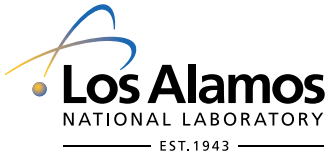
LA-14375-PR
Progress Report

2007 Toxic Chemical Release Inventory Report for the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Section 313



Edited by Hector Hinojosa, Group IRM-CAS.

The four most recent reports in this unclassified series are LA-14186-PR, LA-14237-PR, LA-14313-PR, and LA-14356-PR.

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Progress Report
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2007 Toxic Chemical Release Inventory Report for the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Section 313

Ecology and Air Quality Group (ENV-EAQ)

Los Alamos
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2007 Toxic Chemical Release Inventory Report for the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Section 313

by

Ecology and Air Quality Group

ABSTRACT

For reporting year 2007, Los Alamos National Laboratory submitted Form R reports for lead and nitric acid as required under the Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313. No other EPCRA Section 313 chemicals were used in 2007 above the reportable thresholds. This document was prepared to provide a description of the evaluation of EPCRA Section 313 chemical use and threshold determinations for LANL for calendar year 2007, as well as to provide background information about data included on the Form R reports.

Section 313 of EPCRA specifically requires facilities to submit a Toxic Chemical Release Inventory Report (Form R) to the U.S. Environmental Protection Agency (EPA) and state agencies if the owners and operators manufacture, process, or otherwise use any of the listed toxic chemicals above listed threshold quantities. EPA compiles this data in the Toxic Release Inventory database. Form R reports for each chemical over threshold quantities must be submitted on or before July 1 each year and must cover activities that occurred at the facility during the previous year.

In 1999, EPA promulgated a final rule on persistent bioaccumulative toxics (PBTs). This rule added several chemicals to the EPCRA Section 313 list of toxic chemicals and established lower reporting thresholds for these and other PBT chemicals that were already reportable. These lower thresholds became applicable in reporting year 2000. In 2001, EPA expanded the PBT rule to include a lower reporting threshold for lead and lead compounds. Facilities that manufacture, process, or otherwise use more than 100 lb of lead or lead compounds must submit a Form R.

1.0 INTRODUCTION

On April 21, 2000, President Clinton signed Executive Order (EO) 13148, which requires all federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act (EPCRA), or Title III of the Superfund Amendments and Reauthorization Act of 1986. EO 13148 supersedes EO 12856 of 1995. Section 313 of EPCRA specifically requires facilities to submit a Toxic

Chemical Release Inventory Report (Form R) to the U.S. Environmental Protection Agency (EPA) and state agencies if the owners and operators manufacture, process, or otherwise use any of the listed toxic chemicals above listed threshold quantities. On October 19, 1999, EPA promulgated a final rule on persistent bioaccumulative toxics (PBTs). This rule added several chemicals to the EPCRA Section 313 list of toxic chemicals and established lower reporting thresholds for these and other PBT chemicals that were already reportable under EPCRA Section 313. These lower thresholds became applicable in reporting year 2000. On January 17, 2001, the PBT rule was amended to include lead and lead compounds. The rule lowered the reporting threshold for lead and lead compounds to 100 lb. The lower threshold for lead became applicable in reporting year 2001.

EPA compiles the data submitted on the Form R reports in a Toxic Release Inventory (TRI) database. The TRI database provides the public with information on the releases of EPCRA Section 313 chemicals in their communities as well as provides EPA with release information to assist in determining the need for future regulations (http://www.epa.gov/tri/). Form R must be submitted on or before July 1 each year and must cover activities that occurred at the facility during the previous calendar year. Even though federal facilities were not required to report under EPCRA Section 313 until 1995, Los Alamos National Laboratory (LANL or the Laboratory) had been voluntarily reporting under EPCRA Section 313 since 1987.

For reporting year 2007, the Laboratory submitted Form R reports for lead and nitric acid. No other EPCRA Section 313 chemicals were used in 2007 above the reportable thresholds. Toxic chemicals used in exempt activities as defined by the regulation are excluded from the threshold determinations and release calculations. Descriptions of these exempt activities are included in Section 2.2 of this report.

This report summarizes the data evaluation, exemption analysis, activity determinations, and threshold determinations for toxic chemical use at the Laboratory in 2007 and describes the environmental release data reported on the Form R reports. Individual sections for certain toxic chemicals used at the Laboratory are included in this report. Appendix A presents a summary table of EPCRA Section 313 chemicals procured at the Laboratory in 2007. Appendix B includes copies of Form R reports submitted to EPA and the New Mexico Environment Department.

1.1 Facility Information and Contacts

LANL is located at latitude of 35°49'51" and longitude of 106°14'15" in Los Alamos County, New Mexico. During 2007, the Laboratory was owned by the U.S. Department of Energy (DOE) and operated by Los Alamos National Security, LLC.

Facility information is as follows:

- LANL
  - ❖ TRI facility identification number: 87545LSLMSLOSAL
  - ❖ LANL technical contact: Mr. Steve Story at (505) 665-2169
  - ❖ LANL public contact: Ms. Lorrie Bonds Lopez at (505) 667-0216

- Los Alamos DOE complex
  - TRI facility identification number: 87544SDLSL52835
  - DOE technical and public contact: Mr. Gene Turner at (505) 667-5794

2.0 ACTIVITY DETERMINATIONS, EXEMPTIONS, AND QUALIFIERS

2.1 Activity Determinations

EPCRA Section 313 chemical usage is evaluated against three activity determinations. For listed chemicals that are not PBTs, the thresholds are described below.

2.1.1 Manufacture

The term manufacture means to produce, prepare, compound, or import an EPCRA Section 313 chemical. The term manufacture also includes coincidental production of an EPCRA Section 313 chemical as a result of the manufacture, processing, otherwise use, or treatment of other chemical substances. The threshold for reporting manufactured chemicals is 25,000 lb.

2.1.2 Process

The term process means the preparation of a listed EPCRA Section 313 chemical, after its manufacture, for distribution in commerce. Processing is usually the intentional incorporation of an EPCRA Section 313 chemical into a product. The threshold for reporting processed chemicals is 25,000 lb.

2.1.3 Otherwise Use

The term otherwise use usually means any use of an EPCRA Section 313 chemical, including in a mixture or trade name product or waste that is not covered by the terms manufacture or process. The threshold for reporting otherwise use chemicals is 10,000 lb.

2.1.4 Persistent Bioaccumulative Toxics

For the subset of chemicals listed as PBTs, lower reporting thresholds have been established for individual chemicals ranging from 100 lb to 0.1 gram. These lower thresholds apply to each of the activity determinations: manufacture, process, and otherwise use. Although the threshold for each activity is the same, each chemical must be evaluated against the activity determinations to determine in which activity the chemical is used. Threshold determinations for PBTs are evaluated separately against the manufacture, process, and otherwise use activities described above.

2.2 Exemptions

Exemptions from EPCRA Section 313 toxic chemical reporting applicable to the Laboratory are discussed below.

2.2.1 Laboratory Activities Exemption

EPCRA Section 313 chemicals that are manufactured, processed, or otherwise used in laboratory activities at a covered facility under the direct supervision of a technically qualified individual do not

have to be considered for threshold determinations and release calculations. However, pilot plant scale, specialty chemical production, or the use of chemicals for laboratory support activities do not qualify for this laboratory activities exemption.

2.2.2 Otherwise Use Exemption

Certain activities involving EPCRA Section 313 chemicals qualify as otherwise used and are specifically exempted. These include the following:

- otherwise use as a structural component of the facility,
- otherwise use in routine janitorial or facility grounds maintenance,
- personal uses by employees or other persons,
- otherwise use of products containing EPCRA Section 313 chemicals for the purpose of maintaining motor vehicles operated by the facility, or
- otherwise use of EPCRA Section 313 chemicals contained in intake water (used for processing or non-contact cooling) or in intake air (used either as compressed air or for combustion).

2.2.3 Article Exemption

EPCRA Section 313 chemicals contained in articles that are processed or otherwise used are exempt from threshold determinations and release calculations. For an item to be exempt as part of an article, it must satisfy the following three criteria:

- be a manufactured item that is formed to a specific shape or design during manufacture,
- have end-use functions dependent in whole or in part on its shape or design during end use, and
- must not release an EPCRA Section 313 chemical under normal circumstances of processing or otherwise use of the item at the facility. Total releases from any item or like items qualifying as article exempt must be equal to or less than 0.5 lb to remain exempt as articles (EPA 2006).

2.2.4 *De Minimis* Exemption

The *de minimis* exemption allows facilities to exempt certain minimal concentrations of EPCRA Section 313 chemicals contained in mixtures or other trade name products when making threshold determinations and release calculations. The *de minimis* concentrations are set by EPA at either 1% or 0.1%, depending on whether or not the chemical is a suspected carcinogen or carcinogen.

EPA eliminated the *de minimis* exemption for the list of PBT chemicals. This means that facilities must include all amounts of PBTs in threshold determinations and release and other waste management calculations regardless of the concentration of the PBTs in mixtures or trade name products.

2.3 Qualifiers

In addition to exemptions, certain EPCRA Section 313 chemicals have qualifiers. Qualifiers indicate that these chemicals are subject to the reporting requirements only if manufactured, processed, or otherwise used in a specific form or when a certain activity is performed. Examples of qualifiers are shown in Table 2-1.

Table 2-1 Examples of EPCRA Section 313 Chemical Qualifiers

Chemical Name	Chemical Abstract Service (CAS) Number	Qualifier
Aluminum	7429-90-5	Only if it is a fume or dust form
Hydrochloric Acid (HCl)	7647-01-0	Only if it is an aerosol form
Isopropyl Alcohol	67-63-0	Only if it is being manufactured by the strong acid process
Sulfuric Acid	7664-93-9	Only if it is an aerosol form
Nitrate Compounds	NA*	Only when in aqueous solution
Vanadium	7440-62-2	Except when contained in an alloy

*NA = not applicable

3.0 ANALYSIS FOR THRESHOLD DETERMINATIONS

There are several steps in determining when a chemical triggers reporting under EPCRA Section 313. When a chemical is manufactured, processed, or otherwise used in amounts greater than the threshold quantity, a Form R report and release calculations are required. Figure 3-1 presents a flowchart that shows the steps the Laboratory performs to determine which chemicals must be reported under EPCRA Section 313.

3.1 Threshold Determinations for Chemical Use

The Laboratory tracks chemicals brought onsite using a chemical inventory-tracking database called ChemLog. ChemLog captures the majority of procured chemicals and provides relevant data (e.g., chemical name, CAS number, quantity, etc.) to assist in threshold determinations. The underlying assumption used in the preliminary threshold determinations for reporting under EPCRA Section 313 is that chemicals are purchased and used in the same calendar year. If unusually large purchases are noted in this preliminary analysis, further investigation is done to determine if bulk chemicals were purchased and only a portion of them used in the calendar year.

3.1.1 Inventory

For calendar year 2007, a total of 55,638 records were added to ChemLog and evaluated; 23,671 were pure chemicals and 31,967 records were mixtures. Individual items with identifiable CAS numbers in ChemLog were considered pure chemicals. These items were matched by CAS number to the list of EPCRA Section 313 chemicals. The resulting records were summed in pounds for each pure chemical.

Individual items that did not have CAS numbers in ChemLog were considered mixtures. The exemptions discussed in Section 2.2 of this report were applied to the mixtures and each qualifying item was classified according to the applicable exemption. Material Safety Data Sheets for the remaining mixtures purchased in quantities greater than 50 lb were reviewed to determine the presence and amount of EPCRA Section 313 constituents. This was done to ensure that the chemicals with thresholds greater than 100 lb would be identified. Listed chemicals with thresholds less than 100 lb were examined individually, based on process knowledge and known potential sources. Each mixture that contained an EPCRA

Section 313 chemical was further evaluated to determine the weight of each constituent. The totals for these amounts were then added to the quantities of pure EPCRA Section 313 chemicals.

