

*2001 Toxic Chemical Release Inventory Report  
for the Emergency Planning and Community  
Right-to-Know Act of 1986,  
Title III, Section 313*



**Los Alamos**  
NATIONAL LABORATORY

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*The previous reports in this unclassified series are LA-13655-PR, LA-13764-PR, and LA-13868-PR.*

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*RRES-MAQ (Meteorology and Air Quality Group)*



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**ABSTRACT**

On April 21, 2000, President Clinton signed Executive Order 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. 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.

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, EPA expanded the PBT rule to include a lower reporting threshold for lead. Facilities that manufacture, process, or otherwise use more than 100 lb of lead or lead compounds must submit a Form R. The new lead threshold became applicable with reporting year 2001.

For reporting year 2001, Los Alamos National Laboratory (LANL or the Laboratory) submitted a Form R for lead. No other EPCRA Section 313 chemicals were used in 2001 above the reportable thresholds. This document was prepared to provide a description of the evaluation of EPCRA Section 313 chemical usage and threshold determinations for LANL for calendar year 2001 as well as provide background information about the data included on the Form R report.

## 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. 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. A Form R must be submitted on or before July 1 each year and must cover activities that occurred at the facility during the previous year. Even though federal facilities were not required to report under EPCRA Section 313 until 1995, Los Alamos National Laboratory (LANL) has been reporting under EPCRA Section 313 since 1987. For reporting year 2001, LANL submitted a Form R for lead. No other EPCRA Section 313 chemicals were used in 2001 above the reportable thresholds. Toxic chemicals used in exempt activities as defined by the regulation are excluded from analysis. Descriptions of these exempt activities are included in Section 4.0 of this report.

This report summarizes the data evaluation, exemption analysis, activity determinations, and threshold determinations for toxic chemical use in 2001 at LANL and describes what was reported on the Form R report. Individual sections for certain toxic chemicals used at LANL are included in the report. Appendix A presents a summary table of EPCRA Section 313 chemicals procured at LANL. Appendix B includes a copy of the Form R submitted to EPA and the state agency.

## 2.0 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. LANL is owned by the U.S. Department of Energy (DOE) and is operated by the University of California (UC). LANL's TRI facility identification number is 87545LSLMSLOSAL. The TRI facility number for the Los Alamos DOE complex is 87544SDLSL52835. The 2001 EPCRA Section 313 contacts are Scott Miller,



UC technical contact at (505) 665-8862; George Van Tiem, UC public contact at (505) 667-6211; Gene Turner, DOE technical contact at (505) 667-5794; and Mary J. Byrne, DOE public contact at (505) 665-5025.

### **3.0 ACTIVITY DETERMINATIONS AND ASSOCIATED THRESHOLDS**

EPCRA Section 313 chemical usage is evaluated against three activity determinations. For listed chemicals that are not PBTs the thresholds are as follows:

#### **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 value for manufacture is 25,000 lb.

#### **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 value for process is 25,000 lb.

#### **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 value for otherwise use is 10,000 lb.

#### **Persistent Bioaccumulative Toxics (PBTs)**

For the subset of listed chemicals that are PBTs, separate, 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 which activity the chemical is used under. Threshold determinations for PBTs are still evaluated separately against the manufacture, process, and otherwise use activities described above.

### **4.0 EXEMPTIONS AND QUALIFIERS**

#### **4.1 Exemptions**

Exemptions from EPCRA Section 313 toxic chemical reporting applicable to LANL include the following:

## **Laboratory Activities Exemption**

Listed 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 the chemicals for laboratory support activities do not qualify for this laboratory activities exemption.

## **Otherwise Use Exemption**

Certain “otherwise uses” of listed EPCRA Section 313 chemicals are specifically exempted:

- 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 noncontact cooling) or in intake air (used either as compressed air or for combustion).

## **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 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 upon 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. In addition, total releases from any item or like items qualifying as an article exemption must be equal to or less than 0.5 lb to remain exempt as articles.<sup>1</sup>

## ***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 the chemical is a carcinogen or suspected 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.

## 4.2 Qualifiers

In addition to exemptions, certain EPCRA Section 313 chemicals have parenthetical "qualifiers." These 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 4-1.

**Table 4-1. 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	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.

## 5.0 PROCESS OF ANALYSIS

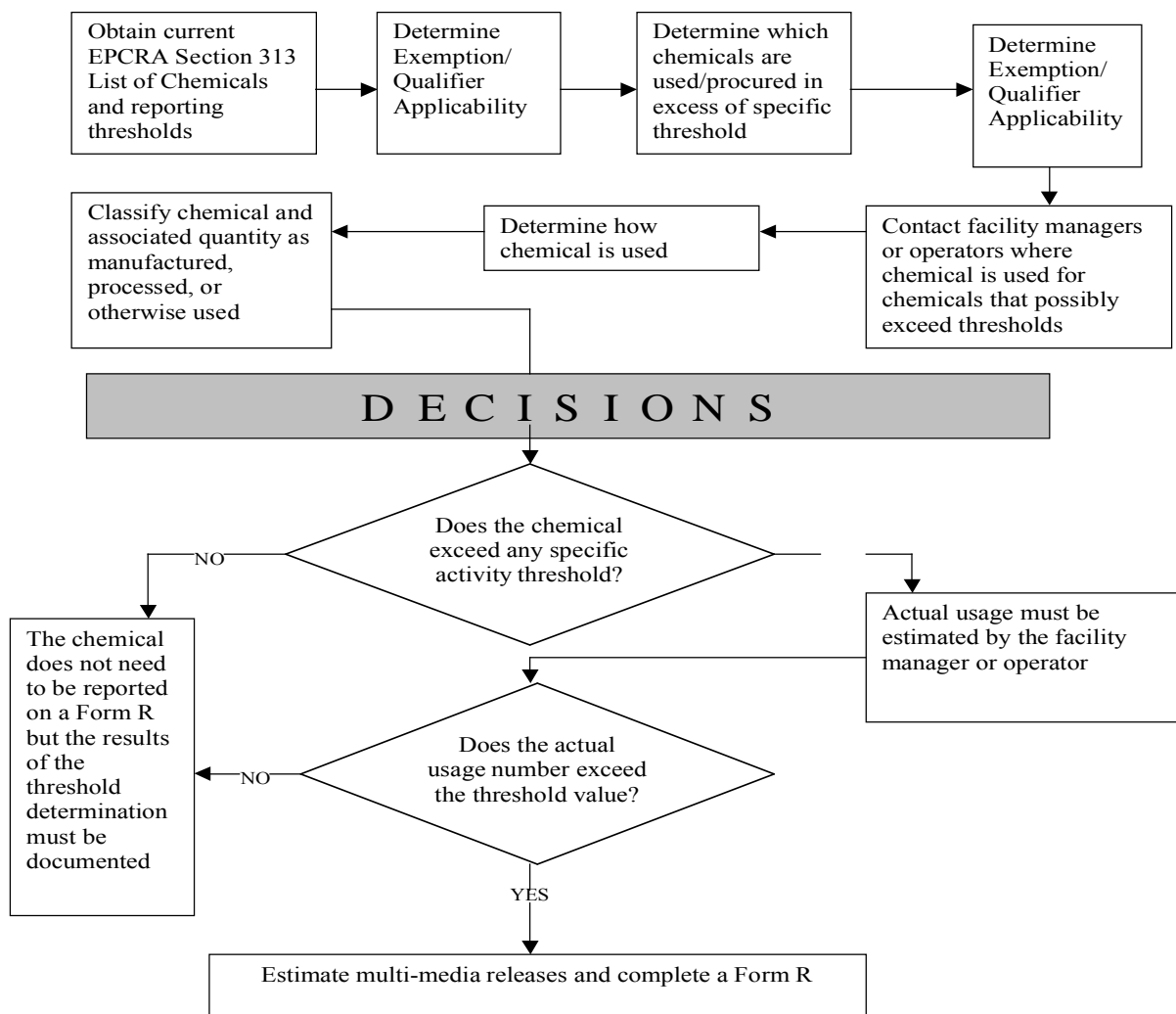
There are several steps in determining when a chemical triggers reporting under EPCRA 313. When a chemical is manufactured, processed or otherwise used over a specific threshold quantity a Form R report and release calculations are required. Figure 5-1 presents a flowchart that shows the steps that must be performed to determine if reporting under EPCRA Section 313 is required.

