TAB B
EC Staff Memorandum

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

Memorandum

DATE: June 11, 2003

TO : Timothy P. Smith, ESHF, Project Manager, Petition CP 02-2

Through : Gregory B. Rodgers, Ph.D., Acting AED, EC GBR

FROM : Charles L. Smith, EC CLS

SUBJECT : Petition to Require Performance Standards for Auxiliary Hazard Lighting Systems on Snowmobiles (Petition CP 02-2)

By a submission dated February 8, 2002, Allen J. Lakosky and Michelle Robillard of Snow Glow, Inc., petitioned the U.S. Consumer Product Safety Commission to require that new snowmobiles be equipped with emergency lighting systems. Based on a design marketed by Snow Glow, the emergency lighting would be powered by batteries designed to operate in the cold environments in which snowmobiles are used. The lights are intended to warn approaching snowmobiles of the presence of stopped or disabled snowmobiles. The petitioner contends that the earlier warning provided by emergency lighting would reduce deaths and injuries resulting from snowmobile collisions. Standard headlights and taillights on snowmobiles currently being produced reportedly do not function when snowmobile engines are not running.

Manufacturers

There are four major manufacturers of snowmobiles which account for virtually all snowmobile sales in the U.S. These firms are Arctic Cat, Bombardier (Ski-Doo), Polaris, and Yamaha. In 2001 the EPA identified a few other small manufacturers whose combined sales were well under 1 percent of the total U.S. snowmobile market.[1] These small manufacturers reportedly specialize in high performance snowmobiles and other models with unique designs.

Annual Sales and Number in Use

Annual U.S. retail sales of snowmobiles have ranged from about 134,000 to 170,000 units over the past several years, according to estimates by the International Snowmobile Manufacturers Association (ISMA). Estimated sales for the 1995 - 2002 model years are shown in the table on the next page. The

[1] *Draft Regulatory Support Document: Control of Emissions from Unregulated Nonroad Engines,* Assessment and Standards division, Office of transportation and Air Quality, U.S. Environmental Protection Agency, September 2001.

total estimated value of retail sales during those years ranged from about $800 million to $1 billion.

Estimated U.S. Snowmobile Sales

Year	Unit Sales (thousands)	Retail Sales ($ millions)
2002	134.1	$817.3
2001	140.6	$894.4
2000	136.6	$821.0
1999	147.9	$882.8
1998	162.8	$975.1
1997	170.3	$1,005.8
1996	168.5	$905.2
1995	148.2	$791.3

Source: International Snowmobile Manufacturers Association

Laws in major snowmobiling states require registration of the vehicles, unless if they are only to be used on private property. Based on state registration data reported by ISMA, 1.65 million snowmobiles were in use in 2001. This reflects an increase from 1.2 million registered snowmobiles in 1995 reported by ISMA. The states with the largest numbers of registered snowmobiles in 2001 were Michigan (357,033), Minnesota (277,290), Wisconsin (214,331), New York (146,662), and Maine (90,000). These five states accounted for two-thirds of all registered snowmobiles.

Snowmobile Prices

In 2001 EPA staff drafted a document in support of a regulation to control emissions from recreational engines. According to that document, the prices of snowmobiles made by the four major manufacturers range from about $3,700 for some entry level models to around $12,000 for some high performance and luxury touring machines. The average price was in the $6,000 to $7,000 range; according to ISMA, this is close to the average suggested retail price of $5,800 for a new snowmobile sold in the 2002 model year.

Snowmobile Use

According to a July 2001 report drafted for the EPA by the consulting firm Arthur D. Little – Acurex Environmental, *Nonroad Recreational Vehicle Technologies and Costs*, snowmobiles are used an average of 57 hours per year over an expected product life of 9 years. ISMA estimates that the average snowmobiler rides a snowmobile about 960 miles per year. The association

estimates that as much as 80-90% of all snowmobile riding takes place on the more than 150,000 miles of signed and maintained snowmobile trails in the United States. These snowmobile trails have been developed by snowmobile clubs and associations, usually in cooperation with state and local governments.

Potential Costs to Consumers of the Proposed Lighting System

Snow Glow sells its emergency lighting system directly to consumers for $99.95 (plus $6 for shipping and handling). Similarly, according to comments submitted by ISMA, the Snow Glow system was offered as optional equipment by Polaris Industries in 2000 and 2001, at an additional cost to consumers of $99.68. According to Snow Glow, the lithium battery pack included with the system can power the front and rear lights for 60 hours. A replacement lithium battery pack is available from the company for $39.95. These batteries reportedly have a shelf life of 10 years at room temperature. If batteries are replaced on average every seven years (because of expected shelf life and use of the batteries to power the lighting system) the average present value of those additional future costs to consumers (discounted at 3%) would be about $27. Thus, the average present value of increased consumer outlays could total about $125.

The Directorate for Engineering Sciences (ES) states (in Tab E of the Petition Briefing Package) that the lead acid batteries used on models incorporating electric start features should be capable of meeting the low operating temperature range of –30° F specified by the petitioner. ES also notes that a review of one manufacturer's product line found that 12 of 34 models had electric starters (and, therefore, batteries) as standard features, and 16 other models offer electric starters as options. Therefore, for snowmobiles with electric starters, it is possible that an emergency lighting system required by a mandatory standard would result in snowmobile price increases of well under $100. However, the Polaris and Snow Glow pricing provides market data on the likely maximum potential cost of the equipment if it were mandated.

Potential Benefits of the Proposed Lighting System

An analysis of 2001 NEISS data by the Division of Hazard Analysis (EPHA) found that only 6% of all injuries (an estimated 960 injuries) associated with snowmobiles involved collisions with other snowmobiles, pedestrians, or unknown vehicles (Tab C of the petition briefing package). However, details such as whether other snowmobiles were shut off at the times of the incidents, and whether pedestrians were with stopped snowmobiles, are generally lacking. For these reasons, EPHA staff cannot determine the proportion of injuries estimated from NEISS data that would be addressed by auxiliary hazard lighting. EPHA also found 460 reported non-fatal incidents in the Injury or Potential Injury Incident (IPII) database between January 1992 and December 2001. Of these incidents, EPHA judged that three (or 0.7%) most likely followed the hazard pattern of interest (only one of which was known to have occurred at night), and

six others (or 1.3%) might have followed the hazard pattern, but lacked sufficient details to make a determination.

The Injury Cost Model found that from 1997 - 2001 there were an average estimated 35,760 medically treated injuries annually involving snowmobiles, including the estimated 13,640 emergency-room-treated injuries reported by EPHA staff. Analysis of 478 reports containing the terms "crash" or "hit" found that average injury costs were about $27,830. If we assume that 1-2 percent of medically attended injuries (*i.e.* about 350 to 700 injuries) involve scenarios for which hazard lighting systems might be effective, total injury costs addressable by the systems would be on the order of $10-20 million annually. Based on an average of 1.5 million snowmobiles in use during the years 1997 - 2001[2], estimated annual injury costs per vehicle ranged from about $7 - $13 per snowmobile. Based on an expected product life of 9 years, and a discount rate of 3 percent, the discounted present value of expected injury costs involving these scenarios over the life of a snowmobile may be in the range of about $51 - $101.

EPHA also states that from 1992 - 2001 there were 1,420 reported deaths associated with snowmobile accidents. Of these, about 10% (or about 14 deaths per year) involved scenarios associated with collisions with other snowmobiles, collisions with pedestrians, or other unspecified collisions, which could conceivably be addressed by hazard lighting.

While the Commission does not endorse any measure of the value of life, for analytic purposes staff assigns a statistical value of $5 million for each death.[3] Multiplying the annual estimate of about 14 deaths by the cost of $5 million per death yields an annual fatality cost of $70 million involving collision scenarios. An average of about 1.2 million snowmobiles may have been in use from 1992 – 2001. Therefore, fatality costs per unit are estimated to be nearly $60 annually from collisions with other snowmobiles, collisions with pedestrians, or other unspecified collisions ($70 million / 1.2 million units). Based on an expected product life of 9 years, and a discount rate of 3 percent, the discounted present value of expected deaths involving these scenarios over the life of a snowmobile is $446.

Thus, total hazard costs from collision scenarios that might conceivably be addressable by auxiliary hazard lighting are estimated to range from about $497 ($51 injury costs + $446 fatality costs) to about $547 ($101 injury costs + $446 fatality costs) per vehicle in use.

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[2] Assuming the numbers of snowmobiles in use from 1995 (1.2 million) to 2001 (1.65 million) increased by 75,000 per year, an average of 1.5 million were in use during 1997-2001.

[3] Viscusi, W. Kip, "The Value of Risks to Life and Health," Journal of Economic Literature, Vol. XXXI, December 1993, pp. 1912-1946. The $5 million estimate used by the staff is consistent with the general range of the statistical value of life published in the literature, which generally falls in the $3 million to $7 million range.

Summary of Information on Potential Costs and Benefits

Assuming the present value of the discounted costs to consumers of an auxiliary hazard lighting system amounts to about $125 per vehicle, as described above, requirements for auxiliary lighting would have to reduce the overall collision hazard costs by about 23% to 25% (*i.e.*, $125 / $547 to $125 / $497, the ratios of costs to potential collision benefits) for the benefits to be about equal to the costs. These reductions would be out of the average of about 14 deaths and 350 to 700 injuries annually that might involve collisions that could be addressed by hazard lighting. To reduce the hazard costs by this amount (and assuming the same proportions of deaths and injuries would be avoided by hazard lighting systems), about 3 to 3.5 deaths and about 90 to 160 injuries would have to be prevented annually.

TAB C
EPHA Staff Memorandum

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Memorandum

Date: September 16, 2002

TO : Tim Smith, ESHF, Project Manager Petition CP 02-2,
Auxiliary Hazard Lighting Systems for Snowmobiles

THROUGH: Susan Ahmed, PhD, Associate Executive Director
Directorate for Epidemiology
Russell Roegner, PhD, Director,
Division of Hazard Analysis

FROM : Natalie Marcy
George Rutherford
Division of Hazard Analysis

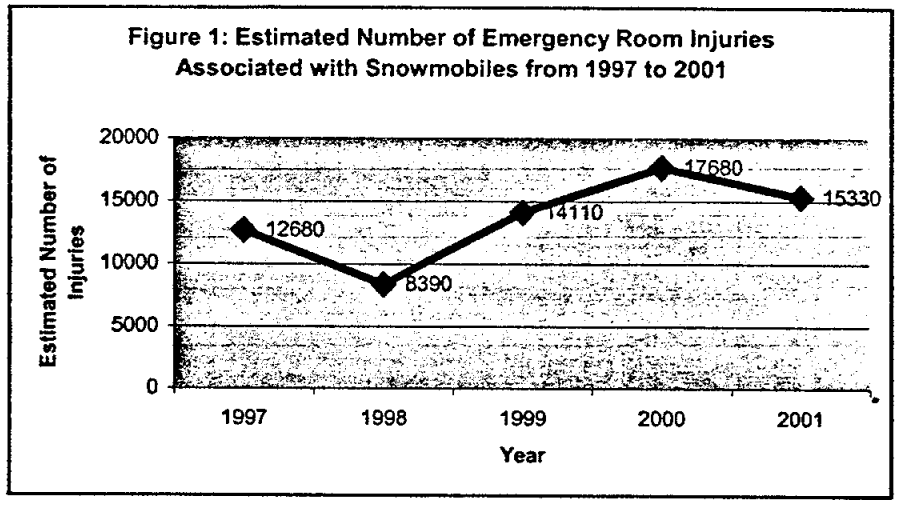
SUBJECT : Petition CP 02-2, Auxiliary Hazard Lighting Systems for Snowmobiles
Injury and Incident Data and Analysis of Petition Materials and Comments

The subject petition calls for mandatory standards for auxiliary hazard lighting systems for snowmobiles. Epidemiology staff reviewed the available injury and incident data in CPSC files and the petition materials and comments. This memo contains an overview of snowmobile related injuries, deaths and incidents, a compilation of data specifically relevant to the issues raised in the petition, and analysis of petition material.

