

12. When does the facility's RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]

Facility submitted its permit renewal 9/23/14. HTS did not request an increase or decrease in the permitted incineration capacity. The permitted incineration capacity will remain the same, 88,000 tons/year/incinerator.

13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]

No.

14. Does the facility plan to continue incineration operations over the next 20 years?

Yes

15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?

The Facility must comply with an annual metals emissions limit as described by the RCRA permit. The incinerator is not equipped with a continuous/semi-continuous flue gas monitoring

device. Therefore, HTS must track all metal emissions limits by tracking the amount of metals contained in the waste fed into the incinerator.

16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?

HTS does not foresee any significant problem with the RCRA permit renewal. Currently, HTS is not requesting any incineration capacity increase.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
HERITAGE INCINERATOR FACILITY (OHIO)**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INCINERATOR	97.80	MBTU/Hr	Undefined

**WASTE CODES ACCEPTED FOR INCINERATION AT HERITAGE THERMAL SERVICES
(HTS)**

Codes that appear in Bold Type indicate that certain restrictions apply. The following is a key for the types of restrictions.

D/F	The customer must provide analytical results showing that waste carrying F039, K043, or K099 meets LDR treatment standards for dioxins and furans.
D	Dilution Rule: For HTS to accept waste carrying this code, it must be exempt from the dilution rule as specified in 40 CFR 268.3.
HG	Mercury Restrictions: The total mercury content of waste carrying this code must be less than 260 ppm.
L	Landfill Restrictions: One or more of the landfills that HTS uses for residual disposal does not accept this code. HTS will accept waste carrying this code for campaign burns.
MR	Metals Recover: The waste code has a specified LDR treatment of Metals Recovery. HTS will only accept this code if the waste has been treated by a Metals Recovery facility.
S	Stabilization: This code has a specified LDR treatment technology of Stabilization. HTS will accept waste carrying this code for campaign burns. The price of material with this waste code may be adjusted to cover the cost of stabilization following incineration.

D001	F004	K030	K099 D/F	K174
D002	F005	K031	K100 D	K175L
D003	F006 D	K032	K101	K176
D004 D	F007 D	K033	K102	K177
D005 D	F008 D	K034	K103	K178
D006 D	F009 D	K035	K104	K181 L
D007 D	F010 D	K036	K105	P001
D008 D	F011 D	K037	K106 D	P002
D009 D	F012 D	K038	K107	P003
D010 D	F019 D	K039	K108	P004
D011 D	F024	K040	K109	P005
D012	F025	K041	K110	P006
D013	F032	K042	K111	P007
D014	F034	K043 D/F	K112	P008
D015	F035	K044	K113	P009
D016	F037	K045	K114	P010 D
D017	F038	K046	K115	P011 D
D018	F039 D/F	K047	K116	P012 D
D019	K001	K048	K117	P013 D
D020	K002 D	K049	K118	P014
D021	K003 D	K050	K123	P015 MR, D
D022	K004 D	K051	K124	P016
D023	K005 D	K052	K125	P017
D024	K006 D	K060	K126	P018
D025	K007 D	K061 D	K131	P020
D026	K008 D	K062	K132	P021
D027	K009	K064	K136	P022
D028	K010	K065	K141	P023
D029	K011	K066	K142	P024
D030	K013	K069 D	K143	P026
D031	K014	K071 D	K144	P027
D032	K015	K073	K145	P028
D033	K016	K083	K147	P029 D
D034	K017	K084	K148	P030
D035	K018	K085	K149	P034
D036	K019	K086	K150	P036
D037	K020	K087	K151	P037
D038	K021	K088 L	K156	P038
D039	K022	K090	K157	P039
D040	K023	K091	K158	P040
D041	K024	K093	K159	P041
D042	K025	K094	K161	P042
D043	K026	K095	K169	P043
F001	K027	K096	K170	P044
F002	K028	K097	K171	P045
F003	K029	K098	K172	P046

P047	P111	U019	U069	U118
P048	P113 S, D	U020	U070	U119
P049	P114 D	U021	U071	U120
P050	P115 S, D	U022	U072	U121
P051	P116	U023	U073	U122
P054	P118	U024	U074	U123
P057	P119 S, D	U025	U076	U124
P058	P120 S, D	U026	U077	U125
P059	P121 D	U027	U078	U126
P060	P122	U028	U079	U127
P062	P123	U029	U080	U128
P064	P127	U030	U081	U129
P065 HG	P128	U031	U082	U130
P066	P185	U032 D	U083	U131
P067	P188	U034	U084	U132
P068	P189	U035	U085	U133
P069	P190	U036	U086	U134
P070	P191	U037	U087	U136
P071	P192	U038	U088	U137
P072	P194	U039	U089	U138
P073	P196	U041	U090	U140
P074	P197	U042	U091	U141
P075	P198	U043	U092	U142
P077	P199	U044	U093	U143
P081	P201	U045	U094	U144
P082	P202 L	U046	U095	U145 D
P084	P203	U047	U096	U146
P085	P204	U048	U097	U147
P087 MR, D	P205	U049	U098	U148
P088	U001	U050	U099	U149
P089	U002	U051	U101	U150
P092 HG	U003	U052	U102	U151 HG, D
P093	U004	U053	U103	U152
P094	U005	U055	U105	U153
P097	U006	U056	U106	U154
P098	U007	U057	U107	U155
P099 D	U008	U058	U108	U156
P101	U009	U059	U109	U157
P102	U010	U060	U110	U158
P103	U011	U061	U111	U159
P104 D	U012	U062	U112	U160
P105	U014	U063	U113	U161
P106	U015	U064	U114	U162
P108	U016	U066	U115	U163
P109	U017	U067	U116	U164
P110	U018	U068	U117	U165

U166	U217 S, D
U167	U218
U168	U219
U169	U220
U170	U221
U171	U222
U172	U223
U173	U225
U174	U226
U176	U227
U177	U228
U178	U234
U179	U235
U180	U236
U181	U237
U182	U238
U183	U239
U184	U240
U185	U243
U186	U244
U187	U246
U188	U247
U189	U248
U190	U249
U191	U271
U192	U278
U193	U279
U194	U280
U196	U328
U197	U353
U200	U359
U201	U364
U202	U367
U203	U372
U204 D	U373
U205 D	U387
U206	U389
U207	U394
U208	U395
U209	U404
U210	U409
U211	U410
U213	U411
U214 S	
U215 S	
U216 S, D	

WASTE CODES NOT ACCEPTED FOR INCINERATION

F020	F026	P033	P078	U033
F021	F027	P056	P095	U075
F022	F028	P063	P096	U135
F023	P031	P076	P112	

WASTES HERITAGE THERMAL SERVICES (HTS) CANNOT ACCEPT

- Chemical Warfare Agents (CWA) and Other Chemical Weapons – Warfare agents or other chemical weapons or debris generated from the manufacture and/or clean-up of CWA's. These are defined as toxic chemicals and precursors listed in Schedule 1 of the Chemical Weapons Convention (CWC) Treaty.
- Compressed Gases - Wastes that are gases at standard temperature (68°F) and standard pressure (14.7 psia). Other than the following:
 - Telomer gas stream,
 - Chloro difluoro methane,
 - Trifluoromethane,
 - Aerosol cans defined as thin walled cans designed to hold liquid, which are less than a liter in volume. The gas may be present only for the purpose of expelling the liquid in the can.
- Dioxins/Furans - Wastes that contain dioxins/furans in concentrations above Land Disposal Restriction (LDR) treatment standards.
- Infectious waste – Waste that is classified as infectious waste under Ohio EPA regulations which is not also a RCRA hazardous waste.
- Polychlorinated biphenyls (PCBs) – Waste that has a source concentration of PCB's greater than 50 ppm or is regulated under the Toxic Substance Control Act (TSCA).
- Radioactive Wastes – Waste where the measured radioactivity exceeds background radiation.
- Prion waste, prion contaminated debris, prion related waste or prion related contaminated debris.

OTHER RESTRICTIONS

- Asbestos and asbestos waste are accepted for storage and off-site transfer only.
- The customer must provide analytical results showing that waste carrying F039, K043, or K099 meets LDR treatment standards for dioxins and furans.
- Aerosol cans are acceptable for treatment, with some conditions. The aerosol cans must be thin-walled metal containers, one liter or less in volume, and designed to hold liquids. Also, the gas in the aerosol can must only be used to expel liquid from the container.
- Heritage Thermal Services can accept some NFPA Class 1A Flammables. These materials are volatile liquids that have flash points of less than 73° F and boiling points of less than 100° F. These materials must be processed upon receipt may not be stored.

- Heritage Thermal Services cannot incinerate wastes subject to the dilution rule (see 40 CFR 268.3 and OAC 3745-270-03). Heritage Thermal Services can arrange for the third-party disposal of dilution rule waste.
- Additional restrictions may apply to waste streams being processed for off-site transfer and fuel blending.
- All Hg can be accepted into the facility. High inorganic Hg must be sent to a third party facility. Low Hg and organic Hg can be incinerated onsite.
- Additional restrictions may be placed on wastes that are unusually toxic, reactive, shock sensitive, temperature sensitive, or explosive. This includes waste carrying the following waste codes: P009, P065, P081, P105, P122, U017, U023, U096, U133, U142, U160, and U234.
 - Materials shipped as explosive (DOT Class 1) may be approved on a case-by-case basis only. HTS will accept these in kiln ready charges only and must be processed upon receipt.
 - Materials considered to be shock sensitive must be approved on a case-by-case basis only. These types of materials must only be approved if the material has been stabilized in some way as to make them safe to receive, process, and incinerate.
 - HTS may receive temperature sensitive materials. Any wastestream with a control temperature of less than 100 degrees F, must be received on a refrigerated van or with sufficient dry ice to maintain the temperature during transport to below the control temperature. These materials must be received in kiln ready charges only and be processed upon receipt.
 - Unusually toxic or reactive materials must be evaluated for receipt on a case-by-case basis only. These materials must only be approved if the hazards associated with the toxicity or reactivity can be sufficiently mitigated by the packaging and handling requirements in place around these waste streams.

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Commercial Hazardous Waste Specialty Operations Facilities

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Waste Control Specialists

From: Scott Kirk
Sent: Friday, December 05, 2014 4:56 PM
To: Harris, Joseph
Cc: Rodriguez, Maribelle
Subject: RE: Request for Information

Earl – WCS' RCRA Landfill currently ("as-built") has a capacity of 1,600,000 ft³. We can further expand the landfill to increase the capacity an additional 41,700,000 ft³. I hope this the information we discussed this week helps. Let me know if you have any questions.

J. Scott Kirk, CHP, CRSO
Vice President, Licensing and Regulatory Affairs
Waste Control Specialists LLC

From: Harris, Joseph
Sent: Wednesday, December 03, 2014 2:28 PM
To: Rodriguez, Maribelle
Subject: Waste Control Specialists

I just had a quick call with Scott Kirk of Waste Control Specialists. WCS views some of our questions as business sensitive and will submit responses for those that aren't. He will try to do so by tomorrow. He clarified that WCS has 4 disposal operations at the Texas facility:

1. Atomic Energy Act (AEA) 11(e)(2) by-product material (i.e., RW or radioactive waste) landfill
2. Federal waste landfill for MW and RW from USDOE only; has a Part B permit
3. Texas Compact disposal facility (commercial RW, no HW or MW)
4. RCRA Subtitle C landfill that receives commercial and DOE MW and HW. To be accepted for disposal, waste must be below exempt radiation levels as specified by Texas. He clarified that a customer doesn't need to be a radioactive waste customer to ship HW. Anyone can ship HW.

He confirmed that the 2011 HWR's tons of landfilled waste is correct. He said that it includes both MW and HW. I asked him to break out these respective quantities in his response if possible.

**Questions on Landfill Capacity for
EnergySolutions
(EPA ID UTD982598898)**

1. What types of wastes is the facility permitted to accept for landfill disposal?

The facility is permitted to accept mixed wastes. All wastes must be radioactive; Class A.

2. Is the facility permitted to accept dioxin and elemental mercury wastes?

Yes, the facility is permitted to accept dioxin (F020), mercury, and PCB wastes, as long as they have a radioactive component.

3. Are there any wastes that the facility cannot accept?

Non-radioactive wastes, wastes hotter than Class A, and explosive wastes.

4. What is the currently permitted and available capacity at the facility (in tons, if possible; if not, ask for conversion factor)?

The currently permitted capacity is 1,353,004 cubic yards. The remaining permitted capacity is 349,569 cubic yards, which includes some capacity that has not been constructed. The facility plans to construct this additional capacity within the next 2 years.

To convert to tons, the average conversion factor to be used is 120 pounds/cubic foot.

5. When does the permit need to be renewed? Does the facility plan to renew the permit successively over the next 20 years?

The facility is currently going through the permit renewal process. The facility is currently waiting for final approval. The permit renewal cycle is 10 years.

Over 95% sure that the facility will renew the permit after 10 years.

6. How much additional capacity would be available under the new permit?

Not planning to add more capacity at the moment, unless the market indicates they have to. The facility added about 15% capacity about 2 years ago. They believe that the remaining permitted capacity will last for at least 5 years.

7. What is the available capacity in the currently lined and operating cells that have a permit (in tons, if possible; if not, ask for conversion factor)?

The currently available capacity is about 164,000 cubic yards.

8. What is the remaining life of the currently lined and operating cells that have a permit?

The currently available capacity might last another 2 years or more.

9. How does the addition of soil to each layer of waste and the quantity of non-hazardous waste accepted at the facility (and stabilization materials) affect the remaining available capacity? Are these factors taken into account in the available capacity estimate provided?

The facility compacts waste and then puts the waste in the landfill. If disposing of debris, then the facility adds soil to help with compaction. About 75% of the available capacity is for waste and the remaining 25% is for fill-type material (e.g., soil, concrete).

10. What is the average density of your disposed materials?

About 120 pounds/cubic foot.

11. Are there any plans to expand the landfill capacity at the facility? If so, what is the timeframe?

Of the 349,569 cubic yards of remaining permitted capacity, there are about 185,000 cubic yards that still need to be constructed. There are plans to construct this capacity within the next year or two.

12. Do you have a projection on the amount/volume of waste to be accepted over the coming 20 years? Next year?

Amount disposed in landfill in 2012 was about 2,000 tons; in 2013, about 3,550 tons; and, through September 2014, 962 tons.

The facility expects to accept about 2,000 tons/year over the next 20 years.

13. Do you see a straight-line on the quantity of wastes to be received over next 20 years? Growth rate?

Straight line; 2,000 tons per year over the next 20 years.

Questions on Incineration Capacity for Reynolds Metals Company Gum Springs Plant (EPA ID ARD006354161)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 5.
Response: 120,000 tons/yr
2. Of the total annual incinerated quantity of wastes and materials in Question 1, what percentage is comprised of **federally regulated** hazardous waste?
Response: 100%
3. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity as provided in Question 1 do they represent approximately (e.g., 5%, 10%, negligible)?
Response: 0%
4. Besides federal and state hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste
Response: 0%
5. Besides the wastes described above, **1)** what **materials** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?
Response: 0%

6. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the federal hazardous wastes in Question 2, state-only hazardous wastes in Question 3, the non-hazardous wastes in Question 4, and the materials in Question 5. **Please ensure that your estimates in Questions 2 thru 5 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

7. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years?

Response: Grow

If it will grow or decline, at what annual rate?

Response: Due to recent regulatory permit modification activity to allow for incineration of an additional waste feed (high water content waste) with additional associated waste codes and plans to construct additional tanks/feed system to process the waste, we expect to increase treatment by approximately 10%/yr for the next 2 yrs.

8. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

Response: Potentially increase demand for capacity

9. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

Incinerator Capacity

10. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.

Response:

120,000 tons/yr of listed waste code K088 (spent potliner from aluminum smelting process);

21,900 tons/yr (2 kilns, permitted feed is 5 gal/min/kiln) of onsite generated landfill leachate and decontamination water waste code D002, K088 & F039);

42,000 tons/yr (2 kilns, permitted feed is 10 gal/min/kiln) of high water content waste – see attached listing of acceptable waste codes.

11. What is the maximum operating capacity of the facility’s incinerators (if different from the amount in Question 10)?

Response: Same as above

-
12. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?
Response: Potentially increase pending future investigations to identify waste streams compatible with facility's unique incineration system. Amount or when not determined at this time.
13. When does the facility's RCRA permit need to be renewed?
Response: June 2020
Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 10 thru 12.]
Response: None anticipated at this time.
14. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 10 thru 13.]
Response: None anticipated at this time.
15. Does the facility plan to continue incineration operations over the next 20 years?
Response: Yes
16. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?
Response: Significant number of constituent concentration feedrate limits associated with potential air emissions.
17. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?
Response: None anticipated at this time.

