United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

CPSC/OFFICE OF THE SECRETARY

1999 OCT -4 A 9:09

MEMORANDUM

Date: SEP 27 1999

TO : The Commission
Sadye E. Dunn, Secretary

THROUGH : Jeffrey Bromme, General Counsel JB
Pamela Gilbert, Executive Director PG

FROM : Ronald L. Medford, Assistant Executive Director RLM
Hazard Identification and Reduction
Susan Ahmed, Ph.D., Associate Executive Director SA
Directorate for Epidemiology

SUBJECT : **Annual Report: All-Terrain Vehicle Deaths and Injuries**

Attached is the first report on ATV-related deaths and injuries since the expiration of the Consent Decrees. This report covers data available as of December 31, 1998.

As noted in the attached report, there was a statistically significant increase in the number of injuries associated with ATVs in 1998. The increase was also observed in the risk (number of injuries per 10,000 ATVs in use) and cannot, therefore, be explained by an increase in the number of ATVs in use. The reasons for the increase in injuries are not known, but it did occur across all age groups, except for those 55 years of age or older.

The reporting of ATV-related deaths for 1998 is not yet sufficient for the staff to make estimates as to the number of such deaths for that year. The death reports that have been received thus far for 1997 indicate that there was not an increase in the estimated number of ATV-related deaths for that year as compared to 1996, nor was there an increase in the risk of death. The injury data for 1997 showed a slight increase in the estimated number of injuries and a slight decrease in the injury risk estimate as compared to 1996.

NOTE: This document has not been reviewed or accepted by the Commission.
Initial hh **Date** 9/28/99

CPSA 6 (b)(1) Cleared
9/28/99
No Mfrs/PrvtLblrs or Products Identified
___Excepted by___
___Firms Notified,
Comments Processed.

With the expiration of the Consent Decrees in April 1998, periodic reporting by the Commission is no longer required. However, as part of the monitoring process, data collection and analysis will continue. The staff will provide the Commission with updated injury and death data on an annual basis.

At this point in time, most incoming death reports still relate to the Consent Decree time period. It will take some time before post-Consent Decree death data become available.

Attachment

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM DATE: August 30, 1999

TO : Susan Ahmed, Ph.D., Associate Executive Director
Directorate for Epidemiology

FROM : Jo-Annette David, Epidemiology, Division of Hazard Analysis

SUBJECT : Annual Report of ATV Deaths and Injuries

Deaths Reported to the Commission

On December 31, 1998, the Commission had reports of 3,411 ATV-related deaths that occurred since 1982 (Table 1). The reported deaths increased by 159 since the March 31, 1998 tabulation for the last update memorandum dated June 15, 1998.

Table I
Reported ATV-Related Deaths by Year
(January 1982 – December 1998)

Year	Number of Deaths	Difference Since Last Update (03/31/98)
1998	137	+131
1997	200	+ 25
1996	245	0
1995	199	+ 3
1994	198	0
1993	183	0
1992	221	0
1991	230	0
1990	234	0
1989	230	0
1988	250	0
1987	264	0
1986	299	0
1985	251	0
1984	156	0
1983	85	0
1982	29	0

Source: U.S. Consumer Product Safety Commission (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA)

Table 2 is a listing of ATV-related deaths by state. The highest numbers of incidents were reported for California (226), Pennsylvania (195), New York (169), Michigan (162), and Texas (155).

Table 2
Deaths Associated With 3- and 4-Wheel All Terrain Vehicles
Reported For The Period Jan 1, 1982 Through December 31, 1998