### 5.1 Threshold Determination for Chemical Use

Chemicals are purchased at the Laboratory through a variety of procurement systems. These systems include Just-In-Time (JIT), Purchase Orders (PO), Local Vendor Agreements (LVAs), and STOREs (on-site gas facility). An electronic tool called the Automated Chemical Inventory System (ACIS) is used to track chemicals brought on site at the Laboratory. The ACIS captures the majority of procured chemicals and provides relevant data (e.g., chemical name, CAS number, quantity, etc.) to assist in threshold determinations for EPCRA Section 313.

#### Inventory

For calendar year 2001, a total of 41,627 records were added to the ACIS and evaluated; 24,461 were pure chemicals, and 17,166 records were mixtures. Individual items with identifiable CAS numbers in the ACIS 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.



**Figure 5-1 Flowchart of process of analysis for EPCRA Section 313 reporting.**

Individual items that did not have CAS numbers in the ACIS were considered mixtures. The exemptions discussed in Section 4.0 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 contributing greater than 84 lb were reviewed to determine the presence and amount of EPCRA Section 313 constituents. This was done to ensure that the EPCRA Section 313 chemicals with thresholds greater than 100 lb would be identified. EPCRA Section 313 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.

## **Procurement**

Chemical purchases are not always captured in the ACIS. Procurement data directly from JIT, STOREs, and POs were evaluated in order to assess materials that were procured at the Laboratory, but did not get tracked in the ACIS. This analysis was based on a chemical order report containing vouchered orders for calendar year 2001. Chemical purchases through LVAs were reviewed to determine if there were any EPCRA Section 313 chemicals. Additionally, sub-contractors to the Laboratory were contacted to determine if any chemicals were brought on site that were not tracked in the ACIS. Several chemicals were identified through these avenues and were added to the sum of EPCRA Section 313 chemicals evaluated in the ACIS.

## **Additional Analysis**

Certain high-usage chemicals, as well as chemicals with low thresholds (i.e., PBTs), were evaluated beyond inventory and procurement (e.g., operational processes) and are addressed in Section 6.0 of this report.

## **5.2 Threshold Determination Results**

### **Procurement Totals**

The amounts of EPCRA Section 313 chemicals identified through inventory and procurement were all summed together to perform preliminary threshold determinations. The resulting totals for the top 10 EPCRA Section 313 chemicals are summarized in Table 5-1.

The total amount of mercury and lead procured are not shown in Table 5.1. Because both lead and mercury are PBTs, their thresholds for reporting have been lowered to 100 lb and 10 lb, respectively. Detailed analyses of lead and mercury and the Form R reporting for lead are discussed in later sections of this report.

**Table 5-1. Top 10 EPCRA Section 313 Chemicals Procured in 2001**

CAS Number	Chemical Name	Total Procured Weight (lb)
7664-93-9	Sulfuric acid (liquid form)	94,676
7697-37-2	Nitric acid	5,878
7647-01-0	Hydrochloric acid (liquid form)	5,308
75-45-6	Chlorodifluoromethane	5,076
115-07-1	Propylene	4,807
7664-38-2	Phosphoric acid	4,458
NA	Nitrate compounds	3,353
NA	Barium compounds	2,233
67-56-1	Methanol	1,874
79-01-6	Trichloroethylene	1,689

Sulfuric acid was the only EPCRA Section 313 chemical above the 10,000-lb otherwise used threshold and required further investigation. Nitric acid was evaluated separately with additional operational information not available in the ACIS. Section 6.0 of this report provides individual analyses of these chemicals as well as information on other EPCRA Section 313 chemicals. Lead was the only chemical requiring a Form R report.

## 6.0 ADDITIONAL EVALUATION OF CERTAIN TOXIC CHEMICALS

The toxic chemicals described below are either used in relatively high volumes at LANL, 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 2001 and therefore no reporting was required.

### 6.1 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 would include acid aerosols generated in storage tanks and from fuel combustion. Large purchases of sulfuric acid are used in liquid form for demineralizer regeneration and for sample analysis at the Sanitary Waste Systems Consolidation (SWSC) Plant. Because this sulfuric acid is used in liquid form, it is not subject to EPCRA 313 reporting. Sulfuric acid aerosols are generated as a result of storage tank emissions and fuel combustion byproducts. The total amount of sulfuric acid mist generated for both of these activities is less than the 25,000 lb manufacture threshold and is therefore not reported. Based on EPA guidance, for fuel oil combustion it is assumed that all sulfur trioxide (SO<sub>3</sub>) emissions are in the form of sulfuric acid. For natural gas combustion it is conservatively assumed that all sulfur oxides (SO<sub>x</sub>) emissions are in the form of sulfuric acid mist because separate SO<sub>3</sub> emission factors are not available. Procurements of sulfuric acid at LANL are assumed to be in aerosol form since the specific usage is unknown, however this total does not exceed the otherwise use reporting

threshold and is therefore not reported. A summary of the threshold determinations for sulfuric acid is provided in Table 6-1.

**Table 6-1. Sulfuric Acid Threshold Determinations for 2001**

Description	Amount of Sulfuric Acid (lb)	Data Source	EPCRA Section 313 Activity Determination	EPCRA Section 313 Activity Threshold (lb)
Demineralizer Regeneration	94,240	Johnson Controls Northern New Mexico	Not in aerosol form and not subject to EPCRA Section 313	NA
Water Analysis at the SWSC Plant	100.5	Johnson Controls Northern New Mexico		
Procurement	436.6*	Procurement Data	Otherwise Used	10,000
Storage Tank Air Emissions	0.002	EPA, TANKS 4.0 Software	Manufactured	25,000
Fuel Combustion Byproducts	677.4	AP-42 and fuel use records <sup>2</sup>		

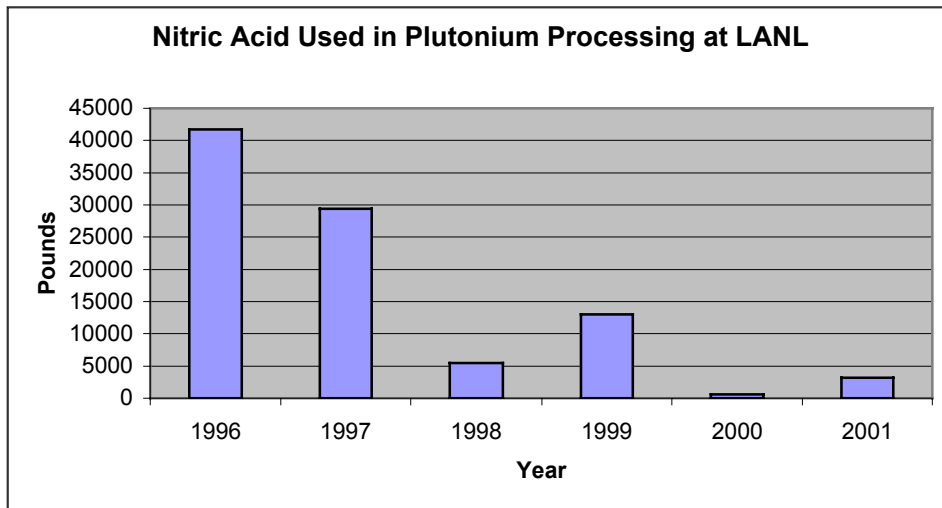
\*Assumed to be in aerosol form.

## 6.2 Nitric Acid

In general, nitric acid is used in high volume at the Laboratory every reporting year. The main uses are in research and development activities, sample preparation, plutonium processing, and the Laboratory's bio-assay program. Small amounts of nitric acid are also used for cleaning glassware. The total amount of nitric acid used at LANL in 2001 does not exceed any EPCRA 313 thresholds and is not reported.