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
REYNOLDS METALS COMPANY GUM SPRINGS PLANT**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
INCIN	60	T/Hr	Permitted



ACCEPTABLE WASTE CODES

D001	F001	K001	K051	K132	U001	U047	U093	U140	U185	U239
D002	F002	K002	K052	K136	U002	U048	U094	U141	U186	U240
D004	F003	K003	K060	K141	U003	U049	U095	U142	U187	U243
D005	F004	K004	K061	K142	U004	U050	U096	U143	U188	U244
D006	F005	K005	K062	K143	U005	U051	U097	U144	U189	U246
D007	F006	K006	K069	K144	U006	U052	U098	U145	U190	U247
D008	F007	K007	K071	K145	U007	U053	U099	U146	U191	U248
D009	F008	K008	K073	K147	U008	U055	U101	U147	U192	U249
D010	F009	K009	K083	K148	U009	U056	U102	U148	U193	U271
D011	F010	K010	K084	K149	U010	U057	U103	U149	U194	U278
D012	F011	K011	K085	K150	U011	U058	U105	U150	U196	U279
D013	F012	K013	K086	K151	U012	U059	U106		U197	U280
D014	F019	K014	K087		U014	U060	U107	U152	U200	U328
D015	F024	K015	K088		U015	U061	U108	U153	U201	U353
D016	F025	K016	K093		U016	U062	U109	U154	U202	U359
D017	F032	K017	K094		U017	U063	U110	U155	U203	U364
D018	F034	K018	K095		U018	U064	U111	U156	U204	U367
D019	F035	K019	K096	K169	U019	U066	U112	U157	U205	U372
D020	F037	K020	K097	K170	U020	U067	U113	U158	U206	U373
D021	F038	K021	K098	K171	U021	U068	U114	U159	U207	U387
D022	F039	K022	K100	K172	U022	U069	U115	U160	U208	U389
D023		K023	K101	K175	U023	U070	U116	U161	U209	U394
D024		K024	K102	K176	U024	U071	U117	U162	U210	U395
D025		K025	K103	K177	U025	U072	U118	U163	U211	U404
D026		K026	K104		U026	U073	U119	U164	U213	U409
D027		K027	K105		U027	U074	U120	U165	U214	U410
D028		K028	K106		U028	U075	U121	U166	U215	U411
D029		K029	K107		U029	U076	U122	U167	U216	
D030		K030	K108		U030	U077	U123	U168	U217	
D031		K031	K109		U031	U078	U124	U169	U218	
D032		K033	K110		U032	U079	U125	U170	U219	
D033		K034	K111		U033	U080	U126	U171	U220	
D034		K035	K112		U034	U081	U127	U172	U221	
D035		K036	K113		U035	U082	U128	U173	U222	
D036		K037	K114		U036	U083	U129	U174	U223	
D037		K039	K115		U037	U084	U130	U176	U225	
D038		K040	K116		U038	U085	U131	U177	U226	
D039		K041	K117		U039	U086	U132	U178	U227	
D040		K042	K118		U041	U087	U133	U179	U228	
D041		K043	K123		U042	U088	U134	U180	U234	
D042		K046	K124		U043	U089	U135	U181	U235	
D043		K048	K125		U044	U090	U136	U182	U236	
		K049	K126		U045	U091	U137	U183	U237	
		K050	K131		U046	U092	U138	U184	U238	

Questions on Incineration Capacity for EBV Explosives Environmental Co. (EPA ID MOD985798164)

Instructions: Please provide responses to the questions below. The first set of questions asks about the annual quantity of wastes and materials that you incinerate. The second set asks about your current and future incineration capacity. Provide responses in the blank space below each question or on a separate sheet of paper. We will use your input to estimate the quantity of hazardous waste to be incinerated at your facility and your facility's permitted and available incineration capacity over the next 20 years. For your assistance, attached is some RCRAInfo permit module data on your incinerators.

Annual Quantity of Incinerated Wastes and Materials

1. **Total Annual Incinerated Quantity:** What is the total quantity of **all wastes and materials incinerated** by your facility in a typical calendar year? This should include all federal and state-only hazardous waste, non-hazardous waste, and all other materials. These wastes and materials are further addressed in Questions 2 through 4.
6,169 tons in 2013
2. Based on the 2011 Hazardous Waste Report, your facility incinerated 1,715 tons of hazardous waste (reported on Form WR). This is our best estimate of the total quantity of **federally regulated** hazardous wastes incinerated. If you also incinerated state-only hazardous wastes, what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately (e.g., 5%, 10%, negligible)?
0%
3. Besides hazardous waste, **1)** what types of **non-hazardous wastes** does your facility incinerate and **2)** what percent of your total annual incinerated quantity (as provided in Question 1) do they represent approximately? This could include, for example, TSCA waste, municipal waste, medical waste, and other non-hazardous waste.
<2% other non-hazardous wastes
4. Besides the wastes described above, **1)** what **materials (i.e., non-wastes)** do you incinerate that use up capacity and **2)** what percentage of total annual incinerated quantity (as provided in Question 1) do they represent approximately?
<5% other non-wastes
5. For purposes of analysis, we assume that your total annual incinerated quantity in Question 1 consists entirely of the hazardous wastes described in Question 2, the non-hazardous wastes in Question 3, and the materials in Question 4. **Please ensure that your estimates in Questions 2 thru 4 approximate (mathematically) the total annual incinerated quantity in Question 1. If they do not, please clarify why not.**

-
6. Do you expect your total annual incinerated quantity (as provided in Question 1) to remain steady, grow or decline over the next 20 years? If it will grow or decline, at what annual rate?

Unknown – totally dependent on ammunition demil contracts from the US Army

7. How will the demand for incineration capacity at your facility be affected by the recent U.S. Court of Appeals decision to vacate the “comparable fuels rule,” which provides an exclusion from RCRA hazardous waste regulations for certain fuels derived from hazardous waste?

No affect

8. Are there any hazardous wastes that the facility cannot accept (e.g., pumpable (liquid) or non-pumpable (solid) waste)? If so, please describe.

We only accept explosive related wastes and only in containers & 55 gal drum or smaller

Incinerator Capacity

9. What is the currently permitted and available incineration capacity at the facility in tons (if not provided in tons, please provide the unit of measure and conversion factor for tons)? This includes all permitted capacity in operation, under construction, not yet built, etc.

3,055 lbs/hr X 7,800 hours = 11,900 tons in RKI

10,000 lbs/batch X 6 batches/day X 365 days/yr = 10,950tons in CBF

10. What is the maximum operating capacity of the facility’s incinerators (if different from the amount in Question 9)?

7,500 tons for RKI & 5,000 tons for CBF

11. Do you plan on increasing/decreasing the currently permitted and available incineration capacity under your **current permit** and, if so, by how much and when?

No

12. When does the facility’s RCRA permit need to be renewed? Do you intend to increase/decrease your incineration capacity under your **permit renewal** and, if so, by how much? [This should be additive to the amounts in Questions 9 thru 11.]

Renewal submitted Oct 2012

13. Are there any plans to increase/decrease the incineration capacity at the facility **beyond the amounts in the current permit and next renewal**? If so, what is the timeframe and how much? [This should be additive to the amounts in Questions 9 thru 12.]

No

14. Does the facility plan to continue incineration operations over the next 20 years?

Yes

15. Are there any limitations on your incinerator's operation due to operational or permit requirements (e.g., metals, CO emissions, Btu values, water content)?

Yes

16. Do you foresee any significant problems or delays in renewing your permits or expanding your capacity under RCRA or CAA?

No

**ATTACHMENT: RCRAINFO PERMIT MODULE DATA FOR
EBV Explosives Environmental Co.**

RCRAInfo Permit Module on Incinerator Capacity - September 16, 2014			
Unit Name	Capacity	Capacity UOM	Capacity Type
CAR BOTTOM FURNACE	10,005	LB/Hr	Permitted
ROTARY KILN	2,454	LB/Hr	Permitted

Appendix B
Commercial Hazardous Waste Management Facilities

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Commercial Hazardous Waste Management Facilities

This appendix lists all facilities that managed RCRA hazardous waste commercially. The list is based on 2011 BR data that were updated by the states because some facilities opened or closed between 2011 and 2014. These facilities comprise the capacity for the 2014 national capacity assessment. The list includes Subtitle C permitted and interim status facilities, and RCRA-exempt facilities. Four facilities on the list are considered having specialty management operations because the permits designate capacity for specific wastes by form, waste code, waste types, etc. The capacity analyses for the

specialty operations are presented in Appendix E. The type of management at each facility is identified by CAP management category. Each CAP management category is comprised of a number of waste management technologies that are generally interchangeable for managing broad types of wastes (e.g., organics, inorganics including metals, and wastewaters), based on treatment performance. The CAP management categories are comprised of the following management method codes, as defined in the U.S. Environmental Protection Agency's *2011 Hazardous Waste Report, Instructions and Forms, EPA Form 8700-13 A/B*, pp. 71-72, December 2011 (available at:

<http://www.epa.gov/osw/inforesources/data/br11/br2011rpt.pdf>

RECOVERY

Metals Recovery

H010 Metals recovery including retorting, smelting, chemical, etc.

Solvents Recovery

H020 Solvents recovery (distillation, extraction, etc.)

Inorganics Recovery

H039 Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc. (specify in comments)

Energy Recovery

H050 Energy recovery at this site - used as fuel (includes on-site fuel blending before energy recovery; report only this code)

TREATMENT

Fuel Blending

H061 Fuel blending prior to energy recovery at another site (waste generated either on-site or received from off-site)

Incineration

H040 Incineration - thermal destruction other than use as a fuel (includes any preparation prior to burning)

Wastewater Treatment

H071 Chemical reduction with or without precipitation (includes any preparation or final processes for consolidation of residuals)

H073 Cyanide destruction with or without precipitation (includes any preparation or final processes for consolidation of residuals)

H075 Chemical oxidation (includes any preparation or final processes for consolidation of residuals)

H076 Wet air oxidation (includes any preparation or final processes for consolidation of residuals)

H077 Other chemical precipitation with or without pre-treatment (includes processes for consolidation of residuals)

H081 Biological treatment with or without precipitation (includes any preparation or final processes for consolidation of residuals)

H082 Adsorption (as the major component of treatment)

H083 Air or steam stripping (as the major component of treatment)

H103 Absorption (as the major component of treatment)

H121 Neutralization only (no other treatment)

H122 Evaporation (as the major component of treatment; not reportable as H071-H083)

H123 Settling or clarification (as the major component of treatment; not reportable as H071-H083)

H124 Phase separation (as the major component of treatment; not reportable as H071-H083)

H129 Other treatment (specify in comments; not reportable as H071-H124)

Sludge Treatment/ Stabilization/Encapsulation

- H101 Sludge treatment and/or dewatering (as the major component of treatment; not H071-H075, H077, or H082)
- H111 Stabilization or chemical fixation prior to disposal at another site (as the major component of treatment; not H071-H075, H077, or H082)
- H112 Macro-encapsulation prior to disposal at another site (as the major component of treatment; not reportable as H071-H075, H077, or H082)

DISPOSAL**Land Treatment or Application**

- H131 Land treatment or application (to include any prior treatment and/or stabilization)

Landfill

- H132 Landfill or surface impoundment that will be closed as landfill (to include prior treatment and/or stabilization)

Deepwell or Underground Injection

- H134 Deepwell or underground injection (with or without treatment; this waste was counted as hazardous waste)

Transfer/Storage

- H141 The site receiving this waste stored/bulked and transferred the waste with no treatment or recovery (H010-H129), fuel blending (H061), or disposal (H131-H135) at that receiving site

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
EPA Region 1												
CTD000604488	CLEAN HARBORS OF CT INC							X	X			
CTD002593887	BRIDGEPORT UNITED RECYCLING					X		X				
CTD021816889	UNITED OIL RECOVERY INC					X		X				
CTD058509712	DYNO NOBEL INC							X				
MA5000004713	VEOLIA ES TECHNICAL SOLUTIONS LLC	X										
MAD019371079	GENERAL CHEMICAL CORPORATION		X									
MAD039322250	CLEAN HARBORS ENVIRONMENTAL SERVICES INC	X										
MAD047075734	TRIUMVIRATE ENVIRONMENTAL MERRIMACK INC		X			X						X
MAD052629979	GLINES & RHODES INC	X										
MAD053452637	CLEAN HARBORS OF BRAINTREE		X			X			X			X
MAD060095569	SAFETY KLEEN SYSTEMS INC											X
MAD062179890	ENVIRONMENTAL COMPLIANCE CORPORATION					X						
MAD088978143	SAFETY-KLEEN SYSTEMS INC											X
MAD096287354	SAFETY-KLEEN SYSTEMS INC											X
MAD980915755	COMPLETE RECYCLING SOLUTIONS LLC	X										
MAR000008375	ECOLOGY RECOVERY SYSTEM INC	X										
MED019051069	ENPRO SERVICES OF MAINE, INC.							X				X
NHD510177926	COLT REFINING INC	X										

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
RID040098352	NORTHLAND ENVIRONMENTAL LLC		X		X			X				X
RID050322130	KELLEY METALS CORP	X										
RID059735761	ADVANCED CHEMICAL COMPANY	X										
RID084802842	SAFETY-KLEEN SYTEMS INC	X	X			X						X
RID095978995	GEIB REFINING CORP							X				
RID980906986	21ST CENTURY ENVIRONMENTAL MGMT INC	X										
RID981886104	GANNON AND SCOTT INC.	X										
VTD000791699	SAFETY-KLEEN SYSYEMS, INC											X
EPA Region 2												
NJD000768101	SAFETY KLEEN SYSTEMS INC											X
NJD002182897	SAFETY-KLEEN SYSTEMS INC		X	X		X						X
NJD002200046	CYCLECHEM INC		X			X		X	X			X
NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC		X			X		X				X
NJD011370525	G & S MOTOR EQUIPMENT CO	X										
NJD980536593	VEOLIA ES TECHNICAL SOLUTIONS LLC											X
NJD980755367	JOHNSON MATTHEY INC	X										
NJD982270506	SAFETY KLEEN SYSTEMS INC											X
NJD991291105	CLEAN EARTH OF NORTH JERSEY	X	X			X		X	X			X
NYD000688630	NEXEO SOLUTIONS TONAWANDA											X
NYD002082519	AMES GOLDSMITH CORP	X										
NYD002113736	TULIP CORPORATION			X								

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
NYD013277454	SOLVENTS & PETROLEUM SERVICE INC		X									X
NYD030485288	REVERE SMELTING & REFINING CORPORATION	X										
NYD049253719	ASHLAND DISTRIBUTION CO											X
NYD049836679	CWM CHEMICAL SERVICES LLC					X		X	X	X		
NYD067919340	SABIN METAL CORP	X		X								
NYD077444263	TRIUMVIRATE ENVIRONMENTAL											X
NYD080469935	NORLITE LLC				X							
NYD082785429	CHEMICAL POLLUTION CONTROL											X
NYD980592497	EASTMAN KODAK COMPANY		X									
NYD980753784	SAFETY - KLEEN SYSTEMS INC											X
NYD981556541	SAFETY-KLEEN SYSTEMS INC											X
NYD982743312	SAFETY-KLEEN SYSTEMS INC											X
NYD986872869	SAFETY-KLEEN SYSTEMS INC											X
NYR000129015	AMERICAN LAMP RECYCLING LLC			X								
PRD090399718	SAFETY-KLEEN ENVIROSYSTEMS CO OF PR INC		X			X						
EPA Region 3												
MDD980555189	CLEAN HARBORS OF BALTIMORE INC.		X			X		X	X			X
MDR000518423	ACM TECHNOLOGIES INC	X										
PA0000453084	BETHLEHEM APPARATUS CO INC	X										

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
PAD000736942	CALGON CARBON CORP		X	X								
PAD000738823	SAFETY-KLEEN SYSTEMS INC											X
PAD000738849	SAFETY-KLEEN SYSTEMS INC											X
PAD002330165	EAST PENN MANUFACTURING CO INC	X										
PAD002365849	ABINGTON RELDAN METALS LLC	X										
PAD002389559	KEYSTONE CEMENT CO				X							
PAD002390961	BETHLEHEM APPARATUS CO INC	X										
PAD002395887	HORSEHEAD CORP	X										
PAD004835146	MAX ENVIRONMENTAL - YUKON FACILITY							X	X			
PAD010154045	ENVIRITE OF PENNSYLVANIA INC	X						X	X			X
PAD067098822	CYCLECHEM INC							X	X			
PAD085690592	REPUBLIC ENVIRONMENTAL SYSTEMS (PA) LLC		X					X	X			X
PAD086673407	SAFETY-KLEEN SYSTEMS INC											X
PAD087561015	INMETCO	X										
PAD089352983	COOKSON ELECTRONICS	X										
PAD981038227	WORLD RESOURCES CO	X										
PAD981736143	SAFETY KLEEN SYSTEMS INC											X
PAD981737109	SAFETY-KLEEN SYSTEMS INC											X
PAD981945157	VEOLIA ES TECHNICAL SOLUTIONS											X
PAD982576258	SAFETY-KLEEN SYSTEMS INC											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
PAD987266715	SAFETY-KLEEN SYSTEMS INC											X
PAD987270725	SIEMENS INDUSTRY INC			X								
PAD987367216	AERC.COM INC	X										
PAD990753089	EXIDE TECHNOLOGIES	X										
PAR000518225	ECOFLO INC											X
PAR000521294	ABINGTON RELDAN METALS LLC	X										
PAR000522763	CD & E REFINING LLC	X										
PAR000528026	CD & E REFINING LLC	X										
VAD000737346	SAFETY-KLEEN SYSTEMS, INC											X
VAD000737361	SAFETY-KLEEN SYSTEMS, INC											X
VAD105838874	KMX CHEMICAL CORP.		X									
VAD981043011	SAFETY-KLEEN SYSTEMS, INC											X
VAR000503656	BLUE RIDGE SOLVENTS & COATINGS, INC.		X									
WVD076826015	HUNTINGTON ALLOYS CORPORATION	X										
WVD981034101	SAFETY-KLEEN SYSTEMS INC											X
WVR000500801	VEOLIA ES TECHNICAL SOLUTIONS											X
EPA Region 4												
ALD000622464	CHEMICAL WASTE MANAGEMENT					X			X	X		X
ALD046481032	SANDERS LEAD COMPANY, INC	X										
ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.		X			X						
ALD094476793	ALLWORTH, LLC		X			X						