State	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CALIFORNIA	226	6 6	226	6.6
PENNSYLVANIA	195	5.7	421	12.3
NEW YORK	169	5.0	590	17.3
MICHIGAN	162	4.7	752	22.0
TEXAS	155	4 5	907	26.6
WEST VIRGINIA	128	3.8	1035	30.3
FLORIDA	125	3.7	1160	34.0
TENNESSEE	122	3.6	1282	37.6
WISCONSIN	115	3.4	1397	41.0
ARKANSAS	108	3.2	1505	44.1
NORTH CAROLINA	108	3.2	1613	47.3
MINNESOTA	103	3 0	1716	50.3
MISSISSIPPI	96	2.8	1812	53.1
KENTUCKY	95	2.8	1907	55.9
MISSOURI	93	2.7	2000	58.6
OHIO	90	2 6	2090	61.3
ARIZONA	86	2.5	2176	63.8
ALABAMA	81	2 4	2257	66.2
LOUISIANA	77	2.3	2334	68.4
GEORGIA	75	2 2	2409	70.6
ALASKA	74	2.2	2483	72.8
ILLINOIS	68	2.0	2551	74.8
UTAH	65	1.9	2616	76.7
VIRGINIA	60	1 8	2676	78.5
INDIANA	59	1.7	2735	80.2
OREGON	56	1 6	2791	81.8
MAINE	53	1.6	2844	83.4
IOWA	47	1.4	2891	84.8
KANSAS	46	1 3	2937	86.1
IDAHO	40	1.2	2977	87.3
OKLAHOMA	37	1.1	3014	88.4
NEW MEXICO	34	1.0	3048	89.4
WASHINGTON	34	1.0	3082	90.4
NEBRASKA	33	1.0	3115	91.3
COLORADO	31	0.9	3146	92.2
MASSACHUSETTS	31	0.9	3177	93.1
NEW HAMPSHIRE	31	0.9	3208	94.0
NEVADA	29	0.9	3237	94.9
VERMONT	26	0.8	3263	95.7
NEW JERSEY	24	0.7	3287	96.4
NORTH DAKOTA	24	0.7	3311	97.1
MONTANA	19	0.6	3330	97.6
SOUTH DAKOTA	18	0.5	3348	98.2
SOUTH CAROLINA	17	0.5	3365	98.7
MARYLAND	15	0.4	3380	99.1
CONNECTICUT	12	0.4	3392	99.4
WYOMING	6	0.2	3398	99.6
DELAWARE	4	0.1	3402	99.7
RHODE ISLAND	3	0.1	3405	99.8
DISTRICT OF COLUMBIA	2	0.1	3407	99.9
HAWAII	2	0.1	3409	99.9
PUERTO RICO	2	0.1	3411	100.0

Source: U.S. Consumer Product Safety Commission (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA)

Due to rounding, the numbers in the percent column may not add to exactly 100 percent.

Characteristics of ATVs and Fatalities

A review of the fatalities indicated that 1,212 victims (36% of the 3,411 total) were under 16 years of age and 524 victims (15% of the total) were under 12 years of age.

Four-wheel ATVs were involved in about 85 percent of the fatalities reported for 1998; 80 percent for 1997 and 1996; 74 percent for 1995, 70 percent of those reported for 1994, 1993 and 1992; 60 percent for 1991, 1990, and 1989; 53 percent for 1988; 45 percent for 1987; 28 percent for 1986; 19 percent for 1985; and 7 percent or less for prior years.

Estimated ATV-Related Deaths from 1985 to 1997

The deaths reported to the Commission represent a minimum count of ATV-related deaths. To account for deaths not reported to the Commission, estimates of the annual deaths were calculated for 1985 through 1997 using a statistical approximation method. Table 3 shows the risk of death (per 10,000 4-wheel ATVs in use) by year from 1985 to 1997.

Table 3
Annual Estimates of 3- and 4-Wheel ATV-Related Deaths and Risk of Death for 4-Wheel ATVs
(As of December 31, 1998)

Year	Number of Deaths			Risk of Death
	Total Reported	Total Estimated[1]	Estimates for 4-wheel ATV's[2]	(per 10,000 4-wheel ATVs in use)[3]
1997[4]	200	250	206	0.9
1996	245	263	204	0.9
1995	199	274	212	1.0
1994	198	244	168	0.8
1993	183	211	144	0.7
1992	221	241	158	0.8
1991	230	255	152	0.8
1990	234	250	151	0.9
1989	230	258	153	0.9
1988	250	286	152	1.1
1987	264	282	126	1.1
1986	299	347	95	1.3
1985	251	295	55	1.5

Source: U S Consumer Product Safety Commission (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA)