In 2001 LANL installed and began operating a nitric acid recycle system at the plutonium processing facility. This unit separates and recovers aqueous nitric acid solution, which can then be directly reused in the process. The recycle system has decreased by approximately 90% the amount of new nitric acid that must be added to the system and has decreased the volume of waste generated from this process.

Figure 6-1 shows historical use of nitric acid in plutonium processing at LANL from 1996 through 2001. As shown in the graph, nitric acid use has steadily declined. While some of the decrease is due to fluctuations in operational activity, the more recent decreases are due to the installation of the nitric acid recycle system.



**Figure 6-1. Use of nitric acid in plutonium processing at LANL from 1996 through 2001.**

Table 6-2 summarizes nitric acid use at LANL for 2001.

**Table 6-2. Nitric Acid Threshold Determinations for 2001**

Description	Amount of Nitric Acid (lb)	Data Source	EPCRA Section 313 Activity Determination	EPCRA Section 313 Activity Threshold (lb)
Laboratory Use	5,066	Procurement Records and Interviews	Laboratory Exempt	NA
Glassware Cleaning	313	Procurement Records and Interviews	Otherwise Used	10,000
Plutonium Processing	3,186	Facility Records		
Etching of Metal	499	Procurement Records and Interviews		

### 6.3 Mercury and Mercury Compounds

Mercury and mercury compounds are used in various places throughout LANL. Procurement records were evaluated and users of large quantities of mercury were interviewed to gain an understanding of how mercury was used in 2001. As part of the PBT rule, the threshold for reporting mercury under EPCRA 313 was reduced to 10 lb,



effective calendar year 2000. In 2000 LANL submitted a Form R for mercury, however mercury was not used over threshold quantities in 2001, and therefore is not required to be reported. Each activity and the corresponding threshold analysis is described below.

### **Los Alamos Neutron Science Center (LANSCE) Shutter System**

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. 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 8,800 lb. These reservoirs are closed systems, and only opened occasionally when minor repairs or maintenance are done.

In 2001 no mercury was added to any of the shutter systems or reservoirs. In December 2001 one shutter system (Flight Path 1) was drained, and approximately 900 lb of mercury was transferred from the shutter system into a temporary storage vessel. The activity to drain the Flight Path 1 shutter system and transfer the mercury into storage does not qualify as “manufacture,” “process,” or “otherwise use.” This determination is based on the following guidance from the 1998 EPCRA Section 313 Questions and Answers Document,<sup>3</sup>

“Storage in itself of a toxic chemical is not considered a manufacturing, processing, or otherwise use activity and, therefore, is not subject to threshold determinations.”

### **Mercury Procurements**

Based on procurement records the total amount of mercury and mercury compounds brought on site in 2001 was 314.75 lb. The various owners of this mercury were contacted to determine how the mercury was used. Based on interviews with the various employees who purchased this mercury, it was determined that most of the mercury is used in laboratory settings and qualifies for the laboratory exemption. The remaining 1.1 lb of mercury was assumed to be “otherwise used” and applied to the 10 lb threshold. Based on this analysis, mercury does not need to be reported for 2001.

Table 6-3 summarizes the various uses of mercury at the Laboratory in 2001.

**Table 6-3. Mercury Threshold Determinations for 2001**

<b>Description</b>	<b>Amount of Mercury (lb)</b>	<b>Data Source</b>	<b>EPCRA 313 Activity Determination</b>	<b>EPCRA 313 Activity Threshold (lb)</b>
Oak Ridge National Laboratory Experiment	300	Facility representatives, experiment completed in 2000, but mercury not shipped back to Oak Ridge until 2001.	Laboratory Exempt	NA
Laboratory Standards	4.32	Facility representatives, contains parts per million concentrations of mercury		
Miscellaneous Laboratory Use	7.74	Facility representatives		
Mercury Suppressant Kits	1.59	Procurement records and interviews, contains no mercury		
Procurement Data	1.1	Procurement records and interviews	Otherwise Used	10

#### 6.4 Polycyclic Aromatic Compounds

Polycyclic aromatic compounds (PACs) are a new chemical category added to the EPCRA Section 313 list in 2000 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,"<sup>4</sup> fuel oil and paving asphalt contain PACs. In addition, PACs may be generated from the combustion of natural gas, fuel oil, wood, and the manufacture of asphalt. Each of these sources of PACs was evaluated.

##### **PACs from Air Curtain destructors**

In 2001 LANL began using new "air curtain destructors" (ACDs) to safely and cleanly burn piles of downed trees, stumps, and slash from forest thinning projects. The newly employed burners work similarly to low-emission "pellet stoves" by blowing a curtain of air over materials as they burn within a semi-enclosed environment. The fan-driven curtain of air introduces a steady oxygen supply into the fuel and helps ensure that nearly all fuel and gasses are consumed. Each unit can burn up to 10 tons of wood per hour.

Three ACDs were brought on site in 2001. A total of 1,216 tons of wood and wood scrap generated from forest thinning activities was burned in 2001. Guidance provided by EPA provides an emission factor for PACs of  $5.15 \times 10^{-5}$  lb/ton wood burned and an emission factor for benzo(g,h,i)perylene of  $1.2 \times 10^{-6}$  lb/ton wood burned.<sup>5</sup> Using these emission factors it was estimated that approximately 0.16 lb of PACs and 0.0015 lb of benzo(g,h,i)perylene were manufactured from the burning of wood in 2001.

### **PACs from Asphalt Production**

In 2001, LANL produced approximately 2,576 tons of asphalt and used 30,500 gallons (276,033 lb) of asphalt tar. The asphalt was used for minor road and parking lot patching and paving. Tar may contain 178 parts per million of PACs.<sup>6</sup> This equates to 49.1 lb of PACs that applies to the otherwise used threshold. The concentration of benzo(g,h,i)perylene in asphalt tar is 1.2 parts per million.<sup>7</sup> Therefore, 0.33 lb of benzo(g,h,i)perylene is applied towards its 10-lb otherwise used threshold. Emissions of total PACs and benzo(g,h,i)perylene from asphalt production are applicable to the manufacture threshold. Using AP-42 emission factors,<sup>7</sup> these amounts were calculated to be  $4.89 \times 10^{-04}$  lb of PACs and  $1.29 \times 10^{-06}$  lb of benzo(g,h,i)perylene.

### **PACs from Fuel Oil Combustion**

The main power plant at LANL used 121,997 gallons of fuel oil in 2001. An additional 8,000 gallons are estimated to have been used in diesel-fired generators throughout LANL. According to EPA guidance, fuel oil may contain 10 parts per million of PACs.<sup>6</sup> Based on these fuel records 9.1 lb of PACs applies to the otherwise used threshold. The value for benzo(g,h,i)perylene is 0.05 ppm.<sup>8</sup> This equates to 0.04 lb of this particular PAC, applicable to the 10 lb otherwise used threshold. In addition, the combustion of fuel will generate emissions of PACs that apply to the manufacture threshold. Using AP-42 emission factors these amounts were calculated to be 0.002 lb for total PACs and 0.0003 lb for benzo(g,h,i)perylene.

### **PACs from Natural Gas**

Using AP-42 emission factors and fuel records approximately 0.024 lb of PACs was produced from natural gas combustion, which is applied to the manufacture threshold. Approximately 0.002 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 that these substances are negligible in natural gas before combustion.

### **Summary of PACs**

Based on the analysis of sources described above, 58.2 lb of total PACs qualifies as otherwise used, and 0.19 lb as manufactured. These values are below each threshold value of 100 lb and therefore reporting of PACs for 2001 was not necessary. For benzo(g,h,i)perylene, otherwise used accounted for 0.37 lb, while 0.004 lb was

manufactured. These values are also below the threshold of 10 lb and reporting was not necessary under EPCRA Section 313.

Table 6-4 summarizes the PACs and benzo(g,h,i)perylene threshold determinations.