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
ALD980837959	MULTIMETCO INC	X										
ALD981020894	EWS ALABAMA INC.					X			X			
ALD981475304	KW PLASTICS			X								
ALR000042754	STEEL DUST RECYCLING, LLC	X										
ALR000047167	M3 RESOURCES USA LLC	X										
FL0000207449	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.	X										
FL0000702985	STERICYCLE SPECIALTY WASTE SOLUTIONS INC											X
FLD004092839	ENVIROFOCUS TECHNOLOGIES	X										
FLD980559728	TRIUMVIRATE ENVIRONMENTAL INC											X
FLD980711071	PERMA-FIX OF FLORIDA, INC.					X			X			
FLD980729610	CLEAN HARBORS FLORIDA		X			X						X
FLD980847214	SAFETY - KLEEN SYSTEMS INC											X
FLD981932494	EQ FLORIDA, INC.	X										X
FLD982133159	SAFETY - KLEEN SYSTEMS INC											X
FLD984262782	AERC.COM, INC.	X										X
GAD000776781	SAFETY-KLEEN SYSTEMS, INC											X
GAD093380814	PERMA-FIX OF SOUTH GEORGIA	X	X			X						X
GAD980709257	SAFETY-KLEEN SYSTEMS, INC.											X
GAD980842777	SAFETY-KLEEN SYSTEMS, INC.											X
GAD981265424	SAFETY-KLEEN SYSTEMS, INC											X
KYD005009923	CALGON CARBON CORPORATION		X	X								

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
KYD053348108	SAFETY-KLEEN SYSTEMS, INC.	X	X			X		X				
KYD981027469	SAFETY-KLEEN SYSTEMS, INC		X									
KYD985073196	AES ENVIRONMENTAL, LLC	X				X			X			
MSD077655876	HOLCIM (US) INC/GEOCYCLE LLC				X	X						
NCD000648451	CLEAN HARBORS REIDSVILLE, LLC											X
NCD000776740	SAFETY-KLEEN SYSTEMS, INC											X
NCD049773245	DETREX CORPORATION		X			X						X
NCD061263315	NEXEO SOLUTIONS, LLC											X
NCD077840148	SAFETY-KLEEN SYSTEMS, INC											X
NCD079060059	SAFETY-KLEEN SYSTEMS, INC											X
NCD095119210	METALLIX REFINING INC.	X										
NCD121700777	DART ACQUISITIONS, LLC					X		X				
NCD980842132	ECOFLO, INC.	X	X			X		X	X			
NCD980846935	SAFETY-KLEEN SYSTEMS, INC											X
NCD986166338	VEOLIA ES TECHNICAL SOLUTIONS, LLC											X
NCS000000545	EDEN CUSTOM PROCESSING		X									
NCS000001221	VEOLIA ES TECHNICAL SOLUTIONS LLC											X
NCS000001677	PSC											X
SCD003351699	GIANT CEMENT COMPANY				X							
SCD003368891	HOLCIM US INC GEOCYCLE LLC		X		X	X						
SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC		X			X		X				

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
SCD077995488	SAFETY KLEEN SYSTEMS INC LEXINGTON		X									
SCD981866007	BASF CORP	X										
SCR000771618	HORSEHEAD RECYCLING	X										
TND000614321	SAFETY-KLEEN (GS) INC.		X									
TND000646612	HERAEUS PRECIOUS METALS, NORTH AMERICA	X										
TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC					X			X			
TND980847024	EXCEL TSD INC	X				X						
TND981920119	VLS - ARMOR LLC					X						
TND982109142	DIVERSIFIED SCIENTIFIC SERVICES INC. (DSSI)				X			X	X			
TND982144099	HORSEHEAD CORPORATION	X										
TND982157570	DURATEK SERVICES, INC., AN ENERGYSOLUTIONS COMPANY							X				
TNR000005397	EAST TENNESSEE MATERIALS & ENERGY CORPORATION							X	X			
TNR000022277	MASTERMELT AMERICA, LLC	X										
TNR000023234	SOUTHEAST RECYCLING TECHNOLOGIES, INC.	X										
TNR000031203	STERICYCLE SPECIALTY WASTE SOLUTIONS INC											X
EPA Region 5												
ILD000666206	ENVIRITE OF ILLINOIS INC							X	X			X
ILD000805812	PEORIA DISPOSAL COMPANY								X			

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
ILD000805911	SAFETY-KLEEN SYSTEMS INC											X
ILD005087630	SIMS RECYCLING SOLUTIONS INC	X										
ILD005121439	SIPI METALS CORP	X										
ILD005450697	CLEAN HARBORS RSC LLC		X									X
ILD010284248	CID RECYCLING & DISPOSAL FAC							X				
ILD040891368	HORSEHEAD CORP	X										
ILD064418353	BEAVER OIL CO INC			X		X		X				
ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS		X				X					X
ILD980613913	SAFETY KLEEN SYSTEMS INC	X	X	X		X		X				X
ILD981088388	SAFETY-KLEEN SYSTEMS INC											X
ILD981097819	SAFETY-KLEEN SYSTEMS INC											X
IN0000351387	LIGHTING RESOURCES INC	X										
IND000199653	QUEMETCO, INC.	X										
IND000646943	TRADEBE TREATMENT & RECYCLING LLC		X			X						X
IND000717959	EXIDE TECHNOLOGIES	X										
IND000780403	RECLAIMED ENERGY DIV., SUPERIOR OIL CO., INC.		X			X						X
IND005081542	ESSROC CEMENT CORPORATION				X							
IND006419212	LONE STAR GREENCASTLE WDF				X							
IND085616837	PARTS CLEANING TECHNOLOGIES LLC		X									
IND093219012	HERITAGE ENVIRONMENTAL SERVICES LLC	X				X		X	X			X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
IND980503890	HERITAGE ENVIRONMENTAL SERVICES LLC									X		
INR000110197	STERICYCLE, INC.											X
MID000724831	MICHIGAN DISPOSAL INC	X	X	X		X		X	X			
MID005338801	GAGE PRODUCTS CO		X									
MID029631686	VESCO OIL CORP		X									
MID048090633	WAYNE DISPOSAL INC							X		X		
MID060975844	EQ RESOURCE RECOVERY INC		X									
MID074259565	DYNECOL INC		X					X	X			
MID091605972	DETREX CORP		X									
MID092947928	DRUG AND LABORATORY DISPOSAL INC								X			
MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC	X	X			X		X				
MID980991566	EQ DETROIT INC		X	X				X	X			
MID985568021	CHEMICAL ANALYTICS INC							X				
MIR000047092	VESCO OIL CORPORATION		X									
MND000686709	NEXEO SOLUTIONS, LLC											X
MND006148092	GOPHER RESOURCE CORPORATION	X										
MND980615736	UNIVAR USA, INC.											X
MND980996805	ENIVRO-CHEM, INC.	X						X				
MND981097884	SAFETY-KLEEN SYSTEMS, INC. (EAGAN, MN)											X
MND981098478	SIEMENS INDUSTRY, INC.	X						X	X			

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
MND981101314	MAGUIRE & STRICKLAND REFINING	X										
MND981953045	SAFETY-KLEEN SYSTEMS, INC. (BLAINE, MN)											X
MND985746262	MERCURY TECHNOLOGIES OF MN INC	X										
MND985767656	J.R.'S APPLIANCE DISPOSAL, INC.	X										
MNR000078675	RETROFIT COMPANIES INC - LITTLE CANADA	X										
MNR000107037	GREEN LIGHTS RECYCLING, INC.	X										
OHD000724153	CLEAN HARBORS OF CLEVELAND							X				
OHD000816629	SPRING GROVE RESOURCE RECOVERY INC					X		X				X
OHD001926740	HUKILL CHEMICAL CORP		X			X		X				X
OHD004274031	CLEAN WATER							X				X
OHD005048947	SYSTECH ENVIRONMENTAL CORP					X						
OHD020273819	VICKERY ENVIRONMENTAL INC										X	
OHD045243706	ENVIROSAFE SERVICES OF OHIO INC								X	X		
OHD048415665	ROSS INCINERATION SERVICES INC						X					X
OHD066060609	CHEMTRON CORP	X				X		X				X
OHD071654958	TOXCO INC	X		X								X
OHD074700311	NEXEO SOLUTIONS, LLC											X
OHD083377010	ENVIRONMENTAL ENTERPRISES INC	X			X	X		X	X			X
OHD093945293	VEOLIA ES TECHNICAL SOLUTIONS LLC		X			X						X
OHD980568992	ENVIRITE OF OHIO INC	X						X	X			X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
OHD980587364	CLEAN HARBORS RECYCLING SERVICES OF OHIO LLC		X			X						X
OHD980613541	HERITAGE - WTI, INC						X					X
OHD980793384	RESERVE ENVIRONMENTAL							X				
OHD980821862	KLOR KLEEN											X
OHD980897656	CHEMICAL SOLVENTS INC		X			X						X
OHD987048733	LAFARGE CORPORATION				X							
OHR000034025	LAMPS INC DBA ENVIRONMENTAL RECYCLING	X										X
OHR000109819	USA LAMP & BALLAST RECYCLING INC			X								
WI0000934174	AURA II INC	X										
WID000808824	HYDRITE CHEMICAL CO		X			X						
WID003967148	VEOLIA ES TECHNICAL SOLUTIONS LLC		X		X				X			X
WID023350192	BRENNTAG GREAT LAKES LLC		X			X						X
WID980996615	DYNAMIC RECYCLING	X										
WID981097769	SAFETY-KLEEN SYSTEMS INC		X									
WID981187297	SAFETY-KLEEN SYSTEMS INC		X									
WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC	X				X						X
WID988580056	BADGER DISPOSAL OF WI INC					X		X	X			X
WID990829475	WRR ENVIRONMENTAL SERVICES CO INC		X			X		X				X
WIR000000356	WM MERCURY WASTE INC	X		X								

EPA Region 6

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
ARD006354161*	REYNOLDS METALS CO.					X	Nonwastewater capacity for K088					
ARD059636456	FRIT INDUSTRIES, INC.	X										
ARD069748192	CLEAN HARBORS EL DORADO			X			X	X				X
ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.	X	X		X	X						
ARD981512270	ASH GROVE CEMENT COMPANY				X	X						
LA0000365668	LAMP RECYCLERS OF LOUISIANA, INC., DBA LAMP ENVIRONMENTAL INDUSTRIES							X				
LAD000777201	CHEMICAL WASTE MANAGEMENT LAKE CHARLES							X	X	X		
LAD008086506	EAGLE US 2	X										
LAD008161234	ECO SERVICES				X	X						
LAD008175390	CORNERSTONE CHEMICAL COMPANY										X	
LAD980622161	CATALYST RECOVERY OF LA, LLC	X		X								
LAD981055791	CLEAN HARBORS COLFAX, LLC							X				
LAD981059017	CLEAN HARBORS BATON ROUGE LLC											X
LAR000042226	SHELL NORCO CHEMICAL PLANT-WEST SITE							X				
LAR000070177	TRADEBE TREATMENT & RECYCLING LLC											X
LAR000073197	STERICYCLE SPECIAL WASTE SOLN INC											X
NM0000590240	STERICYCLE SPECIALITY WASTE SOLUTIONS INC											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
NMD000333211	WESTERN REFINING SOUTHWEST INC - GALLUP REFINERY			X		X						
NMD000804294	SAFETY-KLEEN SYSTEMS, INC											X
NMD980698849	SAFETY-KLEEN SYSTEMS, INC											X
OKD000402396	EQ OKLAHOMA	X	X					X	X			X
OKD000763821	SAFETY-KLEEN SYSTEMS, INC											X
OKD064558703	TULSA CEMENT LLC D/B/A CENTRAL PLAINS COM				X							
OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC							X	X	X		
OKD980878474	SAFETY-KLEEN SYSTEMS, INC											X
OKD982293334	ENVIRONMENTAL MANAGEMENT, INC.											X
OKD987097151	TRICAT INC			X								
TXD000719518	TM DEER PARK SERVICES		X					X	X		X	
TXD000729400	SAFETY-KLEEN SYSTEMS SAN ANTONIO							X				X
TXD000747378	SAFETY-KLEEN SYSTEMS		X					X				X
TXD000747402	SAFETY-KLEEN SYSTEMS CORPUS CHRISTI BRANCH		X					X				X
TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS						X				X	X
TXD001700806	ASCEND CHOCOLATE BAYOU PLANT				X							
TXD006451090	EXIDE FRISCO BATTERY RECYCLING PLANT	X										
TXD008099079	RHODIA			X								
TXD010791184	LONESTAR ECOLOGY											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
TXD010803203	SAFETY-KLEEN MISSOURI CITY 6 073 02		X					X				X
TXD046844700	CHEMICAL RECLAMATION SERVICES AVALON FACILITY		X			X						X
TXD052649027	DISPOSAL PROPERTIES LLC											X
TXD055135388	SET ENVIRONMENTAL					X		X				
TXD055141378	CLEAN HARBORS DEER PARK	X	X				X					
TXD062287883	SAFETY KLEEN ABILENE 6 002 01		X					X				X
TXD069452340	US ECOLOGY TEXAS INC			X				X	X	X		
TXD072181381	BLANCHARD REFINING LAND TREATMENT FACILITY											
TXD074195678	GULF CHEMICAL & METALLURGICAL FREEPORT	X		X								
TXD074196338	ELTEX CHEMICAL				X							X
TXD077603371	SAFETY-KLEEN SYSTEMS DENTON RECYCLE CENTER	X	X	X		X		X				X
TXD083145656	SAFETY-KLEEN SYSTEMS							X				X
TXD097673149	VOPAK LOGISTICS SERVICES USA DEER PARK					X					X	
TXD102599339	PSC RECOVERY SYSTEMS							X				
TXD106829963	EURECAT US	X		X								
TXD980745095	NEXEO SOLUTIONS GARLAND											X
TXD980748461	STOLTHAVEN HOUSTON SUBSIDIARY OF STOLT NIELSON SA							X				

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
TXD980876015	SAFETY-KLEEN WACO		X					X				X
TXD981052061	SAFETY KLEEN SYSTEMS IRVING		X					X				X
TXD981053416	SAFETY KLEEN SYSTEMS FORT WORTH	X	X					X				X
TXD981053770	DURATHERM SAN LEON			X		X						
TXD981056690	SAFETY-KLEEN SYSTEMS MIDLAND		X					X				X
TXD981514383	ALPHA OMEGA RECYCLING	X										X
TXD982290140	CLEAN HARBORS LAPORTE							X				X
TXD982560294	NSSI RECOVERY SERVICES		X			X						
TXD988001251	VEOLIA ES TECHNICAL SOLUTIONS LLC											X
TXD988021259	NOVA MOLECULAR TECHNOLOGIES		X									
TXD9880888464*	WASTE CONTROL SPECIALISTS									Mixed wastes		
TXR000000034	CONECUSUS TEJAS FACILITY	X										
TXR000001016	TM CORPUS CHRISTI SERVICES							X			X	X
TXR000025841	EFFECTIVE ENVIRONMENTAL			X								
TXR000051508	EFFECTIVE ENVIRONMENTAL		X									
TXR000056192	TECHEMET LLP	X										
TXR000058263	STERICYCLE PHARR											X
TXR000069344	STERICYCLE SPECIALTY WASTE SOLUTIONS											X
TXR000079044	PHILIP RECLAMATIONSERVICES HOUSTON INC											X
TXR000079350	ZODIAC ENTERPRISES LLC	X										