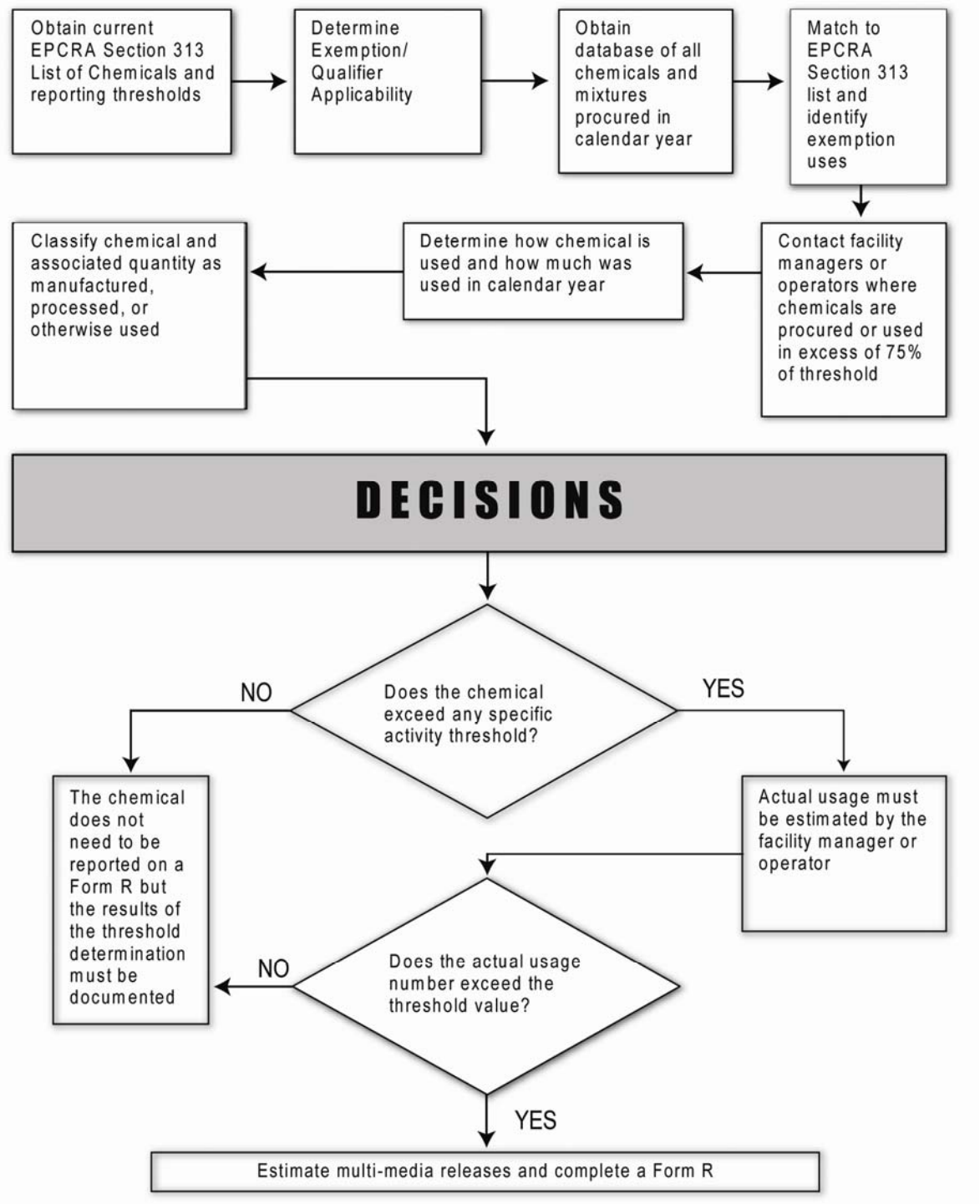


Figure 3-1 Flowchart process of analysis for EPCRA Section 313 reporting.

3.1.2 EPCRA Reporting Tool

An automated search tool was developed using Microsoft Access to refine the data in ChemLog. The EPCRA reporting tool performs the following steps in the ChemLog data download:

- Identifies and labels exemptions through electronic text searches. The exemptions are from 40 CFR 372.38, Exemptions for Toxic Release Reporting. When a chemical is exempt, it is not considered when determining whether an applicable threshold has been met. Specifically, chemical containers were classified as follows:
    - **Maintenance**—routine janitorial or facility grounds maintenance (e.g., cleaning supplies, paints, fertilizers, and pesticides);
    - **Maintaining Motor Vehicles** (e.g., antifreeze, brake fluid);
    - **Personal Uses**—non-process related items for employee personal use;
    - ***De Minimus***—the percent of a non-PBT Section 313 chemical in a mixture is less than 1% for a non-carcinogen or 0.1% for a carcinogen;
    - **Article**—structural component exemption; and
    - **Laboratory Activities**—if a toxic chemical is manufactured, processed, or used in a laboratory at a covered facility under the supervision of technically qualified individual.
- Identifies and labels EPCRA 313 compounds. There are 30 different chemical categories included on the EPCRA 313 list. Many of these categories do not have specific CAS numbers associated with them, except for polycyclic aromatic compounds (PACs) and dioxins. These two categories were evaluated in ChemLog as part of the pure chemical evaluation since they have searchable CAS numbers for compounds included in their categories. The other classes of compounds were searched in the 2007 ChemLog data set by using chemical-specific text searches in the chemical name field.
- Matches pure chemicals (chemical containers with an identifiable CAS number) with the list of EPCRA Section 313 chemicals by matching CAS numbers.

A few EPCRA Section 313 chemicals were selected for further analysis to determine if they were used in exempt activities. For 2007, the chemicals that were analyzed in more detail included

- HCl,
- Sulfuric Acid,
- Nitric Acid,
- Nitrate Compounds,
- Mercury Compounds,
- Lead Compounds, and
- PACs.

3.2 Threshold Determination Results

3.2.1 Procurement Totals

The amounts of listed EPCRA Section 313 chemicals identified in the ChemLog, direct procurement, and other sources were all summed together to perform preliminary threshold determinations. The resulting totals for the top 10 listed EPCRA Section 313 chemicals are summarized below in Table 3-1.

Table 3-1 Top 10 EPCRA Section 313 Chemicals Procured in 2007

CAS No	Chemical Name	Total Procured (lb)
7664-93-9	Sulfuric Acid (liquid form)	15,662
7697-37-2	Nitric Acid	4,702
NA	Polychlorinated Alkanes (C10 to C13)	4,109
7647-01-0	Hydrochloric Acid	3,799
NA	Nitrate Compounds	2,456
NA	Manganese Compounds	2,294
75-09-2	Dichloromethane	1,592
67-56-1	Methanol	1,269
67-63-0	Isopropyl Alcohol	1,065
75-45-6	Chlorodifluoromethane	960

A complete table of EPCRA Section 313 chemicals showing all contributing sources is provided in Appendix A. Chemicals that were procured in amounts greater than 75% of the applicable EPCRA Section 313 threshold were evaluated further and the analyses are summarized in Section 4 of this report.

4.0 ADDITIONAL EVALUATION OF CERTAIN TOXIC CHEMICALS

The toxic chemicals described below either are used in relatively high volumes at the Laboratory, have very low reporting thresholds, are of special interest, or have been reported in the past. Additional analyses were required to determine total usage of these chemicals. None of the chemicals presented in this section exceeded any of the applicable thresholds in 2007 and therefore no reporting was required.

4.1 Mercury

Mercury and mercury compounds are used in various places throughout the Laboratory. As part of the PBT rule, the threshold for EPCRA Section 313 reporting of mercury was reduced to 10 lb. In 2007, mercury was used in four areas at the Laboratory. Each is described below.

4.1.1 Mercury Procurements

A listing of all procurements in 2007 of mercury and mercury compounds was extracted from ChemLog. Line items containing a CAS number for mercury (7439-97-6) were included, as well as any line items containing the word “mercury” or the symbol “Hg” in the text description.

The total amount of mercury and mercury compounds in ChemLog for 2007 was 14.3 lb. The purchasers or users of the mercury and mercury compounds were contacted to determine the following:

- If the purchase was actually mercury or contained mercury or mercury compounds,
- If a mixture or solution, what concentration of mercury the mixture or solution contained,
- If the mercury was used in a laboratory experiment setting, therefore it is subject to the laboratory exemption under EPCRA Section 313.

According to EPCRA Section 313 guidance documents, the laboratory exemption is applied to the quantity of a listed toxic chemical that is manufactured, processed, or otherwise used in a laboratory under the supervision of a technically qualified person. A total of 12.4 lb of mercury was determined to be laboratory exempt. Although 12.4 lb was determined to be laboratory exempt, the actual amount of mercury in chemical containers is considerably less. The chemical names of the exempted containers are "mercury standard solutions" which contain only ppm quantities of mercury. The remaining 1.8 lb of mercury from the ChemLog analysis was assumed to be otherwise used and applied to the 10-lb threshold.

4.1.2 Los Alamos Neutron Science Center Shutter System

The largest use of mercury at the Laboratory is in the Los Alamos Neutron Science Center (LANSCE) shutter system. Reservoirs of mercury are used as shields on the neutron beam shutter system. When the beam is operated, pressurized helium is forced into the mercury reservoir, pushing the mercury up into a head space and allowing the neutron beam to pass through the shutter. LANSCE maintains 12 neutron beam shutter systems, each with a reservoir of mercury. The total amount of mercury in these reservoirs is approximately 12,000 lb. Each reservoir is a closed system and only opened occasionally when minor repairs or maintenance are completed.

During 2007, minor maintenance was performed on the mercury shutter system that included removing mercury from the system and then adding it back after the maintenance was completed. According to LANSCE personnel, the total amount of mercury displaced during maintenance in 2007 was approximately 3 lb and this amount was added towards the 10-lb otherwise used threshold for mercury.

4.1.3 Spallation Neutron Source Target Development Experiment

The Spallation Neutron Source (SNS) Target Development Experiment began operations at the Laboratory in December 2001. The experiment also operated in 2002, 2005, and 2006. The experiment studies issues associated with using mercury as the target material for the SNS. The experiment did not operate during 2007. The loop is a closed system and it is not opened to the atmosphere.

In past years, the mercury added to the system has been considered laboratory exempt. No mercury was added in 2007.

4.1.4 Fuel Combustion

In 2007, the Laboratory generated mercury compound emissions from the following combustion sources: the Technical Area (TA) 21 steam plant, the asphalt plant, the TA-3 power plant, the TA-3 combustion

turbine, and from numerous small boilers. The mercury compound emissions from these sources totaled 0.29 lb towards the manufactured threshold. Additionally, mercury is found in diesel fuel as an impurity. According to EPA guidance, the concentration of mercury in diesel fuel is 0.001 ppm (EPA 2001a). LANL used approximately 91,403 gallons of diesel fuel in 2007 and this equates to 0.0007 lb towards the otherwise used threshold.

4.1.5 Conclusion

The total amount of mercury qualifying as otherwise used equals 4.8 lb, which is below the reporting threshold value of 10 lb. The total amount of mercury compounds manufactured was 0.29 lb and is also below the reporting threshold of 10 lb. Therefore, it was determined that reporting of mercury under EPCRA Section 313 is not necessary for 2007. A summary of the 2007 mercury threshold determination is provided in Table 4-1.

Table 4-1 Summary of 2007 Mercury Threshold Determination

Description	Amount of Mercury (lb)	Data Source	EPCRA Section 313 Activity Determination	EPCRA Section 313 Activity Threshold (lb)
Purchasing of Mercury Standards and Instruments	12.4	Procurement data and facility personnel interviews	Laboratory Exempt	NA
Other Procurement	1.8	Procurement Records	Otherwise Used	10
LANSCE Shutter System	3	LANSCE Facility Records		
Fuel Combustion	0.0007	Fuel Use Records and EPA Guidance		
Fuel Combustion	0.29	Fuel Use Records and EPA AP-42	Manufactured	10

4.2 Sulfuric Acid

EPCRA Section 313 reporting guidelines state that sulfuric acid must be reported only if it is in an aerosol form, including mists, vapors, gas, fog, and other airborne forms of any particle size. This category would include acid aerosols generated in storage tanks and from fuel combustion.

Sulfuric acid is used in liquid form for demineralizer regeneration and for sample analysis at the TA-46 Sanitary Wastewater Systems Consolidation (SWSC) Plant. In previous years, over 100,000 lb of sulfuric acid was used. In 2007, only 49 lb was used. The reason for the significant decrease is the installation of a reverse osmosis system in late 2003 that resulted in much lower use of caustics and acids. Sulfuric acid is also purchased in large quantities for demineralizer regeneration at TA-3-22. In 2007, 3,660 lb of sulfuric acid was used at TA-3-22. Because the sulfuric acid used at the SWSC Plant and TA-3-22 is used in liquid form, it is not subject to EPCRA Section 313 reporting. TA-3-22 stores sulfuric acid in a 4,500 gallon tank. The EPA Tanks 4.0 model was used to make a very conservative estimate that 0.003 lb of sulfuric acid mist was generated inside the tank at TA-3-22.

Sulfuric acid aerosols are generated as a result of storage tank emissions, fuel combustion byproducts, and asphalt production. The total amount of sulfuric acid mist generated from these activities was 612.8 lb, less than the 25,000-lb manufacture threshold and, therefore, not reportable under EPCRA. Based on EPA guidance for fuel oil (diesel fuel) combustion, it is assumed that all sulfur trioxide (SO_3) emissions are in the form of sulfuric acid (EPA 1998a). For natural gas combustion, it is conservatively assumed that all sulfur oxides emissions are in the form of sulfuric acid mist because separate SO_3 emission factors are not available.

In 2007, numerous small purchases totaling 257.53 lb of sulfuric acid were procured at the Laboratory. These numerous small purchases of sulfuric acid captured in ChemLog are assumed to be in aerosol form since the specific usage is unknown. Total purchases do not exceed the otherwise use reporting threshold. A summary of the threshold determinations for sulfuric acid is provided in Table 4-2.