[1]The procedure for estimating ATV-related deaths has two parts For public road fatalities, the count was the number of reports received For incidents occurring on terrain other than public roads, the Capture-Recapture Method was used to estimate deaths by matching and determining the overlap between the CPSC Death Certificate and Injury or Potential Injury Incident databases (reports from newspapers, consumers, lawyers, etc) The two parts were combined for the annual estimate of deaths Estimates may change as additional reports are received

[2]The estimated number of deaths associated with four-wheel ATVs was obtained by first dividing the reported number of deaths for four-wheel ATVs by the combined reported number of deaths for three- and four-wheel ATVs, then multiplying this quotient by the estimated number of deaths for all ATVs (three wheels, four wheels, and unknown number of wheels)

[3]The number of ATVs in use is based on ATV sales and operability rates data provided by industry Because reliable operability rates data are not available for three-wheel ATVs, risk of death is shown only for four-wheel ATVs

[4]Reporting may not be complete.

Estimated Hospital Emergency Room-Treated Injuries

Table 4 shows estimates of 3- and 4- wheel ATV-related injuries treated in hospital emergency rooms nationwide between January 1, 1982 and December 31, 1998. Children under age 16 years accounted for about 40 percent of the total of estimated injuries from January 1, 1985 through December 31, 1998.

Table 4
Annual Estimates of ATV Hospital Emergency Room-Treated Injuries
All Ages and Ages Less Than 16 years
(January 1982- December 1998)
Adjusted Annual Estimates[1/]

Year	All Ages	Age <16 Years
1998[2/]	73,900	27,400
1997[2/]	57,500	22,400
1996[2/]	53,800	20,200
1995[2/]	52,200	19,300
1994[2/]	50,800	21,400
1993[2/]	49,700	17,900
1992[2/]	58,200	22,000
1991[2/]	58,100	22,500
1990[2/]	59,500	22,400
1989[3/]	70,300	25,700
1988[2/]	74,600	28,500
1987[2/]	93,600	38,600
1986[2/]	106,000	47,600
1985[3/4/]	105,700	42,700
1984[4/]	77,900	[5/]
1983[4/]	32,100	[5/]
1982[4/]	10,100	[5/]

Source: U.S. Consumer Product Safety Commission, (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA).

[1/] Estimates for years 1986-1996 have been adjusted retrospectively to account for the 1997 NEISS sampling frame update.

[2/] Estimates adjusted by factors to account for out of scope (non-ATV) cases based on injury surveys in 1985, 1989, and 1997. The adjustment factors were 0.93 for 1986 through 1988, and 0.95 for 1990-96, 0.984 for 1997 onward.

[3/] Annual estimates for 1985 and 1989 are based on injury surveys.

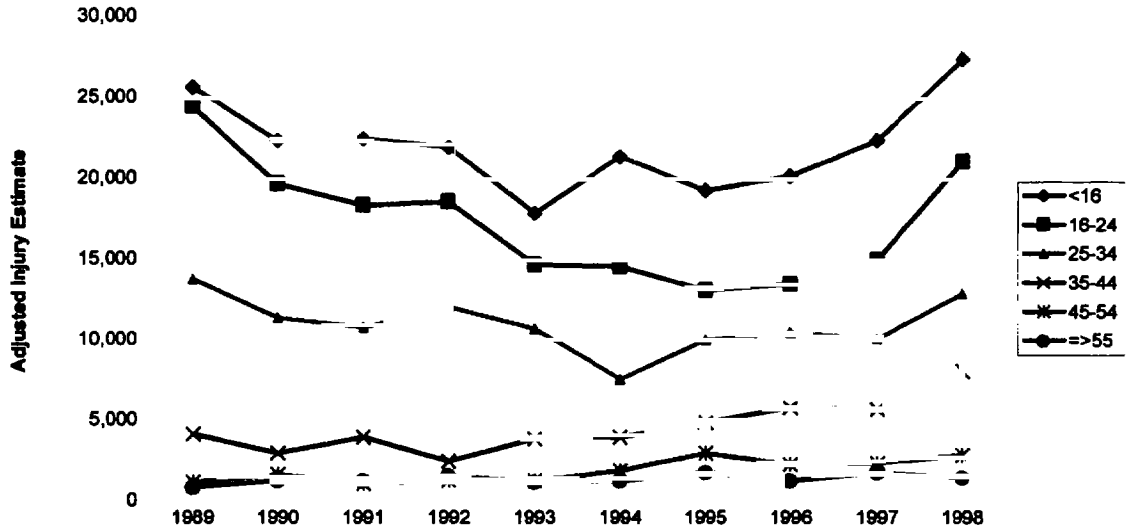
[4/] Estimates adjusted due to revisions in the NEISS Coding Manual in March 1985. Estimates for 1982 through 1985 were adjusted based on a review of NEISS comments to exclude dune buggies and identify ATVs classified as mini or trail bikes.

