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MEMORANDUM

TO: Mayor Weitkunat and Councilmembers
FROM: Lucinda Smith, Environmental Services Director
Melissa Hovey, Senior Environmental Planner
THROUGH: Darin Atteberry, City Manager *D*
Bruce Hendee, Chief Sustainability Officer *B*
DATE: April 2, 2013
SUBJECT: Council Item # 8; Existing Woodward Air and Waste Emissions

Attached please find a report summarizing air emissions from Woodward's existing operations at 1000 East Drake Road, as reported to the Colorado Department of Public Health and Environment (CDPHE), environmental releases as reported to the Toxics Release Inventory, and hazardous waste quantity data provided by Woodward.

Woodward reported no releases to the air of criteria pollutants, Hazardous Air Pollutants, and Volatile Organic Compounds between 1998 and 2010. This is due to either discontinuation of certain manufacturing processes, out-sourcing of processes, or replacement of substances. In 2011, Woodward reported 22.5 pounds per year of lead air stack emissions. This represents the maximum potential to emit, and is not based on actual measured emissions. The source of lead emissions is from wave soldering operations which are equipped with air pollution control equipment. At this time, Woodward is not planning to expand lead emitting processes in Fort Collins.

In comparison, according to the 2008 National Emissions Inventory, statewide air emissions of lead from all industrial sources were 7.76 tons per year (15,520 pounds), making Woodward's emissions 0.14% of statewide industrial sources. Statewide lead emissions from the mobile source sector in Colorado are significantly larger than the industrial sector. Within Larimer, in 2008, all entities that reported on lead air emissions reported a total 683 pounds of lead per year. (Note that Woodward reported no lead air emissions in 2008.) For additional context, the CDPHE currently requires air pollution sources to submit APENs (Air Pollution Emissions Notice) for lead when emissions exceed 100 pounds per year.

In 2011, Woodward achieved ISO 14001 certification. ISO 14001 is an internationally recognized standard that maps out a framework that a company can follow to set up an effective environmental management system. It is used to improve resource efficiency, reduce waste and drive down costs. Using ISO 14001 can provide assurance to company management and employees as well as external stakeholders that environmental impact is being measured and improved. To maintain ISO 14001 certification, an annual surveillance audit is required. Per the most recent audit in February 2013, Woodward has retained full ISO certification.

It is not known at this time the extent of additional point source air emissions from future expanded operations, but Woodward will seek permits as necessary and implement associated controls as required by those permits. Woodward's Environmental Management System provides a framework for the company to seek continual improvements in their processes into the future and to seek continual reductions in air emissions. In fact, it was this ISO 14001 certified environmental system that identified an alternate interpretation of a requirement that resulted in Woodward reporting a release of 22.5 pounds of lead in 2011.

Woodward Historic Air and Waste Emissions

AIR EMISSIONS

Woodward began reporting air emissions to the Colorado Department of Public Health and Environment (CDPHE) in 1990 in compliance with their air permits. Figures 1 and 2 and Tables 1 and 2 below show the air emissions data for Woodward as provided to the City of Fort Collins by CPDHE on March 28, 2013. As the figures indicate, emissions from Woodward have decreased below the de minimus reporting threshold since the 1998 when their processes were modified.

In June 2012, Woodward received an air permit compliance inspection confirming that Woodward is in compliance with their air permit. The report states that over the years, the vast majority of emission points (~22) have been canceled as processes have changed or been modified. As of June 2012, only a single point (#15) remains “active” and chemical throughputs regarding these solution tanks were evaluated. Both chemicals (nitric acid, hydrochloric acid) appear below de minimus level threshold for APEN (Air Pollution Emission Notice) exemption.

As a result the front range region’s reclassification to non-attainment for ground level ozone, the reporting exemption for Volatile Organic Compounds (VOCs) has been lowered from 2 tons per year to 1 ton per year. In response, Woodward will be updating their APEN to include their VOC emissions.