Table 4-2 Sulfuric Acid Threshold Determination for 2007

Description	Amount of Sulfuric Acid (lb)	Data Source	EPCRA Section 313 Activity Determination	EPCRA Section 313 Activity Threshold (lb)
TA-3-22 Demineralizer Regeneration	3,660	Site Support Contractor Logs	Not in aerosol form and not subject to EPCRA Section 313	NA
Demineralizer Regeneration and Water Analysis at the SWSC Plant	49	Site Support Contractor Logs		
Procurement Not Evaluated	257.5	ChemLog	Otherwise used*	10,000
Storage Tank Air Emissions	0.003	EPA, Tanks 4.0 Software	Manufactured	25,000
Fuel Combustion Byproducts	612.8	AP-42 and fuel use records		
Asphalt Plant Production	8.0	AP-42 and facility records		

*Assumed to be in aerosol form.

4.3 Hydrochloric Acid (HCl)

HCl is purchased for numerous processes and is also generated as a combustion byproduct. The total amount of HCl procured in 2007 was 3,799 lb. To be conservative, the entire amount was assumed to be in an aerosol form and was evaluated against the 10,000-lb otherwise use threshold, which it did not exceed. Therefore, it was not necessary to report HCl in 2007.

4.4 Polycyclic Aromatic Compounds (PACs)

PACs are a chemical category included on the EPCRA Section 313 list as part of the PBT rule. The threshold for reporting PACs is 100 lb. Benzo(g,h,i)perylene is a PAC that has its own separate threshold. The threshold for benzo(g,h,i)perylene is 10 lb.

According to EPA's "EPCRA Section 313 Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category" (EPA 2001b), fuel oil and paving asphalt contain PACs. In addition, PACs may be generated from the combustion of natural gas and fuel oil and the manufacture of asphalt. Each of these sources of PACs was evaluated and is described below.

4.4.1 Procurement of PACs

Under EPCRA Section 313, the PAC category includes 21 specific chemicals and an additional 51 chemical mixtures that are listed as potentially containing PACs. A search of the ChemLog data set was done using CAS numbers for the 21 chemicals and text searches for the 51 chemical mixtures. No matches were identified and the total PACs from the ChemLog analysis for 2007 is zero.

4.4.2 PACs from Asphalt Production

In 2007, the Laboratory produced approximately 1,730 tons of asphalt. A review of project management records for 2007 identified projects that involved the purchase of asphalt from outside contractors. Work tickets and project management records were reviewed to identify asphalt jobs that qualify as routine facility maintenance and are exempt under EPCRA Section 313. Routine facility maintenance includes patching of potholes, repair of roads and parking lots, and resurfacing of existing parking lots. After reviewing these records, only two projects were identified that did not fall under the facility maintenance exemption.

According to EPA guidance, asphalt tar may contain as high as 178 ppm of PACs (EPA 2001b). However, Chevron-Texaco, the supplier of the asphalt tar, provided information specific to their product (Chevron-Texaco 2001). The concentration of PACs in the asphalt tar is 8 ppm which is significantly lower than the default value listed in the EPA's PACs guidance. The manufacturer-supplied value was used in the calculation of PACs.

Using the 8-ppm concentration, the total amount of PACs otherwise used at the Laboratory in all asphalt work in 2007 was 6.92 lb. The concentration of benzo(g,h,i)perylene in asphalt, from EPA's Guidance on PBTs, is 1.2 ppm (EPA 2001c). This figure gives 1.04 lb of benzo(g,h,i)perylene reportable towards its 10-lb otherwise use threshold.

4.4.3 PACs from Fuel Oil Combustion

Approximately 91,403 gallons of diesel fuel was used in 2007 in the Laboratory's power plant and miscellaneous boilers and generators. According to EPA guidance, fuel oil may contain 10 ppm of PACs (EPA 2001b). However, data provided by Chevron-Texaco indicate diesel may contain 22 ppm of PACs (Chevron-Texaco 2001). The 22 ppm was used in these calculations. This equates to 14.28 lb of PACs that apply to the otherwise use threshold. The concentration for benzo(g,h,i)perylene was found to be 0.05 ppm according to EPA guidance (EPA 2001c). Data provided by Chevron-Texaco indicated concentrations of 9 ppm. The 9 ppm value was used in these calculations and results in 5.84 lb of benzo(g,h,i)perylene applicable to the 10-lb otherwise use threshold.

Combustion of fuel oil generates emissions of PACs that apply to the manufacture threshold. Using AP-42 emission factors (EPA 1998a), these amounts were calculated to be 1.51×10^{-3} lb for total PACs and 2.07×10^{-4} lb for benzo(g,h,i)perylene.

4.4.4 PACs from Natural Gas

Approximately 968.9 million standard cubic feet of natural gas were burned at the Laboratory facilities in 2007. Using AP-42 emission factors (EPA 1998b) and fuel records, approximately 0.016 lb of PACs were produced from natural gas combustion, which is applied to the manufacture threshold. Approximately 0.0012 lb of benzo(g,h,i)perylene applies toward the 10-lb manufacture threshold. Due to the absence of information regarding total PAC and benzo(g,h,i)perylene concentrations in natural gas, it was assumed these substances are negligible in natural gas before combustion.

4.4.5 Summary of PACs

The largest sources of PACs at the Laboratory in 2007 were fuel oil impurities and asphalt use. The total amount used from all sources is 21.2 lb. The total amount manufactured from combustion of fuel oil and natural gas is 0.017 lb. Both threshold quantities for otherwise use and manufacture were below the 100-lb threshold, therefore, it was determined that reporting of PACs under EPCRA Section 313 was not necessary.

Benzo(g,h,i)perylene concentrations in asphalt tar and diesel fuel totaled 6.88 lb towards the otherwise used threshold. Combustion processes accounted for 0.0014 lb, which is considered to be manufactured. These values are below the reporting threshold of 10 lb. Therefore, benzo(g,h,i)perylene reporting was not necessary under EPCRA Section 313 in 2007. Table 4-3 summarizes the PACs and benzo(g,h,i)perylene threshold determinations.

Table 4-3 LANL 2007 Threshold Determinations for PACs and Benzo(g,h,i)perylene

EPCRA Chemical/ Compound	Process or Material	Amount (lb)	Total (lb)	EPCRA Section 313 Activity Determination	EPCRA Activity Threshold (lb)
Total PACs	Impurity in natural gas	0.0	21.2	Otherwise Used	100
	Asphalt tar	6.92			
	Impurity in fuel oil	14.28			
	Natural gas combustion	0.016	0.017	Manufactured	100
	Fuel oil combustion	1.51×10^{-3}			
Benzo(g,h,i)perylene	Impurity in natural gas	0.0	6.88		
	Asphalt tar	1.04		Otherwise Used	10
	Impurity in fuel oil	5.84			
	Natural gas combustion	0.0012	0.0014	Manufactured	10
	Fuel oil combustion	2.07×10^{-4}			

4.5 Dioxins

Dioxins are a group of PBTs formed during combustion processes. The EPCRA Section 313 reporting threshold for the dioxins category is 0.1 gram manufactured, processed, or otherwise used. This limit applies to toxic-equivalent compounds, a category of dioxins consisting of 17 specific dioxin and dioxin-like compounds. These "compounds with chlorine substitution in the 2, 3, 7, 8-positions on the molecule are reportable under the EPCRA Section 313 dioxin and dioxin-like compounds category" (EPA 2000a).

Activities at the Laboratory that were evaluated for dioxins include explosives activities and fuel combustion. Each is described below.

4.5.1 Explosives Activities

Dioxins are formed by burning chlorine-based chemical compounds with hydrocarbons producing an unintentional byproduct in many industrial processes involving chlorine. One potential source of dioxin formation at the Laboratory is open burn/open detonation (OB/OD) of high explosives (HE). This is because many binders and plasticizers found in HE materials have chlorine in their chemical make-up. Therefore, analysis of HE materials and associated binders/plasticizers was performed to estimate dioxin emissions.

Information on the various HE materials, such as explosive type, explosive name, composition, and chemical formula, was obtained from Laboratory personnel and textbooks. Some HE materials contain binders and plasticizers. These binders and plasticizers were evaluated and screened for those that contained chlorine. For those chlorine-containing binders/plasticizers, the weight percent chlorine in each was determined and the HE materials having chlorine-containing binders were further evaluated. Knowing the weight percent binder/plasticizer in these explosives and the weight percent chlorine in each binder, the amount of binder and amount of chlorine in each HE material containing chlorine was determined. Due to the unique nature of these materials, no specific dioxin emission factors are available. Therefore, a dioxin emission factor for burning of polyvinyl chloride in accidental fires was used to estimate dioxin emissions from burning of the chlorine-containing materials (ASME 1995). An emission factor of 4 µg dioxin emitted per ton of material burned was used.

Based on available information, estimated emissions from dioxins formed by OB/OD of HE materials totaled 9.22×10^{-8} grams in 2007. Furthermore, burning of HE materials at the LANL Burn Ground was evaluated separately for dioxin formation. A more conservative approach was used to estimate dioxin emissions from burning of HE materials. The assumption was made that all HE-contaminated waste could potentially result in dioxin formation. Emission factors developed by the EPA for the burning of ammonium perchlorate propellant were used (EPA 1998c). Based on estimating emissions from all waste materials burned, dioxin emissions were 1.31×10^{-4} grams in 2007.

4.5.2 Fuel Combustion

The Laboratory burns natural gas and diesel fuel in numerous boilers, heaters, and generators. No emission factors for dioxins were found for natural gas combustion. However, EPA EPCRA guidance for dioxins provides an emission factor of 3,178.6 picograms per liter of diesel fuel burned (EPA 2000a). The Laboratory burned a total of 91,403 gallons (345,998 liters) of diesel fuel in 2007. Multiplying by the dioxin emission factor, a total of 1.099 mg (0.00110 grams) of dioxin were calculated to have been formed due to fuel combustion.

The total calculated dioxin emissions in 2007 are below the 0.1-gram threshold and, therefore, reporting under EPCRA Section 313 is not required. Table 4-4 summarizes the amount of dioxins formed from all sources characterized for 2007.

Table 4-4 Dioxin Threshold Determination for 2007

Description	Amount of Dioxin Formed (grams)	EPCRA Section 313 Activity Determination	EPCRA Section 313 Threshold (grams)
HE Expended	9.22×10^{-8}	Manufactured	0.1
HE Burned	1.31×10^{-4}	Manufactured	0.1
Fuel Combustion	1.10×10^{-3}	Manufactured	0.1
Total Dioxin Formed	**0.0012**		**0.1**

4.6 Nitrate Compounds

According to the EPA's EPCRA Section 313 Guidance "List of Toxic Chemicals within the Water Dissociable Nitrate Compounds Category and Guidance for Reporting" (EPA 2000b), nitrate compounds may be manufactured through the elemental neutralization of nitric acid and through the collection and treatment of sanitary wastewater. These sources of nitrate compounds are applicable to the Laboratory and are discussed in this section. The reporting thresholds for nitrate compounds are 25,000 lb for manufacture/import or process and 10,000 lb for otherwise used. Only the manufacture and otherwise used thresholds apply to the Laboratory for 2007 EPCRA reporting.

The above listed guidance provides a list of approximately 50 nitrate compounds that are included as water dissociable nitrate compounds. Although this list is not exhaustive, it provides commonly identified nitrate compounds. Only those compounds in aqueous solution (>50% water) are required to be reported. Also, a *de minimis* concentration of 1% is applied to all nitrate compounds found in mixtures. When determining the reporting threshold for nitrate compounds, the entire nitrate compound is included (both the nitrate and its counter ion) toward determining the threshold. If the threshold is exceeded, only the nitrate portion of the compound is reported.

For the manufacture threshold, the sources reviewed included waste nitric acid treated at the Radioactive Liquid Waste Treatment Facility (RLWTF), which uses sodium hydroxide in an elementary neutralization process. The other source was the SWSC Plant. The nitrate compounds that were applied to the otherwise used threshold included nitrate compounds purchased or used during 2007. Other nitrate compounds evaluated were determined to be non-aqueous and were not required to be included in threshold determinations.

4.6.1 Chemical Review

A query of ChemLog was performed to determine the amount of chemicals applied to the otherwise used threshold. Approximately 2,612 lb of nitrate compounds were purchased in 2007. A few of the larger quantity purchases were clearly nitrate compounds in a powder (non-aqueous) form and do not count towards the EPCRA threshold. These purchases were removed from the threshold totals. The revised total purchases of nitrate compounds that were counted towards the otherwise used threshold for 2007 equals 282 lb. As a conservative assumption, it is assumed these are in aqueous form and apply to the otherwise used threshold.

4.6.2 Sanitary Wastewater

The SWSC Plant collects sanitary wastewater (sewage and other allowable discharges) from several LANL facilities and treats the wastewater in a standard primary (physical), secondary (biological) treatment system. Information was collected from the SWSC Plant on nitrate influent concentration and total flow rate for the purpose of EPCRA Section 313 threshold determination. The information provided indicated an average nitrate concentration of the influent of 1.36 milligrams per liter and total flow into the system during 2007 was 61,495,000 gallons.

Using the flow rate given by the plant, the total annual average amount of nitrate compound (as sodium nitrate) was calculated. At the average nitrate concentration of 1.36 milligrams per liter, and adjusting the weight to include the sodium ion, the total sodium nitrate processed as an impurity was 956 lb in 2007.