[5/] Adjusted estimates for children under 16 years old were not computed prior to 1985.

The 1998 estimate is significantly higher than the estimate for 1997. The 1998 increase in injuries affected all age groups except for those over age 55, which actually experienced a 17 percent decrease. The greater increases occurred within the age groups 35 to 44 (about 42 percent), and 16 to 24, which shows an increase of about 40 percent.

Figure 1 is a graphic representation of the annual estimated ATV-related injuries treated in hospital emergency rooms over the ten-year period 1989 through 1998.

Figure 1
Annual ATV-Related Injury Estimates
For Calendar Years 1989 through 1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
<16	25,700	22,400	22,500	22,000	17,900	21,400	19,300	20,200	22,400	27,400
16-24	24,500	19,700	18,400	18,600	14,700	14,600	13,100	13,500	15,000	21,100
25-34	13,800	11,400	10,800	12,100	10,700	7,600	10,000	10,500	10,100	12,900
35-44	4,200	3,000	4,000	2,500	3,900	4,000	4,900	5,800	5,700	8,100
45-54	1,200	1,700	1,100	1,300	1,300	1,900	3,000	2,300	2,400	2,900
=>55	900	1,300	1,300	1,600	1,200	1,300	1,800	1,300	1,800	1,500

Source: U.S. Consumer Product Safety Commission (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA), January 1, 1989 through December 31, 1998.

Notes:

1/Estimates for the years 1989-1996 have been adjusted retrospectively to account for the 1997 NEISS sampling frame update.

2/Estimates for 1989 are based on the 1989 injury study.

3/Age estimates within a year may not add to the total in Table 4 due to rounding.

Table 5 shows four-wheel ATV-related injury and risk of injury estimates for January 1, 1985 through December 31, 1998, where risk is defined as the estimated number of injuries divided by the number of vehicles in use, multiplied by 10,000. The significant increase in the risk of injury between 1997 and 1998 indicates that the increase in injuries is not explained by an increase in the number of products in use.

Table 5
Annual Injury and Risk of Injury Estimates
Associated With 4-Wheel ATVs
January 1985-December 1998

[illegible]	[illegible]	[illegible]
1998	62,300	238.3
1997	43,200	180.6
1996[5]	40,700	181.5
1995[5]	36,200	172.0
1994[5]	33,300	165.7
1993[5]	32,000	164.7
1992[5]	33,000	175.2
1991[5]	34,400	188.1
1990[5]	30,800	175.1
1989[4/5]	35,700	217.7
1988[5]	39,400	275.8
1987[5]	33,900	306.1
1986[5]	23,400	319.2
1985[4]	14,700	391.1

Source: U.S. Consumer Product Safety Commission (CPSC), Directorate for Epidemiology, Division of Hazard Analysis (EPHA), National Electronic Injury Surveillance System (NEISS), and the Directorate for Economic Analysis (EC), (January 1, 1985 through December 31, 1998).

[1] Annual Estimates are adjusted by factors to account for out of scope cases. Adjustment factors are .93 for 1986 through 1988, and .95 from 1990 through 1996 and .984 for 1997 onward.
[2] Occupation-related cases are not included.
[3] Risk calculations are per 10,000 ATVs in use. Calculations are based on 1998 ATV use tables developed by CPSC's Directorate for Economic Analysis, from sales and operability rates data provided by industry. Because reliable operability rates data are not available for three-wheel ATVs, risk of injury is given for four-wheel ATVs only.
[4] Estimates are based on CPSC Injury Surveys.
[5] Estimates for years 1986-1996 have been adjusted retrospectively to account for the1997 NEISS sampling frame update.