Figure 1. Woodward Air Emissions (Tons Per Year)

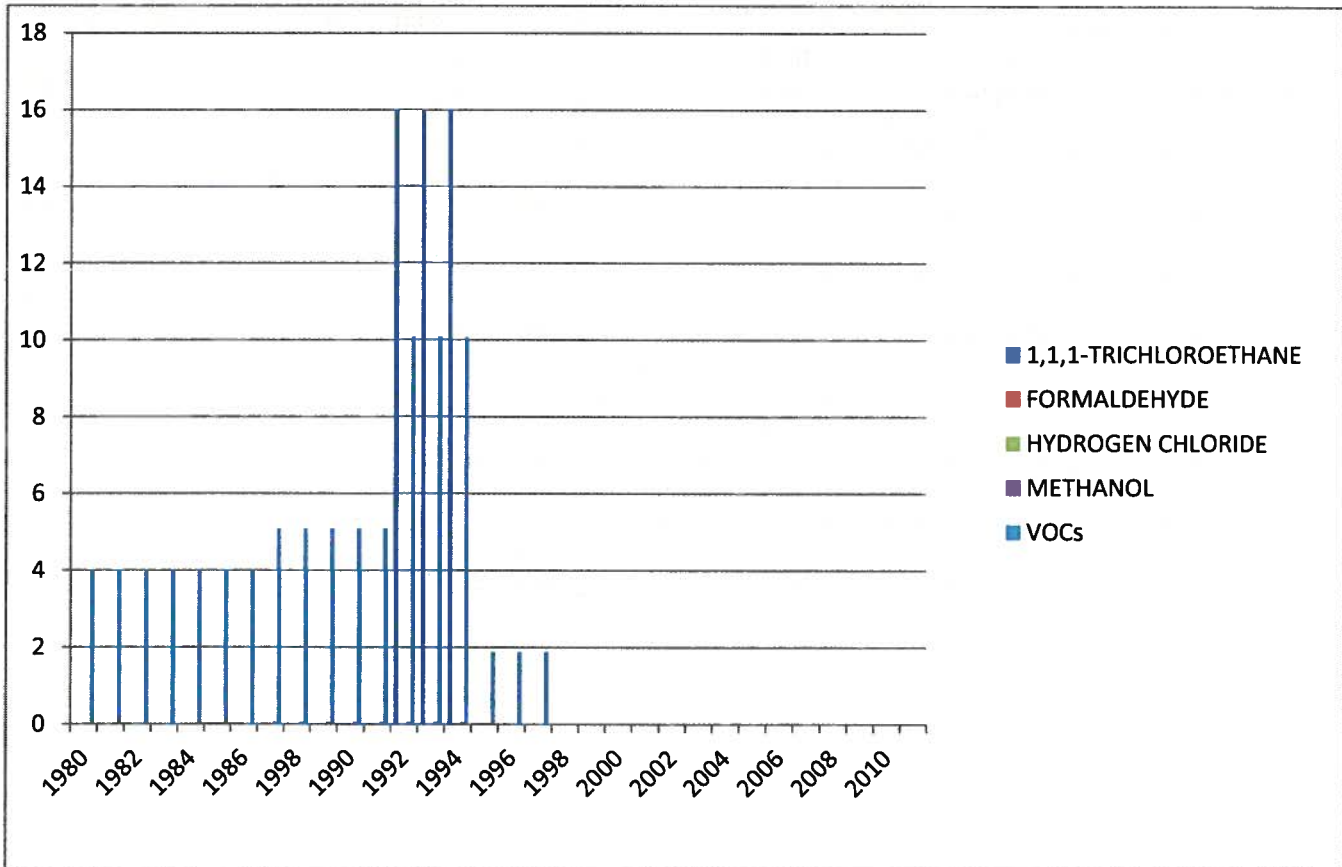


Table1. Woodward Air Emissions Data (Tons Per Year)