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
TXR000079856	TRADEBE TREATMENT AND RECYCLING											X
EPA Region 7												
IAD022365480	NORTHLAND PRODUCTS CO		X									
IAD098027592	SAFETY-KLEEN (DAVENPORT)											X
IAD981718000	SAFETY-KLEEN (DES MOINES)											X
KSD000809723	SAFETY-KLEEN SYSTEMS INC											X
KSD031203318	ASH GROVE CEMENT COMPANY				X							
KSD057889313	NEXEO SOLUTIONS											X
KSD980633259	SYSTECH ENVIRONMENTAL CORP					X						X
KSD980686844	SAFETY-KLEEN SYSTEMS INC											X
KSD981506025	CLEAN HARBORS ENVIRONMENTAL SERVICES CLACKAMAS	X										X
KSR000510172	TRADEBE TREATMENT AND RECYCLING, LLC											X
MOD000610766	SOLVENT RECOVERY LLC		X		X	X						
MOD000669051	SAFETY KLEEN SYSTEMS INC											X
MOD000669069	SAFETY KLEEN SYSTEMS INC											X
MOD029719200	DYNO NOBEL INC			X								
MOD054018288	GREEN AMERICA RECYCLING, LLC		X		X	X						
MOD059200089	BUICK RESOURCE RECYCLING FACILITY LLC	X	X									
MOD077887909	EXPERT MANAGEMENT INC		X									
MOD095486312	SAFETY KLEEN SYSTEMS INC											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
MOD980971626	SAFETY KLEEN SYSTEMS INC											X
MOD980973564	SAFETY KLEEN SYSTEMS INC											X
MOD981123391	WASTE EXPRESS				X	X		X				
MOD981127319	LONE STAR INDUSTRIES				X	X						
MOD981505555	HERITAGE ENVIRONMENTAL SERVICES LLC					X		X				X
MOD985798164*	EVB EXPLOSIVES ENVIRONMENTAL COMPANY						Explosive wastes					
MOR000505958	TRI-RINSE INC			X								
MOR000523969	ARCH ENTERPRISES INC	X										
NED053316535	SAFETY-KLEEN SYSTEMS, INC.											X
NED981495724	SAFETY-KLEEN SYSTEMS, INC.											X
NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES						X					X
EPA Region 8												
COD000716621	SAFETY-KLEEN SYSTEMS INC - ENGLEWOOD											X
COD000716639	SAFETY-KLEEN SYSTEMS INC - PUEBLO											X
COD980591184	VEOLIA ES TECHNICAL SOLUTIONS LLC		X			X		X	X			X
COD991300484	CLEAN HARBORS DEER TRAIL LLC							X	X	X		X
COR000210401	SILVER ANVIL ENGINEERING CORP	X										
COR000224014	STERICYCLE SPECIALTY WASTE SOLUTIONS INC (SSWSI)											X
MTD982590739	EMERALD SERVICES INC GREAT FALLS											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
NDD000716738	SAFETY-KLEEN SYSTEMS, INC. - FARGO											X
NDD980957070	SAFETY KLEEN SYSTEMS, INC. (BISMARCK)											X
NDD982591794	WASTE RECOVERY SERVICES, INC.					X						X
NDR000003111	SABIN METAL WEST CORP	X										
SDD000716696	SAFETY-KLEEN SYSTEMS, INC. (SIOUX FALLS SD)											X
UTD001705029	ATK LAUNCH SYSTEMS INC.											X
UTD048406144	NEXEO SOLUTIONS, LLC - CLEARFIELD, UT											X
UTD980957088	SAFETY-KLEEN SYSTEMS											X
UTD981552177	CLEAN HARBORS ARAGONITE LLC						X					X
UTD982595795	CLEAN HARBORS CLIVE, LLC											X
UTD982598898*	ENERGY SOLUTIONS, LLC									Mixed Wastes		
UTD988074274	STERICYCLE WOODS CROSS											X
UTD991301748	CLEAN HARBORS GRASSY MOUNTAIN, LLC.							X	X	X		
UTR000007138	VEOLIA ES TECHNICAL SOLUTIONS											X
EPA Region 9												
AZ0000337360	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.	X		X								
AZD049318009	CLEAN HARBORS ARIZONA, LLC		X			X						X
AZD060624251	FREEPORT-MCMORAN MIAMI INC.	X										
AZD081705402	HERITAGE ENVIRONMENTAL SERVICES, LLC											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
AZD089304216	UNIVAR USA INC											X
AZD980695332	GANNON & SCOTT PHOENIX, INC	X										
AZD980735500	WORLD RESOURCES COMPANY	X										
AZD981969504	SAFETY-KLEEN SYSTEMS, INC.											X
AZD982434185	WM LAMPTRACKER, INC	X										
AZD982441263	SIEMENS WATER TECHNOLOGIES CORP							X				
AZT050010685	HVF PRECIOUS METALS	X						X				
CA0000084517	SAFETY-KLEEN SYSTEMS, INC											X
CAD000633164	CLEAN HARBORS WESTMORLAND, LLC											X
CAD003963592	ECS REFINING	X										X
CAD008252405	PACIFIC RESOURCE RECOVERY		X		X	X						
CAD008302903	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.		X	X	X	X		X				X
CAD008364432	RHO-CHEM LLC		X			X						X
CAD008488025	PHIBRO-TECH INC.	X		X								X
CAD009466392	ECOLOGY CONTROL INDUSTRIES, INC.							X				
CAD021774559	AB&I FOUNDRY	X										
CAD028409019	CROSBY & OVERTON					X		X				
CAD044429835	CLEAN HARBORS WILMINGTON, LLC											X
CAD050806850	CLEAN HARBORS LOS ANGELES FACILITY											X
CAD059494310	CLEAN HARBORS SAN JOSE, LLC		X			X		X	X			X
CAD060398229	HERAEUS METAL PROCESSING, LLC	X										X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
CAD066113465	SAFETY-KLEEN SYSTEMS, INC											X
CAD066233966	QUEMETCO, INC	X	X									
CAD069124717	XSTRATA RECYCLING, INC.	X										
CAD088504881	KINSBURSKY BROTHERS SUPPLY INC.	X	X									
CAD097030993	SIEMENS INDUSTRY, INC.	X		X				X				
CAD097854541	EXIDE TECHNOLOGIES INCORPORATED	X	X									
CAD099452708	INDUSTRIAL SERVICE OIL COMPANY, INC.			X								
CAD108040858	TSM RECOVERY & RECYCLING CO INC	X										
CAD980585293	INDUSTRIAL WASTE UTILIZATION		X									
CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC								X	X		X
CAD980813950	CRANES WASTE OIL, INC			X								
CAD980884183	GEM RANCHO CORDOVA LLC		X									
CAD980887418	EVERGREEN OIL, INC.			X		X		X				X
CAD980888598	WIT SALES AND REFINING	X										
CAD981402522	COMMODITY RESOURCE AND ENVIRONMENT	X										
CAD982052797	J&B ENTERPRISES	X										X
CAD982338923	VEOLIA ES TECHNICAL SOLUTIONS											X
CAD982411993	AERC.COM, INC.	X						X				X
CAD982435026	KW PLASTICS OF CALIFORNIA			X								
CAD982439895	CLEAN HARBORS ENVIRONMENTAL SERVICES PORT OF REDWOOD CITY RAIL											X

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
CAD982444481	FILTERRECYCLING SERVICES, INC.	X	X	X				X	X			X
CAD983649880	PSC ENV SVCS OF POMONA LP											X
CAL000024110	P KAY METAL, INC.	X										
CAL000098454	ATLAS PRECIOUS METALS, INC.	X										
CAL000110141	DAVID H. FELL AND COMPANY, INC.	X										
CAR000149575	ALPERT & ALPERT IRON & METAL, INC.	X										
CAR000155887	U.S. CIRCUIT, INC.	X										
CAR000156125	LIGHTING RESOURCES, LLC	X										
CAR000188201	ENVIRONMENTAL RECOVERY SERVICES INC	X										
CAT000613893	SAFETY-KLEEN SYSTEMS, INC											X
CAT000613927	SAFETY-KLEEN SYSTEMS, INC											X
CAT000613976	SAFETY-KLEEN SYSTEMS, INC											X
CAT000646117	CHEMICAL WASTE MANAGEMENT, INC.							X	X	X		
CAT080013352	DEMENNO KERDOON			X		X						
CAT080014079	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.											X
CAT080033681	D/K ENVIRONMENTAL							X				
HIR000141895	BURLINGTON ENVIRONMENTAL, LLC											X
NVD980895338	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF NEVADA, LLC	X						X	X			X
NVR000043927	ITRONICS METALLURGICAL INC	X										

Commercial Hazardous Waste Management Facilities

EPA ID	Facility Name	RECOVERY				TREATMENT				DISPOSAL		TRANSFER/ STORAGE
		Metals Recovery	Solvents Recovery	Inorganics Recovery	Energy Recovery	Fuel Blending	Incineration	Wastewater Treatment	Stabilization/ Sludge Treatment/ Encapsulation	Landfill	Deepwell/ Underground Injection	
NVR000066837	SAFETY KLEEN SYSTEMS INC											X
NVR000080655	BANGO OIL, LLC; BANGO FACILITY				X	X						
NVT330010000	US ECOLOGY NEVADA							X	X	X		
EPA Region 10												
IDD073114654	US ECOLOGY IDAHO INC SITE B							X	X	X		
ORD089452353	CHEMICAL WASTE MANAGEMENT OF THE NORTHWEST		X	X					X	X		
ORD981766124	SAFETY KLEEN SYSTEMS INC 7-148-01		X									X
WAD020257945	BURLINGTON ENVIRONMENTAL LLC TACOMA					X		X				X
WAD980976906	HALLMARK REFINING CORP	X										
WAD981769110	EMERALD SERVICES INC ALEXANDER AVE		X			X						
WAD991281767	BURLINGTON ENVIRONMENTAL LLC KENT	X				X		X	X			X
WAH000026371	ECOLIGHTS NORTHWEST			X								
WAR000010355	PERMA FIX NORTHWEST RICHLAND INC							X	X			

*These are facilities with hazardous waste management units that are permitted to manage specific waste codes, types of wastes, forms of wastes, etc. The analyses for specialty operations is presented in Appendix E.

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Appendix C
CAP Management Categories

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CAP Management Categories

For each of the CAP management categories, the main technologies used for each category are described, including the types of waste recovered, treated, or disposed. Each CAP management category is comprised of a number of waste management technologies that are generally interchangeable for managing broad types of wastes based on treatment performance.

METALS RECOVERY

Metals recovery technologies are designed to separate desired metals from other constituents of hazardous wastes. The most common technologies, which are described below, are high-temperature metals recovery, retorting, secondary smelting, ion exchange, and acid leaching.

High-temperature metals recovery is used to treat hazardous wastes that contain metals such as cadmium, chromium, lead, nickel, and zinc compounds. Metals are separated from the waste at high temperatures through a thermochemical-process using carbon, limestone, and silica as the chemical agents. The constituents being recovered from the waste are heated so that they melt and/or volatilize and can be recovered in metallic or oxide form from process vapors or from a molten bath. The high temperature metals recovery process typically consists of a mixing unit, a high temperature processing unit, a product collection system, and a residual treatment system. Other volatile metals, such as arsenic or antimony, may be difficult to separate from the desired metal products and may adversely affect the ability to reuse the recovered materials. Slag, the primary residual from the process, is sometimes cooled in a quench tank and reused either directly or after further processing, or, if the material has no recoverable value, it is land disposed after necessary treatment.

Retorting is similar to high-temperature metals recovery in that it provides for recovery of metals from wastes primarily by volatilization and subsequent collection and condensation of the volatilized components. It is used primarily to remove elemental mercury, as well as mercury present in the oxide, hydroxide, and sulfide forms from hazardous wastes.

Secondary smelting also is very similar to high-temperature metals recovery; but is generally used for processes that recover lead from hazardous wastes. In this process, waste passes through a smelting furnace where the lead is concentrated into a bullion and separated from slag in molten form.

Ion exchange is primarily used to treat aqueous hazardous wastes with dissolved metals. These wastes also might contain nonmetallic anions such as halides, sulfates, nitrates, and cyanides, and water soluble ionic organic compounds. In ion exchange metals recovery, hazardous metal ions are removed and replaced by nonhazardous ions.

Acid leaching is used to treat hazardous wastes in solid or slurry form that either contain metal constituents that are soluble in a strong acid solution or can be converted by reaction with a strong acid to a soluble form. The acid leaching process is most effective with wastes that have high levels (over 1,000 parts per million) of metal constituents.³ Leachate from acid leaching generally requires further processing (e.g., ion exchange) to recover metals from the solution.

³ *Treatment Technology Background Document*, January 1991, EPA, Office of Solid Waste, page 184.

ORGANICS RECOVERY

Organics recovery technologies are used to separate liquid organic wastes, primarily spent solvents (both halogenated and nonhalogenated), for full or partial recovery. The most common technologies, described below, are distillation and solvent extraction. Other technologies include waste oil recovery and non-solvents organic recovery.

Distillation is a thermal treatment technology applicable to the treatment of wastes containing organics that are volatile enough to be removed by the application of heat. Constituents that are not volatilized may be reused or incinerated, as appropriate. Distillation is the process of separating volatile materials using evaporation followed by condensation. The liquids to be separated must have different volatilities and the degree of separation of these liquids is limited by the difference in their volatilities. Distillation for recovery can be limited by the presence of either volatile or thermally reactive suspended solids.

Important distillation technologies are:

- **Fractionation.** This technology uses tray columns or packed towers equipped with a reboiler, condenser, and an accumulator. The process is not applicable for liquids with high viscosity at high temperature, liquids with a high concentration of solids, polyurethanes, and inorganics. In general, the process is used where recovery of multiple constituents is desired and the waste contains minimal amounts of suspended solids. This process achieves a high product purity.
- **Steam Stripping.** This process is essentially fractionation with steam as heat source. It is typically applied to wastes with less than 1 percent volatile organics.⁴
- **Batch Distillation.** This technology uses a steam-jacketed vessel, a condenser, and a product receiver. Pressurized steam is usually the source of heat.
- **Thin Film Evaporation.** This technology uses a steam-jacketed cylindrical vessel and condenser, where the material trickles down the inside cylinder walls in thin streams, and a distribution device that spreads the film over the heated surface. It can be used to treat highly concentrated organic wastes that contain low concentrations of suspended solids.

Solvent extraction is used to treat wastes with a broad range of total organic content, such as certain oil refinery wastes. Constituents are removed from the waste by mixing it with a solvent that will preferentially dissolve the constituents of concern. The selection of a solvent depends on its solubility with the organic compounds to be removed and the other constituents in the waste. The waste and solvent must be physically immiscible so that after mixing the two immiscible phases can be physically separated by gravity. The process can be either batch or continuous. The simplest, least effective solvent extraction unit is a single-stage system (mixer-settler system). Other types of solvent extraction systems include multistage contact extraction (basically a series of single-stage units), countercurrent multi-stage extraction columns, and centrifugal contactors.

⁴ *Treatment Technology Background Document*, January 1991, EPA, Office of Solid Waste, page 135.

INORGANICS RECOVERY

Acid regeneration is the primary technology for inorganics recovery and is used to recover mainly halogen and sulfuric acids. These acids are recovered by halogen acid furnaces and sulfur recovery furnaces, respectively. Halogen acid furnaces typically process chlorinated and brominated secondary waste streams, with 20 to 70 percent halogen content by weight, to produce either hydrogen chlorine or hydrogen bromine.⁵ Sulfur recovery furnaces are used by sulfuric acid plants to process used sulfuric acid and other sulfur-containing wastes. Typical acid contaminants include organics, inorganics, and water. The contaminated acids and other halogen- or sulfur-containing compounds are thermally decomposed at elevated temperatures and the desired halogen or sulfur compounds captured from the exhaust gases, such as by passing the gases through converted catalyst beds.

ENERGY RECOVERY

Energy recovery systems burn hazardous waste for its fuel value. The capacity to burn liquids as fuel dominates at a national level, as sludges and solids are not often burn for recovery. Types of energy recovery systems are discussed below.

- **Industrial kilns.** Cement and lightweight aggregate kilns can burn liquid hazardous wastes for their heat value. (A few cement kilns also burn small containers of viscous or solid hazardous waste fuels.) Typically, cement kilns blend the wastes with fossil fuels while aggregate kilns burn 100 percent liquid wastes.
- **Industrial boilers.** Some industrial boilers can use limited amounts and types of hazardous wastes as supplements to fossil fuels. The wastes are commonly blended before using as fuel.

FUEL BLENDING

Fuel blending is the process of blending hazardous waste streams together, generally in tanks, to obtain a fuel that meets the specifications of fuel burners (e.g., energy recovery systems). Fuel blending is not a stand-alone treatment technology; the resulting fuels are subsequently burned, either on or off site, by combustion systems.

INCINERATION

Incineration uses controlled, high-temperature combustion processes to break down the organic compounds in a hazardous waste. The incineration of hazardous waste must be performed in accordance with the incinerator design and emissions regulations in 40 CFR Part 264, Subpart O or 40 CFR Part 265, Subpart O. Incinerators can burn pumpable waste (liquids and gases), nonpumpable waste (solids and sludges), or both. Several types of incinerators are discussed below.

Liquid Injection Incinerators. These incinerators are used widely for destruction of liquid organic wastes. They operate by spraying the waste mixed with air into a chamber where flame oxidation occurs.

⁵ 56 FR 7140.

Rotary Kilns. Rotary kilns can treat most types of solids, liquids, and gases. They consist of a long inclined tube where the waste is placed and rotated slowly as heat is applied. The process is intended for solids, but liquids and gases can be mixed with the solids.

Fluidized-bed Incinerators. Air is blown through a granular bed (usually sand) until the particles are suspended and move and mix like a fluid. The heated particles come in contact with the wastes to be incinerated and improve the heat transfer. This type of incineration is ideal for sludge and slurries.

Other types of incinerators include two-stage and fixed hearth.

The ash produced from the incineration of hazardous waste also may be hazardous, and therefore must be further treated by stabilization before disposed in a landfill.

WASTEWATER TREATMENT

This CAP management category covers a broad range of treatment technologies and treats the largest volume of hazardous waste of any CAP management category. Wastes that are treated in this category either undergo further treatment (under this or other CAP management categories) or are sent for disposal. Many of these technologies are used together in one treatment system (e.g., chrome reduction followed by chemical precipitation). The discussion of these technologies is organized by the principal type of waste treated: aqueous inorganic, aqueous organic, aqueous inorganic and organic sludge, and other.

