

Environmental Taxes, 1981-84

By Rashida Belal*

Through the calendar year ended December 1984, \$978 million in tax liability was reported by companies for environmental excise taxes. Of this amount \$642 million was for petrochemicals; \$172.2 million for inorganic chemicals, \$150.3 million for petroleum and petroleum products, and \$10.7 million for hazardous wastes.

In 1980, Congress created a major Federal program to clean the worst abandoned hazardous waste sites. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) provided for a 5-year clean-up program. Funds were to be accumulated through the Hazardous Substance Response Trust Fund portion of CERCLA, more commonly referred to as Superfund [1]. The tax rates of the "front-end tax" were formulated so that they produce \$1.6 billion over 5 years and the tax liability incurred for petroleum and chemicals would reflect the respective percentage in which they were found in hazardous waste sites (based on data available in 1980) [2].

REQUIREMENTS FOR REPORTING TAXES

Requirements for filing and reporting a tax on petroleum apply to the following:

1. Operators of U.S. refineries receiving crude oil;
2. Importers of petroleum products for consumption, use, or warehousing; and
3. Users or exporters of crude oil on which the environmental tax has been paid.

The requirements for filing and reporting the tax on chemicals apply to any importer, manufacturer, or producer that sells or uses any of the 42 taxable chemicals listed in Table 1. Since the tax is imposed only once on a product, once it has been paid it cannot be imposed again on another business that would otherwise be liable. There are some exceptions to what is taxed, with the following being nontaxable:

1. Ammonia, if used directly as a fertilizer;
2. Methane or butane used as a fuel (however, the business using the chemical for a taxable purpose is liable);
3. Nitric acid, sulfuric acid, ammonia, or methane used in the production of ammonia for fertilizer;
4. Sulfuric acid produced solely as a by-product of, and on the same site as, air pollution control equipment; and
5. Any substance derived from coal.

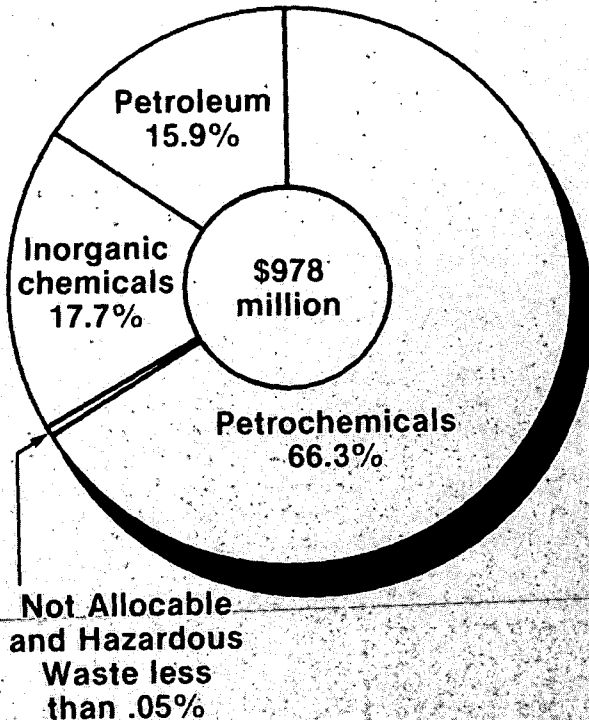
CERCLA, which contains the provisions for reporting liability against hazardous waste, also established the Post-closure Liability Trust Fund which includes the Hazardous Waste Tax. The Hazardous Waste Tax, "a waste-end tax," is imposed on the receipt of hazardous waste at a "qualified" hazardous waste disposal facility. The tax applies to any hazardous waste that will remain after the facility is closed. The tax took effect October 1, 1983 and will be in effect until the unobligated balance of the Post-closure Liability Trust Fund exceeds \$200 million.

As shown in Figure A, the largest share of taxes has been from petrochemicals. Tax liability reported for petrochemicals accounted for 66 percent of the total reported through December 1984. Inorganic chemicals represented 17 percent of the tax liability and petroleum and petroleum products accounted for 16 percent of tax liability.