The information provided by the SWSC Plant also included the amount and the nitrate concentration of the effluent treated water. The total amount of treated water out of the SWSC Plant in 2007 was 89,360,000 gallons. The average nitrate concentration was 1.7 mg/L. This calculates to a total of 1,736 lb of nitrates (as sodium nitrate) manufactured.

4.6.3 Nitric Acid Neutralization

Typically, waste nitric acid from the mixed oxide (MOx) fuel process and from the Nitric Acid Recycling System, both located at the Plutonium Facility, is sent to the RLWTF for treatment. The RLWTF provided information on the volume and concentration of acid received from the plutonium facility in 2007. The quantity of nitric acid received in 2007 was approximately 12,300 liters of nitric acid waste containing 36,780 moles of nitric acid which is equal to 5,115 lb nitric acid.

The amount of nitrate compounds formed due to nitric acid treated during 2007 by the RLWTF is usually calculated using the formula found in the EPA “Nitrate Compound Guidance” (EPA 2000b). However, no waste was treated during 2007 by the RLWTF because equipment and piping are being replaced in the Room 60 Upgrades Project. The nitrate compound (sodium nitrate) generated from the neutralization process equaled 0 lb because of the maintenance at the RLWTF.

4.6.4 Summary

Nitrate compounds that apply to the otherwise used reporting threshold of 10,000 lb include the chemicals found in ChemLog. A total of 282 lb of nitrate compounds were purchased and assumed to be in aqueous form. This is well below the 10,000-lb EPCRA Section 313 threshold.

Nitrate compounds that apply to the manufacture reporting threshold of 25,000 lb include those identified in the sanitary wastewater at the SWSC Plant and the nitrate compounds identified during the elementary neutralization of nitric acid at the RLWTF. However, in 2007 the RLWTF did not operate due to maintenance activities. The activity at the SWSC Plant totaled 1,736 lb of nitrate compounds manufactured. The amount of nitrate compounds processed as an impurity from this activity was 956 lb. It was determined that no thresholds for nitrate compounds were exceeded in 2007. Table 4-5 provides a summary of nitrate compounds at LANL in 2007.

Table 4-5 Summary of Nitrate Compounds at LANL in 2007

Nitrate Compounds	Amount (lb)	EPCRA Section 313 Activity Determination	EPCRA Section 313 Threshold (lb)
Purchased in ChemLog (assumed in aqueous form and otherwise used)	282	Otherwise Used	10,000 lb
Processed at SWSC Plant	956	Processed	25,000 lb
Manufactured at SWSC Plant Manufactured at RLWTF Total Manufactured	1,736 0 1,736	Manufactured	25,000 lb

5.0 LEAD AND FORM R REPORTING

5.1 Threshold Determination

Lead and lead compounds are used in various processes throughout the Laboratory. In January 2001, the EPA promulgated a rule lowering the threshold for EPCRA Section 313 reporting of lead and lead compounds to 100 lb, effective for reporting year 2001. In 2007, lead and lead compounds were used or manufactured in the following operations at the Laboratory.

5.1.1 Lead Procurements

A listing of all procurements in 2007 of lead and lead compounds was extracted from ChemLog. Line items containing a CAS number for lead (7439-92-1) were included, as well as any line items containing the word “lead” or the symbol “Pb” in the text description.

The total amount of lead and lead compounds added to ChemLog for 2007 was 41.4 lb. Additionally, 1,076.4 lb of lead was in the form of lead-acid batteries, which are considered article exempt. According to EPCRA Section 313 guidance documents, the laboratory exemption is applied to the quantity of a listed toxic chemical that is manufactured, processed, or otherwise used in a laboratory under the supervision of a technically qualified person. Line items in ChemLog that were clearly described as *lead standards* were assumed to be used in a laboratory setting and exempt from reporting. This accounted for 4.4 lb. Also, the EPCRA Section 313 guidance states that the Article Exemption is for chemicals present in articles formed to a specific shape and do not release a Section 313 chemical under normal conditions during use. In 2007, the article exemption applied to 39 lead-acid batteries that accounted for 1,076.4 lb of lead. The total amount of lead and lead compounds from procurements applied to the otherwise used threshold is 37.0 lb.

5.1.2 Lead Use at the Firing Range

Lead is a component in various types of ammunition. The Laboratory maintains an onsite firing range for training security personnel. The firing range keeps detailed records of the amount and type of munitions expended. The U.S. Department of Defense developed software for estimating usage and releases of EPCRA Section 313 chemicals from various munitions activities (EPA www.epa.gov/tri). The TRI-Data Delivery System (TRI-DDS) software was used to calculate the amounts of toxic chemicals associated with munitions used at LANL for comparison with EPCRA Section 313 reporting thresholds and calculation of environmental releases. Some ammunition used at LANL was not represented in TRI-DDS. In these cases, the manufacturer was contacted to obtain specific information on lead for that ammunition.

The total lead released to the environment at the firing range in 2007 was similar to previous years and somewhat lower than in 2006. Using the TRI-DDS software, it was determined that 7,385 lb of lead and 16.7 lb of lead compounds were otherwise used.

The 2007 amount of lead released to land (non-air) was 7,385 lb. This amount equals the amount otherwise used. Lead compounds are also manufactured through the firing of ammunition. These lead compounds were calculated using the TRI-DDS software. Additionally, firing of ammunition containing lead created (manufactured) 8.0 lb of lead compounds as air emissions.

5.1.3 Lead from Fuel Combustion

In 2007, the Laboratory emitted lead compound emissions from the following combustion sources: the TA-21 steam plant, the TA-3 power plant, and from numerous small boilers, which used approximately 968.9 million standard cubic feet (MMscf) of natural gas. The AP-42 emission factor for lead compounds from natural gas combustion in both large and small boilers is 0.0005 lb/MMscf. The lead compound emissions from these sources totaled 0.49 lb towards the manufactured threshold. The Laboratory also burned an estimated 91,403 gallons of diesel fuel in boilers, heaters, and diesel-fired generators. The AP-42 emission factor for diesel fuel combustion is 0.00123 lb per 1,000 gallons; this equates to 0.033 lb of lead compound manufactured.

Additionally, lead is found in fuel oil and natural gas as an impurity. According to EPA guidance (EPA 2001d), the concentration of lead in No. 2 fuel oil is 0.5 ppm and in natural gas is 0.05 milligrams per cubic meter.

The fuel oil contained 0.33 lb of lead and 968.9 MMscf of natural gas contained 2.99 lb of lead, which are added to the otherwise used threshold.

5.1.4 Lead from Asphalt Plant

A total of 1,730 tons of asphalt were produced in 2007. The AP-42 emission factor for lead from hot mix asphalt plants is 8.90E-7 lb per ton asphalt (EPA 2004). This equates to 0.0015 lb of lead compounds manufactured.

5.1.5 Lead Use at LANSCE

The Laboratory continues to maintain an inventory of lead shielding and lead bricks at LANSCE and other areas of the Laboratory. In recent years, the Laboratory has attempted to reduce the inventory by

sending some of the lead offsite to be reused. According to the EPA's web-based TRI advanced training course presented by Science Applications International Corporation on May 10, 2005, "the recovery of a listed Section 313 chemical for further distribution in commerce or commercial use is 'processing' of that chemical." Also, materials sent offsite for direct "reuse" are not reported on Form R, but material sent offsite for recycling are reported on Form R in Part II, Section 6.2. The EPA considers the direct recirculation of a toxic chemical within a process or between processes without any intervening reclamation or recovery to be "reuse." Furthermore, "reclamation or recovery" does not include simple phase changing of the toxic chemical before further reuse (e.g., simple remelting of scrap metal).

The process for shipping scrap metal for recycle has been centralized at the Metals Recycle Facility (MRF), part of LANL's Salvage process. The MRF stages the metal and coordinates pick-up by a metal recycling company. The MRF estimates that 8,640 lb of lead were shipped offsite for recycle and resale in 2007.

The lead sent to the metal recycling company is considered processed because it is distributed for commercial use. The metal recycling company repackages the lead and then sends it to a lead smelter. Because the lead is simply remelted, it is defined as "reused." Therefore, it will not be reported on the Form R in Part II, Section 6.2.

Solid Waste Operations was contacted for information on the amount of lead sent to other DOE facilities as part of the DOE Intercomplex Lead Reuse program. This lead is also considered processed and it is not reported on Form R because it will be "reused." This program is no longer operating and, therefore, no lead was shipped to other DOE facilities in 2007.

In 2004, LANSCE received 40,000 lb of lead from France for the Lead Cooling Project. This lead is still onsite at LANL and is still being used for experiments. However, it was counted towards threshold reporting for 2004 and so will not be counted in the thresholds for 2007 as this would result in double counting. This lead will be returned to France when the project ends.

5.1.6 Other LANL Operations Using Lead and Lead Compounds

In previous years, the Laboratory has conducted operations to decontaminate lead shielding and lead melting and cutting operations to form new shielding. Onsite processing of both of these activities was suspended in 2000. The Laboratory installed a new lead-bismuth test loop at LANSCE in 2001. The test loop contains approximately 8,000 lb of lead bismuth. There were no additions of lead bismuth in 2007.

5.1.7 Conclusion

The largest source of lead use at the Laboratory is from the lead recycling, which accounted for 8,640 lb of lead towards the processed threshold. In 2007, the firing range accounted for 7,385 lb of lead towards the otherwise used threshold. Table 5-1 summarizes the threshold determination for lead and lead compounds for 2007. Based on these operations, it was determined that lead was processed and used over threshold quantities. However, lead compounds did not exceed the reporting threshold. Therefore, for 2007 reporting, a Form R will be completed only for lead.

Table 5-1 Summary of Threshold Determination for Lead and Lead Compounds for 2007

Activity	Lead "Use"(lb)	Lead Compound "Use"(lb)	Comments
Firing Range	7,385	16.7	Otherwise Used
Firing Range	0	8.0	Manufactured
Lead Purchases (ChemLog)	0	37.0	Otherwise Used 41.9 lb purchased, 4.5 lb Article exempt or Lab Exempt
Lead Recycle/Resale (sold to Ace Metals)	8,640	0	Processed, all of it is "reused" and not reported on the Form Rs
Lead Re-Use from LANSCE (DOE inter-complex transfer)	0	0	Processed for re-use
Sigma Foundry	0	0.006	Manufactured
Fuel Combustion	0	0.60	Manufactured (sum of natural gas, diesel, and asphalt)
Fuel Combustion	2.99	0	Otherwise Used
TOTAL Nonexempt Use	**Otherwise Used - 7,388** **Processed - 8,640**	**Otherwise Used – 53.7** **Processed - 0** **Manufactured - 8.7**	**Reporting Thresholds = 100 lb**

5.2 Environmental Releases and Offsite Disposal

5.2.1 Air Emissions

Although most of the air emissions are in the form of lead compounds, the Laboratory has chosen to report the entire weight of the lead compound air emissions on the Form R for lead.

5.2.1.1 Firing Range

The Laboratory operates a firing range on site for security personnel training. Monthly records are maintained detailing the type and amount of ammunition used at the firing range. For EPCRA Section 313 reporting purposes, the ammunition records are input to the Department of Defense TRI-DDS software (EPA www.epa.gov/tri) to estimate the amount of EPCRA chemical used and released to the environment. Based on the results of the TRI-DDS software, a total of 8.0 lb of lead compounds were emitted as fugitive air emissions from the firing range in 2007.

5.2.1.2 Fuel Combustion

In 2007, the Laboratory emitted lead compound emissions from the following combustion sources: the TA-21 steam plant, the asphalt plant, the TA-3 power plant, and from numerous small boilers and heaters. Emissions from the burning of both natural gas and diesel fuel were calculated. The total emissions from these combustion sources totaled 0.60 lb of lead compound stack emissions.

In 2007, the Laboratory emitted a total of 8.61 lb of lead compound emissions to the atmosphere. The fugitive emissions are from the firing range. The stack emissions include emissions from fuel oil/diesel combustion sources and natural gas combustion sources. Table 5-2 summarizes lead air emissions from the Laboratory as reported on the Form R.

Table 5-2 Lead Air Emissions from LANL in 2007

Emission Source	Total Lead Emissions (lb)	Fugitive or Stack
Firing Range	8.0	Fugitive
Fuel Combustion	0.61	Stack
Total	**8.61**	

5.2.2 Releases to Water

This section describes the amount of lead released to the environment from the Laboratory during 2007, as measured at LANL's National Pollutant Discharge Elimination System (NPDES) outfalls, which quantifies the amount of listed chemicals released due to facility operations during the reporting period.

During prior year assessments, a second data source has been included in release estimates. The quantity of lead present in surface and storm water has been estimated and reported. These estimates were derived from analytical and flow volume data collected at surface water sampling stations, as well as flow estimates for stations where flow is not measured. Further calculations were performed to quantify the amount of lead attributable to naturally occurring sources, and then convert the anthropogenic fraction to derive a mass. The detailed methodology for the analysis of lead in surface and storm water and mass calculations is documented in annual EPCRA Summary Reports for calendar years 2001 through 2005.