YEAR	1,1,1-TRICHLOROETHANE	FORMALDEHYDE	HYDROGEN CHLORIDE	METHANOL	VOCs
1980	0	0	0	0	4
1981	0	0	0	0	4
1982	0	0	0	0	4
1983	0	0	0	0	4
1984	0	0	0	0	4
1985	0	0	0	0	4
1986	0	0	0	0	4
1987	0	0	0	0.057	5.0966
1998	0	0	0	0.057	5.0966
1989	0	0	0	0.057	5.0966
1990	0	0	0	0.057	5.0966
1991	0	0	0	0.057	5.0966
1992	16	0	0	0.057	10.07685
1993	16	0	0	0.057	10.07685
1994	16	0	0	0.057	10.07685
1995	0	0.018338	0.014575	0	1.8875
1996	0	0.018338	0.014575	0	1.8875
1997	0	0.018338	0.014575	0	1.8875
1998	0	0.018338	0.014575	0	0
1999	0	0	0	0	0
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	0	0	0	0	0
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	0	0	0	0	0
2009	0	0	0	0	0
2010	0	0	0	0	0
2011	0	0	0	0	0

Figure 2. Woodward Criteria Pollutant Emissions (Tons Per Year)

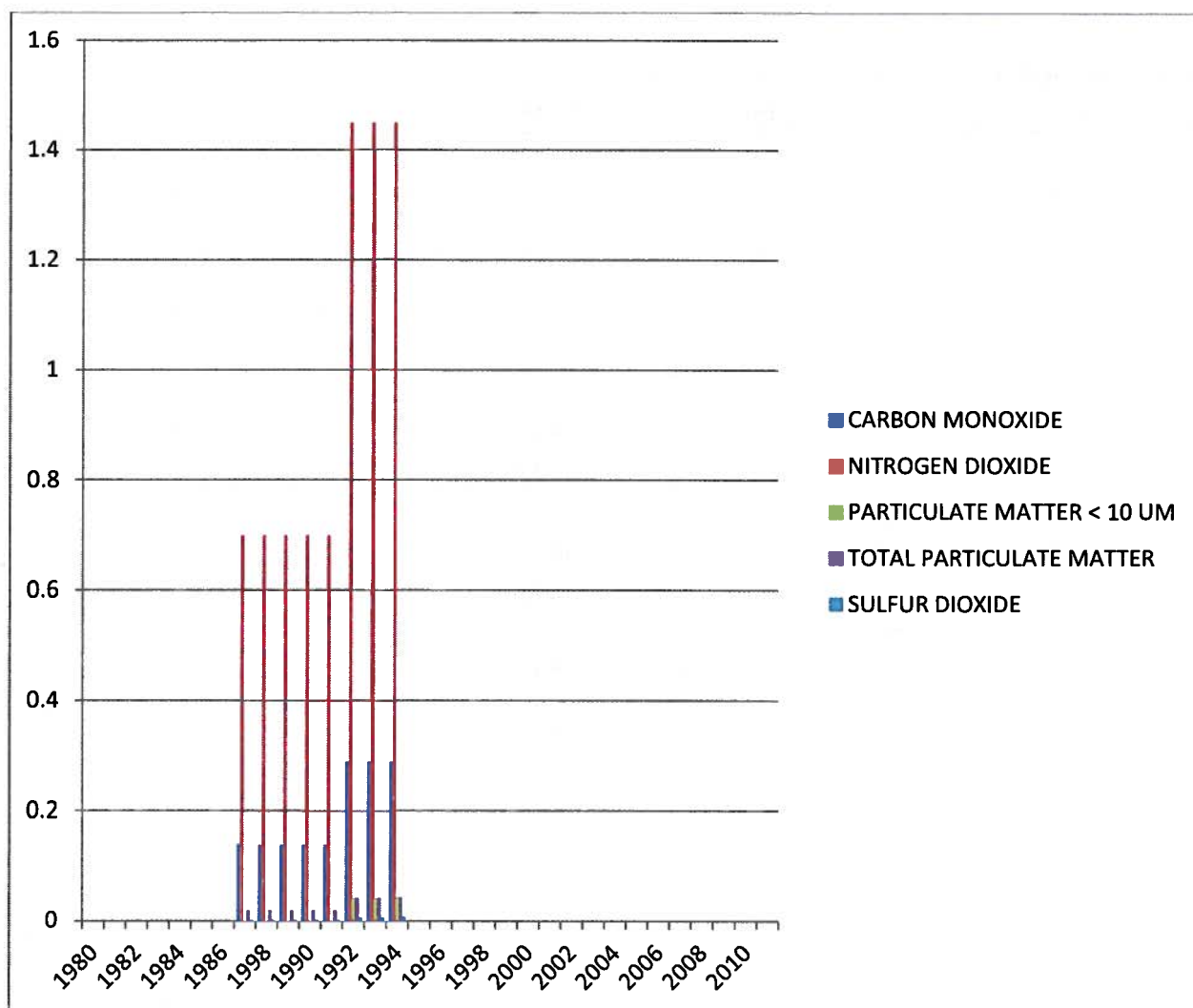


Table 2. Woodward Criteria Pollutant Emissions Data (Tons Per Year)