It is interesting that, while the tax on petrochemicals accounted for 66 percent of total tax, it continued to be reported by the fewest number of businesses. As a result, these businesses had the highest average tax liability, more than \$2.5 million per company for petrochemicals. Inorganic chemicals, reported by 41 percent of the companies, ac-

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Figure A
Sources of Environmental Taxes,
Quarters Ending June 30, 1981,
through December 31, 1984



counted for an average tax of \$400,000 per company. In comparison, while petroleum and petroleum products were reported by 42 percent of the companies, the average tax was \$347,000 per company.

Number of Businesses and Amount of
Environmental Taxes for Quarters Ending
June 30, 1981 through December 31, 1984
[Money amounts are in thousands of dollars]

Type of tax	Number of businesses	Total tax	Average tax
	(1)	(2)	(3)
Total Environmental Tax	1,015	978,108 ¹	964
"Superfund"			
Petroleum	433	150,335	347
Petrochemicals	252	641,842	2,547
Inorganics	430	172,187	400
Post-closure Liability Trust Fund	122	10,703	88

¹Includes taxes not allocable to a specific category. For this reason and also because of rounding, detail will not add to total.

The number of companies reporting liability for hazardous wastes under the Post-closure Liability Trust Fund increased by 62 percent over 1983, from the 74 companies reported as of December 1983 to 122 companies as of December 1984. The average tax for that same period rose from \$23,000 to more than \$87,700.

Since the quarter ended June 1981, 1,015 companies reported liability for environmental taxes at least once and the average reported liability was \$963,000 per company. This picture warrants a closer inspection, however. The 40 companies reporting \$5 million or more in tax liability accounted for 78 percent of the tax. The 23 companies reporting \$10.5 million or more in tax liability averaged \$18.5 million in tax and were responsible for 65 percent of the total. But the lion's share of the tax was in fact reported by fewer than 1 percent of the reporting companies. The companies reporting \$20 million or more in tax liability accounted for more than 50 percent of the tax. These twelve top companies averaged more than \$40 million in environmental taxes.

The quarter ended June 1983 showed an increase for petroleum, petrochemicals and inorganic chemicals for the first time since the quarter ended June 1982. Total tax liability for the quarter ended December 1983 was \$68.6

"Superfund" Taxes by Category for Quarters
Ending June 30, 1981, through December 31, 1984

[Millions of dollars]

Quarter ending	Total	Petrochemicals	Inorganic chemicals	Petroleum
Total ¹	(1)	(2)	(3)	(4)
June 1981	68.7	45.8	12.8	10.0
Sept. 1981	61.0	40.0	11.6	9.3
Dec. 1981	68.2	43.9	11.3	11.7
Mar. 1982	59.2	39.4	10.5	9.0
June 1982	60.7	40.1	10.8	9.8
Sept. 1982	55.4	35.7	8.9	9.4
Dec. 1982	56.8	37.2	10.1	9.4
Mar. 1983	59.7	40.0	11.3	8.8
June 1983	69.9	45.4	9.6	10.0
Sept. 1983	64.8	42.6	10.9	11.3
Dec. 1983	68.6	45.3	11.4	9.9
Mar. 1984	77.0	52.0	12.6	11.0
June 1984	75.6	49.2	12.8	10.5
Sept. 1984	66.0	42.9	10.8	9.5
Dec. 1984	69.3	42.2	14.6	10.4

¹Includes taxes not allocable to a specific category. For this reason and also because of rounding, detail will not add to total.

million, up by almost \$4 million over the September 1983 figure. March 1984 figures showed an increase of \$17.3 million over March 1983 and almost \$8.5 million in tax liability over the quarter ended December 1983. Tax liability dipped slightly for the quarter ended June 1984 to \$75.6 million, a decrease of about \$1.4 million from the previous quarter. This was especially noteworthy since the second quarter has traditionally shown a rise because of the increase in chemical shipments to the agricultural and construction markets. The slide continued into the quarter ended September 1984, when tax liability dropped to \$66.0 million. The liability reported for the quarter ended December 1984 climbed back up to \$69.3 million; however, that amount was still more than \$7.7 million off the mark set in March 1984 [3] [4] [5].