**Table 6-4. PACs Threshold Determinations for 2001**

Description	Used In/ Produced From:	Amount (lb)	Total (lb)	EPCRA Section 313 Activity Determination	EPCRA Section 313 Activity Threshold (lb)	
Total PACs	Natural Gas	0	58.2	Otherwise Used	100	
	Asphalt	49.1				
	Fuel Oil	9.1				
	Total PACs	Natural Gas	0.024	0.19	Manufactured	100
		Asphalt	$4.89 \times 10^{-4}$			
		Fuel Oil	0.002			
		ACDs	0.16			
Benzo(g,h,i) perylene	Natural Gas	0	0.37	Otherwise Used	10	
	Asphalt	0.33				
	Fuel Oil	0.04				
	Benzo(g,h,i) perylene	Natural Gas	0.002	0.004	Manufactured	10
		Asphalt	$1.29 \times 10^{-6}$			
		Fuel Oil	0.0003			
		ACDs	0.0015			

## 7.0 LEAD AND FORM R REPORTING

### 7.1 Threshold Determination

Lead and lead compounds are used in various places throughout LANL. Procurement records were evaluated and users of large quantities of lead were interviewed to gain an understanding of how lead was actually used in 2001. As part of the PBT rule, the threshold for EPCRA Section 313 reporting of lead was reduced to 100 lb for calendar year 2001. In 2001, lead was used at several locations within the Laboratory and exceeded the otherwise used threshold for EPCRA 313 reporting. Each use is described below.

#### Lead Melting

In 2001, lead melting activities at LANL were not operational.

#### Lead Shielding Decontamination

Lead shielding decontamination was discontinued at LANL. The activity did not operate in 2001; therefore lead was not used at the facility and did not contribute to the threshold determination.

## **Lead Use at the Firing Range**

Lead is a component in various types of bullets. LANL maintains an on-site firing range for training of security personnel. The firing range at LANL keeps detailed records of the amount and type of munitions expended. The U.S. Department of Defense (DoD) developed software for estimating usage and releases of EPCRA 313 chemicals from various munitions activities. The TRI-Data Delivery System (TRI-DDS) software was used to calculate the amounts of toxic chemicals associated with the munitions used at LANL for comparison with EPCRA 313 reporting thresholds and calculation of environmental releases. Using this software, it was determined that approximately 3,799 lb of lead contained in ammunition was shot at the firing range in 2001. This resulted in approximately 4 lb of lead compound air emissions and 3,799 lb of lead released to land, both of which are included in the Form R Report.

## **Lead-Bismuth Test Loop**

Approximately 10,000 lb of lead-bismuth alloy was purchased for LANSCE in 2000. The lead was kept in storage until 2001. According to facility contacts there are two lead-bismuth test loops. The existing loop was not operated or opened and no new lead-bismuth was added or used in 2001. A new lead bismuth test loop was filled with approximately 8,000 lb of the lead-bismuth alloy. The remaining 2,000 lb of lead-bismuth that was purchased will remain in storage for future use.

EPA provides guidance on the applicability of EPCRA Section 313 reporting to the storage of chemicals that are not processed or otherwise used during the reporting year. The guidance states:

“Storage, in itself, would not meet an activity threshold under EPCRA Section 313. However, if the facility exceeds the manufacturing, processing, or otherwise use threshold for the same toxic chemical elsewhere at the facility, the facility must consider releases from the storage of the toxic chemical.”<sup>3</sup>

The lead added to the new test loop is subject to the reporting threshold of 100 lb for lead, however the remaining 2,000 lb of lead will remain in storage and is not subject to the reporting threshold. The lead transferred into the test loop is contained in a closed system and no lead emissions resulted during the transfer.

## **Air Curtain Destructors**

The three ACDs brought on site in 2001 burned a total of 1,216 tons of wood and wood scrap generated from forest thinning activities. EPA guidance for reporting releases of lead and lead compounds states that the typical concentration of lead in wood is 20 parts per million.<sup>9</sup> Using this lead concentration it was calculated that 48.6 lb of lead were processed from the burning of wood in the ACDs. The 48.6 lb was applied to the otherwise use threshold.

## **Fuel Combustion and Asphalt Production**

Lead can be found in trace amounts considered impurities in many materials. Fuels and asphalt tar are two materials used at LANL that contain trace quantities of lead. Because lead is one of the PBTs and the de minimis exemption does not apply, these trace quantities must also be applied to the 100 lb lead threshold. In 2001 LANL used 276,033 lb of asphalt tar, which contained 0.002 lb of lead and used 122,000 gallons of fuel oil, which contained 0.835 lb of lead. Additionally, during the fuel combustion process, lead in fuel is converted into various lead compounds, which is considered to be coincidental manufacture. As a result LANL manufactured 0.76 lb of lead compounds in 2001.

## **Lead Bricks and Lead Shielding**

In 2001, and historically, LANL has used lead in the form of lead bricks and lead shielding for radiation protection. This amount of lead qualifies for the article exemption as stated below.

“An article is a manufactured item which is formed to a specific shape or design during manufacture, which has end use functions dependent in whole or in part on its shape or design during end use and which does not release a toxic chemical under normal conditions of processing or otherwise use of the item at the facility.”<sup>1</sup>

Additionally, if the processing or otherwise use of the items results in a total release of 0.5 lb or less of an EPCRA 313 chemical to any environmental medium, this release can be rounded to zero and the items may be exempt from reporting based on their article status. Lead bricks and shielding meet the qualifications to be considered an article and there were no releases of lead resulting from their use.

The thresholds for the different activity determinations involving lead are listed in Table 7-1.

## **7.2 Environmental Releases and Off-site Disposal**

### **Air Emissions**

Lead emissions were calculated from three operations at the Laboratory: the firing range, the ACDs, and fuel combustion. Lead air emissions from the firing range were calculated using the TRI-DDS. The TRI-DDS was developed by the DoD to calculate toxic chemical releases from munitions activities. Using this model, the total amount of lead released as fugitive air emissions was 3.9 lb.

Using EPA AP-42 emission factors and fuel use records for 2001, lead emissions from fuel oil combustion and the burning of wood in the ACDs were calculated. Lead emissions from fuel use totaled 1 lb, and lead emissions from the ACDs totaled 0.3 lb.

**Table 7-1. Lead Threshold Determinations for 2001**

<b>Description</b>	<b>Amount of Lead (lb)</b>	<b>Data Source</b>	<b>EPCRA Section 313 Activity Determination</b>	<b>EPCRA Section 313 Activity Threshold (lb)</b>
Lead Melting	0	Facility Representatives	Processed	100
Lead Shielding Decontamination	0	Facility Representatives		
Fuel Combustion	0.84	Fuel Use Records and EPA AP-42	Manufactured	100
	0.76	Fuel Use Records and EPA AP-42		
Asphalt Production	0.002	Asphalt Records and EPA-AP-42	Otherwise Used	100
Firing Range	3,799	Firing Range Logbooks and TRI-DDS		
Procurement	20.1	Procurement Data		
Lead-Bismuth Test Loop	8,000	Procurement and Facility Interviews		
Air Curtain Destructors	48.6	ACD Operating Records		

**Releases to Water**

Releases to receiving streams are a result of run off of storm water, and from treated wastewater released from various LANL sites through permitted National Pollutant Discharge Elimination System (NPDES) outfalls.

All permitted outfalls are sampled for lead. Analytical data were extrapolated to estimate yearly releases from each outfall. Lead concentrations ranged from undetectable to 1.6 parts per billion. The data were summed to obtain a total estimate of lead discharged from all NPDES outfalls of 0.0025 lb. One of the permitted outfalls, the Radioactive Liquid Waste Treatment Facility, conducts pretreatment of the influent to remove a large portion of the lead (and other metals) before discharge. Analytical data for influent before treatment compared with analytical data after treatment indicate the facility is removing approximately 80% of lead prior to discharge. Water is treated at the facility through precipitation, filtration, and reverse osmosis.

Lead concentrations for storm water released from LANL property during calendar year 2001 were obtained from the Water Quality Database Reports website (<http://wqdbworld.lanl.gov>). This query provided lead concentrations, dates, and sites of measurement. These data and additional data from the LANL Water Quality and Hydrology Group were obtained to calculate total volume discharge per storm event at each site. Lead concentrations in storm water ranged between undetectable levels to 494 parts per billion. Background levels of lead were subtracted from the analytical data to provide an estimate of lead in storm water due to LANL activities. In addition, several canyons have storm water gauging stations at multiple locations within canyon reaches. During large storm events the same storm water may pass

through several gauging stations where samples are collected. In an effort to prevent double-counting the mass of lead being transported by storm water, only the gauging station that recorded the greatest mass of lead within each canyon was used for this analysis. Based on this analysis, the total amount of lead released from LANL in storm water was 48 lb.