	CARBON MONOXIDE	NITROGEN DIOXIDE	PARTICULATE MATTER < 10 UM	TOTAL PARTICULATE MATTER	SULFUR DIOXIDE
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	0	0	0	0	0
1986	0	0	0	0	0
1987	0.14	0.7	0	0.021	0.0042
1988	0.14	0.7	0	0.021	0.0042
1989	0.14	0.7	0	0.021	0.0042
1990	0.14	0.7	0	0.021	0.0042
1991	0.14	0.7	0	0.021	0.0042
1992	0.29	1.45	0.0435	0.0435	0.0087
1993	0.29	1.45	0.0435	0.0435	0.0087
1994	0.29	1.45	0.0435	0.0435	0.0087
1995	0	0	0	0	0
1996	0	0	0	0	0
1997	0	0	0	0	0
1998	0	0	0	0	0
1999	0	0	0	0	0
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	0	0	0	0	0
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	0	0	0	0	0
2009	0	0	0	0	0
2010	0	0	0	0	0
2011	0	0	0	0	0

TOXICS RELEASE INVENTORY DATA

TRI Background

The *Emergency Planning and Community Right to Know Act* was enacted in 1986. One of EPCRA's primary purposes is to inform citizens of toxic chemical releases in their areas. It requires EPA and the States to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public through the Toxics Release Inventory (TRI). In 1990 Congress passed the Pollution Prevention Act which requires facilities to report additional data on waste management and source reduction activities to EPA under TRI. The goal of the Toxics Release Inventory Program is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public.

Woodward TRI data

In January 2013, the 2011 TRI National Analysis Report was issued. Historic data on Woodward's releases to the environment were obtained from that site and are presented below in Tables 3-7 below.

Source: 2011 TOXICS RELEASE INVENTORY

http://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=80525WDWRD1000E#p2report

Query executed on MAR-27-2013; Results are based on data extracted on MAR-04-2013

Facility name: Woodward Inc., 1000 E Drake Rd Fort Collins, CO 80525

Table 3. TRI - Total Aggregate Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds (in Pounds)

Media	2011	2010-1995	1994	1993	1992	1991	1990	1989	1988	1987
Air Emissions	22.5	NR	20,000	34,500	81,000	88,842	86,400	140,661	119,565	62,600
Surface Water Discharge	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Releases to land	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Underground Injection	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total On-Site Releases	22.25	NR	20,000	34,500	81,000	88,842	86,400	140,661	119,565	62,600
Transfer Offsite to Disposal	112	NR	NR	NR	NR	NR	NR	NR	NR	NR
TOTAL	134.25	NR	20,000	34,500	81,000	88,842	86,400	140,661	119,565	62,600

Total Aggregate Releases of Dioxin and Dioxin-like Compounds (Measured in Grams) NONE REPORTED

Table 4. TRI – Names and Amounts of Chemicals Released to the Environment by Year (in pounds)

Name	2011	2010-1995	1994	1993	1992	1991	1990	1989	1988	1987
111- Trichloroethane (Air - fugitive)	NR	NR	5,000	8,500	12,000	14,194	13,725	15,634	15,433	15,650
111- Trichloroethane (Air - Stack)	NR	NR	15,000	26,000	36,000	42,582	41,175	46,904	46,298	46,950
Freon 113 (Air - fugitive)	NR	NR	NR	NR	31,500	30,623	31,500	78,123	57,834	NR
Freon 113 (Air - stack)	NR	NR	NR	NR	1,500	1,443	NR	NR	NR	NR
Lead (Air - stack)	22.5	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lead (Dispose Non-Metals)- from contaminated water, disposed offsite, see reference in Table 5, third to last row)	112	NR	NR	NR	NR	NR	NR	NR	NR	NR