The issue under investigation is a requested mandatory standard to require auxiliary hazard lighting systems on snowmobiles. When studying the possible impact of such a lighting system, there is a specific type of snowmobile incident of interest. This pattern involves a moving snowmobile striking a stopped snowmobile or person near a stopped snowmobile either on or next to a snowmobile trail.

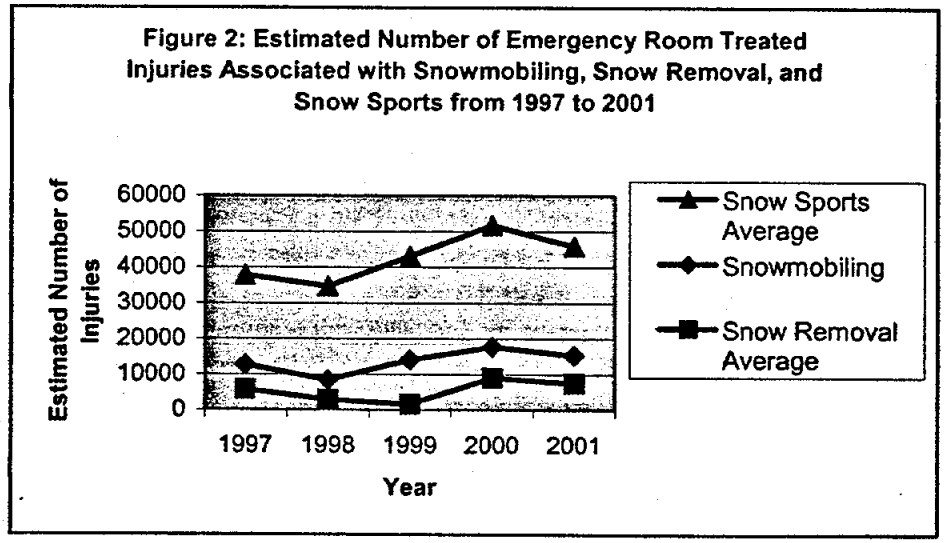
Emergency Room Treated Injuries

From January 1, 1997 through December 31, 2001, there was an estimated annual average of 13,640[1] snowmobile related injuries treated in hospital emergency rooms. The five-year estimated total is 68,210. The yearly trend is shown in Figure 1.



Source: U. S. Consumer Product Safety Commission/ EPHA, National Electronic Injury Surveillance System (NEISS), 1997-2001

Because of the year-to-year fluctuation in frequency, these annual estimates were compared with other snow related activities to investigate the possibility that the severity of winter had an effect on the number of injuries. Figure 2 shows the combined average injury trend of four snow related sports: skiing, snowboarding, snow tubing, and sledding. The combined average injury trend for snow throwers and shovels is also shown. When comparing those two trend lines with the snowmobile trend line, the fluctuations are very similar. This suggests that the severity of each winter, which would affect the frequency of all of these snow related activities, is a likely explanation for the change in injury frequency instead of any product specific change.

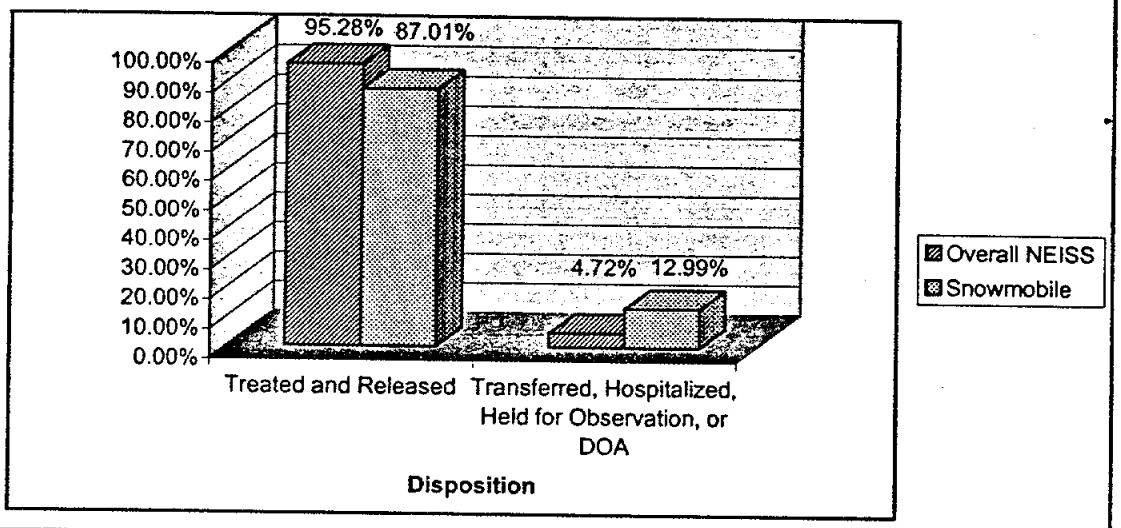


Source: U. S. Consumer Product Safety Commission/ EPHA, National Electronic Injury surveillance System (NEISS), 1997-2001

[1] All figures have been rounded to the nearest 10.

Figure 3 shows the disposition (level of treatment) each injury received at the emergency room. The percentage of treated and released patients, the least severe disposition, with snowmobile related injuries is much smaller than the average for NEISS as a whole. This indicates that snowmobile related injuries tend to be more severe since almost 13% of snowmobile related injuries required additional treatment versus 4.7% of all NEISS cases which require additional treatment.

Figure 3: Comparing Disposition of Snowmobile Injury Estimates versus Overall NEISS Estimates, 1997-2001



Source: U. S. Consumer Product Safety Commission/ EPHA, National Electronic Injury surveillance System (NEISS), 1997-2001

The majority of injuries occur to people between the ages of 25 and 64, accounting for 62.0% of the estimated injuries (42,320 out of 68,210). Fifteen to twenty-four year olds account for 26.7% of the estimated injuries. About 11.3% of the injuries were to children under the age of 14 or persons 65 or older. Males account for three out of four of all estimated snowmobile related injuries.

The leading patterns of injuries are

- as a result of a terrain hazard such as hitting a tree, fence, pole, falling into a ditch, etc. (24%)
- from the snowmobile rolling over, rider being thrown off, or from the rider falling off, otherwise not specified (33%)

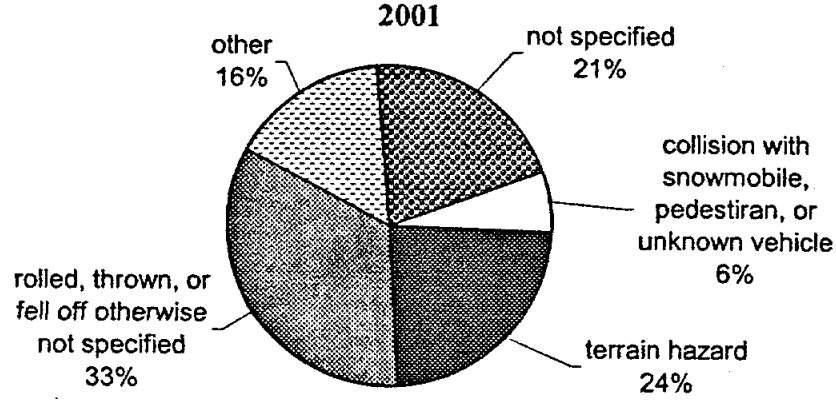
These two patterns together account for 57% of the injuries (Figure 4). Injuries from these two hazard areas are not likely to be addressed by the introduction of mandatory hazard lighting on snowmobiles nor are the incidents which are categorized as "other". Some of the injuries included in the other category are associated with collision with a motor vehicle or injuries due to working on the snowmobile not on or near a trail.

Patterns which might include cases which could be addressed by hazard lighting are:

- collision with snowmobile, pedestrian, or unknown vehicle
- not specified: unspecified collision or crash, unspecified accidents

The first hazard category represents about 6% of the estimated injuries. Unspecified collisions, crashes, or accidents account for 21%.

Figure 4: Estimated Number of Emergency Room Treated Injuries Associated with Snowmobiles by Type of Hazard, 2001



Source: U. S. Consumer Product Safety Commission/ EPHA,
National Electronic Injury surveillance System (NEISS), 2001

Figure 4, Data: Estimated Number of Emergency Room Treated Injuries Associated with Snowmobiles by Type of Hazard, 2001

Hazard type	Estimated injuries[1,2]	95% Confidence Interval	Percentage
collision with snowmobile, pedestrian, or unknown vehicle	960	(220, 1,690)	6%
terrain hazard	3,600	(1,450, 5,760)	24%
rolled, thrown, or fell off- otherwise not listed	5,140	(2,330, 7,960)	34%
other	2,450	(810, 4,090)	16%
not specified	3,180	(880, 5,480)	21%

[1] estimates rounded to the nearest 10
[2] sample size in parenthesis

NEISS surveillance data do not provide detail beyond a short description of the incident. Time of day is rarely mentioned nor are the lighting conditions. In the case of snowmobile versus snowmobile collisions, most descriptions do not state whether either of the vehicles were at rest or in motion. Information on the location of the vehicle, on or off a trail, on a frozen lake, etc., is

also usually not given. When a pedestrian was hit, few narratives mention if the person was a stopped snowmobiler. One collision case involved one snowmobile rear-ending another, which is one hazard pattern of interest. The proportion of injuries which might be addressed by hazard lighting, cannot be determined from the available data, but it would most likely be some portion of the 6% which were collisions.

Injury or Potential Injury Incident (IPII) Database (non-fatal)

There were 460 reported non-fatal incidents involving snowmobiles which occurred between January 1992 and December 2001.

There were three incidents which most likely follow the hazard pattern of interest. One of those cases occurred at night and the lighting conditions in the other two were not reported. There were six incidents which might follow this hazard pattern, but details are lacking.

Deaths

From January 1, 1992 through December 31, 2001, there were 1,420 deaths reported to the CPSC that were associated with snowmobiling. This count combines death certificates we have received with the deaths reported in IPII. Duplicate records were deleted.