For Form R reporting, the total amount of lead released to each receiving stream is reported. For both permitted outfall and storm water data, the receiving stream was determined by finding the monitoring site on a map and determining the nearest canyon. All canyons were assumed to be tributaries of the Rio Grande. Total lead released to canyon tributaries from LANL property was 48.1 lb in calendar year 2001.

### Releases to Land

Lead releases to land occur on site at LANL 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 the munitions used at LANL was estimated by matching the munitions types with those listed in the TRI-DDS. A total of 3,799 lb of lead were released to land at the firing range at LANL in 2001.

### Off-Site Disposal of Waste

LANL performed no on-site waste disposal of lead-contaminated wastes in 2001. All lead-contaminated waste is sent off site to EPA-approved facilities for disposal or recycling. Data, including shipment weight and lead concentration, were obtained for all lead-contaminated wastes sent off site for disposal in 2001. The waste disposal records were evaluated to determine any waste shipments that were exempt from reporting. Waste that is exempt from reporting includes laboratory exempt waste and article exempt waste. Intact light bulbs sent off site for disposal are exempt under the article exemption. Waste generated in a laboratory under the direct supervision of a technically qualified individual is also exempt from reporting.

Total reportable lead weight from all non-exempt waste disposal was calculated to be 7,789 lb. Table 7-2 provides a summary of the types of waste streams containing lead that were sent off site for disposal in 2001. For the purposes of Form R reporting, each receiving facility was contacted to determine the disposition of the lead in the waste that was shipped off site.

**Table 7-2. Summary of Lead Waste Sent Off-site from LANL in 2001**

Waste Type	Description/Example	Reportable Weight of Lead (lb)
Pure Lead Waste	Lead Bricks and Lead Shielding	7,456
Liquid Waste	Flammable Liquids Containing Lead	2
Solid Waste	Soils and Other Solid Waste	330
Spent Solvent	Spent Ferric Chloride Etchant	0.5



### 7.3 Form R Report

Environmental releases of lead as air emissions, to surface waters, and on-site land releases were reported to be 5.2 lb, 48 lb and 3,799 lb, respectively. These values are included in Section 5 of the Form R, *Quantity of the Toxic Chemical Entering Each Environmental Medium On-site*. A total of 7,789 lb of lead was reported in Section 6.2 of the Form R, *Transfers to Other Off-site Locations*.

Methods of treating NPDES outfall lead amounts were included in Section 7A of the Form R. This section details on-site waste treatment methods and efficiency. Sections 7B and 7C relate to on-site energy recovery and recycling. LANL performed no on-site processes applicable to this section for lead in 2001.

Section 8 of Form R refers to source reduction and recycling activities. The information given for this section states that no energy recovery is possible for lead, either on site or off site. LANL also reported no on-site recycling or treatment. Approximately 2 lb of the lead shipped off site was recycled. Estimates based on this year's values were given for the subsequent two reporting years. In addition to lead released to the environment for off-site disposal, air, and water emissions, LANL reported 322 lb lead in waste shipped off site for disposal as a result of remedial actions.

Section 8.9 of Form R reports the production ratio, an estimated measure of the production of the reported chemical at the facility, as compared to the previous year. Because LANL is not a production facility a surrogate measure was needed to complete this section of Form R. To determine this value, the firing range was used as a representative activity that would maintain a consistent usage of lead. Therefore, the amount of lead munitions used in 2001 was divided by the amount of lead munitions used in 2000 to obtain a production ratio of 0.90.

## REFERENCES

1. U.S. Environmental Protection Agency, "Toxic Chemical Release Inventory Reporting Form R and Instructions," Revised 1999 Version, EPA 745-B-00-001, February 2000.
2. U.S. Environmental Protection Agency, "Compilation of Air Pollutant Emission Factors," AP-42, Chapter 1.3 - Fuel Oil Combustion, September 1998.
3. U.S. Environmental Protection Agency, "Revised 1998 EPCRA Section 313 Questions and Answers," EPA 745-B-98-004, December 1998.
4. EPA 260-B-01-03, "Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category," June 2001, Section 1.4 (Polycyclic Aromatic Compounds – Their Structure and Formation), p. 9.
5. U.S. Environmental Protection Agency, "Locating and Estimating Air Emissions from Sources of Polycyclic Organic Materials," EPA-454/R-98-014, 1998.
6. EPA 260-B-01-03, "Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category," June 2001, Table 2-2: Quantity of PACs Required to Meet the Reporting Threshold in Fuels and Asphalt.
7. EPA 260-B-01-005, "Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Pesticides and Other Persistent Bioaccumulative Toxic (PBT) Chemicals," June 2001, Table 3-1: Quantity of Benzo(g,h,i)perylene Required to Meet the Reporting Threshold in Common Fuels.
8. U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors (AP-42), Fifth Edition, Section 11.1 (Hot Mix Asphalt Plants), December 2000, Table 11.1-9: Emission Factors for Organic Pollutant Emissions from Batch Mix Hot Mix Asphalt Plants.
9. EPA 260-B-01-027, "Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Releases and Other Waste Management Quantities of Toxic Chemicals: Lead and Lead Compounds," December 2001, p. 4-16.

**APPENDIX A:  
EPCRA SECTION 313 CHEMICALS USED OR PROCURED IN 2001**



### EPCRA 313 Chemicals Used or Procured in 2001

Total (lb)	Chemical Name	CAS Number
94,676	Sulfuric acid (liquid form) <sup>a</sup>	7664-93-9
9,064	Nitric acid <sup>b</sup>	7697-37-2
5,308	Hydrochloric acid (liquid form) <sup>a</sup>	7647-01-0
5,076	Chlorodifluoromethane <sup>c</sup>	75-45-6
4,807	Propylene	115-07-1
4,458	Phosphoric acid	7664-38-2
3,353	Nitrate compounds	NA
2,233	Barium compounds	NA
1,874	Methanol	67-56-1
1,689	Trichloroethylene	79-01-6
1,460	Ethylene glycol	107-21-1
1,446	Acetonitrile	75-05-8
1,235	Zinc compounds	NA
1,041	Dichloromethane	75-09-2
816	Isopropyl alcohol	67-63-0
797	n-Hexane	110-54-3
680	Toluene	108-88-3
594	Methyl ethyl ketone	78-93-3
544	Manganese compounds	NA
397	Copper compounds	NA
324	Aluminum oxide	1344-28-1
310	Mercury <sup>d</sup>	7439-97-6
232	Chloromethane	74-87-3
220	Antimony compounds	NA
209	Hexazinone	51235-04-2
187	Chloroform	67-66-3
187	Hydrogen fluoride	7664-39-3
173	1,4-Dioxane	123-91-1
159	N-Methyl-2-pyrrolidone	872-50-4
144	Copper	7440-50-8
139	Xylene (mixed isomers)	1330-20-7
121	N,N-Dimethylformamide	68-12-2

<sup>a</sup> Only aerosol form reportable under EPCRA 313

<sup>b</sup> 5,066 lb qualifies as laboratory exempt

<sup>c</sup> Amount used is shown in table. Additional chlorodifluoromethane was purchased but not used in 2001.

<sup>d</sup> The majority of mercury brought on site qualifies as laboratory exempt.