EPCRA requires the reporting of TRI listed chemicals released to the environment during the year in which they are originally released. The inclusion of surface and storm water data within the annual release data set is an overestimate as these data do not represent current year releases, but measure the migration and transport of existing contaminant inventory that 1) was released to the environment before initiation of annual EPCRA reporting, 2) is unrelated to the original environmental release, and 3) cannot be differentiated from, and likely effectively masks, actual environmental releases. Therefore, annual EPCRA reporting should only include annual original release data as directly measured at NPDES outfalls.

NPDES outfall data, generated as part of the Laboratory's Outfall Monitoring Program, were obtained from the Water Quality and RCRA Group. The tabular data from the NPDES program included total annual flows and lead analytical results from samples collected at a number of NPDES outfalls at LANL. Samples for lead were collected one to three times annually from 14 outfall locations, while weekly samples were collected from Outfall 051. Flow rate was reported by LANL in million gallons per year for each outfall location. For each NPDES outfall, lead discharges were calculated by multiplying the total yearly flow, in liters, for each outfall by the constituent concentration in milligrams per liter. The resulting mass from each outfall was then summed, resulting in a total discharge of 0.18 lb of lead from LANL NPDES outfalls in 2007.

For the EPCRA Section 313 Form R, Section 5.3 reporting, the total amount of lead released to each receiving stream is reported. For NPDES outfall data, the receiving stream associated with each sample location was determined through the use of the Laboratory's Environmental Surveillance Report maps and information received from LANL's Water Quality and RCRA Group. The following table summarized the total lead discharged from LANL in NPDES outfalls within canyons on the Pajarito Plateau during 2007. Total lead release to streams was 0.18 lb. Table 5-3 was used to complete Section 5.3.1 of the Form R.

Table 5-3 Lead Releases to Water in 2007 from LANL NPDES Outfalls

Canyon	LANL NPDES Outfalls Lead (lb)
Los Alamos Canyon Tributary to Rio Grande	0.0
Mortandad Canyon Tributary to Rio Grande	0.18
Sandia Canyon Tributary to Rio Grande	0.0
Water Canyon Tributary to Rio Grande	0.0
Total of NPDES Discharges	**0.18**

5.2.3 Releases to Land

Lead releases to land at the Laboratory occur as a result of firing range activities. Lead releases to land are based on the amount of munitions used during the year and the lead content of the munitions used. Lead content for munitions used at the Laboratory was estimated by matching the munitions types with those listed in the TRI-DDS. A total of 7,385 lb of lead was released to land at the firing range at LANL in 2007.

5.2.4 Offsite Waste Disposal

The Solid Waste Operations Group provided waste characterization and disposal data for lead wastes that were shipped offsite in 2007. Laboratory and article exempt waste was removed from the data set. EPCRA article and laboratory exemptions have been documented in previous years' memos and are described in the EPA/TRI Guidance Document "Toxic Chemical Release Inventory Reporting Forms and Instructions for RY2007" (EPA-260-K-07-001) (EPA 2008).

The data provided by Solid Waste Operations included the percent of lead for most of the waste shipments. However, this information was lacking for many of the waste items, and the Ecology and Air Quality Group had to obtain the necessary waste profile forms, which itemize waste constituent concentrations. For those items that listed the lead Resource Conservation and Recovery Act codes and did not list the concentrations of lead, waste profile forms were requested for waste items that weighed more than 1 kilogram. In most cases, the waste profile form provided sufficient information to complete the lead calculation. For some waste items, estimate of the % lead were made by matching it with similarly described waste shipments from previous years' analyses. For those waste items weighing less than 1 kilogram, lead concentrations were estimated based on the item description. For example, lead percentage by weight in waste items comprised of a chemical compound, such as lead nitrate, were determined from the Merck Index (1989). In other wastes, where the description provided sufficient information about the nature of the item (e.g., lead pellets), the percentage of lead was estimated (e.g., lead pellets = 100% lead).

5.2.4.1 Results

The amount of lead contained in waste that was shipped offsite from the Laboratory in 2007 was 3,490 lb. This total weight of lead was calculated by multiplying the total waste weight (kilograms) by the percentage of lead within each waste item, and then converted to pounds.

EPCRA reportable waste items shipped offsite from the Laboratory to several waste treatment/disposal facilities in 2007 are summarized in Table 5-4. As per EPCRA guidelines, only those disposal facilities that received more than 0.5 lb of lead in 2007 were included in the summary table and on the Form R.

The 2007 totals for lead are similar to 2005 and 2006 totals and are significantly lower than amounts shipped offsite from LANL in 2003 and 2004. The increase in waste shipments in 2003 and 2004 reflects LANL's efforts to expunge legacy waste, particularly lead bricks and lead shielding. In 2007, two large waste streams were shipped offsite: sludges from the TA-50 wastewater plant and facility maintenance and cleaning of plutonium processing operations and equipment. These two cleanout projects resulted in large waste streams, however the lead content of each was very low and therefore the total amount of lead was just a few pounds from each project.

5.2.4.2 Disposal Fate

The EPCRA Form R requires information about each treatment/disposal facility that received waste from the Laboratory, including how much was sent to each waste treatment/disposal facility and additional information regarding waste treatment, recycling, or disposal conducted at each facility. A Waste Disposal/Treatment Code must be entered in Section 6.2.C of the Form R for each facility receiving waste. The Waste Disposal/Treatment Codes were updated by the EPA in 2005 and are included on pages 56 and 57 of the "Toxic Chemical Release Inventory Reporting Forms and Instructions for RY2007" (EPA-260-K-07-001) (EPA 2008) guidance document.

Table 5-4 Summary of Waste Disposal Facilities Receiving LANL Waste in 2007

Company	Address	Facility EPA ID	Ultimate Fate of Waste	Total Lead (lb)
Clean Harbors, Aragonite, LLC	11600 North Aptus Rd., Aragonite, UT 84029	UTD981552177	Landfill	765.2
Diversified Scientific Services, Inc.	657 Gallaher Road, Kingston, TN 37763	TND982109142	Landfill	2.3
Energy Solutions, LLC (formerly Envirocare of Utah, Inc.)	Tooele County, I-80, Exit 49, Clive, UT 84029	UTD982598898	Landfill	2,242
Material Energy Corporation	2010 Highway 58, Suite 1020, Oak Ridge, TN. 37830	TNR000005397	Landfill	4.3
Veolia Es Technical Solutions, LLC (formerly Onyx Environmental Services, LLC)	9131 East 96TH Ave., Henderson, CO 80640	COD980591184	Landfill	72
Perma-Fix, Inc.	1940 NW 67th Place, Gainesville, FL 32653	FLD980711071	Landfill	400.3
Phibro-Tech, Inc.	8851 Dice Rd., Santa Fe Springs, CA 90670	CAD008488025	Metal Recovery	3.8
		Total		**3,490**

5.3 Other Information Provided on Form R Report

Environmental releases of lead as air emissions, to surface waters, and onsite land releases were reported to be 8.68 lb, 0.18 lb, and 7,385 lb, respectively. These values are included in Section 5 of the Form R, Quantity of the Toxic Chemical Entering Each Environmental Medium Onsite. A total of 3,490 lb of lead was reported in Section 6.2 of the Form R, Transfers to Other Offsite Locations.

Methods of treating lead in wastewater effluent before discharge were included in Section 7A of the Form R, which details onsite waste treatment methods and efficiency. Wastewater from industrial processes at the Laboratory is discharged to the RLWTF before discharge to NPDES-permitted Outfall 051. The RLWTF conducts a series of treatment steps that reduce the amount of metals in the effluent. The wastewater stream goes through precipitation, filtration, and reverse osmosis treatment. All wastewater is sampled for lead before and after treatment. Based on analytical results for 2007, the RLWTF resulted in a 99.4% treatment efficiency of lead in the wastewater. Sections 7B and 7C of the Form R relate to onsite energy recovery and recycling. The Laboratory performed no onsite processes applicable to these sections for lead in 2007.

Section 8 of the Form R refers to source reduction and recycling activities. The information provided by the EPA for this section states that no energy recovery is possible for lead, either onsite or offsite. The Laboratory also reported no onsite recycling or treatment.

Section 8.9 of the Form R reports the production or activity ratio, an estimated measure of production or activity involving the reported chemical, as compared to the previous year. Because the Laboratory is not

a production facility, a surrogate measure was needed to complete this section of the Form R. To determine this value, the firing range was used as a representative activity that would maintain a consistent use of lead. The amount of lead munitions used in 2007 was divided by the amount used in 2006 to obtain an activity ratio of 0.80.

6.0 NITRIC ACID (HNO_3) AND FORM R REPORTING

Historically, the Laboratory's use of nitric acid has exceeded the EPCRA Section 313 reporting threshold in many reporting periods. This last occurred in 2004. In 2007, the Laboratory again exceeded the EPCRA Section 313 reporting threshold for nitric acid. The primary reasons for the increase in nitric acid use during the 2007 calendar year are activities of the Advanced Testing Line for Actinide Separation (ATLAS) project and the MOx fuel program. Nitric acid use at LANL during 2007 was still low in comparison to historical values. Major uses of nitric acid at the Laboratory include research and development activities, sample preparation, plutonium processing, and the Laboratory's bioassy program (monitoring employees for radioactive isotopes).

6.1 Threshold Determination

6.1.1 Procurement

In calendar year 2007, ChemLog records show that the Laboratory procured 5,277 lb of nitric acid. The purchases were further analyzed to determine the mass percentage nitric acid. In almost all cases, the nitric acid purchased was "lab grade" which is 65% to 70% HNO_3 by mass with the remainder water. In some other cases, the chemicals procured were solutions of nitric acid with lower concentrations of nitric acid. After taking into account the mass percentage of HNO_3 in solution, the total mass of nitric acid purchased was determined to be 4,061 lb.

LANL's Nuclear Materials Technology (NMT) Division has historically been the Laboratory's largest nitric acid user. In 2007, NMT had limited operations due to facility upgrades and maintenance. The nitric acid used by NMT typically is purchased in bulk and stored in a nitric acid storage tank at TA-53. In 2007, no nitric acid was purchased for the tank and little nitric acid was used from the tank inventory.

Other LANL users of nitric acid were contacted to determine how the nitric acid was used. Relatively large quantities continue to be used for the bioassay program (monitoring employees for radioactive isotopes). Other users within the Chemistry Division were contacted and verified use of nitric acid for sample preparation and analysis. This use totaled 2,514 lb in 2007. Information was also obtained on the approximate use of nitric acid for cleaning labware which is not a laboratory exempt activity (EPA 1999).

Based on communications with LANL nitric acid users, it was determined that quantities of nitric acid used for cleaning labware were variable from user to user. The larger laboratory nitric acid user, the bioassay program, only used nitric acid for sample analysis and did not use nitric acid to clean labware. The total amount of nitric acid used for cleaning labware in 2007 was calculated to be 181 lb. Therefore, the total quantity of nitric acid calculated to be used in exempt activities was 2,333 lb.

The quantity of nitric acid used by personnel who were not contacted (except for NMT Division, which is described below), or that described their use of nitric acid as process related (including cleaning labware) totaled 1,728 lb. As a conservative assumption, this amount is assumed to be otherwise used.

6.1.2 Plutonium Processing

In 2007, the ATLAS and MOx fuel projects were active at the Laboratory. Approximately 12,000 liters of nitric acid were used for these processes in 2007. Approximately 4,500 liters of this nitric acid came from small holding tanks off the Nitric Acid Recycle System. The nitric acid from this system is 7 Mol/L or 40% HNO_3 by mass in aqueous solution. Additionally, approximately 3,750 liters of the acid used in these plutonium processing projects was approximately 14 to 15 Mol/L aqueous solution, which is approximately 70% HNO_3 by mass. Table 6-1 summarizes the threshold determination for nitric acid for 2007.

Table 6-1 Nitric Acid Threshold Determinations for 2007

Nitric Acid Use	Amount (lb)	EPCRA Status	Threshold for Reporting
Laboratory Use	2,333	Lab Exempt	Exempt
Otherwise Use			
Non-lab, or unknown use	1,728		
Plutonium processing (NMT actual use)	15,393		
Total Otherwise Use	17,121	Otherwise Use	10,000 lb

6.2 Environmental Releases and Offsite Disposal

6.2.1 Air Emissions

There are two sources of air emissions from plutonium processing: storage tank emissions and process emissions. Storage tank emissions were calculated using the EPA's Tanks 4.0 software to make calculations based on site-specific information for a nitric acid tank at TA-53. Total air emissions from this nitric acid storage are conservatively estimated to be 8.9 lb for 2007.

Emissions from plutonium processing were calculated using emissions factors for each processing step and the amount of nitric acid processed in each step in 2007. The amount of nitric acid used in each step was obtained from facility operating logs. LANL reported under EPCRA Section 313 for many years in the 1990s. During that time, research and test data were collected to develop methods for estimating emissions from the various processing steps. The process steps and equipment at the facility have not changed so the emissions factors developed in the 1990s were used to estimate 2007 emissions. Based on 2007 operations, emissions from plutonium processing activities were calculated to be 206 lb.

It is assumed that, while handling and transferring nitric acid, a small percent will evaporate and be released into the atmosphere as fugitive air emissions. Engineering judgment was used to estimate that these emissions are between 1 and 10 lb.