Discharge of Chemicals into Streams or Bodies of Water: NONE REPORTED

Table 5. TRI- Transfer of Chemicals to Off-Site Locations other than Publically Owned Treatment Works (POTWs)

Name	Year	Unit	Total Transfer Amount	Transfer Site	Type of Waste management
111- Trichloroethane	1994	lbs	6,300	CHEMICAL WASTE MANAGEMENT INC. 9131 EAST. 96TH AVE. HENDERSON, CO 80640	Solvents/Organics Recovery
111- Trichloroethane	1993	lbs	7600	OIL & SOLVENT PROCESS CO. 9131 EAST. 96TH AVE. HENDERSON, CO 80640	Solvents/Organics Recovery
111- Trichloroethane	1992	lbs	7200	OIL & SOLVENT PROCESS CO. 9131 EAST. 96TH AVE. HENDERSON, CO 80640	Solvents/Organics Recovery
111- Trichloroethane	1991	lbs	7174	OIL & SOLVENT PROCESS CO. 9131 EAST. 96TH AVE. HENDERSON, CO 80640	Solvents/Organics Recovery
Chromium	2011	lbs	99,151	IRON & METALS, INC. 5555 FRANKLIN ST DENVER, CO 802166215	Metals Recovery
Chromium	2011	lbs	0.17	VEOLIA ES TECHNICAL SOLUTIONS LLC 9131 EAST 96TH AVENUE HENDERSON, CO 806408495	Other Reuse or Recovery
Copper	2011	lbs	6470	IRON & METALS, INC 5555 FRANKLIN ST DENVER, CO 802166215	Metals Recovery
Freon 113	1992	lbs	250	OIL & SOLVENT PROCESS CO. 9131 EAST. 96TH AVE. HENDERSON, CO	Solvents/Organics Recovery

				80640	
Freon 113	1991	lbs	250	OIL & SOLVENT PROCESS CO. 9131 EAST 96TH AVE. HENDERSON, CO 80640	Energy Recovery
Lead (#007439921)	2011	lbs	166	IRON & METALS, INC. 5555 FRANKLIN ST DENVER, CO 802166215	Metals Recovery
Lead (#007439921)	2011	lbs	2,003	LEE SOLDER INCORPORATED P.O. BOX 455 SEAGOVILLE, TX 75159	Other Reuse or Recovery
Lead (#007439921)	2011	lbs	112	VEOLIA ES TECHNICAL SOLUTIONS LLC 9131 EAST 96TH AVENUE HENDERSON, CO 806408495	Unknown
Nickel	2011	lbs	34,994	IRON & METALS, INC. 5555 FRANKLIN ST DENVER, CO 802166215	Metals Recovery
Nickel	2011	lbs	0.22	VEOLIA ES TECHNICAL SOLUTIONS LLC 9131 EAST 96TH AVENUE HENDERSON, CO 806408495	Other Reuse or Recovery

Table 6. TRI - Summary of Waste Management Activities excluding Dioxin and Dioxin-like Compounds (Measured in Pounds)

Year	On-Site Recycling	Off-Site Recycling	On-Site Energy Recovery	Off-Site Energy Recovery	On-Site Treatment	Off-Site Treatment	Total Amount
2010	0	151,338	0	0	0	0	151,338
2011	0	142,784.39	0	0	0	0	142,784.39
2012 (Projected)	0	164,877	0	0	0	0	164,877
2013 (Projected)	0	173,109	0	0	0	0	173,109

Summary of Waste Management Activities for Dioxin and Dioxin-like Compounds: NONE REPORTED

Table 7. TRI - Chemicals Under Waste Management (in Pounds)

Please note that chemical amounts shown here are not included in the Total Aggregate Releases shown above. Transfers to Publicly Owned Treatment Works are listed on a separate table.