PETROCHEMICALS

Two hundred and fifty-two companies, only 25 percent, reported tax for petrochemicals and those companies averaged \$2.5 million in petrochemical tax. The 47 companies that reported more than \$257 million in tax liability for ethylene averaged \$5.5 million. The next largest amount of liability, \$116 million, was reported for propylene. A total of 58 companies averaged \$2.0 million in liability for propylene. Naphthalene was reported by only 9 companies and the average tax reported was about \$135,000. Toluene, reported by the largest number of companies, 104, averaged \$412,000.

INORGANIC CHEMICALS

Tax on inorganic chemicals was reported by 430 companies or 42 percent of the companies reporting environmental taxes. Those companies reported an average of \$400,000 in tax for inorganic chemicals. Sulfuric acid was the single most reported chemical, reported by 26 percent of the companies. The average tax on sulfuric acid was \$82,000.

SUMMARY

Through the calendar year ended December 1984, \$978 million in liability was reported for environmental excise taxes. The largest share of taxes reported was from petrochemicals. This was by design, since rates were formulated so that liability per class of substance would reflect the percentage in which these substances were found in hazardous waste sites.

The Superfund portion of CERCLA expired September 30, 1985. The tax liability reported for hazardous waste reached \$11.5 million dol-

lars in Calendar Year 1984. This portion of CERCLA will remain in effect until the unobligated balance of the Post-closure Liability Trust Fund exceeds \$200 million or until it is repealed.

Since the quarter ended June 1981, 1,015 companies reported liability for environmental taxes at least once and the average reported liability was \$938,000 per company. However, the lion's share of the liability is, in fact, reported by fewer than 1 percent of the reporting companies. These top 12 companies accounted for more than 50 percent of the tax, an average of \$40 million in environmental tax per company.

DATA SOURCES AND LIMITATIONS

The Quarterly Excise Tax Return, Form 720, is the form on which environmental taxes are reported. Form 6627, Environmental Taxes, is the supporting schedule on which the tax liability for petroleum, chemicals and hazardous waste is computed. The tax as imposed by Congress is levied at different rates ranging from \$.0079 per barrel of crude oil or petroleum to as much as \$4.87 per ton of certain chemicals. The average tax levied is \$3.24 per medium.

Returns are due to be filed one month after the end of the quarter in which the business is liable for environmental taxes. These returns are the source of data for this study. Data in this article reflect information reported on returns filed for the tax quarters ending June 30, 1981, through December 31, 1984.

Any adjustments, credits, or refunds to environmental taxes on either the Form 720 or Form 843, Claim, are not reflected in the data. A taxpayer can take an adjustment or credit if a taxed chemical is later used to manufacture or produce any other substance subject to the tax. If a tax is paid on a chemical subsequently used to produce fertilizer, a credit or adjustment can also be claimed.

The Internal Revenue Service also releases environmental tax statistics in a report on excise taxes issued quarterly [6]. These figures, taken from the Form 720, show the total liability, after adjustment, on returns recorded on the computerized Business Master File as part of routine tax administration processing. There is, however, no distribution of tax by type of chemical. Returns are due one month after the end of the calendar quarter and are reflected in the statistics for the quarter in which they are filed (and processed). Also included are returns filed late because of routine filing extensions and other reasons. Therefore, that report covers whatever tax was recorded during a quarter, regard-

less of when it was incurred. Consequently, the two series of data are not directly comparable.

Since no statistical sampling was involved, the data are not subject to sampling error, but may be subject to nonsampling error. Although efforts were made to secure missing returns, some returns from previous quarters were substituted because of time and resource constraints. In addition, the returns were passed through a series of validity checks to verify the accuracy and completeness of the returns. For those returns supplying a total chemical tax with no distribution by category, the amount was included in the statistics under "unallocable chemicals."

NOTES AND REFERENCES

- [1] See also Barnhardt, Janet, "Superfund for Environmental Taxes," Statistics of Income Bulletin, Fall 1982, pp. 31-34.
- [2] United States Senate, Report of the Committee on Finance on S.51, Report 99-73, U.S. Government Printing Office, May 23, 1985.
- [3] "Chemicals' Third Quarter: A Majority of Minor Gains," Chemical Week, November 21, 1984.
- [4] See also Belal, Rashida, "Environmental Taxes: Superfund and Hazardous Waste, 1981-83," Statistics of Income Bulletin, Spring 1985, pp 61-67.
- [5] See also Belal, Rashida, "Superfund for Environmental Taxes, 1981 and 1982," Statistics of Income Bulletin, Fall 1983, pp. 31-34.
- [6] U.S. Department of the Treasury, Internal Revenue Service, Internal Revenue Report of Excise Taxes.