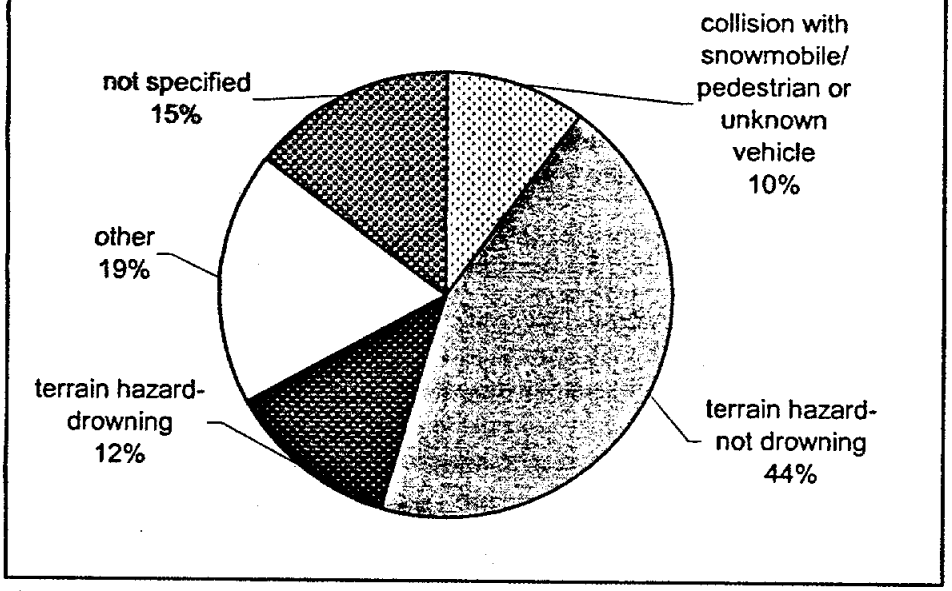
The hazard categories most likely to contain incidents which could be addressed by the introduction of mandatory hazard lighting are:

(1) snowmobile versus a stationary snowmobile or pedestrian collisions
(2) collision with an unknown vehicle

These two patterns together account for 10% of the deaths (Figure 5). The second group is included because we are unable to rule out these incidents with the available information. Fifty-six percent of the deaths involved terrain hazards such as striking a tree or pole, hitting a bump or ditch, or falling off an embankment. A large number of those deaths were due to falling into a body of water and drowning. Based on the fact that most incidents involve a terrain hazard, a majority of the unspecified deaths are believed to be of this type rather than collisions with stopped snowmobiles. Miscellaneous (other) deaths (death from avalanche, collision with motor vehicle, mechanical failure, and loss of control), which would not be addressed with mandatory hazard lighting, account for 19%.

From review of death narratives and source documents such as death certificates and newspaper articles, staff identified four cases of the hazard pattern of interest. There were eleven cases that may also be of the hazard pattern of interest, but lighting conditions and other details were not reported.

Figure 5: Reported Deaths Associated with Snowmobiles by Type of Hazard from 1992 to 2001



Source: U. S. Consumer Product Safety Commission/ EPHA,
Injury or Potential Injury Incident (IPII) File,
Death Certificate File, 1992-2001

Summary of Data Pertaining to the Petition

In Petition CP 02-2, the issue under investigation is a requested mandatory standard to require auxiliary hazard lighting systems on snowmobiles. When studying the possible impact of such a lighting system, there is a specific type of snowmobile incident of interest. This pattern involves a moving snowmobile striking a stopped snowmobile or a person near a stopped snowmobile either on or next to a snowmobile trail. More specifically, the incidents of interest occur at night or in some other type of reduced lighting conditions which make it difficult for the moving snowmobile to see the stopped snowmobile. When a snowmobile is described as being struck, especially in the rear or from behind, or being hit by another vehicle, the incident was considered to be in the hazard pattern of interest even if additional details were not provided. If the incident occurred during the day, it was not ruled out because in the event of fog, snow, cloudy weather, or shadows, hazard lighting might have been beneficial.[2]

In 2001, there were an estimated 15,330 snowmobile related injuries treated in hospital emergency rooms. Of those injuries, 6% (960) are of patterns which might include cases addressable by hazard lighting. An additional 21% (3,180) are unspecified injuries that could also contain relevant cases. Because of the short description of each incident, the precise proportion of injuries which might be addressed cannot be determined, but it is believed to be small.

From 1992 to 2001, there were 460 incident reports received of non-fatal snowmobile incidents. Of these incidents, there were three which most likely follow the hazard pattern of interest. One was at night and in the other two the lighting conditions were not clear. There were six more cases that might be of the pattern of interest.

From 1992 to 2001, there were 1,420 reported deaths associated with snowmobiles from IPII and the death certificate file.

- The hazard categories most likely to contain deaths that could potentially be addressed by hazard lighting represent 10% (140) of the deaths.
- Unspecified snowmobile related deaths account for 15% (210) and this group might also contain some potentially addressable deaths. The group contains many cases not of the hazard pattern of interest but we are unable to determine which ones are not of interest from the available information.
- There are four deaths, from the review of narratives and source documents, which involved someone on or near a stopped snowmobile who was struck by another snowmobile. There were an additional eleven deaths that are also likely to be of this hazard pattern, but there was not enough information in the reports to be certain.

A spreadsheet listing all of these relevant cases is attached.

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[2] The incidents in which alcohol was involved are also included. Most of the information given on the incidents concerns the injured/deceased who was stationary so even though the victim may have been intoxicated, the alcohol involvement is probably irrelevant.

Response to Snowmobile Petition Material

I. Snow Glow's Petition Materials

One set of data presented is the result of a survey of snowmobilers conducted on Snow Glow's website. There are two major problems with this survey.

1. The questions in the survey are leading, that is, they are asked in a way that the respondent is more likely to answer with the desired response.

2. Since the survey is conducted on Snow Glow's website, the pool of respondents is only those interested or aware of Snow Glow's products; the respondents are not a random sample of all snowmobilers.

The information gained through this survey is not representative of the population of snowmobilers.

Included in Snow Glow's material, there is a page from The Vermont Association of Snow Travelers' website. This page states that nine out of ten snowmobile fatalities occur after dark. But there is no source given for this figure.

The snowmobiling incidents submitted with the petition are from CPSC's Injury and Potential Injury Incident Data Base (IPII) and are discussed below.

Cases submitted with the petition

Snow Glow obtained from CPSC 729 IPII records from January 1995 to October 2001 of which they selected 38 incidents to submit as part of their petition. This group of cases is incorrectly identified as a "random sample". Of the 38 selected cases, 25 incidents, 65.8% are identified as addressable by the hazard lighting system proposed in this petition. This figure is not supported by the CPSC staff's evaluation of all the available data, including these cases identified by the Petitioner. Epidemiology staff found much smaller percentages: NEISS, 6%, and deaths, 10%, of cases which "could be" but are not necessarily of the hazard pattern addressed by auxiliary lighting.

II. International Snowmobile Manufacturers Association's (ISMA) Comments

ISMA points out the lack of data and statistical information included in Snow Glow's petition materials. However, in their analysis, they are quick to attribute snowmobile deaths and injuries to operator behavior without addressing the prevention of these deaths and injuries. It is too simplistic to write off a case as irrelevant because it involved alcohol or reported high speed. Blood alcohol levels are not above the legal limit in some cases, and in others, the deceased is the snowmobiler who was stationary and struck from behind. When reported excessive speed is involved, without knowing the exact speed of the moving snowmobile and the lighting conditions, it is difficult to determine if the

accident could have been avoided if the stopped snowmobile had auxiliary hazard lighting. While alcohol and speeding may be important factors, their presence in a scenario does not necessarily rule out a contribution of auxiliary hazard lighting in preventing the incident, injury, or death.

III. State Department of Natural Resources Snowmobile Reports

Wisconsin 2000-2001: None of the 26 deaths in this report are due to the hazard pattern of interest for this petition.

Minnesota 2000-2001: Two of the 28 deaths in this report are due to the hazard pattern of interest for this petition.

IV. Morbidity and Mortality Weekly Report (MMWR)

The two articles submitted as comments by ISMA to this snowmobile petition from MMWR are Injuries and Deaths Associated With Use of Snowmobiles- Maine, 1991-1996 and Injuries Associated With Use of Snowmobiles- New Hampshire, 1989-1992. In both these reports, the types of hazards associated with snowmobile fatalities are investigated. The deceased tend to be male with most of the incidents occurring in clear weather and half of the incidents in the dark. Collisions with another snowmobile are mentioned in the Maine report but the exact nature of these collisions is not specified. Therefore, these two reports are of limited relevance to the petition because they do not report the proportion of incidents occurring due to the hazard pattern of interest to this petition.

V. Various Studies Concerning Snowmobile Injuries and Fatalities

There are four additional studies concerning snowmobile injuries and fatalities submitted as comments to the petition.

- Snowmobile Fatalities: Aspects on Preventive Measures From a 25-year Review by Mats Ostrom, Anders Eriksson (Sweden)
- Injuries Associated with Snowmobiles, Alaska, 1993-1994 by Michael Landen, John Middaugh, Andrew Dannenberg
- Alcohol Involvement in Snowmobile Fatalities in Canada by DJ Beirness, DR Mayhew, HM Simpson
- The Association of Alcohol and Night Driving With Fatal Snowmobile Trauma: A Case-Control Study by Brian Rowe, Ruth Milner, Cathy Johnson, Gary Bota (Canada)

Three of these studies are foreign (two from Canada, one from Sweden), and one is from Alaska. Three of the studies concern fatalities and one concerns injuries and fatalities. Two look specifically at alcohol and one of those at alcohol and night driving. A high percentage of reported fatalities or injuries occured during darkness (Ostrom and Eriksson 63%, Rowe et al 81%). Collision with another vehicle accounted for a small percentage of the snowmobile fatalities: Ostrom and Eriksson 12%, Landen et al 19%, and Beirness et al 12%. These percentages are similar to the percentage of deaths in our data identified as possibly involving the hazard of interest, 10%. No other information is given on the nature of these collisions in the four studies, so we are unable to determine the proportion of snowmobile fatalities or injuries which occur as a result of a snowmobile striking a stopped snowmobile or a pedestrian in sub-optimal lighting conditions.

While containing interesting information about the involvement of alcohol and about collisions at night, these studies contain no information directly applicable to the need for auxiliary hazard lighting.