Table 6-2 provides a summary of nitric acid air emissions at LANL in 2007.

Table 6-2 Nitric Acid Air Emissions from LANL in 2007

Nitric Acid Air Emissions	Amount (lb)	EPCRA Form Reporting Section
Storage Tank	8.9	Stack air emission – Section 5.2
Plutonium Processing	206	Stack air emissions – Section 5.2
Fugitive Emissions	Between 1 - 10	Fugitive air emissions – Section 5.1 – Range Code "A"
TOTAL	**219.9***	**Section 8.1b**

* For the total, 5 lb was used for fugitive emissions.

6.2.2 Water Releases

According to EPA guidance, "discharges of listed acids (hydrochloric acid, nitric acid, etc.) may be reported as zero if the discharges have been neutralized to a pH of 6 or above." The pH of the effluent is checked regularly and in 2007 was never below 6.

6.2.3 Releases to Land

There were no onsite releases of nitric acid to land.

6.2.4 Offsite Waste Disposal

LANL did not perform any onsite disposal of nitric acid in 2007. All nitric acid waste was sent to offsite EPA-approved sites for disposal or recycling. Data, including shipment weight and nitric acid concentration, were obtained for all nitric acid contaminated wastes sent offsite for disposal in 2007. The waste disposal records were evaluated to determine any waste shipments which were exempt from reporting such as waste generated in a laboratory under the supervision of a technically qualified individual.

Total reportable nitric acid disposal which was shipped offsite from LANL in 2007 was determined to be 337.2 lb. Table 6-3 provides a summary of the nitric acid which was sent offsite to various disposal and recycling companies in 2007. For the purposes of Form R reporting, the facilities receiving nitric acid waste in 2007 were contacted to determine the fate of the waste.

Table 6-3 Summary of Nitric Acid Waste Sent Offsite in 2007

Company	Address	EPA Facility ID	EPCRA Disposal/Treatment Code	Total Nitric Acid (lb)
Clean Harbors, Aragonite, LLC.	11600 North Aptus Rd., Aragonite, UT 84029	UTD981552177	M50 (Thermal Treatment)	264.6
Diversified Scientific Solutions, Inc.	657 Gallaher Road, Kingston, TN 37763	TND982109142	M54 (Incineration/Insignificant Heat Value)	51.9
Material & Energy Corporation	2010 Highway 58, Suite 1020, Oak Ridge, TN 37830	TNR000005397		All Lab Exempt
Perma-Fix	1940 West 67th Place, Gainesville, FL 32653	FLD980711071	M54 (Incineration/Insignificant Heat Value)	20.7
Total				**337.2**

6.3 Other Information Provided on Form R Report for Nitric Acid

Environmental releases of nitric acid as air emissions and to surface waters were reported to be 219.9 lb and 0 lb, respectively. These values are included in Section 5 of the Form R, *Quantity of the Toxic Chemical Entering Each Environmental Medium Onsite*. A total of 337.2 lb of nitric acid was reported in section 6.2 of the Form R, *Transfers to Other Offsite Location.*

Methods of treating nitric acid effluent prior to discharge were included in Section 7A of the Form R. This section details onsite waste treatment methods and efficiency. Wastewater from industrial processes at LANL is discharged to the RLWTF prior to discharge to NDPES-permitted Outfall 051. The RLWTF conducts wastewater treatment processes to neutralize the effluent prior to discharge. The wastewater stream is treated with sodium hydroxide to neutralize pH. All wastewater is sampled for pH before and after treatment and is only discharged if the pH is greater than 6. Therefore, treatment of nitric acid is considered 100%, and this information is included in Section 7A of the Form R. Sections 7B and 7C relate to onsite energy recovery and recycling. LANL performed no onsite processes related to these sections for nitric acid in 2007.

Section 8 of the Form R includes information on source reduction and recycling activities. Nitric acid does not have a significant energy recovery value, and therefore no energy recoveries were claimed from offsite incineration of the nitric acid waste streams. However, LANL conducts onsite recycling of nitric acid. LANL also conducts wastewater treatment to neutralize nitric acid in the wastewater as described above. During 2007, the RLWTF was undergoing maintenance and nitric acid did not perform neutralization operations during the 2007 reporting year. This is included in Section 8.6 of the Form R.

Section 8.9 of the Form R reports production or activity ratio, an estimated measure of the production or activity associated with the use of the reported chemical at the facility, as compared to the previous year. Plutonium processing is the largest user of nitric acid and results in the largest releases. Therefore, this

process is used to develop the production/activity ratio. In 2006, a total of 9,228 lb of nitric acid was used, and in 2007 a total of 15,393 lb of nitric acid was used in plutonium processing. An activity ratio of 1.6 was calculated and reported on Section 8.9 of the Form R.

7.0 EPCRA SECTION 313 SUMMARY AND TRENDS

The Laboratory has submitted EPCRA Section 313 data to the EPA since 1987. From 1987 to 1994, this information was submitted by the University of California, operator of LANL. Starting with reporting year 1995, EO 12856 required all federal facilities to comply with EPCRA Section 313 requirements. As of 1995, EPCRA Section 313 information for the Laboratory has also been submitted by the DOE. Historical information on LANL-reported Section 313 releases is included in the EPA TRI database and can be accessed at http://www.epa.gov/tri/.

On April 21, 2000, President Clinton signed EO 13148, which requires all federal facilities to comply with EPCRA Section 313 requirements and additionally requires federal facilities to reduce releases of EPCRA Section 313 chemicals to the environment. In response to EO 13148, the DOE developed Pollution Prevention Leadership Goals that include the following:

- Reduce release of toxic chemicals subject to Toxic Chemical Release Inventory (EPCRA Section 313) reporting by 90% by 2005, using a 1993 baseline.

The Laboratory has implemented numerous pollution prevention projects to reduce use and releases of EPCRA Section 313 chemicals. However, two regulatory changes made by the EPA in recent years impact EPCRA Section 313 reporting:

- On October 19, 1999, the EPA promulgated a final rule on PBTs. This rule added several chemicals to the EPCRA Section 313 list and established lower reporting thresholds for PBT chemicals. These lower thresholds became applicable in reporting year 2000.
- On January 17, 2001, the EPA changed the PBT rule to reduce the EPCRA Section 313 reporting threshold for lead and lead compounds to 100 lb (from 10,000 lb). The new lead threshold became applicable with reporting year 2001.

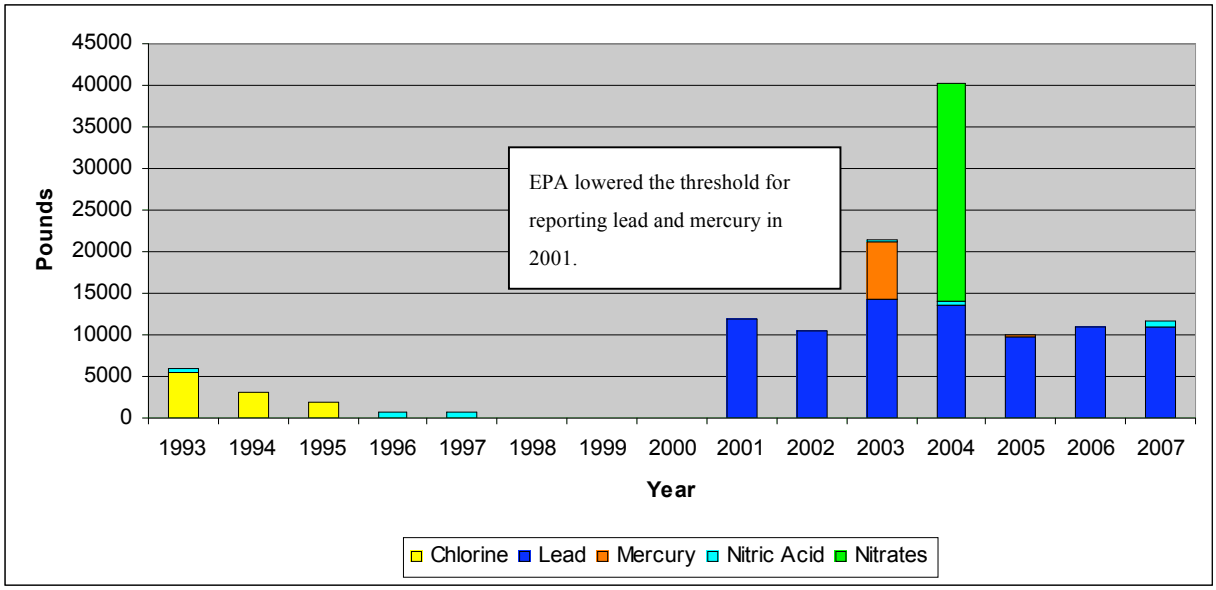
As a result of these regulatory changes, the Laboratory has triggered EPCRA Section 313 reporting for lead and mercury in recent years. The regulatory changes resulted in reporting thresholds of 10 lb for mercury and 100 lb for lead. Therefore, for the past seven years LANL has submitted environmental release data on lead and, three out of the last seven years, has reported on mercury. Figure 7-1 provides a summary of LANL-reported releases for the period from 1993 through 2007.

Several points are worth noting from this chart:

- In the early 1990s, the Laboratory implemented a new wastewater disinfection system that eliminated the use of chlorine. Chlorine gas was replaced with bromine tablets and mixed oxidants generated from sodium chloride. This pollution prevention project decreased use of chlorine to well below reporting thresholds.
- In the late 1990s, the Laboratory implemented a Nitric Acid Recycling System to reduce the amount of new nitric acid needed for plutonium processing. This closed-loop recycle system greatly reduced the need to purchase nitric acid, and due to recycling efforts, nitric acid use was below reporting thresholds for several years. However, in 2003 and 2004 a new process to convert weapons-grade plutonium to MOx fuels for nuclear power plants was implemented. Due

to quality specifications and facility constraints, this project was unable to use recycled nitric acid. Therefore, nitric acid was reportable for 2003 and 2004.

- In 2005, the plutonium processing facility had very limited operations due to ongoing facility maintenance and equipment upgrades. Therefore, nitric acid use was well below reporting thresholds for 2005. In late 2006 the maintenance and equipment upgrades were completed and operations restarted. Nitric acid use for 2006 was still just below reporting thresholds. In 2007 nitric acid was again reportable due to resumption of higher levels of plutonium processing activities.
- Because there were no identified users of recycled nitric acid, and limited storage capacity, in 2004, spent nitric acid from plutonium processing was sent to the RLWTF for treatment and disposal. Through the treatment process nitric acid was neutralized and resulted in formation of nitrate compounds. For the first time in 2004, nitrate compounds were manufactured above reportable quantities and triggered reporting.
- Although the use of lead and lead compounds has been relatively constant over the years at the Laboratory, the threshold for reporting was lowered to 100 lb in 2001. The Laboratory first began EPCRA Section 313 reporting on lead in that year. About that same time, LANL made a concerted effort to reduce onsite inventory of lead bricks and shielding that is no longer needed. Much of this lead shielding is radioactively contaminated and cannot be recycled. Therefore, large amounts of legacy lead were shipped offsite for disposal and reported on the Form Rs.
- The largest use of mercury at the Laboratory is in the LANSCE shutter system. Reservoirs of mercury are used as shields on the neutron beam shutter system. Each reservoir is a closed system and only opened occasionally when minor repairs or maintenance are needed. Mercury has only triggered reporting during the years that maintenance activities have occurred on the shutter systems. Environmental releases of mercury are very low.



Note: For 2003 through 2006 one-time waste disposal of lead from decontamination and demolition activities is not included on this chart.

Figure 7-1 Trends in LANL's reported releases to EPA TRI.