Aqueous Inorganic Treatment

- **Chrome reduction (hexavalent)** is applicable to wastes containing hexavalent chromium wastes, including plating solutions. The process uses a chemical reaction with a reducing agent, such as sulfur dioxide or sodium bisulfite, to reduce chromium from a hexavalent to a trivalent state, so that the chromium can be more easily precipitated. The reduced chromium compounds are precipitated from the solution by raising the pH and the resulting insoluble form of chromium is allowed to settle from the solution.
- **Cyanide destruction** is applicable to wastes containing high concentrations of cyanide, such as concentrated spent plating solutions. This technology is often applied as pretreatment prior to chemical oxidation. The waste is subject to electronic reaction with dissolved oxygen in an aqueous solution and broken down into carbon dioxide, nitrogen, and ammonia. The procedure is conducted at elevated temperature, depends on the conductivity of waste, and occurs in a closed cell.
- **Chemical oxidation** changes the chemical form of hazardous material through a chemical reaction with an oxidizing agent that produces carbon dioxide, water, salts, and simple organic acids. Principal chemical oxidants include hypochlorite, chlorine gas, chlorine dioxide, hydrogen peroxide, ozone, and potassium permanganate. This technology is used to treat wastes containing organics, sulfide wastes, and certain cyanide and metal wastes.
- **Chemical precipitation** is used to treat wastewaters containing metals and other inorganic substances such as fluoride. The process removes these metals and inorganics from solution in the form of insoluble solid precipitate by adding a precipitating agent (e.g., lime, caustic (NaOH), sodium sulfide). The solids that form are then separated from the

wastewater by settling, clarification, and/or polishing filtration. Pretreatment may be required for some wastewaters, such as those that contain chromium or cyanide.

- **Ion exchange** is used to treat hazardous wastewaters with metals that are present as soluble ionic species; nonmetallic anions such as halides, sulfates, nitrates, and cyanides; and water soluble ionic organic compounds. Typically, the waste constituents are removed when a waste solution is percolated through a granular bed of the ion exchanger in which ions from the waste are exchanged with those in the ion exchanger.
- **Reverse osmosis** involves a dilute solution and concentrated solution separated by a semi-permeable membrane. When high pressure is added to the concentrated side, the solution flows through the membrane to the more dilute side, collecting waste constituents that are unable to pass through the membrane.

Aqueous Organic Treatment

- **Biological treatment processes** are used to decompose hazardous organic substances with microorganisms. These processes require stable operating conditions and usually take place in tanks or lagoons. The most common type is aerobic biological treatment, including activated sludge treatment. This method treats wastewaters with low levels of nonhalogenated organics and certain halogenated organics.
- **Carbon adsorption** is used to treat aqueous organic wastewaters with high molecular weights and boiling points and low solubility and polarity, chlorinated hydrocarbons, and aromatics (e.g., phenol). The wastewater is passed through activated carbon beds which attract and hold (adsorb) the organic waste constituents (and possibly inorganics and metals), removing them from the water.
- **Air stripping** is a process used to treat aqueous organic waste with relatively high volatility and low water solubility. The volatile contaminants are evaporated into the air and captured for subsequent treatment.
- **Steam stripping** is used to treat aqueous organic wastes contaminated with chlorinated hydrocarbons, aromatics, ketones, and/or alcohols. This technology can treat less volatile and more soluble wastes than air stripping, and can handle a wide concentration range. First, steam is used to evaporate volatile organics. The evaporated organics are then captured, condensed, and reused or further treated.

Aqueous Inorganic/Organic Treatment

- **Wet air oxidation** is used to treat aqueous waste streams with less than five percent organics, pesticides wastes, and wastewaters containing sulfur, cyanide, or phenolic compounds. It is not recommended for treating aromatic halogenated organics, inorganics, or large volumes of waste. The aqueous solution is heated in the presence of compressed air and dissolved or finely divided organics are oxidized. These oxidized products usually remain in the liquids phase. These liquids can then be further treated or sent for disposal. An important advantage of wet air oxidation is that it accepts waste with organic concentrations ranging between those considered ideal for biological treatment or for incineration.

Other Wastewaters Treatment

- **Neutralization** is used to treat waste acids and alkalis (bases) in order to eliminate or reduce their reactivity and corrosiveness. In this process, an excess of acidic ions (H⁺) is balanced with an excess of base ions (OH⁻) to form a neutral solution.
- **Evaporation** is physical separation of a liquid from a dissolved or suspended solid by adding energy to volatilize the liquid. It can be applied to any mixture of liquids and nonvolatile solids. The liquid should volatilize at a reasonable temperature.
- There are many types of **settling/clarification processes**. One type is sedimentation, which is a gravity-settling process that allows heavier solids to separate from fluid by collecting at bottom of a containment vessel such, as settling ponds or a circular clarifier. Additional treatment is needed for the liquid and separated sludge.
- **Flocculation** is the addition of a chemical to a waste to enhance sedimentation and centrifugation; primarily for inorganic precipitation.
- **Phase separation** refers to processes such as emulsion breaking and filtration. *Emulsion breaking* uses gravitational force to separate liquids with sufficiently different densities, such as oil and water. This process is enhanced by adding certain acids. *Filtration* is the process of separating and removing suspended solids from a liquid by passing the liquid through a porous medium (see sludge dewatering). Polishing filtration, applied to wastewaters containing relatively low concentrations of acids, is used after chemical precipitation and settling/clarification of wastewaters containing inorganic precipitates to remove additional particles, such as those that are difficult to settle because of their shape or density.

SLUDGE TREATMENT

- **Sludge dewatering (sludge filtration)** is used for wastes with high concentrations of suspended solids (generally higher than 1 percent). Sludges can be dewatered to 20 to 50 percent solids. The solid particles are separated from the waste through a filter that permits fluid flow but retains the particles. For this technology, waste can be pumped through a porous filter, drawn by vacuum through a cloth filter, or gravity-drained and mechanically pressured through two continuous fabric belts.
- **Solvent extraction** is used to treat wastes with a broad range of total organic content such as certain oil refinery waste. Constituents are removed from the waste by mixing it with a solvent that will preferentially dissolve the constituents of concern. The waste and solvent must be physically immiscible so that after mixing the two immiscible phases can be physically separated by gravity.

Other sludge treatment methods include addition of excess lime or caustic to increase the alkalinity of the waste and absorption/adsorption processed to remove liquid from the sludge.

STABILIZATION/CHEMICAL FIXATION

Stabilization and chemical fixation refer to treatment processes that chemically or physically immobilize the hazardous constituents in a waste by binding the hazardous constituents into a solid mass. The resulting product has a low permeability that resists leaching.

Stabilization is used to treat wastes containing leachable metals and having a high filterable solids content, low organic carbon content, and low oil and grease content. The leachable metals in a waste are immobilized following the addition of stabilizing agents and other chemicals, and the resulting lattice structure and/or chemical bonds bind the metals to the solid matrix and thereby limit the amount of metal constituents that can be leached. The process normally requires a weighing device, a mixing unit (typically commercial concrete mixers), and a curing vessel or pad. Advantages of stabilization include inexpensive and plentiful raw materials and minimal pretreatment requirements. The main disadvantage is that the large volumes of additives required greatly increase the waste volume to be disposed. The main stabilization technologies are:

- **Lime-Based Pozzolan Process.** This technology treats sludges and contaminated soils by adding large amounts of siliceous (silica) materials combined with a setting agent such as lime, forming a dewatered stabilized solidified product. Contaminants can include metals, waste oils, and solvents. Materials such as borates, sulfates, and carbohydrates interfere with the process.
- **Portland Cement Pozzolan Process.** This technology is similar to the lime-based pozzolan process except that the waste is mixed with portland cement. The process is effective for metal cations, latex, and solid plastic wastes. Large amounts of dissolved sulfate salts or metallic anions (such as arsenate and borates) can interfere with solidification. Organic material, lignite, silt, or clay in the wastes will increase setting time.
- **Sorption.** This technology, suitable for organics and inorganics, is commonly used to treat metal sludges removed from aqueous waste streams. Contaminants are bound up in pozzolan-type matrices by physical or chemical sorption, yielding a stabilized, easier to handle material. After treatment, the material is permeable and contains a high concentration of contaminants at its surface; consequently, contaminants may leach.

Two types of **high temperature stabilization** include vitrification and high temperature calcination. The *vitrification* process involves dissolving the waste at high temperatures into glass or glasslike matrix. It is applicable to nonwastewaters containing arsenic (usually in form of arsenate salts), other characteristic toxic metal constituents that are relatively nonvolatile at operating temperature of the process, and certain wastes containing organometallic compounds. The process is not applicable to volatile metallic compounds or wastes containing high levels of constituents that will interfere with the vitrification process such as chlorides and halogen salts. *High temperature calcination*, applicable to inorganic wastes that do not contain volatile constituents, involves merely heating the material at high temperatures. The waste is sometimes blended with lime before heating. The process removes water from the waste, converts hydroxides to oxides, and converts the waste into a coherent mass, reducing surface area to minimum.

Fixation processes are applicable to liquid, semi-liquid, or solid wastes that may leach hazardous constituents. The processes can effectively treat a variety of hazardous wastes containing heavy metals, such as sludges from electroplating operations, ion-exchange resins from water demineralization, spent activated carbon, pesticides, nickel-cadmium battery sludge, and pigment production sludge. The process involves grinding a dewatered waste, mixing the resulting particles with a hardening resin, placing the mixture in a mold, and heating the material until it fuses. The product is hard, solid block with reduced leachability potential, improved

handling, and minimal volume increase (unlike conventional stabilization techniques). The most serious drawback is uncertainty about long-term effectiveness.

In the main fixation technologies, asphalt-based and thermoplastic encapsulation, the dewatered waste is mixed within either an asphalt bitumen, paraffin, or polyethylene matrix. These technologies are applicable to hazardous wastes that are complex and difficult to treat, but should not be used for waste with high-water content, strongly oxidizing contaminants, anhydrous inorganic salts, tetraborates, iron and aluminum salts, or volatile organics.

Another stabilization/fixation technology is **polymerization**. This technology has been applied to spills and used catalysts. To convert a monomer or a low-order polymer of a particular compound to a larger polymer. Larger polymers generally have greater chemical, physical, and biological stability. The process is used to treat organics, including aromatics, aliphatics, and oxygenated monomers such as styrene, vinyl chloride, isoprene, and acrylonitrile.

These technologies expand the volume of hazardous wastes to be disposed. The stabilization/fixation of characteristic hazardous waste often generates residuals that are not characteristically hazardous and therefore can be disposed of in Subtitle D landfills.

LAND TREATMENT OR APPLICATION

Wastes disposed by land treatment/farming must meet Land Disposal Restrictions (LDR) treatment standards and land treatment facilities must meet minimum technology standards.⁶ This disposal method is only used at on-site and captive facilities; it is not used commercially and the national assessment does not include projections for this CAP management category. Land treatment/farming is used to dispose of biodegradable hazardous wastes by depositing the wastes on or near the soil surface, mixing the wastes with the soil using conventional plow techniques, and allowing the wastes to be naturally decomposed by microbes such as algae and bacteria. The hazardous wastes, including organic liquid wastes and sludges, often require pretreatment before disposal to reduce or eliminate their hazardous attributes. The effectiveness of waste degradation is affected by many factors including the density and makeup of the microbe populations, which vary with soil depth and geographic location, and the care given to the waste after being deposited. The regulatory standards for this technology require the owner or operator to establish a program to ensure that hazardous constituents placed within the facility's treatment zone are degraded, transformed, or mobilized within that zone.⁷

LANDFILL

The landfill category includes landfill and surface impoundment disposal. Waste disposed in a landfill is placed on or beneath the surface of the ground and covered with soil or other material, to isolate the wastes from the environment. Landfills are required to have double liners, leachate-collection systems, and ground-water monitoring programs. Wastes not permitted to be disposed in landfills include bulk or non-containerized liquid nonhazardous and hazardous waste, or free liquids containing hazardous waste. In addition, wastes such as acids must be segregated to prevent reactions with other wastes or waste constituents.

⁶ 40 CFR 264.271.

⁷ 40 CFR 264.271.

A surface impoundment is a natural topographic depression; man-made excavation, or diked area, such as a pond, pit, or lagoon that can be used for disposal if the closure requirements for a landfill are followed. Surface impoundments are open on the surface and are designed to accumulate organic and inorganic liquid wastes, sludges, and slurries. Surface impoundments are required to have double liners, leachate collection systems, and routine inspections.⁸

Under the RCRA LDR Program, hazardous wastes generally cannot be disposed in landfills or surface impoundments until after the waste has been properly treated. Thus, disposal facilities receive treatment residuals, such as incinerator ash or stabilized wastes.⁹

DEEPWELL/UNDERGROUND INJECTION

Deepwell/underground injection is the disposal of hazardous wastewaters by injection into underground rock formations. Wastes are injected through bored, drilled, or driven wells, or through dug wells where the depth of the well is greater than its largest surface dimension. The disposal method relies on hydrogeological principles of the movement of liquids in layers of deep underground rock; the most desirable injection zone has sedimentary rocks with sufficient permeability, thickness, depth, and areal extent. Underground injection is most suitable for wastewaters that are low in volume and high in concentration, difficult and costly to treat by surface methods, biologically inactive, noncorrosive, free of suspended solids, and unlikely to react adversely with the rock strata or the fluid used to pressurize the wells. Much of the waste is pretreated to remove suspended solids or adjust the pH. As noted for the landfill CAP management category, hazardous wastes generally cannot be disposed in underground injection wells unless the applicable LDR treatment standards are met.¹⁰ Capacity amounts are determined by permit. Note that many of the wastewater treatment technologies are technically capable of also treating the wastes being disposed through deepwell and underground injection.

TRANSFER/STORAGE

This CAP management category captures those hazardous wastes that are shipped off site to transfer/storage facilities which store the waste for short periods of time, sometimes bulking the waste with other shipments, and then shipping the waste to hazardous waste management facilities. The hazardous waste must be stored for less than 90 days, or the transfer/storage facility becomes subject to the standards and permitting requirements for hazardous waste management facilities. If the waste is stored more than 10 days (but less than 90 days), the transfer/storage facility is subject to the storage requirements of RCRA Subtitle C. If the waste is stored 10 days or less, the facility is subject only to transporter regulations.¹¹ Transporters that mix hazardous wastes with different U.S. Department of Transportation (DOT) shipping descriptions in the same container are classified as generators and must comply with the relevant RCRA Subtitle C regulations.

⁸ 40 CFR 268.4.

⁹ 40 CFR 268.40.

¹⁰ 40 CFR 148.1.

¹¹ 40 CFR 268.50.

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Appendix D
Methodology for Estimating Hazardous Waste Demand

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Methodology for Estimating Hazardous Waste Demand

This appendix briefly describes the methodology used by the U.S. Environmental Protection Agency (EPA) to estimate hazardous waste demand for the 2014 national capacity assessment. To develop the data to assess hazardous waste management demand at a national level, EPA referred to the *Guidance for Capacity Assurance Planning* document dated May 1993 (also referred to as the 1993 Guidance; available at <http://infohouse.p2ric.org/ref/23/22567.pdf>). This document provides instructions for developing six data tables that provide state-specific information, using the Hazardous Waste Report (also known as the Biennial Report or BR) as the primary source of data. The tables include demand for on-site management, captive facility management (management of wastes from facilities under the same ownership), and commercial facility management.

The instructions in the 1993 Guidance are based on the 1991 BR forms. Since then, the BR forms have changed drastically. For example, the Process System (PS) Form of the BR was the primary source of information on a facility's commercial status and commercial capacity availability, among other data. However, in accordance with EPA's efforts to reduce the recordkeeping and reporting burden on the regulated community, EPA streamlined the federal data collection forms for the 1997 BR cycle by eliminating the PS Form. Then, in 2001, there was a significant change to the management method codes used to complete the BR forms because of the Waste Information Needs/Information Needs for Making Environmental Decisions (WIN/INFORMED) Initiative. Thus, EPA had to make some adjustments to account for the data currently collected from hazardous waste generator and managers using the BR forms. In addition, due in part to increased knowledge of hazardous waste management, an ability to analyze trends, improvements in data software and hardware capabilities, EPA was able to develop estimates for cleanup wastes based on BR data instead of the complex calculations used 20 years ago for the CAP program. These technical updates or adjustments to the methodology described in the 1993 Guidance are reflected in the 2014 assessment.

1. Hazardous Waste Generated and Managed Onsite

1.1. Key Data Sources

In performing the analysis, EPA used the following key data source:

- 2011 Biennial Report, Generation and Management (GM) Form, Section 2 (On-site Generation and Management), i.e., GM Onsite Form. Data current as of September 20, 2014.

1.2. Methodology

Following are the steps EPA undertook to estimate the quantities of hazardous waste generated and managed on site for each of the Capacity Assurance Plan (CAP) management categories:

- **Step 1: Compile data on hazardous waste generated and managed onsite.** EPA referred to GM Onsite Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of generating facility;
 - Name of generating facility;

- Page and subpage number;
- Source code;
- Source code description;
- Form code;
- Form code description;
- EPA hazardous waste codes representing the waste;
- Waste description; and
- Quantity of hazardous waste generated and managed on site (in tons).