VI. Summary

1. The "survey" data submitted by Snow Glow are not representative of the snowmobile user population, because the study was done on the company's web site, and because the questions were worded to bias the respondent toward the desired answer.
2. The statement that 9 out of 10 snowmobile fatalities occur after dark does not provide a source for the information.
3. The CPSC data submitted are a selected group of incident reports intended to support the contention that the pattern of interest is common. The cases submitted are not representative of all of the CPSC data nor of the universe of snowmobile hazards. CPSC staff's analysis of NEISS and fatality data produce much smaller shares of the cases that "might" be of the hazard of interest.
4. The ISMA comments are correct in stating that Snow-Glow does not present data to support its petition; however, the ISMA comments are too quick to dismiss a case based on the alcohol use of the rider or the reported speed of the snowmobile.
5. State Department of Natural Resources Reports from Wisconsin and Minnesota contained reports of 54 deaths in 2000 and 2001. Two of these were of the hazard pattern of interest.
6. MMWR reports from Maine and New Hampshire did not contain enough detail about the sequence of the incidents to determine if they were relevant to the petition.
7. Four other studies submitted indicated that collisions between snowmobiles accounted for 12%, 19% and 12% of fatalities. The fourth study did not report the number of collisions.

Most Likely to be In the Petition Hazard Pattern

Snowmobiles

		docno	age	sex	dt_inj or dth	state	city	narr	additional information
1	death	G0010033A	20	1	12/15/99	IA	KNOX TWP	A MALE SNOWMOBILE OPERATOR, AGE 20, DIED AND TWO OTHER MEN, AGES 20 AND 34 WERE INJURED WHEN TWO SNOWMOBILES COLLIDED. APPARENTLY ONE OF THE SNOWMOBILES STOPPED AND THE OTHER ONE RAN INTO IT.	Source document attached
2	death	G9720391A	30	1	11/17/96	MN	WARROAD	IN THIS FATAL ACCIDENT, A 30-YEAR OLD MALE WAS STANDING BESIDE HIS SNOWMOBILE WHEN HE WAS STRUCK BY ANOTHER SNOWMOBILE DRIVEN BY A MEMBER OF HIS GROUP. ALCOHOL WAS INVOLVED.	On a country road at 10:20pm
3	death	G97203910	19	1	1/1/97	MN	WARROAD	(1) A 19-YEAR OLD MALE, WHO WAS STANDING ON A ROADWAY AFTER WORKING ON HIS SNOWMOBILE, WAS STRUCK BY ANOTHER SNOWMOBILE. THE PEDESTRIAN DIED AT THE SCENE.	On a roadway at 2:00am, same incident as below
4	death	G9720391P	19	1	1/1/97	MN	WARROAD	(2) A 19-YEAR OLD MALE, WHO HAD STRUCK A SNOWMOBILE STANDING NEAR A PARKED SNOWMOBILE, DIED FROM INJURIES SUSTAINED IN THE ACCIDENT.	Same incident as above (G97203910), this victim was the driver.
5	death	G9810329A	33	1	1/17/98	NE	POTTAWATTAMIE	A MALE SNOWMOBILE OPERATOR, DIED AND ANOTHER MAN, AGE 38, HOSPITALIZED FOR INJURIES RECEIVED WHEN STRUCK BY ONE OF SPEEDING MACHINES JUST AFTER THEY HAD STEPPED OFF THEIR SNOWMOBILE. WHILEWERE RACING IN THE OPEN FIELD.	Victim stopped, stepped off snowmobile at 2:40am. Struck by another snowmobile. They were racing before the incident
6	injury	G9310427B	33	1	1/1/93	WI	LANGLADE CO.	A 33 YEAR OLD MALE WAS INJURED WHEN HIS SNOWMOBILE STRUCK A PARKED SNOWMOBILE.	
7	injury	N9630324B	32	1	12/17/96	ME	FT. KENT	A 32YOM SNOWMOBILE OPERATOR WAS INJURED AFTER HE LEFT A TRAIL AND WAS STRUCK BY A SNOWMOBILE FROM BEHIND.	
8	injury	G9930172A	0	1	2/5/99	MN	LAKE VERMILION	(1) A MALE JUVENILE WAS INJURED WHEN HIS SNOWMOBILE STRUCK THE REAR OF ANOTHER SNOWMOBILE BEING OPERATED BY AN ADULT MALE WITH A JUVENILE FEMALE PASSENGER. THE PASSENGER ALSO WAS INJURED.	at 7:00pm

Suspected to be In the Petition Hazard Pattern

		docno	age	sex	dt_Inj or dth	state	city	narr	additional information
9	death	G9220197A	0	0	1/26/92	MI	WHITE LAKE	A SNOWMOBILE WAS KILLED WHEN STRUCK BY ANOTHER SNOWMOBILE.	
10	injury		14	1	2/11/01		4V162055 (hid)	REAR ENDED BY ANOTHER SNOWMOBILE/ HEAD INJURY,RT WRIST FX	NEISS wt: 66.8232
11	death	9227005066	27	1	2/8/92	MN	UNORG. TWSP.	VICTIM WAS HIT FROM THE REAR BY A SNOWMOBILE BEING THROWNAPPROXIMATELY 30 FEET - MULTIPLE TRAUMATIC INJURIES; SNOWMOBILEACCIDENT - AUTOPSY YES	
12	death	X9231419A	15	1	3/12/92	NY	WALWORTH	A 15 YEAR OLD MALE DIED WHEN RIDING HIS SNOWMOBILE AND HIT THE BACK OF ANOTHER SNOWMOBILE.	
13	death	9308007094	46	1	4/17/93	CO	RURAL GUNNISON	VICTIM BROAD-SIDED ON SNOW-MOBILE BY ANOTHER SNOW-MOBILE MASSIVE TRAUMATIC HEAD INJURIES; SNOW-MOBILE ACCIDENT - AUTOPSY NO	
14	death	9536007929	38	1	2/7/95	NY	ALBANY	WHILE RIDING A SNOWMOBILE, HE WAS STRUCK BY SNOWMOBILE - CEREBRAL CONTUSIONS & HEMORRHAGE TRAUMA - AUTOPSY YES	
15	death	9726000880	47	1	1/19/97	MI	ALGER	HIT BY SNOWMOBILE AND AND STRUCK IN RIGHT THORAX BY DRIVERS HELMET - MASSIVE TRAUMA TO RIGHT CHEST; FRACTURED LIVER - AUTOPSY YES	
16	death	0055045896	21	1	12/26/00	WI	SHAWANO	SNOWMOBILE DRIVER RAN INTO THE BACK OF ANOTHER SNOWMOBILE WHILE IT WAS STOPPED. RUPTURED ABDOMINAL AORTIC ARTERY, TRAUMA TO CHEST. AUTOPSY - NO	at 2:40 pm
17	death	0027037376	36	1	12/29/00	MN	AUSTIN	RUN INTO BY SNOWMOBILE AT NIGHT - LACERATED LEFT ATRIUM OF HEART, RUPTURED SPLEEN, LACERATED LIVER AND FRACTURED LEFT RIBS SUSTAINED FROM BLUNT TRAUMA FROM SNOWMOBILE - AUTOPSY YES	
18	death	0102000256	22	1	1/14/01	AK	TALKEETNA	SUBJECT STRUCK BY OTHER SNOWMACHINE - BLUNT IMPACT INJURIES; SNOWMACHINE CRASH, DECEDENT DRIVER - AUTOPSY NO	at 12:30pm
19	death	G0120433A	40	2	2/10/01	MI	NEWBERRY	A FEMALE, AGE 40, WAS KILLED WHEN HER SNOWMOBILE SLAMMED INTO THREE OTHER MACHINES FROM HER PARTY AFTER THEY'D STOPPED DUE TO MECHANICAL PROBLEMS.	Source document attached
20	death	G0130084A	43	1	2/10/01	MN	STRANDQUIST	A MALE, AGE 43, GOT OFF HIS SNOWMOBILE WHEN HE WAS HIT BY ANOTHER SNOWMOBILE AND DIED FOLLOWING THE ACCIDENT. A MALE, AGE 39, WAS HOSPITALIZED. SEVERAL PEOPLE WERE SNOWMOBILING AT THE TIME OF INCIDENT.	Source document attached
21	incident	N9710276D	0	0	1/18/97	ME	GREENVILLE	NO ONE WAS INJURED WHEN TWO SNOWMOBILES COLLIDED. BOTH SLEDS WERE DEMOLISHED.	Occurred at 3:00pm at the south end of the lake.

		docno	age	sex	dt_inj or dth	state	city	narr	additional information
22	Injury	N9220111A	21	2	1/16/92	PA	OIL CITY	A 21 YEAR OLD FEMALE PASSENGER OF A SNOWMOBILE WAS INJURED WHEN STRUCK BY A VEHICLE.	
23	Injury	G9510497A	21	1	2/8/95	MI	JAMESTOWN TWP	A 21 YEAR OLD MALE SNOWMOBILE OPERATOR BROKE HIS LEG WHEN HIT BY A CAR.	
24	Injury	N9630452A	0	1	3/8/96	ME	ELLSWORTH	A MALE SNOWMOBILE PASSENGER SUFFERED A BROKEN LEG WHEN HIT BY A CAR.	
25	Injury	G9710269A	18	1	12/29/96	SD	LAKE NORDEN	A MALE SNOWMOBILE OPERATOR, AGE 18, WAS HOSPITALIZED FOR SERIOUS INJURIES WHEN HE WAS STRUCK BY A PICKUP TRUCK.	
26	Injury	N9220181A	24	2	1/16/92	PA	CHERRY TREE TWP	A 24 YEAR OLD FEMALE PASSENGER AND 30 YEAR OLD MALE DRIVER OF A SNOWMOBILE HIT BY A MOTOR VEHICLE WERE BOTH SERIOUSLY INJURED.	

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Universal Information Services, Inc.

Snowmobile Accident Kills 1

BY CHRIS CLAYTON
WORLD-HERALD STAFF WRITER

A 20-year-old man died after a snowmobile accident Wednesday night near Avoca, Iowa.

Joel Holst of Avoca was pronounced dead at St. Joseph Hospital in Omaha. An autopsy will be performed on Holst to determine the exact cause of death.

Holst and two other Avoca-area men were riding a pair of snowmobiles around 8 p.m. in an open field about one-quarter mile east of the golf course in Avoca when the accident occurred. On one snowmobile were Holst and Brett Lippold, 20. Jeff Carroll, 34, was riding on the other vehicle. Carroll's snowmobile stalled and Holst's snowmobile hit it, injuring all three men, according to the Pottawattamie County Sheriff's Office.

"Apparently one of the snowmobiles stopped and the other one ran into it," said Don Rowland, Pottawattamie County's chief deputy.

While all three men were injured, the injuries did not appear life-threatening for any of them at the scene of the accident.

The men were taken by Avoca Rescue to Myrtue Memorial Hospital in Harlan. The victim was then flown by helicopter to St. Joseph, where he later died. Lippold and Carroll were treated at Myrtue for minor injuries and released.

Corunna woman killed in U.P. snowmobile crash

NEWBERRY – A 40-year-old Corunna mother of two was killed late Saturday morning in this Upper Peninsula community when her snowmobile slammed into three other machines from her party after they'd stopped due to mechanical problems, according to Michigan State Police.

Rita Jean Contos, a 1979 Corunna High School graduate, was transported to a Luce County hospital following the accident, where she was pronounced dead.