<b>Total (lb)</b>	<b>Chemical Name</b>	<b>CAS Number</b>
112	Trichlorofluoromethane	75-69-4
105	Chromium	7440-47-3
94	Ethylene	74-85-1
86	Chlorine	7782-50-5
80	Ammonia	7664-41-7
62	1,1,1-Trichloroethane	71-55-6
55	Freon 113	76-13-1
54	Acrylamide	79-06-1
50	Chlorobenzene	108-90-7
40	Ethylbenzene	100-41-4
37	1,1-Dichloro-1-fluoroethane	1717-00-6
36	1,2-Dichloroethane	107-06-2
33	Cyanide compounds	NA
30	Chlorotetrafluoroethane	63938-10-3
25	Benzene	71-43-2
24	Carbon tetrachloride	56-23-5
23	Aluminum	7429-90-5
21	2,2-Dichloro-1,1,1-trifluoroethane	306-83-2
20	1,2,4-Trimethylbenzene	95-63-6
20	Glycol Ethers	NA
20	Lead	7439-92-1
18	1,3-Dichloro-1,1,2,2,3-pentafluoropropane	507-55-1
18	Silver compounds	NA
16	Formic acid	64-18-6
16	Fluorine	7782-41-4
15	3,3-Dichloro-1,1,1,2,2-pentafluoropropane	422-56-0
15	1,2-Dichlorobenzene	95-50-1
15	Styrene	100-42-5
13	Silver	7440-22-4
12	Hydroquinone	123-31-9
9	tert-Butyl alcohol	75-65-0
8	Methyl tert-butyl ether	1634-04-4
8	Manganese	7439-96-5
8	Chromium compounds	NA
8	Nickel compounds	NA
8	o-Xylene	95-47-6
7	2-Methoxyethanol	109-86-4

<b>Total (lb)</b>	<b>Chemical Name</b>	<b>CAS Number</b>
7	Pyridine	110-86-1
6	Phenol	108-95-2
6	Safrole	94-59-7
6	Barium	7440-39-3
6	Formaldehyde	50-00-0
5	Methyl isobutyl ketone	108-10-1
5	Triethylamine	121-44-8
5	Cadmium compounds	NA
5	Bromine	7726-95-6
5	Thioacetamide	62-55-5
5	Chlorophenols	NA
4	n-Butyl alcohol	71-36-3
4	Zinc	7440-66-6
4	1,2-Butylene oxide	106-88-7
4	Cobalt compounds	NA
3	1,1,2-Trichloroethane	79-00-5
3	Benzoyl chloride	98-88-4
3	Titanium tetrachloride	7550-45-0
3	Thallium	7440-28-0
3	Petroleum	8002-05-9
2	Arsenic	7440-38-2
2	Hexamethylphosphoramide	680-31-9
2	Arsenic compounds	NA
2	2-Ethoxyethanol	110-80-5
2	Cadmium	7440-43-9
2	m-Xylene	108-38-3
2	Nickel	7440-02-0
2	Cyclohexane	110-82-7
2	Acrylic acid	79-10-7
2	Thiourea	62-56-6
2	Molybdenum trioxide	1313-27-5
1	Dichlorotetrafluoroethane	76-14-2
1	Quinone	106-51-4
1	Diisocyanates	NA
1	Methyl iodide	74-88-4
1	Diethanolamine	111-42-2
1	Anthracene	120-12-7

Total (lb)	Chemical Name	CAS Number
1	Diphenylamine	122-39-4
1	Calcium cyanamide	156-62-7
1	Vanadium	7440-62-2
1	Phthalic anhydride	85-44-9
1	C.I. Food Red 15	81-88-9
1	p-Xylene	106-42-3
1	Beryllium	7440-41-7
1	Propylene oxide	75-56-9
1	Chloroacetic acid	79-11-8
1	Sodium nitrite	7632-00-0
1	Lead compounds	NA
1	Selenium compounds	NA
1	Hydrogen sulfide	7783-06-4
<1	Sodium azide (Na(N <sub>3</sub> ))	26628-22-8
<1	Cumene	98-82-8
<1	Trypan blue	72-57-1
<1	Acetaldehyde	75-07-0
<1	Methyl mercaptan	74-93-1
<1	Dichlorodifluoromethane	75-71-8
<1	Bromoform	75-25-2
<1	Lithium carbonate	554-13-2
<1	Thallium compounds	NA
<1	p-Cresol	106-44-5
<1	p-Phenylenediamine	106-50-3
<1	1,2-Diphenylhydrazine	122-66-7
<1	Thorium dioxide	1314-20-1
<1	Nitrilotriacetic acid	139-13-9
<1	1,4-Phenylenediamine dihydrochloride	624-18-0
<1	Tetracycline hydrochloride	64-75-5
<1	Cobalt	7440-48-4
<1	Boron trifluoride	7637-07-2
<1	Dicyclopentadiene	77-73-6
<1	Propyleneimine	75-55-8
<1	3-Chloro-2-methyl-1-propene	563-47-3
<1	Selenium	7782-49-2
<1	4-Nitrophenol	100-02-7
<1	Methyl methacrylate	80-62-6



<b>Total (lb)</b>	<b>Chemical Name</b>	<b>CAS Number</b>
<1	Mercury compounds	NA
<1	Aniline	62-53-3
<1	Chloromethyl methyl ether	107-30-2
<1	Sodium dimethyldithiocarbamate	128-04-1
<1	3,3'-Dimethoxybenzidine dihydrochloride	20325-40-0
<1	2,4-Dinitrophenol	51-28-5
<1	Benzoyl peroxide	94-36-0
<1	Methyl hydrazine	60-34-4
<1	C.I. Basic Red 1	989-38-8
<1	2-Mercaptobenzothiazole	149-30-4
<1	Nicotine and salts	NA
<1	Beryllium compounds	NA
<1	Ozone	10028-15-6
<1	Chlorine dioxide	10049-04-4
<1	Profenofos	41198-08-7
<1	Oxydemeton methyl	301-12-2



**APPENDIX B:  
FORM R REPORT FOR LEAD**



Signature Certification for U.S. EPA Diskette Submission

U.S. DEPARTMENT OF ENERGY, LOS  
528 35TH STREET

LOS ALAMOS, NM 87544  
TRI Fac. ID: 87544SDLSL52835  
06/27/2002

EPCRA Reporting Center  
P.O. Box 3348  
Merrifield, VA 22116-3348  
Attn: Toxic Release Inventory  
Magnetic Media Submission

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 LABORATORY

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 **1** chemical report(s) for our facility.

These **1** chemical report(s) are described below:

<u>Chemical Name</u>	<u>Reporting Year</u>	<u>CAS Number</u>	<u>Report</u>
Lead Compounds	2001	N420	Form R

Our technical point of contact is:

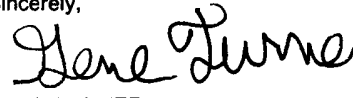
GENE TURNER

Phone Number: (505) 667-5784

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

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).

Sincerely,




GENE TURNER  
PROGRAM MANAGER FOR OFFICE OF F  
U.S. DEPARTMENT OF ENERGY, LOS  
ALAMOS NATIONAL LABORATORY

Enclosures: Diskette

Page 1 of 1

(IMPORTANT: Type or print; read instructions before completing form)

 <b>EPA</b> United States Environmental Protection Agency	<b>FORM R</b>	<b>TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM</b>
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		
WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center P.O. Box 3348 Merrifield, VA 22116-3348 ATTN: TOXIC CHEMICAL RELEASE INVENTORY		Enter "X" here if this is a revision  For EPA use only

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

**PART I. FACILITY IDENTIFICATION INFORMATION**


**SECTION 1. REPORTING YEAR** 2001

**SECTION 2. TRADE SECRET INFORMATION**

<b>2.1</b>	Are you claiming the toxic chemical identified on page 2 trade secret? <input type="checkbox"/> Yes (Answer question 2.2; Attach substantiation forms)	<b>2.2</b>	Is this copy <input type="checkbox"/> Sanitized <input type="checkbox"/> Unsanitized (Answer only if "YES" in 2.1)
	<input checked="" type="checkbox"/> NO (Do not answer 2.2; Go to Section 3)		

**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: Gene Turner Program Manager Office of Facility Ops.	Signature: 	Date Signed: 06/27/2002
---	--	----------------------------