- **Step 2: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: "radioactive," "mixed low level," "TRU," "mixed waste," "WIPP," and "transuranic." In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 3: Separate wastes managed by facilities with specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

-
- **Step 4: Assign waste quantities to appropriate CAP Management Categories.** EPA used the BR management method codes and the definitions of the CAP management categories in Attachment 1 at the end of this appendix to assign waste quantities to CAP management categories.
 - **Step 5: Reassign quantities of wastes reported as on-site management in commercial units.** EPA used available information on the type of commercial hazardous waste management services provided by a facility, and separated quantities of wastes managed in commercial units by commercial hazardous waste management facilities. These wastes were not considered as on-site management but reassigned and included in Table III “Management of Hazardous Waste at Commercial Facilities.”
 - **Step 6: Determine total quantities managed onsite for each CAP management category.** EPA summed the waste quantities by CAP management category.

2. Management of Hazardous Waste at Captive Facilities

2.1. Key Data Sources

In performing the analysis, EPA used the following key data sources:

- 2011 Biennial Report, Generation and Management (GM) Form, Section 3 (Off-Site Shipment of Hazardous Waste), i.e., GM Offsite Form. Data current as of September 20, 2014.
- RCRAInfo, Permit Module. Data current as of September 9-December 5, 2014.
- Hazardous waste handlers’ web sites. Data current as of September 9-December 5, 2014.

2.2. Methodology

Following are the steps EPA undertook to estimate the quantities of hazardous waste managed at captive facilities for each of the CAP management categories:

- **Step 1: Develop list of captive facilities.** For each CAP management category, EPA developed a list of captive facilities. Captive facilities are facilities owned by the same company as the generator but are at a different physical location. Their capacity can only be used by generators under the same ownership or by generators with whom the facility has an agreement to manage their waste. The list of captive facilities was developed based on information obtained from RCRAInfo’s Permit Module or from hazardous waste handlers’ web sites. Wastes sent to facilities that are not included in the list of captive facilities for a particular CAP management category were not included in the analysis of demand on captive management units.
- **Step 2: Compile data on hazardous waste shipped off site for management.** EPA referred to GM Offsite Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of generating facility (i.e., shipper ID);
 - Name of generating facility (i.e., shipper name);
 - Page and subpage number;

- Source code;
- Source code description;
- Form code;
- Form code description;
- EPA hazardous waste codes representing the waste;
- Waste description;
- Quantity of hazardous waste shipped (in tons);
- RCRA identification number of management facility (i.e., receiver ID); and
- Name of management facility (i.e., receiver name).

- **Step 3: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: “radioactive,” “mixed low level,” “TRU,” “mixed waste,” “WIPP,” and “transuranic.” In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 4: Separate wastes from specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

- **Step 5: Separate wastes received from transfer/storage facilities.** EPA identified wastes received from transfer/storage facilities for further off-site treatment or disposal by referring to the BR source code. In particular, EPA identified wastes represented by Source Code G61 (i.e., hazardous waste received from off-site for storage/bulking and transfer off-site for treatment or disposal).

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- **Step 6: Determine total quantities managed at captive facilities for each CAP management category.** EPA summed the waste quantities by CAP management category.

3. Management of Hazardous Waste at Commercial Facilities

3.1. Key Data Sources

In performing the analysis, EPA used the following key data sources:

- 2011 Biennial Report, Generation and Management (GM) Form, Section 3 (Off-Site Shipment of Hazardous Waste), i.e., GM Offsite Form. Data current as of September 20, 2014.
- 2009 Biennial Report, Generation and Management (GM) Form, Section 3 (Off-Site Shipment of Hazardous Waste), i.e., GM Offsite Form. Data current as of September 29, 2014.
- RCRAInfo, Permit Module. Data current as of September 9-December 5, 2014.
- Hazardous waste handlers' web sites. Data current as of September 9-December 5, 2014.

3.2. Methodology

Following are the steps EPA undertook to estimate the quantities of hazardous waste managed at commercial facilities for each of the CAP management categories. The steps described below were conducted separately for 2011 and 2009 BR data.

- **Step 1: Develop list of commercial management facilities.** For each CAP management category, EPA developed a list of commercial management facilities. This list was developed based on information obtained from RCRAInfo's Permit Module, BR data, and hazardous waste handlers' internet web sites. Wastes sent for commercial management at facilities not included in the list of commercial facilities for a particular CAP management category were not included in the analysis of demand on commercial management units.
- **Step 2: Compile data on hazardous waste shipped offsite for management.** EPA referred to GM Offsite Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of generating facility (i.e., shipper ID);
 - Name of generating facility (i.e., shipper name);
 - Page and subpage number;
 - Source code;
 - Source code description;
 - Form code;
 - Form code description;
 - EPA hazardous waste codes representing the waste;
 - Waste description;
 - Quantity of hazardous waste shipped (in tons);

- RCRA identification number of management facility (i.e., receiver ID); and
 - Name of management facility (i.e., receiver name).
- **Step 3: Correct obvious data errors.** EPA identified and corrected obvious data errors, including:
 - *Invalid RCRA identification numbers (i.e., typos in RCRA identification numbers).* Information on these identification numbers is provided in Attachment 2 at the end of this appendix.
 - *Unit conversion errors.* EPA identified and corrected one unit conversion error in the GM Form data of the 2011 BR. Millenium Laboratories (RCRA identification number CAL000328896) reported the generation of 20.50 tons (41,000 pounds) of organic solvents. However, for this same waste stream, the facility reported that 20,400,000.10 tons (40,800,000,200 pounds) were shipped off site for management. To resolve this issue, EPA revised the quantity shipped off site for management to 20.50 tons.
 - **Step 4: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: “radioactive,” “mixed low level,” “TRU,” “mixed waste,” “WIPP,” and “transuranic.” In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 5: Separate explosive wastes managed using specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

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- **Step 6: Separate wastes received from transfer/storage facilities.** EPA identified wastes received from transfer/storage facilities for further off-site treatment or disposal by referring to the BR source code. In particular, EPA identified wastes represented by Source Code G61 (i.e., hazardous waste received from off-site for storage/bulking and transfer off-site for treatment or disposal).
 - **Step 7: Separate waste received from foreign countries.** EPA identified wastes received from foreign countries by referring to the BR source code. In particular, EPA identified wastes represented by the following Source Code Group:
 - Waste Not Physically Generated Onsite (i.e., Source Codes G63 through G75)These wastes were analyzed separately.
 - **Step 8: Include quantities of wastes managed on site by facilities with commercial units.** EPA used available information on the type of commercial hazardous waste management services provided by a facility, and included quantities of wastes managed in commercial units by commercial hazardous waste management facilities.
 - **Step 9: Assign waste quantities to appropriate CAP Management Categories.** EPA used the BR management method codes and the definitions of the CAP management categories in Attachment 1 at the end of this appendix to assign waste quantities to CAP management categories.
 - **Step 10: Categorize wastes based on waste generation activity (i.e., process wastes and cleanup wastes).** For purposes of this analysis, EPA categorized waste streams based on the type of process or activity from which the hazardous waste was generated. In particular, EPA categorized waste streams as “process waste” or “cleanup waste.” The approach relies on source codes reported by facilities in their BR. Process wastes are those represented by the following Source Code Groups:
 - Wastes from Ongoing Production and Service Processes (i.e., Source Codes G01 through G09)
 - Other Intermittent Events or Processes (i.e., Source Codes G11 through G19)
 - Pollution Control and Waste Management Process Residuals (i.e., Source Codes G21 through G27)
 - Spills and Accidental Releases (i.e., Source Codes G31 through G39)Cleanup wastes are those represented by the following Source Code Group:
 - Remediation of Past Contamination (i.e., Source Codes G41 through G49)
 - **Step 11: Determine total quantities managed at commercial facilities for each CAP management category.** EPA summed the waste quantities by CAP management category and waste generation activity category.
 - **Step 12: Estimate average quantities for cleanup wastes.** For cleanup wastes, EPA took the average of the 2011 and 2009 waste quantities developed under Step 11. This step was taken as a conservative approach in order to account for variations in the generation of these one-time wastes. (Note: For process wastes, EPA used the waste quantities for 2011.)
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4. Hazardous Waste Demand from Small Quantity Generators/Conditionally Exempt Small Quantity Generators (SQGs/CESQGs) and Transfer/Storage Facilities

4.1. Key Data Sources

In performing the analysis, EPA used the following key data sources:

- 2011 Biennial Report, Generation and Management (GM) Form, Section 3 (Off-Site Shipment of Hazardous Waste), i.e., GM Offsite Form. Data current as of September 20, 2014.
- 2011 Biennial Report, Waste Received from Off-Site (WR) Form. Data current as of September 20, 2014.
- RCRAInfo, Permit Module. Data current as of September 9-December 5, 2014.
- Hazardous waste handlers' web sites. Data current as of September 9-December 5, 2014.

4.2. Methodology

Following are the steps EPA undertook to estimate hazardous waste demand from SQGs/CESQGs and transfer/storage facilities for each of the CAP management categories:

- **Step 1: Develop list of commercial management facilities.** For each CAP management category, EPA developed a list of commercial facilities. This list was developed based on information obtained from RCRAInfo's Permit Module, BR data, and hazardous waste handlers' web sites. Wastes sent to facilities that are not included in the list of commercial facilities for a particular CAP management category were not included in the analysis of demand on commercial management units.
- **Step 2: Create list of facilities that shipped their hazardous waste directly to a commercial hazardous waste management facility.** EPA created a list of RCRA identification numbers for facilities that, in their GM Offsite Forms, reported shipping wastes directly to commercial hazardous waste management facilities.
- **Step 3: Compile data on hazardous waste received from off site for management.** EPA referred to WR Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of management facility (i.e., receiver ID);
 - Name of management facility (i.e., receiver name);
 - Page and subpage number;
 - Form code;
 - Form code description;
 - EPA hazardous waste codes representing the waste;
 - Waste description;
 - Quantity of hazardous waste received (in tons);
 - RCRA identification number of shipping facility (i.e., shipper ID); and
 - Name of shipping facility (i.e., shipper name).

- **Step 4: Identify facilities that shipped their wastes directly to commercial hazardous waste management facilities.** In the WR Form data, EPA compared the RCRA identification number of the shippers to the list of RCRA identification numbers developed under Step 2 (i.e., facilities that shipped their hazardous waste directly to a commercial hazardous waste management facility). EPA then excluded WR Form data for cases in which the RCRA identification number of the shipper is in the list of RCRA identification numbers developed under Step 2. By doing this, EPA eliminated WR Form data for facilities that shipped their wastes directly to commercial hazardous waste management facilities and reported their wastes in a GM Offsite Form.
- **Step 5: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: “radioactive,” “mixed low level,” “TRU,” “mixed waste,” “WIPP,” and “transuranic.” In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 6: Separate explosive wastes managed by specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

- **Step 7: Separate waste received from foreign countries.** To identify wastes received from foreign countries, EPA used the first two letters of the RCRA identification number of the shipper. In particular, EPA identified RCRA identification numbers that begin with “FC”.

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- **Step 8: Assign waste quantities to appropriate CAP Management Categories.** EPA used the BR management method codes and the definitions of the CAP management categories in Attachment 1 at the end of this appendix to assign waste quantities to CAP management categories.
 - **Step 9: Determine quantities managed on site for each CAP management category.** EPA summed the waste quantities by CAP management category.

5. Hazardous Waste Demand from Waste Imported from Foreign Countries

5.1. Key Data Sources

In performing the analysis, EPA used the following key data sources:

- 2011 Biennial Report, Generation and Management (GM) Form, Section 3 (Off-Site Shipment of Hazardous Waste), i.e., GM Offsite Form. Data current as of September 20, 2014.
- 2011 Biennial Report, Waste Received from Off-Site (WR) Form. Data current as of September 20, 2014.
- RCRAInfo, Permit Module. Data current as of September 9-December 5, 2014.
- Hazardous waste handlers' web sites. Data current as of September 9-December 5, 2014.

5.2. Methodology

Following are the steps EPA undertook to estimate the quantities of hazardous waste received from foreign countries for each of the CAP management categories:

- **Step 1: Develop list of commercial facilities.** For each CAP management category, EPA developed a list of commercial facilities. This list was developed based on information obtained from RCRAInfo's Permit Module or from hazardous waste handlers' web sites. Wastes sent to facilities that are not included in the list of commercial facilities for a particular CAP management category were not included in the analysis of demand on commercial management units.

GM Offsite Form Data

- **Step 2: Compile data on hazardous waste shipped off site for management.** EPA referred to GM Offsite Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of generating facility (i.e., shipper ID);
 - Name of generating facility (i.e., shipper name);
 - Page and subpage number;
 - Source code;
 - Source code description;
 - Form code;
 - Form code description;

- EPA hazardous waste codes representing the waste;
- Waste description;
- Quantity of hazardous waste shipped (in tons);
- RCRA identification number of management facility (i.e., receiver ID); and
- Name of management facility (i.e., receiver name).

- **Step 3: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: "radioactive," "mixed low level," "TRU," "mixed waste," "WIPP," and "transuranic." In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 4: Separate wastes from specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

- **Step 5: Identify waste received from foreign countries.** EPA identified wastes received from foreign countries by referring to the BR source code. In particular, EPA identified wastes represented by the following Source Code Group:
 - Waste Not Physically Generated Onsite (i.e., Source Codes G63 through G75)
- **Step 6: Assign waste quantities to appropriate CAP Management Categories.** EPA used the BR management method codes and the definitions of the CAP management

categories in Attachment 1 at the end of this appendix to assign waste quantities to CAP management categories.

- **Step 7: Determine quantities received from foreign countries for each CAP management category.** EPA summed the waste quantities by CAP management category.

WR Form Data

- **Step 8: Compile data on hazardous waste received from off site for management.** EPA referred to WR Forms in order to compile the following data for each waste stream:
 - Reporting year;
 - RCRA identification number of management facility (i.e., receiver ID);
 - Name of management facility (i.e., receiver name);
 - Page and subpage number;
 - Form code;
 - Form code description;
 - EPA hazardous waste codes representing the waste;
 - Waste description;
 - Quantity of hazardous waste received (in tons);
 - RCRA identification number of shipping facility (i.e., shipper ID); and
 - Name of shipping facility (i.e., shipper name).
- **Step 9: Separate mixed/low-level/radioactive wastes.** To identify these wastes, EPA conducted a word search on the waste description using the words/phrases: “radioactive,” “mixed low level,” “TRU,” “mixed waste,” “WIPP,” and “transuranic.” In addition, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
NM4890139088	USDOE WASTE ISOLATION PILOT PLANT
NV3890090001	US DOE NNSA/NFO
NVD048946016	US ECOLOGY INC RADIOACTIVE WASTE SITE
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC
WA7890008967	US DEPT OF ENERGY HANFORD FACILITY

- **Step 10: Separate wastes from specialty operations for explosive wastes and spent potliners from primary aluminum reduction (i.e., K088 wastes).** To identify these wastes, EPA identified wastes sent to the following facilities:

RECEIVER_ID	RECEIVER_NAME
ARD006354161	REYNOLDS METALS COMPANY
ARD980867873	ESTERLINE ARMTEC COUNTERMEASURES COMPANY
FL2800016121	CAPE CANAVERAL AFS
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MND081138604	ALLIANT TECHSYSTEMS PROVING GROUNDS
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY

RECEIVER_ID	RECEIVER_NAME
NV5210090010	NEW BOMB FACILITY (HAWTHORNE ARMY DEPOT)
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT0570090001	UTAH TEST AND TRAINING RANGE
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

- **Step 11: Identify waste received from foreign countries.** To identify wastes received from foreign countries, EPA used the first two letters of the RCRA identification number of the shipper. In particular, EPA identified RCRA identification numbers that begin with “FC.”
- **Step 12: Assign waste quantities to appropriate CAP Management Categories.** EPA used the BR management method codes and the definitions of the CAP management categories in Attachment 1 at the end of this appendix to assign waste quantities to CAP management categories.
- **Step 13: Determine quantities received from foreign countries for each CAP management category.** EPA summed the waste quantities by CAP management category.

GM Offsite and WR Form Data

- **Step 14: Determine total quantities received from foreign countries for each CAP management category.** EPA summed the waste quantities from GM Offsite Forms (Step 7) and WR Forms (Step 13) to calculate the total quantities received from foreign countries by CAP management category.

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Attachment 1 CAP Management Categories

For purposes of this analysis, the U.S. Environmental Protection Agency (EPA) categorized Biennial Report (BR) management method codes into Capacity Assurance Plan (CAP) management categories based on the similarities in their design, operation, or wastes treated. The CAP management categories are described in the table below, and were used in assessing Subtitle C hazardous waste demand. The CAP management categories are consistent with the management categories in the Biennial Report Analytical Methodologies approved by the RCRAInfo Change Management Process (CMP) on April 22, 2013.