According to state police troopers, who were assisted at the scene by Garfield Township EMS, witnesses reported that blowing snow made visibility poor at the time of the crash.

Mrs. Contos, a legal secretary, was very active in community and school endeavors.

A complete obituary may be found on page 2 of today's newspaper.

G013-0084A

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FRONT PAGE

Snowmobile crash claims Warren man

FRONT PAGE

A rural Warren man is dead following a snowmobile accident Saturday near Strandquist.

On Feb. 10 at 4:11 p.m., the Marshall County Sheriff's Department responded to a report of a personal injury accident in East Park township, section 31.

Several people were snowmobiling on a minimum maintenance road east of Strandquist. Harold Joseph Feltman, 43, rural Warren, had stopped and got off his snowmobile when he was hit by another snowmobile traveling with the group.

Feltman and Tommy Jo Steinhauer, 39, rural Thief River Falls, were transported to Northwest Medical Center in Thief River Falls. Feltman was later transported to Altru Hospital in Grand Forks, N.D. where he died later that night. As of Tuesday morning, Steinhauer was listed in stable condition at Northwest Medical center.

Ambulances from Karlstad and Middle River and the Newfolden First Responders were dispatched to the scene.

The case is under investigation by the Marshall County Sheriff's Department and the Minnesota Highway Patrol.

TAB D
ESHF Staff Memorandum

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Memorandum

Date: June 10, 2003

TO : Timothy P. Smith, Project Manager, Snowmobile Lighting Petition

THROUGH: Hugh M. McLaurin, Associate Executive Director, Directorate for Engineering Sciences
Robert B. Ochsman, Director, Division of Human Factors, Directorate for Engineering Sciences

FROM : Hope E. Johnson, Engineering Psychologist, Division of Human Factors, Directorate for Engineering Sciences

SUBJECT : Snowmobile Lighting Petition

Introduction

Snow Glow, Inc. petitioned the Commission to mandate the use of an independently powered emergency lighting system for snowmobiles. Such a lighting system appears to be based on the hazard lights on automobiles that can be activated in an emergency situation to alert other drivers of a stopped or slow moving vehicle in or near the roadway. Snow Glow, Inc reports that snowmobiles are often used on unlighted trails at night, and that snowmobile lights only function when the engine is running. The petitioners contend this presents a hazardous situation in which oncoming snowmobile traffic cannot readily see a stationary, non-running snowmobile until the last minute, which may result in many accidents and near misses.

Petition Hazard Pattern

The hazard pattern of concern to the petitioners is a combination of all of the following conditions:

- A snowmobile is stopped on a trail or other reasonable path of travel.
- The snowmobile's engine is not running (i.e. lights are disabled).
- Visibility is reduced due to low sunlight, weather, or nighttime conditions.
- A second, moving snowmobile travels toward the stopped, non-running snowmobile.
- The rider of the moving snowmobile is not aware of the stopped, non-running snowmobile.

Snowmobile Laws

The bulk of U.S. snowmobile activity occurs in Alaska and 27 northern mainland "snow belt" states, where snowmobile operators frequent over 200,000 miles of maintained trails. Additionally, snowmobile operators are generally free to ride on public land, frozen lakes, and in

some states on roads or along road shoulders and ditches. A summary of snowmobile laws can be found in the appendix. Only four of these 28 states post speed limits on their maintained trails, but one of these, Wisconsin, only enforces speed limits after dark. The remaining states have no apparent laws on speed or define the limit as "reasonable and prudent", "safe and reasonable", or similar language that defines the speed of travel. Seven states require helmets for all snowmobile operators and passengers, while Minnesota, Ohio, and New Hampshire require helmets only for those under a certain age (18, 18, and 17 respectively). Staff from the Division of Human Factors (ESHF) found headlight and taillight requirements for seven states (Table 1), the majority of which require headlights to illuminate a minimum of 100 feet in front of the snowmobile. Since this is a worst-case scenario minimum requirement, ESHF staff will later use this distance as the minimum illumination distance of all headlights.

Table 1. Minimum[1] nighttime light distance requirements

State	Headlight Requirements
Illinois	500 ft
Maine	100 ft
New Jersey	100 ft head / 500 ft tail
New York	100 ft head / 500 ft tail
Ohio	100 ft head / 500 ft tail
Pennsylvania	100 ft head / 500 ft tail
Wisconsin	200 ft head / 500 ft tail

Review of Incident Data

Staff from the Directorate of Epidemiology (EPHA) reviewed snowmobile injuries and incidents in the Commission's databases. Over a five-year period (1997-2001), EPHA staff reports a yearly average of 13,640 snowmobile related injuries treated in emergency rooms. Of these, approximately 6% are collisions with other snowmobiles, pedestrians, or unspecified objects. EPHA staff also found 26 reported incidents as potentially falling into the hazard pattern of interest. Of these, five incidents are clearly at night when one snowmobile was not running.

The five[2] incidents ESHF staff believes are clearly associated with the hazard pattern of interest are generally missing information that would make it clear as to whether the petitioners' device would have prevented the accident. At first it appears that these incidents may have been prevented by auxiliary lighting, but numerous details that could assist in categorizing the

[1] Snowmobile Safety and Certification Committee (SSCC) standards exceed state government standard in all snowbelt states, therefore many snowmobiles may exceed these requirements.
[2] G0010033A, G9720391A, G9720391O, G9720391P, G9810329A, and G9310427B (G9720391O and G9720391P are the same incident with two reported injuries)

incidents are not available. ESHF staff analyzed these by hypothesizing about possible situations and has made assumptions about the behavior of those traveling in groups.

In three of the incidents, the riders were traveling as a group, and it is reasonable to assume that each was aware of the presence and general location of the rider who was struck. In G0010033A, four riders were riding a pair of snowmobiles in an open field when one snowmobile stalled and the second ran into it. In an open field, hazard lighting would be beneficial because the snowmobile could be seen from a distance without interference from trees or turns in the trails. However, these snowmobiles were riding together, and the time frame is unclear between the first snowmobile stalling and the second running into it. It is possible that the two were riding single-file, and when one stalled the second rider did not react quickly enough to avoid hitting it. Also, the accident may have occurred soon after the snowmobile stalled and the rider may have been focused on restarting the engine or may not have had enough time to turn on hazard lights. Without details on the timing and position of the riders before the accidents, the incident cannot be assessed as to the benefit of hazard lighting. Similarly, in G9810329A the snowmobiles were racing together in an open field. Although there were no terrain obstructions to obscure hazard lighting, the two riders were racing together, therefore they likely knew the approximate location of the other. They were traveling at high rates of speed, and so most likely the collision was a case of misjudgment, not lack of visibility. Additionally, the high rates of speed likely obtained in the "racing" may have made the incident unavoidable. In G9720391A, the victim was riding in a group and alcohol was involved in the incident. It is not clear if this is a case of the rider not seeing the stopped member of his or her group, but may simply be a case of poor judgement in speed, position and/or decreased reaction time and perception due to alcohol consumption.

Incidents G9720391O and G9720391P are the same incident resulting in two deaths. One snowmobile was stopped on a roadway and a second snowmobile ran into the stopped snowmobile. Since it is not indicated that the two were riding together, it is possible the second rider unexpectedly came upon the stopped snowmobile. It is not likely trees or other obstacles would have obscured visibility in the roadway, but it is possible hills or turns may have. Since the terrain is unknown, ESHF cannot determine if auxiliary lighting would have been visible. The first snowmobiler, however, was stopped and performing maintenance on his machine at 2:00 am; therefore, it is possible that he was using some source of light that the second snowmobile possibly could have seen. Due to lack of information on the terrain around the roadway and whether the stopped snowmobile was lit with a flashlight while being worked on, ESHF staff cannot determine if hazard lighting would have prevented it. It is likely, however, that hazard lighting would have alerted the second rider earlier than a flashlight and may have affected the outcome.

Finally, incident G9310427B does not contain enough information to make an assessment. There is no indication of the terrain, speed, or location. Without further information, ESHF staff cannot conclude that hazard lighting would have helped.

The remaining 21 incidents involved collisions between snowmobiles when either (1) the time of day and visibility conditions were not indicated (2) it was not reported if one snowmobile was stopped *and* not running or (3) one snowmobile was stopped and not running, but the time of day

indicated daylight with no indication of reduced visibility. For example, G9930172 states that one snowmobile was being "operated" by an adult male when the second one struck the rear of it. The word "operated" suggests that the snowmobile was running and possibly in motion. N9630324B states that a snowmobile operator was struck after he "left a trail", but does not indicate if he was riding off trail or if he was stopped off the trail. Similarly, many of the other incidents involve snowmobile collisions where both snowmobiles were running. Another example incident that meets some, but not all, of the pattern criteria is G0120433A. It involved a female snowmobile operator who "slammed" into a group of stopped members of her party. The wording implies a high rate of speed, the incident was in "late morning", no information on visibility was given, and they were traveling as a group so it is likely that she was aware of their presence.

From the NEISS data, it appears that 30% of all snowmobile injuries involve collisions. Yet less than 20% of these collision injuries involve pedestrians or other snowmobiles, and presumably, a smaller percentage of those involve night collisions with stopped snowmobiles. The remaining 80% of collision injuries involve terrain hazards such as trees, fences, animals, etc.

Behavioral Risk Factors in Snowmobile Riding

Victims in IPII reports identified as meeting the hazard pattern were primarily young adult males (ages 19 to 33). Sources report that the majority of snowmobile deaths (86-92%) are males (CDC 1995; CDC 1997; Öström and Eriksson, 2002). NEISS data are consistent with these percentages.

Since these incidents primarily appear to involve young males, typical behaviors of this group may contribute to incidents. Young males (late teens to mid-twenties) are often characterized as sensation seeking and high risk taking. Sensation seeking individuals[3] in general are impulsive, uninhibited, exhibitionists, and crave complex sensations and novel experiences (Zuckerman and Bone, 1972; Bradley and Wildman, 2002). Arnett (2000) found that during early adulthood (ages 18-25), risk taking behaviors are associated with identity development along with high levels of personal freedom combined with low levels of social responsibility. Sensation seekers, however, are considered intelligent[4] and generally understand the risk involved in their behaviors.

ESHF staff believes that many behaviors observed in automobile driving will generalize into operation of other high powered vehicles, such as snowmobiles. In automobiles, sensation seeking operators tend to drive faster than the posted speed limit, weave through traffic, race other drivers at stoplights, and behave in other higher risk manners (Jonah, Thiessen, and Au-Yeung, 2001). Given that modern snowmobiles can reach speeds of 120 mph[5], one would expect that some riders, especially young, male sensation seekers, will drive their snowmobiles at very high speeds and may attempt stunt maneuvers such as jumping and racing. These types of riders should be able to see snowmobiles and other hazards from a distance.