8.0 REFERENCES

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APPENDIX A: EPCRA SECTION 313 CHEMICALS USED OR PROCURED IN 2007

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
7664-93-9	Sulfuric acid (aerosol forms only)	10000	15612.76
7697-37-2	Nitric acid	10000	4702.44
Polychlorinated Alkanes	Polychlorinated alkanes (C10 to C13)	10000	4108.91
7647-01-0	Hydrochloric acid (aerosol forms only)	10000	3799.08
Nitrate	Nitrate compounds (water dissociable)	10000	2456.39
Manganese	Manganese Compounds	10000	2293.86
75-09-2	Dichloromethane	10000	1592.11
67-56-1	Methanol	10000	1269.02
67-63-0	Isopropyl alcohol (mfg-strong acid process)	10000	1065.13
75-45-6	Chlorodifluoromethane	10000	960
75-05-8	Acetonitrile	10000	955.87
Nickel	Nickel Compounds	10000	832.33
1344-28-1	Aluminum oxide (fibrous forms)	10000	819.77
78-93-3	Methyl ethyl ketone	10000	716.74
110-54-3	n-Hexane	10000	682.29
Cyanide	Cyanide Compounds	10000	631.81
108-88-3	Toluene	10000	604.4
872-50-4	N-Methyl-2-pyrrolidone	10000	494.82
79-01-6	Trichloroethylene	10000	441.19
67-66-3	Chloroform	10000	373.76
7429-90-5	Aluminum (fume or dust)	10000	354.15
Glycol Ethers	Glycol Ethers	10000	326.55
Beryllium	Beryllium Compounds	10000	207.6
7632-00-0	Sodium nitrite	10000	168.41

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
Copper	Copper Compounds	10000	139.43
68-12-2	N,N-Dimethylformamide	10000	105.93
1717-00-6	1,1-Dichloro-1-fluoroethane	10000	104.1
71-55-6	1,1,1-Trichloroethane	10000	87.57
74-87-3	Chloromethane	10000	80.6
107-21-1	Ethylene glycol	10000	79.28
Silver	Silver Compounds	10000	64.64
7664-41-7	Ammonia	10000	61.17
123-31-9	Hydroquinone	10000	54.4
1634-04-4	Methyl tert-butyl ether	10000	50.83
9016-87-9	Polymeric diphenylmethane diisocyanate	<10000	46.4
7664-39-3	Hydrogen fluoride	10000	41.93
101-68-8	Methylenebis(phenylisocyanate)	<10000	38.09
74-85-1	Ethylene	10000	37.66
Zinc	Zinc Compounds	10000	36.16
Lead	Lead Compounds	100	34.75
7664-38-2	Phosphoric acid	10000	34.09
7783-06-4	Hydrogen sulfide	10000	32.67
Antimony	Antimony Compounds	10000	29.62
107-18-6	Allyl alcohol	10000	27.99
71-36-3	n-Butyl alcohol	10000	21.42
71-43-2	Benzene	10000	20.62
110-86-1	Pyridine	10000	16.85
Cadmium	Cadmium Compounds	10000	16.01
Barium	Barium Compounds	10000	15.71
Chromium	Chromium Compounds	10000	15.16

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
56-23-5	Carbon tetrachloride	10000	14.01
123-91-1	1,4-Dioxane	10000	13.31
62-53-3	Aniline	10000	13.22
7440-62-2	Vanadium (fume or dust)	10000	12.64
75-21-8	Ethylene oxide	10000	12.27
100-41-4	Ethylbenzene	10000	11.83
64-18-6	Formic acid	10000	10.9
108-90-7	Chlorobenzene	10000	10.68
106-88-7	1,2-Butylene oxide	10000	9.89
95-50-1	1,2-Dichlorobenzene	10000	8.35
Cobalt	Cobalt Compounds	10000	7.75
7726-95-6	Bromine	10000	7.55
95-63-6	1,2,4-Trimethylbenzene	10000	7.5
108-10-1	Methyl isobutyl ketone	10000	7
110-82-7	Cyclohexane	10000	6.98
Chlorophenols	Chlorophenols	10000	6.88
121-44-8	Triethylamine	10000	6.72
108-95-2	Phenol	10000	6.24
50-00-0	Formaldehyde	10000	4.84
100-42-5	Styrene	10000	4.47
75-65-0	tert-Butyl alcohol	10000	4.43
79-06-1	Acrylamide	10000	4.16
Selenium	Selenium Compounds	10000	3.85
109-86-4	2-Methoxyethanol	10000	3.71
51-79-6	Urethane	10000	3.59
Arsenic	Arsenic Compounds	10000	3.48
75-15-0	Carbon disulfide	10000	3.32

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
78-92-2	sec-Butyl alcohol	10000	3.12
92-52-4	Biphenyl	10000	2.8
62-56-6	Thiourea	10000	2.42
111-42-2	Diethanolamine	10000	2.4
7439-92-1	Lead	100	2.31
126-72-7	Tris(2,3-dibromopropyl) phosphate	10000	2.2
77-73-6	Dicyclopentadiene	10000	2.15
7440-66-6	Zinc (fume or dust)	10000	2.1
1313-27-5	Molybdenum trioxide	10000	1.9
Mercury	Mercury Compounds	10	1.83
74-88-4	Methyl iodide	10000	1.52
1330-20-7	Xylene (mixed isomers)	10000	1.46
4080-31-3	1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chl	10000	1.36
98-95-3	Nitrobenzene	10000	1.32
680-31-9	Hexamethylphosphoramide	10000	1.32
75-07-0	Acetaldehyde	10000	1.29
75-25-2	Bromoform	10000	1.26
10294-34-5	Boron trichloride	10000	1.16
91-20-3	Naphthalene	10000	1.1
7782-41-4	Fluorine	10000	1.05
80-62-6	Methyl methacrylate	10000	1.04
7550-45-0	Titanium tetrachloride	10000	0.9
Thallium	Thallium Compounds	10000	0.81
26628-22-8	Sodium azide (Na(N3))	10000	0.76
7723-14-0	Phosphorus (yellow or white)	10000	0.76

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
127-18-4	Tetrachloroethylene	10000	0.7
108-38-3	m-Xylene	10000	0.66
7758-01-2	Potassium bromate	10000	0.55
95-53-4	o-Toluidine	10000	0.55
Warfarin and salts	Warfarin and salts	10000	0.55
75-56-9	Propylene oxide	10000	0.52
106-93-4	1,2-Dibromoethane	10000	0.52
121-69-7	N,N-Dimethylaniline	10000	0.49
302-01-2	Hydrazine	10000	0.34
75-44-5	Phosgene	10000	0.3
106-50-3	p-Phenylenediamine	10000	0.24
90-04-0	o-Anisidine	10000	0.22
94-36-0	Benzoyl peroxide	10000	0.22
91-22-5	Quinoline	10000	0.22
122-39-4	Diphenylamine	10000	0.22
123-72-8	Butyraldehyde	10000	0.18
115-07-1	Propylene	10000	0.16
79-21-0	Peracetic acid	10000	0.12
1120-71-4	Propane sultone	10000	0.11
85-44-9	Phthalic anhydride	10000	0.11
108-45-2	1,3-Phenylenediamine	10000	0.1
79-11-8	Chloroacetic acid	10000	0.05
624-18-0	1,4-Phenylenediamine dihydrochloride	10000	0.05
120-12-7	Anthracene	10000	0.05
989-38-8	C.I. Basic Red 1	10000	0.03
106-42-3	p-Xylene	10000	0.03

CAS Number	Chemical Name	EPCRA Threshold (lb)	2007 Amount Purchased or Used (lb)
106-51-4	Quinone	10000	0.01
106-44-5	p-Cresol	10000	0.01
109-06-8	2-Methylpyridine	10000	0.01
109-77-3	Malononitrile	10000	0.01
51-28-5	2,4-Dinitrophenol	10000	0.01
606-20-2	2,6-Dinitrotoluene	10000	0.01
98-88-4	Benzoyl chloride	10000	0.01
98-86-2	Acetophenone	10000	0.01
77-78-1	Dimethyl sulfate	10000	0.01
57-14-7	1,1-Dimethyl hydrazine	10000	0.01

APPENDIX B: FORM R REPORT FOR LEAD

DISK

U.S. DEPARTMENT OF ENERGY, LOS ALAMOS
NATIONAL LAB
528 35TH ST
LOS ALAMOS, NM 87544
87544SDLSL52835

June 19, 2008

Ron Breland, HazMat Coordinator
New Mexico Department of Homeland Security and Emergency Management
P.O. Box 27111
Santa Fe, NM 87504
(505) 476-9681; Fax: (505) 476-9695

To Whom It May Concern:

Enclosed please find one (1) microcomputer diskette containing toxic chemical release reporting information for:

U.S. DEPARTMENT OF ENERGY, LOS ALAMOS NATIONAL LAB

This information is submitted as required under section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and the Pollution Prevention Act of 1990.

We are submitting a total of 2 chemical report(s) for our facility.

These 2 chemical report(s) are described below:

TRI Chemical or Chemical Category	Reporting Year	CAS Number	Report
Lead	2007	7439-92-1	Form R
Nitric acid	2007	7697-37-2	Form R

Our technical point of contact is:

GENE TURNER
(505) 667-5794
GTURNER@DOEAL.GOV

and is available should any questions or problems arise in the processing of this diskette.

If the enclosed diskette contains one or more Form R chemicals, then I hereby certify that I have reviewed the enclosed documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report(s) are accurate based on reasonable estimates using data available to the preparers of this report(s).

If the enclosed diskette contains one or more Form A chemicals, then:
Pursuant to 40 CFR 372.27(a)(1), "I hereby certify that to the best of my knowledge and belief for the toxic chemical(s) listed in this statement, for this reporting year, the annual reportable amount for each chemical, as defined in 40 CFR 372.27(a)(1), did not exceed 5,000 pounds, which included no more than 2,000 pounds of total disposal or other releases to the environment, and that the chemical was manufactured, or processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year;" and/or

Pursuant to 40 CFR 372.27(a)(2), "I hereby certify that to the best of my knowledge and belief for the toxic chemical(s) of special concern listed in this statement, there were zero disposals or other releases to the environment (including disposals or other releases that resulted from catastrophic events) for this reporting year, the "Annual Reportable Amount of a Chemical of Special Concern" for each such chemical, as defined in 40 CFR 372.27(a)(2), did not exceed 500 pounds for this reporting year, and that the chemical was manufactured, or processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year."

Sincerely,
GENE TURNER

LA-UR: 08-03950

Cy:
G. Rael, DOE-LASO, A316
M. Mallory, PADOPS, A102
R.Watkins, ADESH&Q, K491
P. Wardwell, LC-LESH, A187
V. George, ENV-DO, J978
D. Wilburn, ENV-EAQ, J978
D. Janecky, ENV-EAQ, J978
S. Story, ENV-EAQ, J978
M. Stockton, ENV-EAQ, J978
W. Whetham, ENV-EAQ, J978
EPCRA Project File, J978
ENV-EAQ File, J978

EPA United States Environmental Protection Agency

FORM R

Section 313 of the Emergency Planning and Community Right-to-know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act.

TRI Facility ID Number: **87544SDLSL52835**

Toxic Chemical, Category or Generic Name: **Lead**

WHERE TO SEND COMPLETED FORMS:	1. TRI Data Processing Center P.O.Box 1513 Lanham, MD 20703-1513 *** State Form Only: Do Not Submit to EPA ***	2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

This section only applies if you are revising or withdrawing a previously submitted form, otherwise leave blank:	Revision (enter up to two code(s))	Withdrawal (enter up to two code(s))
	[**RR5**] [ ]	[ ] [ ]

Important: See Instructions to determine when "Not Applicable (NA)" boxes should be checked.

Part I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR : **2007**

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret?	2.2 Is this copy	
[ ] Yes (Answer question 2.2; Attach substantiation forms) [**X**] NO (Do not answer 2.2; Go to Section 3)	[ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)	

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
Gene Turner : Environmental Permitting Manager	Gene Turner	6/24/08

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	**87544SDLSL52835**
Facility or Establishment Name: **U.S. Department of Energy, LOS ALAMOS NATIONAL LABORATORY**		Facility or Establishment Name or Mailing Address(if different from street address): **NA**	
Street: **528 35TH ST**		Mailing Address	
City/County/State/Zip Code: **LOS ALAMOS / Los Alamos / NM / 87544**		City/State/Zip Code: / /	Country (Non-US)

4.2	This report contains information for : (Important: check a or b; check c or d if applicable)	a. [**X**] An Entire facility	b. [ ] Part of a facility	c. [**X**] A Federal facility	d. [ ] GOCO

4.3	Technical Contact name	**GENE TURNER**	Email Address: **GTURNER@DOEAL.GOV**	Telephone Number (include area code): **5056675794**			
4.4	Public Contact name	**GENE TURNER**	Email Address: **GTURNER@DOEAL.GOV**	Telephone Number (include area code): **5056675794**			
4.5	NAICS Code (s) (6 digits)	a. **928110 (Primary)**	b.	c.	d.	e.	f.

4.7	Dun and Bradstreet Number(s) (9 digits)
a. **NA**	
b.	

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	**U.S. DEPARTMENT OF ENERGY**
5.2	Parent Company's Dun & Bradstreet Number	NA [**X**]	

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION

TRI Facility ID Number: **87544SDLSL52835**

Toxic Chemical, Category or Generic Name: **Lead**

SECTION 1. TOXIC CHEMICAL IDENTITY (Important DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.) **7439921**
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.) **Lead**
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes". Generic Name must be structurally descriptive). **NA**
1.4	Distribution of Each Member of the Dioxin and Dioxin-like Compounds Category. (If there are any numbers in boxes 1-17, then every field must be filled in with either 0 or some number between 0.01 and 100. Distribution should be reported in percentages and the total should equal 100%. If you do not have speciation data available, indicate NA.)

NA [ ]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, spaces, and punctuation.) **NA**

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY (Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [ ] Produce b. [ ] Import		
If produce or import: c. [ ] For on-site use/processing d. [ ] For sale/distribution e. [ ] As a byproduct f. [ ] As an impurity	a. [ ] As a reactant b. [ ] As a formulation component c. [ ] As an article component d. [**X**] Repackaging e. [ ] As an impurity	a. [ ] As a chemical processing aid b. [ ] As a manufacturing aid c. [**X**] Ancillary or other use

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 [**05**] (Enter two-digit code from instruction package.)