Table 1.--Environmental Taxes Reported by Type of Substance, Quarters Ended June 1981- December 1984

[Money amounts are in thousands of dollars]

Type of substance	Total	Quarter ended				
		June 1981	Sept. 1981	Dec. 1981	Mar. 1982	June 1982
	(1)	(2)	(3)	(4)	(5)	(6)
Petroleum	150,334,988	10,099	9,324	11,710	9,017	9,796
Petrochemicals, total	641,842,137	45,760	40,010	43,859	39,362	40,105
Acetylene	2,335,703	206	235	188	120	135
Benzene	81,756,936	5,322	4,225	5,265	4,558	4,543
Butane	11,950,056	1,248	1,088	1,050	1,020	1,218
Butylene	15,585,817	1,333	1,247	1,442	971	1,212
Butadiene	25,799,937	1,832	1,483	2,015	1,454	1,685
Ethylene	257,128,094	17,024	15,215	15,969	15,293	15,881
Methane	28,238,152	2,479	2,264	2,309	2,031	2,004
Naphthalene	1,216,646	139	65	93	99	53
Propylene	115,912,467	9,510	7,950	7,661	7,994	6,889
Toluene	42,805,708	2,564	2,354	2,711	1,973	2,143
Xylene	59,112,632	4,103	3,883	5,157	3,849	4,343
Inorganic chemicals, total	172,187,332	12,811	11,643	11,323	10,589	10,779
Ammonia	31,943,952	2,295	2,138	2,191	2,118	2,059
Antimony	44,543	4	2	2	2	2
Antimony trioxide	291,136	13	17	24	20	17
Arsenic	13,956	1	1/	1	1	1
Arsenic trioxide	224,192	21	23	23	22	19
Barium sulfide	976,959	*	*	3	1/	*
Bromine	3,037,805	205	156	206	149	143
Cadmium	286,229	3	2	3	3	2
Chlorine	91,357,655	7,079	6,186	5,777	5,540	5,682
Chromium	274,826	76	36	25	27	10
Chromite	2,315,772	114	182	247	80	81
Potassium dichromate	1,086	*	*	*	1/	1/
Sodium dichromate	64,454	*	17	*	2	1
Cobalt	103,260	3	4	11	8	6
Cupric sulphate	220,649	10	17	11	11	11
Cupric oxide	95,450	4	3	4	7	4
Cuprous oxide	112,552	3	4	4	4	4
Hydrochloric acid	2,087,390	90	116	211	148	140
Hydrogen flouride	4,295,230	328	337	238	259	274
Lead oxide	5,446,892	366	327	393	330	324
Mercury	30,965	2	2	2	2	6
Nickel	1,990,336	121	157	156	164	124
Phosphorus	6,054,718	494	423	420	409	407
Stannous chloride	16,151	*	*	2	1	1
Stannic chloride	62,818	1	1/	11	4	5
Zinc chloride	195,570	15	T3	15	12	15
Zinc sulfate	205,189	18	13	15	16	16
Potassium hydroxide	268,092	15	13	16	12	14
Sodium hydroxide	9,724,076	713	657	646	602	599
Sulfuric acid	9,144,579	703	700	593	567	745
Nitric acid	1,293,063	101	93	74	68	67
Unallocable chemicals	3,040,274	67	28	1,318	221	10
Hazardous waste	10,703,428	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>

Environmental Taxes, 1981-84

Table 1.--Environmental Taxes Reported by Type of Substance, Quarters Ended June 1981- December 1984
- Continued

[Money amounts are in thousands of dollars]