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[3] Laypersons may think of sensation seekers as "adrenaline junkies"

[4] Sensation seeking has been shown to be positively correlated with IQ (Raine, Reynolds, Venables, and Mednick, 2002)

[5] Blake, 2000

Another probable factor in snowmobile accidents is the experience of the driver. Although the minimum age for snowmobile riders varies by state, it appears to vary between 10 and 14 years of age for unsupervised riding. Therefore, when risk taking typically peaks in the early 20s, a snowmobile rider will have, at most, 10 years experience riding, but likely significantly less experience (Zuckerman, 1979, Bradley and Wildman, 2002). A lack of experience reduces the rider's skills such as accident avoidance, and he or she may be less aware of possible hazards whether lit or unlit. It is unclear from the data how likely it is for a snowmobile to be stopped in a trail, but an inexperienced rider would be less likely to expect it, look for it, and react appropriately.

Alcohol is known to affect perception and reaction time thereby increasing stopping distance. Since alcohol is often cited as one of the most significant factors in nighttime snowmobile accidents[6], it is reasonable to assume there will be some intoxicated snowmobile operators, particularly at night, when analyzing the potential benefit of hazard lighting. In automobiles, sensation seeking operators tend to consume alcohol before driving and feel they are less impaired after drinking, and it is reasonable to assume snowmobile riders will behave similarly (Jonah, Thiessen, and Au-Yeung, 2001). Since alcohol-impaired automobile drivers frequently collide with well-illuminated automobiles, the extent to which better illumination of snowmobiles will reduce alcohol-related collisions is unclear.

The petitioner's design for lighting resembles hazard lighting on automobiles, and ESHF staff believes the interpretation of hazard lighting will generalize to trails. Hazard lighting could be beneficial to inexperienced and sensation seeking snowmobile riders, as these riders may be less attentive to their surroundings. When approaching a stopped snowmobile, the lighting may give riders enough warning to slow down and proceed with caution, thereby reducing the chances of a collision. Since riders are likely overdriving their headlights even when following posted speed limits[7], hazard lighting may alert them to a disabled snowmobile before they otherwise would have seen it. Similarly with an intoxicated rider, hazard lighting may give the rider the extra warning he or she needs to avoid a collision with an innocent bystander.

Risk compensation[8] has been used for many years to argue against safety standards in automobiles, and there may be a fear that it will transfer to snowmobiles. Yet risk compensation is a very controversial theory, and it is unclear if it holds true in all situations (Geller, 2000). Essentially, risk compensation involves self-regulation of risk level, where a person's safety actions and risk level affect himself or herself only (Stetzer and Hofmann, 1996). The primary situation where there is an indication of vehicular risk compensation is with drivers who tend to drive faster with seat belts on than they do without. There is no indication that the theory of risk compensation will hold true with regards to snowmobile hazard lighting. ESHF staff does not believe there will be a compensation effect because the safety feature does not directly affect the person with the disabled snowmobile. Also, snowmobile riding behavior will likely follow traditional automobile "rules of the road," which include to pull to the side of the road when

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[6] up to 67% of all fatal accidents involve alcohol (CDC, 1995)

[7] see Stopping Distance, page 7

[8] Risk compensation theory assumes that people will react to environmental or personal changes toward safer conditions by compensating with riskier behaviors (Stetzer and Hofmann, 1996).

stopping and to turn on hazard lights. Therefore, ESHF staff feels that a snowmobile stopping in the middle of the road because they have hazard lighting is no more likely than a driver feeling that it was safe to stop or abandon an automobile in the middle of traffic simply because the hazard lights were turned on.

Hazard Pattern Likelihood

The petitioners maintain there is a need for all snowmobiles to have an auxiliary lighting system for use in low visibility conditions when a snowmobile is stopped. There are several reasons a snowmobile may be stopped and turned off in any visibility conditions such as:

- *Mechanical breakdown*
- *Desire to rest.* While one can rest sitting on an idling snowmobile, if one was to wish to rest without remaining seated on the snowmobile, it is essential that the motor is turned off for safety reasons. Also, many who rest while seated on the snowmobile may turn off the engine to reduce noise and save fuel.
- *Coordination and conversation with one or more other snowmobiles.* When traveling and coordinating trail riding with a group of other snowmobilers, the engine noise would likely[9] be too great to talk, therefore engines would need to be turned off.
- *Map reading*
- *Wildlife watching or sightseeing.* Snowmobilers may see an animal they wish to observe and immediately shut off the engine to avoid scaring the animal.

Snowmobile training courses and safety fliers teach that the snowmobilers should pull completely off the trail when stopping to remove themselves from the path of traffic. This is not always possible, for example in the case of a mechanical breakdown where the snowmobile simply stops running. The rider may then be stopped in the middle of the trail attempting to restart the machine, or may have to dismount and manually push the machine off the trail. Also, along narrow trails and road shoulders, it may be difficult for the operator or other members of a snowmobile party to pull completely off the trail. A third situation in which a snowmobiler may not be able to pull off out of the path of traffic is when snowmobiling off the trails, riding on lakes, or riding in fields. In the industry response to the petition, a Canadian study was cited that found 20% of snowmobile riding occurs off groomed trails[10]. This could be on frozen lakes or across open fields. In these cases, there are no fixed, maintained trails so the entire surface could be considered in the path of snowmobile traffic.

In summary, there are several likely scenarios in which a snowmobile may be stopped on a trail or otherwise in the path of traffic. Although it is unclear how often a rider may encounter a stopped snowmobile, it is highly likely that snowmobiles will need to stop occasionally in or near the trail. In these situations, auxiliary lighting could be employed to warn oncoming traffic of the stopped snowmobile. ESHF staff believes riders are likely to behave as they would in an automobile and would turn on the hazard lighting as soon as they realize they cannot clear the

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[9] Snowmobile idle sound level can vary from 40.3 to 70.2 dBA at 50 ft (Daily, 2002). For a rider sitting on a snowmobile approximately two feet from the engine, this is a noise exposure of 68 to 98 dBA. An average vacuum cleaner runs about 70 dBA, and a power lawnmower produces about 95 dBA.

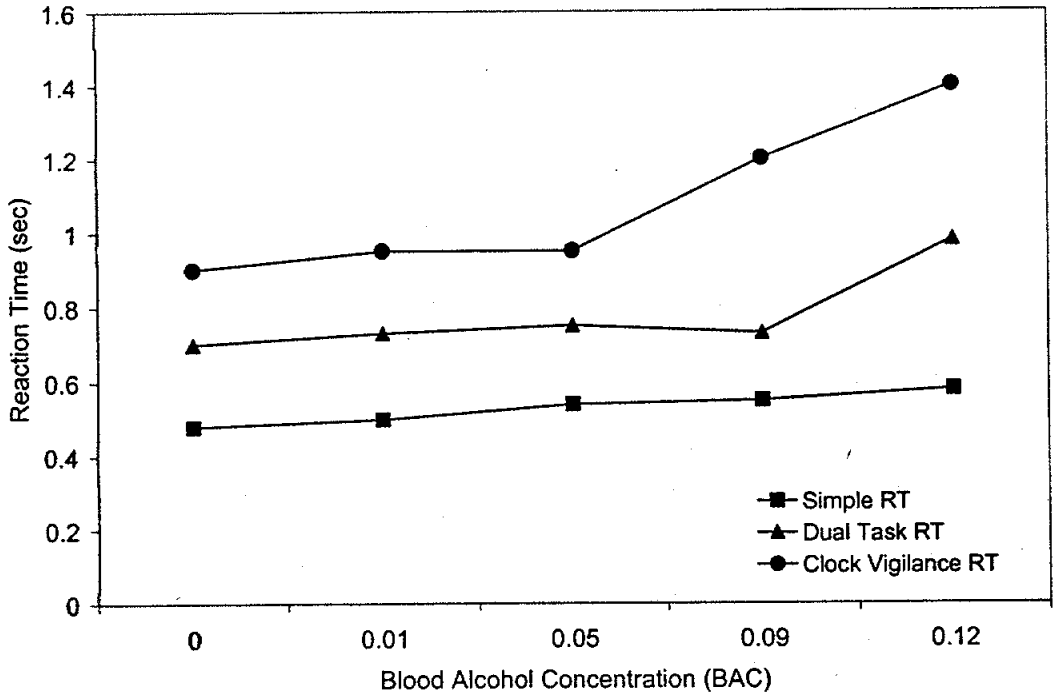
[10] Comment CH 02-1-4, supported by infrastructure paragraph on the Canadian Council of Snowmobile Organizations web page: http://www.ccso-ccom.ca/safety.htm

path of traffic quickly. Auxiliary lighting may also be useful when a snowmobile is pulled off the trail to warn other traffic to slow down because a dismounted rider may be nearby.

Stopping Distance

The concept of snowmobile stopping distance is essentially the same as for an automobile. That is, total stopping distance is a combination of both human reaction time and mechanical braking distance.[11] When traveling on a snowmobile, reaction time involves more than just seeing a potential hazard, but also identifying the hazard and the choices that must be made, such as braking, maneuvering, or ignoring the potential hazard. For this reason, ESHF feels complex reaction time, which includes the concept of simple reaction time, cognitive processing, and motor response, is the most accurate measure on reaction time in snowmobile hazard situations. Additionally, it is important to note that the majority of reaction time studies involve subjects who are expecting the stimulus. In snowmobile riding, it must be assumed that the operator is not expecting the potential hazard to appear, therefore ESHF staff believes reaction time results from automobile studies would most appropriate for snowmobile riders.

Figure 1. Effects of BAC on Reaction Time



The Australian Transport Safety Bureau (ATSB) studied the effects of fatigue and alcohol on several types of reaction time in truck drivers. Three of the reaction time measures are shown in

[11] Some argue that perception time should be taken into account too, but usually simple reaction time is used as "perception time." Simple reaction time is the time it takes to merely identify if something has been seen or not. Complex reaction time involves multiple factors such as the recognition of a target and a choice that must be made.

Figure 1 to demonstrate the affects of alcohol. Dual task reaction time was measured as the reaction time to an object changing color while the subject was involved in a tracking task. This would be similar to following a snowmobile trail and suddenly having an object appear in the trail. For the clock vigilance test, subjects watched a series of dots appear in a circular pattern on a computer screen. The subject had to react when one of the dots was skipped. This could be equated to a snowmobile rider cruising down a trail focusing intently on the trail and reacting to something out of the ordinary. Other measures of reaction time, such as logical reasoning reaction time, were also studied with reaction times shown to approach four seconds even during the non-intoxicated session (Williamson, Feyer, Friswell, and Finlay-Brown, 2000). Clearly this study shows that reaction time increased with alcohol level, yet the majority of the reaction time measures collected by the ATSB are relatively small and involve subjects who are expecting the stimulus to occur. Olson (1987) tested automobile drivers to measure their reaction times to typical road scenarios such as a road shoulder tire change and railway crossing. One particular test measured reaction time to an unexpected obstruction occurring over the crest of a hill, which yielded reaction times from 0.9 to 1.8 seconds. Olson (1987) recommends that when driving under normal states of alertness, reaction time should be assumed to be no less than 1.5 seconds. Therefore, ESHF staff used 1.5 seconds to estimate minimum reaction distance for total stopping distance calculations. Olson's data do not include tests at various blood alcohol concentrations, but reaction time can be assumed to be greater than 1.5 seconds.