**SECTION 4. FACILITY IDENTIFICATION**

<b>4.1</b>	Facility or Establishment Name U.S. Department of Energy, Los Alamos National Laboratory Street 528 35th Street City/County/State/Zip Code Los Alamos Los Alamos NM 87544	TRI Facility ID Number 87544SDL52835	Facility or Establishment Name or Mailing Address (if different from street address) Mailing Address NA City/State/Zip Code Country (Non-US)
<b>4.2</b>	This report contains information for: (Important: check a or b; check c or d if applicable)                 a. <input checked="" type="checkbox"/> An entire facility                 b. <input type="checkbox"/> Part of a facility                 c. <input checked="" type="checkbox"/> A Federal facility                 d. <input type="checkbox"/> GOCO		
<b>4.3</b>	Technical Contact Name Gene Turner	Telephone Number (include area code) (505) 667-5784	
<b>4.4</b>	Public Contact Name Gene Turner	Telephone Number (include area code) (505) 667-5784	
<b>4.5</b>	SIC Code (s) (4 digits) Primary a. 9711	b.	c.
<b>4.6</b>	Latitude Degrees: 35 Minutes: 49 Seconds: 51	Longitude Degrees: 106 Minutes: 14 Seconds: 15	
<b>4.7</b>	Dun & Bradstreet Number(s) (9 digits) a. NA b.	<b>4.8</b>	EPA Identification Number (RCRA I.D. No.) (12 characters) a. NM0890010515 b.
		<b>4.9</b>	Facility NPDES Permit Number(s) (9 characters) a. NM0028355 b.
		<b>4.10</b>	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits) a. NA b.

**SECTION 5. PARENT COMPANY INFORMATION**

<b>5.1</b>	Name of Parent Company NA <input type="checkbox"/>	U.S. Department of Energy
<b>5.2</b>	Parent Company's Dun & Bradstreet Number NA <input checked="" type="checkbox"/>	

<b>EPA FORM R</b>		TRI Facility ID Number																
<b>PART II. CHEMICAL - SPECIFIC INFORMATION</b>		87544SDLSL52835																
		Toxic Chemical, Category or Generic Name																
		Lead Compounds																
<b>SECTION 1. TOXIC CHEMICAL IDENTITY</b> (Important: DO NOT complete this section if you completed Section 2 below.)																		
<b>1.1</b>	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)																	
	N420																	
<b>1.2</b>	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)																	
	Lead Compounds																	
<b>1.3</b>	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)																	
	NA																	
<b>Distribution of Each Member of the Dioxin and Dioxin-like Compounds Category.</b> (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.)																		
<b>1.4</b>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	NA																	
<b>SECTION 2. MIXTURE COMPONENT IDENTITY</b> (Important: DO NOT complete this section if you completed Section 1 above.)																		
<b>2.1</b>	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)																	
	NA																	
<b>SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY</b> (Important: Check all that apply.)																		
<b>3.1</b>	Manufacture the toxic chemical:		<b>3.2</b>	Process the toxic chemical:		<b>3.3</b>	Otherwise use the toxic chemical:											
	a. <input type="checkbox"/> Produce    b. <input type="checkbox"/> Import			a. <input type="checkbox"/> As a reactant			a. <input type="checkbox"/> As a chemical processing aid											
	If produce or import:			b. <input type="checkbox"/> As a formulation component			b. <input type="checkbox"/> As a manufacturing aid											
	c. <input type="checkbox"/> For on-site use/processing			c. <input type="checkbox"/> As an article component			c. <input checked="" type="checkbox"/> Ancillary or other use											
	d. <input type="checkbox"/> For sale/distribution			d. <input type="checkbox"/> Repackaging														
	e. <input type="checkbox"/> As a byproduct			e. <input type="checkbox"/> As an impurity														
	f. <input type="checkbox"/> As an impurity																	
<b>SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR</b>																		
<b>4.1</b>	04 (Enter two-digit code from instruction package.)																	
<b>SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE</b>																		
		<b>A. Total Release</b> (pounds/year*) (Enter range code or estimate**)		<b>B. Basis of Estimate</b> (enter code)		<b>C. % From Stormwater</b>												
<b>5.1</b>	Fugitive or non-point air emissions	NA	4.2	C														
<b>5.2</b>	Stack or point air emissions	NA	1	E														
<b>5.3</b>	Discharges to receiving streams or water bodies (enter one name per box)																	
	Stream or Water Body Name																	
<b>5.3.1</b>	Canon de Valle Tributary to Rio Grande		1.5	M		100												
<b>5.3.2</b>	Los Alamos Canyon Tributary to Rio Grande		26	M		100												
<b>5.3.3</b>	Pajarito Canyon Tributary to Rio Grande		1.5	M		100												
If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box and indicate the Part II, Section 5.3 page number in this box.						2												
						1 (example: 1,2,3, etc.)												

<b>EPA FORM R</b>		<b>PART II. CHEMICAL - SPECIFIC INFORMATION</b>	
		TRI Facility ID Number	
		87545LSLMSLOSAL	
		Toxic Chemical, Category or Generic Name	
		Lead Compounds	
<b>SECTION 1. TOXIC CHEMICAL IDENTITY</b> (Important: DO NOT complete this section if you completed Section 2 below.)			
<b>1.1</b>	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)		
<b>1.2</b>	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)		
<b>1.3</b>	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)		
<b>Distribution of Each Member of the Dioxin and Dioxin-like Compounds Category.</b> (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.)			
<b>1.4</b>	1	2	3
<b>NA</b> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SECTION 2. MIXTURE COMPONENT IDENTITY</b> (Important: DO NOT complete this section if you completed Section 1 above.)			
<b>2.1</b>	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)		
<b>SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY</b> (Important: Check all that apply.)			
<b>3.1</b>	Manufacture the toxic chemical:	<b>3.2</b>	Process the toxic chemical:
a. <input type="checkbox"/> Produce    b. <input type="checkbox"/> Import  If produce or import: c. <input type="checkbox"/> For on-site use/processing d. <input type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity	a. <input type="checkbox"/> As a reactant b. <input type="checkbox"/> As a formulation component c. <input type="checkbox"/> As an article component d. <input type="checkbox"/> Repackaging e. <input type="checkbox"/> As an impurity	<b>3.3</b>	Otherwise use the toxic chemical:
a. <input type="checkbox"/> As a chemical processing aid b. <input type="checkbox"/> As a manufacturing aid c. <input type="checkbox"/> Ancillary or other use			
<b>SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR</b>			
<b>4.1</b>	(Enter two-digit code from instruction package.)		
<b>SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE</b>			
		A. Total Release (pounds/year*) (Enter range code or estimate**)	B. Basis of Estimate (enter code)
<b>5.1</b>	Fugitive or non-point air emissions	NA <input type="checkbox"/>	
<b>5.2</b>	Stack or point air emissions	NA <input type="checkbox"/>	
<b>5.3</b>	Discharges to receiving streams or water bodies (enter one name per box)		
Stream or Water Body Name			
<b>5.3.1</b>	Pueblo Canyon Tributary to Rio Grande	18	M      100
<b>5.3.2</b>	Sandia Canyon Tributary to Rio Grande	0.2	M      98
<b>5.3.3</b>	Water Canyon Tributary to Rio Grande	0.5	M      100
If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box		<input type="text" value="2"/>	
and indicate the Part II, Section 5.3 page number in this box.		<input type="text" value="2"/> (example: 1,2,3, etc.)	