CAP Management Category	2011 BR Management Method Code and Description	
RECOVERY		
Metals Recovery	H010	Metals recovery including retorting, smelting, chemical, etc.
Solvents Recovery	H020	Solvents recovery (distillation, extraction, etc.)
Inorganics Recovery	H039	Other recovery or reclamation for reuse including acid regeneration, organics recovery, etc. (specify in comments)
Energy Recovery	H050	Energy recovery at this site - used as fuel (includes on-site fuel blending before energy recovery; report only this code)
TREATMENT		
Fuel Blending	H061	Fuel blending prior to energy recovery at another site (waste generated either on-site or received from off-site)
Incineration	H040	Incineration - thermal destruction other than use as a fuel (includes any preparation prior to burning)
Wastewater Treatment	H071	Chemical reduction with or without precipitation (includes any preparation or final processes for consolidation of residuals)
	H073	Cyanide destruction with or without precipitation (includes any preparation or final processes for consolidation of residuals)
	H075	Chemical oxidation (includes any preparation or final processes for consolidation of residuals)
	H076	Wet air oxidation (includes any preparation or final processes for consolidation of residuals)
	H077	Other chemical precipitation with or without pre-treatment (includes processes for consolidation of residuals)

CAP Management Category	2011 BR Management Method Code and Description	
Wastewater Treatment (continued)	H081	Biological treatment with or without precipitation (includes any preparation or final processes for consolidation of residuals)
	H082	Adsorption (as the major component of treatment)
	H083	Air or steam stripping (as the major component of treatment)
	H103	Absorption (as the major component of treatment)
	H121	Neutralization only (no other treatment)
	H122	Evaporation (as the major component of treatment; not reportable as H071-H083)
	H123	Settling or clarification (as the major component of treatment; not reportable as H071-H083)
	H124	Phase separation (as the major component of treatment; not reportable as H071-H083)
	H129	Other treatment (specify in comments; not reportable as H071-H124)
Sludge Treatment/ Stabilization/Encapsulation	H101	Sludge treatment and/or dewatering (as the major component of treatment; not H071-H075, H077, or H082)
	H111	Stabilization or chemical fixation prior to disposal at another site (as the major component of treatment; not H071-H075, H077, or H082)
	H112	Macro-encapsulation prior to disposal at another site (as the major component of treatment; not reportable as H071-H075, H077, or H082)
DISPOSAL		
Land Treatment or Application	H131	Land treatment or application (to include any prior treatment and/or stabilization)
Landfill	H132	Landfill or surface impoundment that will be closed as landfill (to include prior treatment and/or stabilization)
Deepwell or Underground Injection	H134	Deepwell or underground injection (with or without treatment; this waste was counted as hazardous waste)
Transfer/Storage	H141	The site receiving this waste stored/bulked and transferred the waste with no treatment or recovery (H010-H129), fuel blending (H061), or disposal (H131-H135) at that receiving site

Attachment 2 CAP Management Categories

In conducting the national capacity assessment, the U.S. Environmental Protection Agency (EPA) identified RCRA identification numbers reported for off-site handlers in Generation and Management (GM) Forms of the 2011 Biennial Report (BR) that did not meet the conventional RCRA identification number criteria: (1) first two characters represent a state abbreviation; (2) third character is a letter or number, and (3) last nine characters are numbers. These RCRA identification numbers, shown in the table below, were considered to be invalid and the Agency made an effort to identify the correct RCRA identification number using readily available data sources (e.g., RCRAInfo's Handler Module).

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
ALD000062246	ALD000622464	CHEMICAL WASTE MANAGEMENT
ALD000622462	ALD000622464	CHEMICAL WASTE MANAGEMENT
ALD000622624	ALD000622464	CHEMICAL WASTE MANAGEMENT
ALD067513767	ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.
ALD070513376	ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.
ALD070513761	ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.
ALD070513762	ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.
ALD705513767	ALD070513767	GIANT RESOURCE RECOVERY- ATTALLA, INC.
ALD961020694	ALD981020894	EWS ALABAMA INC.
ALD981020892	ALD981020894	EWS ALABAMA INC.
ALD981070894	ALD981020894	EWS ALABAMA INC.
AR0069748192	ARD069748192	CLEAN HARBORS EL DORADO
AR981057870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD009748192	ARD069748192	CLEAN HARBORS EL DORADO
ARD049748192	ARD069748192	CLEAN HARBORS EL DORADO
ARD058178192	ARD069748192	CLEAN HARBORS EL DORADO
ARD059748192	ARD069748192	CLEAN HARBORS EL DORADO
ARD066748192	ARD069748192	CLEAN HARBORS EL DORADO
ARD067748192	ARD069748192	CLEAN HARBORS EL DORADO
ARD069478192	ARD069748192	CLEAN HARBORS EL DORADO
ARD069742192	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748102	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748182	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748193	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748195	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748197	ARD069748192	CLEAN HARBORS EL DORADO
ARD069748992	ARD069748192	CLEAN HARBORS EL DORADO
ARD069749192	ARD069748192	CLEAN HARBORS EL DORADO
ARD069774819	ARD069748192	CLEAN HARBORS EL DORADO
ARD069784192	ARD069748192	CLEAN HARBORS EL DORADO
ARD091057870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD098105787	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD697481962	ARD069748192	CLEAN HARBORS EL DORADO
ARD901057870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD961057870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD980105787	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
ARD980157870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057570	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057670	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057780	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD98105787	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057871	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057874	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981057970	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981058870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981067870	ARD981057870	RINECO CHEMICAL INDUSTRIES, INC.
ARD981512170	ARD981512270	ASH GROVE CEMENT COMPANY
ARO069748192	ARD069748192	CLEAN HARBORS EL DORADO
AZD000337360	AZ0000337360	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
AZD098073550	AZD980735500	WORLD RESOURCES COMPANY
AZD908735500	AZD980735500	WORLD RESOURCES COMPANY
AZD980725500	AZD980735500	WORLD RESOURCES COMPANY
AZD980733500	AZD980735500	WORLD RESOURCES COMPANY
AZD980895332	AZD980695332	GANNON & SCOTT PHOENIX, INC
AZD98735500	AZD980735500	WORLD RESOURCES COMPANY
AZO000337360	AZ0000337360	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
AZR050010685	AZT050010685	HVF PRECIOUS METALS
AZT05010685	AZT050010685	HVF PRECIOUS METALS
AZT060010685	AZT050010685	HVF PRECIOUS METALS
CAD000646117	CAT000646117	CHEMICAL WASTE MANAGEMENT, INC.
CAD005302903	CAD008302903	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
CAD006252406	CAD008252406	PACIFIC RESOURCE RECOVERY
CAD008252405	CAD008252406	PACIFIC RESOURCE RECOVERY
CAD008262405	CAD008252405	PACIFIC RESOURCE RECOVERY
CAD008374432	CAD008364432	RHO-CHEM LLC
CAD008488026	CAD008488025	PHIBRO-TECH INC.
CAD00848825	CAD008488025	PHIBRO-TECH INC.
CAD008848802	CAD008488025	PHIBRO-TECH INC.
CAD068488025	CAD008488025	PHIBRO-TECH INC.
CAD080013352	CAT080013352	DEMENNO KERDOON
CAD082252405	CAD008252405	PACIFIC RESOURCE RECOVERY
CAD950675276	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD962062797	CAD982052797	J&B ENTERPRISES
CAD980067276	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD980067526	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD980657276	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD980857276	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD980875276	CAD980675276	CLEAN HARBORS BUTTONWILLOW, LLC
CAD982062797	CAD982052797	J&B ENTERPRISES
CAD982952797	CAD982052797	J&B ENTERPRISES
CAR008252405	CAD008252405	PACIFIC RESOURCE RECOVERY
CAT008302903	CAD008302903	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
CTD000804488	CTD000604488	CLEAN HARBORS OF CT INC
CTD002593867	CTD002593887	BRIDGEPORT UNITED RECYCLING
FLD000207449	FL0000207449	VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
IDD073114554	IDD073114654	US ECOLOGY IDAHO INC SITE B

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
IDL000666206	ILD000666206	ENVIRITE OF ILLINOIS INC
IDL088642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD000666203	ILD000666206	ENVIRITE OF ILLINOIS INC
ILD000666208	ILD000666206	ENVIRITE OF ILLINOIS INC
ILD005067630	ILD005087630	SIMS RECYCLING SOLUTIONS INC
ILD008087630	ILD005087630	SIMS RECYCLING SOLUTIONS INC
ILD008642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD009864242	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD038642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD088642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD088648424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD096642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD098624241	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD098624424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD098641424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD098842424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD099842424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
ILD380613913	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD900613913	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD963613913	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD980613513	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD980613915	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD988613913	ILD980613913	SAFETY KLEEN SYSTEMS INC
ILD098642424	ILD098642424	VEOLIA ES TECHNICAL SOLUTIONS
IN0000351386	IN0000351387	LIGHTING RESOURCES INC
INC000646943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
INC00064943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000046943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000064694	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000351387	IN0000351387	LIGHTING RESOURCES INC
IND000419212	IND006419212	LONE STAR GREENCASTLE WDF
IND000545943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000546943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000616943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000642943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000645943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000646843	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000646941	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000646942	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000646947	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000648943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000846943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND000949943	IND000646943	TRADEBE TREATMENT & RECYCLING LLC
IND005419212	IND006419212	GREENCASTLE WDF FACILITY
IND006081542	IND005081542	ESSROC CEMENT CORPORATION
IND006410212	IND006419212	GREENCASTLE WDF FACILITY
IND006418212	IND006419212	GREENCASTLE WDF FACILITY
IND008419212	IND006419212	GREENCASTLE WDF FACILITY
IND932190012	IND093219012	HERITAGE ENVIRONMENTAL SERVICES LLC
IND000646943	IND000646943	GREENCASTLE WDF FACILITY

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
INO000351387	IN0000351387	LIGHTING RESOURCES INC
INO005081542	IND005081542	ESSROC CEMENT CORPORATION
KS0980633259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD090633259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980063325	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980533259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980633258	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980633269	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980653259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980663259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD980833259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD990633259	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KSD998063325	KSD980633259	SYSTECH ENVIRONMENTAL CORP
KY053348108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD033348108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD033348188	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD050348108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD053340108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD053348105	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD053348106	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD053348180	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD053349108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD063348106	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
KYD98073196	KYD985073196	AES ENVIRONMENTAL, LLC
KYD985073195	KYD985073196	AES ENVIRONMENTAL, LLC
KYD985507196	KYD985073196	AES ENVIRONMENTAL, LLC
KYP053348108	KYD053348108	SAFETY-KLEEN SYSTEMS, INC.
LAD000077201	LAD000777201	CHEMICAL WASTE MANAGEMENT
LAD000147277	LA0000147272	CWM TRANSPORTATION
MAD038322250	MAD039322250	CLEAN HARBORS ENVIRONMENTAL SERVICES INC
MI0980991588	MID980991566	EQ DETROIT INC
MID000615298	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID000724031	MID000724831	MICHIGAN DISPOSAL INC
MID000724331	MID000724831	MICHIGAN DISPOSAL INC
MID000724631	MID000724831	MICHIGAN DISPOSAL INC
MID000724813	MID000724831	MICHIGAN DISPOSAL INC
MID000724834	MID000724831	MICHIGAN DISPOSAL INC
MID000724835	MID000724831	MICHIGAN DISPOSAL INC
MID053338801	MID005338801	GAGE PRODUCTS CO
MID074259566	MID074259565	DYNECOL INC
MID074259568	MID074259565	DYNECOL INC
MID074269565	MID074259565	DYNECOL INC
MID380991566	MID980991566	EQ DETROIT INC
MID880615298	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID900991566	MID980991566	EQ DETROIT INC
MID930991566	MID980991566	EQ DETROIT INC
MID960991566	MID980991566	EQ DETROIT INC
MID980515208	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID980615238	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID980615275	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
MID980615928	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID980815296	MID980615298	PETRO-CHEM PROCESSING GROUP OF NORTRU LLC
MID980891566	MID980991566	EQ DETROIT INC
MID980981566	MID980991566	EQ DETROIT INC
MID980981586	MID980991566	EQ DETROIT INC
MID980991565	MID980991566	EQ DETROIT INC
MID980991568	MID980991566	EQ DETROIT INC
MID980991586	MID980991566	EQ DETROIT INC
MID980991665	MID980991566	EQ DETROIT INC
MID990991566	MID980991566	EQ DETROIT INC
MID000724831	MID000724831	MICHIGAN DISPOSAL INC
MND098109847	MND981098478	SIEMENS INDUSTRY, INC.
MND961098478	MND981098478	SIEMENS INDUSTRY, INC.
MND981006478	MND981098478	SIEMENS INDUSTRY, INC.
MND981008478	MND981098478	SIEMENS INDUSTRY, INC.
MND984098478	MND981098478	SIEMENS INDUSTRY, INC.
MNR981098478	MND981098478	SIEMENS INDUSTRY, INC.
MOD000610765	MOD000610766	SOLVENT RECOVERY LLC
MOD054016286	MOD054018288	GREEN AMERICA RECYCLING LLC
MOD054016288	MOD054018288	GREEN AMERICA RECYCLING, LLC
MOD054018238	MOD054018288	GREEN AMERICA RECYCLING LLC
MOD054018268	MOD054018288	GREEN AMERICA RECYCLING LLC
MODO59299989	MOD059200089	BUICK RESOURCE RECYCLING FACILITY LLC
MSD007655876	MSD077655876	HOLCIM (US) INC/GEOCYCLE LLC
NCD095118210	NCD095119210	METALLIX REFINING INC.
NDJ002200046	NJD002200046	CYCLECHEM INC
NED981072351	NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
NED981172513	NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
NED981723351	NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
NED981723512	NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
NED981723523	NED981723513	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
NJD000245544	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJD001454544	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJD002358730	NJD002385730	DUPONT CHAMBERS WORKS
NJD002365730	NJD002385730	DUPONT CHAMBERS WORKS
NJD002454644	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJD003454544	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJD022454544	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJO002454544	NJD002454544	VEOLIA ES TECHNICAL SOLUTIONS LLC
NJR002385730	NJD002385730	DUPONT CHAMBERS WORKS
NVD330010000	NVT330010000	US ECOLOGY NEVADA
NVT300010000	NVT330010000	US ECOLOGY NEVADA
NVT330001000	NVT330010000	US ECOLOGY NEVADA
NVT33001000	NVT330010000	US ECOLOGY NEVADA
NVT330010100	NVT330010000	US ECOLOGY NEVADA
NVT330030000	NVT330010000	US ECOLOGY NEVADA
NVT330110000	NVT330010000	US ECOLOGY NEVADA
NVY330010000	NVT330010000	US ECOLOGY NEVADA
NYD098075641	NYD980756415	STABLEX CANADA INC
NYD980758415	NYD980756415	STABLEX CANADA INC

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
OH0048415665	OHD048415665	ROSS INCINERATION SERVICES INC
OH083377010	OHD083377010	ENVIRONMENTAL ENTERPRISES INC
OHD000724123	OHD000724153	CLEAN HARBORS OF CLEVELAND
OHD001926470	OHD001926740	HUKILL CHEMICAL CORP
OHD00192740	OHD001926740	HUKILL CHEMICAL CORP
OHD00724153	OHD000724153	CLEAN HARBORS OF CLEVELAND
OHD020273810	OHD020273819	VICKERY ENVIRONMENTAL INC
OHD045242706	OHD045243706	ENVIROSAFE SERVICES OF OHIO INC
OHD048415655	OHD048415665	ROSS INCINERATION SERVICES INC
OHD048415664	OHD048415665	ROSS INCINERATION SERVICES INC
OHD048415865	OHD048415665	ROSS INCINERATION SERVICES INC
OHD048441566	OHD048415665	ROSS INCINERATION SERVICES INC
OHD066060608	OHD066060609	CHEMTRON CORP
OHD08337010	OHD083377010	ENVIRONMENTAL ENTERPRISES INC
OHD090587364	OHD980587364	CLEAN HARBORS RECYCLING SERVICES OF OHIO LLC
OHD090897656	OHD980897656	CHEMICAL SOLVENTS INC
OHD091926740	OHD001926740	HUKILL CHEMICAL CORP
OHD092945293	OHD093945293	VEOLIA ES TECHNICAL SOLUTIONS LLC
OHD148415665	OHD048415665	ROSS INCINERATION SERVICES INC
OHD650613641	OHD980613541	HERITAGE-WTI INC
OHD960513541	OHD980613541	HERITAGE-WTI INC
OHD960613541	OHD980613541	HERITAGE-WTI INC
OHD980061354	OHD980613541	HERITAGE-WTI INC
OHD980163641	OHD980613541	HERITAGE-WTI INC
OHD980513541	OHD980613541	HERITAGE-WTI INC
OHD980613451	OHD980613541	HERITAGE-WTI INC
OHD980613641	OHD980613541	HERITAGE-WTI INC
OHD980687384	OHD980587364	CLEAN HARBORS RECYCLING SERVICES OF OHIO LLC
OHD980813541	OHD980613541	HERITAGE-WTI INC
OHD990613541	OHD980613541	HERITAGE-WTI INC
OHF083377010	OHD083377010	ENVIRONMENTAL ENTERPRISES INC
OHO980613541	OHD980613541	HERITAGE-WTI INC
OKD065436376	OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC
OKD065437376	OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC
OKD085438376	OKD065438376	CLEAN HARBORS LONE MOUNTAIN LLC
OKD967097151	OKD987097151	TRICAT INC
ORD089452853	ORD089452353	CHEMICAL WASTE MANAGEMENT OF THE NW
PA0987270725	PAD987270725	SIEMENS INDUSTRY INC
PAD002305887	PAD002395887	HORSEHEAD CORP
PAD002359558	PAD002389559	KEYSTONE CEMENT CO
PAD002385887	PAD002395887	HORSEHEAD CORP
PAD002395287	PAD002395887	HORSEHEAD CORP
PAD002395687	PAD002395887	HORSEHEAD CORP
PAD002395867	PAD002395887	HORSEHEAD CORP
PAD002395897	PAD002395887	HORSEHEAD CORP
PAD002395987	PAD002395887	HORSEHEAD CORP
PAD002396837	PAD002395887	HORSEHEAD CORP
PAD002396887	PAD002395887	HORSEHEAD CORP
PAD002593837	PAD002395887	HORSEHEAD CORP
PAD005690592	PAD085690592	REPUBLIC ENVIRONMENTAL SYSTEMS (PA) LLC