Snowmobiles are both powered and braked by a single track, similar to a military tank's method of propulsion and braking, with two skis in the front to provide steering. This method of propulsion produces under-steer and reduces braking efficiency. Under-steer is the tendency of the vehicle to go straight or tangent to the curve, and results in the rider having to steer harder and lean into turns to direct the machine. Early tests of snowmobile turning distances show that it can take up to 200 feet to make a 90 degree turn and 50 to 75 ft to swerve five feet at 20 mph (Rabudeau, 1974). No current data could be found on steering, and it is possible that the past 25 years have lead to advances in snowmobile technology that may have reduced steering distances. Recent tests conducted by the Snowmobile Educational Safety Research Association (SESRA) measure the braking distance of snowmobiles in a variety of traction conditions (snow, ice, etc.) comparing studded and non-studded tracks (SESRA, 1998). ESHF staff combined these data with reaction time data to calculate estimated stopping distance for snowmobiles on a variety of surfaces (Table 2). Since studs are an after-market traction product used on less than two-thirds[12] of all snowmobiles, the results displayed in Table 2 were calculated from the non-studded track data, a worst case scenario. Stopping distances greater than the typical headlight requirement of 100 ft are shaded in the table. Avoidance maneuvers, such as swerving, cannot be accurately calculated from stopping distance data; therefore, the best data available is Rabudeau (1974) which showed that swerving distance approached 75 ft at 20 mph. It is reasonable to assume that swerving could easily exceed 100 ft with an increase in speed.

[12] "Studs Ban Repealed in Minnesota" from http://members.tripod.com/~Icetronauts/issues.htm

Table 2. Total Stopping Distance in Feet

mph	Fps	Ice	Powder Snow	Packed/Groomed Snow	Wet Snow	Hard Packed Snow
20	29.3	239.0	79.0	69.0	74.0	119.0
30	44.0	476.0	141.0	116.0	141.0	216.0
40	58.7	868.0	213.0	173.0	228.0	363.0
50	73.3	1310.0	300.0	245.0	320.0	535.0
60	88.0	1832.0	407.0	327.0	432.0	732.0
70	102.7	n/a	529.0	414.0	n/a	n/a

In states with a headlight requirement of 100 ft, a snowmobile operator would already be overdriving their headlights at 30 mph no matter the snow conditions, and would not be able to stop in time to avoid a collision. There is a high likelihood of operators driving 30 mph or faster, even at night, because snowmobiles are high-powered, recreational vehicles and so few states set speed limits on trails. Those that do[13] have set speed limits of either 45 or 50 mph. As with automobiles, snowmobile operators are likely to be traveling at or near the speed limit unless terrain restricts their speed. Therefore, it is reasonable to assume snowmobiles will be overdriving their headlights frequently, if not most of the time.

One of the petitioners' proposed requirements states that the flashing display of the hazard lighting must be visible from at least one-half mile (2640 ft) from the front and rear of the snowmobile. ESHF staff believes this distance is well within the stopping distance of a non-intoxicated snowmobile rider traveling up to 70 miles per hour on all trail conditions, with the possible exception of ice[14]. Because there is little data on decrements in on-road reaction time of intoxicated drivers, ESHF staff cannot be certain if this distance would be sufficient for the intoxicated driver.

Auxiliary Hazard Lighting Understanding, Visibility, and Conspicuity

The petition would require that the auxiliary hazard lighting system "emit yellow light from the front... and red from the rear" and "have a flashing display visible in unobstructed darkness from at least one half mile distance from the front and rear of the snowmobile." The hazard lights described are quite similar to hazard lighting on automobiles in both color and flashing, and it is likely that knowledge of the meaning of these hazard lights would transfer from road driving to snowmobile operating. ESHF staff believes that most snowmobile operators will fully understand that flashing red and yellow lights mean there is a disabled vehicle ahead, and they should use caution.

The petition requires the flashing display be "visible in darkness to a distance of one-half mile." There are, however, many factors involved in nighttime visibility that must be taken into account when defining "visible in darkness." One of these is simply "darkness" – it is unclear if this should be taken to mean a complete darkness or an average moonlit night. At night there is not sufficient light to stimulate the cones[15], which provide color vision. Night vision depends

[13] Idaho, Minnesota, New Hampshire, and Wisconsin-at night only
[14] Testing on ice was suspended at 60 mph.
[15] The eye contains both cones and rods, which are both light sensing receptors.

primarily on the rods, which are extremely sensitive to light intensity and motion, and are specialized for black and white vision in dim light conditions. In contrast, cones are specialized for color vision and sharpness of vision in bright conditions. (Sekuler and Blake, 1990). Therefore, bright hazard lighting would allow color perception and the greater contrast with the background would make it more visible in complete darkness than at dusk, dawn, during daylight, or on a full moon night with light reflecting off the white snow. Quantitative measurement of visibility, especially at night, is difficult, as it is a human perception that requires human subject testing to ensure the system is visible to a large percentage of the population. Because human vision capability varies and is known to diminish with age, ESHF staff cannot determine if the lights proposed in the petition would be visible to 100% of snowmobile operators. The requirement should include an objective performance standard with a reasonable method of measurement.

The wording of the petition ("emit yellow light from the front... and red from the rear") does not specify if the light should be visible from the side of the snowmobile. Although it is possible the hazard lighting system would reflect light on the white snow and ice, this may not be sufficient to increase visibility and should not be relied upon to protect the operator from a side-on collision.

Conspicuity is the result of characteristics that affect the likelihood an object will come to the attention of the observer (Olson, 1987). The clearest point of focus in the eye is a small portion in the center of the retina, with visual acuity decreasing rapidly as light patterns move away from the center. Detection, however, typically takes place in this peripheral area, then the eye quickly moves to focus on the new object. The eye is typically attracted to areas of greater information including signs, lights, people, flickering or flashing stimuli, and large or moving objects. However, the more of these types of information in the visual field, the less conspicuous any one piece of information is. When traveling on a snowmobile at night, the rider may often be on unlit trails in relatively unpopulated areas. Under these conditions, there is likely very little conspicuous or distracting information. The flashing of the proposed hazard lighting would be highly conspicuous in this situation. Yet other visibility conditions, such as daylight, dawn/dusk, rain, fog, and snow, will diminish conspicuity. During the day, hazard lighting may be much less conspicuous because the eyes will be processing other information, and the brightness of the hazard lights will not be as different from brightness of the surroundings. The majority[16] of snowmobile accidents occur in clear weather. For those that do travel in poor weather, rain, fog, and snow may severely affect visibility by scattering the light and obscuring objects in the distance. Thick fog can reduce visibility to almost zero feet, and even a very bright hazard light may not be able to pierce the fog.

According to Ayers, Schmidt, Steele, & Bayan (1995), studies into accident reports involving nighttime rear-end collisions of cars into trucks suggest that increasing conspicuity may not reduce the incidence of collisions, and that increasing the rate of visual expansion may be more effective. However, these findings cannot be indiscriminately applied to the hazard scenario associated with the petition. When making this statement, the authors of the cited article are referring to increases in conspicuity beyond that which is already visible to the viewer. The scenario described in the petition, however, involves stalled or otherwise disabled snowmobiles

[16] 84%, 84%, 79% (Öström and Eriksson, 2002, CDC, 1995, CDC 1997, respectively)

that lack any lighting, and making an object conspicuous in the first place is an important requirement if one is to avoid colliding with it. In fact, this same article states that conspicuity enhancement is unlikely to provide substantial benefits "[e]xcept for car-into-truck-rear accidents involving trucks stopped without any lights on at night," and that "car-into-truck-rear accidents where the truck is stopped without lights at night would be the main targets for conspicuity enhancement" (Ayers, et al., 1995). This is analogous to the scenario for which the petitioner has proposed the use of auxiliary hazard lighting. Moreover, Ayers, et al. explicitly suggest the use of flashing lights in scenarios similar to those involving disabled snowmobiles (Ayers, et al., 1995).

Summary

It is foreseeable and reasonable to expect that snowmobiles would be stopped in or around traffic patterns both during the day and at night. ESHF staff found that the auxiliary hazard lighting system proposed by the petitioners could greatly increase the visibility of stopped or disabled snowmobiles at night in unobstructed conditions. The visibility increase will be beneficial for all oncoming riders, especially those who lack experience or are participating in high-risk behaviors. Assuming the rider begins braking immediately, this visibility increase would be sufficient to allow most oncoming snowmobiles to come to a complete stop without hitting the disabled snowmobile. A more likely scenario is that the visibility increase would allow an oncoming rider enough time to slow down, so that he or she can maneuver around the stopped snowmobile or possibly lessen potential injury should a collision occur. The conspicuity of hazard lighting will be highest on dark nights and will be reduced by other lights, daylight, and poor visibility conditions, but snowmobilers may not travel as much during poor weather.

Although the hazard lighting system proposed would increase visibility of stopped snowmobiles, ESHF staff believes that it would have had little effect in the incidents that were reported to the CPSC, since such a small percentage involve collisions with other snowmobiles. NEISS data did not contain enough detail to estimate the affect of hazard lighting in reducing snowmobile collisions.

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APPENDIX

State	Miles of trails	Trail Speed Limit	Helmets Required?	Headlight Requirements	Notes
Alaska	*	none	no	*	
Arizona	500	*	*	*	laws vary by land management agency (I.e. BLM, NPS, etc)
California	1,800	none	no	*	California and Nevada share 1,800 miles of trails
Colorado	72,000	as posted	no	*	
Idaho	7,200	45 mph on trails	no	*	
Illinois	2,150	none	no	500 ft	
Indiana		none	no	*	
Iowa	4,920			*	could not find state laws
Maine	12,550	"reasonable and prudent"	no	100 ft	
Massachusetts	500	none	yes	*	
Michigan	6,000	"safe and reasonable"	yes	*	No off trail riding after dark
Minnesota	18,000	50 mph	yes <18	*	
Montana	3,772	none	no	*	
Nebraska	100	none	yes	*	
Nevada	see notes	none	no	*	California and Nevada share 1,800 miles of trails
New Hampshire	6,800	45 mph unless posted - or- "reasonable and prudent" for conditions	yes <17	*	
New Jersey	*	*	yes	100 ft head / 500 ft tail	
New York	15,000	none	yes	100 ft head / 500 ft tail	
North Dakota	2,000	"safe and prudent"	yes <18	*	
Ohio	146	none	yes	100 ft head / 500 ft tail	
Oregon	6,200	*	*	*	
Pennsylvania	2,000	none	yes	100 ft head / 500 ft tail	

South Dakota	1,052	none	no	*
Utah	1,038	*	*	*
Vermont	4,500	"reasonable and prudent"	no	light required
Washington	3,500		no	*
Wisconsin	25,000	50 mph at night only	no	200 ft head / 500 ft tail
Wyoming	2,500	none	no	*
summary	**199,228**	3 with limits	7 yes	
		1 with night limits	3 age restricted	
		17 without	4 no	
		6 not found	4 not found	

* Not Found

TAB E
ESEE Staff Memorandum

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Memorandum

Date: January 9, 2003

TO : Timothy Smith, Project Manager, Petition CP02-2,
Auxiliary Hazard Lighting Systems for Snowmobiles
Division of Human Factors

THROUGH: Hugh H. McLaurin, Associate Executive Director,
Directorate for Engineering Sciences
Erlinda M. Edwards, Director, Division of Electrical Engineering

FROM : Andrew M. Trotta, Electrical Engineer, Division of Electrical Engineering

SUBJECT : Technical Assessment of Electrical Issues Related to Auxiliary Lighting Systems for Snowmobiles

This memorandum discusses technical issues related to self-powered hazard lighting systems for snowmobiles.