SECTION 5.QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year*) (Enter range code or estimate**)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	**8**	**C**	
5.2	Stack or point air emissions	NA [ ]	**0.61**	**E1**	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	**MORTANDAD TRIBUTARY TO RIO GRANDE**		**0.18**	**M2**	**0**

*For Dioxin and Dioxin-like Compounds, report in grams/year
**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)	TRI Facility ID Number 87544SDLSL52835 Toxic Chemical, Category or Generic Name Lead

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)
5.4.1	Underground Injection onsite to Class I wells	[X]		
5.4.2	Underground Injection onsite to Class II-V wells	[X]		
5.5	Disposal to land onsite			
5.5.1.A	RCRA subtitle C landfills	[X]		
5.5.1.B	Other landfills	[X]		
5.5.2	Land treatment/application farming	[X]		
5.5.3A	RCRA Subtitle C surface impoundments	[X]		
5.5.3B	Other surface impoundments	[X]		
5.5.4	Other disposal	[ ]	7385	M2

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1 Total Transfers (pounds/year*) (enter range code** or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

*For Dioxin and Dioxin-like Compounds, report in grams/year

**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
87544SDLSL52835
Toxic Chemical, Category or Generic Name
Lead

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)	UTD982598898
Off-Site Location Name	ENERGY SOLUTIONS LLC
Off-Site Address	I80 EXIT 49 WEST OF SALT LAKE CITY

City	State	County	Zip	Country (Non-US)
CLIVE	UT	Tooele	84029	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 2242	1. O	1. M65

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)	COD980591184
Off-Site Location Name	Veolia Es Technical Solutions, L.L.C.
Off-Site Address	9131 EAST 96TH AVENUE

City	State	County	Zip	Country (Non-US)
HENDERSON	CO	Denver	80640	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 72	1. O	1. M94

6.2.3 Off-Site EPA Identification Number (RCRA ID No.)	FLD980711071
Off-Site Location Name	PERMA FIX INC.
Off-Site Address	1940 NW 67TH PLACE

City	State	County	Zip	Country (Non-US)
GAINESVILLE	FL	Alachua	32653	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 400.3	1. O	1. M79

6.2.4 Off-Site EPA Identification Number (RCRA ID No.)	TND982109142
Off-Site Location Name	DIVERSIFIED SCIENTIFIC SERVICES INC.
Off-Site Address	657 GALLAHER ROAD

City	State	County	Zip	Country (Non-US)
KINGSTON	TN	Roane	37763	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 2.3	1. O	1. M65

6.2.5 Off-Site EPA Identification Number (RCRA ID No.)	CAD008488025
Off-Site Location Name	PHIBRO TECH INC.
Off-Site Address	8851 DICE ROAD

City	State	County	Zip	Country (Non-US)

City	SANTA FE SPRINGS	State	CA	County	Los Angeles	Zip	90670	(Non-US)	
Is location under control of reporting facility or parent company?						[ ] Yes [X] No			

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 3.8	1. O	1. M24

6.2.6 Off-Site EPA Identification Number (RCRA ID No.)	TNR000005397
Off-Site Location Name	Material & Energy Corp.
Off-Site Address	2010 Highway 58, Ste. 1020

City	Oak Ridge	State	TN	County	Anderson	Zip	37830	Country (Non-US)	
Is location under control of reporting facility or parent company?						[ ] Yes [X] No			

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 4.3	1. O	1. M65

6.2.7 Off-Site EPA Identification Number (RCRA ID No.)	UTD981552177
Off-Site Location Name	CLEAN HARBORS ARAGONITE LLC.
Off-Site Address	11600 NORTH APTUS ROAD

City	ARAGONITE	State	UT	County	Tooele	Zip	84029	Country (Non-US)	
Is location under control of reporting facility or parent company?						[ ] Yes [X] No			

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 765.2	1. O	1. M41

SECTION 7A. ONSITE WASTE TREATMENT METHODS AND EFFICIENCY

[ ] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	d. Waste Treatment Efficiency Estimate
7A.1a	7A.1b	7A.1d
W	1: H077 2: H124 3: H129	E3

*For Dioxin and Dioxin-like Compounds, report in grams/year

**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
87544SDLSL52835
Toxic Chemical, Category or Generic Name
Lead

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

SECTION 7C. ON-SITE RECYCLING PROCESSES

[X] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year*)	Column B Current Reporting Year (pounds/year*)	Column C Following Year (pounds/year*)	Column D Second Following Year (pounds/year*)
8.1					
8.1a	Total on-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	NA	NA	NA	NA
8.1b	Total other on-site disposal or other releases	8690.57	7393.79	9000	9000
8.1c	Total off-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	34.4	2248.6	2000	2000
8.1d	Total other off-site disposal or other releases	2139.1	1237.5	2000	2000
8.2	Quantity used for energy recovery onsite	NA	NA	NA	NA
8.3	Quantity used for energy recovery offsite	NA	NA	NA	NA
8.4	Quantity recycled onsite	NA	NA	NA	NA
8.5	Quantity recycled offsite	4.6	3.8	25	25
8.6	Quantity treated onsite	NA	NA	NA	NA
8.7	Quantity treated offsite	NA	NA	NA	NA
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)		NA		
8.9	Production ratio or activity index		0.8		
8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.				

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA			
8.11	If you wish to submit additional optional information on source reduction, recycling, or pollution control activities, check "Yes."	Yes [ ]		

*For Dioxin and Dioxin-like Compounds, report in grams/year

TRI Facility ID Number
87544SDLSL52835
Toxic Chemical, Category or Generic Name
Lead

Additional optional information on source reduction, recycling, or pollution control activities.

*** State Form Only: Do Not Submit to EPA ***

Form Approved OMB Number:2070-0143
(IMPORTANT: Type or print; read instructions before completing form) Approval Expires:03/31/2011

EPA	FORM R	TRI Facility ID Number
United States Environmental Protection Agency	Section 313 of the Emergency Planning and Community Right-to-know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act.	87544SDLSL52835
		Toxic Chemical, Category or Generic Name: Nitric acid

WHERE TO SEND COMPLETED FORMS:	1. TRI Data Processing Center P.O.Box 1513 Lanham, MD 20703-1513 *** State Form Only: Do Not Submit to EPA ***	2. APPROPRIATE STATE OFFICE (See Instructions in Appendix F)

This section only applies if you are revising or withdrawing a previously submitted form, otherwise leave blank:	Revision (enter up to two code(s)) [ ][ ]	Withdrawal (enter up to two code(s)) [ ][ ]

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

Part I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR : **2007**

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms)
[X] NO (Do not answer 2.2; Go to Section 3)

2.2 Is this copy
[ ] Sanitized [ ] Unsanitized
(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
Gene Turner : Environmental Permitting Manager	Gene Turner	6/12/08

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	87544SDLSL52835
Facility or Establishment Name: **U.S. Department of Energy, LOS ALAMOS NATIONAL LABORATORY**		Facility or Establishment Name or Mailing Address(if different from street address): **NA**	
Street: **528 35TH ST**		Mailing Address	
City/County/State/Zip Code: **LOS ALAMOS / Los Alamos / NM / 87544**		City/State/Zip Code: / /	Country (Non-US)

4.2	This report contains information for : (Important: check a or b; check c or d if applicable)	a. [X] An Entire facility	b. [ ] Part of a facility	c. [X] A Federal facility	d. [ ] GOCO

4.3	Technical Contact name	**GENE TURNER**	Email Address: **GTURNER@DOEAL.GOV**	Telephone Number (include area code): **5056675794**			
4.4	Public Contact name	**GENE TURNER**	Email Address: **GTURNER@DOEAL.GOV**	Telephone Number (include area code): **5056675794**			
4.5	NAICS Code (s) (6 digits)	a. **928110 (Primary)**	b.	c.	d.	e.	f.

4.7	Dun and Bradstreet Number(s) (9 digits)
a. **NA**	
b.	

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	**U.S. DEPARTMENT OF ENERGY**
5.2	Parent Company's Dun & Bradstreet Number	NA [X]	

EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION	TRI Facility ID Number 87544SDLSL52835 Toxic Chemical, Category or Generic Name Nitric acid

SECTION 1. TOXIC CHEMICAL IDENTITY (Important DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.) 7697372
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.) Nitric acid
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes". Generic Name must be structurally descriptive). NA
1.4	Distribution of Each Member of the Dioxin and Dioxin-like Compounds Category. (If there are any numbers in boxes 1-17, then every field must be filled in with either 0 or some number between 0.01 and 100. Distribution should be reported in percentages and the total should equal 100%. If you do not have speciation data available, indicate NA.)

NA [ ]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, spaces, and punctuation.) NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [ ] Produce b. [ ] import		
If produce or import: c. [ ] For on-site use/processing d. [ ] For sale/distribution e. [ ] As a byproduct f. [ ] As an impurity	a. [ ] As a reactant b. [ ] As a formulation component c. [ ] As an article component d. [ ] Repackaging e. [ ] As an impurity	a. [ ] As a chemical processing aid b. [ ] As a manufacturing aid c. [X] Ancillary or other use

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 [04] (Enter two-digit code from instruction package.)

SECTION 5.QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year*) (Enter range code or estimate**)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	A	O	
5.2	Stack or point air emissions	NA [ ]	214.9	E2	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	MORTANDAD TRIBUTARY TO RIO GRANDE		0	M2	0

*For Dioxin and Dioxin-like Compounds, report in grams/year
**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)	TRI Facility ID Number 87544SDLSL52835 Toxic Chemical, Category or Generic Name Nitric acid

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)
5.4.1	Underground Injection onsite to Class I wells	[X]		
5.4.2	Underground Injection onsite to Class II-V wells	[X]		
5.5	Disposal to land onsite			
5.5.1.A	RCRA subtitle C landfills	[X]		
5.5.1.B	Other landfills	[X]		
5.5.2	Land treatment/application farming	[X]		
5.5.3A	RCRA Subtitle C surface impoundments	[X]		
5.5.3B	Other surface impoundments	[X]		
5.5.4	Other disposal	[X]		

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1 Total Transfers (pounds/year*) (enter range code** or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

*For Dioxin and Dioxin-like Compounds, report in grams/year

**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA Form 9350-1 (Rev. 01/2008) - Previous editions are obsolete.

EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)	TRI Facility ID Number 87544SDLSL52835 Toxic Chemical, Category or Generic Name Nitric acid

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)	TND982109142
Off-Site Location Name	DIVERSIFIED SCIENTIFIC SERVICES INC.
Off-Site Address	657 GALLAHER ROAD

City	State	County	Zip	Country (Non-US)
KINGSTON	TN	Roane	37763	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 51.9	1. C	1. M54

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)	FLD980711071
Off-Site Location Name	PERMA FIX INC.
Off-Site Address	1940 NW 67TH PLACE

City	State	County	Zip	Country (Non-US)
GAINESVILLE	FL	Alachua	32653	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 20.7	1. C	1. M54

6.2.3 Off-Site EPA Identification Number (RCRA ID No.)	UTD981552177
Off-Site Location Name	CLEAN HARBORS ARAGONITE LLC.
Off-Site Address	11600 NORTH APTUS ROAD

City	State	County	Zip	Country (Non-US)
ARAGONITE	UT	Tooele	84029	

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year*) (enter range code** or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 264.6	1. C	1. M50

SECTION 7A. ONSITE WASTE TREATMENT METHODS AND EFFICIENCY

[ ] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	d. Waste Treatment Efficiency Estimate
7A.1a	7A.1b	7A.1d
W	1: H121	E1

*For Dioxin and Dioxin-like Compounds, report in grams/year

**Range Codes: A=1-10 pounds; B=11-499 pounds; C=500-999 pounds.

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number: **87544SDLSL52835**

Toxic Chemical, Category or Generic Name: **Nitric acid**

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

SECTION 7C. ON-SITE RECYCLING PROCESSES

[X] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year*)	Column B Current Reporting Year (pounds/year*)	Column C Following Year (pounds/year*)	Column D Second Following Year (pounds/year*)
8.1					
8.1a	Total on-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	NA	NA	NA	NA
8.1b	Total other on-site disposal or other releases	NA	219.9	250	250
8.1c	Total off-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	NA	NA	NA	NA
8.1d	Total other off-site disposal or other releases	NA	NA	NA	NA
8.2	Quantity used for energy recovery onsite	NA	NA	NA	NA
8.3	Quantity used for energy recovery offsite	NA	NA	NA	NA
8.4	Quantity recycled onsite	NA	NA	5000	5000
8.5	Quantity recycled offsite	NA	NA	NA	NA
8.6	Quantity treated onsite	NA	0	12000	12000
8.7	Quantity treated offsite	NA	337.2	400	400
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)		NA		
8.9	Production ratio or activity index		1.6		
8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.				

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA			

8.11	If you wish to submit additional optional information on source reduction, recycling, or pollution control activities, check "Yes."	Yes [ ]

EPA Form 9350-1 (Rev. 01/2008) - Previous editions are obsolete.

*For Dioxin and Dioxin-like Compounds, report in grams/year

TRI Facility ID Number
87544SDLSL52835
Toxic Chemical, Category or Generic Name
Nitric acid

Additional optional information on source reduction, recycling, or pollution control activities.


Los Alamos
NATIONAL LABORATORY
EST. 1943