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
PAD007395887	PAD002395887	HORSEHEAD CORP
PAD010054045	PAD010154045	ENVIRITE OF PENNSYLVANIA INC
PAD010540045	PAD010154045	ENVIRITE OF PENNSYLVANIA INC
PAD065690592	PAD085690592	REPUBLIC ENVIRONMENTAL SYSTEMS (PA) LLC
PAD085890592	PAD085690592	REPUBLIC ENVIRONMENTAL SYSTEMS (PA) LLC
PAD091038227	PAD981038227	WORLD RESOURCES CO
PAD87561015	PAD087561015	INMETCO
PAD881038227	PAD981038227	WORLD RESOURCES CO
PAD967270725	PAD987270725	SIEMENS INDUSTRY INC
PAD981038277	PAD981038227	WORLD RESOURCES CO
RID981866104	RID981886104	GANNON AND SCOTT INC.
RIDO50322130	RID050322130	KELLEY METALS CORP
SC0036275626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SC981866007	SCD981866007	BASF CORP
SCA036275626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCD023627562	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCD036273626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCD036275656	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCD036575626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCD362756626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SCDO36275626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
SDC036275626	SCD036275626	GIANT RESOURCE RECOVERY SUMTER INC
TND000077218	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND000722186	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND000772156	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND000772166	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND000772168	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND00077218	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND007721860	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TND646612	TND000646612	HERAEUS PRECIOUS METALS NORTH AMERICA, LLC
TNR00022277	TNR000022277	MASTERMELT AMERICA, LLC
TNR000772186	TND000772186	TRADEBE TREATMENT & RECYCLING OF TENNESSEE, LLC
TX0981514383	TXD981514383	ALPHA OMEGA RECYCLING
TXD000388896	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000638896	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000838396	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000838696	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000838806	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000838893	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000838898	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD000898896	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXD007603371	TXD077603371	SAFETY-KLEEN SYSTEMS DENTON RECYCLE CENTER
TXD055141368	TXD055141378	CLEAN HARBORS DEER PARK
TXD055141376	TXD055141378	CLEAN HARBORS DEER PARK
TXD05514378	TXD055141378	CLEAN HARBORS DEER PARK
TXD055147318	TXD055141378	CLEAN HARBORS DEER PARK
TXD076603371	TXD077603371	SAFETY-KLEEN SYSTEMS DENTON RECYCLE CENTER
TXD982280149	TXD982290140	CLEAN HARBORS LAPORTE
TXDOOO838896	TXD000838896	VEOLIA ES TECHNICAL SOLUTIONS
TXR077603371	TXD077603371	SAFETY-KLEEN SYSTEMS DENTON RECYCLE CENTER

REPORTED_RECEIVER_ID	ASSUMED_RECEIVER_ID	ASSUMED_RECEIVER_NAME
UTD081552177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD098155216	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD098155217	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD891552117	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD951552177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD961552177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD968155217	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981155177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981532177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981552117	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981552171	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981582177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD981K55217	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD982552177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTD982598878	UTD982598898	ENERGYSOLUTIONS LLC
UTD998155217	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
UTG981552177	UTD981552177	CLEAN HARBORS ARAGONITE, LLC
WAD991821767	WAD991281767	BURLINGTON ENVIRONMENTAL LLC KENT
WID003067148	WID003967148	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID388566543	WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID788566543	WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID980829475	WID990829475	WRR ENVIRONMENTAL SERVICES CO INC
WID988566643	WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID988580058	WID988580056	BADGER DISPOSAL OF WI INC
WID988666543	WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID989566543	WID988566543	VEOLIA ES TECHNICAL SOLUTIONS LLC
WID998580056	WID988580056	BADGER DISPOSAL OF WI INC
WID003967148	WID003967148	VEOLIA ES TECHNICAL SOLUTIONS LLC

Appendix E
Demand and Capacity at
Commercial Hazardous Waste Specialty Operations Facilities

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Demand and Capacity at Commercial Hazardous Waste Specialty Operations Facilities

Some commercial hazardous waste management facilities have units specifically designed for the unique management required by certain wastes. These units typically are permitted to meet the exact specifications of the unique waste stream, and are not available for management of all waste types.

This appendix provides information on commercial hazardous waste specialty operations facilities designed for the management of mixed RCRA wastes, explosives wastes, or spent potliners from primary aluminum reduction (i.e., EPA listed K088 wastes).

1. Facilities Designed for the Management of Mixed RCRA Wastes

Based on data reported in the Hazardous Waste Report (also known as the Biennial Report or BR) and obtained through limited consultations with commercial management facilities, each year, about 2,600 tons of wastes are managed at the two commercial landfill facilities listed below, which are designed primarily for the management of mixed wastes. This quantity of waste translates into 65,000 tons over a 25-year period (i.e., 2,600 tons/year x 25 years).

RCRA Identification Number	Facility Name
TXD988088464	WASTE CONTROL SPECIALISTS
UTD982598898	ENERGYSOLUTIONS LLC

EPA estimates an additional *annual* demand for commercial capacity of 620 tons from Small Quantity Generators/Conditionally Exempt Small Quantity Generators (SQGs/CESQGs) and transfer/storage facilities (refer to Appendix D for the methodology used to derive this estimate), which translates into a demand of 15,500 tons over a 25-year period. Thus, the demand from mixed wastes is estimated to be 80,500 tons (i.e., 65,000 tons + 15,500 tons) over a 25-year period (i.e., through the year 2039).

For purposes of this analysis, EPA assumes that the total currently permitted and available landfill capacity for mixed wastes is 566,302 tons. This estimate is based on permitted and available capacity for one of the two mixed waste landfills because one facility did not provide current information on remaining permitted capacity. (Refer to Appendix A for information obtained through consultations.)

Based on the above information, EPA determined that there is sufficient capacity to manage mixed wastes.

2. Facilities Designed for the Management of Explosive Wastes

Based on data reported in Section 3 of Generation and Management (GM) Forms of the BR (i.e., GM Offsite Forms) and information obtained through limited consultations with commercial management facilities, each year, about 8,500 tons of explosive wastes are managed at the commercial hazardous waste management facilities listed below.¹² All of these facilities have permitted Subpart X units (i.e., open burning/open detonation units [X01 units] or thermal units [X03 units]).

RCRA Identification Number	Facility Name
IAR000005876	ADVANCED ENVIRONMENTAL TECHNOLOGY
MOD985798164	EBV EXPLOSIVES ENVIRONMENTAL COMPANY
TXD987988318	SCHLUMBERGER WELL SERVICES PERFORATING AND TESTING
UT3170027277	ATK LAUNCH SYSTEMS INC. - NIROP
UTD009081357	ATK LAUNCH SYSTEMS INC. - PROMONTORY

EPA estimates an additional demand for commercial capacity of 36 tons from SQGs/CESQGs and transfer/storage facilities (refer to Appendix D for the methodology used to derive this estimate), and a demand of 430 tons from non-RCRA industrial wastes¹³. Thus, the demand from explosive wastes is estimated to be about 9,000 tons per year.

Most of the demand from explosive wastes (about 73%) is managed by one facility: EBV Explosives Environmental Company. This facility has one commercial unit currently operating that has been designed exclusively for the treatment of explosive wastes. Based on consultation with the EBV Explosives Environmental Company, the facility has a capacity of 22,850 tons per year for the treatment of explosive wastes (refer to Appendix A).

Based on the above information, EPA determined that there is sufficient capacity to manage explosive wastes.

3. Facilities Designed for the Management of Spent Potliners from Primary Aluminum Reduction

Based on data reported in GM Offsite Forms of the BR, about 24,000 tons of K088 waste were shipped off site for incineration at U.S. commercial hazardous waste management facilities in 2011. In addition, EPA estimates that about 1,300 tons were shipped to foreign countries for incineration. Thus, the incineration demand from K088 waste is estimated to be 25,300 tons per year.

Most of the incineration demand from K088 waste (about 47%) is managed by one facility: Reynolds Metals Company Gum Springs Plant (RCRA identification number ARD006354161).

¹² Based on GM Offsite Form data, about 2,400 tons of explosive wastes were shipped off site for management in 2011. About 73 percent of the total quantity of waste reported in GM Offsite Forms was managed by the EBV Explosives Environmental Company. Note, however, that, during consultation, this facility indicated that they manage about 6,169 tons of explosive wastes per year (refer to Appendix A). In estimating demand from explosive wastes, EPA assumed that 6,169 tons accounted for 73 percent of the total amount of explosive wastes.

¹³ Based on consultations, it is estimated that non-RCRA industrial wastes account for 5 percent of total demand (i.e., [process waste] + [SQG/CESQ and transfer/storage facilities]).

This facility has one commercial incinerator that treats primarily K088 waste from Reynolds Metals Company plants as well as from non-Reynolds Metals Company sources. Based on consultation with the Reynolds Metals Company, the incinerator at the Gum Springs Plant has a capacity of 120,000 tons per year (refer to Appendix A).

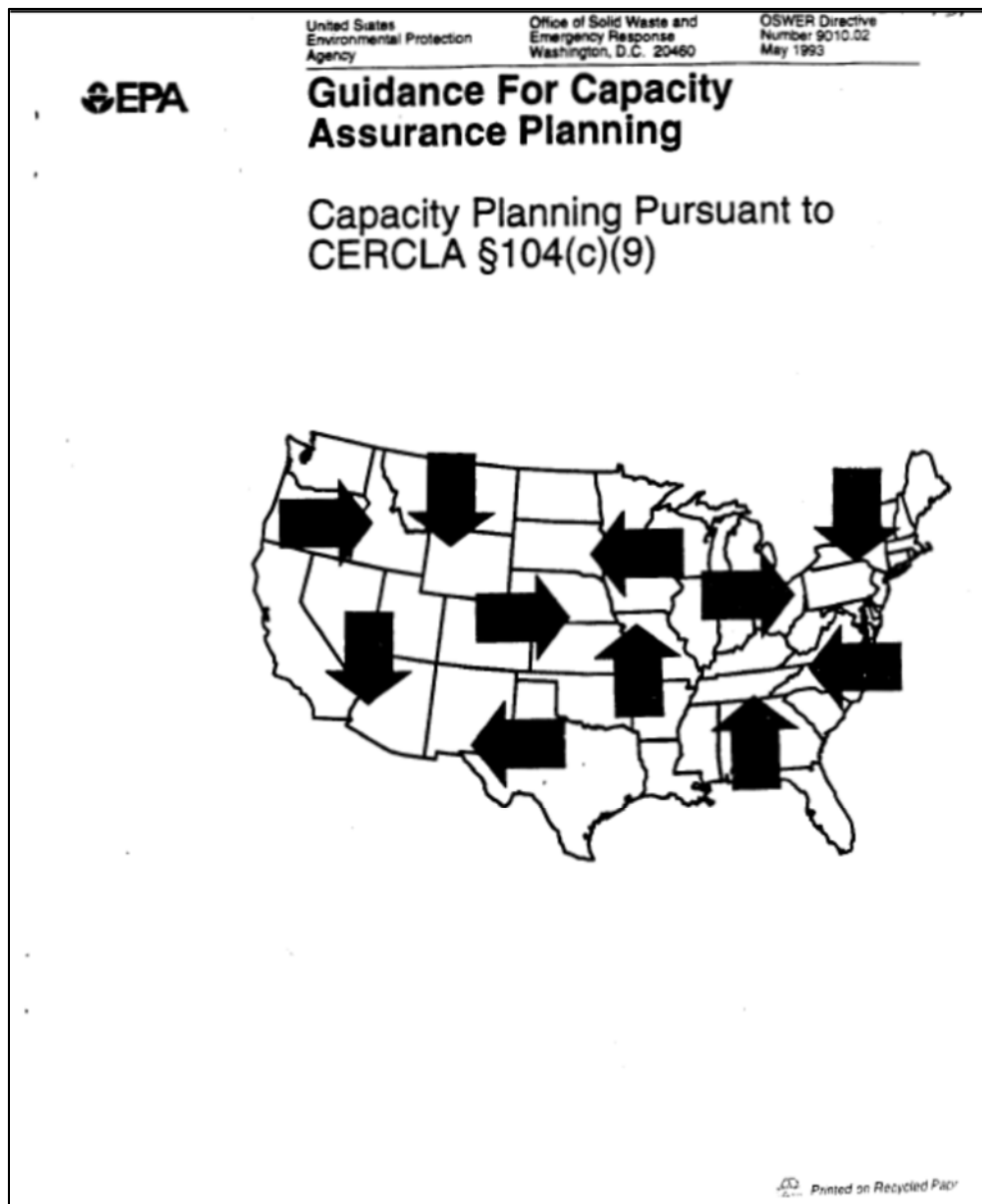
Based on the above information, EPA determined that there is sufficient capacity to manage K088 waste.

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Appendix F
1993 Guidance

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(<http://infohouse.p2ric.org/ref/23/22567.pdf>).
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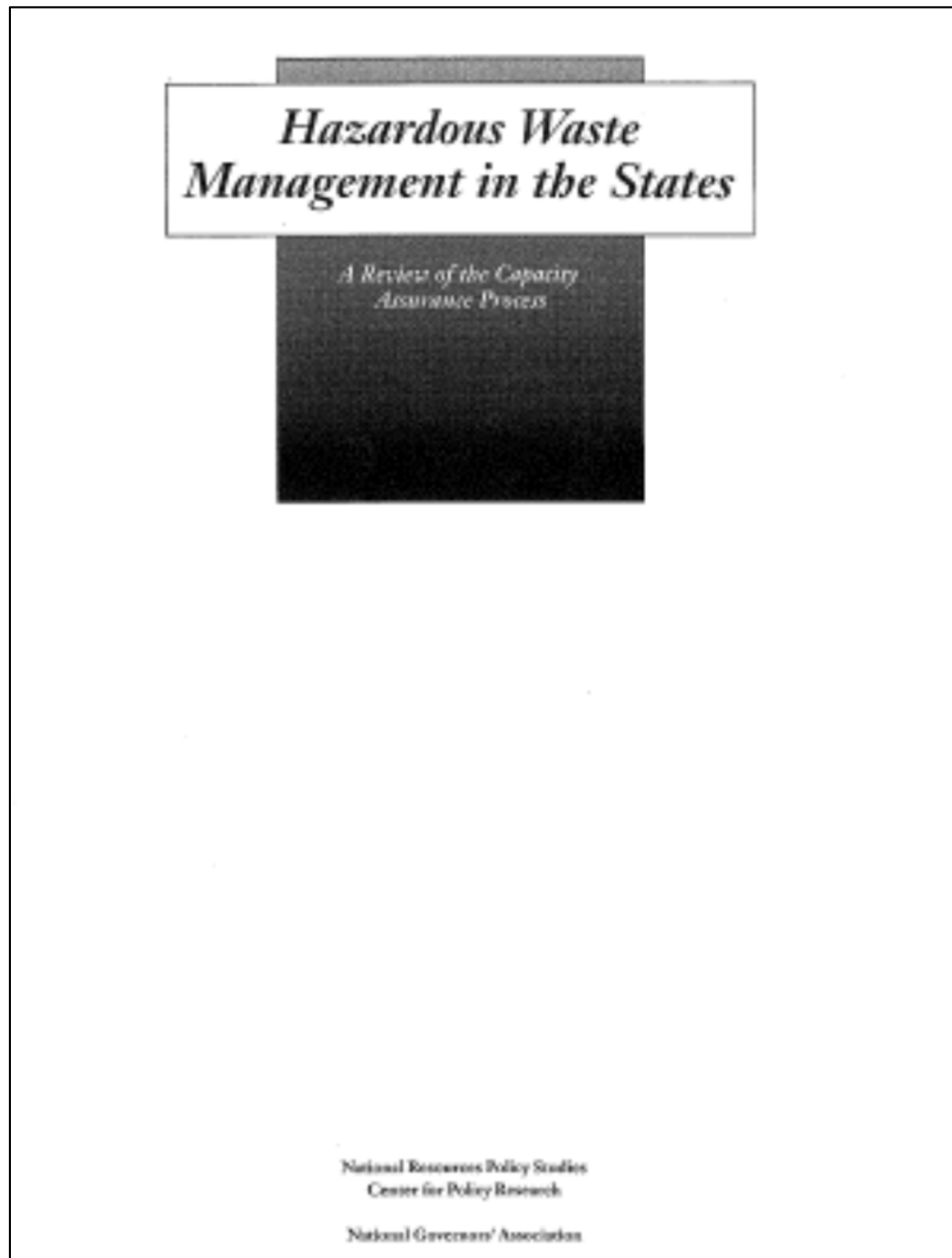


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Appendix G
States' Comments on
1989 Capacity Assurance Planning Process

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