Type of substance	Quarter ended - Continued.					
	Sept. 1982	Dec. 1982	Mar. 1983	June 1983	Sept. 1983	Dec. 1983
	(7)	(8)	(9)	(10)	(11)	(12)
Petroleum	9,444	9,354	8,840	9,989	11,344	9,885
Petrochemicals, total	35,916	37,151	40,042	45,410	42,615	45,300
Acetylene	112	1/	*	*	132	*
Benzene	5,097	4,283	4,870	5,730	5,168	6,681
Butane	831	728	721	557	704	434
Butylene	733	949	925	1,103	683	809
Butadiene	1,413	1,337	1,742	1,745	1,658	1,833
Ethylene	15,303	16,680	16,769	18,112	18,011	17,497
Methane	1,621	1,654	1,633	1,647	1,710	1,760
Naphthalene	88	1/	*	*	68	*
Propylene	6,139	5,587	7,045	7,768	7,455	7,878
Toluene	2,003	2,139	2,675	4,757	3,156	3,755
Xylene	2,577	3,612	3,470	3,787	3,870	4,403
Inorganic chemicals, total ...	9,485	10,165	10,630	11,269	10,890	11,408
Ammonia	1,924	1,663	1,901	2,027	2,070	1,953
Antimony	2	1	4	3	3	3
Antimony trioxide	13	13	17	18	17	22
Arsenic	1	1/	1/	1/	4	3
Arsenic trioxide	16	T2	T0	T5	5	8
Barium sulfide	*	*	*	2	1	1
Bromine	179	388	189	198	186	200
Cadmium	2	2	4	3	2	1
Chlorine	4,900	5,587	5,735	6,130	6,071	6,234
Chromium	8	7	11	13	10	10
Chromite	90	118	108	77	59	96
Potassium dichromate	1/	1/	1/	1/	1/	1/
Sodium dichromate	*	1	2	2	T2	3
Cobalt	3	5	9	8	7	4
Cupric sulphate	25	10	20	22	17	11
Cupric oxide	6	4	7	7	7	7
Cuprous oxide	3	*	4	5	4	4
Hydrochloric acid	117	129	152	174	132	142
Hydrogen flouride	220	204	255	280	261	270
Lead oxide	319	330	288	317	345	413
Mercury	4	1/	1/	*	2	2
Nickel	62	96	152	156	74	161
Phosphorus	384	380	404	428	336	414
Stannous chloride	1	*	2	1	1/	1
Stannic chloride	4	3	5	5	1	6
Zinc chloride	10	11	16	14	10	12
Zinc sulfate	10	3	20	17	10	10
Potassium hydroxide	10	12	68	12	13	15
Sodium hydroxide	520	522	580	624	648	661
Sulfuric acid	565	584	580	619	504	637
Nitric acid	86	76	87	91	79	103
Unallocable chemicals	600	154	204	235	1/	194
Hazardous waste	2/	2/	2/	2/	2/	1,776

Table 1.--Environmental Taxes Reported by Type of Substance, Quarters Ended June 1981 - December 1984
- Continued

[Money amounts are in thousands of dollars]

Type of substance	Quarter ended - Continued			
	Mar. 1984	June 1984	Sept. 1984	Dec. 1984
	(13)	(14)	(15)	(16)
Petroleum	11,007	10,503	9,610	10,353
Petrochemicals, total	51,959	49,194	42,921	42,238
Acetylene	*	172	155	207
Benzene	7,486	7,273	6,040	5,216
Butane	533	798	470	550
Butylene	791	1,079	1,108	1,201
Butadiene	1,962	1,978	1,905	1,757
Ethylene	21,081	19,602	16,915	17,776
Methane	1,699	1,885	1,829	1,715
Naphthalene	*	108	61	66
Propylene	10,028	8,574	8,027	7,407
Toluene	4,033	3,258	2,929	2,356
Xylene	4,125	4,466	3,482	3,986
Inorganic chemicals, total	12,582	12,803	11,184	14,625
Ammonia	2,119	2,545	2,145	2,796
Antimony	6	4	3	4
Antimony trioxide	27	31	22	19
Arsenic	1	1	1/	1/
Arsenic trioxide	12	15	2	1
Barium sulfide	222	2	1	733
Bromine	201	214	206	218
Cadmium	10	14	2	235
Chlorine	6,959	6,095	5,918	7,464
Chromium	10	12	10	9
Chromite	72	791	75	125
Potassium dichromate	1	1/	1/	*
Sodium dichromate	2	3	2	1
Cobalt	11	12	8	4
Cupric sulphate	18	19	14	12
Cupric oxide	10	9	10	6
Cuprous oxide	5	4	3	*
Hydrochloric acid	173	148	144	130
Hydrogen flouride	346	394	338	294
Lead oxide	451	389	395	463
Mercury	4	1	2	2
Nickel	140	157	120	150
Phosphorus	307	430	391	426
Stannous chloride	2	1	1	1
Stannic chloride	4	6	5	4
Zinc chloride	15	15	12	11
Zinc sulfate	19	14	12	12
Potassium hydroxide	15	18	13	20
Sodium hydroxide	736	710	670	837
Sulfuric acid	579	656	570	543
Nitric acid	105	92	81	92
Unallocable chemicals	1	8	1/	1/
Hazardous waste	1,466	3,087	2,292	2,080