In February 2002, Allen Lakosky and Michelle Robillard filed a petition with the U.S. Consumer Product Safety Commission (CPSC) Office of the Secretary requesting a mandatory rule to require that all new snowmobiles have an auxiliary lighting system with the following attributes:

- has an energy power source separate from the main power source of the snowmobile
- operates for a minimum of 40 hours at 0°F (-18°C) and functions in temperatures of -30°F (-34°C) or colder
- has an on-off switch that is separate from the main electrical system
- emits yellow light from the front of the snowmobile and red from the rear
- has a flashing display that is visible in unobstructed darkness for at least one-half mile distance, from the front and rear of the snowmobile.

According to the petition, docketed as CPSC Petition CP02-2, the intent of the proposed rule is to reduce the risk of injuries and death from snowmobile crashes by improving the visibility of snowmobiles that have stopped with their engine not running. The petitioners did not provide a rationale for each of the particular requirements. Snow Glow® Inc., a company owned by one of the petitioners, offers a product that reportedly meets these requirements. The product is a retrofit kit that consists of yellow and red super high brightness light emitting diodes (for front and back, respectively) powered by a replaceable lithium energy cell.

Snowmobiles are gasoline-engine driven transportation vehicles used for utility, recreation and competitions. The large majority of snowmobiles produced in the U.S. are made

by four manufacturers. According to the International Snowmobile Manufacturers Association (ISMA), which represents the four manufacturers, all snowmobiles made by the four major manufacturers and one additional manufacturer are certified by an independent testing laboratory under a certification program administered by the Snowmobile Safety Certification Committee (SSCC). Only manufacturers who are members of the SSCC are eligible to participate in the SSCC certification program; certified snowmobiles are marked with an SSCC label. Some of the applicable component/subsystem standards that are referenced by the SSCC are developed and maintained by the Society of Automotive Engineers (SAE) Snowmobile Committee. Requirements for snowmobile lamps, reflective devices and associated equipment for signaling are contained in SAE J292 (reaffirmed in May 1995) – *Snowmobile and Snowmobile Cutter Lamps, Reflective Devices and Associated Equipment* and in the following complementary standards:

SAE J68 – *Tests for Snowmobile Switching Devices and Components*
SAE J277 – *Maintenance of Design Voltage – Snowmobile Electrical Systems*
SAE J278 – *Snowmobile Stop Lamp*
SAE J279 – *Snowmobile Tail Lamp (Rear Position Lamp)*
SAE J280 – *Snowmobile Headlamps*
SAE J564 – *Headlamp Beam Switching*
SAE J575 – *Test Methods and Equipment for Lighting devices and Components, for use on Vehicles Less than 2032 mm in Overall Width*
SAE J592 – *Clearance, Side Marker, and Identification Lamps*
SAE J594 – *Reflex Reflectors*

There is also a standard for snowmobiles for children, SAE J1038, *Recommendations for Children 's Snowmobiles*, which includes lighting system requirements.

According to SAE J292, snowmobiles must have at least one white or amber headlamp, one red tail lamp, one red stop lamp, three red reflectors and two amber reflectors. As an industry practice, the headlights and taillights are automatically energized when the engine is running; SAE J292 requires that the taillight be lighted whenever the headlamp is energized. Children's models are not required to have a stop (brake) light. Red reflectors may only be used on the rear and rear side of the snowmobile. Side marker lamps (two red and two amber) are optional. SAE J292 also specifies the location of the lamps and reflectors and prohibits the installation of other lamps or reflectors that impair the effectiveness of the required equipment. According to paragraph 4.5 in SAE J292, the required lamps must be steady burning when energized. Use of the existing lamps required by SAE J292 in a flashing mode may simplify changes to many snowmobile models, but this may conflict with SAE J292 and would not meet the petitioner's requirements of an amber light on the front of the snowmobile.

One of the petitioner's proposed requirements is that the auxiliary lighting system must have a power source that is separate from the main power source of the snowmobile. Presumably, the intent of this requirement is to ensure that power is available for the auxiliary lighting system even while the engine is not running. Another requirement is that the on/off switch for the auxiliary lighting must be separate from the main electrical system. The necessity

of this requirement is not readily apparent. The only technical issues related to providing a separate switch relate to manufacturing changes.

A battery is the most feasible choice for a separate electrical power source. A battery is an electrochemical device that generates an electrical potential from a chemical reaction between its internal components (two electrodes [anode and cathode] and an electrolyte). There are basically two types of batteries: primary (non-rechargeable) and secondary (rechargeable). The chemical composition of the electrodes and the electrolyte determine the battery type. In a primary battery, the chemical reaction is irreversible so it must be replaced once its charge has been expended. A secondary battery is capable of being recharged by having its chemical process reversed through the imposition of an external power source. Primary batteries offer superior charge retention (storage or shelf life in the range of 3 to 5 years) as compared to 3 to 9 months for rechargeables, and higher energy density (about 7 times higher) as compared to rechargeable batteries. On the other hand, primary batteries are limited to one cycle of operation while a rechargeable battery can be used for at least 200 cycles for some chemistries such as lead acid batteries, while others can be used for as many as 500 cycles.[1]

The operating time of a battery depends largely on the power consumption of the connected load and the available capacity of the battery. Operating times decrease at low temperatures for both primary and secondary batteries. However, the reduction in operating times can be accounted for in the design of a lighting system to ensure 40 hours of operation at 0°F (-18°C). Two ways to do this are to minimize power consumption, such as using light emitting diodes (LEDs) as a light source instead of incandescent bulbs, and/or increasing the size/quantities of batteries. With the exception of zinc carbon batteries (general purpose, heavy duty non-rechargeable batteries), all common battery chemistries can operate at 0°F (-18°C), with most operating down to -20°F. Only lithium sulfur dioxide (primary) and lead acid (secondary) batteries will function at -30°F (-34°C).

Snowmobiles have a generator (referred to as a magneto) that provides electricity to the lights and the spark for the engine. The magneto is connected to the pull-start. Basic snowmobile models have pull-starts that are similar to those on lawn mowers. Other models have electric start, or offer it as an accessory, so they have a battery to power the starter motor. The battery is a lead acid (rechargeable) type. The magneto charges the battery while the engine is running. Even electric start models with batteries rely on the magneto to power the lights, so the engine must be running for the lights to be on. However, the starter battery could serve as a possible source for an auxiliary lighting system.

A review of one manufacturer's 2003 models showed that out of 34 models, there are 6 models that do not have electric start and do not offer it as an option, 16 models that offer electric start as an accessory and 12 models that offer it as a standard feature. The only children's model that they offer does not have an electric start option.

Incorporating an auxiliary lighting system into a snowmobile with a separate power source operating for the times and in the temperature ranges specified by the petitioner appears

[1] *Handbook of Batteries*, Second Edition, David Linden, McGraw-Hill, 1994.

to be technically feasible with existing technology. Because of the low operating temperatures specified by the petitioner, one of the most critical elements is the auxiliary lighting power source. Lead acid batteries of the type that are used for electric start models should be capable of meeting the petitioner's recommended low operating temperature range of -30°F (-34°C). In addition, lithium sulfur dioxide batteries are suitable to perform at this limit.

Even though some baseline snowmobile models have a battery, all models would need some level of re-design to accommodate the additional components required to meet the requirements proposed by the petitioners. Manufacturing and design considerations include routing of wires between the power source, switch and lights; incorporating a weather resistant on/off switch somewhere on the vehicle; locating the battery to make it accessible for replacement or maintenance and integrating the auxiliary lights so as not to interfere with the existing signal lights (as set forth in paragraph 4.1.3 of SAE J292). Although the SnowGlow® lighting system represents the availability of an off-the-shelf system, there are still issues of re-design and manufacturing process changes that would arise from integrating the new hardware into all models. However, these issues relate more to ease and cost of implementation rather than presenting a technological obstacle.

TAB F
List of Public Comments

Gdk 02

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

MEMORANDUM

DATE: July 1, 2002

TO : ESHF

Through: Todd A. Stevenson, Secretary, OS

FROM : Martha A. Kosh, OS

SUBJECT: Petition CP 02-2, Petition for Performance Standards for Auxiliary Hazard Lighting Systmes for Snowmobiles

ATTACHED ARE COMMENTS ON THE CH-02-1

COMMENT	DATE	SIGNED BY	AFFILIATION
CH 02-1-1	5/30/02	Al Lakosky Michelle Robillard	Snow Glow Inc. Manufacturers of Specialized Lighting Systems 312 2nd Ave. North Virginia, MN 55792
CH 02-1-2	6/24/02	Jay Swanson	27709 112th St Zimmerman, MN
CH 02-1-3	6/25/02	Consumer	Leon074@aol.com
CH 02-1-4	7/1/02	Ed Klim President	International Snowmobile Manufacturers Assoc. 1640 Haslett Road Suite 170 Haslett, MI 48840

TAB G
Cover Letter, Additional Information from Petitioner

SNOW GLOW® INC.

Manufacturers of Specialized Lighting Systems

312 2nd Ave North, Virginia, MN 55792 * 218-749-GLOW (4569) * fax 218-749-6909
snowglow@rangenet.com http://www.snowglow.com

October 10, 2002

Office of the Secretary
Consumer Products Safety Commission
Washington, DC 20207

Enclosed is a letter and copies of materials with which we are again requesting the Commission's review. At this time we are also requesting a special meeting with members of the Commission, representatives of the Snowmobile Manufacturers and representatives of Snow Glow, as described in the letter, to demonstrate with a variety of snowmobiles, some predictable situations where danger exists and a simple yet invaluable solution is necessary and obtainable.

The Contents of this packet include:

Letter from Snow Glow
Facts and Comments regarding the ISMA Papers
Statement of Purpose for ISMA, International Snowmobile Manufacturers Association
Statement of Purpose for ACSA, the American Council of Snowmobile Associations
Highlighted portions of ISMA Papers, Sections E, G, H, O, P
Hazard Light Evaluations from Polaris, Arctic Cat, Yamaha and Bombardier to Snow Glow
Night Riding Survey Responses May 16 – October 9, 2002

Again, thank you for your help and Consideration!

Sincerely,

Al Lakosky and Michelle Robillard