EPA FORM R PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)		TRI Facility ID Number	
		87545LSLMSLOSAL	
Toxic Chemical, Category, or Generic Name		Lead Compounds	
<b>SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)</b>			
	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 <input checked="" type="checkbox"/>		
5.4.2	Underground Injection onsite to Class II-V Wells <input checked="" type="checkbox"/>		
5.5	Disposal to land onsite		
5.5.1.A	RCRA Subtitle C landfills <input checked="" type="checkbox"/>		
5.5.1.B	Other landfills <input checked="" type="checkbox"/>		
5.5.2	Land treatment/application farming <input checked="" type="checkbox"/>		
5.5.3	Surface Impoundment <input checked="" type="checkbox"/>		
5.5.4	Other disposal <input type="checkbox"/>	3799	C
<b>SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS</b>			
<b>6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)</b>			
<b>6.1.A Total Quantity Transferred to POTWs and Basis of Estimate</b>			
6.1.A.1. Total Transfers (pounds/year*) (enter range code** or estimate)		6.1.A.2 Basis of Estimate (enter code)	
NA			
6.1.B. 1	POTW Name	NA	
POTW Address			
City		State	County
City		State	County
6.1.B.	POTW Name		
POTW Address			
City		State	County
If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box <input type="text"/> and indicate the Part II, Section 6.1 page number in this box <input type="text"/> (example: 1,2,3, etc.)			
<b>SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS</b>			
6.2. 1 Off-Site EPA Identification Number (RCRA ID No.)		UT982598898	
Off-Site Location Name		Envirocare of Utah, Inc.	
Off-site Address		46 West Broadway Suite 116	
City	Salt Lake City	State	UT
County	Salt Lake County	Zip	84101
Country (Non-US)			
Is location under control of reporting facility or parent company? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

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

<b>EPA FORM R</b>	TRI Facility ID Number
<b>PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)</b>	87545LSLMSLOSAL
	Toxic Chemical, Category, or Generic Name
	Lead Compounds

**SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)**

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. 7456	1. C	1. M72
2. NA	2.	2.
3.	3.	3.
4.	4.	4.

**6.2. 2** Off-Site EPA Identification Number (RCRA ID No.) COD980591184

Off-Site location Name Onyx Environmental Services L.L.C.

Off-site Address 9131 East 96th Avenue

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

Is location under control of reporting facility or parent company?  Yes  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	1. C	1. M26
2. 40	2. C	2. M72
3. NA	3.	3.
4.	4.	4.

**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)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?	
<b>7A.1a</b>	<b>7A.1b</b>	<b>7A.1c</b>	<b>7A.1d</b>	<b>7A.1e</b>	
W	1 P31	04	80 %	Yes No <input checked="" type="checkbox"/> <input type="checkbox"/>	
	2 C09				
	3 P12				
4 NA	4	5	6	7	8
<b>7A.2a</b>	<b>7A.2b</b>	<b>7A.2c</b>	<b>7A.2d</b>	<b>7A.2e</b>	
	1		%	Yes No <input type="checkbox"/> <input type="checkbox"/>	
	2				
	3				
4	5	6	7	8	
<b>7A.3a</b>	<b>7A.3b</b>	<b>7A.3c</b>	<b>7A.3d</b>	<b>7A.3e</b>	
	1		%	Yes No <input type="checkbox"/> <input type="checkbox"/>	
	2				
	3				
4	5	6	7	8	
<b>7A.4a</b>	<b>7A.4b</b>	<b>7A.4c</b>	<b>7A.4d</b>	<b>7A.4e</b>	
	1		%	Yes No <input type="checkbox"/> <input type="checkbox"/>	
	2				
	3				
4	5	6	7	8	
<b>7A.5a</b>	<b>7A.5b</b>	<b>7A.5c</b>	<b>7A.5d</b>	<b>7A.5e</b>	
	1		%	Yes No <input type="checkbox"/> <input type="checkbox"/>	
	2				
	3				
4	5	6	7	8	

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box  and indicate the Part II, Section 6.2/7A page number in this box:  (example: 1,2,3, etc.)

EPA Form 9350-1 (Rev. 01/2001) - Previous editions are obsolete \* For Dioxin or Dioxin-like compounds, report in grams/year  
\*\* Range Codes: A= 1- 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

<b>EPA FORM R</b>	TRI Facility ID Number
<b>PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)</b>	87545LSLMSLOSAL
	Toxic Chemical, Category, or Generic Name
	Lead Compounds

**SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)**

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.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

**6.2.4** Off-Site EPA Identification Number (RCRA ID No.) TXD988088464

Off-Site location Name Waste Control Specialists

Off-site Address 9998 Highway 176 West

City Andrews County State TX County Andrews Zip 79714 Country (Non-US)

Is location under control of reporting facility or parent company?  Yes  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. 290	1. C	1. M72
2. NA	2.	2.
3.	3.	3.
4.	4.	4.

**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)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?		
<b>7A.11a</b>	7A.11b	1	2	7A.11c		
	3	4	5		7A.11d	
	6	7	8			%
<b>7A.12a</b>	7A.12b	1	2	7A.12c		
	3	4	5		7A.12d	
	6	7	8			%
<b>7A.13a</b>	7A.13b	1	2	7A.13c		
	3	4	5		7A.13d	
	6	7	8			%
<b>7A.14a</b>	7A.14b	1	2	7A.14c		
	3	4	5		7A.14d	
	6	7	8			%
<b>7A.15a</b>	7A.15b	1	2	7A.15c		
	3	4	5		7A.15d	
	6	7	8			%

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box and indicate the Part II, Section 6.2/7A page number in this box:  (example: 1,2,3, etc.)

EPA Form 9350-1 (Rev. 01/2001) - Previous editions are obsolete \* For Dioxin or Dioxin-like compounds, report in grams/year \*\* Range Codes: A= 1- 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

<b>EPA FORM R</b>	TRI Facility ID Number
<b>PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)</b>	87545LSLMSLOSAL
	Toxic Chemical, Category, or Generic Name
	Lead Compounds

**SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)**

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.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

**6.2.3** Off-Site EPA Identification Number (RCRA ID No.) CAD008488025

Off-site location Name	Phibro-Tech, Inc.							
Off-site Address	8851 Dice Road							
City	Santa Fe Springs	State	CA	County	Los Angeles	Zip	90670	Country (Non-US)

Is location under control of reporting facility or parent company?  Yes  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. 0.5	1. C	1. M26
2. NA	2.	2.
3.	3.	3.
4.	4.	4.

**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)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?			
<b>7A.6a</b>	<b>7A.6b</b>	<b>7A.6c</b>	<b>7A.6d</b>	<b>7A.6e</b>			
	1				2	%	Yes <input type="checkbox"/> No <input type="checkbox"/>
	3				4		
	6	7	8				
<b>7A.7a</b>	<b>7A.7b</b>	<b>7A.7c</b>	<b>7A.7d</b>	<b>7A.7e</b>			
	1				2	%	Yes <input type="checkbox"/> No <input type="checkbox"/>
	3				4		
	6	7	8				
<b>7A.8a</b>	<b>7A.8b</b>	<b>7A.8c</b>	<b>7A.8d</b>	<b>7A.8e</b>			
	1				2	%	Yes <input type="checkbox"/> No <input type="checkbox"/>
	3				4		
	6	7	8				
<b>7A.9a</b>	<b>7A.9b</b>	<b>7A.9c</b>	<b>7A.9d</b>	<b>7A.9e</b>			
	1				2	%	Yes <input type="checkbox"/> No <input type="checkbox"/>
	3				4		
	6	7	8				
<b>7A.10a</b>	<b>7A.10b</b>	<b>7A.10c</b>	<b>7A.10d</b>	<b>7A.10e</b>			
	1				2	%	Yes <input type="checkbox"/> No <input type="checkbox"/>
	3				4		
	6	7	8				

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box  and indicate the Part II, Section 6.2/7A page number in this box:  (example: 1,2,3, etc.)

EPA Form 9350-1 (Rev. 01/2001) - Previous editions are obsolete \* For Dioxin or Dioxin-like compounds, report in grams/year  
\*\* Range Codes: A= 1- 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R		TRI Facility ID Number			
<b>PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)</b>		87545LSLMSLOSAL			
		Toxic Chemical, Category, or Generic Name			
		Lead Compounds			
<b>SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES</b>					
<input checked="" type="checkbox"/> 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)]					
1	2	3	4		
<b>SECTION 7C. ON-SITE RECYCLING PROCESSES</b>					
<input checked="" type="checkbox"/> 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)]					
1	2	3	4	5	
6	7	8	9	10	
<b>SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES</b>					
		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	Quantity released ***	12500	11319	10000	9100
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	2	2	3	3
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)			322	
8.9	Production ratio or activity index			0.90	
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	a.	b.	c.	
8.10.2		a.	b.	c.	
8.10.3		a.	b.	c.	
8.10.4		a.	b.	c.	
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report? (Check one Box)			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

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\*For Dioxin or Dioxin-like compounds, report in grams/year

\*\*\*Report releases pursuant to EPCRA Section 329 (8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite.



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