*This figure is not shown to avoid disclosure of information for specific businesses. However, the data are included in the appropriate totals.

1/Less than \$1,000, however, the data are included in the appropriate totals.

2/Tax not in effect until October 1, 1983.

NOTE: Detail may not add to total because of rounding.

Table 2.--Environmental Taxes Reported by Type of Substance, Aggregate for the Quarters Ended June 1981 - December 1984.

Type of substance	Number of businesses	Number of tons (000's)	Tax rate per ton (dollars)	Average tax per business (dollars)
	(1)	(2)	(3)	(4)
Petroleum	429	19,029,745 ¹	.0079 ²	347,193.96
Petrochemicals, total	252 ³	N/A	N/A	2,546,992.00
Acetylene	53	469	4.87	44,069.00
Benzene	65	479	4.87	1,257,799.02
Butane	37	16,787	4.87	322,974.51
Butylene	25	3,164	4.87	623,432.70
Butadiene	35	5,298	4.87	737,141.00
Ethylene	47	52,798	4.87	5,470,810.50
Methane	33	8,209	3.44	855,701.50
Naphthalene	9	250	4.87	135,182.90
Propylene	58	23,801	4.87	1,998,490.80
Toluene	104	8,790	4.87	411,593.30
Xylene	83	12,138	4.87	712,079.90
Inorganics chemicals, total	430	N/A	N/A	400,435.60
Ammonia	103	12,104	2.64	310,135.40
Antimony	22	10	4.45	2,024.60
Antimony trioxide	29	78	3.75	10,039.10
Arsenic	16	1	4.45	872.26
Arsenic trioxide	21	66	3.41	10,675.80
Barium sulfide	6	425	2.30	162,826.57
Bromine	11	683	4.45	276,164.10
Cadmium	31	64	4.45	9,233.20
Chlorine	55	32,837	2.70	1,661,048.28
Chromium	21	62	4.45	13,086.81
Chromite	20	1,524	1.52	115,788.64
Potassium dichromate	7	1	1.69	155.24
Sodium dichromate	14	34	1.87	4,603.80
Cobalt	28	23	4.45	3,687.80
Cupric sulfate	36	122	1.87	6,179.70
Cupric oxide	22	27	3.59	4,338.64
Cuprous oxide	7	28	3.97	16,078.90
Hydrochloric acid	94	7,198	.29	22,206.00
Hydrogen flouride	22	1,015	4.23	195,237.70
Lead oxide	41	1,315	4.14	132,851.00
Mercury	13	7	4.45	2,382.00
Nickel	31	447	4.45	62,198.00
Phosphorus	14	1,361	4.45	432,480.00
Stannous chloride	8	6	2.85	2,018.97
Stannic chloride	9	30	2.12	6,979.79
Zinc chloride	22	88	2.22	8,889.60
Zinc sulfate	27	108	1.90	7,600.00
Potassium hydroxide	28	1,218	.22	9,574.00
Sodium hydroxide	83	34,728	.28	117,157.00
Sulfuric acid	111	35,171	.26	82,383.00
Nitric acid	41	5,388	.24	31,538.00
Unallocable chemicals	126	N/A	N/A	24,129.16
Hazardous waste	120	5,025	2.13	87,733.00

N/A - Not applicable.

¹Number of barrels.²Rate per barrel.³Detail in column one may not add to any meaningful total because businesses may report more than one of the indicated substances.

NOTE: Detail may not add to total because of rounding.