Name	Year	On-Site Recycling	Off-Site Recycling	On-Site Energy Recovery	Off-Site Energy Recovery	On-Site Treatment	Off-Site Treatment	Total Amount
Chromium	2010	0	106,425	0	0	0	0	106,425
Chromium	2011	0	99,151.17	0	0	0	0	99,151.17
Chromium	2012 (Projected)	0	117,067	0	0	0	0	117,067
Chromium	2013 (Projected)	0	122,920	0	0	0	0	122,920
Copper	2010	0	5,183	0	0	0	0	5,183
Copper	2011	0	6,470	0	0	0	0	6,470
Copper	2012 (Project	0	7,117	0	0	0	0	7,117

Copper	2013 (Projected)	0	7,472	0	0	0	0	7,472
Lead	2010	0	2,169	0	0	0	0	2,169
Lead	2011	0	2,169	0	0	0	0	2,169
Lead	2012 (Projected)	0	2,200	0	0	0	0	2,200
Lead	2013 (Projected)	0	2,300	0	0	0	0	2,300
Nickel	2010	0	37,561	0	0	0	0	37,561
Nickel	2011	0	34,994.22	0	0	0	0	34,994.22
Nickel	2012 (Projected)	0	38,493	0	0	0	0	38,493
Nickel	2013 (Projected)	0	40,417	0	0	0	0	40,417

“Right To Know” Web Site Data

Data reported for Woodward on the Right to Know web site (rtknet.org), shown below, matches data in the TRI.

TRI Search Results (2011)

Summary

Reporting Year: 2011

Total pounds of releases: **134 (NOTE: This is waste released on or off-site)**

Total pounds of waste: **142,919 (NOTE: this includes 142,784 pounds of waste recycled offsite)**

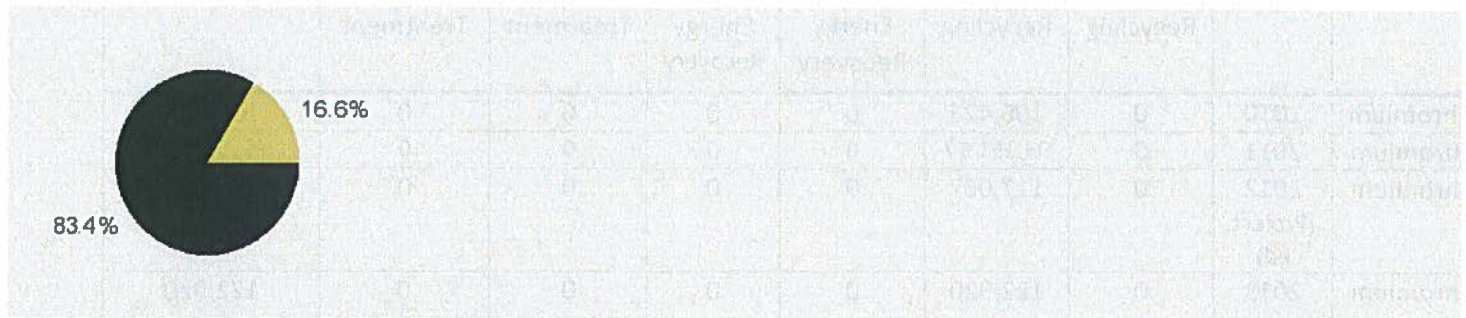
Total number of facilities: **1**

Total number of TRI submissions: **4**

Total number of TRI Form A submissions: **0**

RSEI data were only calculated for 1988-2010, and can't be provided in this search for 2011.

Releases



Release medium	Pounds of releases
On-site stack air	22
Off-site transfers to disposal	112

Waste Generated

Waste type	Pounds of waste
Recycled off-site	142,784
Released on or off-site	134

HAZARDOUS WASTE

Regarding hazardous waste generation, Woodward has been reporting to CDPHE and EPA as a large quantity generator since 1990 and filing reports as needed. The regulated waste categories include; Combustible & Flammable Liquids, Corrosive Liquids, Contaminated Debris, universal waste, electronic waste, batteries, lamps, etc. Figure 3 identifies Woodward's hazardous waste quantities in 2012 and 2013 to date. Woodward receives inspections annually from CDPHE regarding hazardous waste management and the associated plans and reports are all on file at CPDHE.

Figure 3. Woodward's Hazardous Waste Quantities (Pound Per Year) as of March 2013

